NetVision Data Phone
Product Reference Guide

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Patents

This product is covered by one or more of the following U.S. and foreign Patents:

U.S. Patent No.
4,360,798; 4,369,361; 4,387,297; 4,460,120; 4,496,831; 4,593,186; 4,603,262; 4,607,156; 4,652,750; 4,673,805; 4,736,095; 4,758,717; 4,816,660; 4,845,350; 4,896,026; 4,897,532; 4,923,281; 4,933,538; 4,992,717; 5,015,833; 5,017,765; 5,021,641; 5,029,183; 5,047,617; 5,103,461; 5,113,445; 5,130,520; 5,140,144; 5,142,550; 5,149,950; 5,157,687; 5,168,148; 5,168,149; 5,180,904; 5,229,591; 5,230,088; 5,235,167; 5,243,655; 5,247,162; 5,250,791; 5,250,792; 5,262,627; 5,262,628; 5,266,787; 5,278,398; 5,280,162; 5,280,163; 5,280,164; 5,280,498; 5,304,786; 5,304,788; 5,306,900; 5,321,246; 5,324,924; 5,337,361; 5,367,151; 5,373,148; 5,378,882; 5,396,053; 5,396,055; 5,399,846; 5,408,081; 5,410,139; 5,410,140; 5,412,198; 5,418,812; 5,420,411; 5,436,440; 5,444,231; 5,449,891; 5,449,893; 5,468,949; 5,471,042; 5,478,998; 5,479,000; 5,479,002; 5,479,441; 5,504,322; 5,519,577; 5,528,621; 5,532,469; 5,543,610; 5,545,889; 5,552,592; 5,578,810; 5,581,070; 5,589,679; 5,589,680; 5,608,202; 5,612,531; 5,619,028; 5,664,229; 5,668,803; 5,675,139; 5,693,929; 5,698,835; 5,705,800; 5,714,746; 5,723,851; 5,734,152; 5,734,153; 5,745,794; 5,754,587; 5,762,516; 5,763,863; 5,767,500; 5,789,728; 5,808,287; 5,811,785; 5,811,787; 5,815,811; 5,821,519; 5,821,520; 5,823,812; 5,828,050; 5,850,078; 5,861,615; 5,874,720; 5,875,415; D305,885; D341,584; D344,501; D359,483; D362,453; D363,700; D363,918; D370,478; D383,124; D391,250; D405,077; D406,581

Invention No. 55,358; 62,539; 69,060; 69,187 (Taiwan); No. 1,601,796; 1,907,875; 1,955,269 (Japan); European Patent 367,299; 414,281; 367,300; 367,298; UK 2,072,832; France 81/03938; Italy 1,138,713

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About This Document

Reference Documents

This Reference Guide refers to the following documents:

Part Number	Document Title
70-20620-01	NetVision Data Phone User Guide
70-20504-01	Spectrum24 Access Point User Guide

Conventions

Keystrokes are indicated as follows:

ENTER	identifies a key.
FUNC, CTRL, C	identifies a key sequence. Press and release each key in turn.
Press A+B	press the indicated keys simultaneously.
Hold A Hold A+B	press and hold the indicated keys while performing or waiting for another function. Used in combination with another keystroke.

Typeface conventions used include.

<angles>	indicates mandatory parameters in a given syntax.
[brackets]	for command line, indicates available parameters; in configuration files brackets act as separators for options.
GUI Screen text	indicates the name of a control in a GUI-based application.
Italics	indicates the first time a term is used, a book title, variables, and menu titles.
'single quotes'	indicates the exact setting for a parameter.
Screen	indicates monitor screen dialog. Also indicates user input. A screen is the hardware device on which data appears. A display is data arranged on a screen.
Terminal	indicates text shown on a phone screen.
URL	indicates Uniform Resource Locator.

This document uses the following symbols for certain conditions or types of information:

Indicates tips or special requirements.

Indicates conditions that can cause equipment damage or data loss.

Indicates a potentially dangerous condition or procedure that only Symbol-trained personnel should attempt to correct or perform.

Contents

Chapter 1 Introduction

1.1 About NetVision Data Phone

The NetVision Data Phone is a small, lightweight, fully-featured telephone designed to operate over Spectrum24 802.11 wireless data networks using technology called *Voice-over-IP* or *VoIP*.

The NetVision Data Phone combines the features of the NetVision Phone with data capabilities in a slightly larger unit. The NetVision Data Phone uses a thin client to support HTML Web-based applications.

Add a gateway to connect the data network to the traditional telephone PBX system to give NetVision Data Phones the ability to make and receive calls to PBX extensions and directly to the *Public Switched Telephone Network* (PSTN).

The NetVision Data Phone supports:

- ITU standards. NetVision Data Phone employs *International Telecommunications Union* (ITU) standard H.323 protocols for real-time communications over the Internet and corporate Intranets.
- IEEE 802.11 wireless network protocol.

For specific details of the standards the NetVision Data Phone supports, see Appendix D.

The NetVision Data Phones can make calls through a gateway (gateway telephony) or over a Spectrum 24 data network (peer-to-peer telephony). NetVision Data Phones can make calls to several other NetVision telephones in intercom mode.

NetVision telephones contain these features:

- Shared usage - Allows users to pick up any phone, log on and receive the same authorized feature set as on any previously used phone.
- Personal usage - Assigns a phone and PIN to a user exclusively.
- User Profiles - Restrict unauthorized phone usage with a user name and Personal Identification Number (PIN).
- Name dialing - Name-dialing maps profile names to extensions or IP addresses. This *call list* can contain NetVision Phones, NetVision Data Phones, other IP telephones, PBX extensions and outside phone numbers.
- Hot Battery Swap - With out first powering down the NetVision Data Phone, users can exchange a nearly discharged battery with a fresh one and restart the phone. The phone retains the current user name, PIN and URL.
- Speed-dialing - The NetVision Data Phone stores phone numbers in 100 two-digit speed-dial locations. Users can store any number.
- Caller ID - The phone displays the caller IP address for an incoming call from a NetVision Telephone using peer-to-peer telephony.
- Optimized voice quality - A voice-control mechanism converts voice to digital data packets and back to voice to achieve high-quality audio.
- Multifunction capability - The NetVision Data Phone supports simultaneous voice, messaging and data functions.
- Rechargeable battery - NetVision Data Phone ships with a rechargeable Lithium-ion battery.
- NetVision Telephone Administrator - A web-based software program that builds configuration files for a NetVision Telephone site.

1.2 Initial Use of NetVision Data Phones

Symbol ships each *Spectrum24 Access Point (AP)* and NetVision Data Phone employing the 802.11 protocol with a default IP address and the ESS ID parameter set to 101. Charge and install the NetVision Telephone battery. Connect power and an antenna to an AP and use the NetVision Data Phones in peer-to-peer telephony.

The *NetVision Data Phone User Guide* contains basic procedures for using the NetVision Data Phone and instructions for testing the scanner.

1.3 User profiles

User Profiles contain different levels of access to phone features, customization functions and privileges. Passwords or *personal identification numbers (PINs)* control access to User Profiles.

Use the NetVision Telephone Administrator to create User Profiles and to download them to phones.

User Profiles:

- assign a feature set to a specific user
- customize access to intercom groups
- define class-of-service as peer-to-peer or gateway
- customize access to phone menu options.

1.4 Site Styles

Choose one of two site styles for NetVision Data Phones:

- Shared
- Personal

Each NetVision Data Phone in a Shared site assumes an IP address based on the logged-on user name. Each NetVision Data Phone in a Personal site has a permanently assigned IP address.

1.4.1 Shared Style

In a Shared-style site, each NetVision Data Phone at the site contains the same list of User Profiles. A PIN provides access for each User Profile. A user takes any NetVision Data Phone, and logs on with an assigned name and PIN. The user customizes the User Options.

A user can log on to only one phone at a time in a shared site. The NetVision Phone handles subsequent attempts to log on differently according to the setting of the Rem Dup IP parameter. See Appendix A for details.

A Shared site cannot have duplicate PINs.

1.4.2 Personal Style

In a Personal-style site, the NetVision Data Phones have static IP addresses.

The phone requires users to logon with a Name and PIN before it initiates any calls. Phones in a Personal style can use the Web server to access data applications before logging on. If the PIN is 0000, the phone automatically logs the user on when the phone is powered on. The default PIN for Personal site phones is 0000.

1.5 Names

This feature frees users from memorizing IP addresses or trying to remember the personnel or department assigned a particular phone extension.

There are two *user classes*: *general user*, a person using the phone day-to-day; *system administrator*, the person configuring the phones for general users.

Profile Name	User Class	Description
NVPhone	General user	When logged on with this profile, users have access to the features described in the User Guide. The NetVision Data Phone Administrator replaces this profile name when it downloads configuration data to the phone.
Site-defined	General User	Name, PIN and access to phone features defined by site administrator.
Setup	System Administrator	Reserved for NetVision Telephone Site Administrator. PIN is 8647. Cannot make phone calls or access Web Client applications.
Symbol	Reserved	Symbol Customer support personnel profile.
Support	Reserved	Symbol Customer support personnel profile.

The phone displays the call list when the user presses NAME. The user scrolls through the list to dial another phone.

When first powered up and the phone requires a PIN, the user presses FCT, NAME to view the log list. For a Shared site, the *log list* contains all the user names authorized for this phone, including Setup, Support and Symbol; in a Personal site, the list contains the name assigned to the phone and Setup, Support and Symbol.

1.6 Telephony Styles

NetVision Data Phones communicate in two different telephony modes.

- In *gateway telephony,* each phone performs as an extension of the PBX. In this telephony style, the phone can dial any extension or outside number and the POTS telephony gateway routes the calls to the PBX or to the PSTN directly.
- In *peer-to-peer telephony,* each phone dials other IP-network telephones over the Spectrum24 data network. In this telephony style, the phone dials the IP address of another telephone in a point-to-point connection. IP (Internet Protocol) routers make voice communications over the Internet possible.

Only NetVision Data Phones with gateway permission can call traditional telephones (off-IP-network extensions) through the gateway. NetVision Telephones with peer-to-peer telephony can call only other H.323 devices (such as NetMeeting and NetVision telephones) through the IP network.

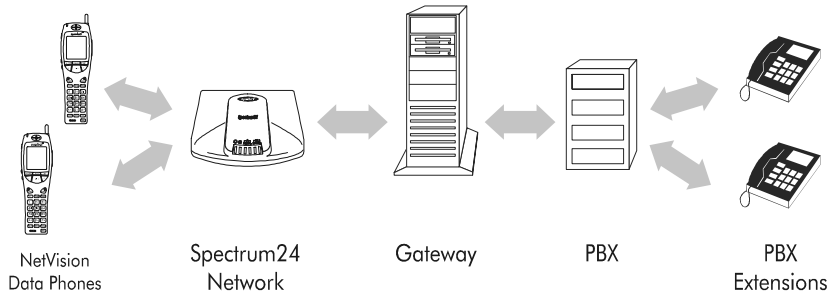
1.6.1 Gateway Telephony

NetVision Data Phones use the gateway to connect a Spectrum24 wireless network to a corporate telephone system.

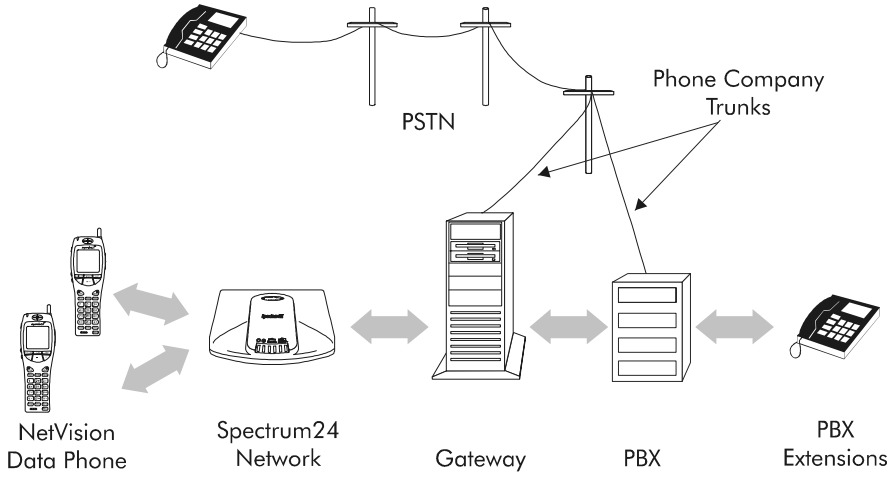
When a user selects a name or dials a traditional PBX extension on a NetVision Data Phone setup for gateway telephony, NetVision Data Phones connect the call through the gateway.

The NetVision Telephone Administrator defines extensions corresponding to NetVision Data Phones. As a network device, each NetVision Data Phone has a unique IP address. The name directory containing the extensions becomes part of the configuration downloaded to each NetVision Data Phone. The

gateway between the Spectrum24 data network and the traditional telephone system (PBX) maps extensions to non-IP phones, and maps names to IP address and extensions. When dialing a name or an extension, the mapping is transparent to the user.



A NetVision Data Phone user can make and receive a call over a standard Public Switched Telephone Network (PSTN).



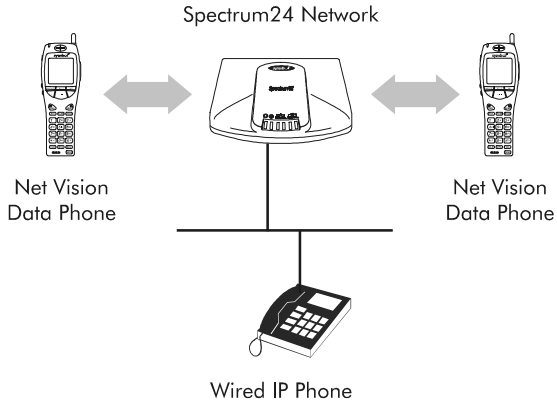
The gateway routes an outgoing call to the PSTN. For an incoming call, the telephone system accepts the call, routes it to the gateway and the gateway routes the call to the NetVision Data Phones using the extension to IP address mapping.

When NetVision Data Phone system administrator assigns NetVision Data Phones to use gateway telephony, the * and # keys generate DTMF (dual tone multifrequency) tones normally.

Refer to Appendix C for information on available gateways.

1.6.2 Peer-to-Peer Telephony

Each NetVision Data Phone requires a unique *Internet Protocol (IP)* address. In peer-to-peer telephony, NetVision Data Phones use IP addresses in the same way conventional telephone systems use telephone numbers. The NetVision Telephone system administrator configures the NetVision Data Phones with IP subnet masks and router IP addresses.



When a user selects a name from the Names directory on a phone setup for peer-to-peer telephony, the NetVision Data Phone connects the call over the data network using IP addresses. Users can also dial IP addresses explicitly, dialing full or partial IP addresses, to place a call.

When a NetVision Telephone system administrator assigns NetVision Data Phones to use peer-to-peer telephony, the * and # keys are the IP dialing and intercom access keys respectively.

In a telephone call between two NetVision telephones, if one NetVision telephone is restricted to peer-to-peer dialing, the phone makes the call peer-to-peer telephony.

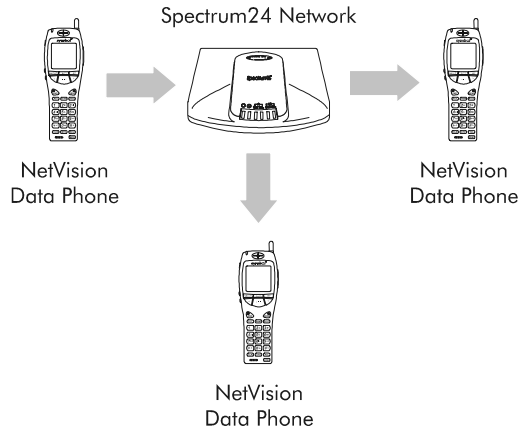
1.7 Intercom Mode

In *intercom mode* one NetVision Data Phone calls several other NetVision Data Phones over the Spectrum24 network. In this telephony style, the phones function like "walkie-talkies," in that only one user can speak at a time while other users listen.

The NetVision Telephone Administrator organizes NetVision Data Phones into intercom *groups*. Phones in the same group receive intercom calls together, over the *group channel*. Any NetVision Data Phone on the system can initiate a call to any intercom group, but only those phones assigned to the group receive the call.

The NetVision system administrator can assign NetVision Data Phones to specific intercom groups.

Intercom telephony uses multicast addressing to call multiple phones over the Spectrum24 network. Only NetVision telephones participate in intercom calls.



In an intercom call, the user presses a key or button to talk. Some keys and buttons do not activate the talk function: FCT, END, HOLD and the side-mounted volume buttons. Only one user can talk at a time during an intercom call.

1.8 The Software Developer Kit

The NetVision Data Phone Software Developer Kit contains the necessary software and special hardware for downloading custom configuration information to the NetVision Telephones. The Kit also contains information and tools for designing a Web client application.

The *NetVision Data Phone Product Reference Guide* is for the person responsible for NetVision Data Phone Administration (the *system administrator*). The Guide contains detailed instructions on how to install the *NetVision Telephone Administrator* software program and how to use it to create phone configurations and download the configurations to NetVision Telephones. The guide also provides an overview of phone configuration options. Only the NetVision Telephone system administrator should configure the NetVision Telephones.

1.9 Related Publications

For more information about the NetVision Phones, refer to these other Symbol publications:

- NetVision Data Phone User Guide
- NetVision Data Phone Web Client Administrator Guide
- NetVision Telephone Administrator

For more information on Spectrum24 networks and other requirements for the NetVision Data Phone, consult these publications:

- Spectrum24 Access Point User Guide

For information on H.323 standards, visit (addresses valid on the date of this publication):

http://www.databeam.com

http://www.radvision.com

Chapter 2 Administrator Requirements and Installation

Use the NetVision Telephone Administrator to set up site-specific phone configurations, enable user profiles and update phone firmware.

The *system administrator* uses the NetVision Telephone Administrator to create the configuration files.

2.1 Toolkit Contents

The Symbol Technologies NetVision Data Phone Software Developer Kit contains:

- the *NetVision Telephone Product Reference Guide*
- the *NetVision Data Phone Web Client Administrator Guide*
- a 9-pin serial cable
- a CD-ROM containing:
  - the NetVision Telephone Administrator software
  - the NetVision Data Phone Simulator
  - a sample application
  - softcopy files of the NetVision Data Phone Product Reference and the NetVision Data Phone Web Client Administrator guides.

2.2 System Requirements

Confirm that the computer running NetVision Telephone Administrator meets the following minimum hardware and software requirements.

2.2.1 Hardware

- Pentium 233 MHz with 96MB RAM or higher
- CD-ROM drive
- monitor and video adapter capable of 256 colors and 800x600 resolution
- 9-pin serial cable (Part Number NVP-021, included with the NetVision Telephone Administrator Toolkit)
- Optional network interface for RF updates (Ethernet card and suitable Spectrum 24 connection).

2.2.2 Software

- Windows NT version 4.0 Server with Service Pack 3.
- NT Option pack 4.0. This includes *Internet Information Server 4.0 (IIS4)*.
- TCP/IP protocol installed and configured.
- Microsoft Internet Explorer version 4.0.
- Stop the FTP Publishing Service using the Services program in the Control Panel, and make its start-up parameter Manual.

2.3 Installing NetVision Telephone Administrator

To install NetVision Telephone Administrator:

1. Close any open windows on the Windows NT desktop.
2. Insert the NetVision Telephone Administrator CD-ROM into the computer CD-ROM drive.
3. Open the NVPADMIN folder on the CD using NT explorer.
4. Double-click the Setup icon. The install program displays Welcome to the NetVision Telephone Administrator Setup.
5. Click on Next. The utility installs with no additional user input. SETUP makes an entry in the *Start* Menu for the NetVision Telephone Administrator.
6. Click Finish.

2.4 Starting the NetVision Telephone Administrator

Ensure that IIS is properly configured and active. Start the NetVision Telephone Administrator by clicking the NVP Administrator 2.0 entry in the Programs submenu off the Start button.

Chapter 3 Configuring NetVision Telephones

3.1 Using NetVision Telephone Administrator

Use the NetVision Telephone Administrator (the Administrator) to define the NetVision Telephone initial configuration, to update the configuration and to download new firmware. The Administrator configures up to 25 phones at a time, building a *call list*. For Shared phones, these names also comprise a portion of the *log list*, a list of names with which users can log on to the phones.

Add names to the call list without adding to the log list. These names can represent other NetVision Data Phones, NetVision Phones, NetMeeting Phones, PBX extensions or outside phones.

Fill in all required and essential fields and click 

on each page. The Administrator does not build the proper configuration file when the clicking the browser 

and 

buttons after changing values in fields.

3.2 Preparation

Gather network-level and individual phone data and record it on the worksheet in the back of this book. Make copies of the worksheet as needed. The NetVision Telephone Administrator downloads these values with the configuration file.

3.2.1 Site Preparation

Before using the NetVision Telephone Administrator, use the following criteria to determine the configuration for the site.

Refer to Appendix A for detailed parameter descriptions.

Site Name. The NetVision Telephone Administrator uses the site name to name configuration files. Consider using different project names for different configuration needs.

Site Style. Select the site style: Shared or Personal. (See Chapter 1.)

ESS ID. Determine the Spectrum24 802.11 ID to which the NetVision Telephones attach.

Subnet Mask. Determine the subnet mask in use by the network.

Messaging. Determine the need for messaging for the site.

Router IP address. If the network has an IP gateway, put its IP address in the Router IP Address field.

POTS Gateway IP Address. The telephony gateway IP address.

Extensions. Determine whether the extensions needed for the NetVision Telephones are available on the PBX. Make sure that extension assignments to NetVision Telephones do not conflict with previously assigned extension assignments.

PBX Integration. System administrators can integrate the NetVision Telephone with a PBX by defining seven function keys with PBX features, such as:

- Call Forwarding
- Call Transfer
- Conference calling
- Call Park and un-Park.

When the user activates the function key on a NetVision Telephone, the phone generates the defined tone sequence. The phone sends the character sequence to the gateway and the gateway generates the DTMF signals.

Type a *Tone Character Sequence* for each function. Select up to 31 characters from this set:

0 1 2 3 4 5 6 7 8 9 # * ! , $] {string}
("!" represents a hook-flash
"," is a one-half second pause
"$" inserts the phone extension.
"]" represents the END key
"{string}" is used to set up a call.)

Some examples:

Key Sequence	Name	DTMF Characters	Description
FCT,1	transfer	!	This function definition sends a hookflash to the gateway.
FCT,2	Mgr Cell	{9},,5551212	This function dials 9 for an outside line, waits one second for a dial tone, then dials the number.
FCT,3	park	#8$]	This function dials the park function of a PBX, inserting the extension number of the phone and ends the call.

3.2.2 Individual Telephone Preparation

Each User Profile (for each phone) can contain different parameters. The system administrator sets site specific values for these parameters (the user cannot change these):

Extension. Extension number for each GW style NetVision Telephone within the range established above.

Telephony Style. The NetVision Telephone supports two service classes, peer-to-peer dialing and gateway dialing. The system administrator assigns the phones to one class or the other.

Names. The user names for the phones as defined in the Administrator.

IP Addresses. Each NetVision Telephone comes with default IP address for immediate use. When configuring the phones, assign each phone a unique IP address within the local subnetwork.

Intercom groups. Determine which phones need to belong to which intercom groups.

Phone menus. Determine which NetVision Data Phone users need access to the system and maintenance menus.

PIN. The four-digit personal identification number. Users key in PINs after selecting a user name from the log list. (The user presses Name to see list.)

User Options. The system administrator sets starting values for these phone settings (the user changes them to suit personal needs):

- Phone ring
- Phone answering mode
- Play volume (Earpiece Volume)
- Ring Volume
- Ring Style for Auto answer mode
- Ringing style for Intercom calls
- LCD contrast

Users can change these values on the phone.

3.3 Setting Parameters with NetVision Telephone Administrator

NetVision Telephone Administrator is a Web-browser-based application that creates configuration files for NetVision Telephones. The NetVision Telephone Administrator downloads the files to the NetVision Telephones.

1. Click the NVP Administrator 2.0-01 entry in the Start>>Programs submenu.

   The browser displays the Administrator Log-on page.

2. Type a site name in the Site Name field.

3. Click OK.

   The browser displays the Number of Phones & Site Style Definition page.

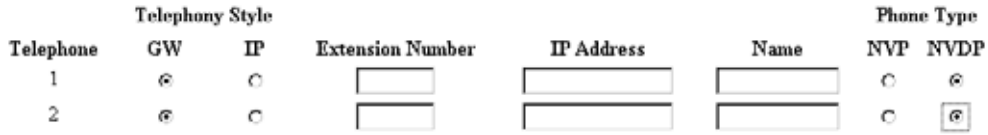
4. Type the number of NetVision Telephones in the Number of Symbol Phones field. Select either Shared or Personal style.

5. Click OK.

   The browser displays the NetVision Phone Book page.

6. Select the Telephony Style (IP or Gateway), type an extension for each Gateway phone, type a decimal (dotted) IP address, a user name and select NVDP for each data phone.

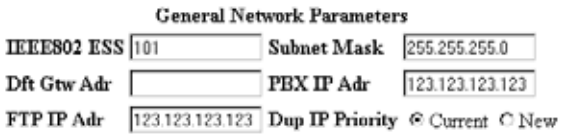


7. Click OK.

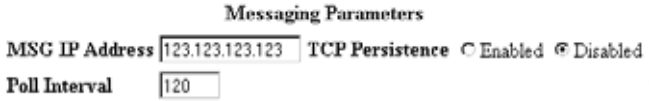
   The browser displays the Network Configuration page.

8. Type the Network:
   - ESS ID, the subnet mask
   - a router IP address
   - a telephone gateway IP address
   - FTP server IP address.
   - Duplicate IP address priority. Select Current to reject duplicate attempts to log on, and New for each new log on attempt to override previous logged on phones.

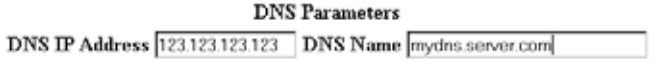
   The Administrator loads these parameters into each phone.



9. Specify the Messaging Settings.



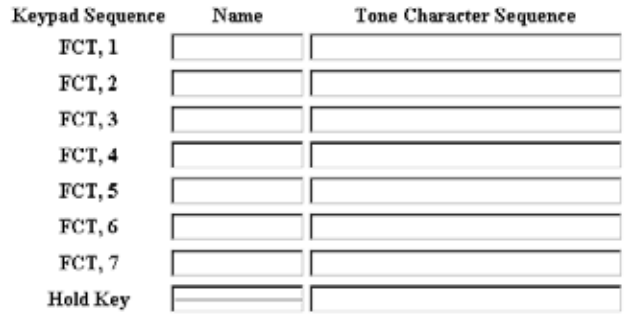
10. Specify the DNS IP address and the DNS domain name.



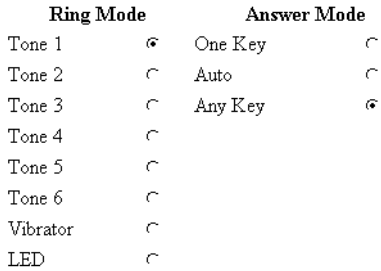
11. Click OK.

    The browser displays the Special Dialing Sequences page.

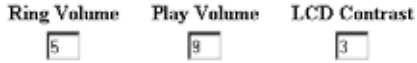
12. Type a function name and tone character sequence for each function.



13. Click OK.
    The browser displays the Default User Options page.
14. Select a Ring mode and an answer mode.

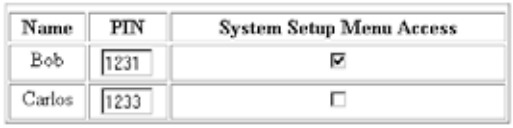


15. Specify:
    - a ring volume
    - a play volume (earpiece volume)
    - LCD contrast value.



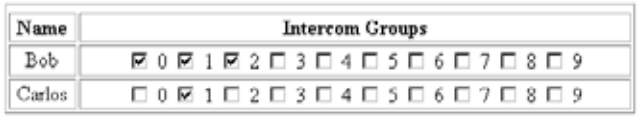
16. Click OK.
    The browser displays the PIN Definition and Phone Menu Access page.

17. Type a PIN for each phone and click the check box to grant menu access.



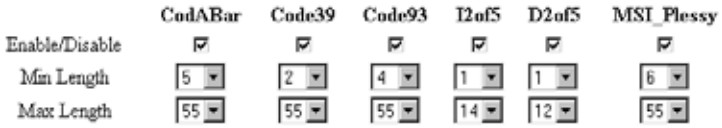
Name	PIN	System Setup Menu Access
Bob	1231	☑
Carlos	1233	☐

18. Click OK.
    The browser displays the Intercom Group Definition page.
19. Click on intercom groups for each name to assign phones to intercom groups.

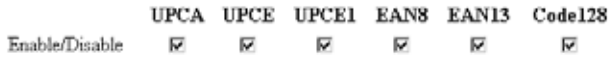


Name	Intercom Groups
Bob	☑ 0 ☑ 1 ☑ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9
Carlos	☐ 0 ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9

20. Click OK.
    The browser displays the Scanner Configuration page.
21. Select the scanner symbologies for the *symbology set* ((index symbology set)) and specify appropriate minimum and maximum lengths.



	CodABar	Code39	Code93	I2of5	D2of5	MSI_Plessy
Enable/Disable	☑	☑	☑	☑	☑	☑
Min Length	5	2	4	1	1	6
Max Length	55	55	55	14	12	55



	UPCA	UPCE	UPCE1	EAN8	EAN13	Code128
Enable/Disable	☑	☑	☑	☑	☑	☑

22. Click OK.
    The browser displays the Browser Configuration page.

23. Select the visible elements on the client page and specify the margin thickness.

24. Specify the proxy port number, proxy URL and home URL.

25. Click OK.
    The browser displays the More or Update page.

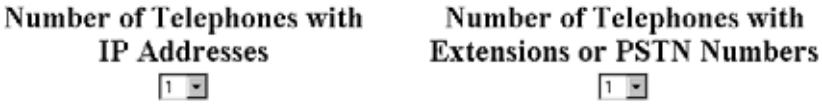
The configuration file is ready to load onto the phones. For the first download, use the serial cable download procedure.

The names defined in the configuration file are the names in the call list. To add other phones to the call list, go to Define Other Telephones, on the next page. To postpone adding more phones to the call list, go to Use Serial Cable to Download Configuration Files, on page 25.

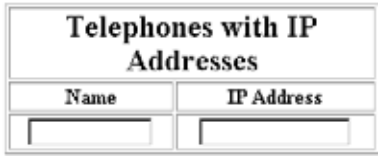
3.4 Define Other Telephones (optional)

If a site has some phones that NetVision Phone users need to reach, follow this procedure. (The Administrator does not add these phones to the log list.)

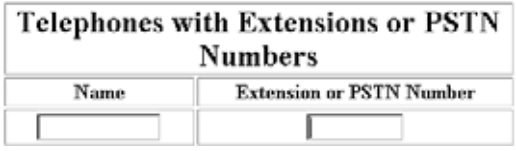
1. Click the Add Other Telephones link on the More or Update page.
   The browser displays the Number of Other Telephones page.
2. Select the number of IP telephones and the number of PBX extension or PSTN telephones.



3. Click OK.
   The browser displays the Names, Extensions and IP addresses for Other Telephones page.
4. Type names and IP addresses for other telephones (including NetVision telephones, NetMeeting and other IP phones, PBX extensions and PSTN numbers).



5. Type names and numbers for off-IP network phones.



6. Click OK.
   The browser displays the More or Update page.

3.5 Use Serial Cable to Download Configuration Files

Download NetVision Telephone configuration files using the 9-pin serial cable.

3.5.1 Preparation

Note

Fully charge the phone battery before beginning the instructions in this section.

Note

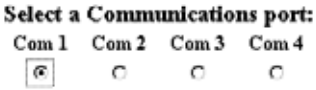
Navigate the NetVision Telephone Administrator up to the More or Update page before beginning this procedure.

- Connect the serial cable (included with the NetVision Telephone Toolkit) to the computer serial port and to the phone. Make sure the Com port is not in use.
- Turn on the NetVision Telephone. The phone shows the *Status* display.

3.5.2 Procedure

To download a configuration file:

1. On the Administrator More or Update page, click the Update the Configuration link.
   The browser displays the Download Configuration page.
2. Click the Serial Updates link to download the configuration file using the serial cable.
   The browser displays the File Selection for Xmodem Update page.
3. Select the communications port.



4. Select the phone to update.

Name	IP Address	Select
Bob	157.235.95.171	◉
Carlos	157.235.95.173	○

5. Click Start Xmodem File Transfer
   The phone receives the configuration information. When the transfer finishes, the NetVision Telephone Administrator displays the File Transfer OK message.

Note

Make sure the phone is not in power saving mode. If the backlight is off, press SND and Click Start Xmodem File Transfer.

6. Click Back on the browser to return to the Choose a NetVision Telephone for Configuration Update via Xmodem page.
7. Select additional phones (one phone at a time), and repeat steps 5 through 7.
8. Click OK after completing all transfers.
   The browser displays the Download Configuration page.

3.5.3 Troubleshooting

The Administrator displays this message when the transfer succeeds:

```
Xmodem file transfer results:
File transfer OK
```

When a transfer fails, use the following solutions to diagnose the problem.

Message:
```
Xmodem file transfer results:
File transfer failed (time-out)
```

Solution: Check the phone battery. Check cable connections.

Message:

```
Xmodem file transfer results:
Com n is not available.
```

Solution: The communications port is used by another program, is not on the computer (n is the communications port number). Terminate other programs; ensure that the selected communications port is a part of the computer.

3.6 Using FTP to Download Configuration Files

System administrators can download NetVision Telephone configuration data to phones by using the Spectrum24 wireless network. The administrator program contains an integrated FTP server. Only phones in the idle state (phones powered on and not in active conversations) can receive configuration files via this mechanism.

If planning to use FTP downloading, set the FTP IP address on the Network Configuration page and use the serial cable method for the first configuration download.

3.6.1 Preparation

Meet these requirements before continuing:

- Fully charge the phone battery.
- The NetVision Telephone IEEE 802.11 ESSID matches the Spectrum24 AP ESSID.
- Attach the NetVision Telephone Administrator PC to the same Spectrum24 network as the AP.
- Enter the phone IP address in the NetVision Telephone Administrator.
- The phone FTP server IP address is the NetVision Telephone Administrator PC IP address.

3.6.2 Procedure

To download the configuration data to the NetVision Telephones over the Spectrum24 wireless network:

1. Make sure to stop the FTP Publishing Service.
2. Start the NetVision Telephone Administrator and execute to the More or Update page. Click the Update the Configuration link.
   The browser displays the Download Configuration page.
3. Click the Wireless Updates link.
   The browser displays the Phone Selection for FTP Updates page.
4. Click SELECT ALL to select all the phones, or click CLEAR ALL to deselect all in preparation for selecting phones individually.

Name	IP Address	Select
boB	157.235.95.171	☑
Phil	157.235.95.172	☑
Dan	157.235.95.173	☑

5. Turn on the phones. For Shared phones, log on as a selected user.
6. Ensure that all the phones associate with an AP. (Phones in association display the word Idle.)
7. Click OK to begin the FTP file transfer.

3.6.3 Troubleshooting

The Administrator queries each phone and waits for a response. If it receives a response, it attempts a file transfer displaying this message:

```
Starting NetVision Phone Configuration updates.
```

When the transfer succeeds, the Administrator displays this message:

```
NetVision Phone @ 123.123.123.123: File Transfer OK.
```

When a transfer fails, the use the following solutions to diagnose the problem.

Message:

```
No Ping Response received from 123.123.123.123
```

Solution: No phone with the IP address is turned on. Make sure the phone is turned on and that it has the correct address.

Message:

```
NetVision Phone @ 123.123.123.123:
Time out waiting for accept
```

Solution: Valid phone found, but the FTP server address in contains is not the same as the server that tried to communicate with it. Fix the FTP IP address in phone using the Administrator Network Configuration page, using the serial cable method to download a new configuration file.

Message: `IP address is in use.`

Solution: Make sure that IIS FTP service is disabled.

If any other message is received, call Symbol Customer support.

3.7 Logon to the phone with Setup profile

The NetVision Data Phone system administrator uses the Setup user profile to set phone parameters. This profile accesses parameters that most user profiles cannot access. This profile cannot make or receive calls.

1. Press FCT, NAME. The phone displays the user profile directory.
2. Scroll the list using the scroll keys *< and #> or volume buttons and select the SETUP name.
3. Press SND to select a user profile.
4. Enter the PIN (8647) for the user profile and press SND to activate that profile. The phone shows the status display with the name Setup in the center of the top line.

3.8 Setting Parameters Manually

Configure the NetVision Telephone manually when only a few parameters need updating, or when the NetVision Telephone Administrator is not available.

Adjust the settings for the parameters listed in Appendix A to configure the phones using the telephone user interface and keypad. Use the example procedure below as a model for other parameters. Use the instructions in Appendix A to reset the NetVision Data Phone parameters to the original default values.

To access any parameter, select its *parameter group* from the System Setup menu. Some parameters accept keypad input for values while some other parameters take a value from a list.

3.8.1 Key in a Parameter

To key in data for a parameter, the NetVision Telephone automatically sets itself to the correct base input mode: character or numeric. For example, to enter the characters AB3 in the IEEE 802.11 ESS ID parameter (an alphanumeric parameter, base input mode alphabetic):

1. Log on to the phone using the Setup profile.
2. Press MENU.
3. Scroll the display with the *< and #> keys and select the System setup menu. The phone displays the System Setup menu.
4. Scroll the display and select the Network parameter group. The phone displays the *Network* menu.
5. Scroll the display and select the IEEE802 ESS item. The phone displays the current parameter value.
6. Clear the value, repeatedly pressing CLR as needed.
7. Press 2ABC once for A, pause; twice more for B, pause; three times more for C.
8. Press FCT to return to numeric mode.
9. Press 3DEF once.
10. Press SND to set parameter.

When entering data in telephone parameters, use FCT to shift between character and numeric input modes. When in character input mode, successively pressing a key wraps around the list of characters shown on the key beginning with upper case, continuing with the lower case. A pause greater than one second between key presses selects the character showing in the display. Some parameters have only one input mode. For these parameters, pressing FCT does not switch mode.

11. When satisfied that the value is correct, press SND. If the value is not correct use CLR to clear the value and re-key the value, or press END to cancel.

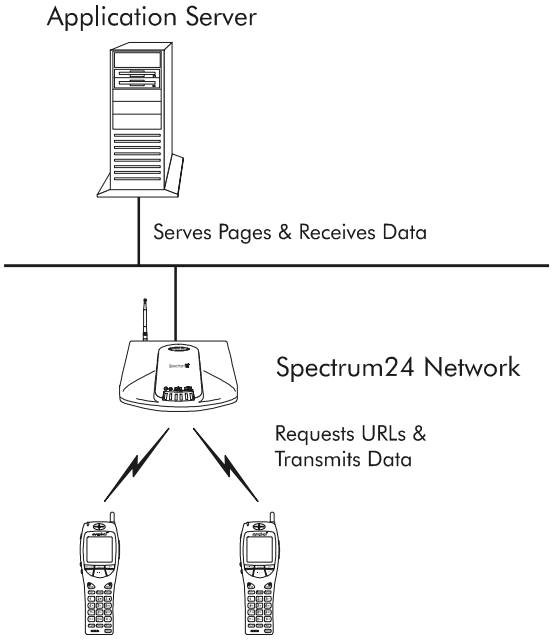
3.8.2 Select Parameter from a List

To select a value from a list, use the scroll keys to scroll through the list. Press SND to select the value showing in the display.

Chapter 4 NetVision Phone Web Client

4.1 Overview

The NetVision Data Phone Web Client runs on the phone, accessing the applications on the server and returning data to the server.



The Web Client is available before users log on to a Personal Data Phone. The Web Client is not available before users log on a Shared Data Phone. (A Personal phone has an IP address, where as the Shared phone does not.)

4.2 Entering data

The NetVision Data Phone facilitates entering data through the scanner and numeric keypad. Alphabetic data entry through the keypad is difficult.

NUMERIC Data: Enter numeric data using the keypad.

ASCII KEYS. Activate the keys in the table with the FCT key to enter ASCII character data. Press and hold the FCT key, press a keypad key to display a list of characters associated with that key, press the corresponding key.

Key	Characters associated with these keys:											
	1	2	3	4	5	6	7	8	9	*	0	#
1	Blank	.	/	|	:	_	+	-	=	?	<	>
2	A	B	C	a	b	c	À	Á	Â	Ã	Ä	Å
3	D	E	F	d	e	f	È	É	Ê	Ë	Ç	
4	G	H	I	g	h	i	Ì	Í	Î	Ï		
5	J	K	L	j	k	l						
6	M	N	O	m	n	o	Ñ	Ò	Ó	Ô	Õ	Ö
7	P	Q	R	S	p	q	r	s				
8	T	U	V	t	u	v	Ù	Ú	Û	Ü		
9	W	X	Y	Z	w	x	y	z	Ý	ý		
*	<	[	(	{	¼	½	¾					
0	?	¿	¢	£	¥	©	µ	Þ	ß	Æ	æ	
#	>	]	)	}								

For example, to enter the word “Phone,” follow these steps:

1. Press and hold FCT until step 7.
2. Press 7 to display list, press 1 for uppercase P.
3. Press 4 to display list, press 5 for lowercase h.
4. Press 6 to display list, press 6 for lowercase o.
5. Press 6 to display list, press 5 for lowercase n.
6. Press 3 to display list, press 5 for lowercase e.
7. Release FCT.

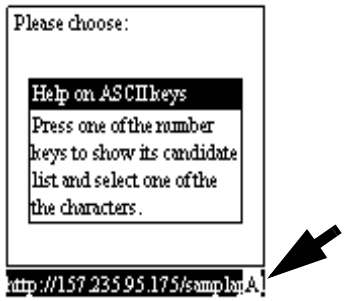
4.3 Scanning and browsing concepts

The Web Client maps the keypad to many common browser and field-level functions.

The table below lists the keys and the associated functions.

Key	Function Name of key	Status Indicator	Description
FCT	Help for ASCII keys	A	Enter non-numeric ASCII characters using phone keypad.
NAME	Help for Browser keys	B	Browser navigation/ command keys
STO	Help for Scroll keys	S	Page navigation control keys
RCL	Help for Edit keys	E	Field editing keys

The status indicator appears in the lower right corner of the Client page.



BROWSER KEYS:

Press and hold the NAME key to access the browser functions listed below:

Key	Meaning
<	Go backward (go to previous saved URL)
>	Go forward (go to next saved URL)
1	Hide/Show URL field
2	Go home (to home URL)
3	Stop (loading)
4	Reload current URL

Example: to force the client back to the home URL,

1. Press and hold NAME.
   The phone displays the browser functions available.
2. Press 2ABC.
3. Release NAME.
   The client displays the home URL page.

SCROLL KEYS

Press and hold the STO key to access the page movement functions listed below:

Key	Meaning
<	Page left. Scroll the page towards the left margin.
>	Page right. Scroll the page towards the right margin.
8	Page up. Scroll the page towards the top margin.
0	Page down. Scroll the page towards the bottom margin.
4	Line left. Scroll the page one column towards the left margin.
6	Line right. Scroll the page one column towards the right margin.
2	Line up. Scroll the page one line towards the top margin.
5	Line down. Scroll the page one line towards the bottom margin.

EDIT KEYS:

Press and hold the RCL key to access the field-editing functions listed below:

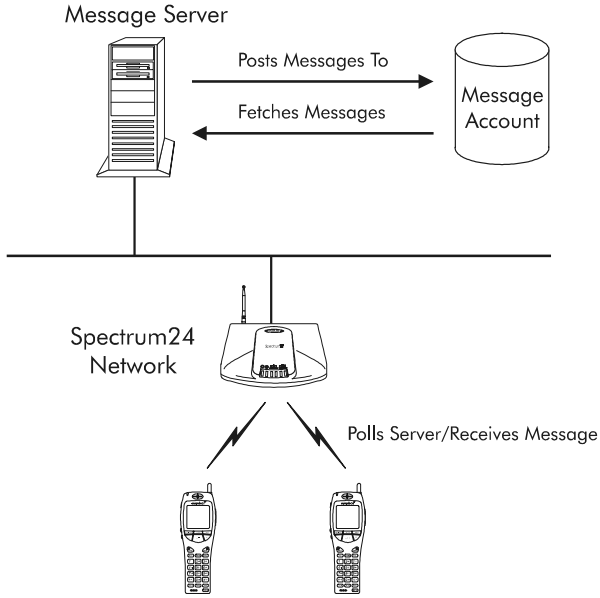
Key	Meaning
<	Cursor Left (do not use the previous key or volume increase button)
>	Cursor Right (do not use the next key or volume decrease button)
1	Cursor Home. Move cursor to beginning of field.
2	Cursor End. Move cursor to end of field.
3	Delete
4	Backspace
8	Cursor Up. In a multiline field moves cursor up one line.
0	Cursor Down In a multiline field moves cursor down one line.

Chapter 5 Text Messaging

5.1 Overview

The NetVision Data Phone provides a text messaging facility based on POP3 (Post Office Protocol, Version 3). Use it to provide text-based paging and messaging using an existing e-mail system. For an inactive phone that detects only one message, the phone retrieves it and displays it automatically.

Using any existing, POP3-compatible e-mail facility, set up accounts using the profile names and PINs established for the phones. As the system posts messages to the account, the phone picks them up as it periodically polls the e-mail server. When the phone finds a message, it alerts the user with a special tone (one longer and three short differently pitched beeps).



Limit the messages to no more than 240 characters. The phone does not split words, but divides the message into 12-character chunks, fitting whole words on a line in the phone display. Only text messages are supported (RFC 822, formatted MIME Version 1.0 with content-type of plain/text). The phone ignores other content types displaying the message:

`Message unreadable.`

Text messages can contain more characters but the phone discards the rest of the message when the message buffer is full (no more than what fits the display, up to 240 characters). The NetVision Phone messaging facility provides means to read and delete messages. Phone users cannot send messages from phones.

The user accesses the messaging facility via the FCT key. Pressing FCT, RCL (or selecting Messaging on the FCT menu list) brings up the phone messaging user interface. The user can perform this action at any time, including during a phone call. The NetVision Data Phone cannot retrieve messages from the client context. The NetVision Data Phone displays the number of messages waiting. If only one message is waiting, the phone displays it immediately. The user can read or delete messages.

5.2 Error messages

Several error conditions display messages:

If the NetVision Data Phone cannot connect with the message server, it displays:

`Server Error.`

If the server refused to accept either the user name or password, the NetVision Data Phone displays the message `User Name Error` or `Password Error` as appropriate.

Chapter 6 NetVision Phone System Information and Maintenance

The Setup user profile divides maintenance information into two groups: phone and network information and maintenance operations. View this information only with the Setup profile.

6.1 Phone and Network Information

6.1.1 System Info

View network parameters and variables in the `System Info` menu.

To view system information:

1. Logon using the Setup user profile (refer to Logon to the phone with Setup profile in Chapter 3).
2. Press MENU.
3. Scroll and select `Maintenance`. The phone displays the *Maintenance* menu.
4. Choose `System Info` from the *Maintenance* menu.
5. Press SND.

   Use the scroll *< and #>keys to view information such as:

Symbol	Meaning
MD	Model number
SR	Serial number
SW	Software version number
HW	Hardware version number
CC	Country code
MC	MAC address
ES	ESS ID
IP	Internet Protocol address

Symbol	Meaning
SU	Subnet mask
MD	Manufacture Date

6. Press END to return to *Maintenance* menu.

6.1.2 Network Info

This function lists the last known 12 APs. The phone marks the currently associated AP with *. The phone displays these two lines for each AP in this list:

```
*298b11 r257

M003 T00 c4
```

`298b11` are the lowest 24 bits of the MAC address of the associated AP.

`R257` indicates the latest RSSI measurement.

`M003` indicates the number of mobile units currently associated with the AP.

`T00` indicates the traffic level of the AP: 00 is lowest, 03 is the highest.

`C4` reserved for Symbol support.

6.1.3 User Profile

This information is for display only, reflecting the state of the currently logged on user.

User Name: The alphanumeric string identifying the logged in user name.

PIN: The four-digit number the user enters to log on to the phone.

Maint Acc: Indicates user access to the maintenance menu.

Setup Acc: Indicates user access to the setup menu.

UIMSG: Reserved for Symbol support.

Ext Dialing: Indicates user access to gateway dialing.

Name Dialing: Indicates user access to name dialing.

IP Dialing: Indicates user access to IP dialing.

DTMF Aval: Indicates user access to DTMF signaling, either out-of-band, or in-band.

GW Aval: Indicates user access to placing gateway calls.

Intercom Aval: Indicates user profile access to intercom calling.

Intercom: xxxx: Indicates (four-digit hexadecimal number) the intercom channels monitored by user profile. For example, if the profile monitors channels 0 and 1, the number displayed is 0003.

Channels	- - - -	- - 9 8	7 6 5 4	3 2 1 0
Bits	0 0 0 0	0 0 0 0	0 0 0 0	0 0 1 1
Phone display	0	0	0	3

6.2 Maintenance Operations

The procedure to perform maintenance functions is:

1. Logon using the Setup user profile. (Refer to Logon to the phone with Setup profile in Chapter 3.)
2. Press MENU.
3. Scroll and select Maintenance. The phone displays the *Maintenance* menu.
4. Scroll the list and select a function. Press SND. For example, for *Site Survey* the phone displays the message:

   ```
   Site Survey
   Proceed?
   ```

5. Press SND to start the function, press END to cancel.

6.2.1 Site Survey

This item performs a site survey using the *Survey Size* and *Survey Count* parameter values from the *Misc Items* submenu of the *System Setup* menu. A site survey tries to associate with an AP sending a packet on each attempt. This operation shows the ratio of successful tries to total tries. In the example below, 90 tries out of 100 were successful.

```
Site Survey
*0090/0100*
```

The survey runs to completion and users cannot stop it. Press END when the survey finishes to return to the *Maintenance* menu.

6.2.2 Reassociate

When the user selects this menu item the phone disassociates from its current AP and reassociates with the same or different AP. The NetVision Data Phone displays a message confirming the reassociation request before disassociating from its current AP.

```
Reassociate

Proceed?
```

6.2.3 Reset Unit

Selecting this menu item reboots the phone.

```
Reset Unit

Proceed?
```

6.2.4 Load Addrs

Reserved for Symbol Technologies service and support personnel.

6.2.5 Comprs Flsh

Selecting this menu item reorganizes the flash memory. The phone does this automatically as needed.

```
Comprs Flsh

Proceed?
```

6.3 IP Dialing (Peer-to-Peer Telephony)

Peer-to-peer telephony, or IP dialing, connects calls over the Spectrum24 network and does not involve a gateway or PBX. Peer-to-peer telephony does not support telephone system features such as transfer, conference calls, call forwarding and call park.

An IP address contains four octets separated by periods. Each octet contains up to three decimal digits, ranging from 0 to 255.

For example, to call another NetVision Data Phone in the same network:

1. Press the * key. The phone changes its display to:

   ```
   Enter IPAdr
   ```

2. Dial the IP address of another NetVision Telephone. Use the * key for the period. Use complete octets.

   An IP address contains 4 parts called octets, separated by periods. For example, if a phone with IP address 123.123.123.123 calls a phone with IP address 123.123.123.124, dial *124.

3. Press SND.

The phone displays the full IP address of the called phone:

```
Calling
          123
```

For phones on different subnets, dial all or part of the IP address.
Use the * key as decimal point to separate the octets. The IP traffic goes through the default gateway (router) IP address specified in the NetVision Data Phone.

Chapter 7 Updating Telephone Firmware

7.1 Updating Telephone

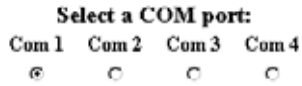
The NetVision Telephone Administrator contains a function to update the phone firmware. Contact Symbol customer support to obtain updated firmware.

Perform firmware upgrades using the serial cable.

Put the firmware file in the *nvproot\phonefw* directory on the NetVision Telephone Administrator PC.

To upgrade the firmware:

1. Attach the serial cable to the serial ports on the server and the phone.
2. On the Administrator Logon page, click Update Phone Firmware . The Administrator lists all the files in the \NVPROOT\PHONEFW directory on the Update the NetVision Telephone Firmware page.
3. Select the file for the update process.
4. Click OK. The NetVision Telephone Administrator displays the Xmodem Firmware Serial Transfer page.
5. Select the COM port.



6. Logon to the phone using the Setup user profile. (Refer to Logon to the phone with Setup profile in Chapter 3.)
7. Press MENU key on phone.
8. Choose *System setup* with scroll keys *< and #>.

9. Press SND. The phone displays the *System setup* menu.
10. Scroll to *Update Cfg* with scroll keys *< and #>. Press SND. The phone displays the *Update Cfg* menu.
11. Scroll down to the *Sftw update* item. Press SND. The phone displays:

    ```
    Sftw Update

    Proceed?
    ```

12. To make sure the phone is not in power saving mode (the backlight is on), press SND.
13. While the backlight is on, click 

on the Administrator.

    This process takes about 90 seconds. After the transfer completes successfully, the NetVision Telephone Administrator displays the message:

    ```
    Sending \nvproot\phonefw\ffxxxxx.bin on COM n
    Xmodem File Transfer Results:
    File transfer OK
    ```

    Where n is 1 or 2 and ffxxxxx.bin is the file name.

Reload the configuration file after upgrading the firmware.

7.2 Troubleshooting

Symptom. When the transfer fails, the NetVision Telephone Administrator displays the message:

```
File transfer failed (time-out)
```

Solution:

1. Ensure the cable is attached to the server and the phone.
2. Reset the NetVision Telephone Administrator to the *Xmodem Firmware Serial Transfer* page and log on to the phone using the Setup profile and retry.

Symptom: If the Administrator cannot find the communications port, the NetVision Telephone Administrator displays the message:

```
Com n not available
```

where n is the communications port number.

Solution:

1. Verify that the cable is attached to this port.
2. Reset the NetVision Telephone Administrator to the *Xmodem Firmware Serial Transfer* page and log on to the phone using the Setup profile and retry.

Appendix A

Phone Maintenance

A.1 How to reset the Phone default settings

To reset all the parameters to the factory defaults:

1. Logon with the Setup user profile.
2. Press the MENU key. The phone displays the Main menu.
3. Use the *< and #> keys to scroll through the items.
4. Select `System Setup` and press SND. The phone displays the *System Setup* menu.
5. Scroll the list and select the `Update Cfg` parameter group. The phone displays the *Update Cfg* menu.
6. Scroll the list and select the `Default Cfg` function.
7. Press SND. The phone displays the prompt:

   ```
   Default Cfg

   Proceed?
   ```

8. Press SND to reset all parameters to defaults. Press END to cancel.

This action resets the network and user variables and clears the speed dial list. The phone cannot make or receive calls after this action.

A.2 Preprogrammed Functions

The phone contains several preprogrammed functions. Access each from the FCT list. Certain functions are available only in the Setup profile.

Call Block. Use this function to block all incoming calls.

Volume. Use this function to adjust the volume setting during a call. This function adjusts the permanent volume same as the User Option, Play Volume.

Network. This function momentarily displays the ESS ID, the AP with which the phone is associated and the RSSI value.

```
ES:10A

AP:1231AB

RS:251
```

Mute. This function mutes the microphone during a call.

Logon. This function displays the names.

Messaging. This function invokes the messaging feature of the NetVision Phone.

Roam Info. Available only in the setup profile. This feature notifies the user with a short vibration that the phone has roamed to a different AP. Use only for diagnostic purposes. When this feature is on, the phone displays an * in the upper right corner.

Constant Tone. Available only in the setup profile. Delivers a constant tone over the network to the called phone during a call. Use only for diagnostic purposes. In this mode the microphone is muted. Hanging up turns off this function. When this feature is on, the phone displays a + in the upper left corner.

A.3 Phone Parameter Defaults.

Parameter Group	Parameter	Description	Default
Network Parameters	IEEE802 ESS	A 32-character ASCII value representing the ESSID for the 802.11 Spectrum24 network.	101
	IP Address	The IP address assigned to the phone.	Varies from phone to phone
	Subnet Mask	The subnetwork mask.	255.0.0.0
	Dft Gtw Adr	The IP address the phone uses to call phones on a different subnetwork.	None
	PBX IP Adr	The "Plain Old Telephone System" gateway IP address.	10.0.0.2
	FTP IP Adr	The IP address of the network computer that serves as the NetVision Phone Administrator host.	None
	MobIP Enable	Enables or disables mobile IP operations.	Disabled
	HA IP Adr	Contains the IP address of the UAP serving as the mobile IP home agent for this phone.	0.0.0.0
	Rem Dup IP	Sets handling for duplicate login attempts in a Shared site. Disabled rejects subsequent login attempts; Enables removes previous login attempts.	Enabled

Parameter Group	Parameter	Description	Default
Phone Parameters	Intercom	Sets intercom participation. Set to Enabled to participate in intercom sessions. Set to Disabled to use the * key as a PBX tone.	Enabled
	Exten chk	To disable gateway telephony. Disable this parameter to use the # key as a PBX tone.	Disabled
Messaging	Messaging	Use to enable or disable messaging for the phone.	Disabled
	POP3 IP Adr	Contains the IP address of the server that provides email for the phone.	0.0.0.0
	Persistence	Use to enable TCP/IP connection persistence	Enabled
	Poll interval	The interval at which the phone polls the message server.	60 seconds
Serial Port Setup Parameters	Mode	Sets serial port mode. Set to *UI In* for input only. Set to *UI Out* for output only. Set to *UI All* for both input and output. Set to *None* to prevent serial port use.	UI In

Parameter Group	Parameter	Description	Default
Update Configuration parameters and functions	Xmodem Cfg	A function used to transfer a configuration file.	N/A
	Network Cfg	A function used to download configuration files via FTP transfer.	N/A
	Cfg Filename	16-character ASCII string representing the name of the configuration file.	Phonecfg.txt
	Username	16-character ASCII string representing the FTP server name.	Symbol
	Password	16-character ASCII string representing the FTP server password.	Symbol
	Default Cfg	A function used to reset the phone parameters to original default values.	N/A
	Sftw Update	A function used to update the telephone firmware.	N/A

Parameter Group	Parameter	Description	Default
Miscellaneous Parameters	Power Mgmt	When set to Enabled, the phone conserves battery life.	Enabled
	PSP Delay	The time in seconds until the phone powers down. In this sleep state, any incoming call wakes up the phone.	8 seconds
	LED Timeout	Time in seconds until keypad illumination times out.	4 seconds
	Survey size	The packet size the phone sends out during site survey.	150 bytes
	Survey count	The number of packets the phone sends out during site survey.	100 attempts
	User Warnings	Sets user out of range warning. Set to Enabled to warn user that the phone is out-of-range.	Enabled
	User Profiles	Sets secure user access. Set to Enabled to require a PIN to access advanced features. If Disabled, all menus are available to the phone user without a PIN.	Enabled
	Address Mode	Use to set the phone address to static or selectable.	Static
	NA Poff Tm	Sets the seconds the phone remains on when it is not associated. When set to zero, the phone stays on trying to associate with an AP. The phone sounds a five-second tone when it powers off.	60
	PBX Hold	Use to enable PBX hold function.	Disabled
	WebClnt PwUp	Specifies whether the phone displays its status web client comes up automatically at startup time.	Disabled

Appendix B

Browser and Scanner Settings

B.1 Browser Parameters

The NetVision Telephone Administrator sets the browser parameters.

Display Settings				
Horizontal Scrollbar	Vertical Scrollbar	URL Visible	Show Images	Margin Thickness
☐	☐	☐	☐	1

URL Settings		
Home URL	Proxy URL	Proxy Port
http://123.123.123.123/samplappl/retail		

B.2 Scanner Parameters

The NetVision Telephone Administrator sets the scanner parameters.

	CodABar	Code39	Code93	I2of5	D2of5	MSI_Plessy
Enable/Disable	☑	☑	☑	☑	☑	☑
Min Length	5	2	4	1	1	6
Max Length	55	55	55	14	12	55

	UPCA	UPCE	UPCE1	EAN8	EAN13	Code128
Enable/Disable	☑	☑	☑	☑	☑	☑

Appendix C

Gateways Supporting the NetVision Phone

C.1 Cisco/Selsius Gateways

Symbol offers the compete Cisco/Selsius analog gateway providing eight analog ports to the phone system (AT-8 hardware) and the gatekeeper software (CallManager). The system requires NT Server 4.0 or later.

To purchase a gateway from Symbol, use part number: PGW-SSAT-0008-0.

In the U.S. and Canada, contact Symbol at: www.symbol.com. In Europe, Contact Cisco.

For technical information about the gateway, refer to: www.selsius.com

C.2 Cisco Routers

Models 3620, 3640, 2620 routers. These routers can be equipped with analog voice hardware and enhanced Cisco IOS version 12.5 or later software.

Contact Cisco directly: www.cisco.com

C.3 Ericsson WebSwitch 1608

Formerly the TouchWave 1608 WebSwitch, this eight-port, analog gateway can optionally support 16 analog phones. It is approved for the U.S., Canada and Europe.

Contact TouchWave at:
1931 Old Middlefield Way
Mountain View, CA 94043
www.touchwave.com

C.4 InVADE Virtual PBX

ISDN, T1/E1 gateways for European telephone companies.

Contact InVADE directly:
www.invade.net
InVADE Virtual PBX, Ltd.
London, UK, 011-44-1715750048

C.5 TEDAS SBX

Software PBX running on NT server for h.323 phones including NetVision Phones desktop wired H.323 phones and applications running over H.323.Connects to European PBX using multi-BRI (S0) station ports. Scheduled to be stocked by Symbol third quarter 1999.

Contact TEDAS at:
+49-6421-581-210
www.tedas.de

Appendix D
Technical Data

Performance Characteristics

Phone Protocol. ITU H.323 version 1 compliant; interoperable with Intel® Proshare® and Microsoft® NetMeeting®.

Voice Compression. G.711 υlaw. 64Kb, G.729A 8.0Kb, True Speech 8.5Kb.

Web Client. Supports HTML 3.2 and HTTP 1.1; configurable toolbar layout and buttons; standard GIF file format for images and animation; proxy server and firewall support.

Call Answer Time. Five seconds minimum, ten maximum.

Codec. 8000 samples/sec., 8 bits/sample (υlaw compounding).

Voice Packet Size. 30 to 480 bytes/packet, 20 to 60ms/packet.

Response Time to Page. ten seconds average; fifteen seconds maximum.

Battery. 7.2 volts rechargeable; Lithium ion.

Battery Life. 150 minutes (2.5 hour) talk time, 24 hours of standby operation per charge.

Battery meter.

Network Characteristics

RF Data Communications. TCP/IP; supports IEEE 802.11 protocols.

Wireless Access Protocol. CSMA/CA.

Frequency Range. 2.4 - 2.485 GHz.

Number of Hops. 79.

Hopping Rate. 10 hops/second.

Hopping Sequences. 66.

Data Rate. 1 Mbps.

Wireless Output Power. 100 mW.

Range. 1,000+ ft./300+ meters.

Physical Characteristics

Dimensions. 1" x 2" x 6"/2.54 cm x 5.08 cm x 15.24 cm.

Weight. 8 oz./227 gm.

Display. LCD: 16 line, 12 characters.

Buttons. 0-9, *, #, Clear, Store, Recall, Hold, Previous, Scan, Next, End, Function, Name, Menu, Send; Alpha keys accessed via Function key.

Notification. Ringer/Vibration/LED.

Ports. 1 serial.

Scanner Characteristics

Light Source. Visible Laser Diode at 650 nm.

Laser Class. CDRH Class II, IEC 825 Class 2.

Scan Angle. 53° nominal.

Scan Rate. 36±3 scans per second.

Minimum Print Contrast. 25% absolute dark/light reflectance at 650 nm.

User Environment

Drop Specification. 3.3 ft./1 meter to tile.

Temperature. -30°C to 60°C/-22°F to 140°F.

Appendix E

Customer Support

Symbol Technologies provides its customers with prompt and accurate customer support. Use the Symbol Support Center as the primary contact for any technical problem, question or support issue involving Symbol products.

If the Symbol Customer Support specialists cannot solve a problem, access to all technical disciplines within Symbol becomes available for further assistance and support. Symbol Customer Support responds to calls by email, telephone or fax within the time limits set forth in individual contractual agreements.

When contacting Symbol Customer Support, please provide the following information:

- serial number of unit
- model number or product name
- software type and version number
- Gateway vendor and model number
- PBX vendor and model number.

North American Contacts

Inside North America, contact Symbol by:

- Symbol Technologies, Inc.
  One Symbol Plaza
  Holtsville, New York 11742-1300
  Telephone: 1-516-738-2400/1-800-SCAN 234
  Fax: 1-516-738-5990
- Symbol Support Center:
  - telephone: 1-800-653-5350
  - fax: (516) 563-5410
  - Email: support@symbol.com

International Contacts

Outside North America, contact Symbol by:

- Symbol Technologies Technical Support
  12 Oaklands Park
  Berkshire, RG41 2FD, United Kingdom
  Tel: 011-44-118-945-7000 or 1-516-738-2400
  ext. 6213

Additional Information

Obtain additional information by contacting Symbol at:

- 1-800-722-6234, inside North America
- +1-516-738-5200, in/outside North America
- http://www.symbol.com

Appendix F

Regulatory Compliance

To comply with U.S. and international regulatory requirements, the following information has been included. The document applies to the complete line of Symbol products. Some of the labels shown, and statements applicable to other devices might not apply to all products.

Radio Frequency Interference Requirements

This device has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the Federal Communications Commissions Rules and Regulation. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

However, there is no guarantee that interference will not occur in a particular installation. If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Radio Frequency Interference Requirements - Canada

This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

CE Marking & European Union Compliance

Products intended for sale within the European Union are marked with the CEMark which indicates compliance to applicable Directives and European Normes (EN), as follows. Amendments to these Directives or ENs are included: Normes (EN), as follows.

Applicable Directives:

- Electromagnetic Compatibility Directive 89/336/EEC
- Low Voltage Directive 73/23/EECApplicable Standards:
- EN 55 022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information technology Equipment
- EN 50 082-1 - Electromagnetic Compatibility - Generic Immunity Standard, Part 1: Residential, commercial, Light Industry
- IEC 801.2 - Electromagnetic Compatibility for Industrial Process Measurement and Control Equipment Part 2: Electrostatic Discharge Requirements
- IEC 801.3 - Electromagnetic Compatibility for Industrial Process Measurement and Control Equipment Part 3: Radiated Electromagnetic Field Requirements
- IEC 801.4 - Electromagnetic Compatibility for Industrial Process Measurement and Control Equipment Part 4: Electrical Fast Transients Requirements
- EN 60 950 + Amd 1 + Amd 2 - Safety of Information Technology Equipment Including Electrical Business Equipment
- EN 60 825-1 (EN 60 825) - Safety of Devices Containing Lasers

RF Devices

Symbol's RF products are designed to be compliant with the rules and regulations in the locations into which they are sold and will be labeled as required. The majority of Symbol's RF devices are type approved and do not require the user to obtain license or authorization before using the equipment. Any changes or modifications to Symbol Technologies equipment not expressly approved by Symbol Technologies could void the user's authority to operate the equipment.

Laser Devices

Symbol products using lasers comply with US 21CFR1040.10, Subchapter J and IEC825/EN 60 825 (or IEC825-1/EN 60 825-1, depending on the date of manufacture). The laser classification is marked one of the labels on the product.

Class 1 Laser devices are not considered to be hazardous when used for their intended purpose. The following statement is required to comply with US and international regulations:

Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous visible or invisible laser light exposure.

Class 2 laser scanners use a low power, visible light diode. As with any very bright light source, such as the sun, the user should avoid staring directly into the light beam. Momentary exposure to a Class 2 laser is not known to be harmful.

Appendix G Phone Configuration Worksheet

Use this worksheet to organize local network information.

Site Name	_____	Site Style	_____
ESS ID	_____	Subnet Mask	_____
Router IP Address	_____	PBX IP address	_____
FTP IP Address	_____	Message Server IP address	_____
DNS IP Address	_____	DNS Name	_____

Use this worksheet to organize configuration information.

IP Address	Extension	Profile name	PIN	Dialing Scheme	Intercom groups	Messaging

Use this worksheet to define PBX features for the NetVision Data Phone.

Phone Function Key	Name of function	Character Sequence
FCT,1		
FCT,2		
FCT,3		
FCT,4		
FCT,5		
FCT,6		
FCT,7		
HOLD	NOT APPLICABLE	

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