

# ADURAN

## IP 700 Series Phone Administrator Guide



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## Intended Audience

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## Conventions

**NOTE**

*Notes provide additional useful information.*

**CAUTION**

*Cautions signify information that could prevent service interruption or damage to equipment.*

**WARNING**

*Warnings provide information that could prevent injury or endangerment to human life.*

**Safety Instructions**

When using your telephone equipment, please follow these basic safety precautions to reduce the risk of fire, electrical shock, or personal injury:

1. Do not use this product near water, such as a bathtub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There is a remote risk of shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord, power supply, and batteries indicated in the manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for special disposal instructions.
5. The socket-outlet shall be installed near the equipment and shall be easily accessible.

**Save These Important Safety Instructions**

## FCC Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial or residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio frequencies.

## Product Safety and Electromagnetic Compatibility (EMC) Standards Table

P/N and Name	Standards
1200769E1#X IP 706 Series Phone	FCC Part 15, Class B
1200770E1#X IP 712 Series Phone	ICES-003 EN 55022 Class B EN 55024 EN 61000-3-2 EN 61000-3-3 UL/CUL 60950-1 IEC 60950-1 EN 60950-1

## Canadian Emissions Requirements

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled “Digital Apparatus,” ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Class B prescrites dans la norme sur le matériel brouilleur: “Appareils Numériques,” NMB-003 édictée par le ministre des Communications.

## General Information

The IP 706 and IP 712 phones are designed to operate in both Key Systems and private branch exchange (PBX) Systems. The IP 706 or IP 712 phone will be aware of its operating mode and respond appropriately. Certain features may or may not be offered in certain modes. This manual notes when certain features are only supported in one system. Refer to the specific feature for more information.

## Certified IP PBX Systems

The IP 700 Series phones have been officially tested and certified with the following IP PBX switches. Phone certification with other systems is ongoing and, therefore, this may not be the most recent list. Refer to ADTRAN's website at [www.adtran.com/phones](http://www.adtran.com/phones) for the latest information.

NetVanta 7100

## Service and Warranty

For information on the service and warranty of ADTRAN products, visit the ADTRAN website at <http://www.adtran.com/support>.

## Related Documentation

For more specific information regarding the IP 706 and IP 712 model phones, refer to ADTRAN's website at [www.adtran.com/phones](http://www.adtran.com/phones).

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## 1. INTRODUCTION

This guide explains how to administer the IP 706 and IP 712 phones from ADTRAN. ADTRAN IP phones are full-duplex, handsfree IP phones that offer business-class features, such as multiple call appearance, hold, transfer, and conferencing. The phones are simple to use while offering the latest advances in telephony systems. Updates and new features are downloaded to the phones without intervention or the need for phone replacement.

This guide contains the following sections:

- *Assembly and Installation* on page 14
- *Connecting the Power Source* on page 17
- *Managing IP 700 Series Phones* on page 19
- *Setting the Minimum Required Parameters* on page 20
- *Using the Administrator's Web Interface* on page 22
- *Automating Configuration* on page 35
- *Configuring Common Features* on page 41
- *Troubleshooting* on page 53

## 2. ASSEMBLY AND INSTALLATION

The following sections list the items included in your phone shipment and provide instructions for assembling the IP 706 and IP 712 phones. For questions dealing with missing parts or difficulty in assembly, contact your ADTRAN reseller.

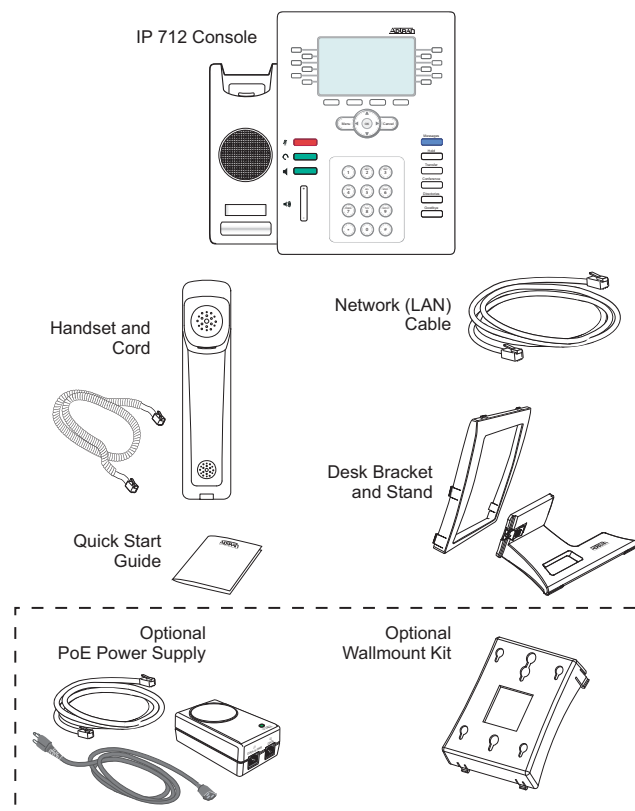
### Unpacking the Phone

As you carefully unpack your phone, be sure you have received each item in the following list:

- IP 706 or IP 712 phone console
- Audio handset
- 9-foot coiled handset cord
- Ethernet cable
- Adjustable desk stand and bracket
- Quick start guide

The following items are available separately:

- Wallmount kit, black (P/N 1200808E1#B)
- Single port Power over Ethernet (PoE) power supply, North America (P/N 1200809E1)
- Single port PoE power supply, International (P/N 1200809E#IN)



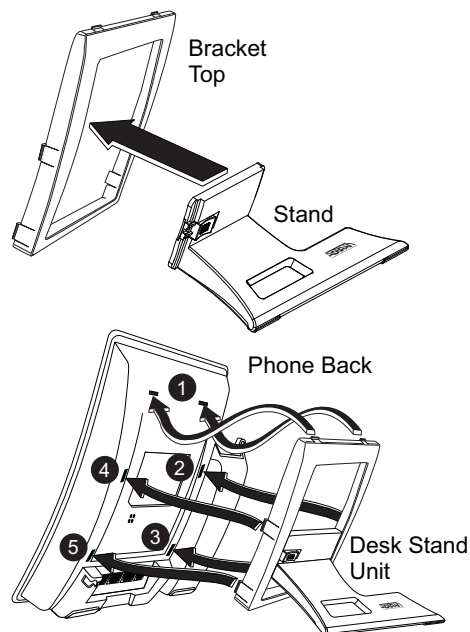
**Figure 1. Parts Included with Your IP Phone**

## Assembling the Phone

The IP 706 and IP 712 phones require minimal assembly. The parts that must be assembled include the desk stand and handset.

### Attaching the Desk Stand

1. Insert the stand through the bracket (rotating it so it fits through the opening).
2. Once through the bracket opening, rotate the stand back and pull it toward the bracket until seated.
3. Make sure the stand is properly oriented within the bracket as shown in Figure 2.
4. With the desk stand assembled, insert the top two tabs into the corresponding slots on the phone back.
5. Insert the remaining tabs in the order shown in Figure 2. Tabs 4 and 5 must be pressed inward to snap into the slots.
6. Once the desk stand is installed, use the sliding latch on the back to adjust the phone to the preferred tilt. To remove the desk stand for wall mounting purposes, simply push in the tabs along the side and lift the desk stand from the back of the phone.



**Figure 2. Assembling the Desk Stand**

The IP 706 and IP 712 phones may be wall mounted using the optional wallmount kit (P/N 1200808E1). For wall mounting instructions, refer to the *IP 700 Series Wallmount Kit Quick Start Guide* shipped with the kit.

### Connecting the Handset and Headset

1. Using the provided 9-foot coiled handset cord, insert one end into the jack in the bottom of the handset. Insert the other end into the jack on the back of the phone console labeled with the handset icon as shown in Figure 3. Place the handset on the handset cradle once installed.
2. Optional. Connect your headset to the jack in the back of the phone console labeled with the headset icon as shown in Figure 3. There are many types of headsets that can be used with the IP 706 or IP 712 phone. For a list of compatible headsets for the IP phones, refer to the ADTRAN website at [www.adtran.com/phones](http://www.adtran.com/phones). Once the headset is connected, the headset feature is ready to use.

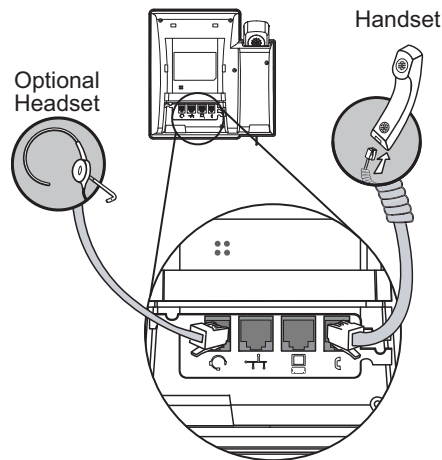


Figure 3. Connecting the Handset and Headset

### Headset Interface Pinout

The pinout for the optional headset is available in Table 1 below. Refer to ADTRAN’s Knowledgebase at <http://kb.adtran.com/article.asp?article=3059&p=2> for a list of wireless headsets that have been approved for use with ADTRAN IP 700 Series phones.

Table 1. Headset Interface Pinout

Pin	Function
1	TX-
2	RX-
3	RX+
4	TX+

### Headset Interface Off-hook Detection

Off-hook detection is achieved by providing battery across the TX+ and TX- pair and monitoring for loop current. You can simulate off-hook by connecting a 1.5 k resistor across these pins.



### 3. CONNECTING THE POWER SOURCE

Once the IP 706 and IP 712 phones have been assembled, it is necessary to connect the phones to a power source and the phone system. There are two options available to supply power to your IP phone. Use the Local Power Option if your wall jack is not PoE enabled. This option requires using the optional PoE power supply (P/N 1200809E1 or P/N 1200809E#IN). If your wall jack is PoE enabled, use the Inline Power Option which does not require the optional PoE power supply. Use the following steps to complete these tasks.

#### Local Power Option

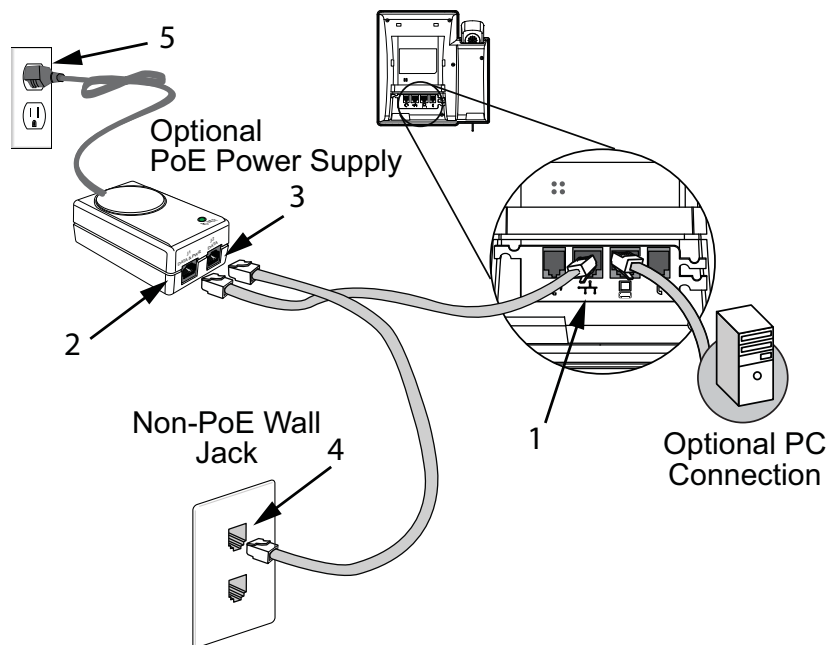


*Use the Local Power Option if your jack is NOT PoE enabled. If your jack is PoE enabled, a PoE power supply is not necessary.*

1. Connect one end of the included Ethernet cable to the Ethernet jack on the back of the phone.
2. Connect the remaining end to the **J1 DATA AND POWER** port on an appropriate PoE-enabled device.
3. Connect one end of a second Ethernet cable (not included) to the **J2 DATA** port on the PoE device.
4. Connect the remaining end of the second Ethernet cable (not included) to the non-PoE wall jack.
5. Connect the PoE device to the wall outlet.



*Network connectivity is provided through the wall jack, allowing an optional PC connection through the IP phone. If the IP phone is disconnected from either the network or power source, network connectivity from the phone to the attached PC will be lost.*



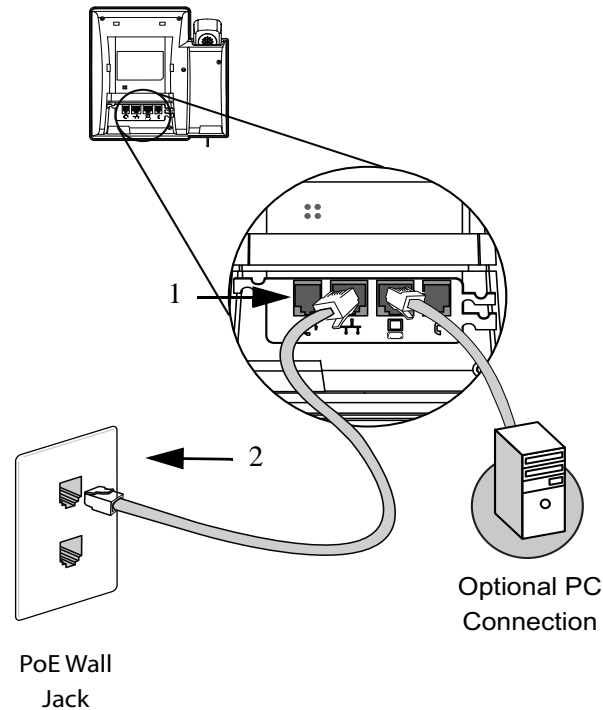
**Figure 4. Connecting to the Local Power Source**

## Inline Power Option

1. Connect one end of the included Ethernet cable to the Ethernet jack on the back of the phone.
2. Connect the remaining end of the Ethernet cable to the PoE wall jack.



*Network connectivity is provided through the PoE wall jack, allowing an optional PC connection through the IP phone.*



**Figure 5. Connecting to the Inline Power Source**

## Power Specifications

The IP 706 and IP 712 phones support the following powering specifications:

- IEEE 802.3af powering on signal or spare pairs independent of polarity
- Presents a valid IEEE 802.3af detection signature on both the signal and spare pairs
- Presents a Class 2 signature when a valid signature is required
- Draws less than 6.49 watts of power under normal operating conditions



*All powering over telecommunication wiring must be via UL-listed power supplies with outputs of 48 VDC  $\pm$  1 percent, 350 mA maximum.*

## 4. MANAGING IP 700 SERIES PHONES

There are multiple ways to manage ADTRAN IP 700 Series phones, each providing a different management approach. Choose the method that best suits your situation:

- Password-protected administrator's Web interface (Phone Manager) to view and change current settings on a single phone.
- Phone's user interface to view and modify current settings locally.
- Configuration files to automatically download parameters upon phone startup and update firmware.
- Dynamic Host Configuration Protocol (DHCP) to set a limited number of parameters including the location of configuration files.

Administrators can choose to administer phones individually using the Web interface (refer to *Using the Administrator's Web Interface* on page 22). Configuring a large number of phones can be accomplished via configuration files that automatically download at startup (refer to *Automating Configuration* on page 35). In certain situations, it may be necessary to set critical parameters manually using the phone's user interface (refer to *Locating the IP Address of the Phone* on page 22).

### Precedence of Parameter Sources

When building the set of phone parameters, it is possible to have multiple sources for the same parameter. Therefore, it is important to understand the order of precedence assigned to each source. The following list indicates this precedence:

1. Parameters manually entered using either the phone's user interface (**Phone Settings**) or via the administrator's Web interface (Phone Manager) have the highest priority and override parameters received from all other sources. Use **Restore Factory Defaults** on the phone or administrator's Web interface to clear all values that have been manually set using the **Phone Settings** menu.
2. Parameters received in a configuration file override those received from DHCP and defaults.
3. Parameters returned by DHCP (if it is enabled) override default settings.
4. Default parameters are used if no other source is available.

## 5. SETTING THE MINIMUM REQUIRED PARAMETERS

At a minimum, the following parameters must be specified for the IP 700 Series phones to operate on a network server. The parameters not included in the table can usually be left at their default values. However, for optimal operation, it is recommended that you review all parameters. For a complete list of parameters and additional information about these settings, refer to *Appendix A* on page 61.

**Table 2. Minimum Parameters Required for Operation**

Parameter	Description	Source
IP Address ( <b>IpAddress</b> )	Specifies the IP address for the phone.	DHCP Phone Interface Web Interface
Subnet Mask ( <b>SubNetMask</b> )	Indicates the network mask for the phone.	DHCP Phone Interface Web Interface
Gateway ( <b>i'm gett</b> )	Specifies the gateway address for the phone.	DHCP Phone Interface Web Interface
FTP or TFTP Server Address ( <b>TftpServers</b> or <b>FtpServers</b> )	Specifies either FTP or TFTP server. If a server is unavailable, the phone goes through the list until a working server is found. <b>FtpServers</b> and <b>TftpServers</b> may not both be specified as the non-null value used to determine the download method for configuration files.	DHCP Phone Interface Web Interface Option 157
DNS Server IP Address ( <b>DnsAddress</b> )	This must be configured unless numeric IP addresses are supplied for all parameters and fully qualified domain names (FQDNs) are not used.	DHCP Config File Phone Interface Web Interface
Proxy Server ( <b>ProxyServer.z.Address.y</b> )	An IP address, FQDN, or domain name for one or more proxy servers. If only a proxy domain name is specified, a Session Initiation Protocol (SIP) SRV record for the proxy must be configured in the DNS server and the <b>ProxyServer.z.Port.y</b> must be set to 0.	Config File Web Interface
Registrar Server ( <b>RegServer.z.Address.y</b> )	An IP address, FQDN, or domain name for one or more registrar servers. If only a proxy domain name is specified, a SIP SRV record for the registrar must be configured in the DNS server and the <b>RegServer.z.Port.y</b> must be set to 0.	Config File Web Interface
Line Key Configuration ( <b>Button.z.Type</b> , <b>Button.z.Line</b> , <b>Button.z.Label</b> )	At least one key must be configured as a line key to make or receive calls.	Config File Phone Interface Web Interface
User Name ( <b>Reg.x.AuthUserId</b> )	User name used to register a phone line with the registrar.	Config File Web Interface
Password ( <b>Reg.x.AuthPassword</b> )	Password used to register a phone line with the registrar.	Config File Web Interface

**Table 2. Minimum Parameters Required for Operation (Continued)**

Parameter	Description	Source
Server ( <b>Reg.x.Servers</b> )	Defines which pair of proxy and registrar servers should be used for this phone line.	Config File Web Interface
Enable Line ( <b>Reg.x.Enable</b> )	Enables or disables registration for a phone line.	Config File Web Interface
DID ( <b>Reg.x.Did</b> )	Specifies the direct inward dialing (DID) number. Certain proxies may require a DID number that is different from the user name for authentication. If DID is not set, the <b>Reg.x.AuthUserId</b> is used both for authentication and as the DID number.	Config File Web Interface
Realm ( <b>Reg.x.Realm</b> )	Identifies the calling realm of the phone line. This is used to decide which type of dial plan to apply to this phone line. Valid entries are: GE, PE, GP, or GI. General External (GE) - Used for general non-PBX-type outside lines. Lines of this type use the <b>DialPlanExternal</b> dial plan. Private External (PE) - Used for private (few users) non-PBX-type outside lines. Lines of this type use the <b>DialPlanExternal</b> dial plan. General PBX (GP) - Used for PBX call appearances that require an additional digit, such as 9 to be dialed to access outside numbers. Lines of this type use the <b>DialPlanPbx</b> dial plan. General Intercom (GI) - Used for intercom lines configured for key system operation. Lines of this type use the <b>DialPlanIntercom</b> dial plan.	Config File Web Interface
Dial Plan	If a dial plan is not specified, the default dial delay (3 seconds after the last digit is dialed) will be used before dialed digits are sent to the proxy. You should specify <b>DialPlanPbx</b> , <b>DialPlanIntercom</b> , and/or <b>DialPlanExternal</b> as required by your line configuration settings ( <b>Reg.x.Realm</b> ). GE and PE realms use <b>DialPlanExternal</b> , GI uses <b>DialPlanIntercom</b> , and GP uses <b>DialPlanPbx</b> .	Config File Web Interface
SNTP Server IP Address ( <b>SntpServer</b> )	Optional. Identifies the server from which to retrieve the time.	DHCP Config File Web Interface

## 6. USING THE ADMINISTRATOR'S WEB INTERFACE

This section explains how to access and use the administrator's Web interface (Phone Manager) to manage the IP phones.

In order to access the Phone Manager via a Web browser, you will first need to identify the IP address of the phone you want to manage. This is explained in *Locating the IP Address of the Phone* below. If the phone does not already have an IP address assigned to it, you will need to start with *Setting the Phone's IP Address* below.

### Locating the IP Address of the Phone

Before you can access the Web interface, you must locate your phone's IP address. To identify the phone's IP address, follow these steps:

1. Press **Menu**.
2. Press **1** for **Phone Status**.
3. Press **2** for **Network**.
4. Using the arrow keys, scroll to the **IP Address** option.
5. Record the IP address for later reference.
6. Press the **Exit** soft key until the idle screen appears.

### Setting the Phone's IP Address

If you are unable to locate the phone's IP address, it must be set manually from the phone. Follow these steps to manually set the phone's IP address:

1. Press **Menu**.
2. Press **2** for **Phone Settings**.
3. Press **6** for **Network**.
4. Enter the password for the individual phone account and press **OK**.



*The default password is 1234.*

5. Press **2** for **IP Address**. Enter the IP address using the keypad and press **OK**.
6. Continue this process of entering the appropriate values for each of the following:
  - **3** for **Subnet Mask**
  - **4** for **Gateway**
  - **5** for **DNS 1**
  - **7** for **FTP Server** or **8** for **TFTP Server**. Only one of these should be set for downloading configuration files.
7. Press the **Exit** soft key until the idle screen appears.

## Accessing the Administrator's Web Interface

Follow these steps to access the administrator's **Phone Manager**:

1. Enter this command into the address bar of your browser window:

**http://<ip address>/admin**

where <ip address> is the IP address assigned to the phone.

2. Enter the login name and password.



*The default administrator login user name is **admin** and the default password is **password**.*

Some networks require browsers to use a proxy server to access the Internet. If you have problems accessing the phone's Web interface, it may be because the browser uses a proxy server. To bypass the proxy server when accessing the phone's Web interface, follow these steps:

1. Open Microsoft® Internet Explorer.
2. From the **Tools** drop-down menu, select **Internet Options**.
3. Select the **Connections** tab and select **LAN Settings**.
4. If **Use a proxy server for your LAN** is not selected and you are not using a proxy server, you can quit at this step. If **Use a proxy server for your LAN** is selected, select **Advanced**.
5. In the **Exceptions** box, enter the IP address of your phone.
6. Select **OK** to close all of the dialogue boxes.

If you plan to access a large number of phones directly by IP address, you may want to consider turning the proxy off altogether.

## Navigating the Phone Manager

Once the minimum required parameters are set, you can access numerous settings and configurations via the administrator's Phone Manager. Phone Manager makes administering and configuring the IP phones easy and quick.



*In many cases, once settings have been changed and saved, you will need to reset the phone before the changes take effect. This can be done either from the phone or the Web interface. Refer to **Resetting the Phone** on page 58.*

From the Phone Manager main menu, you can access several menus for managing the IP phone. Each menu is explained in the following sections:

- **Phone Summary** on page 25
- **Network Settings** on page 26
- **SIP Settings** on page 27
- **Line Settings** on page 28
- **Phone Settings** on page 29
- **Line Key Settings** on page 30
- **Time Settings** on page 31
- **SPRE Settings** on page 32
- **Dial Plan Settings** on page 33
- **Reset Phone** on page 34



### Phone Summary

From the **Phone Summary** menu, you can view model number, part number, serial number, firmware version, MAC address, hardware version, Ethernet status, and line status.

**ADTRAN** IP712 Phone Manager

**Phone Summary**

Model Number	IP712
Part Number	1200770E1#W
Serial Number	00A0C8009A29
Firmware Version	0.2.8
Boot Firmware Version	0.2.4
Config File Version	
MAC Address	00-A0-C8-00-9A-29
Hardware Version	K01M03L03N02

[Ethernet Status](#)

	LAN PORT	PC PORT
Link	Up	Up
Negotiate	Auto	Auto
Speed	100Mbps	100Mbps
Duplex	Full	Full

[Line Status](#)

Line	Configured	Status
1	Yes	Registered
2	Yes	Registered
3	No	
4	No	
5	No	
6	No	
7	No	
8	No	
9	No	
10	No	
11	No	
12	No	

**Figure 6. Phone Summary Menu**

## Network Settings

From the **Network Settings** menu, you can change the IP address, gateway, and subnet mask. This menu also allows you to enable and set DHCP, duplex negotiation speeds, virtual local area network (VLAN) IDs, HyperText Transfer Protocol (HTTP) server, and Internet Control Message Protocol Address Resolution Protocol (ICMP ARP) timeout.

**ADTRAN IP712 Phone Manager**

**Network Settings**

Active Settings	Manual Settings
DHCP (on)	on
IP Address (172.22.24.39)	
Gateway (172.22.72.254)	
Subnet Mask (255.255.228.0)	
Lease Duration (345600)	
Expires (2007 05 18 10:54 am)	
DNS 1 (151.192.0.38)	
DNS 2 (151.198.0.29)	
FTP 1 (10.17.152.221)	10.17.132.201
FTP 2 (0)	
TFTP 1 (0)	
TFTP 2 (0)	
STUN Server (0)	
Ethernet 1 (Auto, 100Mbps, Full)	
Ethernet 2 (on, Auto, 100Mbps, Full)	
Layer2 Tagging (on)	
VLAN ID (0)	0
Layer2 Audio (5)	
Layer2 Signaling (3)	
DSCP Audio (46)	
DSCP Signaling (26)	
Syslog Info (0.0.0.0:0,255,2,21,0)	
HttpServerEnable (TRUE)	
HttpServerPort (80)	
IcmpArpTimeout (0)	

Clear Manual Settings      Save Manual Settings

**Figure 7. Network Settings Menu**

To remove the configured values (shown in parentheses after the setting name), select **Clear Manual Settings**.

To change the current configured values, follow these steps:

1. Enter a new value in the corresponding field.
2. Select **Save Manual Settings**.

## SIP Settings

From the **SIP Settings** menu, you can change the SIP server address, port, connection retries, feature expiration, call timer, message waiting indicator (MWI), hold signal, and other miscellaneous SIP settings. After selecting a server number, the current settings are displayed in parentheses after the setting name.



**ADTRAN IP712 Phone Manager**

**SIP Settings**

Active Settings	Manual Settings
Select Server :	0
ProxyServer.Address.1 (10.17.252.244)	<input type="text"/>
ProxyServer.Address.2 ()	<input type="text"/>
ProxyServer.Port.1 (5060)	<input type="text"/>
ProxyServer.Port.2 (5060)	<input type="text"/>
RegServer.Address.1 (10.17.252.244)	<input type="text"/>
RegServer.Address.2 ()	<input type="text"/>
RegServer.Port.1 (5060)	<input type="text"/>
RegServer.Port.2 (5060)	<input type="text"/>
RegServerExpires.1 (300)	<input type="text"/>
OutboundProxy.Address.1 ()	<input type="text"/>
OutboundProxy.Address.2 ()	<input type="text"/>
OutboundProxyPort1 (5060)	<input type="text"/>
OutboundProxyPort2 (5060)	<input type="text"/>
-----	
ProxyServerMaxRetry (2)	<input type="text"/>
RegServerMaxRetry (2)	<input type="text"/>
OutboundProxyServerMaxRetry (3)	<input type="text"/>
FeatureExpires (3600)	<input type="text"/>
GroupCallPickupTimer (1)	<input type="text"/>
MwiExpires (3600)	<input type="text"/>
MwiLine ()	<input type="text"/>
MwiSubscribeUri ()	<input type="text"/>
MwiPrimary (0)	<input type="text"/>
MwiSecondary ()	<input type="text"/>
HoldSignal (3264)	<input type="text"/>
RtpBase (3000)	<input type="text"/>
Sip.KeepAlive (FALSE)	<input type="text"/>
Sip.UdpPort (5060)	<input type="text"/>
Sip.TcpPort (5060)	<input type="text"/>
Sip.Transport (UDP)	<input type="text"/>
Sip.TimerBFH (5)	<input type="text"/>
<input type="button" value="Clear Manual Settings"/>	<input type="button" value="Save Manual Settings"/>

You must reset the phone before the saved settings will take effect.

**Figure 8. SIP Settings Menu**

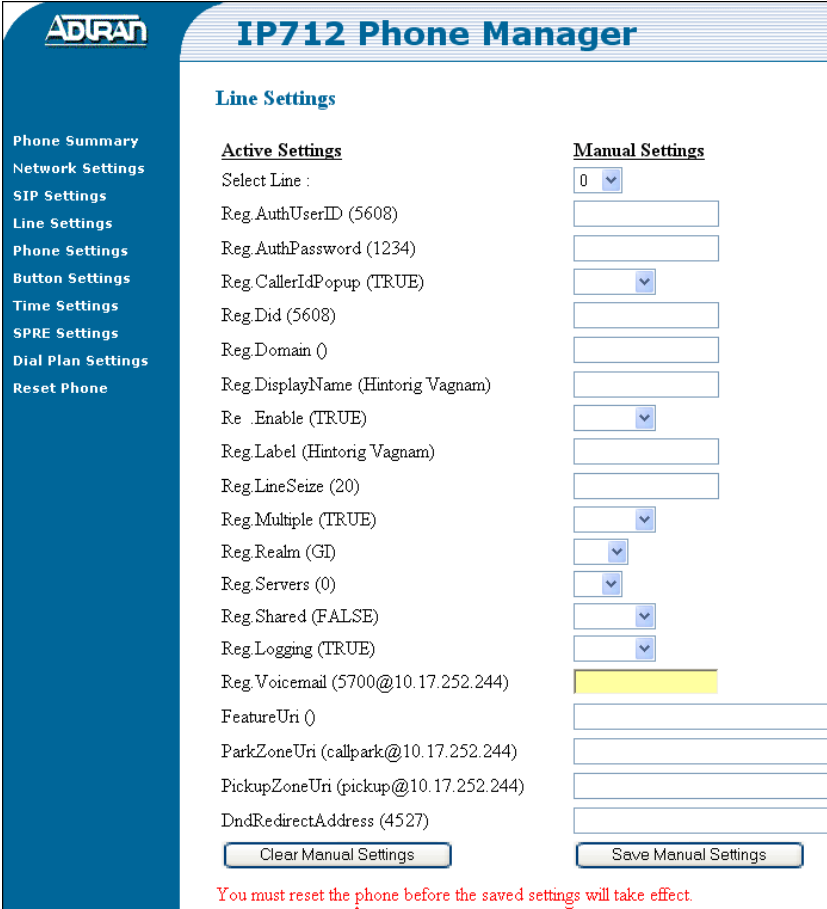
To remove the configured values (shown in parentheses after the setting name), select **Clear Manual Settings**.

To change the current configured values, follow these steps:

1. Enter a new value in the corresponding field.
2. Select **Save Manual Settings**.

## Line Settings

From the **Line Settings** menu, you can configure or change the line key settings. This is a convenient method for resetting passwords, changing display names, and assigning locations for voicemail, park zones, and pickup zones. After selecting a line number, the current settings are displayed in parentheses after the setting name.



**ADTRAN** IP712 Phone Manager

**Line Settings**

Active Settings

Select Line : 0

Reg.AuthUserID (5608)

Reg.AuthPassword (1234)

Reg.CallerIdPopup (TRUE)

Reg.Did (5608)

Reg.Domain ()

Reg.DisplayName (Hintorig Vagnam)

Re.Enable (TRUE)

Reg.Label (Hintorig Vagnam)

Reg.LineSeize (20)

Reg.Multiple (TRUE)

Reg.Realm (GI)

Reg.Servers (0)

Reg.Shared (FALSE)

Reg.Logging (TRUE)

Reg.Voicemail (5700@10.17.252.244)

FeatureUri ()

ParkZoneUri (callpark@10.17.252.244)

PickupZoneUri (pickup@10.17.252.244)

DndRedirectAddress (4527)

Clear Manual Settings

Save Manual Settings

You must reset the phone before the saved settings will take effect.

**Figure 9. Line Settings Menu**

To remove the configured values (shown in parentheses after the setting name), select **Clear Manual Settings**.

To change the current configured values, follow these steps:

1. Enter a new value in the corresponding field.
2. Select **Save Manual Settings**.

## Phone Settings

From the **Phone Settings** menu, you can review and/or change all settings that pertain to the phone. Some of these features include the display lighting, enabling the headset and handsfree auto answer intercom (HFAAI), automatic connection settings for voicemail, MWI cadence, ring volume, ring type, name of system phone book, and settings related to CODECs.

**ADTRAN IP712 Phone Manager**

**Phone Settings**

**Active Settings**

AlertSelect (Select upon audible alert) [dropdown]

Backlight (120) [input]

CallerIdPopup (TRUE) [dropdown]

DndBusyReject (FALSE) [dropdown]

DndDelay (10) [input]

DndRedirected (FALSE) [dropdown]

DosGuardTimer (15) [input]

DtmfLevels (-13) [dropdown]

ExtensionLabel () [input]

Low Middle Grey Level (48) [input] (valid range : 0 to 63)

High Middle Grey Level (56) [input] (valid range : 0 to 63)

HeadsetCtl (TRUE) [dropdown]

Handsfree Beep (TRUE) [dropdown]

HFAAI (TRUE) [dropdown]

HoldReminder (0) [input]

IdleGroupPreference () [dropdown]

IdleSelectOrder (1) [input]

IntercomGroupPreference () [dropdown]

Language (English) [dropdown]

LineSeizeFailure (TRUE) [dropdown]

MaxFitter (50) [input]

MessagesCallback (5700P5608#1234#) [input]

MwiCadence (1) [dropdown]

PhoneLabel (Victoria's Phone) [input] **Victoria's Phone**

PopUpHold (3) [dropdown]

PreselectAnswer (TRUE) [dropdown]

PreselectOriginate (TRUE) [dropdown]

PostselectAutohold (TRUE) [dropdown]

UserConfirmTimer (1000) [input]

Ring Volume (1) [dropdown]

External Ring (External) [dropdown]

Internal Ring (RING 1) [dropdown]

SystemPhonebook (sysPhonebook.csv) [input] **sysPhonebook.csv**

**Manual Settings**

Codec 1 [dropdown] Codec 2 [dropdown] Codec 3 [dropdown]

Codec (permu.g729a,lwb) [dropdown]

Silence (off,off,off) [dropdown] [dropdown] [dropdown]

Packet-Time (20,20,20) [input] [input] [input]

**You must reset the phone before the saved settings will take effect.**

Figure 10. Phone Settings Menu

To remove the configured values (shown in parentheses after the setting name), select **Clear Manual Settings**.

To change the current configured values, follow these steps:

1. Enter a new value in the corresponding field.
2. Select **Save Manual Settings**.

### Line Key Settings

From the **Button Settings** menu, you can configure the line keys as busy lamp field/direct station select (BLF/DSS), speed, do not disturb (DND), or as a new line appearance. Select the location of the line key first, then configure the type, label, number (if required), and realm (if required). This is a quick way to create speed dial instances.

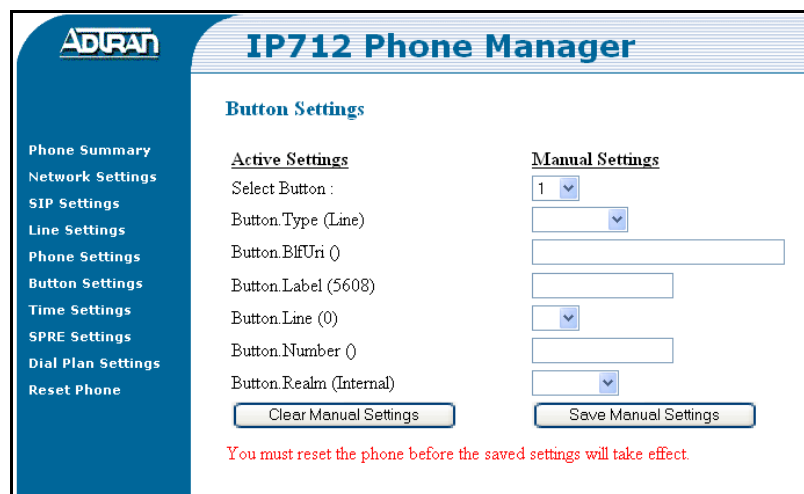


Figure 11. Button Settings Menu

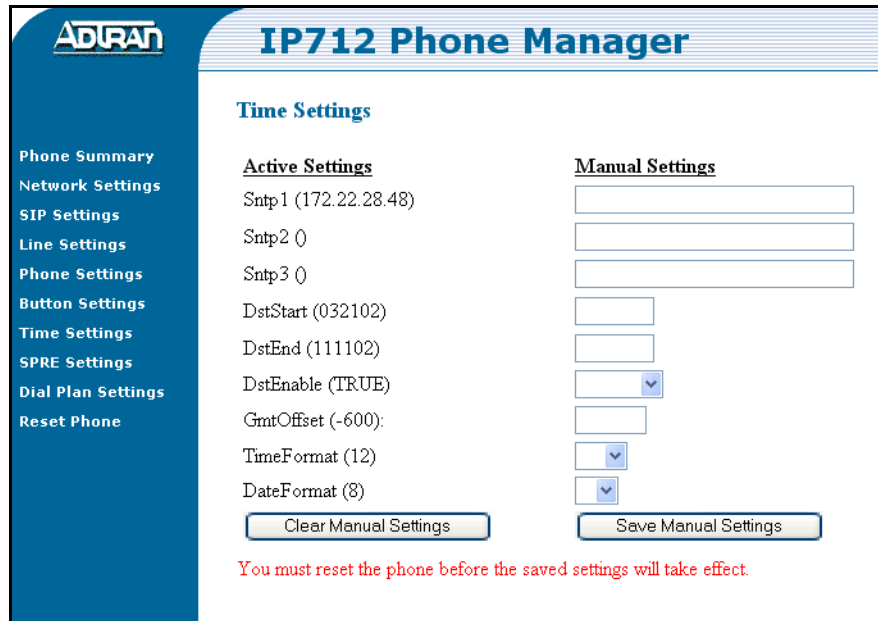
To remove the configured values (shown in parentheses after the setting name), select **Clear Manual Settings**.

To change the current configured values, follow these steps:

1. Enter a new value in the corresponding field.
2. Select **Save Manual Settings**.

## Time Settings

From the **Time Settings** menu, you can specify a time server for automatic updates, enable Daylight Savings Time, configure the Greenwich Mean Time (GMT) offset, and select a time and date format.



Active Settings	Manual Settings
Sntp1 (172.22.28.48)	<input type="text"/>
Sntp2 ()	<input type="text"/>
Sntp3 ()	<input type="text"/>
DstStart (032102)	<input type="text"/>
DstEnd (111102)	<input type="text"/>
DstEnable (TRUE)	<input type="text"/>
GmtOffset (-600)	<input type="text"/>
TimeFormat (12)	<input type="text"/>
DateFormat (8)	<input type="text"/>

You must reset the phone before the saved settings will take effect.

Figure 12. Time Settings Menu

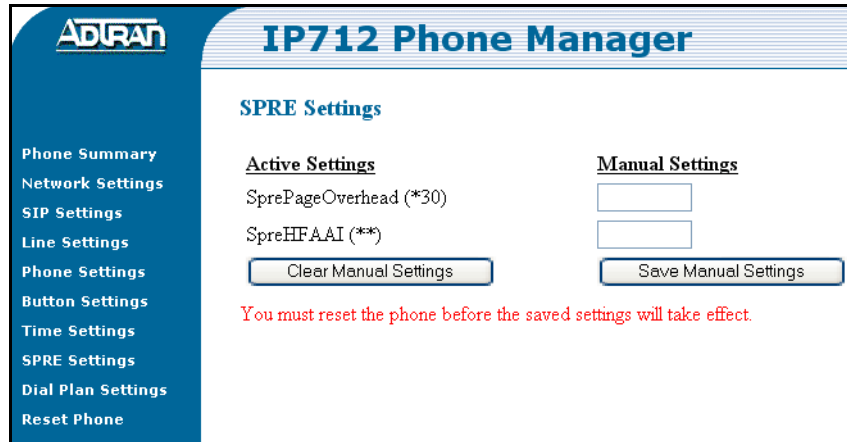
To remove the configured values (shown in parentheses after the setting name), select **Clear Manual Settings**.

To change the current configured values, follow these steps:

1. Enter a new value in the corresponding field.
2. Select **Save Manual Settings**.

## SPRE Settings

From the **SPRE Settings** menu, you can specify special prefix (SPRE) codes for use with certain features, such as overhead page or HFAAI.



The screenshot shows the 'IP712 Phone Manager' web interface. On the left is a blue navigation menu with the ADTRAN logo at the top. The menu items are: Phone Summary, Network Settings, SIP Settings, Line Settings, Phone Settings, Button Settings, Time Settings, SPRE Settings (highlighted), Dial Plan Settings, and Reset Phone. The main content area is titled 'IP712 Phone Manager' and 'SPRE Settings'. It is divided into two columns: 'Active Settings' and 'Manual Settings'. Under 'Active Settings', there are two entries: 'SprePageOverhead (\*30)' and 'SpreHFAAI (\*\*)', each with a corresponding input field. Under 'Manual Settings', there are two empty input fields. Below the input fields are two buttons: 'Clear Manual Settings' and 'Save Manual Settings'. A red warning message at the bottom states: 'You must reset the phone before the saved settings will take effect.'

**Figure 13. SPRE Settings Menu**

To remove the configured values (shown in parentheses after the setting name), select **Clear Manual Settings**.

To change the current configured values, follow these steps:

1. Enter a new value in the corresponding field.
2. Select **Save Manual Settings**.



## Dial Plan Settings

From the **Dial Plan Settings** menu, you can configure dial plans related to intercom, external calls, PBX and set their delays. For more information on dial plans, refer to *Appendix B* on page 83.

The screenshot shows the ADTRAN IP706 Phone Manager web interface. The left sidebar contains a navigation menu with the following items: Phone Summary, Network Settings, SIP Settings, Line Settings, Phone Settings, Button Settings, Time Settings, SPRE Settings, Dial Plan Settings (highlighted), and Reset Phone. The main content area is titled 'Dial Plan Settings' and is divided into two columns: 'Active Settings' and 'Manual Settings'. Under 'Active Settings', there are three text areas containing dial plan patterns for DialPlanIntercom, DialPlanExternal, and DialPlanPbx. Below these are three input fields for DialDelayIntercom, DialDelayExternal, and DialDelayPbx, each with the value '3'. There is also a checkbox for DialPlanSendPound, which is currently set to 'FALSE'. At the bottom of the main content area, there are two buttons: 'Clear Manual Settings' and 'Save Manual Settings'. A red warning message at the bottom of the interface states: 'You must reset the phone before the saved settings will take effect.'

**Figure 14. Dial Plan Settings Menu**

To remove the configured values (shown in **Active Settings** boxes), select **Clear Manual Settings**.

To change the current configured values, follow these steps:

1. Enter a new value in the corresponding field.
2. Select **Save Manual Settings**.

## Reset Phone

From the **Reset Phone** menu, you can reset the phone or return to the factory default settings. For more information related to these two features, refer to *Resetting the Phone* on page 58 and *Restoring Factory Defaults* on page 59.



Figure 15. Reset Phone Menu

To reset the phone or restore it to the factory default settings, select the check box next to appropriate action and select **Reset**. The phone will reboot.

## 7. AUTOMATING CONFIGURATION

Many installations use DHCP and configuration files to automate setting parameters for ADTRAN's IP phones. This section describes how to use DHCP and configuration files for this purpose. When an IP 700 Series phone boots, it downloads one or more configuration files and begins operation using the parameters received in the files. When more than one source exists for a parameter, it is important to understand the order of precedence assigned to each source. Refer to *Precedence of Parameter Sources* on page 19 for more information.

### DHCP Settings

DHCP can be used to provide the following settings to the IP phone:

- IP address (**IpAddress**)
- Subnet mask (**SubNetMask**)
- Router IP address (**GatewayAddress**)
- DNS address (**DnsAddress**)
- FTP/TFTP server address (**FtpServers**, **TftpServers**)

If a site-specific DHCP option is set, it provides an FTP/TFTP server address from which to retrieve configuration files. Setting these parameters is explained further in *Server Settings* below. The ADTRAN IP 700 Series phones use the site-specific DHCP option 157 to specify the value of the following parameters:

- **FtpServers**
- **TftpServers**
- **VlanTagging**
- **VlanID**
- **FtpLogin**
- **FtpPassword**

Each parameter must contain a `<name>=<value>` pair. For example:

**FtpServers=192.168.0.10, FtpLogin=Toledo, FtpPassword=Ohio**

### Server Settings

A path to the configuration files' location on the FTP/TFTP server is necessary for automatic configuration to take place. The path is indicated using the **FtpServers** and **TftpServers** parameters. The value of either **TftpServers** or **FtpServers** must be manually set using the administrator's Web interface, phone's user interface, or DHCP option 157. **FtpServers** and **TftpServers** are mutually exclusive. One or the other must be specified, but not both.

The following is an example of this parameter setting:

**FtpServers=192.168.0.10:config-directory.**

The FTP server requires a login and password to access the configuration files. The FTP login and password can be changed from the default values by using the file **adtran\_info.txt**. This is only possible if the TFTP server address is set using the administrator's Web interface, phone's user interface, or DHCP option 157. Use the following lines to change the FTP login and password values in the `adtran_info.txt` file:

**FtpLogin=admin**

**FtpPassword=password**



*Be sure the login and password match in both the file **adtran\_info.txt** and on the FTP server to ensure connectivity. The default FTP login is **admin** and the default password is **password**.*

## Configuration Files

A unique configuration file is required for each phone. The MAC address of the phone is used to identify the appropriate file for downloading. When the phone boots up, it checks the FTP/TFTP server for its specific configuration file. The file must be stored on the FTP/TFTP server in the following format:

**adtran\_<mac address>.txt**

where <mac address> is the MAC address of the phone that will use the configuration file. All file names for configuration files must be titled in lowercase letters.

If the phone cannot find its MAC address-based configuration file, it will download the file **adtran\_00000000000.txt** and use it as the main configuration file.



*If multiple phones try to use the same configuration file, the last phone to request the file is the only one allowed to register with the server. Any phones previously registered using that configuration file will lose their registration, and will not be able to make calls.*

Configuration files can be broken into sections to separate the more commonly modified parameters (such as line key definitions) from those that don't change very often. The **Include** parameter can be used to call another configuration file that contains parameters (such as the proxy server address) that seldom change.

When writing a configuration file, the following restrictions apply:

- Each parameter must appear on its own line. A <name> <value> pair is entered for each parameter. The <name> <value> may be separated by an arbitrary number of spaces or tabs.
- Any combination of uppercase or lowercase letters can be used within the configuration file because it is not case sensitive.
- Spaces are not permitted in any of the configuration values unless quotation marks are used.
- Comments may be included in a configuration file by starting the comment line with the # character.

**Example**

The following example is a sample file provided to assist you in creating configuration files that meet your specific needs.

**adtran\_<mac address>.txt**

#Sample config file for an Adtran IP 706/712 IP Phone

#If you would like to upgrade your phone to the latest firmware. Edit the line

#below to reflect the firmware version that you would like.

#Make sure that the firmware file exists on your server and then re-boot

#your phone.

#IP 706

#AppName apadt6r1303.ebin

#BootName btadt6r0204.ebin

#IP 712

#AppName apadt12r1303.ebin

#BootName btadt12r0204.ebin

#The label that will be displayed on the top line of the phone.

PhoneLabel Adtran

#Consult the admin guide for more information on the format of the system

#phone book file.

SystemPhonebook adtran\_phonebook.csv

#The address of the SIP registration server

RegServer.0.Address.1 10.10.20.1

#The address of the SIP proxy server

ProxyServer.0.Address.1 10.10.20.1

#This is the line definition. Reg.x.text where x is the

#line number that will be used to reference this line

#to a line button

```
Reg.0.AuthUserId 2000
Reg.0.AuthPassword 1234
Reg.0.Did 2000
Reg.0.DisplayName Adtran
Reg.0.Enable true
Reg.0.Label Adtran
Reg.0.Multiple true
Reg.0.Realm GP
Reg.0.CallerIdPopup true
Reg.0.Voicemail 8000
```

```
MwiPrimary 0
MwiCadence 1
MessagesCallback *98#
```

#Buttons are numbered from 1 to 6. Button.n.Label defines the text  
#that will be displayed on the LCD next to each button.

```
Button.1.Label 2000
Button.2.Label 2000
Button.3.Label speed
Button.4.Label speed
Button.5.Label speed
Button.6.Label speed
```

#To assign buttons 7-6 on an IP 712 phone, uncomment the lines below

```
#Button.7.Label speed
#Button.8.Label speed
#Button.9.Label speed
#Button.10.Label speed
#Button.11.Label speed
#Button.12.Label speed
```

#Button.n.Type defines the type of each line key.

```
Button.1.Type line
Button.2.Type line
```

Button.3.Type speed

Button.4.Type speed

Button.5.Type speed

Button.6.Type speed

#To assign buttons 7-12 on an IP 712 phone, uncomment the lines below

#Button.7.Type speed

#Button.8.Type speed

#Button.9.Type speed

#Button.10.Type speed

#Button.11.Type speed

#Button.12.Type speed

#Button.n.Line associates a line definition to a button.

Button.1.Line 0

Button.2.Line 0

#Button.n.Realm assigns a realm to the keys defined as lines.

Button.1.Realm Int

Button.2.Realm Int

#Button.n.Number assigns numbers to the speed dial keys.

Button.3.Number

Button.4.Number

Button.5.Number

Button.6.Number

#To assign buttons 7-12 on an IP 712 phone, uncomment the lines below

#Button.7.Number

#Button.8.Number

#Button.9.Number

#Button.10.Number

#Button.11.Number

#Button.12.Number

#Define the park servers here.

ParkZoneUri callpark@10.10.20.1

PickupZoneUri pickup@10.10.20.1

DialPlanExternal 0|911|[2-9]xxxxxx+T2|[2-9]xx[2-9]xxxxxx|[0-1][2-9]xx[2-9]xxxxxx|011xxx+T2

DialPlanPBX 0|911|9911|[1-8]xxx|9[2-9]xxxxxx+T2|9[2-9]xx[2-9]xxxxxx|9[0-1][2-9]xx[2-9]xxxxxx|9011xxx+T2|\*[2-9][0-9,\*]+T2|\*1xx|\*\*xxxx

SntpServer 10.10.20.1

GmtOffset -0600

HighLightEnable False



## 8. CONFIGURING COMMON FEATURES

This section explains how to define many of the parameters required to operate an IP phone. Each example shows either the steps to setting the parameter through the phone's user interface, or provides the content to add to the configuration files.

### Setting the Password

A password can be configured on the IP phone using the phone's user interface. The password restricts access to advanced settings not meant for the common user. To change the password, follow these steps:

1. Select **Menu**.
2. Select **2** for **Phone Settings**.
3. Select **8** for **Password**.
4. Enter the old password using the keypad.



*To toggle between uppercase and lowercase letters or use the numeric keypad, press the **AaI** soft key on the LCD display. This changes the character entry mode and is indicated by a symbol in the upper right corner of the LCD display. **A**=uppercase letters, **a**=lowercase letters, and **I**=numbers. Add spaces by using the 0 (zero) key, and erase characters by using the **◀** soft key.*

5. Press the **Ok** soft key or **OK** on the Navigation bar.
6. Press the **Exit** soft key until the idle screen appears.

### Configuring Proxy and Registrar Servers

The IP 706 phone supports up to 6 uniquely defined proxy servers, 6 outbound proxy servers, and 6 registrar servers. Likewise, the IP 712 phone supports up to 12 each of these servers. The servers are defined in the MAC address-based configuration file for each phone. The following configuration file example shows a phone using one set of servers with the index 1. The steps in the example may be repeated for each of the three server types as needed, changing the index number. The secondary server is not required. Additional information about the parameters shown in this example is provided in *Appendix A* on page 61.

```
#Proxy Server 1 Primary
```

```
ProxyServer.1.Address.1 192.168.0.33
```

```
ProxyServer.1.Port.1 5060
```

```
#Retry attempts before switching proxies
```

```
ProxyServerMaxRetry 1
```

```
#Proxy Server 1 Secondary
```

```
ProxyServer.1.Address.2 192.168.0.34
```

```
ProxyServer.1.Port.2 5060
```

## #Registrar Server 1 Primary

RegServer.1.Address.1 192.168.0.34

RegServer.1.Port.1 5060

RegServerExpires.1 3600

## #Retry Attempts before switching Registrars

RegServerMaxRetry 1

## #Registrar Server 1 Secondary

RegServer.1.Address.2 192.168.0.33

RegServer.1.Port.2 5060

RegServerExpires.2 3600

## #Outbound Proxy 1 Primary

OutboundProxy.1.Address.1 192.168.0.22

OutboundProxy.1.Port.1 5060

## #Retry attempts if ICMP destination unavailable is received from the OBP

OutboundProxyMaxRetry 1

## #Outbound Proxy 1 Secondary

OutboundProxy.1.Address.2 192.168.0.23

OutboundProxy.1.Port.2 5060

## Defining Line Registrations

The IP 706 phone supports up to 6 lines and the IP 712 phone supports up to 12 lines each served from a unique proxy/registrar server. This allows a different line for every line key on the phone. The line is called a multiple call appearance (MCA) type if it will be assigned to one or more line keys on the same phone. It is called a shared call appearance (SCA) type if the line is shared across multiple phones. Table 3 provides a few guidelines to follow when assigning line types to a phone.

**Table 3. Guidelines for Assigning Line Types**

Guideline	Parameter Setting
An MCA should never be an SCA.	<b>Reg.1.Multiple true</b> and <b>Reg.1.Shared false</b>
An MCA should be assigned to at least 2 line keys for complete call handling flexibility.	<b>Button.1.Line 0</b> and <b>Button.2.Line 0</b>
Consider disabling call logging for SCA-type lines. Many of the calls logged on this type of line may not be useful and could quickly fill the history buffer.	<b>Realm.1.Logging false</b>
If the number of pop-up windows becomes distracting on SCA-type lines, disable CallerID pop-ups.	<b>Reg.1.CallerIdPopup false</b>

The line registrations are defined in the MAC address-based configuration file for each phone. Additional information about the parameters shown in the following example is provided in *Appendix A* on page 61. This example shows how to configure an MCA line of a PBX:

```
#Define Line 1. Used to authenticate with the registrar.
```

```
Reg.1.AuthUserID 2000
```

```
#Enable popup window used for incoming calls.
```

```
Reg.1.AuthPassword hello
```

```
Reg.1.CallerIdPopup true
```

```
#Required only if the AuthUserId isn't the DID number.
```

```
Reg.1.Did 2000
```

```
#Define domain used to form Invite URIs and Registration request URIs.
```

```
Reg.1.Domain adtran.com
```

```
#Enables the Line registration.
```

```
Reg.1.Enable true
```

#Label that will appear next to the buttons that use this line.

Reg.1.Label x2000

#Enable call logging for this line (may not want for SCAs).

Reg.1.Logging true

#Only required for SCAs to set the subscription interval.

Reg.1.LineSeize 30

#True since we will assign this line to more than 1 line button (MCA).

Reg.1.Multiple true

#General PBX type line.

Reg.1.Realm gp

#Link it to the previous Servers we defined where it will Register.

Reg.1.Servers 1

#Not a shared line.

Reg.1.Shared false

#Request-URI for calls forwarded to voicemail.

Reg.1.Voicemail 106

## Setting the Realm

The realm specifies the type of phone system in which the lines are being configured. This setting provides the dial plan to be used. Table 4 lists the available settings for **Reg.1.Realm** defined in the MAC address-based configuration file for each phone. Refer to *Appendix B* on page 83 for more information on setting up the dial plan parameters.

**Table 4. Realm Settings**

Value	Description
General External (GE)	Used for general non-PBX-type outside lines. Lines of this type use the <b>DialPlanExternal</b> dial plan.
Private External (PE)	Used for private (few users) non-PBX-type outside lines. Lines of this type use the <b>DialPlanExternal</b> dial plan.

**Table 4. Realm Settings (Continued)**

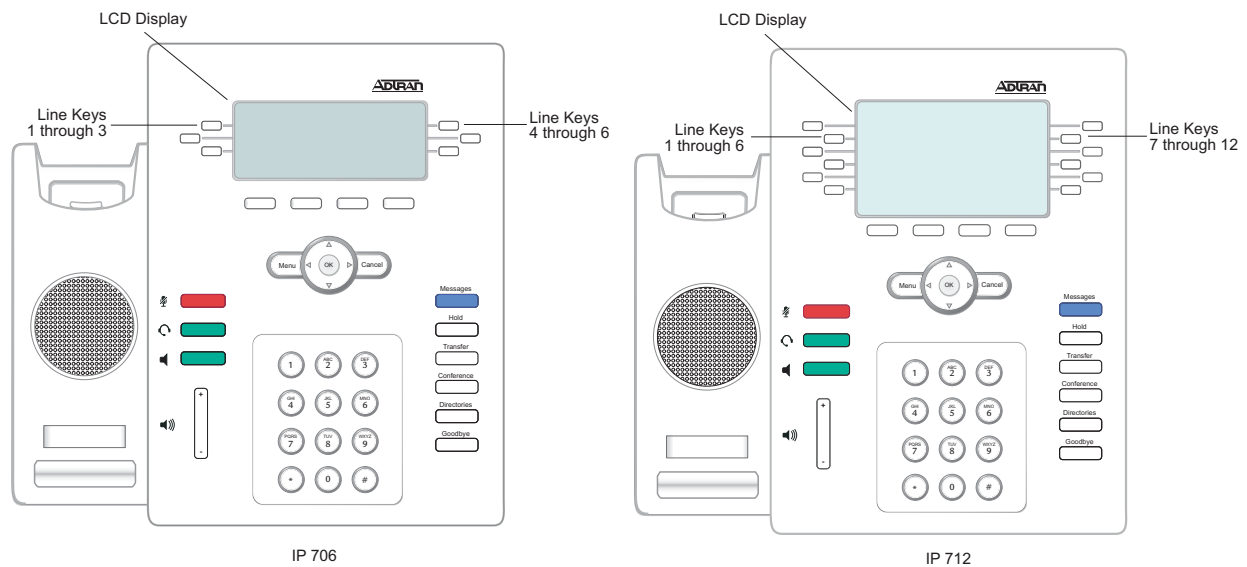
Value	Description
General PBX (GP)	Used for PBX call appearances that require an additional digit, such as 9 to be dialed to access outside numbers. Lines of this type use the <b>DialPlanPbx</b> dial plan.
General Intercom (GI)	Used for intercom lines configured for key system operation. Lines of this type use the <b>DialPlanIntercom</b> dial plan.

### Setting the Domain

Setting the domain in the **Reg.x.Domain** parameter is optional. It is used to form Invite URIs and registration Request URIs that have a domain after the @ symbol instead of an IP address or FQDN from the proxy or registrar server.

### Assigning Line Key Functions

The line keys are numbered from 1 to 6 on the IP 706 phone and from 1 to 12 on the IP 712 phone. The locations are shown in Figure 16. Line keys can be designated as one of four types: Line, BLF/DSS, Speed, or DND. Table 5 on page 46 shows the parameters that must be configured for each line key type.



**Figure 16. Line Key Numbering**

**Table 5. Line Key Assignments**

Line Key Type	Associated Parameters	Description
Line	Button.z.Type Button.z.Line Button.z.Label	Assigns the type. Associates a line definition to a line key. Assigns a label for the line key.
BLF/DSS	Button.z.Type Button.z.BlfUri Button.z.Label Button.z.Number Button.z.Realm	Assigns the type. BLF URI to which BLF subscriptions are sent. Assigns a label for the line key. Extension to monitor or dial on outgoing. Automatically set to Internal by the phone.
Speed	Button.z.Type Button.z.Realm Button.z.Label Button.z.Number	Assigns the type. Type of line to originate the call on. Assigns a label for the line key. Number to call.
DND	Button.z.Type Button.z.Label	Assigns the type. Assigns a label for the line key.



*The line key number is designated by the value of z in the Associated Parameters listed in Table 5. Replace z with 1 through 6 when configuring an IP 706 phone and 1 through 12 when configuring an IP 712 phone.*

**Example 1:**

This example configuration is for an IP 706 phone on a key system where lines 1 through 3 are SCAs and lines 4 and 5 are GI lines. The last line key is a BLF/DSS monitoring another extension.

#Phone button assignments

Button.1.Type line

Button.1.Line 1

Button.1.Label 732-758-1000

Button.2.Type line

Button.2.Line 2

Button.2.Label 732-758-1001

Button.3.Type line

Button.3.Line 3

Button.3.Label 732-758-1002

Button.4.Type line

Button.4.Line 4

Button.4.Label ICOM

Button.5.Type line

Button.5.Line 5

Button.5.Label ICOM

Button.6.Type blf/dss

Button.6.BlfUri blf@192.168.0.23

Button.6.Number 125

Button.6.Label Joe Jones

**Example 2:**

This is an example configuration for an IP 706 phone on a PBX system where line 1 is an MCA of type GP, line key 5 is a speed dial, and the last line key is used to toggle DND on and off:

#Phone button assignments

Button.1.Type line

Button.1.Line 1

Button.1.Label x2000

Button.2.Type line

Button.2.Line 1

Button.2.Label x2000

Button.3.Type line

Button.3.Line 1

Button.3.Label x2000

Button.4.Type line

Button.4.Line 1

Button.4.Label x2000

Button.5.Type speed

Button.5.Realm gp

Button.5.Label Home

Button.5.Number 732-758-9895

Button.6.Type dnd

Button.6.Label DND

## Configuring Other Server and SIP Options

A number of server settings can be specified for the IP phone to function correctly on your network. These parameters are listed below with a brief description of their function. This list also includes SIP options that can be specified as well. These parameters are covered in greater detail in *Appendix A* on page 61.

**Table 6. Server Parameters and SIP Options Overview**

Parameter	Description
FeatureUri	Specifies the server (in URI format) to which feature-related state changes are sent.
FeatureExpires	Defines the subscription interval for <b>FeatureUri</b> notifications.
FtpServers	Specifies the location of firmware files that the IP phone will download. <b>FtpServers</b> and <b>TftpServers</b> may not both be specified as the non-null value used to determine the download method for configuration files.
TftpServers	Specifies the location of firmware files that the IP phone will download. <b>FtpServers</b> and <b>TftpServers</b> may not both be specified as the non-null value used to determine the download method for configuration files.
AppName BootName	Specifies application and boot image file names to be downloaded to the phone.
HoldSignal	Specifies the hold type for the phone to use.
MwiLine	Specifies the line on which external MWI server subscribes originate.
MwiExpires	Specifies the expiration interval of the MWI server subscribes.
MwiSubscribeUri	Specifies the Request URI sent to the external MWI server.
MwiPrimary	Specifies the primary voice mailbox association. Setting this to 12 will associate the mailbox to the external messaging server.
MwiSecondary	Specifies the secondary mailbox association. Setting this to 12 will associate the mailbox to the external messaging server.
MwiCadence	Selects the operating mode of the illuminated Messages function key.
MessagesCallback	Defines the URI that is called when the Message function key is pressed.
ParkZoneUri	Specifies the Request URI that is used for outgoing invites to the park zone server.
SipKeepAlive	Enables or disables SIP session timers.
SntpServers	Specifies one or more time servers where the phone can retrieve time and date information.
SpreHfaii	Specifies the dialing prefix used to initiate HFAAI calls.
SprePageOverhead	Specifies the dial access code used to access the overhead paging system. If this value is null, then overhead page is not presented on the soft key as an option.
StunServer	Specifies the FQDN or IP address of the STUN server, which may be required for operating phones behind network address translation (NAT) routers.



## Defining Call Handling Options

Several parameters are available for customizing the call handling behavior on the IP phones. These parameters are listed below with a brief description of their function. These parameters are covered in greater detail in *Appendix A* on page 61.

**Table 7. Call Handling Options Overview**

Parameter	Description
AlertSelect	Sets the policy for handling a preselected line on an idle phone when it rings.
CallerIDPopup	Enables or disables globally the call pop-up window that appears when an incoming call arrives. <b>Reg.x.CallerIdPopup</b> selectively enables or disables the call pop-up window on individual lines.
DndBusyReject	Returns a SIP 486 Busy Here signal to incoming calls when the DND mode is enabled.
DndRedirected	Redirects the call to the URI specified in <b>DndRedirectAddress</b> after the time delay (in seconds) specified in <b>DndDelay</b> .
HFAAIbeep	Enables or disables HFAAI notification. If enabled, a 600 ms tone is played before an HFAAI call is presented on the phone.
HoldReminder	Indicates the number of seconds before the hold reminder tone is played.
IdleGroupPreference	Specifies which line will be preselected when idle and then used for call origination when the phone goes off-hook. The <b>IdleSelectOrder</b> parameter further defines the policy for selecting a specific physical line key should more than one be assigned to that line.
IntercomGroupPreference	Specifies which line (should be of GI type) represents the intercom lines on the phone. For key system mode, set this to the GI configured line. It appears on the phone as Intercoms.
LineSeizeFailure	Enables or disables playing a recorded tone if the user attempts to seize an SCA line, but fails (e.g., another user seizes the call first).
PopUpHold	Defines the number of seconds to leave the caller ID pop-up window open when an HFAAI or page-type call is received. Once the time has elapsed, the caller ID pop-up window is automatically closed.
PreselectAnswer	Allows the user to answer an incoming call by pressing the line key on a ringing line. If the phone is idle, pressing the line key will activate the speakerphone.
PreselectOriginate	Allows the user to originate a call when an idle line key is pressed. If the phone is idle, the speakerphone is activated.
PostSelectAutoHold	Enables placing deselected calls on hold automatically if another line is selected. Otherwise, the deselected call will be dropped.

## Customizing the Phone

There are numerous settings that can be changed on the IP phones, enabling you to customize them for your specific environment. These customizations are listed below, but are covered in greater detail in *Appendix A* on page 61.

**Table 8. Phone Customization Overview**

Parameter	Description
BackLight	Defines the number of minutes the backlight remains on once the phone becomes idle. The backlight turns on whenever there is activity on the phone.
DateFormat	Defines how the date is displayed.
DefaultMedia	Sets the preferred CODEC, silence suppression algorithm, and packet size for outgoing packets.
DscpAudio	Sets the differentiated services code points (DSCPs) for outbound audio packets from the phone. This is used to improve quality of service (QoS) handling on the network.
DscpSignaling	Sets the DSCP for outbound signaling packets from the phone. This is used to improve QoS handling on the network.
DSTEnable	Enables daylight savings time (DST) adjustments beginning at the hour, week, day, and month specified in <b>DstStart</b> through the time specified in <b>DstEnd</b> .
DtmfLevels	Adjusts the level of dual-tone multi-frequency (DTMF) tones played into the network from the phone.
Ethernet1	Enables/disables the Ethernet interface (local area network (LAN) port) and sets the speed negotiation options.
Ethernet2	Enables/disables the Ethernet interface (PC port) and sets the speed negotiation options.
ExtensionLabel	Customizes the extension label displayed on the second line of an idle phone.
GmtOffset	Sets the time zone for the phone relative to GMT.
GreyLevels	Adjusts the light and dark grey levels of the LCD display.
HeadsetCtl	Enables/disables switchhook control via current detection on the headset interface.
HttpServerEnable	Disables the built-in HTTP server.
HttpServerPort	Specifies the port on which the HTTP server receives Transmission Control Protocol (TCP) traffic.
Layer2Audio	Sets outbound tagging on audio packets.
Layer2Signaling	Sets outbound tagging on signaling packets.
MaxJitter	Sets the maximum time interval that the jitter buffer can utilize when dealing with delayed or misordered packets.
PhoneLabel	Customizes the label displayed on the top line of the phone (e.g., the user name or company name).
RtpBase	Sets the base port from which the phone transmits and receives media.
SetupPassword	Customizes the password for restricted administration settings on the phone.

**Table 8. Phone Customization Overview (Continued)**

<b>Parameter</b>	<b>Description</b>
SiteOption	Sets the option number that the phone will request during DHCP transactions. If a value other than the default option 157 is set in a configuration file, the phone will re-initiate DHCP procedures using the new option.
SystemPhonebook	Indicates the file name of the system phone book file.
TimeFormat	Indicates the clock format as either 12 hour with a.m./p.m., or 24 hour.

## Modifying the Splash Screen

You can customize the IP phone's splash screen presented during boot up by downloading a 216 x 336 pixel, 16-color grey-scale bitmap file to the parameter **IconPixmap**. Most graphics programs can be used to modify and save the file.

When defining the splash screen, always begin by using the provided default .bmp file. This makes it easier to create accurate files. Use only the four colors (black, white, light grey, and dark grey) in the color palette of the default file.

### ***Bitmap Layout***

The bitmap is built in blocks of 16 x 16 pixels. There are 14 x 21 blocks in the IP phone bitmap. The right most block is only half the width of a normal block or 8 pixels. Each row is one block in height. The bitmap begins the drawing at the top left corner of each block. Both the IP 706 and IP 712 phone models use eight rows for the splash screen.

## 9. TROUBLESHOOTING

This section provides tables listing common problems and their resolutions, as well as instructions for performing specific tasks to correct errors with your phone. The following topics are covered in this section:

- **Basic Troubleshooting** on page 53
- **Advanced Troubleshooting** on page 54
- **Accessing the Phone Status Display Menus** on page 55
- **Diagnostic Tests** on page 56
- **Resetting the Phone** on page 58
- **Restoring Factory Defaults** on page 59
- **Deleting a Personal Phone Book** on page 59

### Basic Troubleshooting

Table 9 lists basic problems that may occur with your IP phone, along with their suggested solutions.

**Table 9. Basic Troubleshooting**

Problem Description	Solution Suggestion
Phone does not activate when it's plugged in and nothing appears on the display.	The phone may not be receiving power. Make sure the Ethernet cable is plugged into the correct jack and that the power source is plugged into a working outlet.
Phone has information on the display, but does not respond to pressed keys.	Restart the phone by unplugging the Ethernet cable from the jack and plugging it back in.
Display shows an error or informational message.	Check the <i>Advanced Troubleshooting Chart</i> on page 54 for the specific error message.
Audio quality is poor on both the handset and speaker. You hear clipped, garbled, or severely delayed speech.	Various potential network issues may be causing this problem. Contact your network administrator and provide information about the time and duration of the event.
No audio from the handset, but the speaker works.	Make sure the handset is properly plugged into the phone. Try swapping a handset from a similar phone to see if the handset or cord is defective.
The Web interface doesn't work or only works intermittently.	Your company may be using a proxy server. To bypass it when accessing your phone, follow the procedure in <i>Using the Administrator's Web Interface</i> on page 22. The phone's IP address may also have changed since the user last accessed their Web interface. Be sure you are using the proper IP address to connect to the phone by reviewing the instructions in <i>Using the Administrator's Web Interface</i> on page 22.

## Advanced Troubleshooting

Table 10 lists more advanced problems which consist of error messages encountered during the boot up process, and also network connectivity issues. It also provides their suggested solutions.

**Table 10. Advanced Troubleshooting Chart**


Problem Description	Solution Suggestion
Unregistered phone icon displays next to the line key: 	This indicates the phone is unable to register this line with the Registrar server. Make sure the <b>Reg.x.AuthUserId</b> and <b>Reg.x.AuthPassword</b> are specified for registration. Also, make sure the <b>Reg.x.RegServer</b> address is correct.
Phone displays <b>Duplicate IP Address</b> during boot up.	The phone has been given an IP address that is already in use. If you are using a manually configured IP address, use the <b>Phone Settings</b> menu on the IP phone to choose an available IP address.
Phone displays <b>Network LAN Link is Down</b> .	There are several reasons for this error message. The LAN cable could be disconnected, the phone could be unable to negotiate a link to the Ethernet switch because of a speed or duplex incompatibility, or any number of other network failures. Make sure the LAN cable is connected. Contact the network administrator to troubleshoot possible network failures.
Problems downloading configuration or other files.	Closely observe the error message(s) on the phone display when the phone starts. The problem could be due to an incorrectly named configuration file (refer to <i>Automating Configuration</i> on page 35). It could also be due to an incorrectly specified server address, an unreachable server, an error in configuration of the files on the FTP/TFTP server, or an error in the <b>Apeman</b> , <b>Boatmen</b> , or <b>Include</b> parameter that was specified. Review these items to be sure they are correctly specified.
Phone displays <b>TFTP Server Unreachable</b> or <b>FTP Server Unreachable</b> during boot up.	Ensure that a valid IP address has been provided via DHCP or manually (from the phone's user interface) for the TFTP or FTP server.
Phone displays <b>Download of information file failed</b> .	This error indicates that a TFTP server address was supplied to the phone, but the file <b>adtran_info.txt</b> was not found on the TFTP server. This file is optional, and this message is not a cause for concern unless <b>adtran_info.txt</b> is being used. In that case, load the file <b>adtran_info.txt</b> on the TFTP server.

Table 10. Advanced Troubleshooting Chart (Continued)

Problem Description	Solution Suggestion
Phone displays <b>Download of main config file failed.</b>	This error indicates that the file <b>adtran_&lt;mac address&gt;.txt</b> could not be found on the FTP or TFTP server. One unique configuration file for every phone should be placed in the root directory. The phone may not operate properly if this error message is displayed. The phone does cache and reuse configuration files from the last successful boot sequence if this error happens, which may help bridge a temporary outage.
Phone displays <b>The SNTP server could not be contacted.</b>	This error indicates that the server specified in <b>DHCP option 4, 42</b> , or the parameter <b>SntpServer</b> could not be contacted. The proper time will not be displayed if this problem is not corrected. Specify a different server.

## Accessing the Phone Status Display Menus

The IP phone status display menus list many of the phone's settings and configurations beneficial in troubleshooting your phone. This is where you will find the model, part, and serial numbers, as well as the network and firmware settings. Use the following steps to access phone status information:

1. Select **Menu**.
2. Select **1** for **Phone Status**.
3. Select **1** through **5** for the corresponding parameter you wish to view.
4. Follow the on-screen prompts as detailed in the following sections.

### General Display

The **General** option displays information, such as model, part, and serial number. To access the **General** status information, select **1** from the **Phone Status** menu. Select **Exit** from the soft key menu to return to the **Phone Status** menu.

### Network Display

The **Network** option displays information regarding the network configuration for the IP phone, such as link, negotiation, speed, duplex, and DHCP status. To access the **Network** status information, select **2** from the **Phone Status** menu. Select **Exit** from the soft key menu to return to the **Phone Status** menu.

### Line Keys

The **Line Keys** option displays all the line keys on the IP phone and their assigned type, such as speed, DND, etc. To access the **Line Keys** status information, select **3** from the **Phone Status** menu. Select **Exit** from the soft key menu to return to the **Phone Status** menu.

### Firmware Version

The **Firmware Version** option displays the version of the current firmware, the date it was installed, the

firmware used for booting, the date it was installed, and the configuration file version. To access the **Firmware Version** status information, select **4** from the **Phone Status** menu. Select **Exit** from the soft key menu to return to the **Phone Status** menu.

## **Diagnostics**

The Diagnostics option displays six tests that can be executed on the IP phone to assist in diagnosing problems. These tests are explained in greater detail in the next section, *Diagnostic Tests* below. To access the Diagnostics test menu, select **5** from the **Phone Status** menu. Select **Exit** from the soft key menu to return to the **Phone Status** menu.

## **Diagnostic Tests**

The following tests can be executed from the phone menus and provide a means for troubleshooting issues with these areas:

- **Audio Test** on page 56
- **Keypad Test** on page 57
- **LCD Test** on page 57
- **LED Test** on page 57
- **Ping Test** on page 58
- **Backlight Test** on page 58

Each of the various tests are accessible from the **Diagnostics** menu. Use the following steps to access the **Diagnostics** menu:

1. Select **Menu**.
2. Select **1** for **Phone Status**.
3. Select **5** for **Diagnostics**.
4. Select **1** through **5** for the corresponding parameter you want to test.
5. Follow the on-screen prompts as described in the following sections.

## **Audio Test**

The **Audio Test** can verify the audio is functioning properly through a chosen input and output device (**Handset**, **Headset**, or **Speakerphone**). Follow these steps to test the audio:

1. Select **1** from the **Diagnostics** menu.
2. Use the arrow keys to scroll through a list of input devices to test (**Handset**, **Headset**, and **Speakerphone**).
3. Press the **Select** soft key to choose the input device.
4. Use the arrow keys to scroll through a list of output devices to test (**Handset**, **Headset**, and **Speakerphone**).
5. Press the **Select** soft key to choose the output device.
6. Toggle the **Tone On/Tone Off** soft key.
7. If the tone is heard through the chosen input/output device, the audio test has passed.



8. Select **Exit** to return to the idle screen.



*If no tone is heard, use other combinations of audio tests to determine which device is malfunctioning. Verify the device is connected properly.*

### Keypad Test

The **Keypad Test** can verify if the keys on the phone are functioning properly. Use the following steps to test the keypad:

1. Select **2** from the **Diagnostics** menu.
2. Press any key and verify that the correct name of the key appears in the top left corner of the LCD display.
3. Press the **Exit** soft key twice to exit.
4. If a key does not display properly, notify your reseller or contact ADTRAN technical support.

### LCD Test

The **LCD Test** can verify the LCD screen is functioning normally. Use the following steps to test the LCD screen:

1. Select **3** from the **Diagnostics** menu.
2. Make a selection from the soft key options shown below:

**Table 11. LCD Test Options**

Option	Action	Function
<b>All On</b>	Turns on all LCD pixels in the display area for 5 seconds.	Used to see if any portion of the LCD is not functioning properly.
<b>Pattern</b>	Displays a 4-level grey-scale pattern for 5 seconds.	Used to view the shading ability of the LCD screen.
<b>All Off</b>	Turns off all LCD pixels in the display area for 5 seconds.	Used to verify that all areas of the LCD respond properly.

3. Select the **Exit** soft key to return to the idle screen.

### LED Test

The **LED Test** can verify all LED lights on the phone function properly. Use the following steps to perform an LED test:

1. Select **4** from the **Diagnostics** menu.
2. Select the **All On** soft key.
3. Verify the four LED lights on the phone face are working properly.
4. Select the **All Off** soft key.

5. Press the **Exit** soft key to return to the idle screen.

### **Ping Test**

The **Ping Test** can verify network connectivity by checking the ability to ping a valid IP address. Use the following steps to perform a ping test:

1. Select **5** from the **Diagnostics** menu.
2. Using the keypad, enter the IP address to ping. (Be sure the IP address you enter is valid and accessible.)



*When entering one or two digit numbers for portions of the IP address, use the \* key to move to the next entry segment. For example, to enter an IP address of 10.10.151.201, you would press the following key sequence from the number pad: 10\*10\*151\*201.*

3. Select the **Ping** soft key. The progress of the ping test will display, indicating the packet number being sent and providing an overall outcome of success or fail.
4. Select the **Exit** soft key to return to the idle screen.

### **Backlight Test**

The **Backlight** diagnostic option verifies the LCD screen backlighting feature is functioning. Use the following steps to test the backlight:

1. Select **6** from the **Diagnostics** menu.
2. Select the **Off** soft key. If working properly, the backlight will turn off.
3. Select the **On** soft key. The backlight should turn back on.
4. Select the **Exit** soft key to return to the idle screen.

### **Resetting the Phone**

There are times when it is necessary to reset the phone, such as to accept new settings or to attempt to register the phone with the network. Resetting the phone does not erase the user's personal configurations. It only reloads the firmware and any updates from the network server. If there are no updates available, none of the settings should change from the previous state. It does renegotiate IP address and DHCP settings, so these items may change from the previous state.

Use the following steps from the phone's user interface to reset the phone:

1. Select **Menu**.
2. Select **2** for **Phone Settings**.
3. Select **9** for **Reset**.
4. Press the **Reset** soft key.

You can also reset the phone from the Web interface. Refer to *Reset Phone* on page 34.

## Restoring Factory Defaults

It is possible to erase configuration settings on a phone and restore it to the state that it was received from the factory. Keep in mind that using the **Factory** option will erase all settings customized locally at the phone, such as personal speed dial entries, phone book entries, line key settings, and distinctive rings. Any customization that is completed and delivered from the network server will be retained as these are provided when the phone reloads at startup.

Follow these steps to restore the factory default settings:

1. Select **Menu**.
2. Select **2** for **Phone Settings**.
3. Select **9** for **Reset**.
4. Press the **Factory** soft key.
5. Confirm this selection by pressing the **Ok** soft key.

You can also restore the factory default settings from the Web interface. Refer to *Reset Phone* on page 34.

## Deleting a Personal Phone Book

The personal phone book created on an individual phone can be quickly deleted through the **Reset** option on the phone's LCD menus. To delete a phone book from the phone, follow these steps:

1. Select **Menu**.
2. Select **2** for **Phone Settings**.
3. Select **9** for **Reset**.
4. Press the **Del Phbk** soft key.
5. Confirm this selection by pressing the **Ok** soft key.



## APPENDIX A. CONFIGURATION AND LINE PARAMETERS

The following tables list all of the parameters found in the configuration files downloaded to each phone at boot up. Table 12 spans several pages and covers the Configuration Parameters. Table 13 on page 80 covers only the Line Parameters. The Source column defines the methods that can be used to change or set the parameter including editing the configuration file, manually entering the setting from the phone's user interface, accessing the settings through the administrator's Web interface, or using DHCP site-specific option. The default settings are called out in the Description column. If no default is given, there is no default setting present for that command.

**Table 12. Configuration Parameters**

Parameter	Value Type	Description	Sources
AdminPassword	ASCII String	Sets the message digest 5 (MD5) hash of the password to access the administrator's Web page. This password is saved in flash memory after a value has been received in a config file so it can be enforced on subsequent reboots. It is cleared by the restore factory defaults command. Only the password in the hashed string can be changed. The <b>admin:Adtran:</b> part cannot be changed.  Default: MD5 hash of "admin:Adtran:password"	Config File
AlertSelect	0 to 2	Sets the policy for handling a preselected line on an idle phone when it rings. 0=No selection change 1=Select upon audible alert ( <b>default</b> ) 2=Select away to eligible idle preference	Config File Web Interface
AppName	ASCII String Characters	Indicates the name of the application image in the phone. The application file name can contain up to 24 characters. The combination of file name and path can be up to 32 characters long. A new application name is specified in a configuration file and is checked against the version in flash to decide if a new version needs to be downloaded.	Config File

Table 12. Configuration Parameters (Continued)

Parameter	Value Type	Description	Sources
BackLight	0 to 9999	Indicates the number of minutes the backlight remains lit when the phone is idle. The backlight turns on whenever there is activity on the phone. A setting of <b>0</b> will leave the backlight on indefinitely.  Default: 5	Config File Web Interface
BootName	ASCII String	Indicates the name of the boot image in the phone. The file name can contain up to 24 characters. The combination of file name and path can contain up to 32 characters. A new name is specified in a configuration file and is checked against the version in flash to decide if a new version needs to be downloaded.	Config File
Button.z.BifUri	Request URI	Indicates the Request URI to use in the subscribe sent to the server, which handles BLF updates for the extension specified in <b>Button.z.Number</b> . The subscription interval should be the same as that specified in <b>FeatureExpires</b> .	Config File Web Interface
Button.z.Label	ASCII	Assigns the button label to the button at location <b>z</b> . This label has priority over a label defined <b>Reg.x.Label</b> for line-type buttons. The string (or UTF-8) must be 15 characters or less.	Config File Phone Interface Web Interface
Button.z.Line	0 to 11	Assigns the value of <b>x</b> in <b>Reg.x.*</b> to the line key at location <b>z</b> . <b>Z</b> can be 1 to 6 on the IP 706 phone and 1 to 12 on the IP 712 phone.	Config File Phone Interface Web Interface
Button.z.Number	Numeric String	Assigns the phone number to the speed dial line key or extension to a DSS-type key.	Config File Phone Interface Web Interface
Button.z.Realm	Internal, External, PBX, Other	Assigns a call appearance type to a DSS or speed dial key. It is used to select the facility type to originate calls. <b>Other</b> may be used for post-call setup dialing strings.	Config File Phone Interface Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
Button.z.Type	BLF/DSS, Speed, DND, Line	Assigns the type to the line key at location <b>z</b> . At least one key must be configured as a <b>Line</b> to make or receive calls.  Default: Speed	Config File Web Interface
CallerIdPopup	True or False	Globally disables the incoming call pop-up window. This may be overridden by a different setting assigned in <b>Reg.x.CallerIdPopup</b> .  Default: True	Config File Phone Interface Web Interface
Country	Up to 3 ASCII Characters 1 to 255	Specifies the country that is used by the <b>Include</b> parameter to identify a particular file.  Default: 1	Option 157 Config File Phone Interface
DateFormat	0 to 8	Defines how the date is displayed. Available formats are: 0=YYYY MM DD 1=DD-MM-YY 2=YYYY-MM-DD 3=DD/MM/YYYY 4=DD/MM/YY 5=DD-MM-YY 6=MM/DD/YY 7=MM DD 8=MM/DD/YYYY DD= Day of Month MM=Numeric Month YY=Last 2 digits of Year YYYY= 4 digit Year  Default: 8	Config File Phone Interface Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
DefaultMedia	ASCII String	<p>Sets the preferred CODEC, silence suppression algorithm, and packet size for outgoing packets. Media types are encoded as: <b>Codec/Silence/Packet-Time</b></p> <p>Where:            Codec = pcmu, pcma, lwb, or g729a            Silence = on or off            Packet-Time = for G.711 it can be 5 to 80 ms in 5 ms steps, for G.729 it can be 10 to 80 ms in 10 ms steps, and for Linear Wideband (256 kbps), it can be - 5 to 20 ms in 5 ms steps</p> <p><b>Example:</b>            g729a/off/20, pcma/on/30, pcmu/off/20</p>	Config File Web Interface
DHCP	N/A	<p>Enables or disables DHCP.</p> <p>Default: 1</p>	Phone Interface Web Interface
DialDelayExternal	0 to 99	<p>Indicates the dial delay value for external call appearances. If set to <b>0</b>, the timer is disabled. Be aware of interactions with the dial plan timer.</p> <p>Default: 3</p>	Config File Web Interface
DialDelayIntercom	0 to 99	<p>Indicates the dial delay value for intercom call appearances. If set to <b>0</b>, the timer is disabled. Be aware of interactions with the dial plan timer.</p> <p>Default: 3</p>	Config File Web Interface
DialDelayPBX	0 to 99	<p>Indicates the dial delay value for PBX (i.e., dial 9) call appearances. If set to <b>0</b>, the timer is disabled. Be aware of interactions with the dial plan timer.</p> <p>Default: 3</p>	Config File Web Interface
DialPlanIntercom	ASCII String	<p>Indicates the dial plan for intercom call appearances. This string of characters specifies one or more dial plans for the phone.</p>	Config File Web Interface



**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
DialPlanExternal	ASCII String	Indicates the dial plan for external call appearances. This string of characters specifies one or more dial plans for the phone.	Config File Web Interface
DialPlanPBX	ASCII String	Indicates the dial plan for PBX call appearances. This string of characters specifies one or more dial plans for the phone.	Config File Web Interface
DialplanSendPound	True or False	Indicates whether to send # to the proxy when it is used to terminate a dial string.  Default: False	Config File Web Interface
DndBusyReject	True or False	Defines DND busy reject behavior: True=Return SIP 486 response False=NULL  Default: True	Config File Web Interface
DndDelay	0 to 30	Specifies the number of seconds before the DND behavior is triggered.  Default: 0	Config File Web Interface
DndRedirected	True or False	Enables redirecting the DND call to the URI specified in <b>DndRedirectAddress</b> after the time delay (in seconds) specified in <b>DndDelay</b> . True=Redirect to <b>DndRedirectAddress</b> False=NULL  Default: False	Config File Web Interface
DndRedirectAddress.x	URI or E.164	Specifies the address to redirect calls to if the <b>DndRedirect</b> parameter is true. <b>X</b> refers to the line specified in <b>reg.x.*</b> .	Config File Web Interface
DnsAddress	Up to 2 Comma Separated IP Addresses	List up to two domain naming system(DNS) Servers in dotted decimal format: 192.168.0.1, 192.168.0.2 This must be configured unless numeric IP addresses are supplied for all parameters and FQDN are not used.	DHCP Config File Phone Interface Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
DscpAudio	0 to 63	Sets the DSCPs for outbound audio packets from the phone. This is used to improve QoS handling on the network.  Default: 46	Config File Web Interface
DscpSignaling	0 to 63	Sets the DSCP for outbound signaling packets from the phone. This is used to improve QoS handling on the network.  Default: 26	Config File Web Interface
DstEnable	True or False	Enables or disables DST adjustments beginning at the hour, week, day, and month specified in <b>DstStart</b> through the time specified in <b>DstEnd</b> .  Default: True	Config File Phone Interface Web Interface
DstEnd	ASCII String	Indicates the end date of DST in MMWDHH  Where: <b>MM</b> is the month (1-12), <b>W</b> is the week of the month (1-5), <b>D</b> is the day of week (1=Sunday, 2=Monday, 3=Tuesday, 4=Wednesday, 5=Thursday, 6=Friday, 7=Saturday), and <b>HH</b> is the hour in 24-hour format.  Default: 111102	Config File Web Interface
DstStart	ASCII String	Indicates the start date of Daylight Savings Time (DST) in MMWDHH  Where: <b>MM</b> is the month (1-12), <b>W</b> is the week of the month (1-5), <b>D</b> is the day of week (1=Sunday, 2=Monday, 3=Tuesday, 4=Wednesday, 5=Thursday, 6=Friday, 7=Saturday), and <b>HH</b> is the hour in 24-hour format.  Default: 032102	Config File Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
DtmfLevels	-1 to -20	Adjusts the level of DTMF tones played into the network from the phone. These are attenuation levels in dB, so -1 is louder than -20.  Default: -10	Config File Web Interface
Ethernet1	ASCII String	Enables/disables the Ethernet interface (LAN port) and sets the speed negotiation options.  Example: Ethernet1 Status, Speed/Duplex Where: Status is Enable or Disable Speed/Duplex is one of the following: <ul style="list-style-type: none"> <li>• Auto</li> <li>• 10/FD</li> <li>• 10/HD</li> <li>• 100/FD</li> <li>• 100/HD</li> </ul> Default: Enable, Auto	Config File Phone Interface Web Interface
Ethernet2	ASCII String	Enables/disables the Ethernet interface (PC port) and sets the speed negotiation options.  Example: Ethernet2 Status, Speed/Duplex Where: Status is Enable or Disable Speed/Duplex is one of the following: <ul style="list-style-type: none"> <li>• Auto</li> <li>• 10/FD</li> <li>• 10/HD</li> <li>• 100/FD</li> <li>• 100/HD</li> </ul> Default: Enable, Auto	Config File Phone Interface Web Interface
ExtensionLabel	ASCII String or UTF-8 Encoded	Customizes the extension label displayed on the second line of an idle phone.	Config File Phone Interface Web Interface
FeatureExpires	10 to 65636	Defines the subscription interval in seconds for <b>FeatureUri</b> notifications.  Default: 3600	Config File Web Interface

Table 12. Configuration Parameters (Continued)

Parameter	Value Type	Description	Sources
FeatureUri.x	Request URI	Specifies the server (in URI format) to which feature-related state changes are sent. <b>X</b> refers to the line specified in <b>reg.x.*</b> .	Config File Web Interface
FtpLogin	Up to 16 ASCII Characters	Specifies the login that is used to access the FTP server.  Default: admin	Option 157 adtran_info.txt
FtpPassword	Up to 16 ASCII Characters	Specifies the password used to access the FTP server.  Default: password	Option 157 adtran_info.txt
FtpServers	FQDN or IP Address	Specifies up to two FTP servers, in comma separated format. If a server is unavailable, the phone goes through the list until a working server is found. <b>FtpServers</b> and <b>TftpServers</b> may not both be specified as the non-null value used to determine the download method for configuration files.	DHCP Phone Interface Web Interface Option 157
GatewayAddress	N/A	Specifies the gateway address for the phone.	DHCP Phone Interface Web Interface
GmtOffset	-1200 to 1300	Sets the time zone for the phone relative to GMT in hours and minutes.  For example: -500 is EST.  Default: -600	Config File Web Interface
GreyLevels	ASCII String	Adjusts the light and dark grey levels of the LCD display. <b>0</b> is white and <b>63</b> is black. Low middle grey level may have the values 0 to 63. High middle grey level may have the values 0 to 63.  Example: 20,40.	Config File Phone Interface Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
HandsetLevels	ASCII String	Sets the audio levels of the handset using a comma separated list of the following settings. The default values are listed next to the name: TxGain 5157 RxGain1 183 RxGain2 258 RxGain3 365 RxGain4 516 RxGain5 728 RxGain6 1029 RxGain7 1631 RxGain8 2303 RxGain9 3254 RxGain10 4596 Sidetone 460 Handset DTMF Attenuation 13	Config File
HeadsetCtl	True or False	Enables/disables switchhook control via current detection on the headset interface.  Default: False	Config File Web Interface
HeadsetLevels	ASCII String	Sets the headset audio levels using a comma separated list of the following settings. The default values are listed next to the name: TxGain 4096 RxGain1 183 RxGain2 258 RxGain3 365 RxGain4 516 RxGain5 728 RxGain6 1029 RxGain7 1631 RxGain8 2303 RxGain9 3254 RxGain10 4596 Sidetone 460 Headset DTMF Attenuation 13	Config File
HfaaiBeep	True or False	Enables (true) or disables (false) HFAAI notification. If enabled, a 600 ms tone is played before an HFAAI call is presented on the phone.  Default: True	Config File Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
HfaaiEnable	True or False	Enables (true) or disables (false) HFAAI calls on the phone.  Default: True	Config File Web Interface Phone Interface
HoldReminder	0 to 300	Indicates the number of seconds before the hold reminder tone is played. If set to <b>0</b> , the hold reminder is disabled.  Default: 0	Config File Web Interface
HoldSignal	2543 or 3264	Specifies the type of hold to be used. Incoming signaling can be of either type.  Default: 3264	Config File Web Interface
HttpServerEnable	True or False	Enables (true) or disables (false) the internal HTTP server.  Default: True	Config File Web Interface
HttpServerPort	0 to 65536	Specifies the port on which the HTTP server receives TCP traffic.  Default: 80	Config File Web Interface
IcmpArpTimeout	ASCII String	Specifies the number of seconds before routing table entries created by ICMP redirects are timed out of the routing table. If 0, then they never time out.  Default: 0	Config File Web Interface
IconPixmap	Up to 32 ASCII Characters	Specifies the path and file name to the server that contains the icon pixmap. This file is downloaded from the FTP/TFTP server upon boot. Format is .bmp, 16 color.  Default: iconixmap.bmp	Config File
IdleGroupPreference	0 to 11	Specifies which line will be preselected when idle, and then used for call origination when the phone goes offhook. The <b>IdleSelectOrder</b> parameter further defines the policy for selecting a specific physical line key should more than one be assigned to that line.	Config File Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
IntercomGroupPreference	0 to 11	Specifies which line (should be of GI type) represents the intercom lines on the phone. For key system mode, set this to the GI configured line. It appears on the phone as Intercoms.	Config File Web Interface
IdleSelectOrder	0 to 4	Defines the idle and originate preference selection order: 0=Select previous active and connected 1=Select lowest available index 2=Select highest available index 3=Select circular form, previous active and connected 4=No Select (incoming calls presented on highest available)  Default: 1	Config File Web Interface
Include	Up to 64 ASCII Characters	Specifies a file name that is included in the master configuration file. Files may be specified completely, or may include the variable \$Hardware. The value of the Hardware Version (programmed into flash at the factory, e.g., K01M01P01L01) is substituted for \$Hardware when the file name is created. This will permit parameters to be specified based on a specific hardware release.	Config File
IPAddress	N/A	Specifies the IP address for the phone.  Default: 0.0.0.0	DHCP Phone Interface Web Interface
Layer2Audio	0 to 7	Specifies outbound tagging on audio packets.  Default: 5	Config File
Layer2Signaling	0 to 7	Specifies outbound tagging on signaling packets.  Default: 3	Config File Web Interface
LineSeizeFailure	True or False	Enables tone notification when attempts to seize an SCA line fails (e.g., another user seizes the call first).  Default: True	Config File Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
MaxJitter	10 to 300	Sets the maximum time interval that the jitter buffer can utilize when dealing with delayed or misordered packets. Valid values are 10 to 300 ms in 1 ms steps.  Default: 50	Config File Web Interface
MessagesCallback	ASCII String	Indicates the user part of a SIP URL, such as 6133, or a valid SIP URL, such as 6133@adtran.com, that is called when the Message button is pressed.  Default: *98	Config File Web Interface
MwiLine	0 to 11	Specifies the line on which external MWI server subscribes originate.	Config File Web Interface
MwiExpires	10 to 65536	Specifies the expiration interval of the MWI server subscribes.  Default: 3600	Config File Web Interface
MwiSubscribeUri	Request URI	Specifies the Request URI sent to the external MWI server.	Config File Web Interface
MwiPrimary	0 to 12	Specifies the primary voice mailbox association. If a primary has not been set, it should be assumed that a primary mailbox does not exist. 0 through 11 refer to lines on the NetVanta server, and 12 refers to the external mailbox.	Config File Web Interface
MwiSecondary	0 to 12	Specifies the secondary mailbox association. If a secondary has not been set, it should be assumed that a secondary mailbox does not exist. 0 through 11 refer to lines on the NetVanta server, and 12 refers to the external mailbox.	Config File Web Interface



Table 12. Configuration Parameters (Continued)

Parameter	Value Type	Description	Sources
MwiCadence	0, 1, or 2	Selects the operating mode of the illuminated Messages function key. <b>0</b> = On if unread messages, off if none <b>1</b> = Flash at a 1 cycle/second rate if there are unread messages and off if none <b>2</b> = Flash 500 ms off and 500 ms on for each unread message. Multiple mailbox states are separated by 2 seconds off. If no unread messages, then the LED is off.  Default: 0	Config File Web Interface
OutboundProxy.z.Address.y	FQDN or IP Address	Address of the Outbound proxy server. <b>Z</b> may have a value between 0 and 11. <b>Y</b> = the server number and may be 1 or 2.	Config File Web Interface
OutboundProxy.z.Port.y	1 to 65536	Port for the Outbound Proxy Server. <b>Z</b> may have a value between 0 and 11. <b>Y</b> = the server number and may be 1 or 2.  Default: 5060	Config File Web Interface
OutboundProxyMaxRetry	1 to 3	Number of attempts to contact a server before the next one is tried.  Default: 3	Config File Web Interface
ParkZoneUri.x	Request URI	Specifies the Request URI that is used for outgoing invites to the park zone server. <b>x</b> refers to the line specified in <b>reg.x.*</b> .	Config File Web Interface
PhoneLabel	ASCII String or UTF-8 Encoded	Customizes the label displayed on the top line of the phone (e.g., the user name or company name).	Config File Phone Interface Web Interface
PickupZoneUri.x	Request URI	Request URI for outgoing invites to the pickup zone server. <b>X</b> refers to the line specified in <b>reg.x.*</b> .	Config File Web Interface

Table 12. Configuration Parameters (Continued)

Parameter	Value Type	Description	Sources
PopUpHold	0 to 5	Defines the number of seconds to leave the caller ID pop-up window open when an HFAAI or page-type call is received. Once the time has elapsed, the caller ID pop-up window is automatically closed.  Default: 3	Config File Web Interface
PreselectAnswer	True or False	Allows the user to answer an incoming call by pressing the line key on a ringing line. If the phone is idle, pressing the line key will activate the speakerphone. <b>True</b> = Select and answer/retrieve bridge <b>False</b> = Select only  Default: True	Config File Web Interface
PreselectOriginate	True or False	Originates a call when an idle line key is pressed. If the phone is idle, the speakerphone is activated. <b>True</b> = Select and originate <b>False</b> = Select only  Default: True	Config File Web Interface
PostselectAutoHold	True or False	Enables or disables placing deselected calls on hold automatically if another line is selected. Otherwise, the deselected call will be dropped. <b>True</b> = Hold current call <b>False</b> = Disconnect current call  Default: True	Config File Web Interface
ProxyServer.z.Address.y	FQDN or IP Address	An IP address, FQDN, or domain name for one or more proxy servers. If only a proxy domain name is specified, a SIP SRV record for the proxy must be configured in the DNS server and the <b>ProxyServer.z.Port.y</b> must be set to 0. Nonregistration-related SIP call signaling is sent to this address. <b>Y</b> = the server number. May be 1 or 2. <b>Z</b> may have a value between 0 and 11.	Config File Web Interface

Table 12. Configuration Parameters (Continued)

Parameter	Value Type	Description	Sources
ProxyServer.z.Port.y	0 to 65535	Port of the Registration Server. <b>Y</b> may be 1 or 2. 1 is the primary and 2 is the backup. If set to 0, then the value returned in the DNS_SRV lookup is used. A setting of zero also causes a DNS NAPTR lookup of the value in <b>ProxyServer.z.Address.y</b> . <b>Z</b> may have a value between 0 and 11.  Default: 5060	Config File Web Interface
ProxyServerMaxRetry	1 to 3	Number of attempts to contact a server before the next one is tried.  Default: 3	Config File Web Interface
RegServer.z.Address.y	FQDN or IP Address	An IP address, FQDN, or domain name for one or more registrar servers. If only a proxy domain name is specified, a SIP SRV record for the registrar must be configured in the DNS server and the <b>RegServer.z.Port.y</b> must be set to 0.  <b>Y</b> = the server number. May be 1 or 2. 1 is the primary and 2 is the backup. <b>Z</b> may have a value between 0 and 11.	Config File Web Interface
RegServer.z.Port.y	FQDN or IP Address	Port of the Registration Server. <b>Y</b> may be 1 or 2. 1 is the primary and 2 is the backup. If set to 0, then the value returned in the DNS_SRV lookup shall be used. A setting of zero also causes a DNS NAPTR lookup of the value in <b>RegServer.z.Address.y</b> . <b>Z</b> may have a value between 0 and 11.  Default: 5060	Config File Web Interface
RegServerExpires.z	10 to 65536	Registration interval in seconds. This setting also controls the subscription interval for Call-Info subscriptions. <b>Z</b> may have a value between 0 and 11.  Default: 3600	Config File Web Interface

Table 12. Configuration Parameters (Continued)

Parameter	Value Type	Description	Sources
RegServerMaxRetry	1 to 3	Number of attempts to contact a server before the next one is tried.  Default: 3	Config File Web Interface
RingerLevels	ASCII String	Set the audio levels of the ringer using a comma separated list of the following settings. The following default values (in decimal) are listed next to the name for clarity: RxGain1 130 RxGain2 258 RxGain3 410 RxGain4 649 RxGain5 1029 RxGain6 1631 RxGain7 2584 RxGain8 4096 RxGain9 6492 RxGain10 10284	Config File
RtpBase	ASCII String	Sets the base port from which the phone transmits and receives media. The valid range should be an even number from 3000 to 65408.  Given an RTP base, the phone should use the next 64 consecutive even numbers for RTP ports. If within that range an existing (reserved) odd or even User Datagram Protocol (UDP) port number is used, the phone should skip over an even/odd pair to the next even number. For example, if the user set <b>rtpBase</b> to 5550, 5552, 5556, 5558, etc. would be used. In this example, 5554 is skipped because 5555 is a reserved port used by the <b>phonectl</b> server.  If an odd number is specified, the next lowest even number, if it fits the above limitations, is used.  Default: 3000	Config File Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
SetupPassword	ASCII String	Customizes the MD5 hash of the password that is entered for restricted administration settings on the phone. This password is saved in flash memory after a value has been received in a config file so it can be enforced on subsequent reboots. It is cleared by the restore factory defaults command.  Default: 1234	Config File
SipKeepAlive	True or False	Enables (true) or disables (false) session timers.  Default: True	Config File Web Interface
SipUdpPort	1 to 65536	Sets the port used to receive SIP UDP traffic.  Default: 5060	Config File Web Interface
SipTimerBfh	3 to 32	Indicates the number of seconds before the SIP B, F, and H timers expire. This parameter impacts the server failover time.  Default: 32	Config File Web Interface
SiteOption	Up to 3 ASCII Characters	Sets the option number that the phone will request during DHCP transactions. If a value other than the default option 157 is set in a configuration file, the phone will re-initiate DHCP procedures using the new option. Valid range is between 128 and 254.  Default: 157	Config File Web Interface
SntpServer	Up to 3 Comma Separated FQDNs or IP Addresses	Specifies a list of up to 3 time servers in FQDN or dotted decimal format, from which to retrieve the time and date information. If from DHCP, only 1 server may be specified. Example: 192.168.0.1, 192.168.0.3, 192.168.0.4	DHCP Config File Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
SpeakerLevels	ASCII String	Sets the speakerphone audio levels using a comma separated list of the following settings. The following default values are listed next to the name: TxGain 4096 RxGain1 258 RxGain2 410 RxGain3 649 RxGain4 1029 RxGain5 1631 RxGain6 2584 RxGain7 4096 RxGain8 6492 RxGain9 10289 RxGain10 16306 Speaker DTMF Attenuation 13	Config File
SpreHfaai	ASCII String	Specifies the dialing prefix used to initiate HFAAI calls.  Default: **	Config File Web Interface
SprePageOverhead	ASCII String	Specifies the dial access code used to access the overhead paging system. If this value is null, then overhead page is not presented on the soft key as an option.  Default: *30	Config File Web Interface
StunServer	ASCII String	Specifies the FQDN or IP address of the STUN server, which may be required for operating phones behind NAT routers.	Config File Web Interface
SubNetMask	N/A	Indicates the network mask for the phone.  Default: 0.0.0.0	DHCP Phone Interface Web Interface
SystemPhonebook	ASCII String	Indicates the name of the system phone book file to download and backup. The format of this file is in comma separated value (CSV) and is compatible with most popular contact software exports.  Default: adtran_phonebook.csv	Config File Web Interface

**Table 12. Configuration Parameters (Continued)**

Parameter	Value Type	Description	Sources
TftpServers	FQDN or IP Address	Specifies a comma separated list of up to 2 TFTP servers. If a server is unavailable, the phone goes through the list until a working server is found. <b>FtpServers</b> and <b>TftpServers</b> may not both be specified in a DHCP offer or manually as the non-null value is used to determine the download method for configuration files.	DHCP Phone Interface Web Interface Option 157
TimeFormat	12 or 24	Indicates the clock format as either 12 hour with a.m./p.m., or 24 hour.  Default: 12	Config File Web Interface
UserConfirmTimer	400 to 1600	Indicates the number of milliseconds before a user action confirmation is removed from the caller ID pop-up window.  Default: 1000	Config File Web Interface
Version	ASCII String	Specifies the version identifier of the configuration file. This is reported in the menu structure under Phone Status.	Config File
VlanId	0 to 4095	Specifies the VLAN ID to be used on tagged packets from the phone.  Example: 1234  Default: 0	Option 157 Phone Interface Web Interface

## Line Parameters

All of the following Line Parameter settings shown in Table 13 can be set either through the administrator's Web interface or in the MAC address-based configuration file for each phone. The value of **x** is 0 through 5 on an IP 706 phone, or 0 through 11 on an IP 712 phone.

**Table 13. Line Parameters**

Parameter	Value Type	Description
Reg.x.AuthPassword	ASCII String	Specifies the password used to register a phone line with the registrar.
Reg.x.AuthUserId	ASCII String	Specifies the user name used to register a phone line with the registrar.
Reg.x CallerIdPopup	True or False	Enables (true) or disables (false) the incoming call pop-up window.  Default: True
Reg.x.Did	Up to 32 ASCII Characters	Specifies the DID number. Certain proxies may require a DID number that is different from the user name for authentication. If DID is not set, the <b>Reg.x.AuthUserId</b> is used both for authentication and as the DID number.
Reg.x.DisplayName	UTF-8 String	Specifies the display name for the SIP signaling.
Reg.x.Domain	ASCII String	Specifies the domain that is combined with the DID or User ID to create an URI. Also used during registration.
Reg.x.Enable	True or False	Enables or disables registration for a phone line.  Default: False
Reg.x.Label	UTF-8 Encoded String of 15 Characters or Less	Specifies the label that appears on the phone next to the call appearance. If not specified, <b>Reg.x.AuthUserId</b> is used.
Reg.x.LineSeize	10 to 65536	Indicates the number of seconds before a line seize subscription expires. Only used for shared call appearances.  Default: 30
Reg.x.Logging	True or False	Enables or disables call logging for a phone line.  Default: True
Reg.x.Multiple	True or False	Indicates if the line is an MCA line.  Default: False
Reg.x.Shared	True or False	Indicates if the line is an SCA line.  Default: False



**Table 13. Line Parameters (Continued)**

Parameter	Value Type	Description
Reg.x.Realm	GE, PE, GP, GI	<p>Identifies the calling realm of the phone line. This is used to decide which type of dial plan to apply to this phone line.</p> <p>General External (<b>GE</b>) - Used for general non-PBX-type outside lines.</p> <p>Private External (<b>PE</b>) - Used for private (few users) non-PBX-type outside lines.</p> <p>General PBX (<b>GP</b>) - Used for PBX call appearances that require an additional digit, such as 9 to be dialed to access outside numbers.</p> <p>General Intercom (<b>GI</b>) - Used for intercom lines configured for key system operation.</p> <p>GE and PE realms use <b>DialPlanExternal</b>, GI uses <b>DialPlanIntercom</b>, and GP uses <b>DialPlanPbx</b>.</p> <p>Default: GP</p>
Reg.x.Servers	0 to 11	Defines which pair of proxy and registrar servers should be used for this line.



## APPENDIX B. DIAL PLAN CONFIGURATION

This appendix describes how to configure the **DialPlanPbx**, **DialPlanIntercom**, and **DialPlanExternal** parameters. The dial plan applied is dependent on the realm that is assigned for the line (**Reg.x.Realm**). GE and PE realms use the **DialPlanExternal** parameter, GP uses the **DialPlanPbx** parameter, and GI uses the **DialPlanIntercom** parameter.

The following table shows the syntax for dial plan entries and explains the results.

**Table 14. Dial Plan Syntax Entries**

To Specify	Enter	Result
Digit	0 1 2 3 4 5 6 7 8 9 0	Identifies a specific digit.
Range of Digits	[Digit-Digit] OR [Digit-Digit, Digit]	Specifies a range that will match a digit.
Wildcard	x	Matches any single digit that is dialed. Matches any arbitrary number of digits or range of digits, including none.
Multiple Dial Plans		Specifies more than one dial plan using the   symbol to separate them. For example: 911 9xxxxxx
Timer	Tn	Indicates an additional time out period ( <b>n</b> = seconds in length) before digits are sent. <b>n</b> is mandatory and can have a value of <b>0</b> to <b>9</b> seconds. <b>Tn</b> must be the last 2 characters of a dial plan. If <b>Tn</b> is not specified, it is assumed to be <b>T0</b> by default on all dial plans. Note: The appropriate <b>DialDelay*</b> parameter must be set to <b>0</b> (disabled) if these timeout periods are used.

### Dial Plan Examples

This section provides the default dial plan for external calls and PBX environments. An explanation for each portion of the dial plan is provided to assist you in understanding the dial plan. Adjustments can be made to these parameters in the configuration file as needed for your situation.

#### Default External Dial Plan

The external dial plan is defined in the **DialPlanExternal** parameter. Table 15 explains the default numeric string by breaking it down into pieces. Each portion of the dial plan is divided by a bar (|) in the full string:

**0|911|[2-9]xxxxxx+T2|[2-9]xx[2-9]xxxxxx|[0-1][2-9]xx[2-9]xxxxxx|011xxx+T2**

**Table 15. External Dial Plan**

Dial Plan	Description
0	Allows for dialing the operator.
911	Allows for dialing emergency number.
[2-9]xxxxxx+T2	Allows for dialing 7-digit local numbers.
[2-9]xx[2-9]xxxxxx	Allows for dialing 10-digit numbers.
[0-1][2-9]xx[2-9]xxxxxx	Allows for dialing long distance calls.
011xxx+T2	Allows for dialing international numbers.

**Default PBX Dial Plan**

The PBX dial plan is defined in the **DialPlanPbx** parameter. Table 16 explains the default numeric string by breaking it down into pieces. Each portion of the dial plan is divided by a bar ( | ) in the full string:

**0|911|9911|[1-8]xxx|9[2-9]xxxxxx+T2|9[2-9]xx[2-9]xxxxxx|9[0-1][2-9]xx[2-9]xxxxxx|9011xxx+T2|\*[2-9][0-9,\*]+T2|\*1xx|\*\*xxxx**

**Table 16. PBX Dial Plan**

Dial Plan	Description
0	Allows for dialing the operator.
911	Allows for dialing emergency number.
9911	Allows for dialing emergency number.
[1-8]xxx	Allows for dialing 4-digit extension numbers.
9[2-9]xxxxxx+T2	Allows for dialing 7-digit local numbers.
9[2-9]xx[2-9]xxxxxx	Allows for dialing 10-digit numbers.
9[0-1][2-9]xx[2-9]xxxxxx	Allows for dialing long distance calls.
[2-9]xxxxxx+T2	Allows for dialing 7-digit local numbers.
9011xxx+T2	Allows for dialing international numbers.
*[2-9][0-9,*]+T2	Allows for assigning SPRE numbers.
*1xx	Reserved for future use.
**xxxx	Allows HFAAI functionality.

## APPENDIX C. GLOSSARY

**Active state/Active call:** Refers to when the phone is in use and connected to another phone.

**ARP:** Address Resolution Protocol.

**BLF/DSS:** Busy Lamp Field/Direct Station Select. BLF indicates the status of another phone. DSS dials another phone.

**Caller ID:** Service provided by some local telephone companies that supplies the calling party's phone number and name.

**CSV file:** Comma Separated Values file. The CSV file is a plain text file specially formatted to store spreadsheet or database information. CSV files are used as a method for transferring data between programs. For example, to load a phone book created in Microsoft Excel into your IP phone, save the Excel file as a CSV file and upload it to the phone through the Web GUI.

**DHCP:** Dynamic Host Configuration Protocol. DHCP is a protocol that assigns dynamic IP addresses to devices on a network. Each time the IP 706/IP 712 phone connects to the network, its IP address may change. The DHCP keeps track of the address changes.

**DID:** Direct Inward Dialing number. Essentially a number assigned to an extension within a VoIP PBX. The DID allows calls originating from PSTN to be routed to extensions within a VoIP network. Also, calls originating from the VoIP network use the assigned DID numbers as their originating direct dial number.

**Distinctive rings:** Distinctive Rings are specific ring tones set to specified numbers, allowing the user to recognize who is calling by the ring assigned to their number. Differing from internal/external rings, Distinctive Rings apply only to specified numbers in the Personal Contacts list.

**DND:** Do Not Disturb prevents calls from ringing and paging over a speakerphone.

**Duplex:** Refers to the communication ability of two devices in a system. Half-Duplex means conversation between two devices can only go one direction at a time; Full-Duplex allows for communication in two directions simultaneously.

**Firmware:** The software that is embedded in a hardware device.

**Function keys:** The keys on the phone face that have an assigned function that does not change.

**Handset:** The hand-held part of the phone that contains the audio transmitter and receiver.

**Headset:** A handsfree device worn on the head that contains the audio transmitter and receiver.

**HFAAI:** Handsfree Auto Answer Intercom. The HFAAI feature enables the phone to answer calls automatically (without ringing) when both parties have HFAAI activated on their phones.

**ICMP:** Internet Control Message Protocol.

**Idle screen:** The LCD display when the phone is in an idle state.

**Idle state:** Refers to the state when the phone is not in use and is not connected to an active call. In this state, the LCD displays the idle screen.

**IP Address:** Internet Protocol Address. IP addresses are used by devices on a computer network to uniquely identify themselves and communicate with other devices via Internet protocol.

**Key system:** The Key system is the type of phone system most often used by small businesses that do not require the larger number of phone lines supported by a PBX system. Key systems have a line key assigned for each outside line and separate buttons for internal calling, unlike the grouping of the PBX systems.

**LCD:** Liquid Crystal Display. A display device made up of pixels in front of a light source or reflector. The main screen on the IP phones is an LCD.

**LED:** Light Emitting Diode. Semiconductor device that emits narrow-spectrum light.

**Line appearance:** How the phone line appears and/or is labeled on the LCD on the IP phones.

**Line keys:** The keys located down the right and left sides of the LCD, next to each line appearance. Line keys allow the use of different lines on the IP phones.

**Link:** The connection between the IP 706/IP 712 phone and the network or other devices.

**Message Waiting Indicator (MWI):** The LED that illuminates the **Message** function key that alerts the user there are waiting voicemail messages.

**MWI cadence:** The rate at which the Message Waiting Indicator light blinks to indicate messages.

**Navigation bar:** The directional hard keys in the center of the IP phone face. They include the Menu, Cancel, and Ok keys and the directional arrows.

**Negotiation:** A method of determining the best process for information transport.

**Park orbit:** Allows a parked call to be picked up from any phone in the system. The orbit number allows the tracking of specific calls throughout the system (PBX only).

**PBX system:** Private branch exchange. The PBX system is the type of phone system most often used by larger companies because it supports a larger number of lines than a Key system. The main feature of a PBX system is that it has phone lines pooled into groups. For example, when dialing an outside line, pressing 9 automatically assigns an outside line from the outside line group.

**Ping:** A computer network tool used to test whether various hosts are accessible over IP networks.

**PoE power supply:** Power over Ethernet (PoE) power supply. Supplies power and data over standard twisted-pair cables in an Ethernet network.

**Proxy:** A server in a network that requests information from other servers on behalf of its clients.

**SIP server:** Session Internet Protocol server. A SIP server functions as registrar and proxy servers, allowing the SIP communication process between devices.

**Soft keys:** The keys located across the bottom of the LCD screen that are associated with functions displayed on the screen. As menus and screens change, the functions correlated with each soft key also change.

**Speakerphone:** The internal part of the phone that transmits and receives audio signals through a speaker, allowing for phone communication without the use of a handset or headset.

**Speed:** The rate of information transfer between the IP phone and the network.

**SPRE:** Special Prefix codes are numbers dialed to use certain features on the phone.

**STUN server:** Simple Traversal of UDP (User Datagram Protocol) through NATs (Network Address Translators) server. A server providing network information to a client to establish UDP communication between the two, both which reside behind NAT routers.

**Web GUI:** Web Graphical User Interface. A user-friendly method of interacting with the IP phone through a Web interface.