V630

VoIP Wi-Fi Phone

DRAFT

User's Guide

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ZyXEL

www.zyxel.com

DRAFT

About This User's Guide

Intended Audience

This manual is intended for people who want to configure the V630 using the keypad or web configurator.

Related Documentation

- Quick Start Guide
  The Quick Start Guide is designed to help you connect and make wireless VoIP calls right away.

See the web configurator sections of this User's Guide for background information on features that you can configure in the web configurator.

- Supporting Disk
  Refer to the included CD for support documents.
- ZyXEL Web Site
  Please refer to www.zyxel.com for additional support documentation and product certifications.

User's Guide Feedback

Help us help you. Send all User's Guide-related comments, questions or suggestions for improvement to the following address, or use e-mail instead. Thank you!

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Document Conventions

Warnings and Notes

These are how warnings and notes are shown in this User's Guide.

Warnings tell you about things that could harm you or your V630.

Notes tell you other important information (for example, other things you may need to configure or helpful tips) or recommendations.

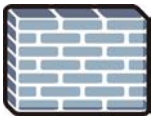
Syntax Conventions

- The V630 may be referred to as the "V630", the "device", the "system" or the "product" in this User's Guide.
- Product labels, screen names, field labels and field choices are all in **bold** font.
- A key stroke is denoted by square brackets and uppercase text, for example, [ENTER] means the "enter" or "return" key on your keyboard.
- "Enter" means for you to type one or more characters and then press the [ENTER] key. "Select" or "choose" means for you to use one of the predefined choices.
- A right angle bracket (>) within a screen name denotes a mouse click. For example, **Maintenance > Log > Log Setting** means you first click **Maintenance** in the navigation panel, then the **Log** sub menu and finally the **Log Setting** tab to get to that screen.
- Units of measurement may denote the "metric" value or the "scientific" value. For example, "k" for kilo may denote "1000" or "1024", "M" for mega may denote "1000000" or "1048576" and so on.
- "e.g.," is a shorthand for "for instance", and "i.e.," means "that is" or "in other words".

Icons Used in Figures

Figures in this User's Guide may use the following generic icons. The V630 icon is not an exact representation of your V630.

Table 1 Common Icons

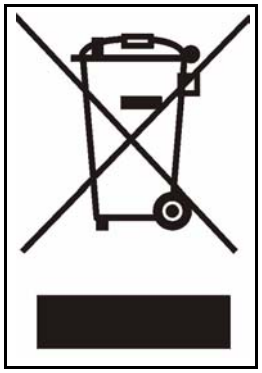
V630 	Computer 	Notebook 
Server 	Printer 	Telephone 
Switch 	Router 	Internet Cloud 
Firewall 	Modem 	Wireless Signal 

Safety Warnings

For your safety, be sure to read and follow all warning notices and instructions.

- Do NOT use this product near water, for example, in a wet basement or near a swimming pool.
- Do NOT expose your device to dampness, dust or corrosive liquids.
- Do NOT store things on the device.
- Do NOT install, use, or service this device during a thunderstorm. There is a remote risk of electric shock from lightning.
- Connect ONLY suitable accessories to the device.
- Do NOT open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks. ONLY qualified service personnel should service or disassemble this device. Please contact your vendor for further information.
- Use ONLY an appropriate power adaptor or cord for your device. Connect it to the right supply voltage (for example, 110V AC in North America or 230V AC in Europe).
- Do NOT allow anything to rest on the power adaptor or cord and do NOT place the product where anyone can walk on the power adaptor or cord.
- Do NOT use the device if the power adaptor or cord is damaged as it might cause electrocution.
- If the power adaptor or cord is damaged, remove it from the device and the power source.
- CAUTION: RISK OF EXPLOSION IF BATTERY (on the motherboard) IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS. Dispose them at the applicable collection point for the recycling of electrical and electronic equipment. For detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the store where you purchased the product.
- Do NOT attempt to repair the power adaptor or cord. Contact your local vendor to order a new one.

This product is recyclable. Dispose of it properly.



Contents Overview

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PART I
Introduction

1

Introducing the V630

This chapter introduces the main applications and features of the V630. It also introduces the ways you can manage the V630.

1.1 Overview

The V630 is a wireless IP phone that allows you to use a wireless network connection to make and receive phone calls over the Internet. Sending voice signals over the Internet is called Voice over IP (VoIP). VoIP allows you to call other IP phones, mobile phones or landlines all over the world. The V630 allows you to make and receive VoIP calls as long you are within range of an IEEE 802.11b or IEEE 802.11g enabled wireless network.

The V630 uses WMM (Wi-Fi MultiMedia) QoS (Quality of Service) to help ensure the sound quality of your calls.

The V630 is packed with features - including multiple SIP accounts, phonebook, conference calls, call transfer, call hold, and others.

You can configure and manage the V630 directly, using its multi-function keypad and LCD screen. Access the internal web configurator using a computer connected to the network to upgrade firmware.

1.2 Applications

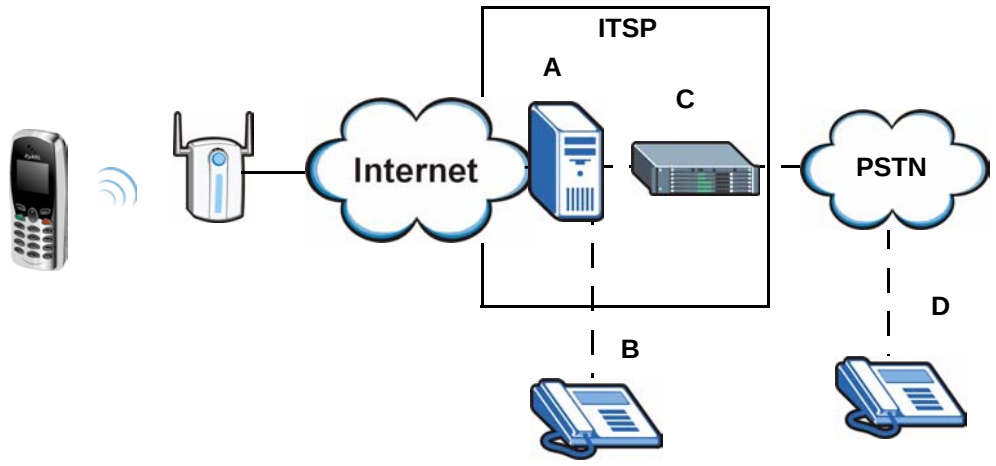
1.2.1 Make Calls via Internet Telephony Service Provider

When you have a (IEEE 802.11b) wireless connection to the Internet, you can use the Prestige to make and receive VoIP telephone calls through an Internet Telephony Service Provider’s (ITSP) call server.

You don’t need to know if the recipient’s connection type is an IP, cellular or land line based service. Your Prestige can call any land line or mobile telephone that a traditional PSTN telephone can connect to as well the IP telephone network. Calls received from IP telephones works exactly as you would expect from the traditional telephone service.

The following figure shows a basic example of how you make a VoIP call through an ITSP. In this example, you make a call from your V630, which sends the call through your Internet connection to the ITSP's SIP server (**A**). The VoIP call server forwards calls to IP phones (**B**) through the Internet. The VoIP call server also forwards calls to PSTN (Public Switched Telephone Network) phones through a trunking gateway (**C**) to phones on the PSTN network (**D**).

Figure 1 Internet Telephony Service Provider Application

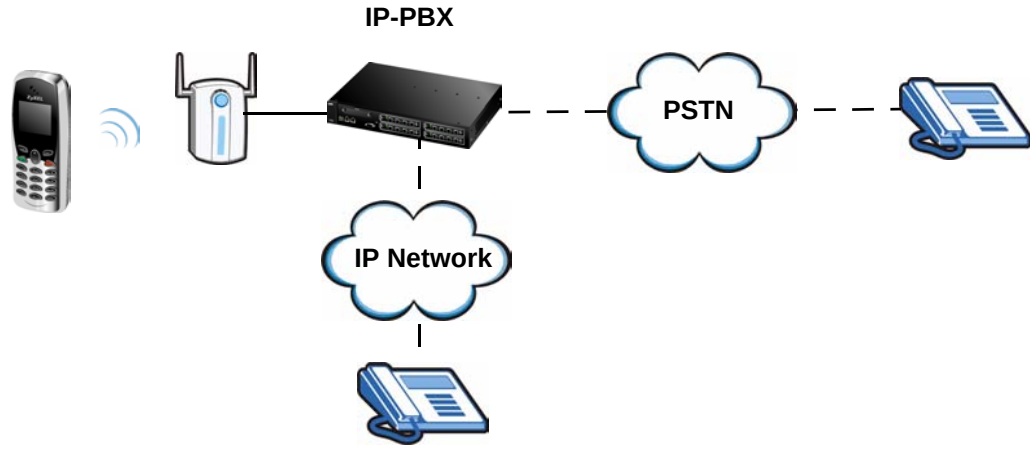


1.2.2 Make Calls via IP-PBX

If your company has an IP-PBX (Internet Protocol Private Branch Exchange), you can use the V630 to make and receive VoIP telephone calls through it.

In this example, you make a call from your V630, which sends it to the IP-PBX. The IP-PBX forwards calls to IP phones through an IP network (the IP phones could also be on the company network or connected to the Internet). The IP-PBX also forwards calls to PSTN phones.

Figure 2 IP-PBX Application

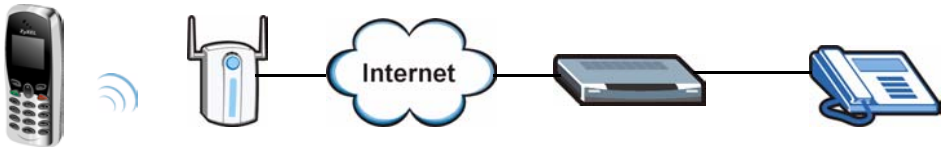


1.2.3 Make Peer to Peer Calls

Use the V630 to make a call to the recipient's IP address without using a SIP server. Peer-to-peer calls are also called "P2P", "Point to Point", or "IP-to-IP" calls. You must know the peer's IP address in order to do this.

The following figure shows a basic example of how you would make a peer-to-peer VoIP call. You make a call on your V630, which sends your call through your Internet connection to the peer VoIP device.

Figure 3 Peer-to-peer Calling



1.3 Ways to Manage the V630

Use any of the following methods to manage the V630.

- Hardware keys. Use the control keys and LCD menus on the V630 for basic configuration. Refer to the Quick Start Guide for descriptions of the hardware features and how to perform basic phone functions.
- Web Configurator. Use this to upload firmware to the V630 using a (supported) web browser.

1.4 Good Habits for Managing the V630

Do the following things regularly to make the V630 more secure and to manage the V630 more effectively.

- Change the web configurator password. Use a password that's not easy to guess and that consists of different types of characters, such as numbers and letters.
- Write down the password and put it in a safe place.
- Keep the V630 in a safe place. The LCD menus are not password-protected, so anyone using the phone can access your phonebook, SIP account information, and so on.

PART II
LCD Screen Menus

2

Using the LCD Screen

This chapter shows how to use and configure the V630 via the LCD screen menu system.

See the Quick Start Guide for a basic introduction to the LCD screen.

2.1 Entering the Menu System

From the V630's main screen, press the **Left** key (**Menu**) to enter the menus. The **Main Menu** screen displays as shown below.

Figure 4 Main Menu

```
-------Main Menu----
1 Call log
2 Profiles
3 Setup
4 Network

Select          Back
```

See the following chapters for details on configuring each menu.

2.2 Navigation

Use the following keys to move around the V630's LCD screen menu system.

- The **Up** and **Down** keys
  Use this to move the cursor up and down (when selecting a menu item) or left and right (when editing a field).
- An asterisk (*) next to a menu item identifies the currently configured option.
- The **Left** and **Right** keys
  Look at the LCD screen. If there is a word or symbol above a softkey, press the key to perform the function.
- The alphanumeric keypad
  Enter a menu item's number to jump to that item (single-digit numbers only).

2.3 Entering Numbers, Letters and Symbols

When you enter information into the V630 (when setting up a phonebook entry, for example) you may need to enter different kinds of characters. The alphanumeric keypad has these input modes:

- **Lowercase mode**
- **Uppercase mode**

Use the **#** key to cycle between modes.

Not all modes are available in all screens.

When you press a key to enter a character, wait a short time until the cursor moves on to the next space. Press a key multiple times to access the different characters. For example, in **Uppercase mode** press **9** four times to enter "**Z**".

The following tables show the numbers, letters and symbols you can enter in each mode.

Table 2 Lowercase Mode Keypad Characters

		Character Entered for Each Number of Key Presses												
		1	2	3	4	5	6	7	8	9	10	11	12	13
KEY	1	.	,	‘	?	!	-	&	#	1	_	€		
	2	a	b	c	2	à	á	â	ã	ä	å	ç		
	3	d	e	f	3	è	é	ê	ë					
	4	g	h	i	4	ì	í	î	ï					
	5	j	k	l	5	£								
	6	m	n	o	6	ñ	ò	ó	ô	õ	ö	ø		
	7	p	q	r	s	7	ß	$						
	8	t	u	v	8	ù	ú	û	ü					
	9	w	x	y	z	9	ý							
	*	*	@											
	0	0, +	space											
	#	[CYCLE MODE]												

Table 3 Uppercase Mode Keypad Characters

		Character Entered for Each Number of Key Presses												
		1	2	3	4	5	6	7	8	9	10	11	12	13
KEY	1	.	,	‘	?	!	-	&	#	1	_	€		
	2	A	B	C	2	À	Á	Â	Ã	Ä	Å	Ç		
	3	D	E	F	3	È	É	Ê	Ë					
	4	G	H	I	4	Ì	Í	Î	Ï					
	5	J	K	L	5	£								
	6	M	N	O	6	Ñ	Ò	Ó	Ô	Õ	Ö	Ø		
	7	P	Q	R	S	7	$							
	8	T	U	V	8	Ù	Ú	Û	Ü					
	9	W	X	Y	Z	9	ý							
	*	*	@											
	0	0, +	space											
	#	[CYCLE MODE]												

2.4 LCD Menu Overview

This section shows the main LCD menus, and describes what you can do with each.

Table 4 LCD Main Menus Overview

MENU		DESCRIPTION
Call Log	Missed Calls	Use this menu to list the originating numbers of unanswered calls.
	Received Calls	Use this menu to list the originating numbers of answered calls.
	Dialed Calls	Use this menu to list the numbers the V630 has called.
	Delete all	Use this menu to clear all the records in the call log.

Table 4 LCD Main Menus Overview (continued)

MENU			DESCRIPTION
Profiles	Normal	Activate	Select this phone profile to use regular tone, volume, and ring settings.
		Personalize	Use this menu to customize the normal profile's tone, volume, and ring settings.
	Meeting	Activate	Select this phone profile for more discrete tone, volume, and ring settings.
		Personalize	Use this menu to customize the meeting profile's tone, volume, and ring settings.
	Outdoor	Activate	Select this phone profile for louder tone, volume, and ring settings.
		Personalize	Use this menu to customize the outdoor profile's tone, volume, and ring settings.
	Add to Profile		Use this menu to create a new profile of tone, volume, and ring settings.
Setup	DateTime	Set Time/Date	Manually set the time and date.
		Auto Clock Sync.	Set whether or not the V630 gets the time from an NTP time server. When you enable this, specify the server's address.
		Set Time Zone	Set the V630 to the local time zone.
	Phone Setting	Language	Select the menu display language.
		Phone lock	Enable or disable the keypad locking function or set the keypad lock to turn on automatically if you do not use the V630 for a specific time.
		Backlight	Set how long the backlight stays on after you stop pressing the V630's keys. You can also set it to be always on or off.
		Quick Button	Set the functions of the **Up** and **Down** keys in the main screen.
		Web Config	Turn web configurator access on or off.
		FW Upgrade	Upgrade firmware from an HTTP server. Specify the server's IP address and port number.
		Restore factory	Reset the V630 to the factory default settings.
	Call Setting	Forward	Use this to configure call forwarding.
		Send Caller ID	Set whether or not the V630 sends its phone number to the callee.
	Information	TCP/IP	Check the V630's IP settings.
		WLAN	Check the V630's wireless LAN settings.
		SIP	Check the V630's VoIP settings.
		HW	Check the V630's free storage space, firmware, and MAC address.
		Log	Check V630's system events log.

Table 4 LCD Main Menus Overview (continued)

MENU			DESCRIPTION
Network	Site scan		Looks for available Access Points (APs).
	WLAN Profiles	Profiles List	Look through and edit already configured profiles of WLAN settings.
		Add to Profile	Create a profile of WLAN settings.
		WPS	Connect to a WPS-enabled AP.
	SIP Profiles	Profiles List	Look through and edit already configured profiles of SIP settings.
		Add to Profile	Create a profile of SIP settings.
	Ping test	Manual	Specify an IP address to which to send a ping.
		Gateway	Send a ping to the gateway IP address.
		DNS	Send a ping to the DNS server IP address.
		SIP Server	Send a ping to the SIP server.
		SIP Proxy	Send a ping to the SIP proxy server.
		Outbound Proxy	Send a ping to the SIP outbound proxy server.
		Stun Server	Send a ping to the STUN server.
	Re-connect		Have the V630 attempt to connect to the WLAN.

This section describes the phonebook LCD menus which you access by pressing the **Right** key from the main screen.

Table 5 LCD Phonebook Menus Overview

MENU			DESCRIPTION
Phonebook	Talk		Call the selected contact.
	Detail		Display the information configured for the selected contact.
	Edit		Use this to modify the information configured for the selected contact.
	Delete		Remove the selected contact.
	Add		Create a new contact entry.
	Group	None	Select this to not add the contact to any group.
		Business	Add members to this group and specify the ring tone for incoming calls coming from them.
		Family	Add members to this group and specify the ring tone for incoming calls coming from them.
		Friends	Add members to this group and specify the ring tone for incoming calls coming from them.
		VIP	Add members to this group and specify the ring tone for incoming calls coming from them.
		Other	Add members to this group and specify the ring tone for incoming calls coming from them.
	Speed Dial		Set up one-touch calling for phone numbers you call often.
	Delete All		Remove all phone book entries.
	Memory Status		This shows how many more phone book entries the V630 can store.

3

Call Log LCD Menus

This chapter discusses the V630's **Call Log** LCD menus.

3.1 Call Log

The **Call Log** menu allows you to quickly check the numbers of the most recent missed, received, or dialed calls. Press **Menu** > **Call Log** to display the following screen.

Figure 5 Menu > Call log

```
-------Call log----
1 Missed Calls
2 Received Calls
3 Dialed Calls
4 Delete all

Select          Back
```

The following table describes the labels in this screen.

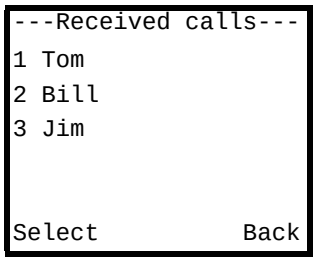
Table 6 Menu > Call log

LABEL	DESCRIPTION
Missed Calls	Use this menu to list the originating numbers of unanswered calls.
Received Calls	Use this menu to list the originating numbers of answered calls.
Dialed Calls	Use this menu to list the numbers the V630 has called.
Delete all	Use this menu to clear all the records in the call log.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

3.2 Received Calls

The **Received Calls** menu allows you to quickly check the numbers of the most recent received calls. Press **Menu** > **Call Log** > **Received Calls** to display the following screen. The missed calls and dialed calls lists work in the same manner.

Figure 6 Menu > Call log > Received Calls



The following table describes the labels in this screen.

Table 7 Menu > Call log > Received Calls

LABEL	DESCRIPTION
Received Calls	Select an entry to see the time and date of the call.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

4

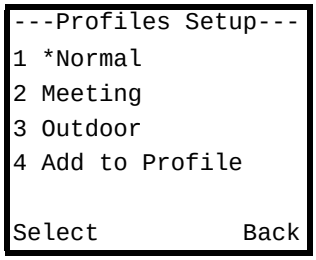
Profiles LCD Menus

This chapter discusses the V630's **Profiles** LCD menus.

4.1 Profiles Setup

Use the **Profiles** menu to select or modify a profile of tone, volume, and ring settings. Press **Menu** > **Profiles** to display the following screen.

Figure 7 Menu > Profiles



The following table describes the labels in this screen.

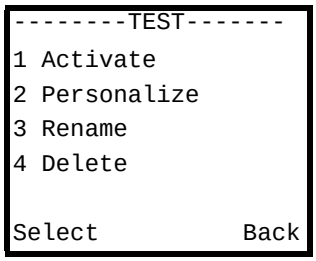
Table 8 Menu > Profiles

LABEL	DESCRIPTION
Normal	Use this menu to turn on the normal profile and/or configure the normal profile's tone, volume, and ring settings.
Meeting	The meeting profile provides more discrete tone, volume, and ring settings. Use this menu to turn on the meeting profile and/or configure the meeting profile's tone, volume, and ring settings.
Outdoor	The outdoors profile has louder tone, volume, and ring settings. Use this menu to turn on the outdoors profile and/or configure the outdoors profile's tone, volume, and ring settings.
Add to Profile	Use this menu to create a new profile of tone, volume, and ring settings.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

4.2 Phone Profile Options

Press **Menu** > **Profiles** to display the profiles. Select a profile to open the following menu. A user-added profile named **TEST** is shown in this example). You can turn on the profile or configure its settings. You can also rename or delete a user-added profile.

Figure 8 Menu > Profiles > Profile



The following table describes the labels in this screen.

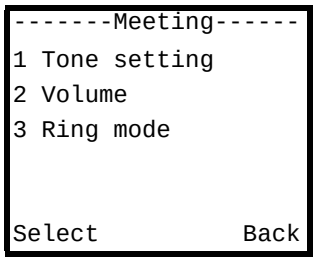
Table 9 Menu > Profiles > Profile

LABEL	DESCRIPTION
Activate	Select this to have the V630 use the profile's tone, volume, and ring settings. Note: There is also a quick button shortcut. Hold down the * key to switch between the current profile and the meeting profile.
Personalize	Select this to configure the profile's tone, volume, and ring settings.
Rename	Select this to change the name of the profile. This option only appears for profiles that you add. It does not appear with the default profiles.
Delete	Select this to remove the profile. This option only appears for profiles that you add. It does not appear with the default profiles.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

4.3 Phone Profile Personalization

Press **Menu** > **Profiles** to display the profiles. Select a profile (**Meeting** in this example) and then select **Personalize** to open the following menu. Select whether you want to edit the profile's tone, volume, or ring settings.

Figure 9 Menu > Profiles > Profile > Personalize



The following table describes the labels in this screen.

Table 10 Menu > Profiles > Profile > Personalize

LABEL	DESCRIPTION
Tone setting	Select this to configure the profile's ring and/or key tone settings.
Volume	Select this to configure the profile's ring, receiver, speaker, and/or key tone volume settings.
Ring mode	Select this to set the profile to have the V630 ring, vibrate, ring and vibrate, or vibrate and then ring for incoming calls.

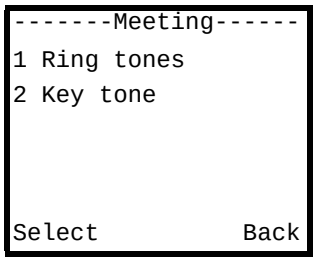
Table 10 Menu > Profiles > Profile > Personalize

LABEL	DESCRIPTION
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

4.4 Tone Personalization

Press **Menu** > **Profiles** to display the profiles. Select a profile (**Meeting** in this example) and then select **Personalize** > **Tone setting** to open the following menu. Select whether you want to edit the profile's ring tone or key tone settings.

Figure 10 Menu > Profiles > Profile > Personalize > Tone Setting



The following table describes the labels in this screen.

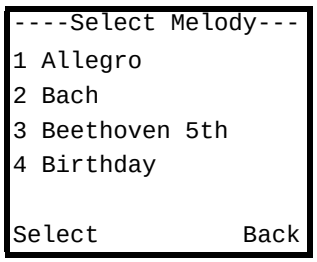
Table 11 Menu > Profiles > Profile > Personalize > Tone Setting

LABEL	DESCRIPTION
Ring tones	Select this to chose the ring tone for incoming calls.
Key tone	Select this to turn the key tone (sounds when you press the keys) on or off.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

4.5 Ring Tone Personalization

Press **Menu** > **Profiles** to display the profiles. Select a profile (**Meeting** in this example) and then select **Personalize** > **Tone setting** > **Ring tones** to open the following menu. Use this to select the profile's ring tone.

Figure 11 Menu > Profiles > Profile > Personalize > Tone Setting > Ring tones



The following table describes the labels in this screen.

Table 12 Menu > Profiles > Profile > Personalize > Tone Setting > Ring tones

LABEL	DESCRIPTION
Select Melody	Select the ring tone for incoming calls. Leave the cursor on a ring tone for a preview of the tone. The V630's current phone profile must be set to use an audible ring for incoming calls in order for you to here the preview.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

4.6 Volume Personalization

Press **Menu** > **Profiles** to display the profiles. Select a profile (**Meeting** in this example) and then select **Personalize** > **Volume** to open the following menu. You can modify the profile's ring, receiver, speaker, and/or key tone volume settings.

Figure 12 Menu > Profiles > Profile > Personalize > Volume

```
-------Volume------
1 Ring Vol.
2 Receiver Vol.
3 Speaker Vol.
4 Key tone Vol.

Select          Back
```

The following table describes the labels in this screen.

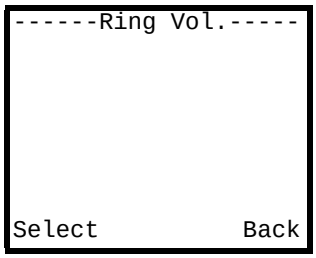
Table 13 Menu > Profiles > Profile > Personalize > Volume

LABEL	DESCRIPTION
Ring Vol.	Select this to set how loud the ring tone for incoming calls is.
Receiver Vol.	Select this to set how loud your voice sounds to the person you are talking to.
Speaker Vol.	Select this to set the volume of the V630's speaker (how loud the voice of the person you are talking to sounds).
Key tone Vol.	Select this to set the key tone volume (how load the sounds are when you press the keys).
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

4.7 Ring Volume Personalization

Press **Menu** > **Profiles** to display the profiles. Select a profile (**Meeting** in this example) and then select **Personalize** > **Volume**. When you select an option in the **Volume** menu, a screen similar to the following displays. This example uses the **Ring Vol.** screen.

Figure 13 Menu > Profiles > Profile > Personalize > Volume > Ring Vol.



The following table describes the labels in this screen.

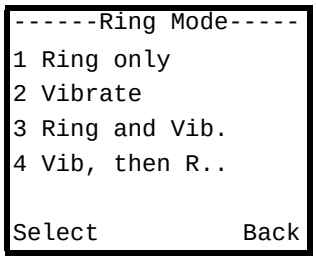
Table 14 Menu > Profiles > Profile > Personalize > Volume > Ring Vol.

LABEL	DESCRIPTION
Ring Vol.	The bar in the screen displays the volume setting. Use the numbers on the keypad to set the volume higher or lower.
Back	Press this to return to the previous screen.

4.8 Ring Mode Personalization

Press **Menu** > **Profiles** to display the profiles. Select a profile (**Meeting** in this example) and then select **Personalize** > **Ring Mode** to open the following menu. You can set the profile to have the V630 ring, vibrate, ring and vibrate, or vibrate and then ring for incoming calls.

Figure 14 Menu > Profiles > Profile > Personalize > Ring Mode



The following table describes the labels in this screen.

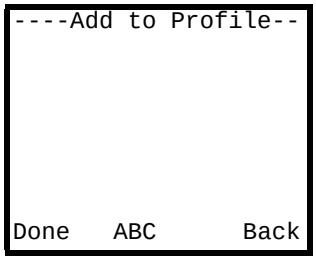
Table 15 Menu > Profiles > Profile > Personalize > Ring Mode

LABEL	DESCRIPTION
Ring only	Select this to have the phone only ring for incoming calls (not vibrate).
Vibrate	Select this to have the phone only vibrate for incoming calls (not ring).
Ring and Vib.	Select this to have the phone ring and vibrate for incoming calls.
Vib, then Ring	Select this to have the phone vibrate first for an incoming call and then ring if you haven't answered it yet.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

4.9 Adding a Phone Profile

Press **Menu** > **Profiles** to display the profiles. Select **Add to Profile** to open the following menu. Use this menu to configure the name of the new profile. Then you can use the menus to configure the profile in the same way that you configure an existing profile.

Figure 15 Menu > Profiles > Add to Profile



The following table describes the labels in this screen.

Table 16 Menu > Profiles > Add to Profile

LABEL	DESCRIPTION
	Input the name of the profile. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
ABC	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

5

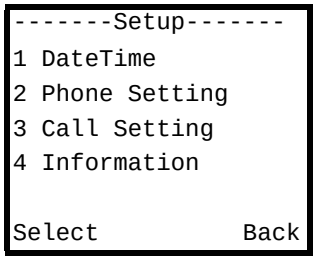
General Setup LCD Menus

This chapter discusses the V630's **Setup** LCD menus.

5.1 General Setup

Use the **Setup** menu to configure the V630's general settings and display various types of status information. Press **Menu** > **Setup** to display the following screen.

Figure 16 Menu > Setup



The following table describes the labels in this screen.

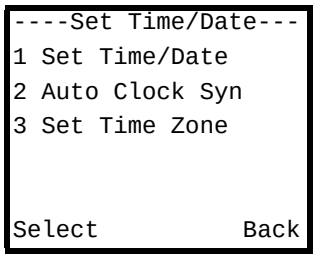
Table 17 Menu > Setup

LABEL	DESCRIPTION
DateTime	Select this to configure the V630's time and date settings.
Phone Setting	Select this to configure the V630's general phone settings such as the display language, keypad lock, backlight, quick access buttons, and web configurator access. You can also upgrade the V630's firmware or reset the V630 to the factory default settings.
Call Setting	Select this to configure call forwarding and whether or not the V630 sends its phone number to the callee.
Information	Select this to check the V630's IP, wireless LAN, and VoIP settings. You can also display the V630's free storage space, firmware, MAC address, and system events log.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.2 Date and Time Setup

Press **Menu** > **Setup** > **DateTime** to display the following screen. Use this menu to select what time and date settings you want to configure.

Figure 17 Menu > Setup > DateTime



The following table describes the labels in this screen.

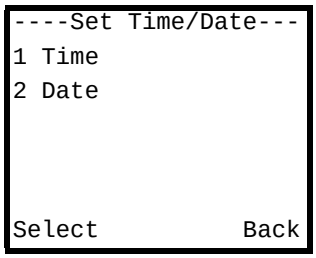
Table 18 Menu > Setup > DateTime

LABEL	DESCRIPTION
Set Time/Date	Select this to manually set the time and date.
Auto Clock Sync.	Select this to set whether or not the V630 gets the time from an NTP time server. When you enable this, specify the server's address.
Set Time Zone	Select this to set the V630 to the local time zone.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.3 Manual Date or Time Setup

Press **Menu** > **Setup** > **DateTime** > **Set Time/Date** to display the following screen. Use this menu to select whether to want to manually set the time or the date.

Figure 18 Menu > Setup > DateTime > Set Time/Date



The following table describes the labels in this screen.

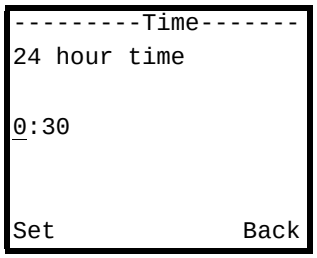
Table 19 Menu > Setup > DateTime > Set Time/Date

LABEL	DESCRIPTION
Time	Select this to manually set the time.
Date	Select this to manually set the date.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.4 Manual Time Setup

Press **Menu** > **Setup** > **DateTime** > **Set Time/Date** > **Time** to display the following screen. Use this menu to select whether to manually set the time.

Figure 19 Menu > Setup > DateTime > Set Time/Date > Time



The following table describes the labels in this screen.

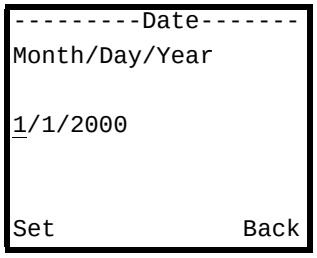
Table 20 Menu > Setup > DateTime > Set Time/Date > Time

LABEL	DESCRIPTION
24 hour time	Use the numbers on the keypad to set the hour (in 24-hour format) and then the minute. Use the **Up** and **Down** keys if you need to move the cursor.
Set	Press this to enter your setting.
Back	Press this to return to the previous screen.

5.5 Manual Date Setup

Press **Menu** > **Setup** > **DateTime** > **Set Time/Date** > **Date** to display the following screen. Use this menu to select whether to manually set the date.

Figure 20 Menu > Setup > DateTime > Set Time/Date > Date



The following table describes the labels in this screen.

Table 21 Menu > Setup > DateTime > Set Time/Date > Date

LABEL	DESCRIPTION
Month/Day/Year	Use the numbers on the keypad to set the month, day, and year. Use the **Up** and **Down** keys if you need to move the cursor.
Set	Press this to enter your setting.
Back	Press this to return to the previous screen.

5.6 Using a Time Server

Press **Menu** > **Setup** > **DateTime** > **Auto Clock Syn** to display the following screen. Use this menu to set whether or not the V630 uses a time server.

The V630 has to be able to connect to the Internet to actually get the time and date from a time server.

Figure 21 Menu > Setup > DateTime > Auto Clock Syn

```
---Auto clock set---
1 Enable
2 Disable




Select          Back
```

The following table describes the labels in this screen.

Table 22 Menu > Setup > DateTime > Auto Clock Syn

LABEL	DESCRIPTION
Enable	Select this to have the V630 attempt to get the time from an NTP time server.
Date	Select this to stop the V630 from attempting to get the time from an NTP time server.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.7 Specifying a Time Server

Press **Menu** > **Setup** > **DateTime** > **Auto Clock Syn** > **Enable** to display the following screen. Use this menu to specify a time server for the V630 to use.

Figure 22 Menu > Setup > DateTime > Auto Clock Syn > Enable

```
-----NTP Server-----




Done    ABC       Back
```

The following table describes the labels in this screen.

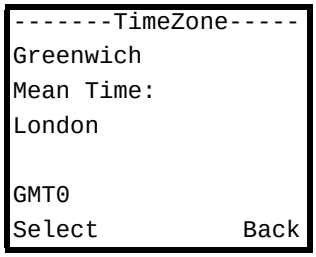
Table 23 Menu > Setup > DateTime > Auto Clock Syn > Enable

LABEL	DESCRIPTION
NTP Server	Input the IP address or URL of the NTP time server. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
ABC	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

5.8 Time Zone Setup

Press **Menu** > **Setup** > **DateTime** > **Set Time Zone** to display the following screen. Use this menu to set the V630 to use the local time zone.

Figure 23 Menu > Setup > DateTime > Time Zone



The following table describes the labels in this screen.

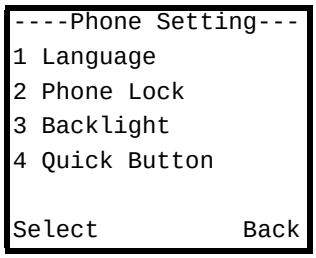
Table 24 Menu > Setup > DateTime > Time Zone

LABEL	DESCRIPTION
Time Zone	Use the **Up** or **Down** to your local time zone.
GMT0	This shows how many hours the time zone is ahead of or behind GMT (Greenwich Mean Time).
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.9 General Phone Setup

Press **Menu** > **Setup** > **Phone Setting** to display the following screen. Use this menu to select which of the V630's general phone settings to configure. You can set the display language, keypad lock, backlight, quick access buttons, and web configurator access. You can also upgrade the V630's firmware or reset the V630 to the factory default settings.

Figure 24 Menu > Setup > Phone Setting



The following table describes the labels in this screen.

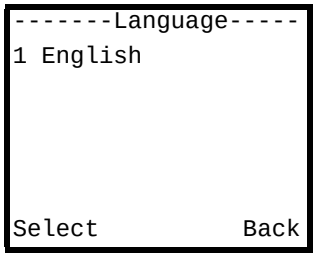
Table 25 Menu > Setup > Phone Setting

LABEL	DESCRIPTION
Language	Select the menu display language.
Phone lock	Enable or disable the automatic keypad locking function or set the keypad lock to turn on automatically if you do not use the V630 for a specific time.
Backlight	Set how long the backlight stays on after you stop pressing the V630's keys. You can also set it to be always on or off.
Quick Button	Set the functions of the **Up** and **Down** keys in the main screen.
Web Config	Turn web configurator access on or off.
FW Upgrade	Upgrade firmware from an HTTP server. Specify the server's IP address and port number.
Restore factory	Reset the V630 to the factory default settings.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.10 Language Setup

Press **Menu** > **Setup** > **Phone Setting** > **Language** to display the following screen. Use this menu to select the V630's display language.[1]

Figure 25 Menu > Setup > Phone Setting > Language



The following table describes the labels in this screen.

Table 26 Menu > Setup > Phone Setting > Language

LABEL	DESCRIPTION
Language	Select the menu display language.

1. Only English is supported at the time of writing.

Table 26 Menu > Setup > Phone Setting > Language

LABEL	DESCRIPTION
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.11 Keypad Lock Setup

Press **Menu** > **Setup** > **Phone Setting** > **Phone lock** to display the following screen. The V630's keypad lock helps prevent accidental calls. Use this menu to set the V630's automatic keypad lock.

Regardless of the setting in this menu, you can still press the **Left** key and ***** from the main screen to lock or unlock the V630's keypad.

Figure 26 Menu > Setup > Phone Setting > Phone lock

```
------Phone lock----
1 *OFF
2 15s
3 30s
4 60s

Select          Back
```

The following table describes the labels in this screen.

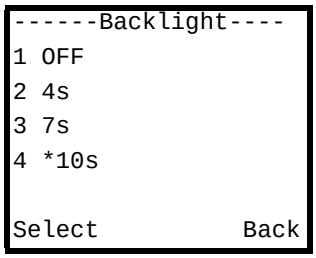
Table 27 Menu > Setup > Phone Setting > Phone lock

LABEL	DESCRIPTION
Phone lock	Select **OFF** to turn off the automatic keypad lock function (to always leave the keypad unlocked). Or select the number of idle seconds after which the V630 automatically locks the keypad. For example, select **30s** to have the V630 lock the keypad after you stop using the V630 for longer than 30 seconds.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.12 Backlight Setup

Press **Menu** > **Setup** > **Phone Setting** > **Backlight** to display the following screen. Use this menu to set how long the V630's backlight stays on.

Figure 27 Menu > Setup > Phone Setting > Backlight



The following table describes the labels in this screen.

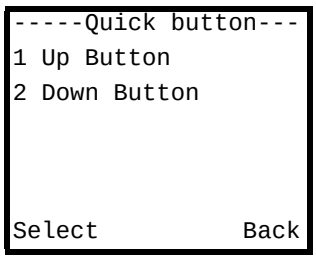
Table 28 Menu > Setup > Phone Setting > Backlight

LABEL	DESCRIPTION
Phone lock	Select **OFF** to turn off the backlight all the time. Or select the number of idle seconds after which the V630 automatically turns off the backlight. For example, select **10s** to have the V630 turn off the backlight 10 seconds after you stop pressing the keys.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.13 Quick Button Setup

Press **Menu** > **Setup** > **Phone Setting** > **Quick button** to display the following screen. Use this menu to select which quick access button you want to configure.

Figure 28 Menu > Setup > Phone Setting > Quick button



The following table describes the labels in this screen.

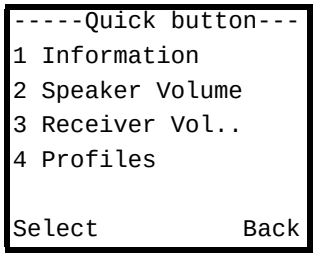
Table 29 Menu > Setup > Phone Setting > Quick button

LABEL	DESCRIPTION
Up Button	Select this to configure the function of the **Up** key in the main screen.
Down Button	Select this to configure the function of the **Down** key in the main screen.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.14 Up Quick Button Setup

Press **Menu** > **Setup** > **Phone Setting** > **Quick button** > **Up Button** to display the following screen. Use this menu to configure the function of the **Up** key in the main screen. The configuration for the **Down** key works in the same manner.

Figure 29 Menu > Setup > Phone Setting > Quick button > Up Button



The following table describes the labels in this screen.

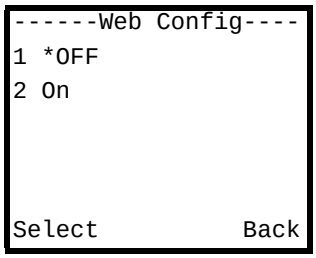
Table 30 Menu > Setup > Phone Setting > Quick button > Up Button

LABEL	DESCRIPTION
Information	
Speaker Volume	Select this to open the talking volume setting when you press the **Up** key in the main screen.
Receiver Volume	Select this to open the listening volume setting when you press the **Up** key in the main screen.
Profiles	Select this to be able to select or configure phone profiles when you press the **Up** key in the main screen.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.15 Enabling or Disabling the Web Configurator

Press **Menu** > **Setup** > **Phone Setting** > **Web Config** to display the following screen. Use this menu to turn web configurator access on or off.

Figure 30 Menu > Setup > Phone Setting > Web Config



The following table describes the labels in this screen.

Table 31 Menu > Setup > Phone Setting > Web Config

LABEL	DESCRIPTION
OFF	Select this to not allow access to the web configurator.
ON	Select this to allow access to the web configurator. Note: Allowing access to the web configurator reduces battery life.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.16 Firmware Upgrade from an HTTP Server

Press **Menu** > **Setup** > **Phone Setting** > **FW Upgrade** to display the following screen. Use this menu to select whether you want to upgrade firmware from an HTTP server, specify the server's address, or specify the server's port number.

Your network administrator or service provider must have an HTTP server set up with the firmware file in order for you to use this.

Figure 31 Menu > Setup > Phone Setting > FW Upgrade

```
------FW Upgrade----
1 Upgrade Now
2 Server Address
3 Server Port


Select          Back
```

The following table describes the labels in this screen.

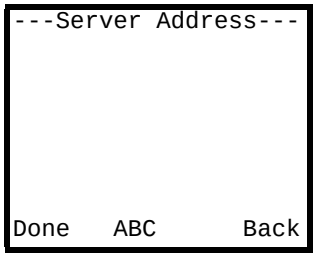
Table 32 Menu > Setup > Phone Setting > FW Upgrade

LABEL	DESCRIPTION
Upgrade Now	Select this to upload new firmware from the HTTP server. You need to have the server's address and port number configured already to be able to use this.
Server Address	Select this to go to a menu where you can enter the address of the HTTP server.
Server Port	Select this to go to a menu where you can enter the port number of the HTTP server. You need to do this if the HTTP server with the firmware is not using the standard port number (80).
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.17 HTTP Firmware Upgrade Server Address

Press **Menu** > **Setup > Phone Setting > FW Upgrade > Server Address** to display the following screen. Use this menu to specify the server's address. The port configuration menu works in a similar manner, except you can only input numbers.

Figure 32 Menu > Setup > Phone Setting > FW Upgrade > Server Address



The following table describes the labels in this screen.

Table 33 Menu > Setup > Phone Setting > FW Upgrade > Server Address

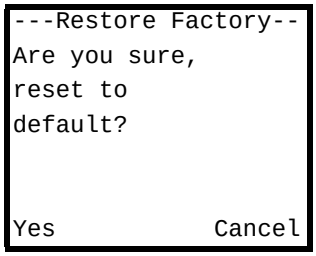
LABEL	DESCRIPTION
Server Address	Input the IP address or URL of the HTTP server with the firmware file. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
ABC	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

5.18 Restore Factory Default Settings

Press **Menu** > **Setup > Phone Setting > Restore Factory** to display the following screen. Use this menu to reset the V630 to the factory default settings.

Restoring the factory default settings resets all of the phone's settings except your phone book entries.

Figure 33 Menu > Setup > Phone Setting > Restore Factory



The following table describes the labels in this screen.

Table 34 Menu > Setup > Phone Setting > Restore Factory

LABEL	DESCRIPTION
Yes	Select this to reset the V630 to the factory default settings.
Cancel	Select this to return to the previous screen without resetting the V630 to the factory default settings.

5.19 Call Settings

Press **Menu** > **Setup** > **Call Setting** to display the following screen. Use this menu to go to menus where you can configure call forwarding or whether or not the V630 sends its phone number to the callee.

Figure 34 Menu > Setup > Call Setting

```
-----Call Setting---
1 Forward
2 Send Caller ID




Select          Back
```

The following table describes the labels in this screen.

Table 35 Menu > Setup > Call Setting

LABEL	DESCRIPTION
Forward	Use this to configure call forwarding.
Send Caller ID	Set whether or not the V630 sends its phone number to the callee.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.20 Call Forwarding

Press **Menu** > **Setup** > **Call Setting** > **Forward** to display the following screen. Use this menu to turn call forwarding on or off.

Figure 35 Menu > Setup > Call Setting > Forward

```
--------Forward-----
1 *OFF
2 ON




Select          Back
```

The following table describes the labels in this screen.

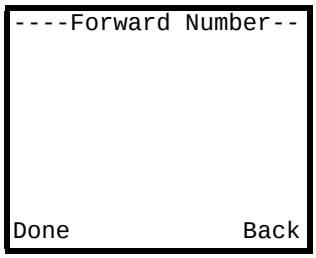
Table 36 Menu > Setup > Call Setting > Forward

LABEL	DESCRIPTION
OFF	Select this to not forward calls.
ON	Select this to forward calls.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.21 Call Forwarding Number

Press **Menu** > **Setup** > **Call Setting** > **Forward** > **ON** to display the following screen. Use this menu to input the phone number to which you want to forward calls.

Figure 36 Menu > Setup > Call Setting > Forward > ON



The following table describes the labels in this screen.

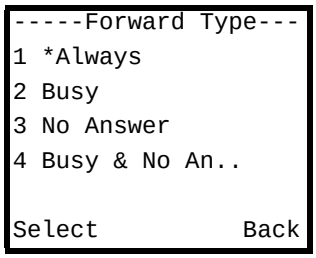
Table 37 Menu > Setup > Call Setting > Forward > ON

LABEL	DESCRIPTION
Forward Number	Use the number keys to input the phone number to which you want to forward calls.
Done	Press this to save your setting.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

5.22 Call Forwarding Type

Press **Menu** > **Setup** > **Call Setting** > **Forward** > **ON** and input a phone number to display the following screen. Use this menu to set under what circumstances you want to apply call forwarding.

Figure 37 Menu > Setup > Call Setting > Forward > ON > Number



The following table describes the labels in this screen.

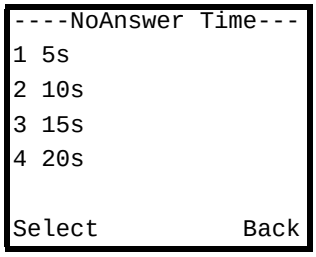
Table 38 Menu > Setup > Call Setting > Forward > ON > Number

LABEL	DESCRIPTION
Always	Select this to forward all calls to the specified number (regardless of whether or not your line is busy).
Busy	Select this to forward calls when your line is busy.
No Answer	Select this to forward calls when you do not answer the phone. You will be able to specify how long the V630 waits before forwarding an unanswered call.
Busy & No Answer	Select this to forward calls when your line is busy or you do not answer the phone. You will be able to specify how long the V630 waits before forwarding an unanswered call.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.23 Call Forwarding No Answer Time

When you set the call forwarding type to **No Answer** or **Busy & No Answer**, use this menu to specify how long the V630 waits before forwarding an unanswered call.

Figure 38 Menu > Setup > Call Setting > Forward > ON > Number > Type > No Answer



The following table describes the labels in this screen.

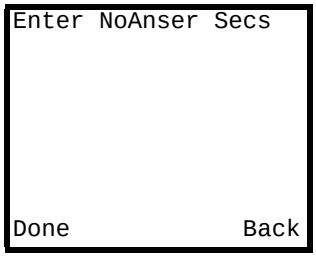
Table 39 Menu > Setup > Call Setting > Forward > ON > Number > Type > No Answer

LABEL	DESCRIPTION
NoAnswer Time	Specify how long the V630 waits before forwarding an unanswered call. You can use one of the pre-defined settings (5, 10, 15 or 20 seconds) or select **Other** to manually configure another time period.
Busy	Select this to forward calls when your line is busy.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.24 Call Forwarding No Answer Time

When you set the call forwarding type to **No Answer** or **Busy & No Answer** and select **Other** as the no answer time, use this menu to specify a custom time period for how long the V630 waits before forwarding an unanswered call.

Figure 39 Menu > Setup > Call Setting > Forward > ON > Number > Type > No Answer > Other



The following table describes the labels in this screen.

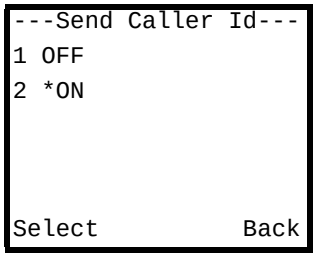
Table 40 Menu > Setup > Call Setting > Forward > ON > Number > Type > No Answer > Other

LABEL	DESCRIPTION
Enter NoAnser Secs	Use the number keys to input the number of seconds the V630 waits before forwarding an unanswered call
Done	Press this to save your setting.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

5.25 Send Caller ID

Press **Menu** > **Setup** > **Call Setting** > **Send Caller ID** to display the following screen. Use this menu to set whether or not the V630 sends your phone number to the phones you call.

Figure 40 Menu > Setup > Call Setting > Send Caller ID



The following table describes the labels in this screen.

Table 41 Menu > Setup > Call Setting> Send Caller ID

LABEL	DESCRIPTION
OFF	Select this to have the V630 not send your phone number to the phones you call.
ON	Select this to have the V630 send your phone number to the phones you call.

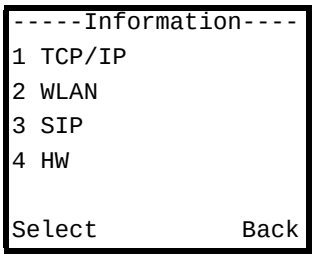
Table 41 Menu > Setup > Call Setting> Send Caller ID

LABEL	DESCRIPTION
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.26 Information

Press **Menu** > **Setup > Information** to display the following screen. Use this menu to go to menus where you can check the V630's IP, wireless LAN, and VoIP settings. You can also display the V630's free storage space, firmware, MAC address, and system events log.

Figure 41 Menu > Setup > Information



The following table describes the labels in this screen.

Table 42 Menu > Setup > Information

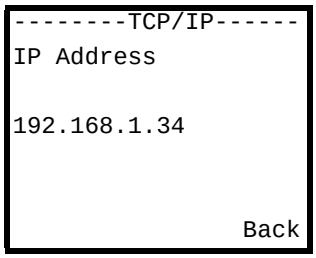
LABEL	DESCRIPTION
TCP/IP	Select this to check the V630's IP settings.
WLAN	Select this to check the V630's wireless LAN settings.
SIP	Select this to check the V630's VoIP settings.
HW	Select this to check the V630's free storage space, firmware, and MAC address.
Log	Select this to check the V630's system events log.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

5.27 TCP/IP Information

Press **Menu** > **Setup > Information > TCP/IP** to display the following screen. Use this menu to check the V630's IP address, subnet mask, default gateway IP address, and DNS server IP address. The IP address displays first. Use the **Down** key to scroll in order to display the other settings.

"Network Not Up Yet!" displays if the V630 has not connected to an AP yet.

Figure 42 Menu > Setup > Information > TCP/IP



The following table describes the labels in this screen.

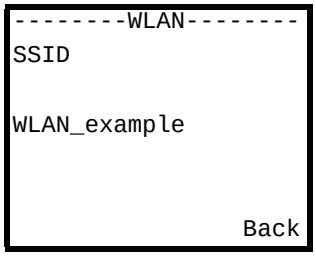
Table 43 Menu > Setup > Information > TCP/IP

LABEL	DESCRIPTION
IP Address	This is the IP address currently assigned to the V630.
IP Subnet Mask	This is the subnet mask currently configured on the V630.
Gateway	This is the IP address of the device on the network that your V630 uses to access other networks (like the Internet).
DNS	This is the DNS (Domain Name System) server your V630 uses.
Back	Press this to return to the previous screen.

5.28 WLAN Information

Press **Menu** > **Setup > Information > WLAN** to display the following screen. Use this menu to check the V630's wireless LAN settings. The SSID displays first. Use the **Down** key to scroll in order to display the other settings.

Figure 43 Menu > Setup > Information > WLAN



The following table describes the labels in this screen.

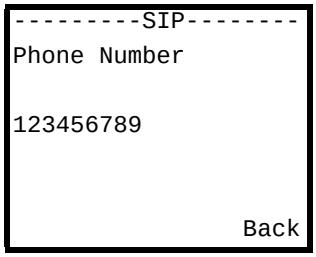
Table 44 Menu > Setup > Information > WLAN

LABEL	DESCRIPTION
SSID	This is the SSID that the V630 is currently using.
BSSID	This is the V630's MAC (Media Access Control) address. Every network device has a unique MAC address that identifies it across the network.
Channel	This is the radio frequency that the V630 is currently using.
Security	This is the type of wireless security that the V630 is currently using. The V630 supports WEP, WPA PSK, WPA2 PSK, WPA, and WPA2.
Back	Press this to return to the previous screen.

5.29 SIP Information

Press **Menu** > **Setup** > **Information** > **SIP** to display the following screen. Use this menu to check the settings for the SIP account the V630 is currently using. The phone number displays first. Use the **Down** key to scroll in order to display the other settings.

Figure 44 Menu > Setup > Information > SIP



The following table describes the labels in this screen.

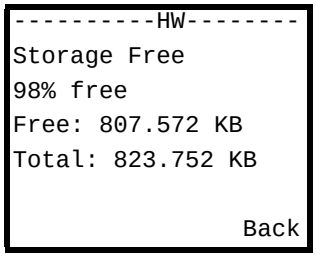
Table 45 Menu > Setup > Information > SIP

LABEL	DESCRIPTION
Phone Number	This is the SIP account's phone number.
SIP Server	This is the address of the SIP server for the SIP account.
SIP Proxy	This is the address of the SIP proxy server for the SIP account.
Outbound Proxy	This is the address of the outbound proxy server for the SIP account.
Stun Server	This is the address of the STUN server for the SIP account.
Expire	This is the SIP server expire time.
Back	Press this to return to the previous screen.

5.30 Hardware Information

Press **Menu** > **Setup** > **Information** > **HW** to display the following screen. Use this menu to check details about the V630's hardware. The available storage space displays first. Use the **Down** key to scroll in order to display the other settings.

Figure 45 Menu > Setup > Information > HW



The following table describes the labels in this screen.

Table 46 Menu > Setup > Information > HW

LABEL	DESCRIPTION
Storage Free	This shows how much of the V630's storage space is available.
FW Version	This is the firmware (embedded software) version and creation date.

Table 46 Menu > Setup > Information > HW

LABEL	DESCRIPTION
Mac Address	This is the V630's MAC (Media Access Control) address. Every network device has a unique MAC address that identifies it across the network.
Back	Press this to return to the previous screen.

5.31 Log Information

Press **Menu** > **Setup** > **Information** > **Log** to display the following screen. Use this menu to check the V630's system events log. Use the **Down** key to scroll through the log entries.

Figure 46 Menu > Setup > Information > Log

```
---------Log--------
<1> 10:12:57
BSS_DISCONNEC
TED


                Back
```

The following table describes the labels in this screen.

Table 47 Menu > Setup > Information > Log

LABEL	DESCRIPTION
<1>	This is the log entry's index number.
Time	This is the time that the log was created (in hour:minute:second format).
Message	This is the reason for the log.
Back	Press this to return to the previous screen.

6

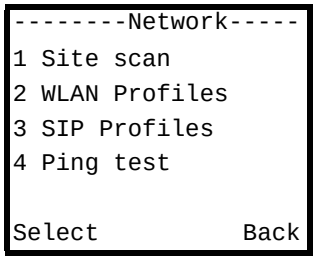
Network LCD Menus

This chapter discusses the V630's **Network** LCD menus.

6.1 Network Setup

Use the **Network** menu to select or modify a profile of tone, volume, and ring settings. Press **Menu** > **Network** to display the following screen.

Figure 47 Menu > Network



The following table describes the labels in this screen.

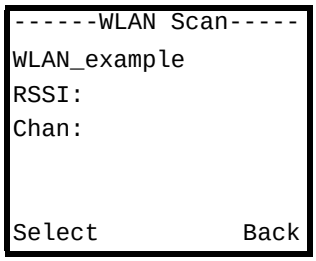
Table 48 Menu > Network

LABEL	DESCRIPTION
Site scan	Use this menu to have the V630 check for available Access Points (APs).
WLAN Profiles	Use these menus to edit configured profiles of WLAN settings, add new profiles of WLAN settings, or connect to a WPS-enabled AP.
SIP Profiles	Use these menus to add and edit profiles of SIP settings.
Ping test	Use this menu to have the V630 send a ping to an IP address to check the network connectivity to a device.
Re-connect	Use this menu to have the V630 attempt to connect to the WLAN.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.2 Site Scan

Press **Menu** > **Network** > **Site scan** to have the V630 check for available APs. After the V630 finishes scanning, use the **Down** key to scroll to the AP to which you want to connect.

Figure 48 Menu > Network > Site scan



The following table describes the labels in this screen.

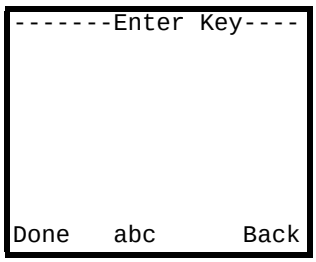
Table 49 Menu > Network > Site scan

LABEL	DESCRIPTION
SSID	The wireless network's SSID (name) displays at the top of the entry.
RSSI	This is the RSSI (Received Signal Strength Indicator) of the wireless connection.
Chan	This is the radio frequency that the wireless network is using.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.3 Wireless Security

After you use the site scan and select the AP to which you want to connect, this menu displays if the AP uses security. Use this menu to enter the wireless network's security key (password).

Figure 49 Menu > Network > Site scan > AP



The following table describes the labels in this screen.

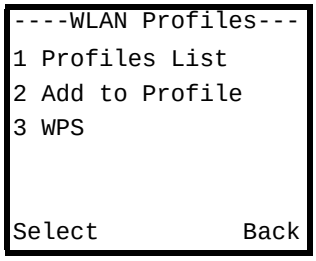
Table 50 Menu > Network > Site scan > AP

LABEL	DESCRIPTION
Enter Key	Use the V630's alphanumeric keypad to input the AP's security key (password). When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting. The **Add to Profile** menu appears. Wait a few minutes while the V630 attempts to connect to the AP. The signal strength icon displays after the V630 connects to the AP. See Section 6.7 on page 72 for details on editing WLAN profiles.
abc	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to go to the WLAN profile's setup menu.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.4 WLAN Profiles

Press **Menu** > **Network** > **WLAN Profiles** to display the following menu. Use this menu to select whether you want to go to the list of already configured profiles of WLAN settings, create a profile of WLAN settings, or connect to a WPS-enabled AP.

Figure 50 Menu > Network > WLAN Profiles



The following table describes the labels in this screen.

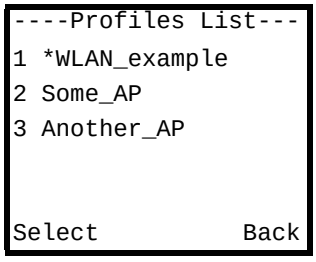
Table 51 Menu > Network > WLAN Profiles

LABEL	DESCRIPTION
Profiles List	Look through and edit already configured profiles of WLAN settings.
Add to Profile	Create a profile of WLAN settings.
WPS	Connect to a WPS-enabled AP.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.5 WLAN Profiles List

Press **Menu** > **Network** > **WLAN Profiles** > **Profiles List** to display the following menu. Use this menu to look through and edit already configured profiles of WLAN settings.

Figure 51 Menu > Network > WLAN Profiles > Profiles List



The following table describes the labels in this screen.

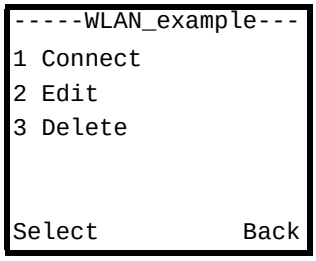
Table 52 Menu > Network > WLAN Profiles > Profiles List

LABEL	DESCRIPTION
Profiles List	These are the already configured profiles of WLAN settings. An asterisk (*) identifies the profile the V630 is currently using. Select a profile to connect to the AP or edit or delete the profile.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.6 WLAN Profile

Press **Menu** > **Network** > **WLAN Profiles** > **Profiles List** and select a profile to display the following menu. Use this menu to use the selected profile or delete the selected profile. You can also go to other menus to edit it.

Figure 52 Menu > Network > WLAN Profiles > Profiles List > Profile



The following table describes the labels in this screen.

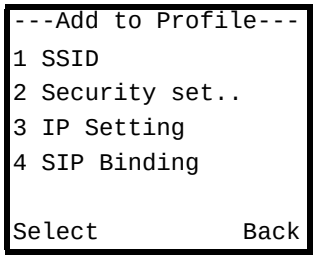
Table 53 Menu > Network > WLAN Profiles > Profiles List > Profile

LABEL	DESCRIPTION
Connect	Select this to connect to the AP.
Edit	Select this to modify the profile. This opens a menu were you can select what you want to modify. See Section 6.7 on page 72 for details on the WLAN profile editing screens.
Delete	Select this to remove the profile.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.7 Adding a WLAN Profile

Press **Menu** > **Network** > **WLAN Profiles** > **Add to Profile** to display the following menu. Use this menu to create a profile of WLAN settings.

Figure 53 Menu > Network > WLAN Profiles > Add to Profile



The following table describes the labels in this screen.

Table 54 Menu > Network > WLAN Profiles > Add to Profile

LABEL	DESCRIPTION
SSID	Select this to specify the AP's SSID (name).
Security setting	Select this to specify the type of security the AP uses and the security key (password).

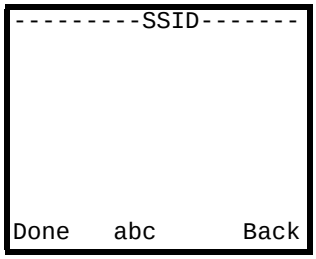
Table 54 Menu > Network > WLAN Profiles > Add to Profile

LABEL	DESCRIPTION
IP Setting	Select this to set the V630's IP address settings.
SIP Binding	Select this to specify the SIP profile to use when connecting to this AP.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.8 Setting the SSID

Press **Menu** > **Network** > **WLAN Profiles** > **Add to Profile** > **SSID** to display the following menu. Use this menu to specify the AP's SSID (name).

Figure 54 Menu > Network > WLAN Profiles > Add to Profile > SSID



The following table describes the labels in this screen.

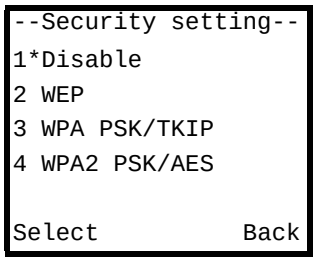
Table 55 Menu > Network > WLAN Profiles > Add to Profile > SSID

LABEL	DESCRIPTION
SSID	Use the V630's alphanumeric keypad to input the AP's SSID (name). When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to go to the WLAN profile's setup menu.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.9 Setting the Wireless Security Type

Press **Menu** > **Network** > **WLAN Profiles** > **Add to Profile** > **Security setting** to display the following menu. Use this menu to specify the type of wireless security the AP uses. An asterisk (*) identifies the profile's currently selected security setting.

Figure 55 Menu > Network > WLAN Profiles > Add to Profile > Security setting



The following table describes the labels in this screen.

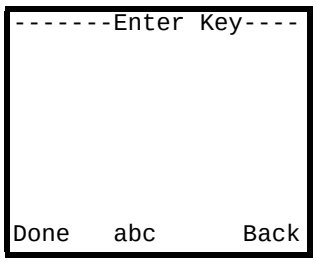
Table 56 Menu > Network > WLAN Profiles > Add to Profile > Security setting

LABEL	DESCRIPTION
Disable	Select this option if the AP does not use wireless security.
WEP	Select this option if the AP uses WEP wireless security.
WPA PSK/TKIP	Select this option if the AP uses WPA-PSK wireless security.
WPA2 PSK/AES	Select this option if the AP uses WPA2-PSK wireless security.
WPA-EAP	Select this option if the AP uses WPA wireless security.
WPA2-EAP	Select this option if the AP uses WPA2 wireless security.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.10 Setting the Wireless Security Key

Press **Menu** > **Network** > **WLAN Profiles** > **Add to Profile** > **Security setting** and select a security type to display the following menu. Use this menu to enter the wireless network's security key (password).

Figure 56 Menu > Network > WLAN Profiles > Add to Profile > Security setting > Security Type



The following table describes the labels in this screen.

Table 57 Menu > Network > WLAN Profiles > Add to Profile > Security setting > Security Type

LABEL	DESCRIPTION
Enter Key	Use the V630's alphanumeric keypad to input the AP's security key (password). When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.

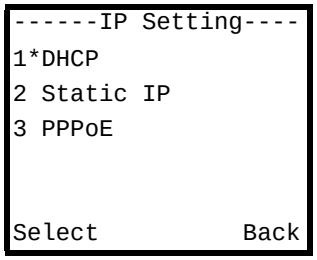
Table 57 Menu > Network > WLAN Profiles > Add to Profile > Security setting > Security Type

LABEL	DESCRIPTION
Back	Press this to go to the previous menu.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.11 IP Settings

Press **Menu** > **Network** > **WLAN Profiles** > **Add to Profile** > **IP Setting** to display the following menu. Use this menu to modify the V630's IP address settings.

Figure 57 Menu > Network > WLAN Profiles > Add to Profile > IP Setting



The following table describes the labels in this screen.

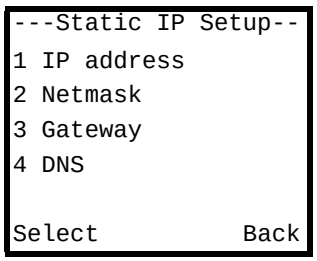
Table 58 Menu > Network > WLAN Profiles > Add to Profile > IP Setting

LABEL	DESCRIPTION
DHCP	Select this option to have the V630 get an IP address automatically.
Static IP	Select this option to assign the V630 an static IP address.
PPPoE	Select this option if the V630 needs to use a PPPoE account.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.12 Static IP Settings

Press **Menu** > **Network** > **WLAN Profiles** > **Add to Profile** > **IP Setting** > **Static IP** to display the following menu. Use this menu to assign the V630 static IP address settings.

Figure 58 Menu > Network > WLAN Profiles > Add to Profile > IP Setting > Static IP



The following table describes the labels in this screen.

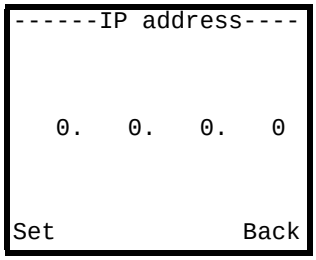
Table 59 Menu > Network > WLAN Profiles > Add to Profile > IP Setting > Static IP

LABEL	DESCRIPTION
IP address	Select this option to specify the IP address the V630 uses.
Netmask	Select this option to specify the subnet mask the V630 uses
Gateway	Select this option to specify the IP address of the default gateway that the V630 uses.
DNS	Select this option to specify the IP address of the DNS server that the V630 uses.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.13 Static IP Address Setup

Press **Menu** > **Network** > **WLAN Profiles** > **Add to Profile** > **IP Setting** > **Static IP** > **IP address** to display the following menu. Use this menu to specify the IP address the V630 uses. Configure the other static IP settings in the same manner.

Figure 59 Menu > Network > WLAN Profiles > Add to Profile > IP Setting > Static IP > IP address



The following table describes the labels in this screen.

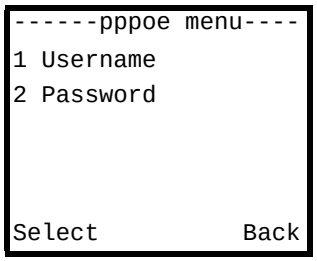
Table 60 Menu > Network > WLAN Profiles > Add to Profile > IP Setting > Static IP > IP address

LABEL	DESCRIPTION
IP address	Use the V630's alphanumeric keypad to input the IP address the V630 is to use with this profile. Use the **Down** or **Up** key if you need to move the cursor.
Set	Press this to save your setting.
Back	Press this to return to the previous screen.

6.14 PPPoE Settings

Press **Menu** > **Network** > **WLAN Profiles** > **Add to Profile** > **IP Setting** > **PPPoE** to display the following menu. If the V630 needs to use PPPoE, use this menu to go to screens where you configure the PPPoE user name and password.

Figure 60 Menu > Network > WLAN Profiles > Add to Profile > IP Setting > PPPoE



The following table describes the labels in this screen.

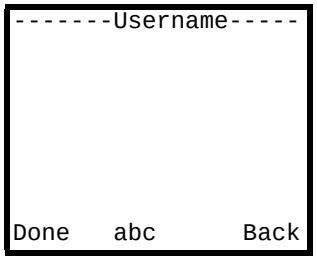
Table 61 Menu > Network > WLAN Profiles > Add to Profile > IP Setting > PPPoE

LABEL	DESCRIPTION
Username	Select this option to enter the user name for the PPPoE account.
Password	Select this option to enter the password for the PPPoE account.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.15 PPPoE Username

Press **Menu** > **Network** > **WLAN Profiles** > **Add to Profile** > **IP Setting** > **PPPoE** > **Username** to display the following menu. If the V630 needs to use PPPoE, use this menu to enter the PPPoE user name. The PPPoE password configuration works in the same manner.

Figure 61 Menu > Network > WLAN Profiles > Add to Profile > IP Setting > PPPoE > Username



The following table describes the labels in this screen.

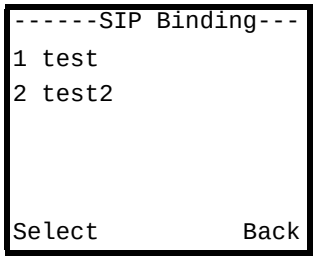
Table 62 Menu > Network > WLAN Profiles > Add to Profile > IP Setting > PPPoE > Username

LABEL	DESCRIPTION
Username	Input the user name of the PPPoE account. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.16 Selecting the SIP Account

Press **Menu** > **Network** > **WLAN Profiles** > **Add to Profile** > **SIP Binding** to display the following menu. You can configure more than one SIP account in the V630. Use this menu to select which SIP account this WLAN profile uses.

Figure 62 Menu > Network > WLAN Profiles > Add to Profile > SIP Binding



The following table describes the labels in this screen.

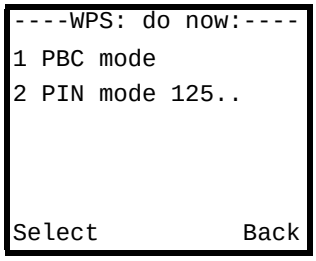
Table 63 Menu > Network > WLAN Profiles > Add to Profile > SIP Binding

LABEL	DESCRIPTION
SIP Binding	This screen lists the SIP profiles configured in the V630. Select the one to use with this WLAN profile.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.17 WPS

Press **Menu** > **Network** > **WLAN Profiles** > **WPS** to display the following menu. Use this menu to select which WPS mode you want to use. See Appendix B on page 179 for details on WPS.

Figure 63 Menu > Network > WLAN Profiles > WPS



The following table describes the labels in this screen.

Table 64 Menu > Network > WLAN Profiles > WPS

LABEL	DESCRIPTION
PBC mode	Push the WPS button on the AP to have it send the security settings to the V630, then select this Push Button Configuration (PBC) option within two minutes. The V630 scans for devices with WPS activated.
PIN mode	Select this to generate a security key that you can input into an AP that supports PIN mode.

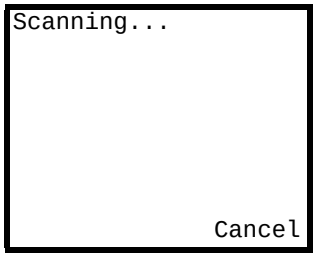
Table 64 Menu > Network > WLAN Profiles > WPS

LABEL	DESCRIPTION
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.18 WPS: Push Button Configuration

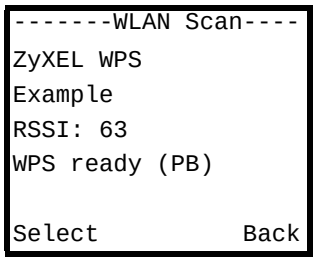
When you press **Menu** > **Network** > **WLAN Profiles** > **WPS** > **PBC mode**, the V630 scans for devices with WPS activated.

Figure 64 Menu > Network > WLAN Profiles > WPS > PBC Mode (Scanning)



The V630 lists devices with WPS activated. Select the AP to which you want to connect.

Figure 65 Menu > Network > WLAN Profiles > WPS > PBC Mode (Select AP)



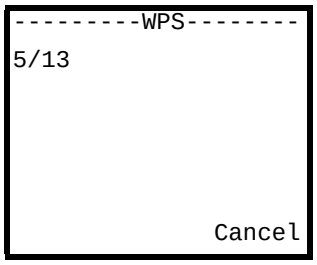
The following table describes the labels in this screen.

Table 65 Menu > Network > WLAN Profiles > WPS

LABEL	DESCRIPTION
Name	The SSID (name) of the AP displays first. Select the AP to which you want the V630 to connect.
RSSI	This is the RSSI (Received Signal Strength Indicator) of the wireless connection.
WPS ready (PB)	This means the AP has the WPS Push Button Configuration (PBC) option activated.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

The V630 gets network settings from the AP.

Figure 66 Menu > Network > WLAN Profiles > WPS > PBC Mode (Getting Settings)

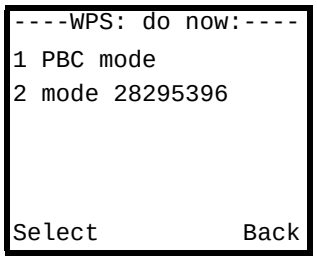


After obtaining the settings, the V630 connects to the AP and attempts to register with the SIP server.

6.19 WPS: PIN Mode

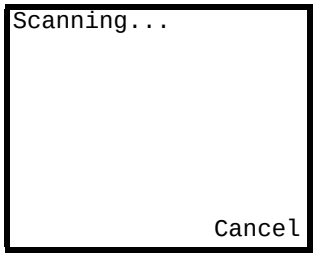
When you press **Menu** > **Network > WLAN Profiles > WPS**, the V630 generates a security key that you can input into an AP that supports PIN mode. Move the cursor to **PIN mode** to see the full key.

Figure 67 Menu > Network > WLAN Profiles > WPS (Security Key)



After you input the security key in the AP's PIN mode interface, start WPS in the AP and select **PIN mode** in the V630's **WPS** menu.

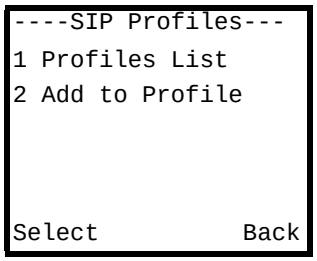
Figure 68 Menu > Network > WLAN Profiles > WPS > PIN mode



6.20 SIP Profiles

Press **Menu** > **Network > SIP Profiles** to display the following menu. Use this menu to select whether you want to go to the list of already configured profiles of SIP settings or create a profile of SIP settings.

Figure 69 Menu > Network > SIP Profiles



The following table describes the labels in this screen.

Table 66 Menu > Network > SIP Profiles

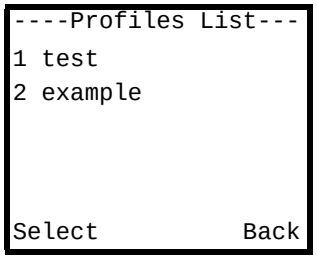
LABEL	DESCRIPTION
Profiles List	Look through and edit already configured profiles of SIP settings.
Add to Profile	Create a profile of WLAN settings.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.21 SIP Profiles List

Press **Menu** > **Network** > **SIP Profiles** > **Profiles List** to display the following menu. Use this menu to look through and edit already configured profiles of WLAN settings.

You can configure multiple SIP profiles. See Section 6.16 on page 78 for how to select which SIP profile to use with a WLAN profile.

Figure 70 Menu > Network > SIP Profiles > Profiles List



The following table describes the labels in this screen.

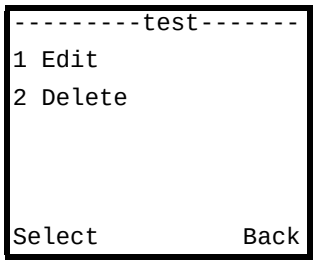
Table 67 Menu > Network > SIP Profiles > Profiles List

LABEL	DESCRIPTION
Profiles List	These are the already configured profiles of SIP settings. Select a profile to edit or delete it.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.22 SIP Profile

Press **Menu** > **Network** > **SIP Profiles** > **Profiles List** and select a profile to display the following menu. Use this menu to choose whether to edit or delete the selected profile.

Figure 71 Menu > Network > SIP Profiles > Profiles List > Profile



The following table describes the labels in this screen.

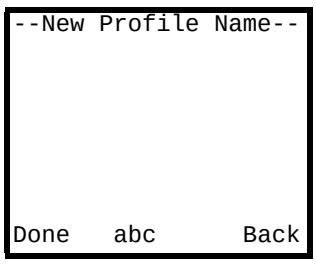
Table 68 Menu > Network > SIP Profiles > Profiles List > Profile

LABEL	DESCRIPTION
Edit	Select this to modify the profile. This opens a menu were you can select what you want to modify. See Section 6.7 on page 72 for details on the SIP profile editing screens.
Delete	Select this to remove the profile.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.23 Adding a SIP Profile

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile** to display the following menu. Use this menu to create a profile of SIP settings.

Figure 72 Menu > Network > SIP Profiles > Add to Profile



The following table describes the labels in this screen.

Table 69 Menu > Network > SIP Profiles > Add to Profile

LABEL	DESCRIPTION
New Profile Name	Input the name of the profile. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.

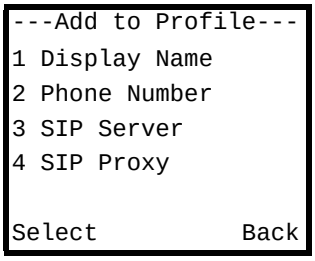
Table 69 Menu > Network > SIP Profiles > Add to Profile

LABEL	DESCRIPTION
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.24 Editing the New SIP Profile

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile** and specify a name to display the following menu. Use this menu to create a profile of SIP settings.

Figure 73 Menu > Network > SIP Profiles > Add to Profile > Name



The following table describes the labels in this screen.

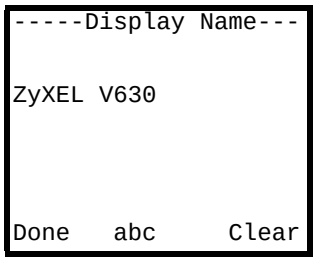
Table 70 Menu > Network > SIP Profiles > Add to Profile > Name

LABEL	DESCRIPTION
Display Name	Select this to specify the profile name that you want to display. This is the title that displays on the LCD main screen when the SIP account is registered.
Phone Number	Select this to specify the phone number of the SIP account.
SIP Server	Select this to specify the SIP server that the SIP account uses.
SIP Proxy	Select this to specify the SIP server that the SIP account uses. If you have more than one server's address, use this menu to enter the registrar server's address.
NAT traversal	Select this if you need to specify a STUN server, outbound proxy server, or NAT keep alive time.
Expire	Select this to specify the SIP server expire time.
Codec Order	Change the order for which codec the V630 attempts to use in making a call.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.25 SIP Display Name

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **Display Name** to open the following menu. Use this menu to specify the profile name that you want to display.

Figure 74 Menu > Network > SIP Profiles > Add to Profile > Name > Display Name



The following table describes the labels in this screen.

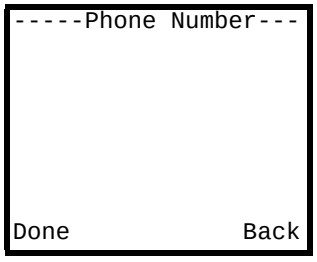
Table 71 Menu > Network > SIP Profiles > Add to Profile > Name > Display Name

LABEL	DESCRIPTION
Display Name	Input the profile's display name. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.
Clear	Press this to backspace.
Back	Press this to return to the previous screen. After you clear all the text, **Clear** changes to **Back**.

6.26 SIP Phone Number

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **Phone Number** to open the following menu. Use this menu to specify the phone number of the SIP account.

Figure 75 Menu > Network > SIP Profiles > Add to Profile > Name > Phone Number



The following table describes the labels in this screen.

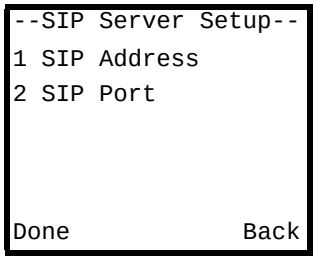
Table 72 Menu > Network > SIP Profiles > Add to Profile > Name > Phone Number

LABEL	DESCRIPTION
Phone Number	Input the profile's SIP phone number. For example, if you have a SIP account like **1234567@voip-provider.com**, your SIP account number is **1234567**. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.27 SIP Server

Press **Menu** > **Network > SIP Profiles > Add to Profile**, specify a name and then select **SIP Server** to open the following menu. Use this menu to select whether you want to edit the SIP server's address or SIP port number.

Figure 76 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Server



The following table describes the labels in this screen.

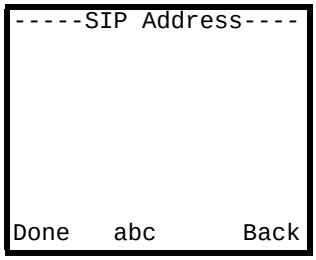
Table 73 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Server

LABEL	DESCRIPTION
SIP Address	Select this to enter the IP address of the SIP server for this account.
SIP Port	Select this to enter the SIP port number of the SIP server for this account.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.28 SIP Server Address

Press **Menu** > **Network > SIP Profiles > Add to Profile**, specify a name and then select **SIP Server** > **SIP Address** to open the following menu. Use this menu to enter the SIP server's address.

Figure 77 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Server > SIP Address



The following table describes the labels in this screen.

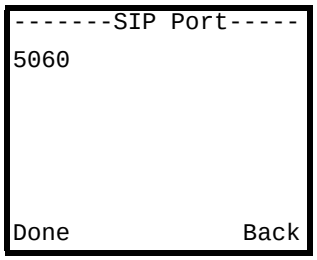
Table 74 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Server > SIP Address

LABEL	DESCRIPTION
SIP Address	Enter the IP address or domain name of the SIP server for this account. If you have more than one server's address, enter the registrar server's address. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.29 SIP Port Number

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **SIP Server** > **SIP Address** to open the following menu. Use this menu to enter the SIP server's port number.

Figure 78 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Server > SIP Port



The following table describes the labels in this screen.

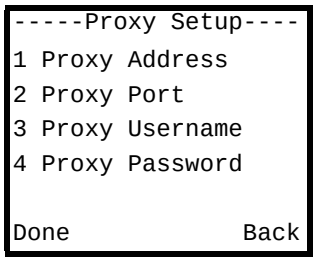
Table 75 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Server > SIP Port

LABEL	DESCRIPTION
SIP Port	Enter the SIP port number that the SIP server uses.
Done	Press this to save your setting.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.30 SIP Proxy Setup

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **SIP Proxy** to open the following menu. Use this menu to specify which SIP proxy settings you want to enter.

Figure 79 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Proxy



The following table describes the labels in this screen.

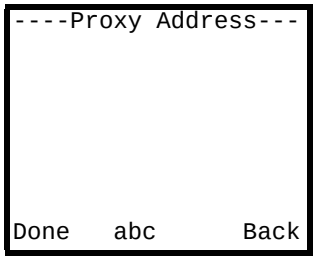
Table 76 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Proxy

LABEL	DESCRIPTION
Proxy Address	If the VoIP service provider provided a SIP proxy server address, select this to configure it.
Proxy Port	If the VoIP service provider provided a port number other than 5060, select this to configure it.
Proxy Username	Select this to enter your SIP account's user name.
Proxy Password	Select this to enter your SIP account's password.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.31 SIP Proxy Address

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **SIP Proxy** > **Proxy Address** to open the following menu. Use this menu to enter the SIP proxy server's address.

Figure 80 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Proxy > Proxy Address



The following table describes the labels in this screen.

Table 77 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Server > SIP Proxy > Proxy Address

LABEL	DESCRIPTION
Proxy Address	Enter the IP address or domain name of the SIP proxy server for this account. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.

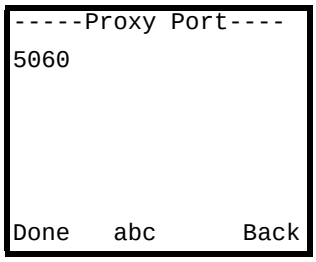
Table 77 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Server > SIP Proxy > Proxy Address

LABEL	DESCRIPTION
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.32 SIP Proxy Port

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **SIP Proxy** > **Proxy Port** to open the following menu. Use this menu to enter the SIP proxy server's port number.

Figure 81 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Proxy > Proxy Port



The following table describes the labels in this screen.

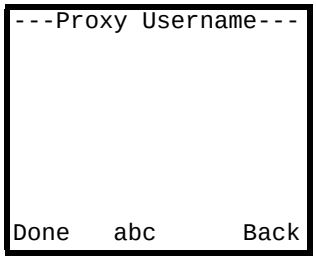
Table 78 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Proxy > Proxy Address

LABEL	DESCRIPTION
Proxy Port	Enter the SIP port number that the SIP proxy server uses.
Done	Press this to save your setting.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.33 SIP Proxy User Name

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **SIP Proxy** > **Proxy Username** to open the following menu. Use this menu to enter the SIP account's user name.

Figure 82 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Proxy > Proxy Username



The following table describes the labels in this screen.

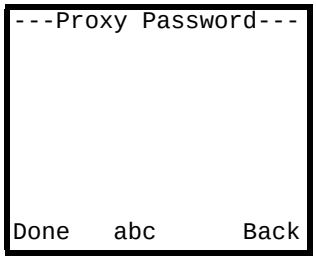
Table 79 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Proxy > Proxy Username

LABEL	DESCRIPTION
Proxy Username	Enter the user name for this account. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.34 SIP Proxy Password

Press **Menu** > **Network > SIP Profiles > Add to Profile**, specify a name and then select **SIP Proxy > Proxy Password** to open the following menu. Use this menu to enter the SIP account's user name.

Figure 83 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Proxy > Proxy Password



The following table describes the labels in this screen.

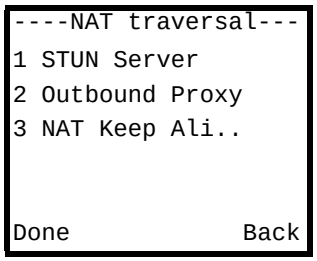
Table 80 Menu > Network > SIP Profiles > Add to Profile > Name > SIP Proxy > Proxy Username

LABEL	DESCRIPTION
Proxy Password	Enter the password for this account. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.35 NAT Traversal

Press **Menu** > **Network > SIP Profiles > Add to Profile**, specify a name and then select **NAT traversal** to open the following menu. Use this menu to select which NAT traversal settings you want to enter.

Figure 84 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal



The following table describes the labels in this screen.

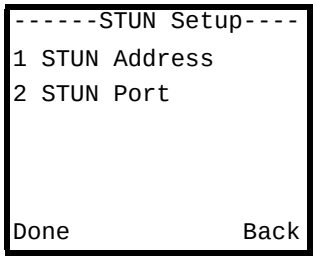
Table 81 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal

LABEL	DESCRIPTION
STUN Server	Select this to configure the V630 to get NAT information automatically from a STUN (Simple Traversal of User Datagram Protocol (UDP) through Network Address Translators) server.
Outbound Proxy	Select this if you have an outbound proxy server.
NAT Keep Alive	Select this to configure NAT keep alive to stop NAT routers between the V630 and the SIP server from dropping the SIP session.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.36 STUN Setup

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **NAT traversal** > **STUN Server** to open the following menu. Use this menu to select whether you want to edit the STUN server's address or port number setting.

Figure 85 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > STUN Server



The following table describes the labels in this screen.

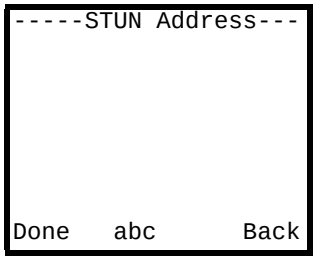
Table 82 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > STUN Server

LABEL	DESCRIPTION
STUN Address	Select this to enter the IP address or domain name of the SIP server for this account.
STUN Port	Select this to enter the SIP port number of the SIP server for this account.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.37 STUN Server Address

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **NAT traversal** > **STUN Server** > **STUN Address** to open the following menu. Use this menu to enter the STUN server's address.

Figure 86 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > STUN Server > STUN Address



The following table describes the labels in this screen.

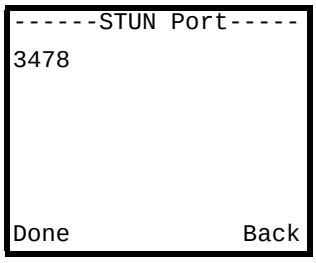
Table 83 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > STUN Server > STUN Address

LABEL	DESCRIPTION
STUN Address	Enter the IP address or domain name of the STUN server. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.38 STUN Port Number

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **NAT traversal** > **STUN Server** > **STUN Port** to open the following menu. Use this menu to enter the STUN server's port number.

Figure 87 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > STUN Server > STUN Port



The following table describes the labels in this screen.

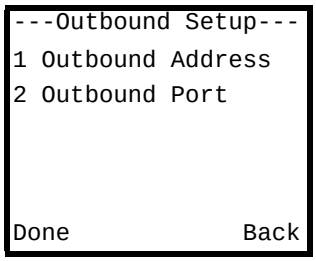
Table 84 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > STUN Server > STUN Port

LABEL	DESCRIPTION
STUN Port	Enter the port number that the STUN server uses.
Done	Press this to save your setting.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.39 Outbound Proxy Setup

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **NAT traversal** > **Outbound Proxy** to open the following menu. Use this menu to select whether you want to edit the outbound proxy server's address or port number setting.

Figure 88 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > Outbound Proxy



The following table describes the labels in this screen.

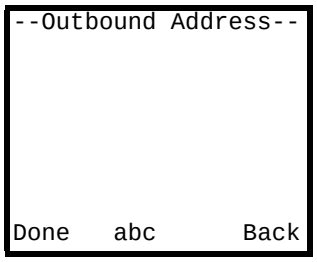
Table 85 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > Outbound Proxy

LABEL	DESCRIPTION
Outbound Address	Select this to enter the IP address or domain name of the outbound proxy server.
Outbound Port	Select this to enter the port number of the outbound proxy server.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.40 Outbound Proxy Server Address

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **NAT traversal** > **Outbound Proxy** > **Outbound Address** to open the following menu. Use this menu to enter the outbound proxy server's address.

Figure 89 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > Outbound Proxy > Outbound Address



The following table describes the labels in this screen.

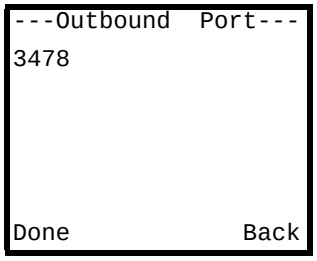
Table 86 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > Outbound Proxy > Outbound Address

LABEL	DESCRIPTION
Outbound Address	Enter the IP address or domain name of the outbound proxy server. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.41 Outbound Proxy Port Number

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **NAT traversal** > **Outbound Proxy** > **Outbound Port** to open the following menu. Use this menu to enter the outbound proxy server's port number.

Figure 90 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > Outbound Proxy > Outbound Port



The following table describes the labels in this screen.

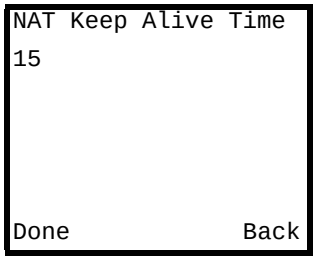
Table 87 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > Outbound Proxy > Outbound Port

LABEL	DESCRIPTION
Outbound Port	Enter the port number that the outbound proxy server uses.
Done	Press this to save your setting.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.42 NAT Keep Alive Time

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **NAT traversal** > **NAT Keep Alive** to open the following menu. Use this menu to set the NAT keep alive time.

Figure 91 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > NAT Keep Alive



The following table describes the labels in this screen.

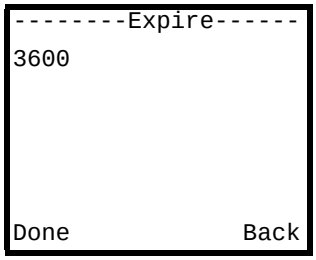
Table 88 Menu > Network > SIP Profiles > Add to Profile > Name > NAT traversal > NAT Keep Alive

LABEL	DESCRIPTION
NAT Keep Alive Time	Enter the number of NAT keep alive time seconds.
Done	Press this to save your setting.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.43 SIP Server Expire Time

Press **Menu** > **Network** > **SIP Profiles** > **Add to Profile**, specify a name and then select **Expire** to open the following menu. Use this menu to set the SIP server expiration time.

Figure 92 Menu > Network > SIP Profiles > Add to Profile > Name > Expire



The following table describes the labels in this screen.

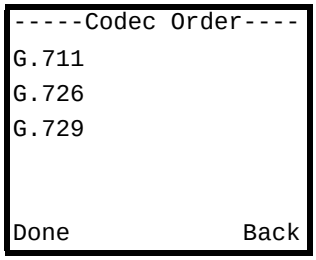
Table 89 Menu > Network > SIP Profiles > Add to Profile > Name > Expire

LABEL	DESCRIPTION
Expire	Enter the SIP server's expiration time (in seconds). This is how long an entry remains registered with the SIP server. After the time period expires, the SIP register server deletes the V630's entry from the database of registered SIP numbers. Different register servers may use different time periods. The V630 sends another registration request after half of the time period configured here has expired.
Done	Press this to save your setting.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

6.44 Codec Order

Press **Menu** > **Network > SIP Profiles > Add to Profile**, specify a name and then select **Codec Order** to open the following menu. Use this menu to set the order for which codec the V630 attempts to use in making a call.

Figure 93 Menu > Network > SIP Profiles > Add to Profile > Name > Codec Order



The following table describes the labels in this screen.

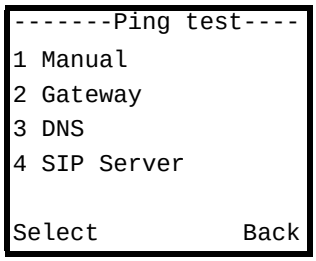
Table 90 Menu > Network > SIP Profiles > Add to Profile > Name > Code Order

LABEL	DESCRIPTION
Codec Order	Use the **Up** or **Down** key to change the order for which codec the V630 attempts to use in making a call.
Done	Press this to save your setting.
Cancel	Press this to return to the previous screen.

6.45 Ping Test

Press **Menu** > **Network > Ping test** to display the following menu. Use this menu to have the V630 send a ping to an IP address to check the network connectivity to a device.

Figure 94 Menu > Network > Ping test



The following table describes the labels in this screen.

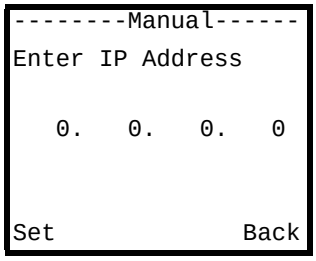
Table 91 Menu > Network > Ping test

LABEL	DESCRIPTION
Manual	Select this to go to a menu where you can specify an IP address to which to send a ping.
Gateway	Select this to send a ping to check the connectivity to the V630's gateway device.
DNS	Select this to send a ping to check the connectivity to the V630's DNS server.
SIP Server	Select this to send a ping to check the connectivity to the V630's SIP server.
SIP Proxy	Select this to send a ping to check the connectivity to the V630's SIP proxy server.
Outbound Proxy	Select this to send a ping to check the connectivity to the V630's SIP outbound proxy server.
Stun Server	Select this to send a ping to check the connectivity to the V630's STUN server.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

6.46 Manual Ping Test

Press **Menu** > **Network** > **Ping test** > **Manual** to display the following menu. Use this menu to have the V630 send a ping to an IP address to check the network connectivity to a device.

Figure 95 Menu > Network > Ping test > Manual



The following table describes the labels in this screen.

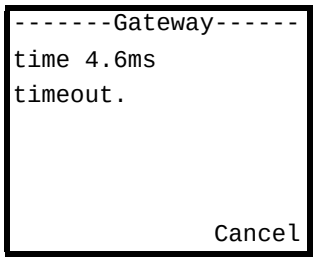
Table 92 Menu > Network > Ping test > Manual

LABEL	DESCRIPTION
IP address	Use the V630's alphanumeric keypad to input the IP address to which the V630 is to send a ping. Use the **Down** or **Up** key if you need to move the cursor.
Set	Press this to save your setting.
Back	Press this to return to the previous screen.

6.47 Ping Test in Progress

Here is an example of the results when the V630 performs a ping test (in this case to the gateway).

Figure 96 Menu > Network > Ping test (In Progress)



The following table describes the labels in this screen.

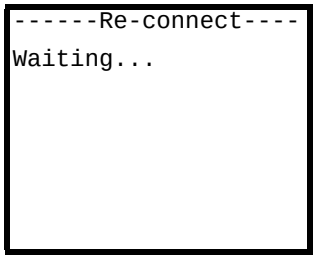
Table 93 Menu > Network > Ping test (In Progress)

LABEL	DESCRIPTION
time	This is how many milliseconds it took to get a response from the IP address to which the V630 sent a ping.
timeout.	Timeout means the V630 did not receive a reply from the IP address to which it sent a ping.
Cancel	Press this to stop the ping test and return to the previous screen.

6.48 Reconnect

Press **Menu** > **Network** > **Re-connect** to display the following screen. Use this menu to reconnect to the AP.

Figure 97 Menu > Network > Re-connect



The following table describes the labels in this screen.

Table 94 Menu > Network > Re-connect

LABEL	DESCRIPTION
Re-connect	The V630 attempt to re-establish its connection to the AP.

7

The Phonebook

Use the V630's phonebook to store the names and phone numbers of your contacts. You can either add phonebook entries yourself, or they can be supplied via auto provisioning.

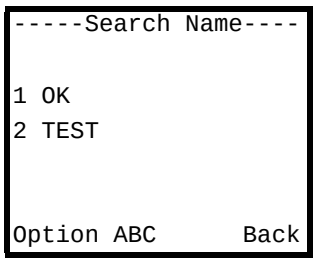
The entries can be regular phone numbers (that you use a SIP server to call) or Peer to Peer (P2P) numbers. Use P2P entries to call directly to the callee's SIP phone number and IP address without using a SIP server. This is also called a ""Point to Point", or "IP-to-IP" call.

The following sections describe how to use the phonebook.

7.1 Opening the Phonebook

While in the main screen, press the **Right** key to open the phonebook. The **contact list** appears.

Figure 98 Phonebook

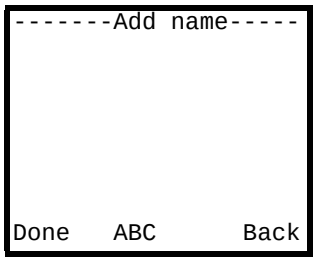


7.2 Adding a Phonebook Entry

To add a contact into the V630's phonebook, either add the number from your call log or do the following.

1. While in the main screen, press the **Right** key to open the phonebook. The **contact list** appears.
2. Press **Option** > **Add** to display the following screen.

Figure 99 Phonebook > Option > Add



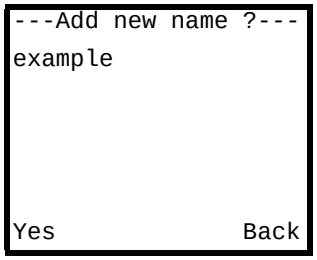
The following table describes the labels in this screen.

Table 95 Menu > Network > SIP Profiles > Add to Profile

LABEL	DESCRIPTION
Find/add name	Input the name of the contact. When you press a key, other character options appear above the input field. Press a key multiple times to input one of the characters above.
Done	Press this to save your setting.
abc	Press # to switch between the lower-case and upper-case input modes.
Back	Press this to return to the previous screen.
Clear	After you start inputting text, **Back** changes to **Clear**. Press this to backspace.

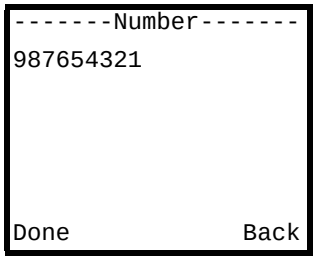
3 The following screen displays. Press the **Left** key (**Yes**).

Figure 100 New Contact Name



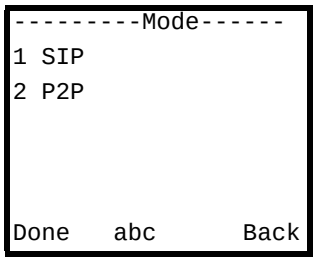
4 A screen displays with the contact's name at the top. Use the alphanumeric keypad to enter the contact's phone number. Then press **Done**.

Figure 101 New Contact Number



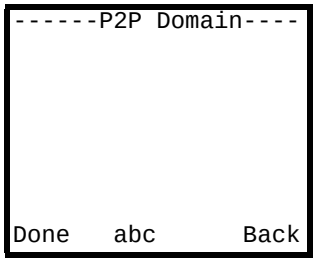
5 Select **SIP** mode if you will use a SIP server to call the callee. Select **P2P** mode if you will call the callee's SIP phone number and IP address without using a SIP serve

Figure 102 Selecting the Calling Mode



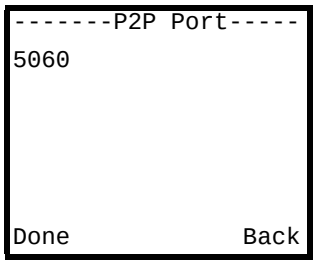
6 If you selected SIP, skip to step 8 on page 101. Enter the callee's IP address and press **Done**.

Figure 103 Entering a Peer's IP Address



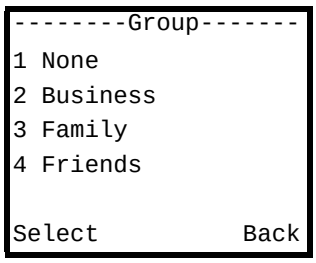
7 Enter the callee's SIP port number (if it is different from the default of 5060) and press **Done**. Then press the **Left** key to start the call.

Figure 104 Entering a Peer's Port Number



8 Select a group to add the contact to, or just select **None** to not add the contact to a group.

Figure 105 New Contact Group



9 The contact's entry is stored alphabetically in the phonebook. Note that the alphabetical order starts over for the entries that start with lower-case letters.

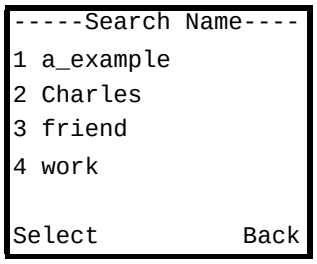
7.3 Selecting a Phonebook Entry

1 While in the main screen, press the **Right** key to open the phonebook's **contact list**.

2 Either use the **Up** and **Down** keys to scroll through the entries, or use the alphanumeric keypad to enter the first letter of a contact's name. For example, press the **2** key three times to enter a "C". The cursor jumps to the first entry starting with that letter (if no entries start with that letter, nothing happens).

The numbers that display to the left of a contact's phone number are index numbers only - you cannot use them to select an entry.

Figure 106 Phonebook

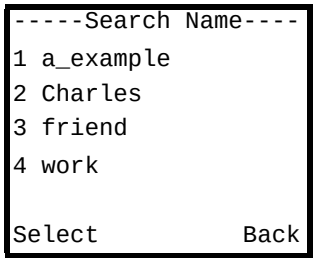


7.4 Calling a Phonebook Contact

Here's how to call a number you previously entered into the V630's phonebook.

1 While in the main screen, press the **Right** key to open the phonebook's **contact list**.

Figure 107 Phonebook



2 Highlight the entry you want to call and press the green **Talk** key to begin the call.

7.5 Calling a Number Not in the Phonebook

To call a number that is not in your V630's phonebook, from the main screen, use the alphanumeric keypad to dial the number and press the green **Talk** key to start the call.

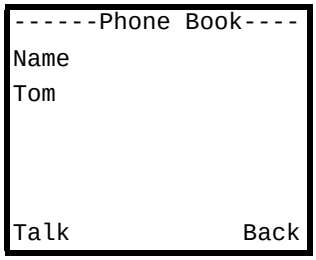
7.6 Checking a Contact's Details

Do the following to check a contact's number and group setting.

1 While in the main screen, press the **Right** key to open the phonebook's **contact list**.

2 Select the entry you want to check. Press **Option** > **Detail** to display the following screen. Scroll down to see the contact's number and which group it belongs to (if any).

Figure 108 Contact Details



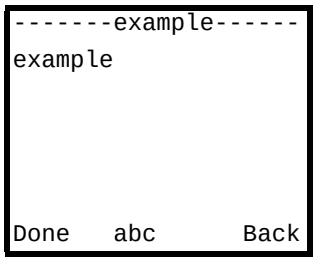
7.7 Editing a Phonebook Entry

Take the following steps to change the details of a contact you already entered into the V630's phonebook.

1 While in the main screen, press the **Right** key to open the phonebook's **contact list**.

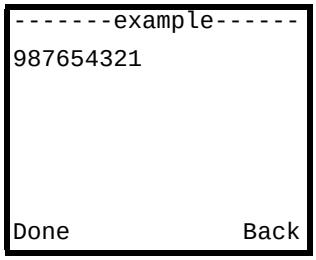
2 Select the entry you want to change. Press **Option** > **Edit** to display the following screen for editing the contact name. Edit the name and press **Done** when you are finished.

Figure 109 Editing a Contact Name



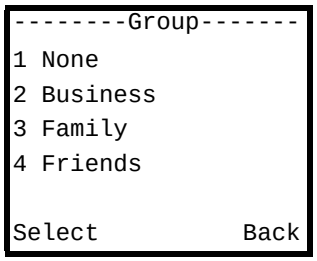
3 Use this screen to edit the contact's phone number and press **Done**.

Figure 110 Editing a Contact Number



4 Select which group to add the contact to, or just select **None** to not add the contact to a group.

Figure 111 New Contact Group



5 The contact's entry is now edited and stored alphabetically in the phonebook. Note that the alphabetical order starts over for the entries that start with lower-case letters.

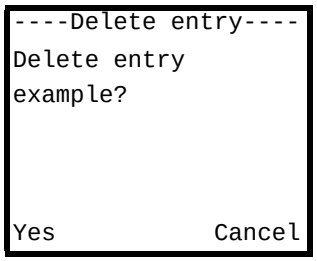
7.8 Deleting a Phonebook Entry

Take the following steps to remove a contact's entry from the V630's phonebook.

1 While in the main screen, press the **Right** key to open the phonebook's **contact list**.

1 Select the entry you want to remove. Press **Option** > **Delete**. The following screen displays.

Figure 112 Delete a Phonebook Entry



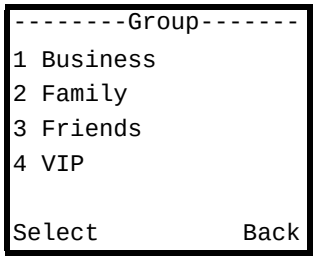
2 Press **Yes** to delete the entry, or press **Cancel** to return to the previous screen.

7.9 Contact Groups

Use contact groups to specify the ring tone for incoming calls from the group's members. Do the following to edit a contact group.

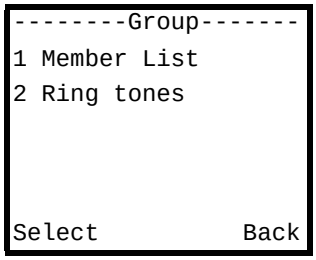
1 While in the main screen, press the **Right** key to open the phonebook's **contact list**. Press **Option** > **Group** to display the following screen. Select the group that you want to edit.

Figure 113 Contact Groups



2 Select whether to edit the group's members (see Section 7.10 on page 105) or set the ring tone to use for incoming calls from the group's members (see Section 7.11 on page 106).

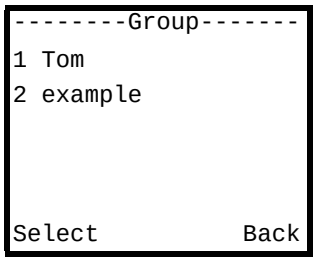
Figure 114 Contact Group Selected



7.10 Editing a Contact Group's Members

If you selected **Member List** in Figure 114 on page 105, the following menu displays. This menu lists the group's members.

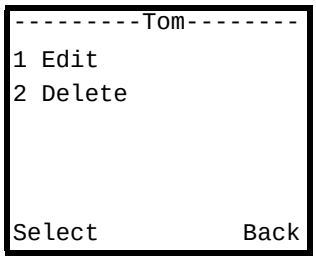
Figure 115 Contact Group Selected



Select a member to display the following screen. Select **Edit** to modify the contact's details (see Section 7.7 on page 103 for more on this). Select **Delete** to remove the contact from the phone book.

Delete in this screen actually removes the contact from the phone book, not just from the contact group.

Figure 116 Contact Group Member Selected



7.11 Editing a Contact Group's Ring Tone

If you selected **Ring tones** in Figure 114 on page 105, the following menu displays. Select the ring tone for incoming calls from the selected contact group's members.

Figure 117 Contact Group Ring tones

```
----Select Melody---
1 Allegro
2 Bach
3 Beethoven 5th
4 Birthday

Select          Back
```

7.12 Speed Dial

Set up speed dial entries to be able to call someone by dialing a single number.

7.13 Adding a Speed Dial Entry

Do the following to make an existing phonebook entry into a speed dial entry.

1. While in the main screen, press the **Right** key to open the phonebook's **contact list**.
2. Select the entry you want to add to speed dial. Press **Option** > **Speed Dial** to display the following screen. Select for which key you want to create a speed dial entry. This example uses key 2.

Figure 118 Speed Dial

```
------Speed Dial----
1 Key1: [Empty]
2 Key2: [Empty]
3 Key3: [Empty]
4 Key4: [Empty]

Done   abc      Back
```

3. The following screen displays. Select **Yes** to add the contact as a speed dial entry.

Figure 119 Set the Speed Dial Entry

```
--Set Speed Dial #2-
1 Yes
2 No




Done   abc      Back
```

7.14 Editing a Speed Dial Entry

Do the following to edit an existing speed dial entry.

1. While in the main screen, press the **Right** key to open the phonebook's **contact list**.
2. Select the entry you want to edit. Press **Option** > **Speed Dial** to display the following screen. Select the speed dial entry you want to edit. This example uses 2.

Figure 120 Speed Dial

```
------Speed Dial----
1 Key1: [Empty]
2 Key2: [Example]
3 Key3: [Empty]
4 Key4: [Empty]

Done   abc      Back
```

The following screen displays. Select **Change** to set whether or not to use the contact as a speed dial entry.

Delete in this screen removes the contact from the phonebook, not just from the contact group.

Figure 121 Speed Dial Entry Change

```
---- Speed Dial #2--
1 Change
2 Delete




Done   abc      Back
```

3. The following screen displays. Select **No** to not use the contact as a speed dial entry.

Figure 122 Set the Speed Dial Entry

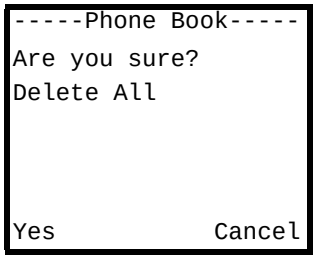
```
--Set Speed Dial #2-
1 Yes
2 No




Done   abc      Back
```

7.15 Deleting All Phonebook Entries

Take the following steps to remove all of your contact entries from the V630's phonebook.

1. While in the main screen, press the **Right** key to open the phonebook's **contact list**.
2. Press **Option** > **Delete All**. The following screen displays.

Figure 123 Delete All Phonebook Entries



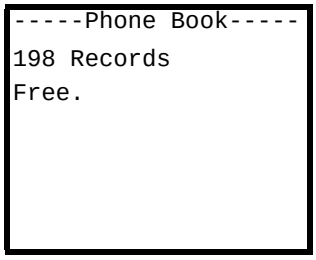
3. Press **Yes** to remove all of the phonebook entries, or press **Cancel** to return to the previous screen.

7.16 Phonebook Storage Space

Do the following to see how much storage space the phonebook has free for entries.

1. While in the main screen, press the **Right** key to open the phonebook's **contact list**.
2. Press **Option** > **Memory status**. The following screen displays briefly. This screen shows how many more phonebook entries you can add.

Figure 124 Delete All Phonebook Entries



8

Call Options

This chapter describes the options you can use during a call.

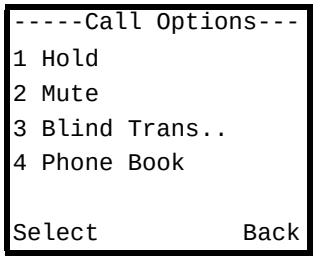
8.1 Call Volume

During a call, press the **Up** or **Down** key to adjust the volume.

8.2 Call Options

During a call, press **Option** to open the following screen.

Figure 125 Call Options



The following table describes the labels in this screen.

Table 96 Call Options

LABEL	DESCRIPTION
Hold/Unhold	Select this to put the call on hold or take it off hold.
Mute/Unmute	Select this to mute or unmute the call. When you mute the call, you can still hear the other party, but the other party cannot hear you.
Blind Transfer	Select this to transfer the call to another number.
Phone Book	Select this to open the V630's phone book.
Use Speaker	Select this to turn on the speaker phone function.
Select	Press this to choose the highlighted field in the menu.
Back	Press this to return to the previous screen.

PART III
The Web Configurator

9

Introducing the Web Configurator

This chapter describes how to access the V630's web configurator and provides an overview of its screens.

9.1 Web Configurator Overview

The web configurator is an HTML-based management interface that allows easy V630 setup and management via Internet browser. Use Internet Explorer 6.0 and later versions. The recommended screen resolution is 1024 by 768 pixels.

In order to use the web configurator you need to allow:

- Web browser pop-up windows from your device. Web pop-up blocking is enabled by default in Windows XP SP (Service Pack) 2.
- JavaScripts (enabled by default).
- Java permissions (enabled by default).

See Appendix C on page 199 if you want to make sure these functions are allowed in Internet Explorer.

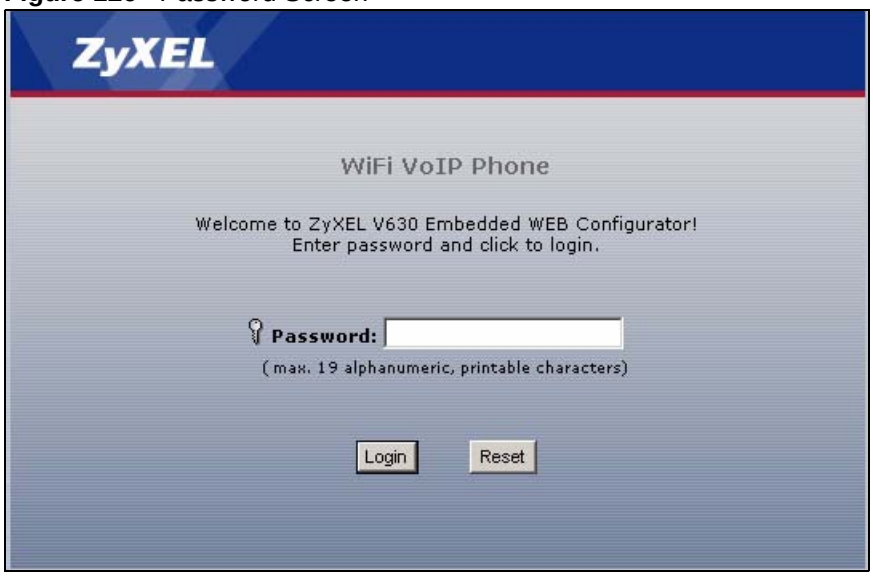
9.2 Accessing the Web Configurator

1 Launch your web browser.

Before you can access the web configurator, you must enable it in the **Menu > Setup > Phone Setting > Web Configurator** LCD screen.

2 Enter the V630's IP address as the URL. If the V630 got an IP address automatically, you may need to check the **Menu > Setup > Information** > **TCP/IP** LCD screen to find it's IP address (see Section 5.27 on page 64). The following screen displays.

Figure 126 Password Screen

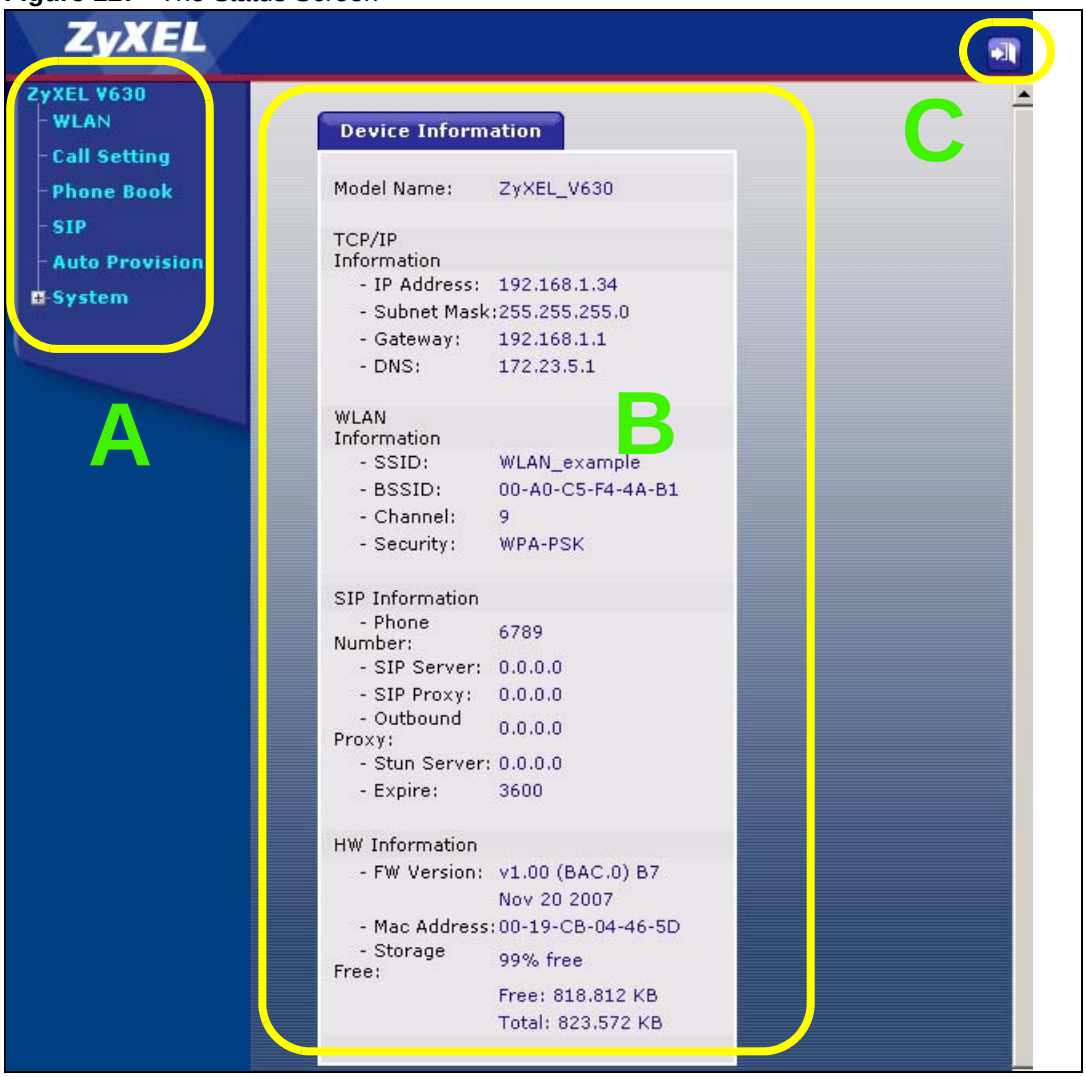


3 For user access, type **password** (default) as the password. For administrator access, type **admin** (default). Click **Login**.

4 It is recommended that you change your password. See Section 16.1 on page 141 for details.

5 The **Device Information** screen displays.

Figure 127 The Status Screen



As illustrated above, the web configurator screen is divided into four parts.

- **A** - navigation panel
- **B** - main window
- **C** - logout icon

9.2.1 Navigation Panel

Use the menu items on the navigation panel to open screens and configure the V630's features. The following table describes the menu items.

Table 97 Navigation Panel Summary

LINK	TAB	FUNCTION
WLAN	WLAN Profile	Use this screen to configure WLAN profile settings.
Call Setting	Call Setting	Use this screen to configure call forwarding and whether or not the V630 sends its phone number to callees.
Phone Book	Phone Book	Use these screens to configure contact entries.

Table 97 Navigation Panel Summary

LINK	TAB	FUNCTION
SIP	SIP Profile	Use this screen to configure the V630 to use a SIP account.
Auto Provision	Auto Provision	Use this screen if you have an auto-provisioning server on the network.
System		
Change Passwd	Basic	Use this screen to change the user password.
	System	Use this screen to change the administrator password.
Information		This screen displays the current status of the V630, its system resources, and current TCP/IP, WLAN, and SIP settings.
Upgrade FW		Use this screen to upload firmware to the V630.

9.2.2 Main Window

The main window displays information and configuration fields. It is discussed in the rest of this document.

The **Information** screen displays after you log in. See Chapter 10 on page 117 for more information about the **Information** screen.

10

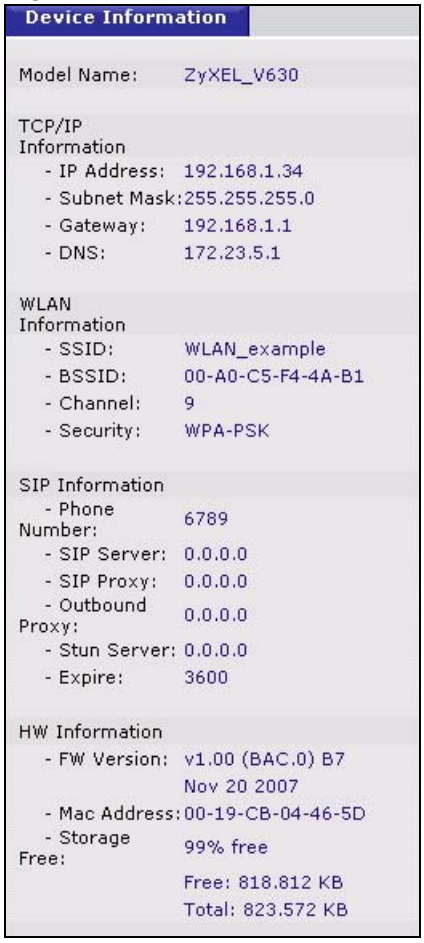
Information Screen

Use the **Information** screen to see the current status of the V630, its system resources, and current TCP/IP, WLAN, and SIP settings.

10.1 Information Screen

Click **System** > **Information** to open this screen.

Figure 128 Information Screen



Each field is described in the following table.

Table 98 Information Screen

LABEL	DESCRIPTION
Model Name	This field displays the V630's model name.
TCP/IP Information	These fields display the V630's current TCP/IP settings.
IP Address	This field displays the current IP address of the V630 on the WLAN.
Subnet Mask	This field displays the current subnet mask on the WLAN.
Gateway	This field displays the IP address of the router that forwards the V630's traffic.
DNS	This is the IP address of the DNS (Domain Name System) server your V630 uses.
WLAN Information	These fields display the V630's current wireless LAN settings.
SSID	This is the SSID (name) of the wireless network that the V630 is currently using.
BSSID	This is the V630's MAC (Media Access Control) address. Every network device has a unique MAC address that identifies it across the network.
Channel	This is the radio frequency that the V630 is currently using.
Security	This is the type of wireless security that the V630 is currently using. The V630 supports WEP, WPA PSK, WPA2 PSK, WPA, and WPA2.
SIP Information	These fields display the V630's current SIP settings.
Phone Number	This is the SIP account's phone number.
SIP Server	This is the address of the SIP server for the SIP account.
SIP Proxy	This is the address of the SIP proxy server for the SIP account.
Outbound Proxy	This is the address of the outbound proxy server for the SIP account.
Stun Server	This is the address of the STUN server for the SIP account.
Expire	This is the SIP server expire time.
HW Information	These fields display the V630's hardware settings and status.
FW Version	This is the firmware (embedded software) version and creation date.
Mac Address	This is the V630's MAC (Media Access Control) address. Every network device has a unique MAC address that identifies it across the network.
Storage Free	This shows how much of the V630's storage space is available.

11

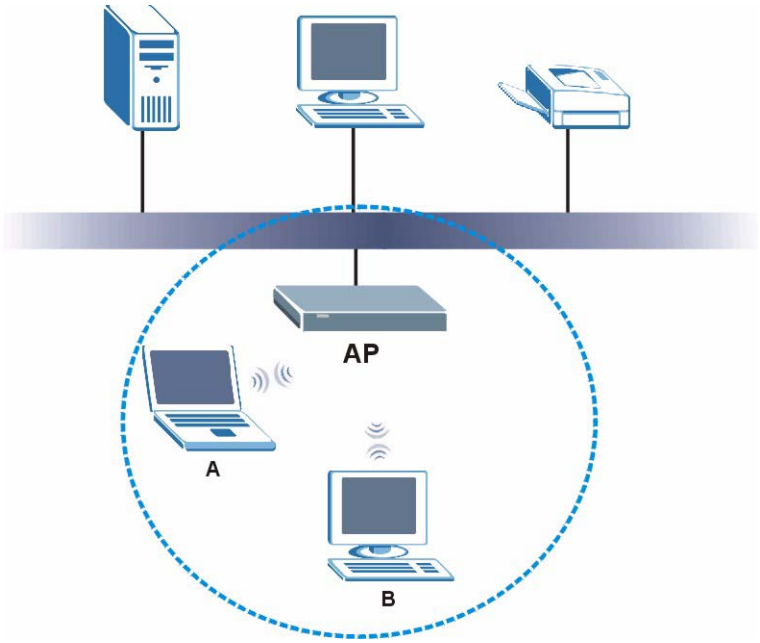
WLAN Profile

Use the **WLAN Profile** screen to configure profiles of wireless and TCP/IP settings. You can also select which SIP profile each WLAN profile uses.

11.1 Wireless Network Overview

The following figure provides an example of a wireless network.

Figure 129 Example of a Wireless Network



The wireless network is the part in the blue circle. In this wireless network, devices A and B are called wireless clients. The wireless clients use the access point (AP) to interact with other devices (such as the printer) or with the Internet. Your V630 is a wireless client.

Every wireless network must follow these basic guidelines.

- Every wireless client in the same wireless network must use the same SSID.
  The SSID is the name of the wireless network. It stands for Service Set IDentity.
- If two wireless networks overlap, they should use different channels.
  Like radio stations or television channels, each wireless network uses a specific channel, or frequency, to send and receive information.

- Every wireless client in the same wireless network must use security compatible with the AP.

  Security stops unauthorized devices from using the wireless network. It can also protect the information that is sent in the wireless network.

11.2 Wireless Security Overview

The following table shows the relative strengths of common types of wireless security. Use the strongest security that every wireless client in the wireless network supports.

Table 99 Wireless Security Types

	NO RADIUS SERVER	RADIUS SERVER
Weakest	No Security	
	Static WEP	
	WPA-PSK	WPA
Strongest	WPA2-PSK	WPA2

If you have a RADIUS server, you can use WPA or WPA2 so users have to log into the wireless network before using it. This is called user authentication. RADIUS servers are more common in businesses (WPA and WPA2 are also called the enterprise version of WPA).

If you do not have a RADIUS server, the strongest wireless security you can use is WPA2-PSK (WPA2-PSK and WPA-PSK are also known as the personal version of WPA).

It is recommended that wireless networks use WPA-PSK, WPA, or stronger security. WEP is better than no security, but it is still possible for unauthorized devices to figure out the original information pretty quickly.

When you select **WPA2** or **WPA2-PSK** in your V630, you can also select an option (**WPA Compatible**) to support WPA as well. In this case, if some wireless clients support WPA and some support WPA2, you should set up **WPA2-PSK** or **WPA2** (depending on the type of wireless network login) and select the **WPA Compatible** option in the V630.

11.2.1 SSID

Normally, the AP acts like a beacon and regularly broadcasts the SSID in the area. You can hide the SSID instead, in which case the AP does not broadcast the SSID. In addition, you should change the default SSID to something that is difficult to guess.

This type of security is fairly weak, however, because there are ways for unauthorized devices to get the SSID. In addition, unauthorized devices can still see the information that is sent in the wireless network.

11.2.2 User Authentication

You can use WPA or WPA2 to have a RADIUS server authenticate users before they can use the wireless network. You store each user's user name and password on the RADIUS server. However, every wireless client in the wireless network has to support IEEE 802.1x to do this.

Unauthorized devices can still see the information that is sent in the wireless network, even if they cannot use the wireless network. Furthermore, there are ways for unauthorized wireless users to get a valid user name and password. Then, they can use that user name and password to use the wireless network.

11.2.3 Encryption

Wireless networks can use encryption to protect the information that is sent in the wireless network. Encryption is like a secret code. If you do not know the secret code, you cannot understand the message.

Many types of encryption use a key to protect the information in the wireless network. The longer the key, the stronger the encryption. Every wireless client in the wireless network must have the same key.

11.3 IP Address Assignment

Every computer on a network must have a unique IP address.

11.3.1 DHCP Client

The V630 can get an IP address automatically if the network has a DHCP (Dynamic Host Control Protocol) server to give them out.

11.3.2 Static IP

If you have a static (fixed) IP address from the ISP, you can manually assign it to the V630's WAN port.

11.3.3 PPPoE

The V630 supports PPPoE (Point-to-Point Protocol over Ethernet) for a dial-up connection. You will need a user name and password from the Internet Service Provider (ISP).

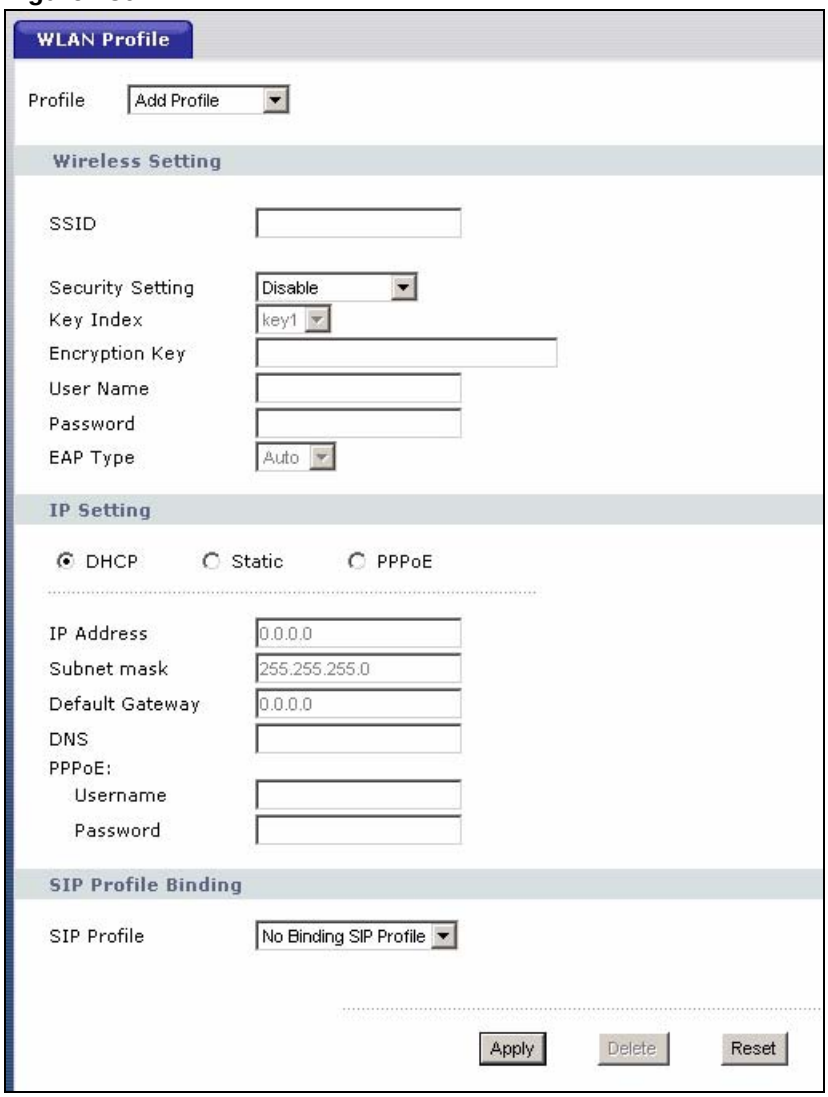
11.4 DNS Server

A DNS (Domain Name System) server maps domain names (like www.zyxel.com) to their corresponding IP addresses (204.217.0.2 in the case of www.zyxel.com). This lets you use domain names to access web sites without having to know their IP addresses. When using DHCP. the V630 can receive the IP address of a DNS server automatically (along with the V630's own IP address). With a static IP address, you can also manually enter a DNS server IP address in the V630.

11.5 WLAN Profile Screen

Click **WLAN** to open the following screen.

Figure 130 WLAN



The following table describes the general wireless LAN labels in this screen.

Table 100 WLAN

LABEL	DESCRIPTION
Profile	Select a profile of WLAN settings to edit or select **Add Profile** to create a new one. Note: You cannot edit the WLAN profile that the V630 is currently using.
SSID	Enter the SSID (Service Set IDentity) of the wireless network to which you want to connect the V630.
Security Setting	Select the type of security that the wireless network uses. Select **Disable** if the wireless network does not use security.

Table 100 WLAN

LABEL	DESCRIPTION
Key Index	Select a default WEP key to use for data encryption. The key displays in the adjacent field.
Encryption Key	Enter the WEP key in the field provided. If you select **64 Bits** in the **WEP** field. Enter either 10 hexadecimal digits in the range of “A-F”, “a-f” and “0-9” (for example, 11AA22BB33) for HEX key type. or Enter 5 ASCII characters (case sensitive) ranging from “a-z”, “A-Z” and “0-9” (for example, MyKey) for ASCII key type. If you select **128 Bits** in the **WEP** field, Enter either 26 hexadecimal digits in the range of “A-F”, “a-f” and “0-9” (for example, 00112233445566778899AABBCC) for HEX key type or Enter 13 ASCII characters (case sensitive) ranging from “a-z”, “A-Z” and “0-9” (for example, MyKey12345678) for ASCII key type. Note: The values for the WEP keys must be set up exactly the same on all wireless devices in the same wireless LAN. ASCII WEP keys are case sensitive.
User Name	When using WPA or WPA2, enter your user name here.
Password	When using WPA or WPA2, enter your password here.
EAP Type	When using WPA-EAP or WPA2-EAP, select the type of EAP authentication that the wireless network uses (or select **Auto**).
IP Setting	Select **DHCP** if you do not have a fixed IP address to use. Select **Static** if you were given a fixed IP address information to use. Then fill in the **IP Address**, **Subnet Mask**, **Default Gateway** and **DNS** fields. Select **PPPoE** if the V630 needs to use a PPPoE account. You will also need a PPPoE user name and password to use this.
IP Address	If you set the **IP Setting** to **Static**, enter the V630’s IP address here.
Subnet Mask	If you set the **IP Setting** to **Static**, enter the V630’s subnet mask here.
Default Gateway	If you set the **IP Setting** to **Static**, enter the IP address of the default gateway here. The default gateway is the device on the network that your V630 uses to access other networks (like the Internet).
DNS	If you set the **IP Setting** to **Static**, enter the DNS (Domain Name System) server your V630 uses here.
PPPoE	
Username	If you set the **IP Setting** to **PPPoE**, enter the user name for the PPPoE account here.
Password	If you set the **IP Setting** to **PPPoE**, enter the password for the PPPoE account here.
SIP Profile	Select the profile of SIP settings to use with this WLAN profile.
Apply	Click **Apply** to save your changes back to the V630.
Delete	Click **Delete** to remove the profile.
Reset	Click **Reset** to return the screen to the most recently saved settings.

12

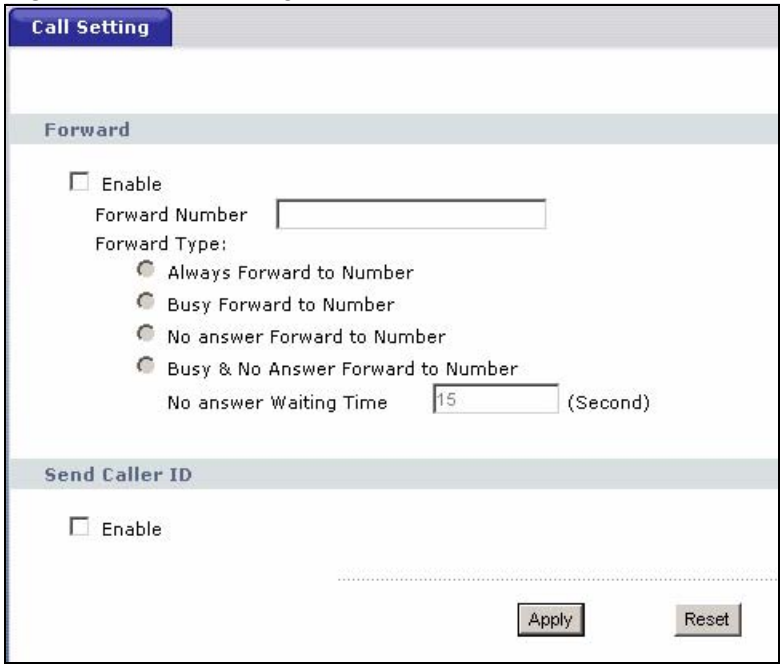
Call Setting

This chapter discusses the **Call Setting** screen.

12.1 Call Setting Screen

Click **Call Setting** to display the following screen. Use this screen to configure call forwarding for incoming calls and caller ID.

Figure 131 Call Setting



The following table describes the labels in this screen.

Table 101 Call Setting

LABEL	DESCRIPTION
Enable	Select this check box to turn on call forwarding. This setting applies to all call forwarding on the V630.
Forward Number	Specify the phone number to which the V630 should forward incoming calls.

Table 101 Call Setting

LABEL	DESCRIPTION
Forward Type	Select **Always Forward to Number** to forward all calls to the specified number (regardless of whether or not your line is busy). Select **Busy Forward to Number** to forward calls when your line is busy. Select **No Answer Forward to Number** to forward calls when you do not answer the phone. You will be able to specify how long the V630 waits before forwarding an unanswered call. Select **Busy & No Answer Forward to Number** to forward calls when your line is busy or you do not answer the phone. Specify how long the V630 waits before forwarding an unanswered call.
Send Caller ID	Select this to have the V630 send your phone number to the phones you call.
Apply	Click **Apply** to save your changes back to the V630.
Reset	Click **Reset** to return the screen to the most recently saved settings.

13

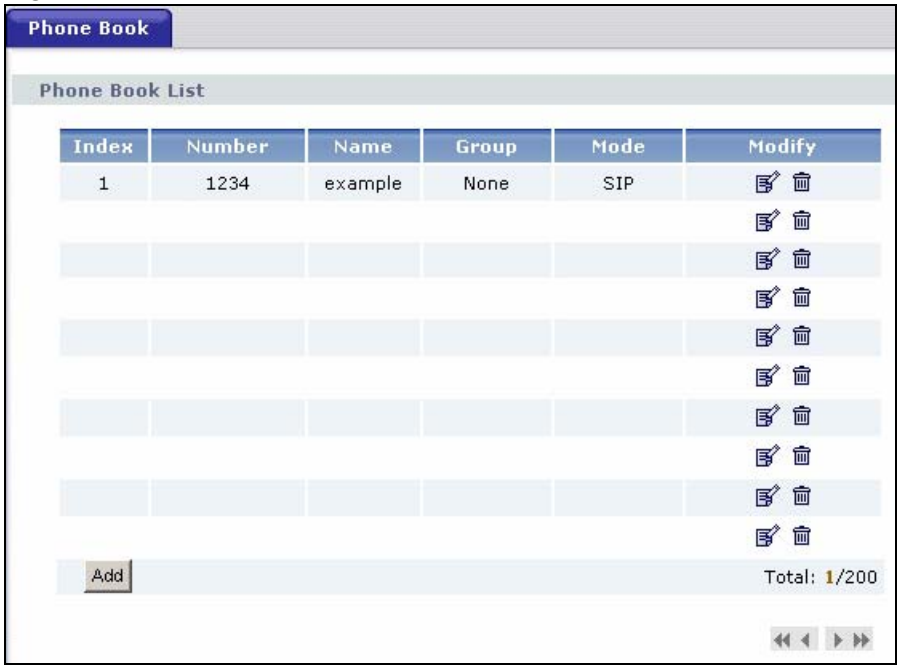
Phone Book

This chapter discusses the **Phone Book** screens.

13.1 Phone Book Screen

Use this screen to manage your phone book list of contacts. Click **Phone Book** to open the following screen.

Figure 132 Phone Book



The following table describes the labels in this screen.

Table 102 Phone Book

LABEL	DESCRIPTION
Index	This shows the index number of the contact's entry.
Number	This is the contact's phone number.
Name	This is the contact's name.
Group	This is the group to which the contact belongs (if any). You can use the LCD menus to assign a different ring for incoming calls from each group.
Mode	This shows whether you use a SIP server to call the contact or a direct peer-to-peer call.

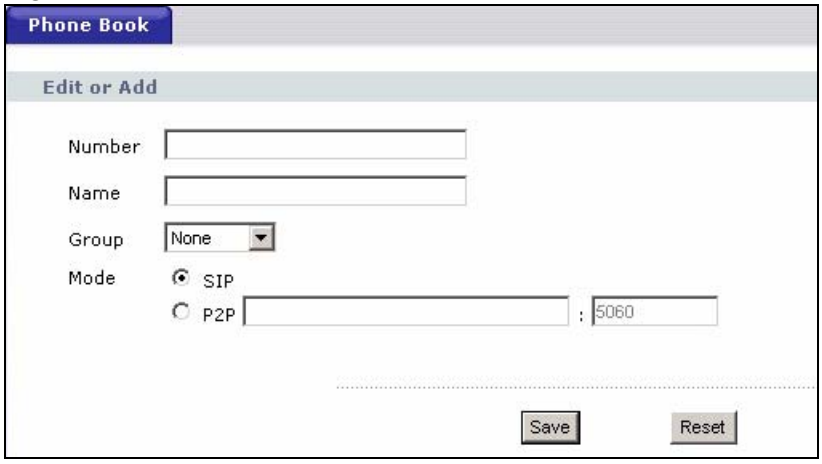
Table 102 Phone Book (continued)

LABEL	DESCRIPTION
Modify	Click the **Edit** icon to change this entry's details. Click the **Remove** icon to delete the entry from the phonebook. If you do this, the information cannot be recovered.
Add	Click this to create a new phone book entry.
Total	This shows how many phone book entries the V630 has out of its total possible number of entries. Use the navigation arrows to go to other pages of entries.

13.1.1 Phone Book Add or Edit Screen

Use this screen to add or edit phone book entries. Click **Phone Book**. The following screen displays.

Figure 133 Phone Book > Add



The following table describes the labels in this screen.

Table 103 Phone Book > Add

LABEL	DESCRIPTION
Number	Enter the contact's phone number.
Name	Enter the contact's name.
Group	Select the group to which the contact should belong (if any). You can use the LCD menus to assign a different ring for incoming calls from each group.
Mode	Select **SIP** if you will use a SIP server to call the contact. Select **P2P** if you will make a direct peer-to-peer call to the contact. For P2P you must also enter the callee's IP address. Enter the callee's SIP port number if it is different from the default of 5060.
Save	Click **Save** to save your changes back to the V630.
Reset	Click **Reset** to return the screen to the most recently saved settings.

14

SIP Account Setup

This chapter discusses the V630's **VoIP** > **SIP** screens.

14.1 Introduction to VoIP

VoIP (Voice over IP) is the sending of voice signals over the Internet Protocol. This allows you to make phone calls and send faxes over the Internet at a fraction of the cost of using the traditional circuit-switched telephone network. You can also use servers to run telephone service applications like PBX services and voice mail. Internet Telephony Service Provider (ITSP) companies provide VoIP service. A company could alternatively set up an IP-PBX and provide its own VoIP service.

Circuit-switched telephone networks require 64 kilobits per second (kbps) in each direction to handle a telephone call. VoIP can use advanced voice coding techniques with compression to reduce the required bandwidth.

14.1.1 Introduction to SIP

The Session Initiation Protocol (SIP) is an application-layer control (signaling) protocol that handles the setting up, altering and tearing down of voice and multimedia sessions over the Internet.

SIP signaling is separate from the media for which it handles sessions. The media that is exchanged during the session can use a different path from that of the signaling. SIP handles telephone calls and can interface with traditional circuit-switched telephone networks.

14.1.2 SIP Identities

A SIP account uses an identity (sometimes referred to as a SIP address). A complete SIP identity is called a SIP URI (Uniform Resource Identifier). A SIP account's URI identifies the SIP account in a way similar to the way an e-mail address identifies an e-mail account. The format of a SIP identity is SIP-Number@SIP-Service-Domain.

14.1.2.1 SIP Number

The SIP number is the part of the SIP URI that comes before the "@" symbol. A SIP number can use letters like in an e-mail address (johndoe@your-ITSP.com for example) or numbers like a telephone number (1122334455@VoIP-provider.com for example).

14.1.2.2 SIP Service Domain

The SIP service domain of the VoIP service provider (the company that lets you make phone calls over the Internet) is the domain name in a SIP URI. For example, if the SIP address is 1122334455@VoIP-provider.com, then "VoIP-provider.com" is the SIP service domain.

14.1.3 SIP Call Progression

The following figure displays the basic steps in the setup and tear down of a SIP call. **A** calls **B**.

Table 104 SIP Call Progression

A		B
1. INVITE		
		2. Ringing
		3. OK
4. ACK		
	5.Dialogue (voice traffic)	
6. BYE		
		7. OK

1. **A** sends a SIP INVITE request to **B**. This message is an invitation for **B** to participate in a SIP telephone call.
2. **B** sends a response indicating that the telephone is ringing.
3. **B** sends an OK response after the call is answered.
4. **A** then sends an ACK message to acknowledge that **B** has answered the call.
5. Now **A** and **B** exchange voice media (talk).
6. After talking, A hangs up and sends a BYE request.
7. **B** replies with an OK response confirming receipt of the BYE request and the call is terminated.

14.1.4 SIP Client Server

SIP is a client-server protocol. A SIP client is an application program or device that sends SIP requests. A SIP server responds to the SIP requests.

When you use SIP to make a VoIP call, it originates at a client and terminates at a server. A SIP client could be a computer or a SIP phone. One device can act as both a SIP client and a SIP server.

14.1.4.1 SIP User Agent

A SIP user agent can make and receive VoIP telephone calls. This means that SIP can be used for peer-to-peer communications even though it is a client-server protocol. In the following figure, either **A** or **B** can act as a SIP user agent client to initiate a call. **A** and **B** can also both act as a SIP user agent to receive the call.

Figure 134 SIP User Agent

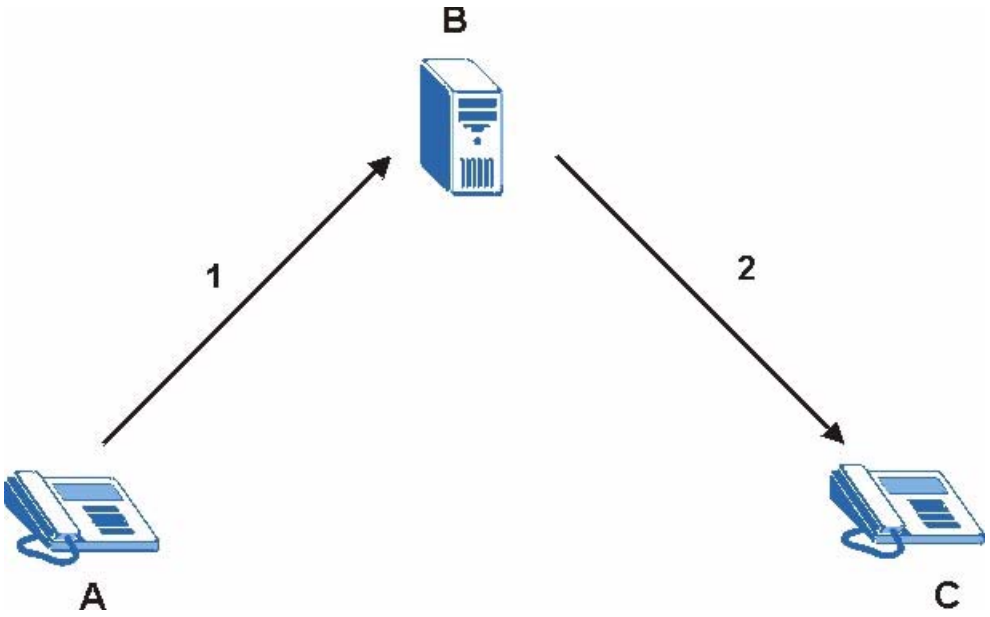
14.1.4.2 SIP Proxy Server

A SIP proxy server receives requests from clients and forwards them to another server.

In the following example, you want to use client device **A** to call someone who is using client device **C**.

1. The client device (**A** in the figure) sends a call invitation to the SIP proxy server (**B**).
2. The SIP proxy server forwards the call invitation to **C**.

Figure 135 SIP Proxy Server



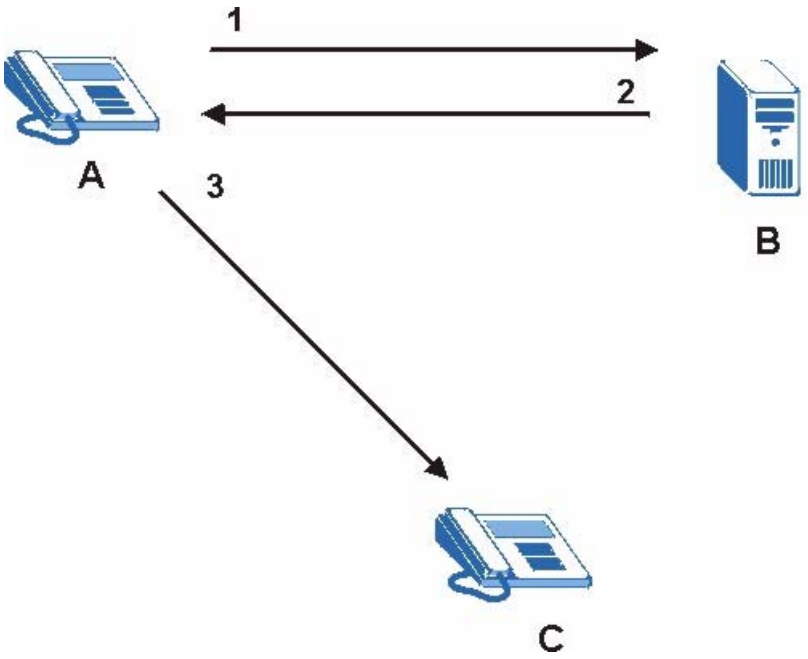
14.1.4.3 SIP Redirect Server

A SIP redirect server accepts SIP requests, translates the destination address to an IP address and sends the translated IP address back to the device that sent the request. Then the client device that originally sent the request can send requests to the IP address that it received back from the redirect server. Redirect servers do not initiate SIP requests.

In the following example, you want to use client device **A** to call someone who is using client device **C.**

1. Client device **A** sends a call invitation for **C** to the SIP redirect server (**B**).
2. The SIP redirect server sends the invitation back to **A** with **C**'s IP address (or domain name).
3. Client device **A** then sends the call invitation to client device **C**.

Figure 136 SIP Redirect Server



14.1.4.4 SIP Register Server

A SIP register server (also known as a registrar server) maintains a database of SIP identity-to-IP address (or domain name) mapping. The register server checks your user name and password when you register.

14.1.5 RTP

When you make a VoIP call using SIP, the RTP (Real time Transport Protocol) is used to handle voice data transfer. See RFC 1889 for details on RTP.

14.1.6 NAT and SIP

NAT (Network Address Translation - NAT, RFC 1631) is the translation of the IP address of a host in a packet, for example, the source address of an outgoing packet, used within one network to a different IP address known within another network.

The V630 must register its public IP address with a SIP register server. If there is a NAT router between the V630 and the SIP register server, the V630 probably has a private IP address. The V630 lists its IP address in the SIP message that it sends to the SIP register server. NAT does not translate this IP address in the SIP message. The SIP register server gets the V630's IP address from inside the SIP message and maps it to your SIP identity. If the V630 has a private IP address listed in the SIP message, the SIP server cannot map it to your SIP identity.

Use STUN or outbound proxy to allow the V630 to list its public IP address in the SIP messages.

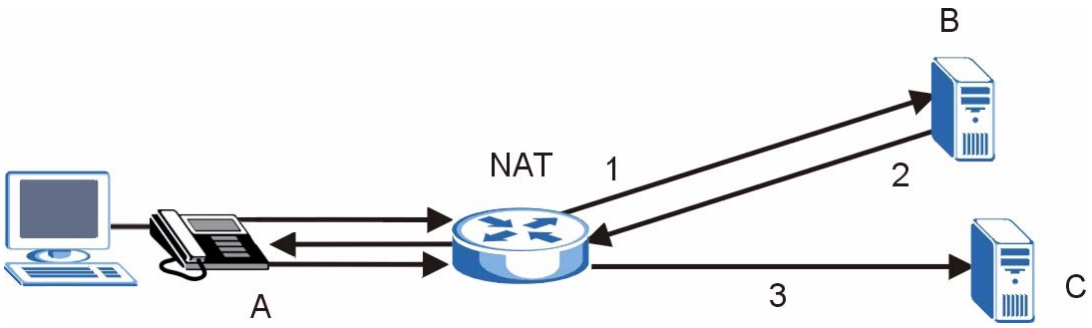
14.1.6.1 STUN

STUN (Simple Traversal of User Datagram Protocol (UDP) through Network Address Translators) allows the V630 to find the presence and types of NAT routers and/or firewalls between it and the public Internet. STUN also allows the V630 to find the public IP address that NAT assigned, so the V630 can embed it in the SIP data stream. STUN does not work with symmetric NAT routers or firewalls. See RFC 3489 for details on STUN.

The following figure shows how STUN works.

1. The V630 (**A**) sends SIP packets to the STUN server (**B**).
2. The STUN server (**B**) finds the public IP address and port number that the NAT router used on the V630's SIP packets and sends them to the V630.
3. The V630 uses the public IP address and port number in the SIP packets that it sends to the SIP server (**C**).

Figure 137 STUN



14.1.6.2 Outbound Proxy

Your VoIP service provider may host a SIP outbound proxy server to handle all of the V630's VoIP traffic. This allows the V630 to work with any type of NAT router and eliminates the need for STUN or a SIP ALG. Turn off a SIP ALG on a NAT router in front of the V630 to keep it from retranslating the IP address (since this is already handled by the outbound proxy server).

14.1.7 Voice Coding

A codec (coder/decoder) codes analog voice signals into digital signals and decodes the digital signals back into voice signals. The V630 supports the following codecs.

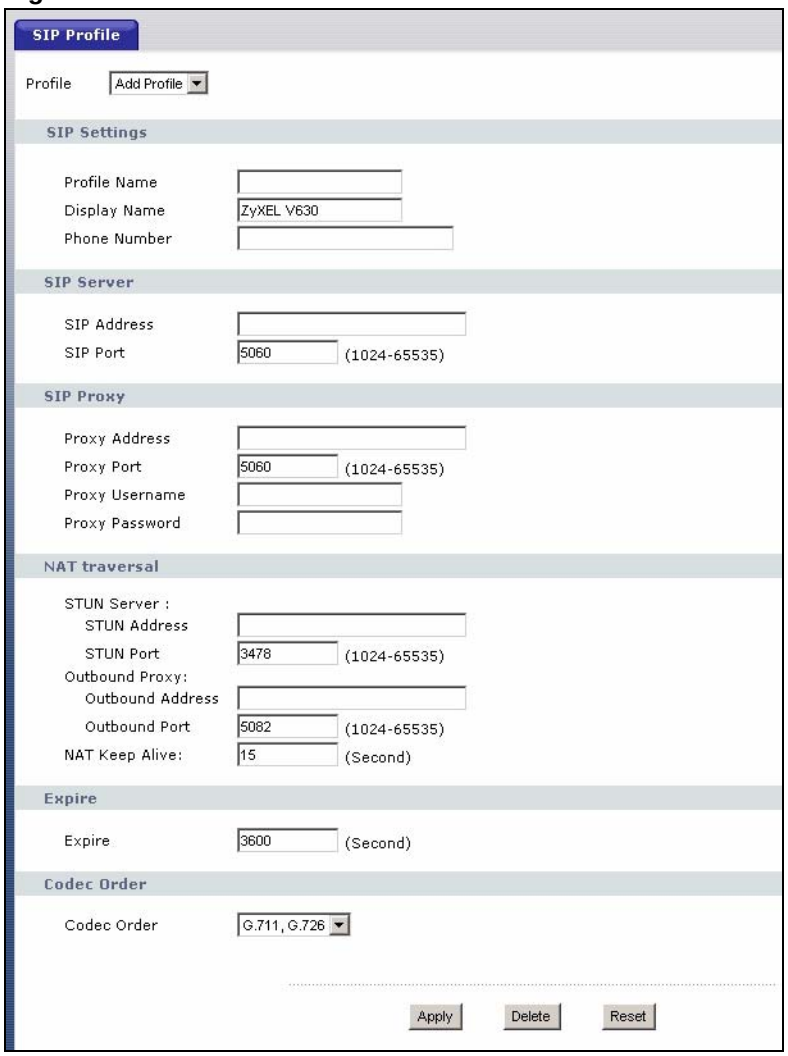
- **G.711** is a Pulse Code Modulation (PCM) waveform codec. PCM measures analog signal amplitudes at regular time intervals (sampling) and converts them into digital bits (quantization). Quantization "reads" the analog signal and then "writes" it to the nearest digital value. For this reason, a digital sample is usually slightly different from its analog original (this difference is known as "quantization noise").
- **G.726** is an ADPCM waveform codec that uses a lower bit rate than standard PCM conversion. G.726 operates at 16, 24, 32 or 40 kbps.

- **G.729** is an Analysis-by-Synthesis (AbS) hybrid waveform codec that uses a filter based on information about how the human vocal tract produces sounds. The codec analyzes the incoming voice signal and attempts to synthesize it using its list of voice elements. It tests the synthesized signal against the original and, if it is acceptable, transmits details of the voice elements it used to make the synthesis. Because the codec at the receiving end has the same list, it can exactly recreate the synthesized audio signal. G.729 provides good sound quality and reduces the required bandwidth to 8kbps.

14.2 SIP Settings Screen

Click **SIP** to open the following screen. Use this screen to maintain basic information about each SIP account. Your VoIP service provider (the company that lets you make phone calls over the Internet) should provide this.

Figure 138 SIP



Each field is described in the following table.

Table 105 SIP

LABEL	DESCRIPTION
Profile	Select a profile of SIP settings to edit or select **Add Profile** to create a new one.
SIP Settings	
Profile Name	Specify the name to use for the SIP account within the V630.
Display Name	Specify the profile name that you want to display on the LCD main screen when the SIP account is registered.
Active	Select this if you want the V630 to use this account. Clear it if you do not want the V630 to use this account.
Phone Number	Enter your SIP number. In the full SIP URI, this is the part before the @ symbol. You can use up to 50 printable English keyboard characters.
SIP Server	
SIP Address	Enter the IP address or domain name of the SIP server provided by your VoIP service provider. You can use up to 32 printable English keyboard characters. It does not matter whether the SIP server is a proxy, redirect or register server.
SIP Port	Enter the SIP server's listening port number, if your VoIP service provider gave you one. Otherwise, keep the default value.
SIP Proxy	
Proxy Address	If the VoIP service provider provided a SIP proxy server address, select this to configure it. If you have more than one server's address, use this menu to enter the registrar server's address.
Proxy Port	If the VoIP service provider provided a port number other than 5060, select this to configure it.
Proxy Username	Enter the user name for registering this SIP account, exactly as it was given to you.
Proxy Password	Enter the user name for registering this SIP account, exactly as it was given to you.
NAT traversal	NAT traversal deals with problems SIP has going through NAT.
STUN Server	Configure the STUN server fields if all of the following conditions are satisfied. • There is a NAT router between the V630 and the SIP server. • The NAT router is not a SIP ALG. • Your VoIP service provider gave you an IP address or domain name for a STUN server.
STUN Address	Enter the IP address or domain name of the STUN server provided by your VoIP service provider.
STUN Port	Enter the STUN server's listening port, if your VoIP service provider gave you one. Otherwise, keep the default value.
Outbound Proxy	Configure the outbound proxy fields if your service provider has a SIP outbound server to handle voice calls. This allows the V630 to work with any type of NAT router and eliminates the need for STUN or a SIP ALG. Turn off any SIP ALG on a NAT router in front of the V630 to keep it from retranslating the IP address (since this is already handled by the outbound proxy server.
Outbound address	Enter the IP address or domain name of the SIP outbound proxy server.
Outbound Port	Enter the outbound proxy server's listening port, if your VoIP service provider gave you one. Otherwise, keep the default value.

Table 105 SIP

LABEL	DESCRIPTION
NAT Keep Alive	Use NAT keep alive to stop NAT routers between the V630 and SIP server (a SIP proxy server or outbound proxy server) from dropping the SIP session. The V630 does this by sending SIP notify messages to the SIP server based on the specified interval. Enter how often (in seconds) the V630 should send SIP notify messages to the SIP server.
Expire	Enter the number of seconds your SIP account is registered with the SIP register server before it is deleted. The V630 automatically tries to re-register your SIP account when one-half of this time has passed. (The SIP register server might have a different expiration.)
Codec Order	Select the type of voice coder/decoder (codec) that you want the V630 to attempt to use first. • **G.711** provides high voice quality but requires more bandwidth (64 kbps). • **G.726** operates at 16, 24, 32 or 40 kbps. • **G.729** operates at 8 kbps. The V630 must use the same codec as the peer. When two SIP devices start a SIP session, they must agree on a codec.
Apply	Click **Apply** to save your changes back to the V630.
Delete	Click **Delete** to remove the profile.
Reset	Click **Reset** to return the screen to the most recently saved settings.

15

Auto Provision

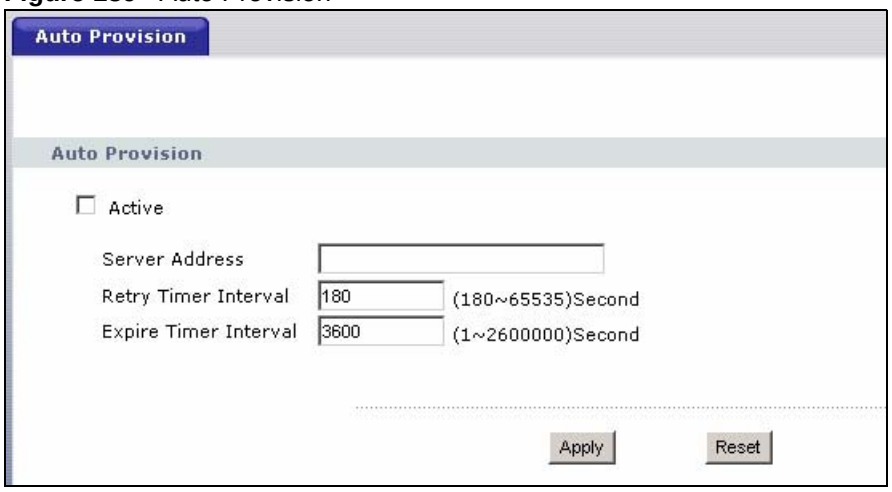
Use the **Auto Provision** screen to set the V630 to use an auto-provisioning server.

15.1 Auto Provision Screen

Click **Auto Provision** to open the following screen.

If there is an auto-provisioning server on the network, use this screen to configure the V630 to use it. When auto-provisioning is used, the V630 downloads SIP settings automatically from the auto-provisioning server, meaning you do not have to input them manually.

Figure 139 Auto Provision



The following table describes the labels in this screen.

Table 106 Auto Provision

LABEL	DESCRIPTION
Active	Select this to set the V630 to request and receive auto-provisioning files.
Server Address	Enter the auto provisioning server's IP address.
Port	Enter the auto-provisioning server's port number.
Retry Timer Interval	Select this to see or edit how long the V630 waits, if it requests an auto-provisioning file but does not receive one, before requesting the file again.
Expire Timer Interval	Select this to see or edit how long the V630 waits after it successfully receives an auto-provisioning file before it requests another.
Select	Press this to choose the highlighted entry in the menu.

Table 106 Auto Provision

LABEL	DESCRIPTION
Apply	Click **Apply** to save your changes back to the V630.
Reset	Click **Reset** to return the screen to the most recently saved settings.

PART IV
System, Troubleshooting, and Specifications

16

System

Use the **System** screens to change the V630's passwords, display information, or upload firmware.

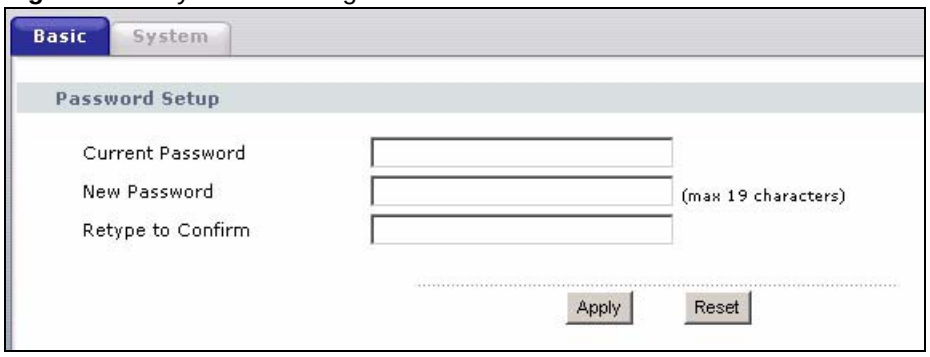
16.1 Password Screen

Click **System** > **Change Password** to open the following screen. Use this screen to change the web configurator login password.

- Use the **Basic** tab to configure the user login password.
- Use the **System** tab to configure the administrator login password.

If you forget your password you will need to reset the device. See your Quick Start Guide for details.

Figure 140 System > Change Password



The following table describes the labels in this screen.

Table 107 System > Password

LABEL	DESCRIPTION
Password Setup	
Current Password	Type in the existing password ("1234" is the default password).
New Password	Type the new password. Note that as you type a password, the screen displays an asterisk (*) for each character you type.

Table 107 System > Password (continued)

LABEL	DESCRIPTION
Retype to Confirm	Retype your new system password for confirmation.
Apply	Click this to save your changes back to the device.
Reset	Click this to return the screen to the most recently saved settings.

16.2 Information Screen

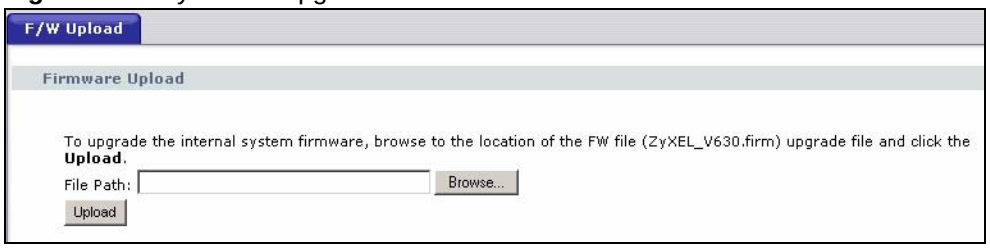
Use the **System** > **Information** screen to see the current status of the V630, its system resources, and current TCP/IP, WLAN, and SIP settings. See Chapter 10 on page 117 for details.

16.3 Firmware Upload Screen

Find firmware at www.zyxel.com in a file that (usually) uses the system model name with a "*.bin" extension, e.g., "V630.bin". The upload process uses HTTP (Hypertext Transfer Protocol) and may take up to two minutes. After a successful upload, the system will reboot.

Click **System** > **Upgrade FW**. Follow the instructions in this screen to upload firmware to your V630.

Figure 141 System > Upgrade FW



The following table describes the labels in this screen.

Table 108 System > Upgrade FW

LABEL	DESCRIPTION
Firmware Upload	
File Path	Type in the location of the file you want to upload in this field or click **Browse...** to find it.
Browse...	Click **Browse...** to find the .bin file you want to upload. Remember that you must decompress compressed (.zip) files before you can upload them.
Upload	Click **Upload** to begin the upload process. This process may take up to two minutes.

Do not turn off the V630 while firmware upload is in progress!

Wait two minutes before logging into the V630 again. The V630 automatically restarts. After two minutes, log in again and check your new firmware version in the **System > Information** screen.

17

Troubleshooting

This chapter offers some suggestions to solve problems you might encounter. The potential problems are divided into the following categories.

- Power, Hardware Connections, and LEDs
- V630 Web Configurator Access and Login
- Phone Calls

17.1 Power, Hardware Connections, and LEDs

The V630 does not turn on.

1. Make sure you have the battery installed and charged.
2. If you need to charge the battery make sure the appropriate power adaptor or cord is connected to the V630 and plugged in to an appropriate power source. Make sure the power source is turned on.
3. If charging does not help, remove the battery and reinstall it. Make sure the charger/USB cable is unplugged and remove the battery cover. Then pull the battery's plastic tab and lift the battery out. See the Quick Start Guide for how to install the battery.

   The contacts (the metal parts) on the battery or the V630 may be dirty or corroded. Clean them.

Do not use liquid of any kind to clean the battery or the V630.

4. If the problem continues, contact the vendor.

A key or LED does not behave as expected.

1. Make sure you understand the normal behavior of the key or LED. See the Quick Start Guide.

2 Make sure the keypad is unlocked. Press **#** and the **Left** key to unlock it.

17.2 V630 Web Configurator Access and Login

I forgot the IP address for the V630.

1 Check the IP address the V630 is using in the **Setup** > **Information** > **TCP/IP** LCD menu.
2 Set a static IP address for the V630 in the **Network** > **WLAN Profiles** > **Profiles List** > **Edit** > **IP Setting** menus (see Section 6.12 on page 75).

I forgot the password.

1 The default user password is **password**. The default administrator password is **admin**.
2 If this does not work, you have to reset the device to its factory defaults. See Section 5.18 on page 59.

I cannot see or access the **Login** screen in the web configurator.

1 Before you can access the web configurator, you must enable it in the **Menu** > **Setup** > **Phone Setting** > **Web Configurator** LCD menu.
2 Make sure you are using the correct IP address.
   - Check the IP address the V630 is using in the **Setup** > **Information** > **TCP/IP** LCD menu.
   - If you changed the IP address (Section 16.1 on page 141), use the new IP address.
3 Check that the phone is on and connected to an AP. You should see the wireless signal icon.
4 Make sure your Internet browser does not block pop-up windows and has JavaScripts and Java enabled. See Appendix C on page 199.
5 Make sure your computer is in the same subnet as the V630. See Appendix A on page 157 and Appendix D on page 207. (If you know that there are routers between your computer and the V630, skip this step.)
6 If the problem continues, contact the network administrator or vendor.

I can see the **Login** screen, but I cannot log in to the V630.

1. Make sure you have entered the user name and password correctly. The default password is **1234**. This field is case-sensitive, so make sure [Caps Lock] is not on.
2. Close your browser session and open a new one.

   You may also need to clear your Internet browser's cache. In Internet Explorer, click **Tools** and then **Internet Options** to open the **Internet Options** screen.

   In the **General** tab, click **Delete** Files. In the pop-up window, select the **Delete** all offline content check box and click **OK**. Click **OK** in the **Internet Options** screen to close it.
3. Turn the phone off and on again.

17.3 Wireless LAN

When I scan for an access point I can't find one, or I can't find the right one.

If you scan for an access point (AP) and find none, either the V630 is out of the AP's coverage area (out of range), or the AP is set to not broadcast its SSID (the network name). Move closer to the AP and try again.

If the AP still does not show on the scan result, either:

- Input the ESSID manually and try to connect.
- Access the AP's configuration interface and set it to broadcast the SSID.

If other APs display when you scan, the V630 is working correctly. However, if you know that there are other APs in the area, and no APs display when you scan, you may have a hardware problem. In this case, contact your vendor.

I can't connect to the access point.

If you find the AP when you scan, but you cannot connect to it, there may be a problem with the wireless security settings.

- Ensure that the V630 supports the security standard the AP uses.
- Ensure that the V630 and the AP use exactly the same settings.
- If you continue to experience difficulties, set the AP to use no security (disconnect it from the network first) and try to connect.
- If you have another wireless client (a notebook wireless card, for example) try using it to connect. If it connects successfully, your V630 may have a hardware problem. Contact your vendor. If the other wireless client does not connect successfully, the AP may be malfunctioning or misconfigured.

17.4 Phone Calls

I cannot make calls.

Ensure that your V630 is set up as shown in your Quick Start Guide.

Look at the LCD screen. You should see the signal strength icon.If a SIP account is registered, the name of its profile appears in the main screen. If a SIP account is not registered, **No SIP Service** displays.

If no SIP account is registered, do the following.

1. The V630's SIP settings may be misconfigured. Check your SIP settings and re-enter them if necessary (see Section 6.24 on page 83 for details).
2. If **No SIP Service** still displays, check your network settings (see Section 6.7 on page 72). If they are not correct, change them using information supplied by your ISP or network administrator. If this does not help, contact your ISP or network administrator.

If a SIP account is registered, try to make a call. If you still cannot call out, do the following.

1. Check your DNS (Domain Name Service) settings (see Section 5.27 on page 64).
   - If you use a static IP address, see Section 6.13 on page 76 for how to change DNS settings.
   - If you use a dynamic IP address (DHCP) your DNS settings are controlled by the DHCP server. The DHCP server may belong to your service provider, or it may be on your network. If your V630 does not get DNS server information automatically, check the settings on the AP to which the V630 is connected, or contact your ISP or network administrator.
   - If you use PPPoE, your DNS settings are controlled by your Internet Service Provider. If your V630 does not get DNS server information automatically, contact your ISP.
2. Make sure that your V630 uses the voice codecs that the callee's device supports.

I can make some calls, but not others.

The V630's DNS (Domain Name Service) settings may be misconfigured. See the suggestions about DNS in the troubleshooting section for "I cannot make calls.".

If this does not help, the phone of the person you are calling may be malfunctioning or misconfigured.

My phone service works for a while and then cuts off and the V630 has to re-register.

The SIP server's expiration time is how long an entry remains registered with the SIP server. After the time period expires, the SIP register server deletes the V630's entry from the database of registered SIP numbers. Different register servers may use different time periods. You may need to configure a shorter time in the **Expire** menu. See Section 6.43 on page 94.

I can make phone calls, but I cannot receive them.

Check your V630's call forwarding settings (see Section 5.19 on page 60). If they are misconfigured, certain calls may be mistakenly forwarded.

My calls are of poor audio quality.

1. The Wireless LAN signal may be weak. Move closer to the access point, and away from potential sources of radio interference (such as microwave ovens, electric motors and other radio frequency emitting devices). If you have more than one access point, scan for and connect to the one with the stronger signal.
2. If your V630 is connected to a router with configurable bandwidth management settings, check these settings. Consult the router's documentation for more information.
3. Your V630 may be set to use a voice codec (audio coder / decoder) that does not provide optimal sound quality. See Section 6.44 on page 95 and check with your VoIP service provider to find out the codecs you should use.
4. Your VoIP service provider may be using settings that reduce voice quality in order to conserve bandwidth. You may need to subscribe to a different calling plan to get better call quality.
5. The VoIP service's channels may all be full. Wait a short time and try again.
6. If call quality is always poor when you call certain phone numbers, the other person's connection may be at fault.

I cannot use some calling features.

Some features your V630 supports depend on your VoIP service provider. You may have to subscribe to certain services. Contact your VoIP service provider for more information.

The incoming or outgoing audio is too quiet or too loud.

During a call, press the **Up** or **Down** key to adjust the volume.

I cannot hear the V630's ring when a call is incoming.

You can configure the ring volume in the LCD menus. See Section 4.7 on page 46.

18

Product Specifications

The following tables summarize the V630's hardware and firmware features.

Table 109 Hardware Specifications

Dimensions (L x W x D)	105 mm x 45 mm x 20 mm
Weight	75 g (including the battery)
Power Adaptor Specification	100~240 V AC 50/60 Hz .15A input 5.0 V 600 mA output
Ports	USB
LCD Screen	1.5" mono-chrome 96 by 64 pixel
(Headset) Microphone Port	3.5mm
Antenna	Embedded PIFA antenna, 3.8 dBi peak gain
(Headset) Headphone Port	3.5 mm
Operating Temperature	0~40 C
Storage Temperature	-30~60 C
Operating Humidity	10~95 %
Storage Humidity	10~95 %
Speakerphone	Internal speaker and microphone.
Phone Functions	Call forwarding Call transferring Conference calling Voice mail indicator Call muting Phonebook
RADIO SPECIFICATIONS	
Communications Standards	IEEE 802.11b IEEE 802.11g
Frequency	IEEE 802.11b/g: Industrial Scientific Medical Band North America (FCC): 2.412 ~ 2.462 GHz Japan (ARIB): 2.412 ~ 2.472 GHz Europe (ETSI): 2.412 ~ 2.472 GHz
IEEE 802.1b/g Operating Channels	North American and Taiwan: 11 Europe: 13

Table 109 Hardware Specifications

IEEE 802.1b/g Data Rate	IEEE 802.11b: 11Mbps with automatic fallback to 5.5, 2, 1 Mbps IEEE 802.11g: 54Mbps with automatic fallback to 48, 36, 24, 18, 12, 9, 6 Mbps
Modulation	IEEE 802.11b: CCK (11 and 5.5 Mbps), DQPSK (2 Mbps) and DBPSK (1 Mbps) IEEE 802.11g: OFDM with BPSK, QPSK and 16/64-QAM sub-Carrier modulations
Maximum Output Power	Tolerance: +/- 1.5 dBm IEEE 802.11b: 15 dBm at 11/5.5/2/1 Mbps IEEE 802.11g: 13 dBm at 54 Mbps
RX Sensitivity	Tolerance: +/- 1 dBm IEEE 802.11b: -80 dBm at 11 Mbps IEEE 802.11g: -65 dBm at 54 Mbps

Table 110 Firmware Specifications

FEATURE	DESCRIPTION
Default IP Setting	DHCP client
Default User Password	password
Default Administrator Password	admin
Device Management	Use the V630's LCD screen menus or the web configurator to easily configure the rich range of features.
Firmware Upgrade	Download new firmware (when available) from the ZyXEL web site and use the web configurator to put it on the V630. Note: Only upload firmware for your specific model!
Number of Wireless Profiles	Up to 10 configurable.
Number of SIP Profiles	Up to 10 configurable.
Phonebook	Up to 200 contacts
Call History	Up to 30 records (including called, missed, and received calls).
Time and Date	Get the current time and date from an external server when you turn on your V630. You can also set the time manually. These dates and times are then used in logs.
Logs	Use logs for troubleshooting.
PPPoE	PPPoE mimics a dial-up Internet access connection.
Auto-provisioning support	When auto-provisioning is used, the V630 downloads SIP settings automatically from the auto-provisioning server, meaning you do not have to input them manually.
Dynamic Jitter Buffer	The built-in adaptive buffer helps to smooth out the variations in delay (jitter) for voice traffic. This helps ensure good voice quality for your conversations.
Voice Activity Detection/ Silence Suppression	Voice Activity Detection (VAD) reduces the bandwidth that a call uses by not transmitting when you are not speaking.

Table 110 Firmware Specifications

FEATURE	DESCRIPTION
Comfort Noise Generation	Your device generates background noise to fill moments of silence when the other device in a call stops transmitting because the other party is not speaking (as total silence could easily be mistaken for a lost connection).
Echo Cancellation	You device supports G.168, an ITU-T standard for eliminating the echo caused by the sound of your voice reverberating in the telephone receiver while you talk.
QoS (Quality of Service)	Quality of Service (QoS) mechanisms help to provide better service on a per-flow basis. Your device supports Type of Service (ToS) tagging. This allows the device to tag voice frames so they can be prioritized over the network.
Voice Codecs	G.711 (64 kbps) , G.726 (16/24/32/40 kbps), G.729 (8 kbps)
DTMF	Out-of band (RFC2833)

The following list, which is not exhaustive, illustrates the standards supported in the V630.

Table 111 Standards Supported

STANDARD	DESCRIPTION
RFC 1305	Network Time Protocol (NTP version 3)
RFC 1321	The MD5 Message-Digest Algorithm
RFC 1661	The Point-to-Point Protocol (PPP)
RFC 2327	SDP: Session Description Protocol.
RFC 2516	A Method for Transmitting PPP Over Ethernet (PPPoE)
RFC 2833	RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals
RFC 2976	The SIP INFO Method
RFC 3261	SIP: Session Initiation Protocol. (Updated by RFC3265, RFC3853)
RFC 3262	Reliability of Provisional Responses in Session Initiation
RFC 3263	Session Initiation Protocol (SIP): Locating SIP Servers.
RFC 3264	An Offer/Answer Model with Session Description Protocol (SDP)
RFC 3311	The Session Initiation Protocol (SIP) UPDATE Method
RFC 3323	A Privacy Mechanism for the Session Initiation Protocol (SIP)
RFC 3325	Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks
RFC 3389	Real-time Transport Protocol (RTP) Payload for Comfort Noise (CN)
RFC 3420	Internet Media Type message/sipfrag
RFC 3489	STUN (Simple Traversal of User Datagram Protocol (UDP) through Network Address Translators) server.
RFC 3515	The Session Initiation Protocol (SIP) Refer Method.
RFC 3550	RTP: A Transport Protocol for Real-Time Applications.
RFC 3551	RTP Profile for Audio and Video Conferences with Minimal Control
RFC 3581	An Extension to the Session Initiation Protocol (SIP) for Symmetric Response Routing.
RFC 3665	Session Initiation Protocol (SIP) Basic Call Flow Examples

Table 111 Standards Supported (continued)

STANDARD	DESCRIPTION
RFC 3842	A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP)
RFC 3891	The Session Initiation Protocol (SIP) "Replaces" Header
RFC 3911	The Session Initiation Protocol (SIP) ``Join" Header
RFC 4028	Session Timers in the Session Initiation Protocol (SIP)

PART V
Appendices and Index

A

Setting up Your Computer's IP Address

The purpose of this appendix is to show you how to configure an IP address on your computer depending on what operating system you have.

All computers must have a 10M or 100M Ethernet adapter card and TCP/IP installed.

Windows 95/98/Me/NT/2000/XP/Vista, Macintosh OS 7 and later operating systems and all versions of UNIX/LINUX include the software components you need to install and use TCP/IP on your computer. Windows 3.1 requires the purchase of a third-party TCP/IP application package.

TCP/IP should already be installed on computers using Windows NT/2000/XP, Macintosh OS 7 and later operating systems.

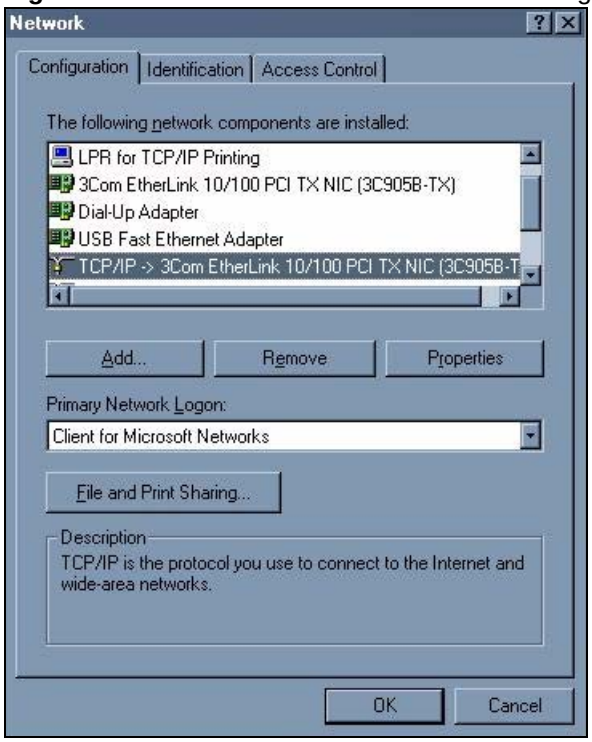
After the appropriate TCP/IP components are installed, configure the TCP/IP settings in order to "communicate" with your network.

If you manually assign IP information instead of using dynamic assignment, make sure that your computers have IP addresses that place them in the same subnet as the V630's LAN port.

Windows 95/98/Me

Click **Start**, **Settings**, **Control Panel** and double-click the **Network** icon to open the **Network** window.

Figure 142 WIndows 95/98/Me: Network: Configuration



Installing Components

The **Network** window **Configuration** tab displays a list of installed components. You need a network adapter, the TCP/IP protocol and Client for Microsoft Networks.

If you need the adapter:

1. In the **Network** window, click **Add**.
2. Select **Adapter** and then click **Add**.
3. Select the manufacturer and model of your network adapter and then click **OK**.

If you need TCP/IP:

1. In the **Network** window, click **Add**.
2. Select **Protocol** and then click **Add**.
3. Select **Microsoft** from the list of **manufacturers**.
4. Select **TCP/IP** from the list of network protocols and then click **OK**.

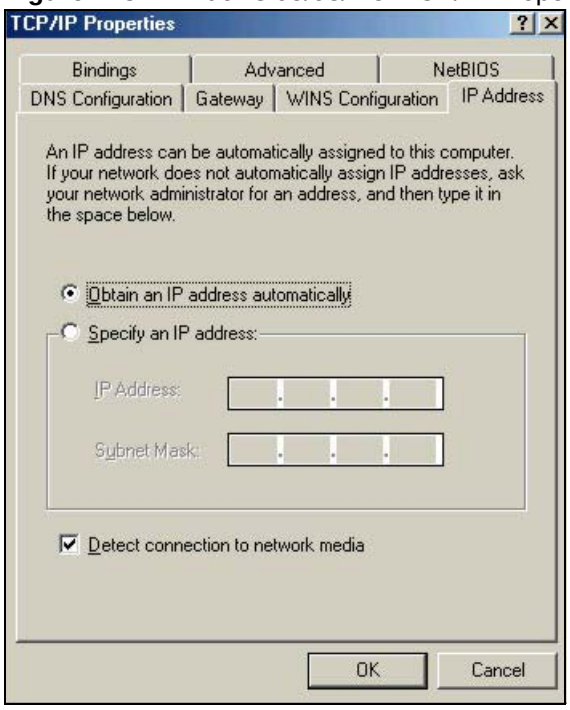
If you need Client for Microsoft Networks:

1. Click **Add**.
2. Select **Client** and then click **Add**.
3. Select **Microsoft** from the list of manufacturers.
4. Select **Client for Microsoft Networks** from the list of network clients and then click **OK**.
5. Restart your computer so the changes you made take effect.

Configuring

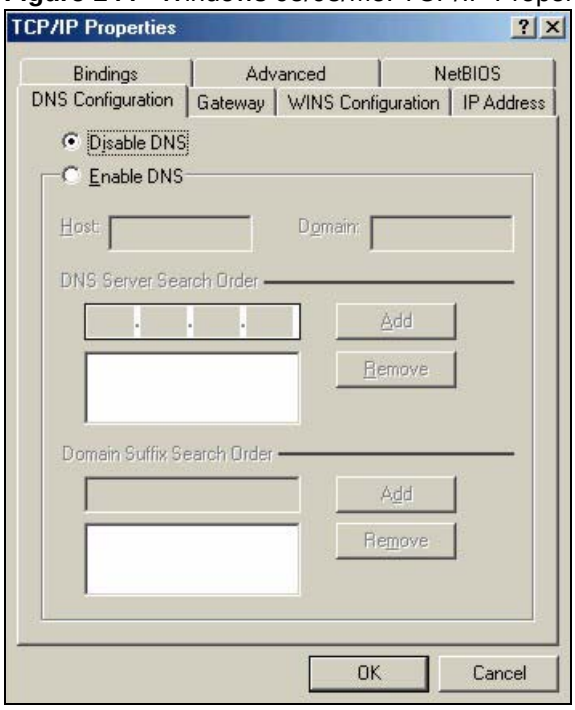
1. In the **Network** window **Configuration** tab, select your network adapter's TCP/IP entry and click **Properties**
2. Click the **IP Address** tab.
   - If your IP address is dynamic, select **Obtain an IP address automatically**.
   - If you have a static IP address, select **Specify an IP address** and type your information into the **IP Address** and **Subnet Mask** fields.

Figure 143 Windows 95/98/Me: TCP/IP Properties: IP Address



3. Click the **DNS** Configuration tab.
   - If you do not know your DNS information, select **Disable DNS**.
   - If you know your DNS information, select **Enable DNS** and type the information in the fields below (you may not need to fill them all in).

Figure 144 Windows 95/98/Me: TCP/IP Properties: DNS Configuration



4 Click the **Gateway** tab.
   - If you do not know your gateway's IP address, remove previously installed gateways.
   - If you have a gateway IP address, type it in the **New gateway field** and click **Add**.
5 Click **OK** to save and close the **TCP/IP Properties** window.
6 Click **OK** to close the **Network** window. Insert the Windows CD if prompted.
7 Turn on your V630 and restart your computer when prompted.

Verifying Settings

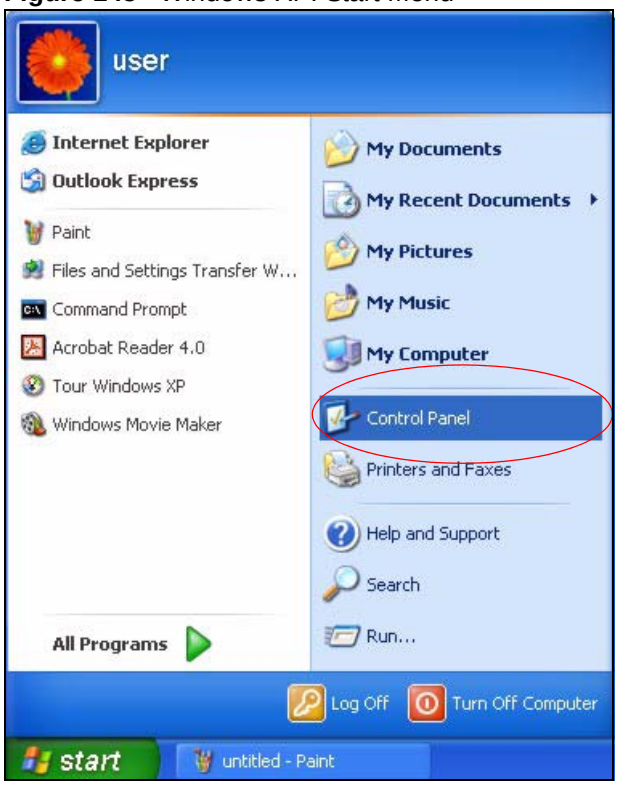
1 Click **Start** and then **Run**.
2 In the **Run** window, type "winipcfg" and then click **OK** to open the **IP Configuration** window.
3 Select your network adapter. You should see your computer's IP address, subnet mask and default gateway.

Windows 2000/NT/XP

The following example figures use the default Windows XP GUI theme.

1 Click **start** (**Start** in Windows 2000/NT), **Settings**, **Control Panel**.

Figure 145 Windows XP: Start Menu

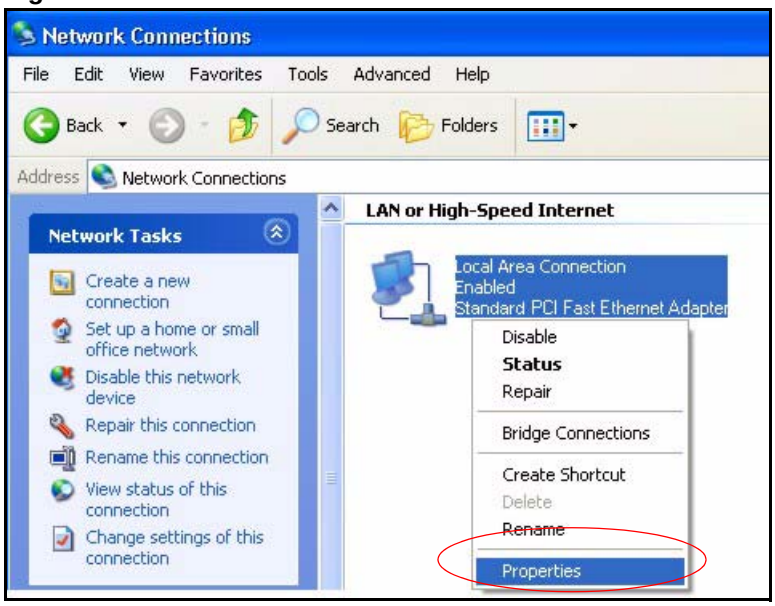


2 In the **Control Panel**, double-click **Network Connections** (**Network and Dial-up Connections** in Windows 2000/NT).

Figure 146 Windows XP: Control Panel

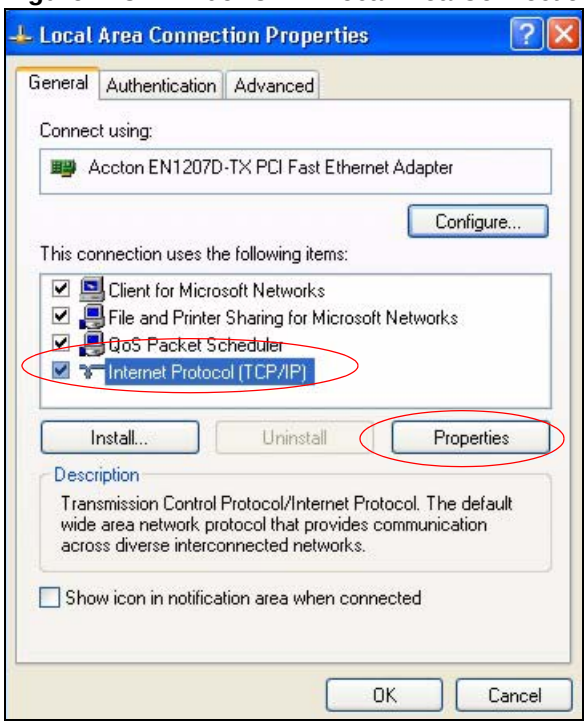
3 Right-click **Local Area Connection** and then click **Properties**.

Figure 147 Windows XP: Control Panel: Network Connections: Properties



4 Select **Internet Protocol (TCP/IP)** (under the **General** tab in Win XP) and then click **Properties**.

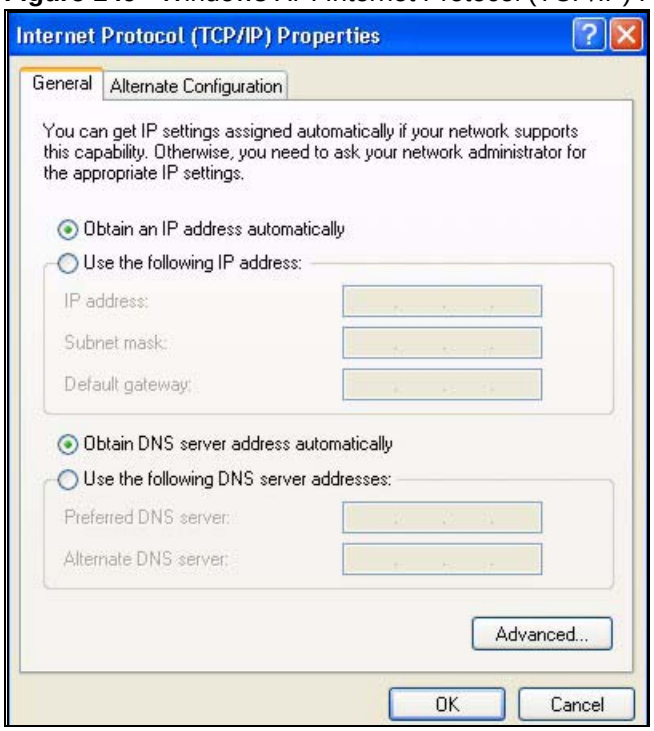
Figure 148 Windows XP: Local Area Connection Properties



5 The **Internet Protocol TCP/IP Properties** window opens (the **General tab** in Windows XP).

- If you have a dynamic IP address click **Obtain an IP address automatically**.
- If you have a static IP address click **Use the following IP Address** and fill in the **IP address**, **Subnet mask**, and **Default gateway** fields.
- Click **Advanced**.

Figure 149 Windows XP: Internet Protocol (TCP/IP) Properties

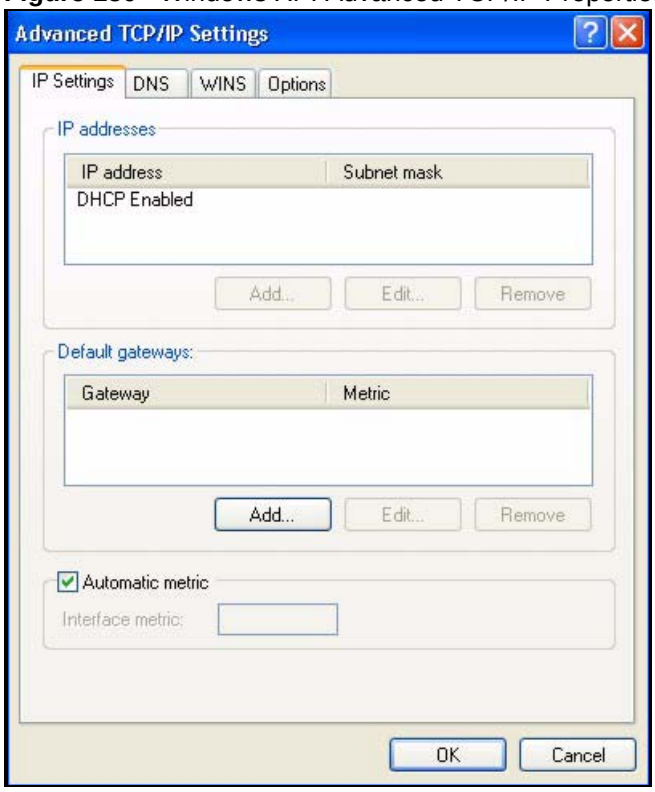


6 If you do not know your gateway's IP address, remove any previously installed gateways in the **IP Settings** tab and click **OK**.

Do one or more of the following if you want to configure additional IP addresses:

- In the **IP Settings** tab, in IP addresses, click **Add**.
- In **TCP/IP Address**, type an IP address in **IP address** and a subnet mask in **Subnet mask**, and then click **Add**.
- Repeat the above two steps for each IP address you want to add.
- Configure additional default gateways in the **IP Settings** tab by clicking **Add** in **Default gateways**.
- In **TCP/IP Gateway Address**, type the IP address of the default gateway in **Gateway**. To manually configure a default metric (the number of transmission hops), clear the **Automatic metric** check box and type a metric in **Metric**.
- Click **Add**.
- Repeat the previous three steps for each default gateway you want to add.
- Click **OK** when finished.

Figure 150 Windows XP: Advanced TCP/IP Properties

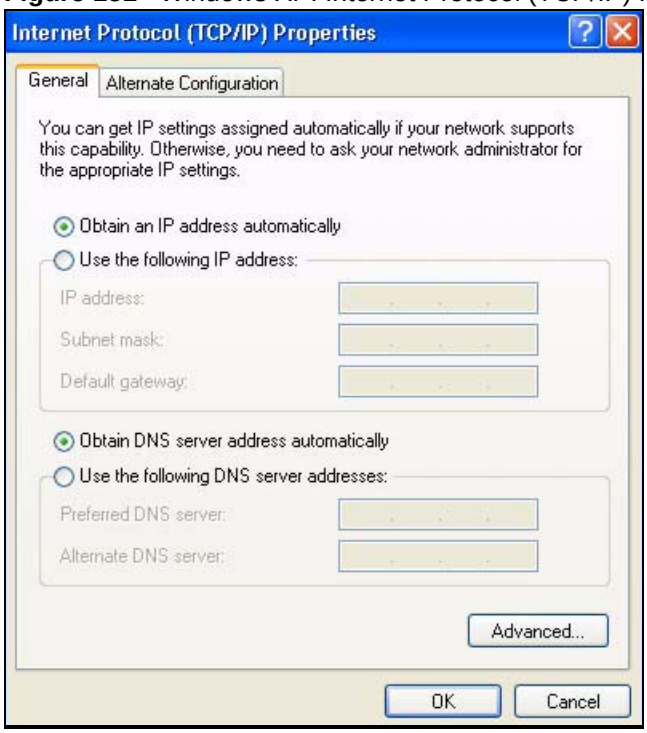


7 In the **Internet Protocol TCP/IP Properties** window (the **General** tab in Windows XP):

- Click **Obtain DNS server address automatically** if you do not know your DNS server IP address(es).
- If you know your DNS server IP address(es), click **Use the following DNS server addresses**, and type them in the **Preferred DNS server** and **Alternate DNS server** fields.

  If you have previously configured DNS servers, click **Advanced** and then the **DNS** tab to order them.

Figure 151 Windows XP: Internet Protocol (TCP/IP) Properties



8 Click **OK** to close the **Internet Protocol (TCP/IP) Properties** window.

9 Click **Close** (**OK** in Windows 2000/NT) to close the **Local Area Connection Properties** window.

10 Close the **Network Connections** window (**Network and Dial-up Connections** in Windows 2000/NT).

11 Turn on your V630 and restart your computer (if prompted).

Verifying Settings

1 Click **Start**, **All Programs**, **Accessories** and then **Command Prompt**.

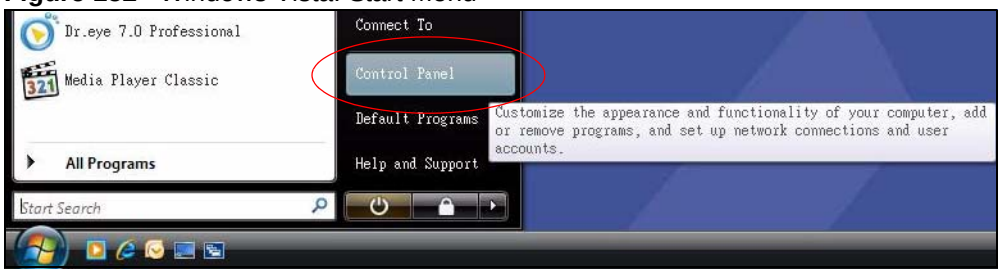
2 In the **Command Prompt** window, type "ipconfig" and then press [ENTER]. You can also open **Network Connections**, right-click a network connection, click **Status** and then click the **Support** tab.

Windows Vista

This section shows screens from Windows Vista Enterprise Version 6.0.

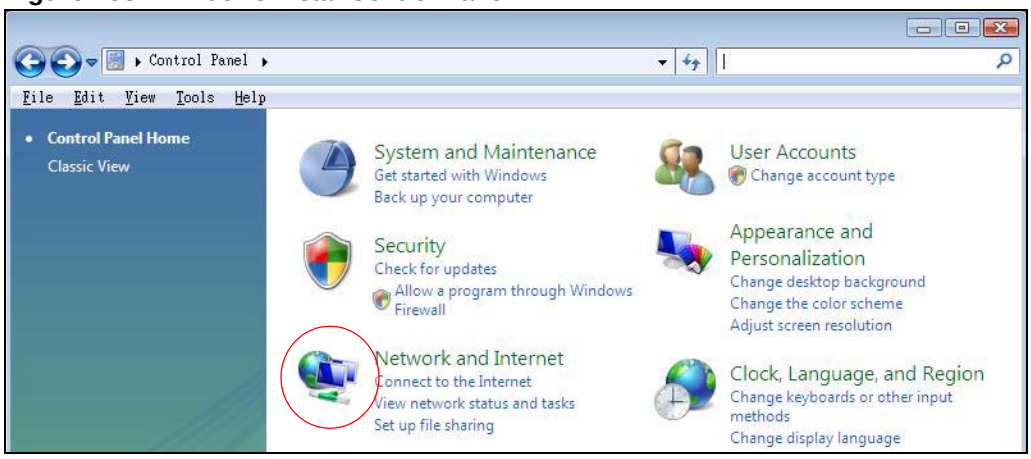
1 Click the **Start** icon, **Control Panel**.

Figure 152 Windows Vista: Start Menu



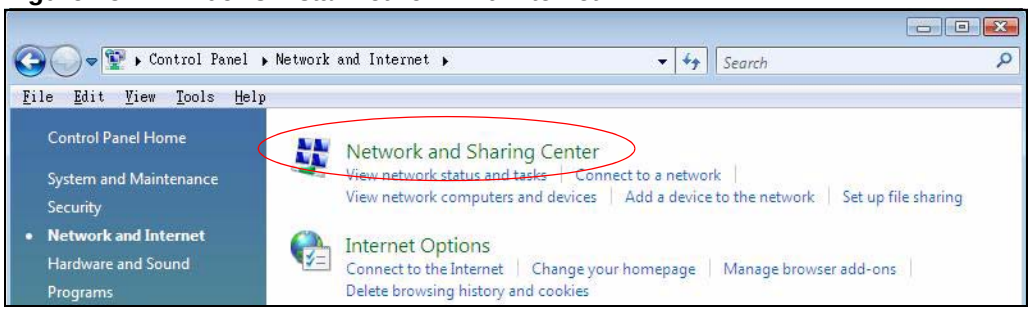
2 In the **Control Panel**, double-click **Network and Internet**.

Figure 153 Windows Vista: Control Panel



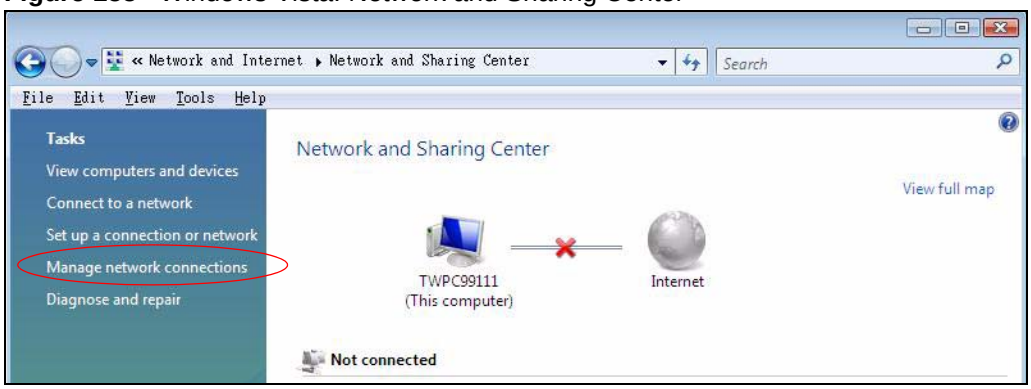
3 Click **Network and Sharing Center**.

Figure 154 Windows Vista: Network And Internet



4 Click **Manage network connections**.

Figure 155 Windows Vista: Network and Sharing Center



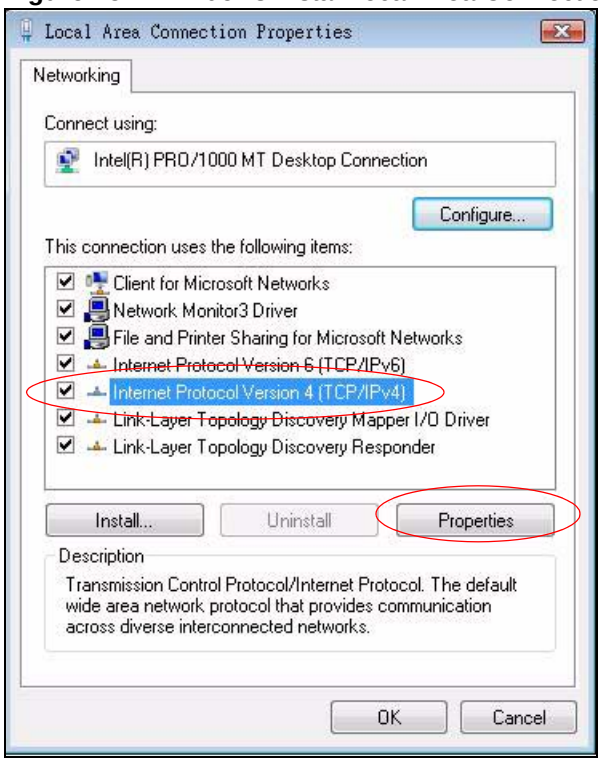
5 Right-click **Local Area Connection** and then click **Properties**.

During this procedure, click **Continue** whenever Windows displays a screen saying that it needs your permission to continue.

Figure 156 Windows Vista: Network and Sharing Center

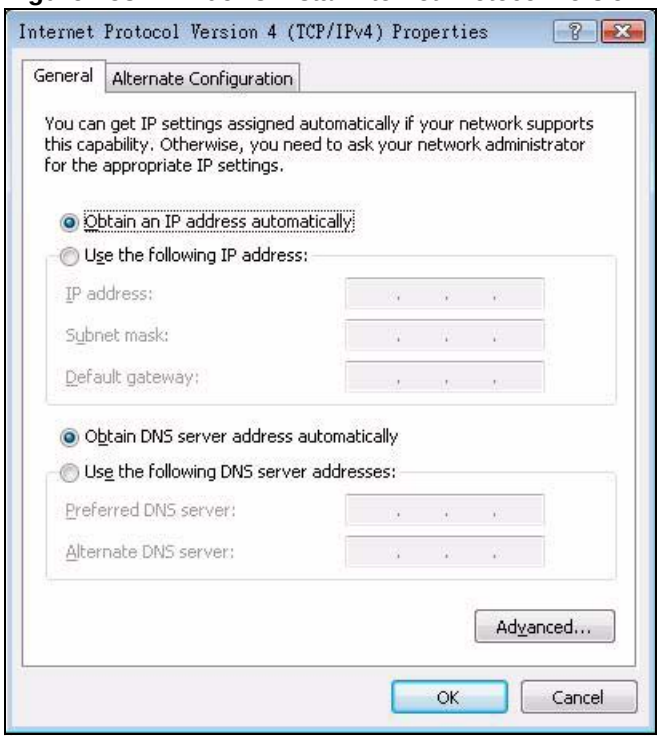
6 Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.

Figure 157 Windows Vista: Local Area Connection Properties



7 The **Internet Protocol Version 4 (TCP/IPv4) Properties** window opens (the **General tab**).
- If you have a dynamic IP address click **Obtain an IP address automatically**.
- If you have a static IP address click **Use the following IP address** and fill in the **IP address**, **Subnet mask**, and **Default gateway** fields.
- Click **Advanced**.

Figure 158 Windows Vista: Internet Protocol Version 4 (TCP/IPv4) Properties

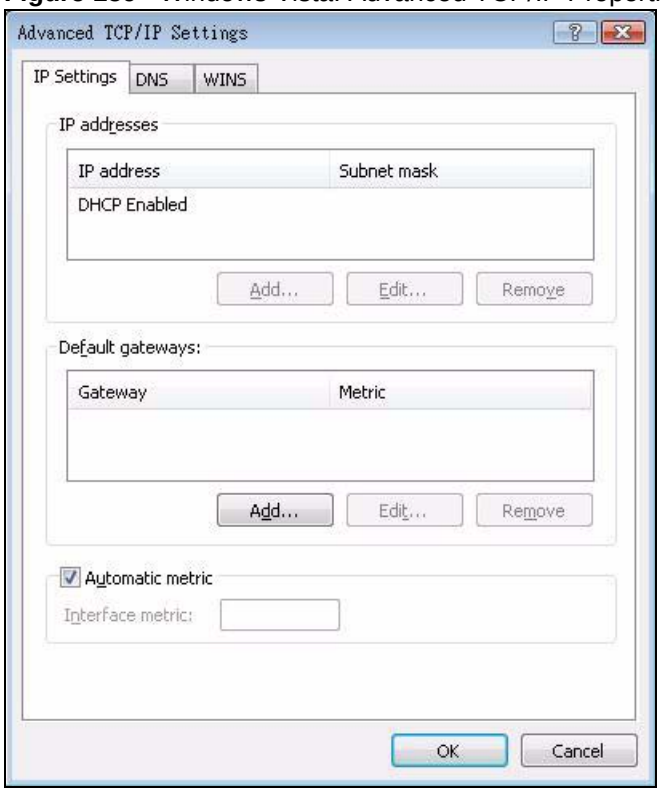


8 If you do not know your gateway's IP address, remove any previously installed gateways in the **IP Settings** tab and click **OK**.

Do one or more of the following if you want to configure additional IP addresses:

- In the **IP Settings** tab, in IP addresses, click **Add**.
- In **TCP/IP Address**, type an IP address in **IP address** and a subnet mask in **Subnet mask**, and then click **Add**.
- Repeat the above two steps for each IP address you want to add.
- Configure additional default gateways in the **IP Settings** tab by clicking **Add** in **Default gateways**.
- In **TCP/IP Gateway Address**, type the IP address of the default gateway in **Gateway**. To manually configure a default metric (the number of transmission hops), clear the **Automatic metric** check box and type a metric in **Metric**.
- Click **Add**.
- Repeat the previous three steps for each default gateway you want to add.
- Click **OK** when finished.

Figure 159 Windows Vista: Advanced TCP/IP Properties

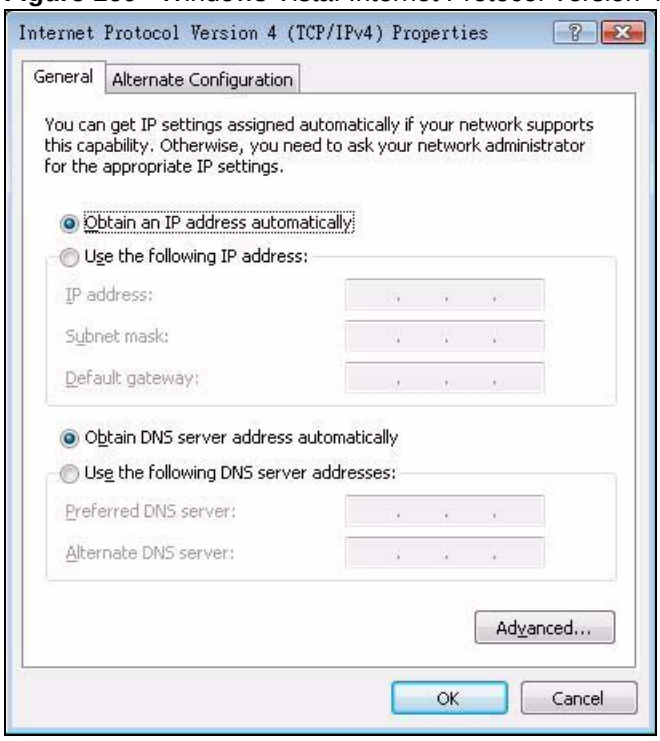


9 In the **Internet Protocol Version 4 (TCP/IPv4) Properties** window, (the **General tab**):

- Click **Obtain DNS server address automatically** if you do not know your DNS server IP address(es).
- If you know your DNS server IP address(es), click **Use the following DNS server addresses**, and type them in the **Preferred DNS server** and **Alternate DNS server** fields.

  If you have previously configured DNS servers, click **Advanced** and then the **DNS** tab to order them.

Figure 160 Windows Vista: Internet Protocol Version 4 (TCP/IPv4) Properties



10 Click **OK** to close the **Internet Protocol Version 4 (TCP/IPv4) Properties** window.

11 Click **Close** to close the **Local Area Connection Properties** window.

12 Close the **Network Connections** window.

13 Turn on your V630 and restart your computer (if prompted).

Verifying Settings

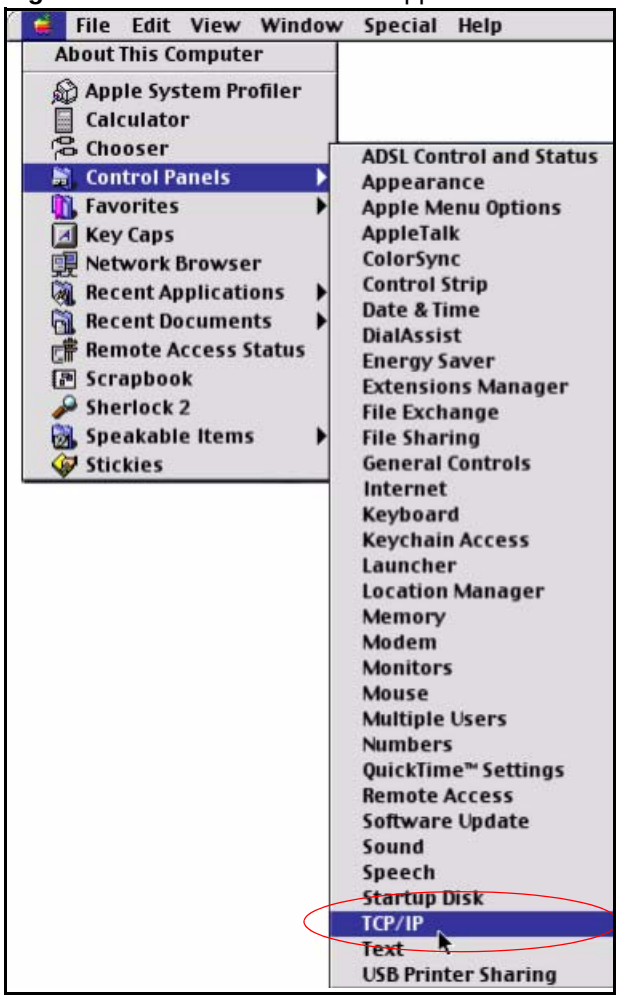
1 Click **Start**, **All Programs**, **Accessories** and then **Command Prompt**.

2 In the **Command Prompt** window, type "ipconfig" and then press [ENTER]. You can also open **Network Connections**, right-click a network connection, click **Status** and then click the **Support** tab.

Macintosh OS 8/9

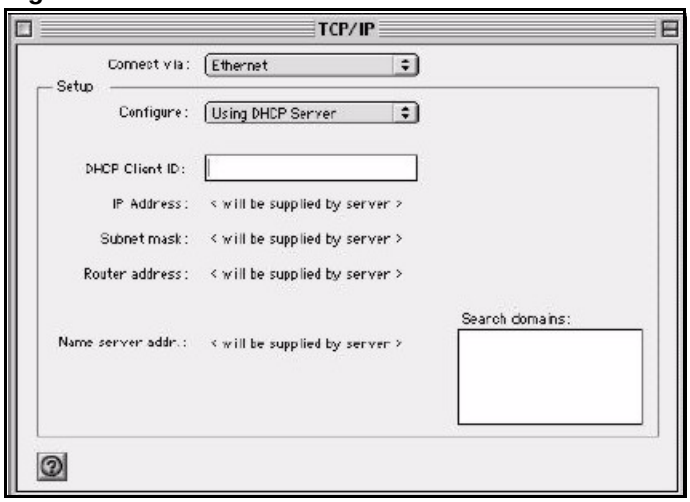
1 Click the **Apple** menu, **Control Panel** and double-click **TCP/IP** to open the **TCP/IP Control Panel**.

Figure 161 Macintosh OS 8/9: Apple Menu



2 Select **Ethernet built-in** from the **Connect via** list.

Figure 162 Macintosh OS 8/9: TCP/IP



3 For dynamically assigned settings, select **Using DHCP Server** from the **Configure:** list.

4 For statically assigned settings, do the following:

- From the **Configure** box, select **Manually**.

- Type your IP address in the **IP Address** box.
- Type your subnet mask in the **Subnet mask** box.
- Type the IP address of your V630 in the **Router address** box.

5 Close the **TCP/IP Control Panel**.

6 Click **Save** if prompted, to save changes to your configuration.

7 Turn on your V630 and restart your computer (if prompted).

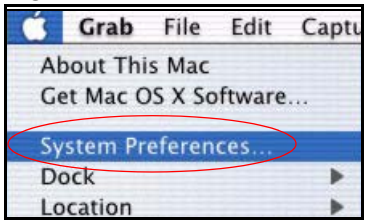
Verifying Settings

Check your TCP/IP properties in the **TCP/IP Control Panel** window.

Macintosh OS X

1 Click the **Apple** menu, and click **System Preferences** to open the **System Preferences** window.

Figure 163 Macintosh OS X: Apple Menu

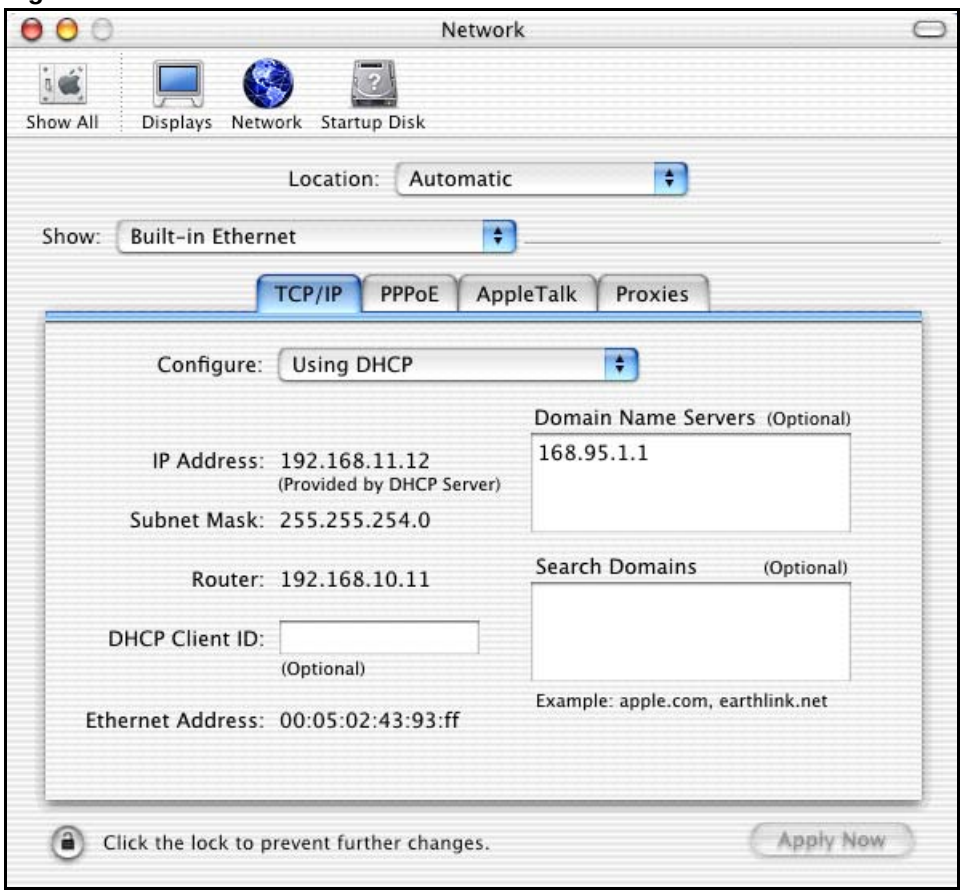


2 Click **Network** in the icon bar.

- Select **Automatic** from the **Location** list.
- Select **Built-in Ethernet** from the **Show** list.
- Click the **TCP/IP** tab.

3 For dynamically assigned settings, select **Using DHCP** from the **Configure** list.

Figure 164 Macintosh OS X: Network



4 For statically assigned settings, do the following:
   - From the **Configure** box, select **Manually**.
   - Type your IP address in the **IP Address** box.
   - Type your subnet mask in the **Subnet mask** box.
   - Type the IP address of your V630 in the **Router address** box.
5 Click **Apply Now** and close the window.
6 Turn on your V630 and restart your computer (if prompted).

Verifying Settings

Check your TCP/IP properties in the **Network** window.

Linux

This section shows you how to configure your computer's TCP/IP settings in Red Hat Linux 9.0. Procedure, screens and file location may vary depending on your Linux distribution and release version.

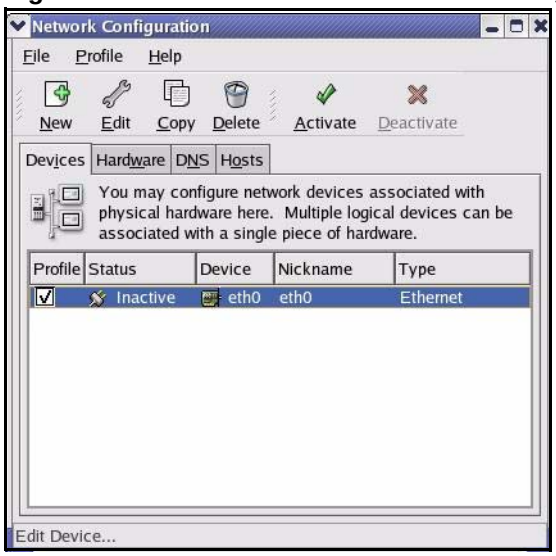
Make sure you are logged in as the root administrator.

Using the K Desktop Environment (KDE)

Follow the steps below to configure your computer IP address using the KDE.

1 Click the Red Hat button (located on the bottom left corner), select **System Setting** and click **Network**.

Figure 165 Red Hat 9.0: KDE: Network Configuration: Devices



2 Double-click on the profile of the network card you wish to configure. The **Ethernet Device General** screen displays as shown.

Figure 166 Red Hat 9.0: KDE: Ethernet Device: General

- If you have a dynamic IP address, click **Automatically obtain IP address settings with** and select **dhcp** from the drop down list.
- If you have a static IP address, click **Statically set IP Addresses** and fill in the **Address**, **Subnet mask**, and **Default Gateway Address** fields.

3 Click **OK** to save the changes and close the **Ethernet Device General** screen.

4 If you know your DNS server IP address(es), click the **DNS** tab in the **Network Configuration** screen. Enter the DNS server information in the fields provided.

Figure 167 Red Hat 9.0: KDE: Network Configuration: DNS

5 Click the **Devices** tab.

6 Click the **Activate** button to apply the changes. The following screen displays. Click **Yes to save the changes in all screens.**

Figure 168 Red Hat 9.0: KDE: Network Configuration: Activate

7 After the network card restart process is complete, make sure the **Status** is **Active** in the **Network Configuration** screen.

Using Configuration Files

Follow the steps below to edit the network configuration files and set your computer IP address.

1 Assuming that you have only one network card on the computer, locate the `ifconfig-eth0` configuration file (where `eth0` is the name of the Ethernet card). Open the configuration file with any plain text editor.

- If you have a dynamic IP address, enter **`dhcp`** in the `BOOTPROTO=` field. The following figure shows an example.

Figure 169 Red Hat 9.0: Dynamic IP Address Setting in ifconfig-eth0

```
DEVICE=eth0
ONBOOT=yes
BOOTPROTO=dhcp
USERCTL=no
PEERDNS=yes
TYPE=Ethernet
```

- If you have a static IP address, enter **static** in the BOOTPROTO= field. Type IPADDR= followed by the IP address (in dotted decimal notation) and type NETMASK= followed by the subnet mask. The following example shows an example where the static IP address is 192.168.1.10 and the subnet mask is 255.255.255.0.

Figure 170 Red Hat 9.0: Static IP Address Setting in ifconfig-eth0

```
DEVICE=eth0
ONBOOT=yes
BOOTPROTO=static
IPADDR=192.168.1.10
NETMASK=255.255.255.0
USERCTL=no
PEERDNS=yes
TYPE=Ethernet
```

2. If you know your DNS server IP address(es), enter the DNS server information in the `resolv.conf` file in the `/etc` directory. The following figure shows an example where two DNS server IP addresses are specified.

Figure 171 Red Hat 9.0: DNS Settings in resolv.conf

```
nameserver 172.23.5.1
nameserver 172.23.5.2
```

3. After you edit and save the configuration files, you must restart the network card. Enter `./network restart` in the `/etc/rc.d/init.d` directory. The following figure shows an example.

Figure 172 Red Hat 9.0: Restart Ethernet Card

```
[root@localhost init.d]# network restart

Shutting down interface eth0:                [OK]
Shutting down loopback interface:            [OK]
Setting network parameters:                  [OK]
Bringing up loopback interface:              [OK]
Bringing up interface eth0:                  [OK]
```

Verifying Settings

Enter `ifconfig` in a terminal screen to check your TCP/IP properties.

Figure 173 Red Hat 9.0: Checking TCP/IP Properties

```
[root@localhost]# ifconfig
eth0      Link encap:Ethernet  HWaddr 00:50:BA:72:5B:44
          inet addr:172.23.19.129  Bcast:172.23.19.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:717 errors:0 dropped:0 overruns:0 frame:0
          TX packets:13 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:100
          RX bytes:730412 (713.2 Kb)  TX bytes:1570 (1.5 Kb)
          Interrupt:10 Base address:0x1000
[root@localhost]#
```

B

Wireless LANs

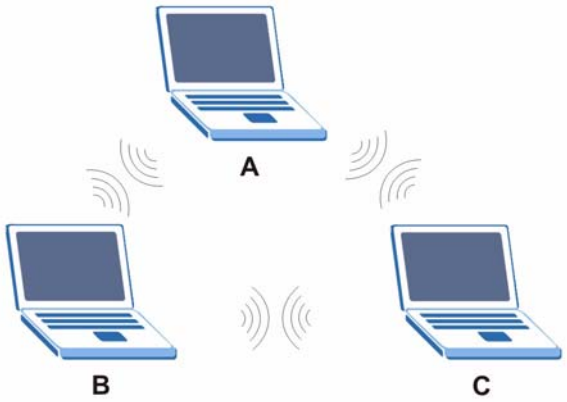
Wireless LAN Topologies

This section discusses ad-hoc and infrastructure wireless LAN topologies.

Ad-hoc Wireless LAN Configuration

The simplest WLAN configuration is an independent (Ad-hoc) WLAN that connects a set of computers with wireless adapters (A, B, C). Any time two or more wireless adapters are within range of each other, they can set up an independent network, which is commonly referred to as an ad-hoc network or Independent Basic Service Set (IBSS). The following diagram shows an example of notebook computers using wireless adapters to form an ad-hoc wireless LAN.

Figure 174 Peer-to-Peer Communication in an Ad-hoc Network

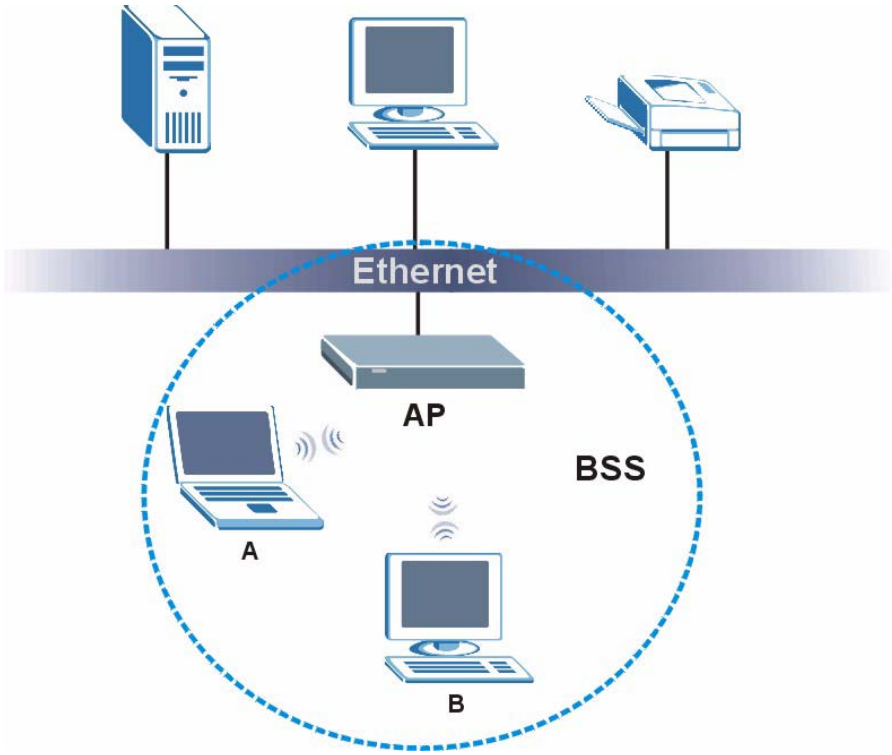


BSS

A Basic Service Set (BSS) exists when all communications between wireless clients or between a wireless client and a wired network client go through one access point (AP).

Intra-BSS traffic is traffic between wireless clients in the BSS. When Intra-BSS is enabled, wireless client **A** and **B** can access the wired network and communicate with each other. When Intra-BSS is disabled, wireless client **A** and **B** can still access the wired network but cannot communicate with each other.

Figure 175 Basic Service Set



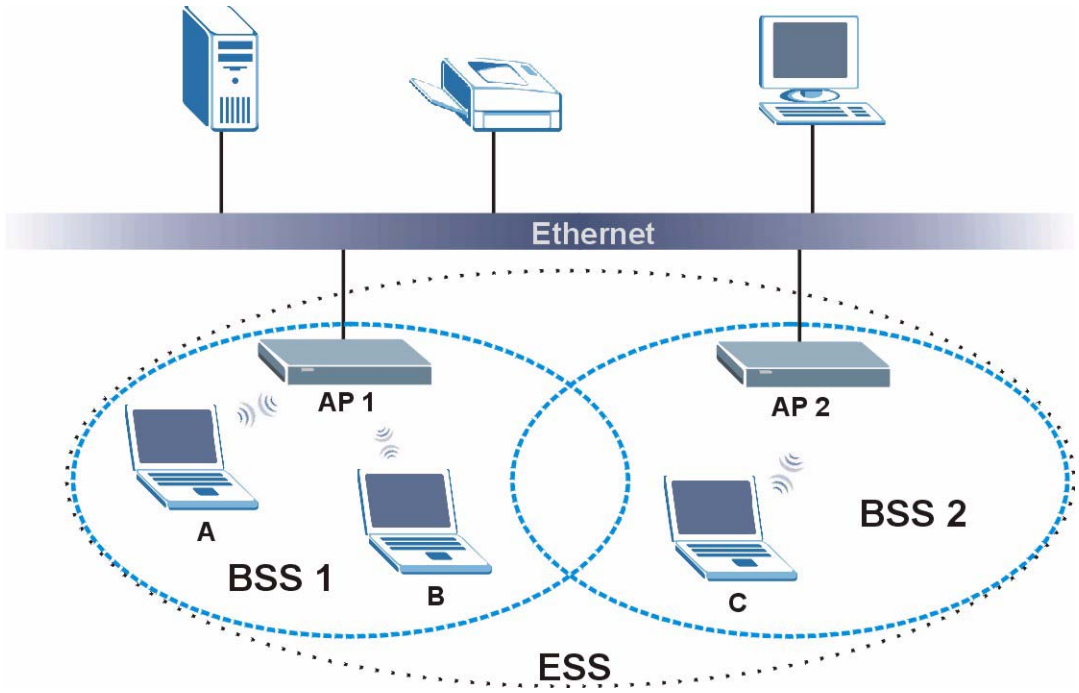
ESS

An Extended Service Set (ESS) consists of a series of overlapping BSSs, each containing an access point, with each access point connected together by a wired network. This wired connection between APs is called a Distribution System (DS).

This type of wireless LAN topology is called an Infrastructure WLAN. The Access Points not only provide communication with the wired network but also mediate wireless network traffic in the immediate neighborhood.

An ESSID (ESS IDentification) uniquely identifies each ESS. All access points and their associated wireless clients within the same ESS must have the same ESSID in order to communicate.

Figure 176 Infrastructure WLAN



Channel

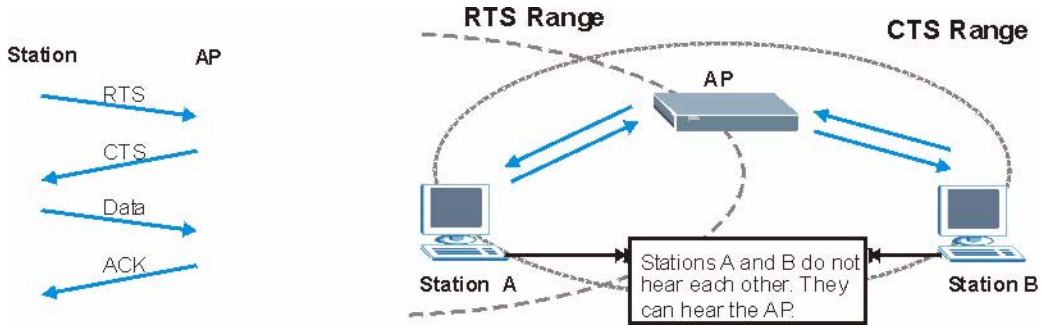
A channel is the radio frequency(ies) used by wireless devices to transmit and receive data. Channels available depend on your geographical area. You may have a choice of channels (for your region) so you should use a channel different from an adjacent AP (access point) to reduce interference. Interference occurs when radio signals from different access points overlap causing interference and degrading performance.

Adjacent channels partially overlap however. To avoid interference due to overlap, your AP should be on a channel at least five channels away from a channel that an adjacent AP is using. For example, if your region has 11 channels and an adjacent AP is using channel 1, then you need to select a channel between 6 or 11.

RTS/CTS

A hidden node occurs when two stations are within range of the same access point, but are not within range of each other. The following figure illustrates a hidden node. Both stations (STA) are within range of the access point (AP) or wireless gateway, but out-of-range of each other, so they cannot "hear" each other, that is they do not know if the channel is currently being used. Therefore, they are considered hidden from each other.

Figure 177 RTS/CTS



When station **A** sends data to the AP, it might not know that the station **B** is already using the channel. If these two stations send data at the same time, collisions may occur when both sets of data arrive at the AP at the same time, resulting in a loss of messages for both stations.

RTS/CTS is designed to prevent collisions due to hidden nodes. An **RTS/CTS** defines the biggest size data frame you can send before an RTS (Request To Send)/CTS (Clear to Send) handshake is invoked.

When a data frame exceeds the **RTS/CTS** value you set (between 0 to 2432 bytes), the station that wants to transmit this frame must first send an RTS (Request To Send) message to the AP for permission to send it. The AP then responds with a CTS (Clear to Send) message to all other stations within its range to notify them to defer their transmission. It also reserves and confirms with the requesting station the time frame for the requested transmission.

Stations can send frames smaller than the specified **RTS/CTS** directly to the AP without the RTS (Request To Send)/CTS (Clear to Send) handshake.

You should only configure **RTS/CTS** if the possibility of hidden nodes exists on your network and the "cost" of resending large frames is more than the extra network overhead involved in the RTS (Request To Send)/CTS (Clear to Send) handshake.

If the **RTS/CTS** value is greater than the **Fragmentation Threshold** value (see next), then the RTS (Request To Send)/CTS (Clear to Send) handshake will never occur as data frames will be fragmented before they reach **RTS/CTS** size.

Enabling the RTS Threshold causes redundant network overhead that could negatively affect the throughput performance instead of providing a remedy.

Fragmentation Threshold

A **Fragmentation Threshold** is the maximum data fragment size (between 256 and 2432 bytes) that can be sent in the wireless network before the AP will fragment the packet into smaller data frames.

A large **Fragmentation Threshold** is recommended for networks not prone to interference while you should set a smaller threshold for busy networks or networks that are prone to interference.

If the **Fragmentation Threshold** value is smaller than the **RTS/CTS** value (see previously) you set then the RTS (Request To Send)/CTS (Clear to Send) handshake will never occur as data frames will be fragmented before they reach **RTS/CTS** size.

Preamble Type

Preamble is used to signal that data is coming to the receiver. Short and long refer to the length of the synchronization field in a packet.

Short preamble increases performance as less time sending preamble means more time for sending data. All IEEE 802.11 compliant wireless adapters support long preamble, but not all support short preamble.

Use long preamble if you are unsure what preamble mode other wireless devices on the network support, and to provide more reliable communications in busy wireless networks.

Use short preamble if you are sure all wireless devices on the network support it, and to provide more efficient communications.

Use the dynamic setting to automatically use short preamble when all wireless devices on the network support it, otherwise the V630 uses long preamble.

The wireless devices MUST use the same preamble mode in order to communicate.

IEEE 802.11g Wireless LAN

IEEE 802.11g is fully compatible with the IEEE 802.11b standard. This means an IEEE 802.11b adapter can interface directly with an IEEE 802.11g access point (and vice versa) at 11 Mbps or lower depending on range. IEEE 802.11g has several intermediate rate steps between the maximum and minimum data rates. The IEEE 802.11g data rate and modulation are as follows:

Table 112 IEEE 802.11g

DATA RATE (MBPS)	MODULATION
1	DBPSK (Differential Binary Phase Shift Keyed)
2	DQPSK (Differential Quadrature Phase Shift Keying)
5.5 / 11	CCK (Complementary Code Keying)
6/9/12/18/24/36/48/54	OFDM (Orthogonal Frequency Division Multiplexing)

Wireless Security Overview

Wireless security is vital to your network to protect wireless communication between wireless clients, access points and the wired network.

Wireless security methods available on the V630 are data encryption, wireless client authentication, restricting access by device MAC address and hiding the V630 identity.

The following figure shows the relative effectiveness of these wireless security methods available on your V630.

Table 113 Wireless Security Levels

SECURITY LEVEL	SECURITY TYPE
Least Secure	Unique SSID (Default)
	Unique SSID with Hide SSID Enabled
	MAC Address Filtering
	WEP Encryption
	IEEE802.1x EAP with RADIUS Server Authentication
	Wi-Fi Protected Access (WPA)
Most Secure	WPA2

You must enable the same wireless security settings on the V630 and on all wireless clients that you want to associate with it.

IEEE 802.1x

In June 2001, the IEEE 802.1x standard was designed to extend the features of IEEE 802.11 to support extended authentication as well as providing additional accounting and control features. It is supported by Windows XP and a number of network devices. Some advantages of IEEE 802.1x are:

- User based identification that allows for roaming.
- Support for RADIUS (Remote Authentication Dial In User Service, RFC 2138, 2139) for centralized user profile and accounting management on a network RADIUS server.
- Support for EAP (Extensible Authentication Protocol, RFC 2486) that allows additional authentication methods to be deployed with no changes to the access point or the wireless clients.

RADIUS

RADIUS is based on a client-server model that supports authentication, authorization and accounting. The access point is the client and the server is the RADIUS server. The RADIUS server handles the following tasks:

- Authentication
  Determines the identity of the users.
- Authorization

Determines the network services available to authenticated users once they are connected to the network.

- Accounting

  Keeps track of the client's network activity.

RADIUS is a simple package exchange in which your AP acts as a message relay between the wireless client and the network RADIUS server.

Types of RADIUS Messages

The following types of RADIUS messages are exchanged between the access point and the RADIUS server for user authentication:

- Access-Request

  Sent by an access point requesting authentication.
- Access-Reject

  Sent by a RADIUS server rejecting access.
- Access-Accept

  Sent by a RADIUS server allowing access.
- Access-Challenge

  Sent by a RADIUS server requesting more information in order to allow access. The access point sends a proper response from the user and then sends another Access-Request message.

The following types of RADIUS messages are exchanged between the access point and the RADIUS server for user accounting:

- Accounting-Request

  Sent by the access point requesting accounting.
- Accounting-Response

  Sent by the RADIUS server to indicate that it has started or stopped accounting.

In order to ensure network security, the access point and the RADIUS server use a shared secret key, which is a password, they both know. The key is not sent over the network. In addition to the shared key, password information exchanged is also encrypted to protect the network from unauthorized access.

Types of EAP Authentication

This section discusses some popular authentication types: EAP-MD5, EAP-TLS, EAP-TTLS, PEAP and LEAP. Your wireless LAN device may not support all authentication types.

EAP (Extensible Authentication Protocol) is an authentication protocol that runs on top of the IEEE 802.1x transport mechanism in order to support multiple types of user authentication. By using EAP to interact with an EAP-compatible RADIUS server, an access point helps a wireless station and a RADIUS server perform authentication.

The type of authentication you use depends on the RADIUS server and an intermediary AP(s) that supports IEEE 802.1x. .

For EAP-TLS authentication type, you must first have a wired connection to the network and obtain the certificate(s) from a certificate authority (CA). A certificate (also called digital IDs) can be used to authenticate users and a CA issues certificates and guarantees the identity of each certificate owner.

EAP-MD5 (Message-Digest Algorithm 5)

MD5 authentication is the simplest one-way authentication method. The authentication server sends a challenge to the wireless client. The wireless client 'proves' that it knows the password by encrypting the password with the challenge and sends back the information. Password is not sent in plain text.

However, MD5 authentication has some weaknesses. Since the authentication server needs to get the plaintext passwords, the passwords must be stored. Thus someone other than the authentication server may access the password file. In addition, it is possible to impersonate an authentication server as MD5 authentication method does not perform mutual authentication. Finally, MD5 authentication method does not support data encryption with dynamic session key. You must configure WEP encryption keys for data encryption.

EAP-TLS (Transport Layer Security)

With EAP-TLS, digital certifications are needed by both the server and the wireless clients for mutual authentication. The server presents a certificate to the client. After validating the identity of the server, the client sends a different certificate to the server. The exchange of certificates is done in the open before a secured tunnel is created. This makes user identity vulnerable to passive attacks. A digital certificate is an electronic ID card that authenticates the sender's identity. However, to implement EAP-TLS, you need a Certificate Authority (CA) to handle certificates, which imposes a management overhead.

EAP-TTLS (Tunneled Transport Layer Service)

EAP-TTLS is an extension of the EAP-TLS authentication that uses certificates for only the server-side authentications to establish a secure connection. Client authentication is then done by sending username and password through the secure connection, thus client identity is protected. For client authentication, EAP-TTLS supports EAP methods and legacy authentication methods such as PAP, CHAP, MS-CHAP and MS-CHAP v2.

PEAP (Protected EAP)

Like EAP-TTLS, server-side certificate authentication is used to establish a secure connection, then use simple username and password methods through the secured connection to authenticate the clients, thus hiding client identity. However, PEAP only supports EAP methods, such as EAP-MD5, EAP-MSCHAPv2 and EAP-GTC (EAP-Generic Token Card), for client authentication. EAP-GTC is implemented only by Cisco.

LEAP

LEAP (Lightweight Extensible Authentication Protocol) is a Cisco implementation of IEEE 802.1x.

Dynamic WEP Key Exchange

The AP maps a unique key that is generated with the RADIUS server. This key expires when the wireless connection times out, disconnects or reauthentication times out. A new WEP key is generated each time reauthentication is performed.

If this feature is enabled, it is not necessary to configure a default encryption key in the wireless security configuration screen. You may still configure and store keys, but they will not be used while dynamic WEP is enabled.

EAP-MD5 cannot be used with Dynamic WEP Key Exchange

For added security, certificate-based authentications (EAP-TLS, EAP-TTLS and PEAP) use dynamic keys for data encryption. They are often deployed in corporate environments, but for public deployment, a simple user name and password pair is more practical. The following table is a comparison of the features of authentication types.

Table 114 Comparison of EAP Authentication Types

	EAP-MD5	EAP-TLS	EAP-TTLS	PEAP	LEAP
Mutual Authentication	No	Yes	Yes	Yes	Yes
Certificate – Client	No	Yes	Optional	Optional	No
Certificate – Server	No	Yes	Yes	Yes	No
Dynamic Key Exchange	No	Yes	Yes	Yes	Yes
Credential Integrity	None	Strong	Strong	Strong	Moderate
Deployment Difficulty	Easy	Hard	Moderate	Moderate	Moderate
Client Identity Protection	No	No	Yes	Yes	No

WPA and WPA2

Wi-Fi Protected Access (WPA) is a subset of the IEEE 802.11i standard. WPA2 (IEEE 802.11i) is a wireless security standard that defines stronger encryption, authentication and key management than WPA.

Key differences between WPA or WPA2 and WEP are improved data encryption and user authentication.

If both an AP and the wireless clients support WPA2 and you have an external RADIUS server, use WPA2 for stronger data encryption. If you don't have an external RADIUS server, you should use WPA2-PSK (WPA2-Pre-Shared Key) that only requires a single (identical) password entered into each access point, wireless gateway and wireless client. As long as the passwords match, a wireless client will be granted access to a WLAN.

If the AP or the wireless clients do not support WPA2, just use WPA or WPA-PSK depending on whether you have an external RADIUS server or not.

Select WEP only when the AP and/or wireless clients do not support WPA or WPA2. WEP is less secure than WPA or WPA2.

Encryption

Both WPA and WPA2 improve data encryption by using Temporal Key Integrity Protocol (TKIP), Message Integrity Check (MIC) and IEEE 802.1x. WPA and WPA2 use Advanced Encryption Standard (AES) in the Counter mode with Cipher block chaining Message authentication code Protocol (CCMP) to offer stronger encryption than TKIP.

TKIP uses 128-bit keys that are dynamically generated and distributed by the authentication server. AES (Advanced Encryption Standard) is a block cipher that uses a 256-bit mathematical algorithm called Rijndael. They both include a per-packet key mixing function, a Message Integrity Check (MIC) named Michael, an extended initialization vector (IV) with sequencing rules, and a re-keying mechanism.

WPA and WPA2 regularly change and rotate the encryption keys so that the same encryption key is never used twice.

The RADIUS server distributes a Pairwise Master Key (PMK) key to the AP that then sets up a key hierarchy and management system, using the PMK to dynamically generate unique data encryption keys to encrypt every data packet that is wirelessly communicated between the AP and the wireless clients. This all happens in the background automatically.

The Message Integrity Check (MIC) is designed to prevent an attacker from capturing data packets, altering them and resending them. The MIC provides a strong mathematical function in which the receiver and the transmitter each compute and then compare the MIC. If they do not match, it is assumed that the data has been tampered with and the packet is dropped.

By generating unique data encryption keys for every data packet and by creating an integrity checking mechanism (MIC), with TKIP and AES it is more difficult to decrypt data on a Wi-Fi network than WEP and difficult for an intruder to break into the network.

The encryption mechanisms used for WPA(2) and WPA(2)-PSK are the same. The only difference between the two is that WPA(2)-PSK uses a simple common password, instead of user-specific credentials. The common-password approach makes WPA(2)-PSK susceptible to brute-force password-guessing attacks but it's still an improvement over WEP as it employs a consistent, single, alphanumeric password to derive a PMK which is used to generate unique temporal encryption keys. This prevent all wireless devices sharing the same encryption keys. (a weakness of WEP)

User Authentication

WPA and WPA2 apply IEEE 802.1x and Extensible Authentication Protocol (EAP) to authenticate wireless clients using an external RADIUS database. WPA2 reduces the number of key exchange messages from six to four (CCMP 4-way handshake) and shortens the time required to connect to a network. Other WPA2 authentication features that are different from WPA include key caching and pre-authentication. These two features are optional and may not be supported in all wireless devices.

Key caching allows a wireless client to store the PMK it derived through a successful authentication with an AP. The wireless client uses the PMK when it tries to connect to the same AP and does not need to go with the authentication process again.

Pre-authentication enables fast roaming by allowing the wireless client (already connecting to an AP) to perform IEEE 802.1x authentication with another AP before connecting to it.

Wireless Client WPA Supplicants

A wireless client supplicant is the software that runs on an operating system instructing the wireless client how to use WPA. At the time of writing, the most widely available supplicant is the WPA patch for Windows XP, Funk Software's Odyssey client.

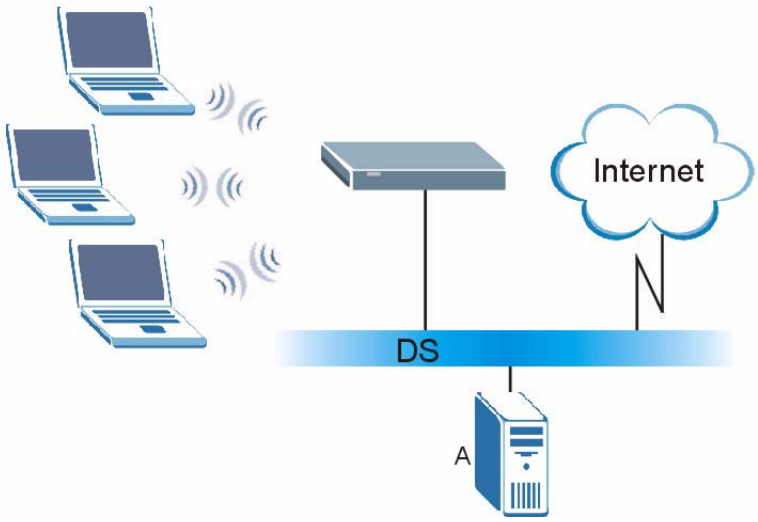
The Windows XP patch is a free download that adds WPA capability to Windows XP's built-in "Zero Configuration" wireless client. However, you must run Windows XP to use it.

WPA(2) with RADIUS Application Example

To set up WPA(2), you need the IP address of the RADIUS server, its port number (default is 1812), and the RADIUS shared secret. A WPA(2) application example with an external RADIUS server looks as follows. "A" is the RADIUS server. "DS" is the distribution system.

1. The AP passes the wireless client's authentication request to the RADIUS server.
2. The RADIUS server then checks the user's identification against its database and grants or denies network access accordingly.
3. A 256-bit Pairwise Master Key (PMK) is derived from the authentication process by the RADIUS server and the client.
4. The RADIUS server distributes the PMK to the AP. The AP then sets up a key hierarchy and management system, using the PMK to dynamically generate unique data encryption keys. The keys are used to encrypt every data packet that is wirelessly communicated between the AP and the wireless clients.

Figure 178 WPA(2) with RADIUS Application Example



WPA(2)-PSK Application Example

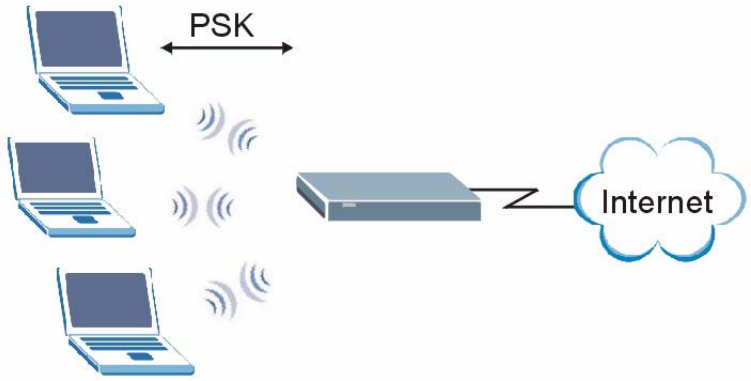
A WPA(2)-PSK application looks as follows.

1. First enter identical passwords into the AP and all wireless clients. The Pre-Shared Key (PSK) must consist of between 8 and 63 ASCII characters or 64 hexadecimal characters (including spaces and symbols).
2. The AP checks each wireless client's password and allows it to join the network only if the password matches.

3 The AP and wireless clients generate a common PMK (Pairwise Master Key). The key itself is not sent over the network, but is derived from the PSK and the SSID.

4 The AP and wireless clients use the TKIP or AES encryption process, the PMK and information exchanged in a handshake to create temporal encryption keys. They use these keys to encrypt data exchanged between them.

Figure 179 WPA(2)-PSK Authentication



Security Parameters Summary

Refer to this table to see what other security parameters you should configure for each authentication method or key management protocol type. MAC address filters are not dependent on how you configure these security features.

Table 115 Wireless Security Relational Matrix

AUTHENTICATION METHOD/ KEY MANAGEMENT PROTOCOL	ENCRYPTION METHOD	ENTER MANUAL KEY	IEEE 802.1X
Open	None	No	Disable
			Enable without Dynamic WEP Key
Open	WEP	No	Enable with Dynamic WEP Key
		Yes	Enable without Dynamic WEP Key
		Yes	Disable
Shared	WEP	No	Enable with Dynamic WEP Key
		Yes	Enable without Dynamic WEP Key
		Yes	Disable
WPA	TKIP/AES	No	Enable
WPA-PSK	TKIP/AES	Yes	Disable
WPA2	TKIP/AES	No	Enable
WPA2-PSK	TKIP/AES	Yes	Disable

WPS Details

Your V630 supports WiFi Protected Setup (WPS), which is an easy way to set up a secure wireless network. WPS is an industry standard specification, defined by the WiFi Alliance.

WPS allows you to quickly set up a wireless network with strong security, without having to configure security settings manually. Each WPS connection works between two devices. Both devices must support WPS (check each device's documentation to make sure).

Depending on the devices you have, you can either press a button (on the device itself, or in its configuration utility) or enter a PIN (a unique Personal Identification Number that allows one device to authenticate the other) in each of the two devices. When WPS is activated on a device, it has two minutes to find another device that also has WPS activated. Then, the two devices connect and set up a secure network by themselves.

Push Button Configuration

WPS Push Button Configuration (PBC) is initiated by pressing a button on each WPS-enabled device, and allowing them to connect automatically. You do not need to enter any information.

Not every WPS-enabled device has a physical WPS button. Some may have a WPS PBC button in their configuration utilities instead of or in addition to the physical button.

Take the following steps to set up WPS using the button.

1. Ensure that the two devices you want to set up are within wireless range of one another.
2. Look for a WPS button on each device. If the device does not have one, log into its configuration utility and locate the button (see the device's User's Guide for how to do this).
3. Press the button on one of the devices (it doesn't matter which).
4. Within two minutes, press the button on the other device. The registrar sends the network name (SSID) and security key through an secure connection to the enrollee.

If you need to make sure that WPS worked, check the list of associated wireless clients in the AP's configuration utility. If you see the wireless client in the list, WPS was successful.

PIN Configuration

Each WPS-enabled device has its own PIN (Personal Identification Number). This may either be static (it cannot be changed) or dynamic (you can change it to a new random number by clicking on a button in the configuration interface).

When you use the PIN method, you must enter the enrollee's PIN into the registrar. Then, when WPS is activated on the enrollee, it presents its PIN to the registrar. If the PIN matches, the registrar sends the network and security information to the enrollee, allowing it to join the network.

The advantage of using the PIN method rather than the PBC method is that you can ensure that the connection is established between the devices you specify, not just the first two devices to activate WPS in the area. However, you need to log into the configuration interfaces of both devices.

Take the following steps to set up WPS using the PIN method.

1. Decide which device you want to be the registrar (usually the AP) and which you want to be the enrollee (usually the client).

2 Look for the enrollee's WPS PIN; it may be displayed on the device. If you don't see it, log into the enrollee's configuration interface and locate the PIN - see the device's User's Guide for how to do this. Select the PIN connection mode (not PBC connection mode).
3 Log into the configuration utility of the registrar. Select the PIN connection mode (not the PBC connection mode). Locate the place where you can enter the enrollee's PIN. Enter the PIN from the enrollee device.
4 Activate WPS on both devices within two minutes.

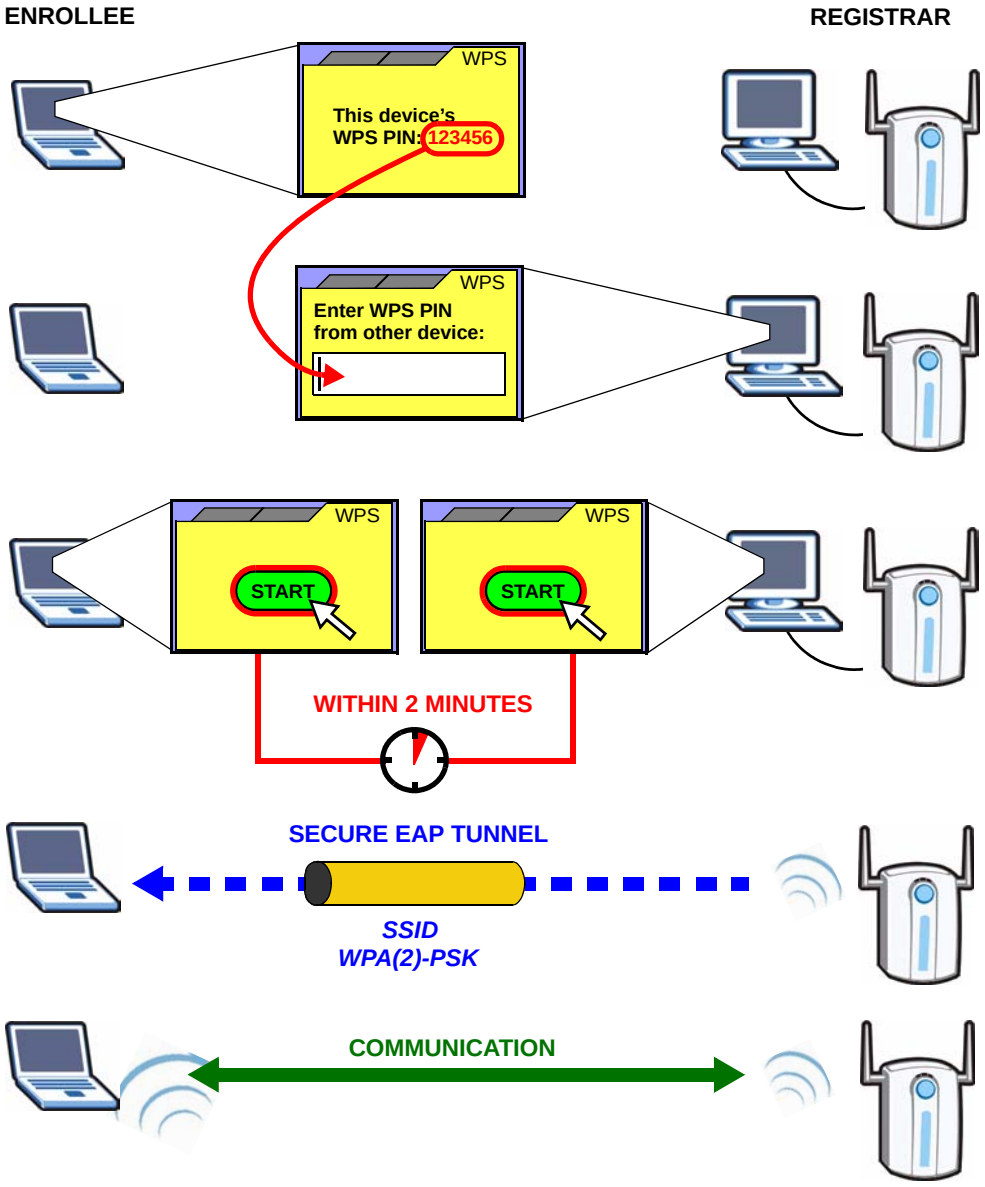
Use the configuration utility to activate WPS, not the push-button on the device itself.

5 On a computer connected to the wireless client, try to connect to the Internet. If you can connect, WPS was successful.

   If you cannot connect, check the list of associated wireless clients in the AP's configuration utility. If you see the wireless client in the list, WPS was successful.

The following figure shows a WPS-enabled wireless client (installed in a notebook computer) connecting to the WPS-enabled AP via the PIN method.

Figure 180 Example WPS Process: PIN Method

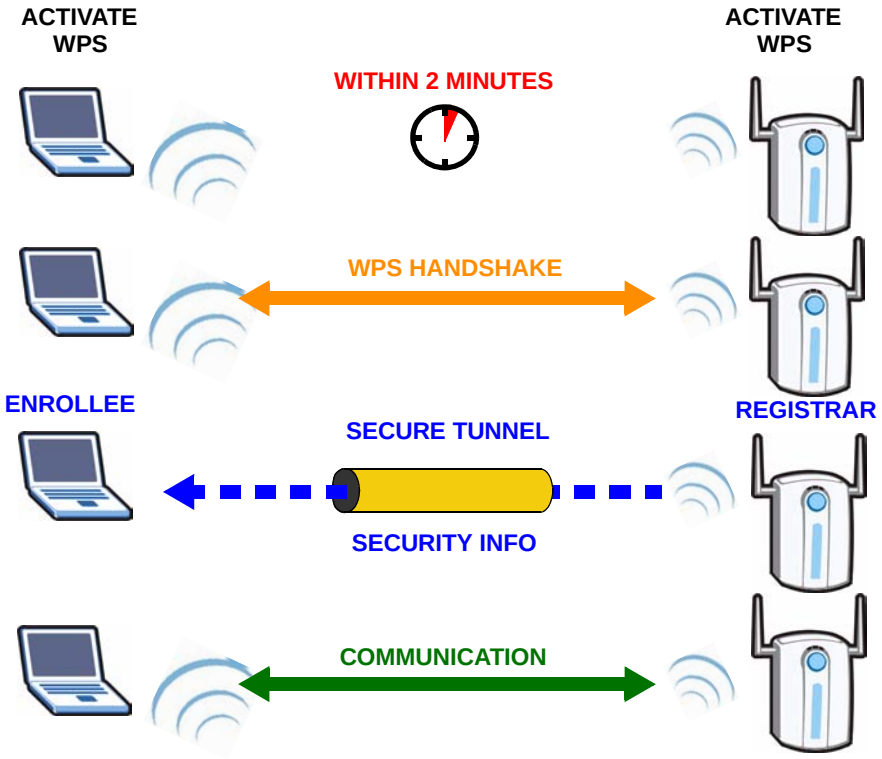


How WPS Works

When two WPS-enabled devices connect, each device must assume a specific role. One device acts as the registrar (the device that supplies network and security settings) and the other device acts as the enrollee (the device that receives network and security settings. The registrar creates a secure EAP (Extensible Authentication Protocol) tunnel and sends the network name (SSID) and the WPA-PSK or WPA2-PSK pre-shared key to the enrollee. Whether WPA-PSK or WPA2-PSK is used depends on the standards supported by the devices. If the registrar is already part of a network, it sends the existing information. If not, it generates the SSID and WPA(2)-PSK randomly.

The following figure shows a WPS-enabled client (installed in a notebook computer) connecting to a WPS-enabled access point.

Figure 181 How WPS works



The roles of registrar and enrollee last only as long as the WPS setup process is active (two minutes). The next time you use WPS, a different device can be the registrar if necessary.

The WPS connection process is like a handshake; only two devices participate in each WPS transaction. If you want to add more devices you should repeat the process with one of the existing networked devices and the new device.

Note that the access point (AP) is not always the registrar, and the wireless client is not always the enrollee. All WPS-certified APs can be a registrar, and so can some WPS-enabled wireless clients.

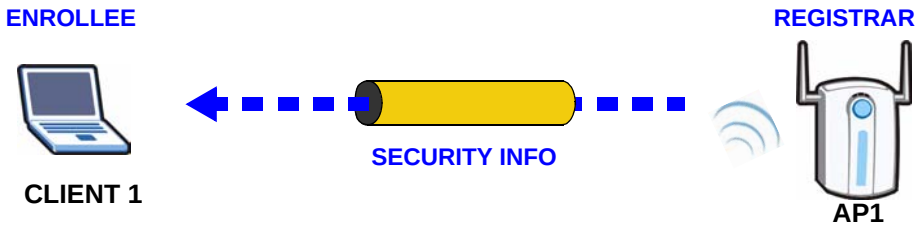
By default, a WPS devices is “unconfigured”. This means that it is not part of an existing network and can act as either enrollee or registrar (if it supports both functions). If the registrar is unconfigured, the security settings it transmits to the enrollee are randomly-generated. Once a WPS-enabled device has connected to another device using WPS, it becomes “configured”. A configured wireless client can still act as enrollee or registrar in subsequent WPS connections, but a configured access point can no longer act as enrollee. It will be the registrar in all subsequent WPS connections in which it is involved. If you want a configured AP to act as an enrollee, you must reset it to its factory defaults.

Example WPS Network Setup

This section shows how security settings are distributed in an example WPS setup.

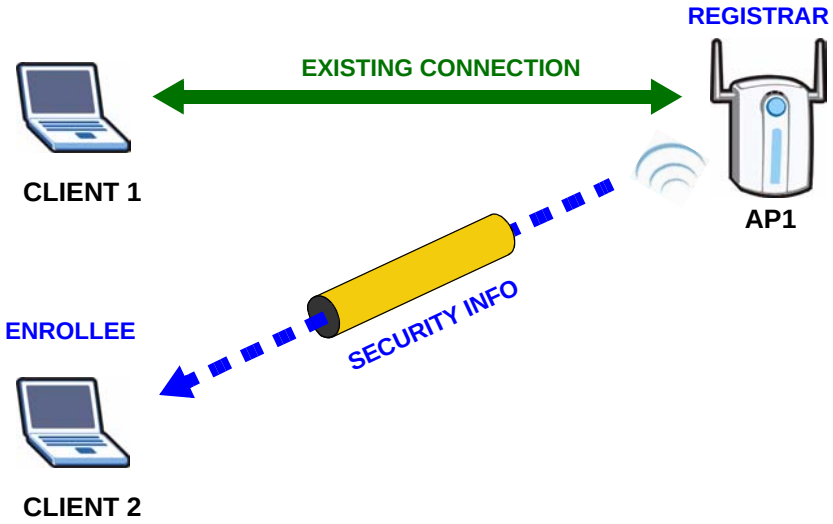
The following figure shows an example network. In step **1**, both **AP1** and **Client 1** are unconfigured. When WPS is activated on both, they perform the handshake. In this example, **AP1** is the registrar, and **Client 1** is the enrollee. The registrar randomly generates the security information to set up the network, since it is unconfigured and has no existing information.

Figure 182 WPS: Example Network Step 1



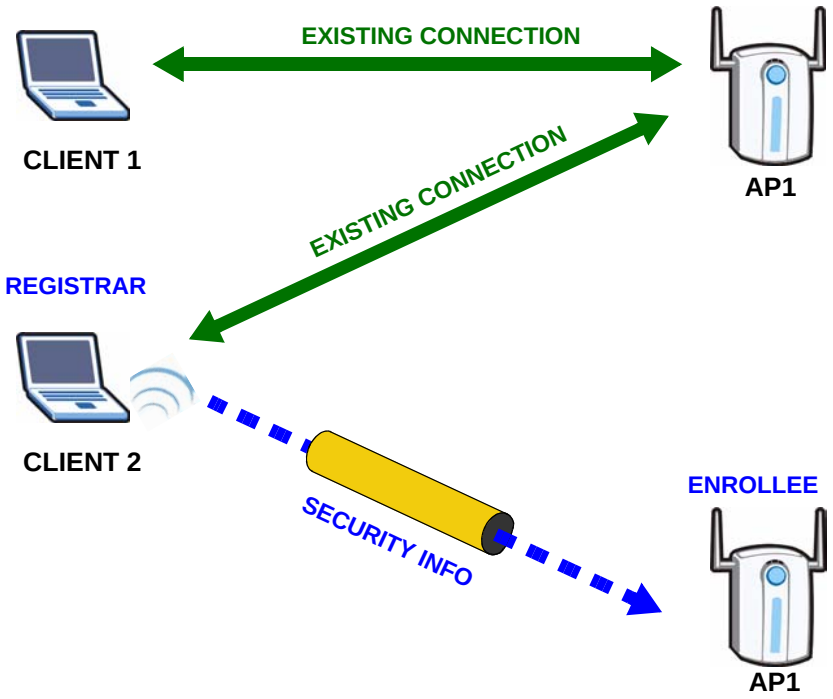
In step **2**, you add another wireless client to the network. You know that **Client 1** supports registrar mode, but it is better to use **AP1** for the WPS handshake with the new client since you must connect to the access point anyway in order to use the network. In this case, **AP1** must be the registrar, since it is configured (it already has security information for the network). **AP1** supplies the existing security information to **Client 2**.

Figure 183 WPS: Example Network Step 2



In step 3, you add another access point (**AP2**) to your network. **AP2** is out of range of **AP1**, so you cannot use **AP1** for the WPS handshake with the new access point. However, you know that **Client 2** supports the registrar function, so you use it to perform the WPS handshake instead.

Figure 184 WPS: Example Network Step 3



Limitations of WPS

WPS has some limitations of which you should be aware.

- WPS works in Infrastructure networks only (where an AP and a wireless client communicate). It does not work in Ad-Hoc networks (where there is no AP).
- When you use WPS, it works between two devices only. You cannot enroll multiple devices simultaneously, you must enroll one after the other.

  For instance, if you have two enrollees and one registrar you must set up the first enrollee (by pressing the WPS button on the registrar and the first enrollee, for example), then check that it successfully enrolled, then set up the second device in the same way.
- WPS works only with other WPS-enabled devices. However, you can still add non-WPS devices to a network you already set up using WPS.

  WPS works by automatically issuing a randomly-generated WPA-PSK or WPA2-PSK pre-shared key from the registrar device to the enrollee devices. Whether the network uses WPA-PSK or WPA2-PSK depends on the device. You can check the configuration interface of the registrar device to discover the key the network is using (if the device supports this feature). Then, you can enter the key into the non-WPS device and join the network as normal (the non-WPS device must also support WPA-PSK or WPA2-PSK).
- When you use the PBC method, there is a short period (from the moment you press the button on one device to the moment you press the button on the other device) when any WPS-enabled device could join the network. This is because the registrar has no way of identifying the “correct” enrollee, and cannot differentiate between your enrollee and a rogue device. This is a possible way for a hacker to gain access to a network.

You can easily check to see if this has happened. WPS works between only two devices simultaneously, so if another device has enrolled your device will be unable to enroll, and will not have access to the network. If this happens, open the access point's configuration interface and look at the list of associated clients (usually displayed by MAC address). It does not matter if the access point is the WPS registrar, the enrollee, or was not involved in the WPS handshake; a rogue device must still associate with the access point to gain access to the network. Check the MAC addresses of your wireless clients (usually printed on a label on the bottom of the device). If there is an unknown MAC address you can remove it or reset the AP.

C

Pop-up Windows, JavaScripts and Java Permissions

In order to use the web configurator you need to allow:

- Web browser pop-up windows from your device.
- JavaScripts (enabled by default).
- Java permissions (enabled by default).

Internet Explorer 6 screens are used here. Screens for other Internet Explorer versions may vary.

Internet Explorer Pop-up Blockers

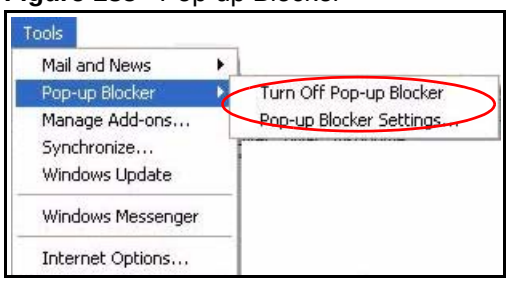
You may have to disable pop-up blocking to log into your device.

Either disable pop-up blocking (enabled by default in Windows XP SP (Service Pack) 2) or allow pop-up blocking and create an exception for your device's IP address.

Disable Pop-up Blockers

1 In Internet Explorer, select **Tools**, **Pop-up Blocker** and then select **Turn Off Pop-up Blocker**.

Figure 185 Pop-up Blocker



You can also check if pop-up blocking is disabled in the **Pop-up Blocker** section in the **Privacy** tab.

1 In Internet Explorer, select **Tools**, **Internet Options**, **Privacy**.

2 Clear the **Block pop-ups** check box in the **Pop-up Blocker** section of the screen. This disables any web pop-up blockers you may have enabled.

Figure 186 Internet Options: Privacy

3 Click **Apply** to save this setting.

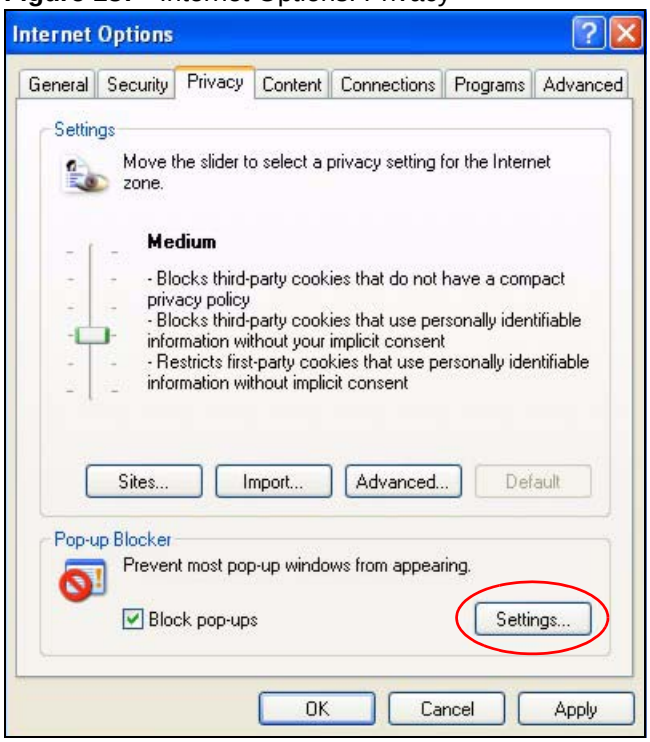
Enable Pop-up Blockers with Exceptions

Alternatively, if you only want to allow pop-up windows from your device, see the following steps.

1 In Internet Explorer, select **Tools**, **Internet Options** and then the **Privacy** tab.

2 Select **Settings…**to open the **Pop-up Blocker Settings** screen.

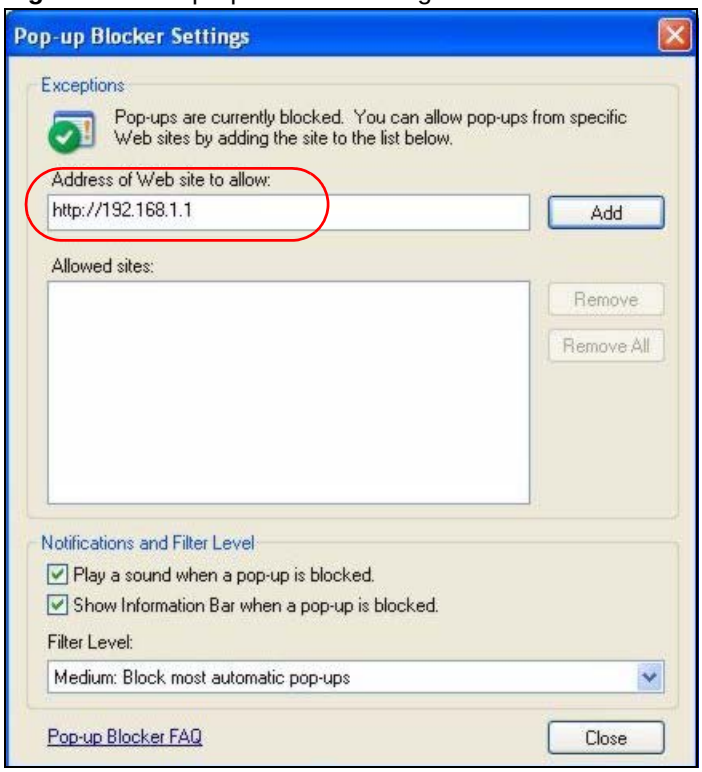
Figure 187 Internet Options: Privacy



3 Type the IP address of your device (the web page that you do not want to have blocked) with the prefix "http://". For example, http://192.168.167.1.

4 Click **Add** to move the IP address to the list of **Allowed sites**.

Figure 188 Pop-up Blocker Settings



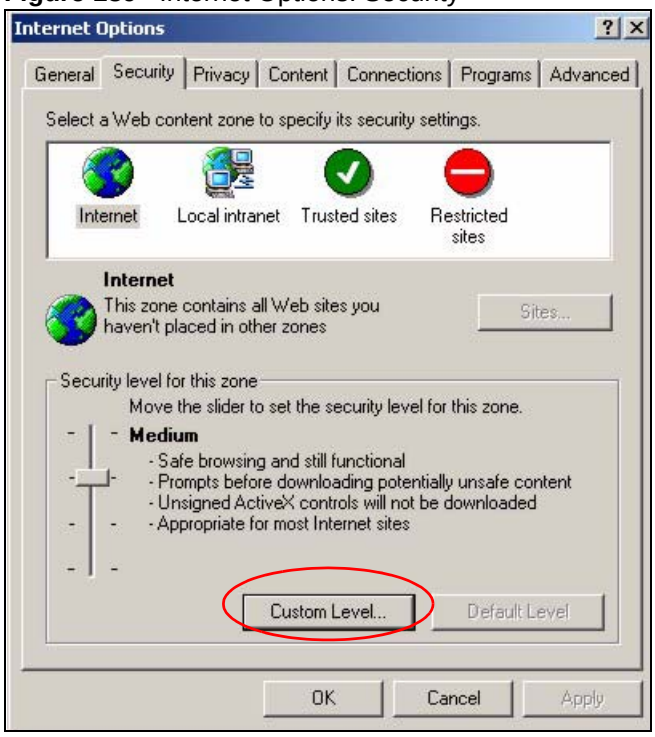
5 Click **Close** to return to the **Privacy** screen.
6 Click **Apply** to save this setting.

JavaScripts

If pages of the web configurator do not display properly in Internet Explorer, check that JavaScripts are allowed.

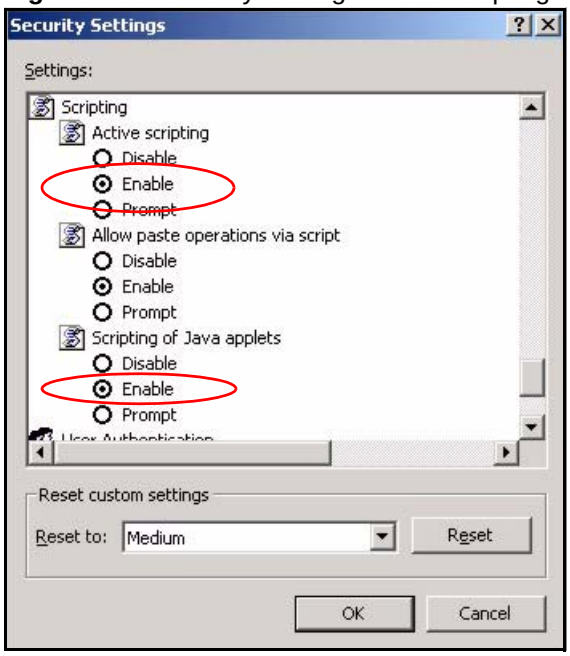
1 In Internet Explorer, click **Tools**, **Internet Options** and then the **Security** tab.

Figure 189 Internet Options: Security



2 Click the **Custom Level...** button.
3 Scroll down to **Scripting**.
4 Under **Active scripting** make sure that **Enable** is selected (the default).
5 Under **Scripting of Java applets** make sure that **Enable** is selected (the default).
6 Click **OK** to close the window.

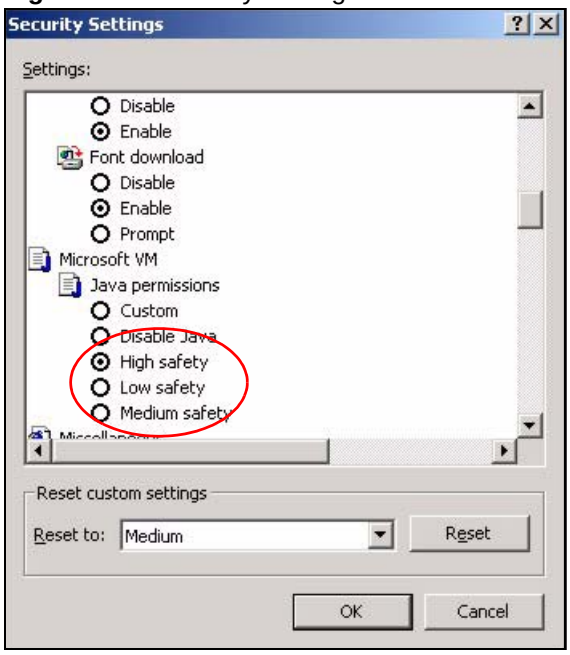
Figure 190 Security Settings - Java Scripting



Java Permissions

1. From Internet Explorer, click **Tools**, **Internet Options** and then the **Security** tab.
2. Click the **Custom Level...** button.
3. Scroll down to **Microsoft VM**.
4. Under **Java permissions** make sure that a safety level is selected.
5. Click **OK** to close the window.

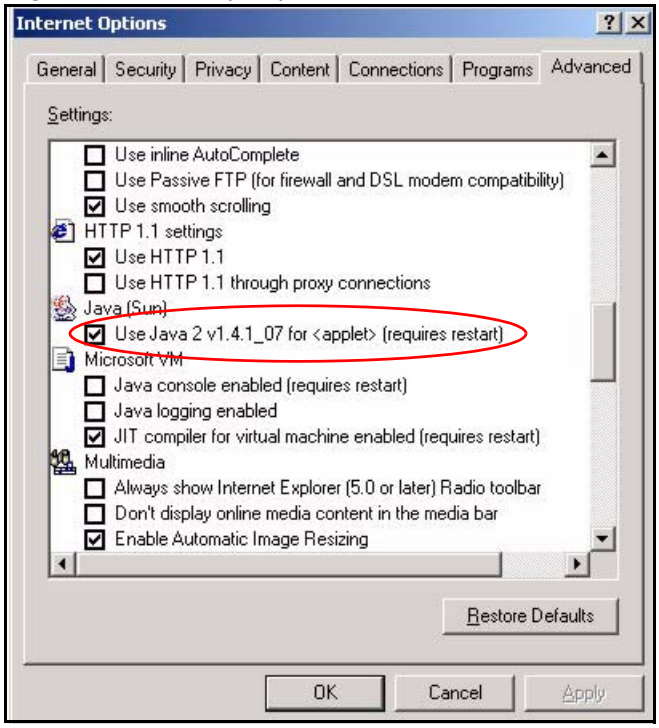
Figure 191 Security Settings - Java



JAVA (Sun)

1. From Internet Explorer, click **Tools**, **Internet Options** and then the **Advanced** tab.
2. Make sure that **Use Java 2 for <applet>** under **Java (Sun)** is selected.
3. Click **OK** to close the window.

Figure 192 Java (Sun)

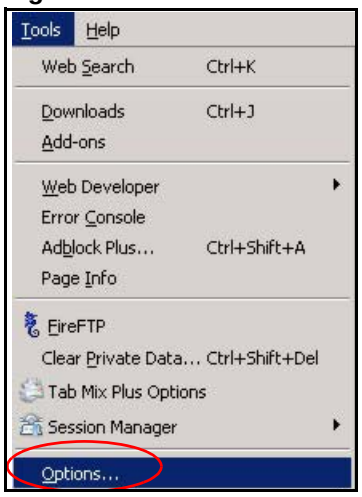


Mozilla Firefox

Mozilla Firefox 2.0 screens are used here. Screens for other versions may vary.

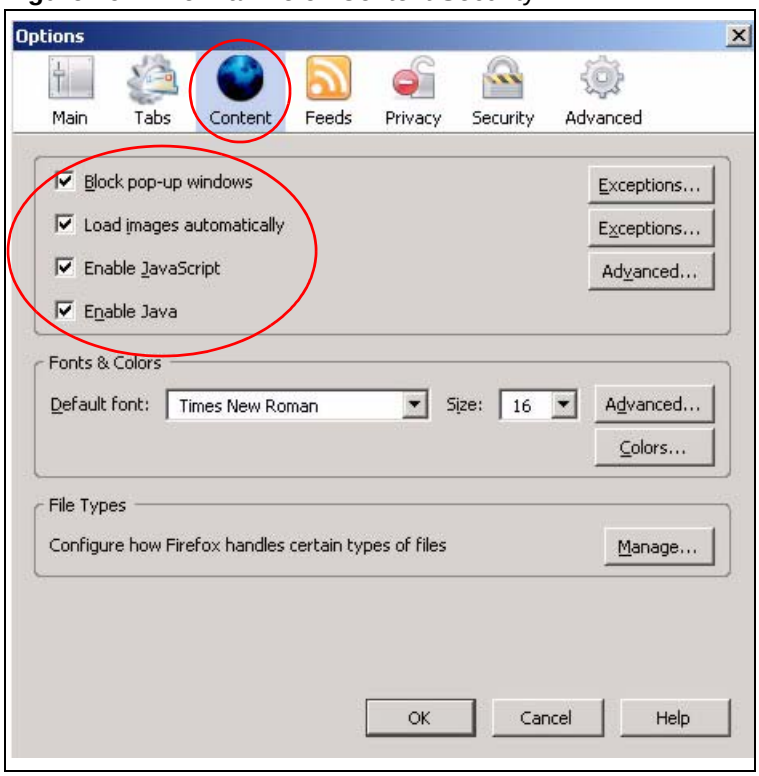
You can enable Java, Javascripts and pop-ups in one screen. Click **Tools,** then click **Options** in the screen that appears.

Figure 193 Mozilla Firefox: Tools > Options



Click **Content**.to show the screen below. Select the check boxes as shown in the following screen.

Figure 194 Mozilla Firefox Content Security



D

IP Addresses and Subnetting

This appendix introduces IP addresses and subnet masks.

IP addresses identify individual devices on a network. Every networking device (including computers, servers, routers, printers, etc.) needs an IP address to communicate across the network. These networking devices are also known as hosts.

Subnet masks determine the maximum number of possible hosts on a network. You can also use subnet masks to divide one network into multiple sub-networks.

Introduction to IP Addresses

One part of the IP address is the network number, and the other part is the host ID. In the same way that houses on a street share a common street name, the hosts on a network share a common network number. Similarly, as each house has its own house number, each host on the network has its own unique identifying number - the host ID. Routers use the network number to send packets to the correct network, while the host ID determines to which host on the network the packets are delivered.

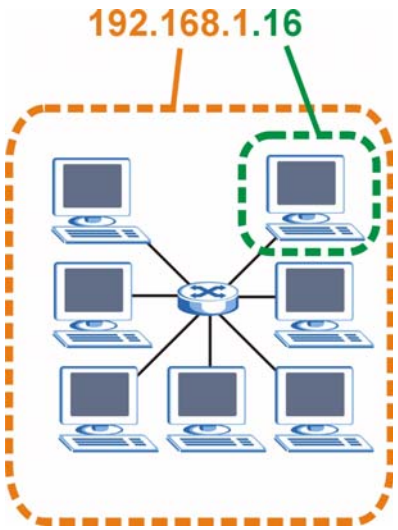
Structure

An IP address is made up of four parts, written in dotted decimal notation (for example, 192.168.1.1). Each of these four parts is known as an octet. An octet is an eight-digit binary number (for example 11000000, which is 192 in decimal notation).

Therefore, each octet has a possible range of 00000000 to 11111111 in binary, or 0 to 255 in decimal.

The following figure shows an example IP address in which the first three octets (192.168.1) are the network number, and the fourth octet (16) is the host ID.

Figure 195 Network Number and Host ID



How much of the IP address is the network number and how much is the host ID varies according to the subnet mask.

Subnet Masks

A subnet mask is used to determine which bits are part of the network number, and which bits are part of the host ID (using a logical AND operation). The term "subnet" is short for "sub-network".

A subnet mask has 32 bits. If a bit in the subnet mask is a "1" then the corresponding bit in the IP address is part of the network number. If a bit in the subnet mask is "0" then the corresponding bit in the IP address is part of the host ID.

The following example shows a subnet mask identifying the network number (in bold text) and host ID of an IP address (192.168.1.2 in decimal).

Table 116 IP Address Network Number and Host ID Example

	1ST OCTET: (192)	2ND OCTET: (168)	3RD OCTET: (1)	4TH OCTET (2)
IP Address (Binary)	11000000	10101000	00000001	00000010
Subnet Mask (Binary)	**11111111**	**11111111**	**11111111**	00000000
Network Number	**11000000**	**10101000**	**00000001**	
Host ID				00000010

By convention, subnet masks always consist of a continuous sequence of ones beginning from the leftmost bit of the mask, followed by a continuous sequence of zeros, for a total number of 32 bits.

Subnet masks can be referred to by the size of the network number part (the bits with a "1" value). For example, an "8-bit mask" means that the first 8 bits of the mask are ones and the remaining 24 bits are zeroes.

Subnet masks are expressed in dotted decimal notation just like IP addresses. The following examples show the binary and decimal notation for 8-bit, 16-bit, 24-bit and 29-bit subnet masks.

Table 117 Subnet Masks

	BINARY				DECIMAL
	1ST OCTET	2ND OCTET	3RD OCTET	4TH OCTET	
8-bit mask	11111111	00000000	00000000	00000000	255.0.0.0
16-bit mask	11111111	11111111	00000000	00000000	255.255.0.0
24-bit mask	11111111	11111111	11111111	00000000	255.255.255.0
29-bit mask	11111111	11111111	11111111	11111000	255.255.255.248

Network Size

The size of the network number determines the maximum number of possible hosts you can have on your network. The larger the number of network number bits, the smaller the number of remaining host ID bits.

An IP address with host IDs of all zeros is the IP address of the network (192.168.1.0 with a 24-bit subnet mask, for example). An IP address with host IDs of all ones is the broadcast address for that network (192.168.1.255 with a 24-bit subnet mask, for example).

As these two IP addresses cannot be used for individual hosts, calculate the maximum number of possible hosts in a network as follows:

Table 118 Maximum Host Numbers

SUBNET MASK		HOST ID SIZE		MAXIMUM NUMBER OF HOSTS
8 bits	255.0.0.0	24 bits	$2^{24} - 2$	16777214
16 bits	255.255.0.0	16 bits	$2^{16} - 2$	65534
24 bits	255.255.255.0	8 bits	$2^{8} - 2$	254
29 bits	255.255.255.248	3 bits	$2^{3} - 2$	6

Notation

Since the mask is always a continuous number of ones beginning from the left, followed by a continuous number of zeros for the remainder of the 32 bit mask, you can simply specify the number of ones instead of writing the value of each octet. This is usually specified by writing a "/" followed by the number of bits in the mask after the address.

For example, 192.1.1.0 /25 is equivalent to saying 192.1.1.0 with subnet mask 255.255.255.128.

The following table shows some possible subnet masks using both notations.

Table 119 Alternative Subnet Mask Notation

SUBNET MASK	ALTERNATIVE NOTATION	LAST OCTET (BINARY)	LAST OCTET (DECIMAL)
255.255.255.0	/24	0000 0000	0
255.255.255.128	/25	1000 0000	128

Table 119 Alternative Subnet Mask Notation (continued)

SUBNET MASK	ALTERNATIVE NOTATION	LAST OCTET (BINARY)	LAST OCTET (DECIMAL)
255.255.255.192	/26	1100 0000	192
255.255.255.224	/27	1110 0000	224
255.255.255.240	/28	1111 0000	240
255.255.255.248	/29	1111 1000	248
255.255.255.252	/30	1111 1100	252

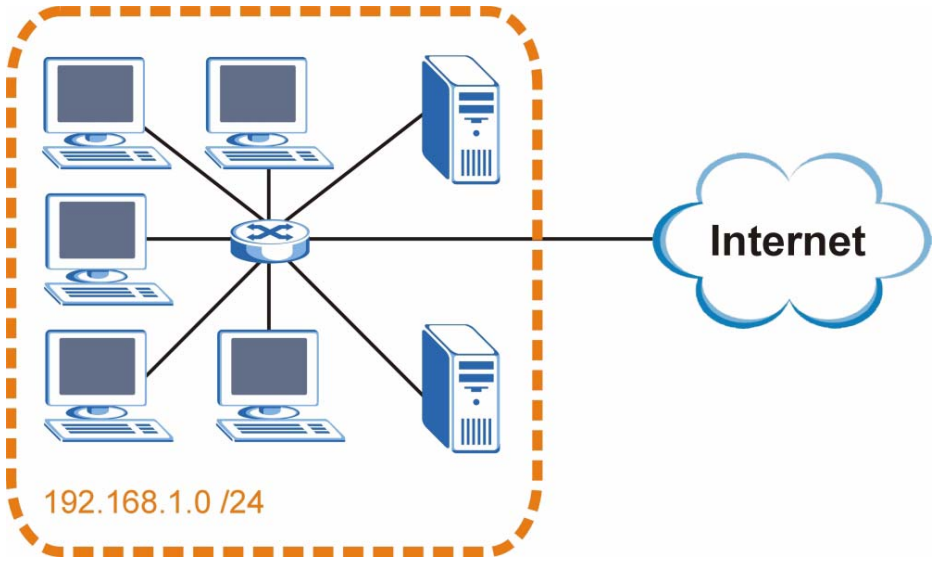
Subnetting

You can use subnetting to divide one network into multiple sub-networks. In the following example a network administrator creates two sub-networks to isolate a group of servers from the rest of the company network for security reasons.

In this example, the company network address is 192.168.1.0. The first three octets of the address (192.168.1) are the network number, and the remaining octet is the host ID, allowing a maximum of $2^8 - 2$ or 254 possible hosts.

The following figure shows the company network before subnetting.

Figure 196 Subnetting Example: Before Subnetting

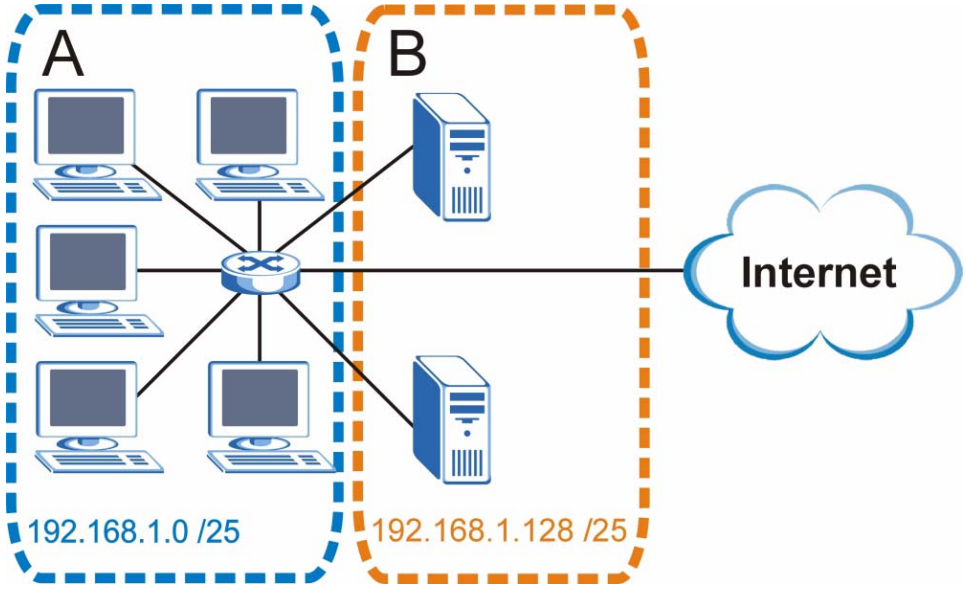


You can “borrow” one of the host ID bits to divide the network 192.168.1.0 into two separate sub-networks. The subnet mask is now 25 bits (255.255.255.128 or /25).

The “borrowed” host ID bit can have a value of either 0 or 1, allowing two subnets; 192.168.1.0 /25 and 192.168.1.128 /25.

The following figure shows the company network after subnetting. There are now two sub-networks, **A** and **B**.

Figure 197 Subnetting Example: After Subnetting



In a 25-bit subnet the host ID has 7 bits, so each sub-network has a maximum of $2^7 - 2$ or 126 possible hosts (a host ID of all zeroes is the subnet's address itself, all ones is the subnet's broadcast address).

192.168.1.0 with mask 255.255.255.128 is subnet **A** itself, and 192.168.1.127 with mask 255.255.255.128 is its broadcast address. Therefore, the lowest IP address that can be assigned to an actual host for subnet **A** is 192.168.1.1 and the highest is 192.168.1.126.

Similarly, the host ID range for subnet **B** is 192.168.1.129 to 192.168.1.254.

Example: Four Subnets

The previous example illustrated using a 25-bit subnet mask to divide a 24-bit address into two subnets. Similarly, to divide a 24-bit address into four subnets, you need to "borrow" two host ID bits to give four possible combinations (00, 01, 10 and 11). The subnet mask is 26 bits (11111111.11111111.11111111.**11**000000) or 255.255.255.192.

Each subnet contains 6 host ID bits, giving 2^6 - 2 or 62 hosts for each subnet (a host ID of all zeroes is the subnet itself, all ones is the subnet's broadcast address).

Table 120 Subnet 1

IP/SUBNET MASK	NETWORK NUMBER	LAST OCTET BIT VALUE
IP Address (Decimal)	192.168.1.	0
IP Address (Binary)	11000000.10101000.00000001.	**00**000000
Subnet Mask (Binary)	11111111.11111111.11111111.	**11**000000
Subnet Address: 192.168.1.0	Lowest Host ID: 192.168.1.1	
Broadcast Address: 192.168.1.63	Highest Host ID: 192.168.1.62	

Table 121 Subnet 2

IP/SUBNET MASK	NETWORK NUMBER	LAST OCTET BIT VALUE
IP Address	192.168.1.	64
IP Address (Binary)	11000000.10101000.00000001.	**01**000000
Subnet Mask (Binary)	11111111.11111111.11111111.	**11**000000
Subnet Address: 192.168.1.64	Lowest Host ID: 192.168.1.65	
Broadcast Address: 192.168.1.127	Highest Host ID: 192.168.1.126	

Table 122 Subnet 3

IP/SUBNET MASK	NETWORK NUMBER	LAST OCTET BIT VALUE
IP Address	192.168.1.	128
IP Address (Binary)	11000000.10101000.00000001.	**10**000000
Subnet Mask (Binary)	11111111.11111111.11111111.	**11**000000
Subnet Address: 192.168.1.128	Lowest Host ID: 192.168.1.129	
Broadcast Address: 192.168.1.191	Highest Host ID: 192.168.1.190	

Table 123 Subnet 4

IP/SUBNET MASK	NETWORK NUMBER	LAST OCTET BIT VALUE
IP Address	192.168.1.	192
IP Address (Binary)	11000000.10101000.00000001.	**11**000000
Subnet Mask (Binary)	11111111.11111111.11111111.	**11**000000
Subnet Address: 192.168.1.192	Lowest Host ID: 192.168.1.193	
Broadcast Address: 192.168.1.255	Highest Host ID: 192.168.1.254	

Example: Eight Subnets

Similarly, use a 27-bit mask to create eight subnets (000, 001, 010, 011, 100, 101, 110 and 111).

The following table shows IP address last octet values for each subnet.

Table 124 Eight Subnets

SUBNET	SUBNET ADDRESS	FIRST ADDRESS	LAST ADDRESS	BROADCAST ADDRESS
1	0	1	30	31
2	32	33	62	63
3	64	65	94	95
4	96	97	126	127

Table 124 Eight Subnets (continued)

SUBNET	SUBNET ADDRESS	FIRST ADDRESS	LAST ADDRESS	BROADCAST ADDRESS
5	128	129	158	159
6	160	161	190	191
7	192	193	222	223
8	224	225	254	255

Subnet Planning

The following table is a summary for subnet planning on a network with a 24-bit network number.

Table 125 24-bit Network Number Subnet Planning

NO. "BORROWED" HOST BITS	SUBNET MASK	NO. SUBNETS	NO. HOSTS PER SUBNET
1	255.255.255.128 (/25)	2	126
2	255.255.255.192 (/26)	4	62
3	255.255.255.224 (/27)	8	30
4	255.255.255.240 (/28)	16	14
5	255.255.255.248 (/29)	32	6
6	255.255.255.252 (/30)	64	2
7	255.255.255.254 (/31)	128	1

The following table is a summary for subnet planning on a network with a 16-bit network number.

Table 126 16-bit Network Number Subnet Planning

NO. "BORROWED" HOST BITS	SUBNET MASK	NO. SUBNETS	NO. HOSTS PER SUBNET
1	255.255.128.0 (/17)	2	32766
2	255.255.192.0 (/18)	4	16382
3	255.255.224.0 (/19)	8	8190
4	255.255.240.0 (/20)	16	4094
5	255.255.248.0 (/21)	32	2046
6	255.255.252.0 (/22)	64	1022
7	255.255.254.0 (/23)	128	510
8	255.255.255.0 (/24)	256	254
9	255.255.255.128 (/25)	512	126
10	255.255.255.192 (/26)	1024	62
11	255.255.255.224 (/27)	2048	30
12	255.255.255.240 (/28)	4096	14
13	255.255.255.248 (/29)	8192	6

Table 126 16-bit Network Number Subnet Planning (continued)

NO. "BORROWED" HOST BITS	SUBNET MASK	NO. SUBNETS	NO. HOSTS PER SUBNET
14	255.255.255.252 (/30)	16384	2
15	255.255.255.254 (/31)	32768	1

Configuring IP Addresses

Where you obtain your network number depends on your particular situation. If the ISP or your network administrator assigns you a block of registered IP addresses, follow their instructions in selecting the IP addresses and the subnet mask.

If the ISP did not explicitly give you an IP network number, then most likely you have a single user account and the ISP will assign you a dynamic IP address when the connection is established. If this is the case, it is recommended that you select a network number from 192.168.0.0 to 192.168.255.0. The Internet Assigned Number Authority (IANA) reserved this block of addresses specifically for private use; please do not use any other number unless you are told otherwise. You must also enable Network Address Translation (NAT) on the V630.

Once you have decided on the network number, pick an IP address for your V630 that is easy to remember (for instance, 192.168.1.1) but make sure that no other device on your network is using that IP address.

The subnet mask specifies the network number portion of an IP address. Your V630 will compute the subnet mask automatically based on the IP address that you entered. You don't need to change the subnet mask computed by the V630 unless you are instructed to do otherwise.

Private IP Addresses

Every machine on the Internet must have a unique address. If your networks are isolated from the Internet (running only between two branch offices, for example) you can assign any IP addresses to the hosts without problems. However, the Internet Assigned Numbers Authority (IANA) has reserved the following three blocks of IP addresses specifically for private networks:

- 10.0.0.0 — 10.255.255.255
- 172.16.0.0 — 172.31.255.255
- 192.168.0.0 — 192.168.255.255

You can obtain your IP address from the IANA, from an ISP, or it can be assigned from a private network. If you belong to a small organization and your Internet access is through an ISP, the ISP can provide you with the Internet addresses for your local networks. On the other hand, if you are part of a much larger organization, you should consult your network administrator for the appropriate IP addresses.

Regardless of your particular situation, do not create an arbitrary IP address; always follow the guidelines above. For more information on address assignment, please refer to RFC 1597, Address Allocation for Private Internets and RFC 1466, Guidelines for Management of IP Address Space.

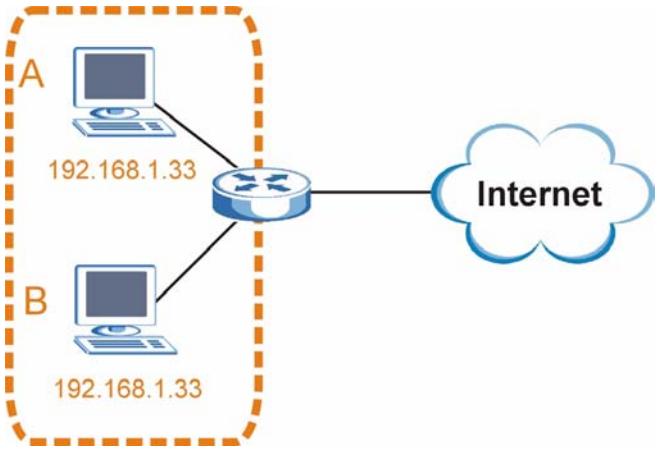
IP Address Conflicts

Each device on a network must have a unique IP address. Devices with duplicate IP addresses on the same network will not be able to access the Internet or other resources. The devices may also be unreachable through the network.

Conflicting Computer IP Addresses Example

More than one device can not use the same IP address. In the following example computer **A** has a static (or fixed) IP address that is the same as the IP address that a DHCP server assigns to computer **B** which is a DHCP client. Neither can access the Internet. This problem can be solved by assigning a different static IP address to computer **A** or setting computer **A** to obtain an IP address automatically.

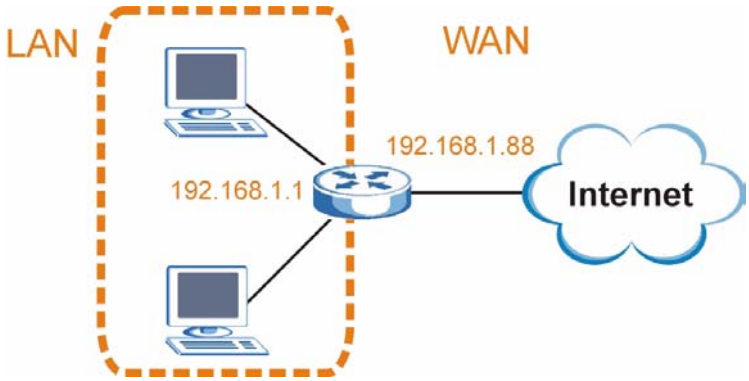
Figure 198 Conflicting Computer IP Addresses Example



Conflicting Router IP Addresses Example

Since a router connects different networks, it must have interfaces using different network numbers. For example, if a router is set between a LAN and the Internet (WAN), the router's LAN and WAN addresses must be on different subnets. In the following example, the LAN and WAN are on the same subnet. The LAN computers cannot access the Internet because the router cannot route between networks.

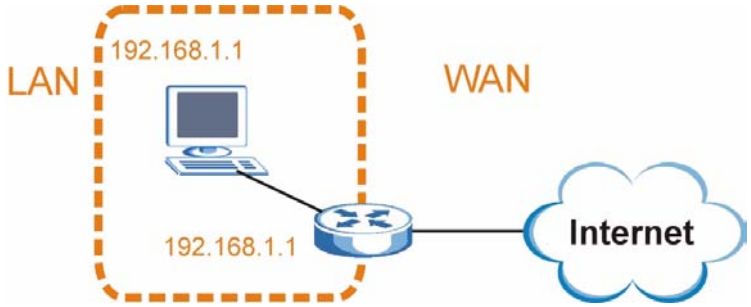
Figure 199 Conflicting Computer IP Addresses Example



Conflicting Computer and Router IP Addresses Example

More than one device can not use the same IP address. In the following example, the computer and the router's LAN port both use 192.168.1.1 as the IP address. The computer cannot access the Internet. This problem can be solved by assigning a different IP address to the computer or the router's LAN port.

Figure 200 Conflicting Computer and Router IP Addresses Example



E

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Certifications

Federal Communications Commission (FCC) Interference Statement

The device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operations.

This device 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 in a residential installation. This device generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this device does cause harmful interference to radio/television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and the receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

- This device has been tested to the FCC exposure requirements (Specific Absorption Rate).
- This device complies with the requirements of Health Canada Safety Code 6 for Canada.
- Testing was performed on laptop computers with antennas at 0mm spacing. The maximum SAR value is: 0.128 W/kg. The device must not be collocated with any other antennas or transmitters.
- The device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment, under 47 CFR 2.1093 paragraph (d)(2). End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in this manual.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

注意 !

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第十二條　經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條　低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。
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在 5250MHz~5350MHz 頻帶內操作之無線資訊傳輸設備，限於室內使用。

本機限在不干擾合法電臺與不受被干擾保障條件下於室內使用。
減少電磁波影響，請妥適使用。

Notices

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device has been designed for the WLAN 2.4 GHz network throughout the EC region and Switzerland, with restrictions in France.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Viewing Certifications

1. Go to http://www.zyxel.com.
2. Select your product on the ZyXEL home page to go to that product's page.
3. Select the certification you wish to view from this page.

ZyXEL Limited Warranty

ZyXEL warrants to the original end user (purchaser) that the V630 (not including the battery) is free from any defects in materials or workmanship for a period of up to two years from the date of purchase. ZyXEL warrants to the original end user (purchaser) that the V630's battery is free from any defects in materials or workmanship for a period of up to three months from the date of purchase. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, ZyXEL will, at its discretion, repair or replace the defective products or components without charge for either parts or labor, and to whatever extent it shall deem necessary to restore the product or components to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal or higher value, and will be solely at the discretion of ZyXEL. This warranty shall not apply if the product has been modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions.

Note

Repair or replacement, as provided under this warranty, is the exclusive remedy of the purchaser. This warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular use or purpose. ZyXEL shall in no event be held liable for indirect or consequential damages of any kind to the purchaser.

To obtain the services of this warranty, contact ZyXEL's Service Center for your Return Material Authorization number (RMA). Products must be returned Postage Prepaid. It is recommended that the unit be insured when shipped. Any returned products without proof of purchase or those with an out-dated warranty will be repaired or replaced (at the discretion of

ZyXEL) and the customer will be billed for parts and labor. All repaired or replaced products will be shipped by ZyXEL to the corresponding return address, Postage Paid. This warranty gives you specific legal rights, and you may also have other rights that vary from country to country.

Registration

Register your product online to receive e-mail notices of firmware upgrades and information at www.zyxel.com.

F

Customer Support

Please have the following information ready when you contact customer support.

Required Information

- Product model and serial number.
- Warranty Information.
- Date that you received your device.
- Brief description of the problem and the steps you took to solve it.

"+" is the (prefix) number you dial to make an international telephone call.

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