The following is a draft User Manual with operational instructions. Any reference to “Frequency Hopping” should read “Direct Sequencing”. A final copy of the User Manual will be sent to the FCC as soon as it is available.

>> Falcon RF™

DOS PORTABLE DATA TERMINAL

Lucent WaveLAN® Wireless LAN Supplement

PERCON

Percon Falcon RF™: Lucent WaveLAN®
Wireless LAN Supplement
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Contents

Chapter Three:
Wireless Topologies and Site Surveys 23

Introduction

This manual contains information specific to radio frequency (RF) models of the Falcon DOS portable data terminal using the WaveLAN wireless LAN PC Card. It is provided as a supplement to the *Falcon User's Guide.* The user's guide contains important information about using the Falcon, along with bar codes for setting programming parameters.

Please read the *Falcon Users Guide* to familiarize yourself with the Falcon's operation before reading this manual or using the Falcon.

>> FCC Requirements

This device must operate in compliance with Federal Communications Commission (FCC) Rules and Regulations Parts 15.

This equipment has been tested and found to comply with the limits for Class A or Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions in this 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 or her own expense.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, as 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:

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

>> Chapter One

About Falcon RF with the WaveLAN Wireless LAN PC Card

With Lucent's WaveLAN wireless LAN, a Falcon RF user can roam freely throughout a facility. A PC card and one or more access points allow the Falcon RF to maintain a continuous, seamless connection to a wired network.

This chapter provides an overview of the WaveLAN wireless LAN PC card (Percon part no. 0840-0011-00) and its use with the Falcon.

NOTE: *For information about* WaveLAN *access points, see the user's guide provided by Lucent Technologies Inc.*

CHAPTER CONTENTS

>> *WaveLAN*

The WaveLAN PC card is a long-range, high-performance, one-piece wireless LAN adapter. When used with Falcon RF units, the WaveLAN's frequency-hopping, spread-spectrum technology provides the following benefits:

- ❑ Seamless, full roaming mobility within a facility while staying connected to the LAN
- ❑ Low power consumption
- ❑ High throughput capacity
- ❑ High network capacity
- ❑ A 2-Mbps data rate, for fast operation
- ❑ Configurable radio settings
- ❑ Standard NDIS (Network Driver Interface Specification) and ODI (Open Data-link Interface) drivers for DOS
- ❑ Support for Socket Services v2.0 and Card Services v2.1

The WaveLAN wireless LAN PC card allows a *mobile unit (MU)* to connect to the WaveLAN network through *access points (APs)*.

With a WaveLAN PC card installed in a Falcon, the Falcon becomes a mobile unit associated with WaveLAN APs in a given domain. The Falcon appears as a peer to other MUs on the network. The PC card offers high-level performance while making low power demands on the portable.

>> *Network Operating System Support*

Falcon's open architecture design allows for connectivity to many network operating systems. Using the standard NDIS and ODI drivers provided on the Falcon RF utilities disk, the developer can load a wide variety of protocol stacks on the Falcon RF. The software provided on the RF utilities disk includes support for the following network operating systems:

- ❑ Novell NetWare v3.*x* or v4.*x,* through Novell IPX/SPX Protocol v3.01, Novell VLM (Virtual Loadable Module Manager) v1.20, and Novell TCP/IP Transport v5.0
- ❑ Windows for Workgroups v3.11, through NDIS drivers and customer-provided NetBEUI drivers

- ❑ Windows NT, through NDIS drivers and customer-provided NetBEUI drivers
- ❑ TCP/IP-based networks, through Novell TCP/IP Transport v5.0
- ❑ TCP/IP-based networks, through ODI and NDIS packet driver shims and a customer-provided TCP/IP stack
- ❑ Others using NDIS or ODI

Novell IPX/SPX Protocol, Novell VLM, Novell TCP/IP, the ODI packet driver shim, and the NDIS packet driver shim are all included in the RF utilities disk for Falcon.

>> Power Management

When operating in a Falcon unit, the WaveLAN wireless LAN PC card reduces power usage by suspending communication while the associated AP saves data for the Falcon. The Falcon wakes at given intervals and checks for messages from the AP.

>> Attaching the Antenna Connector

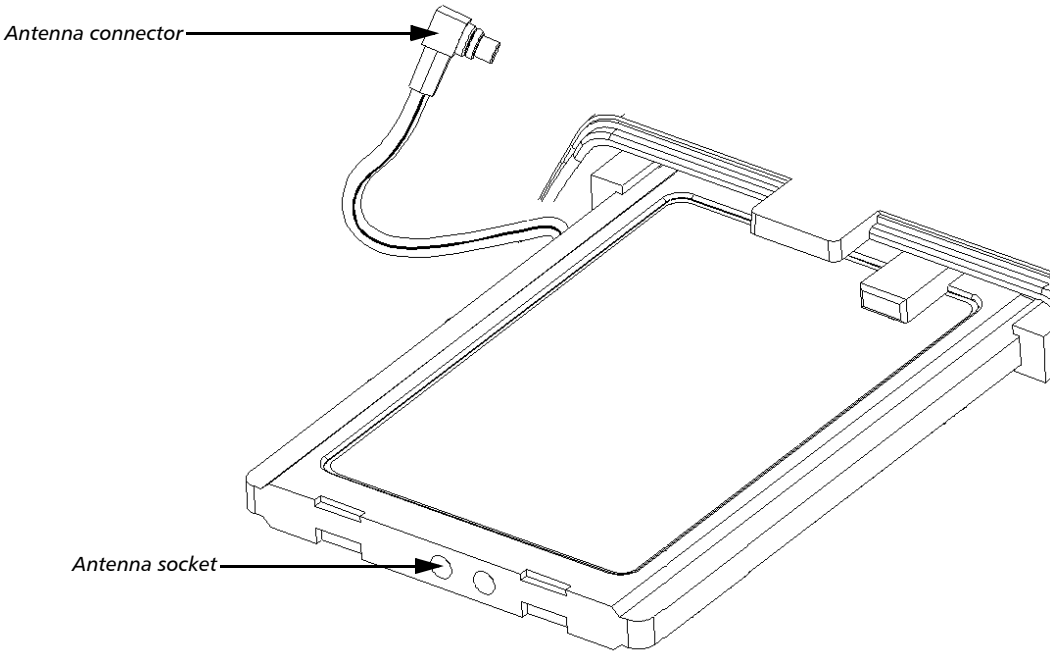
NOTE: *If your Falcon's PC card is already installed, go on to the next chapter.*

The Lucent WaveLAN PC card is certified for use only with the following antennas:

- ❑ Huber + Suhner dipole (Percon part no. 8912-0057-00)
- ❑ Toko Internal antenna (Percon part no. 5501-9245-00)
- ❑ Cushcraft dipole (Cushcraft part no. RTN2400SXR)

Open the PC card slot on your Falcon and insert the WaveLAN PC card as instructed in the user's guide for the Falcon. Insert the antenna connector into the correct socket on the WaveLAN card (see figure 1-1). Then replace the PC card slot cover on the Falcon.

Figure 1-1: Connecting the Antenna to the PC Card



NOTE: *Be sure to insert the connector into the correct socket, as shown in the figure.*

>> Chapter Two

Configuring the Falcon RF

After installing the WaveLAN LAN PC card (see the user's guide for your Falcon model), you must configure the Falcon to use the card. This is accomplished with the Falcon Configuration Utility. Use of the utility is covered in the *Falcon User's Guide.*

This chapter contains configuration information specific to the use of the Lucent WaveLAN wireless LAN PC card.

CHAPTER CONTENTS

>> Getting Started

The Falcon Configuration Utility is provided with every Falcon unit, including the RF models. If you have not already installed it on your PC, install the utility now following the directions in the *Falcon User's Guide.*

The documentation set for Falcon RF includes an RF utilities disk. After installing the Falcon Configuration Utility, run the **SETUP.EXE** program on the utilities disk. Complete the setup procedure to install the drivers and other files required for RF operation onto your PC.

NOTE: *For complete information about the Falcon Configuration Utility, see the* Falcon User's Guide.

>> Installing ODI Drivers

The Falcon RF installation package includes *open data-link interface (ODI)* drivers for TCP/IP, IPX/SPX, NetWare Client, and custom installations.

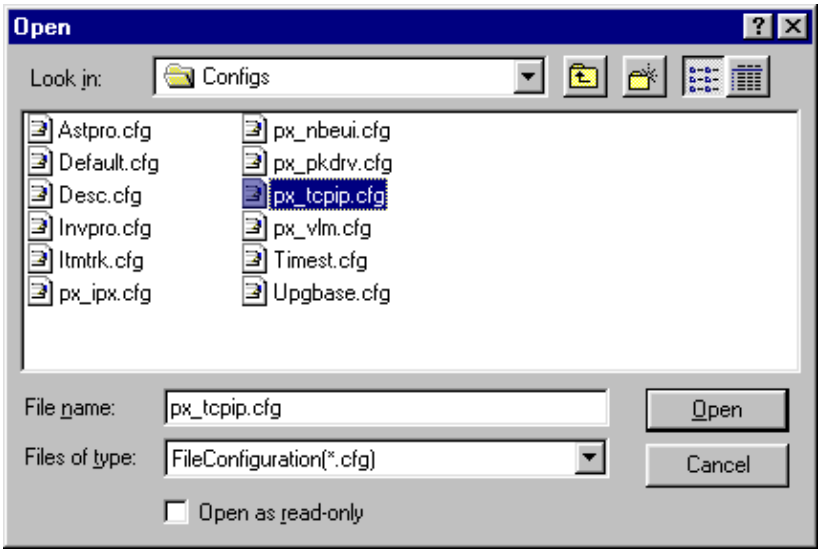
- ❑ For TCP/IP, the package provides software from Novell. Novell's TCP/IP stack runs on top of the ODI driver.
- ❑ For NetWare Client, Novell's **NETX.EXE** and **VLM.EXE** programs use the IPX/SPX protocol stack, which runs on top of the ODI driver. These applications allow the user to run Novell client/server applications; to mount drives, printers, and other hardware; and to treat the Falcon RF as if it were a client on a Novell network.
- ❑ For other IPX/SPX solutions, the package provides software from Novell. Novell's IPX/SPX stack runs on top of the ODI driver.
- ❑ For other software implementations, you can customize one of the provided configurations.

ODI with TCP/IP

Complete the following steps to install the ODI drivers for TCP/IP:

1. Start the Falcon Configuration Utility by double-clicking on the Falcon icon in the Falcon Configuration Utility group on your PC.
2. From the Main Menu, select the **Custom** button.
3. An Open dialog box will appear (see figure 2-1). Select the **PX_TCPIP.CFG** configuration file. In the next Open dialog box, select a program-settings file. (If you do not have a specific one that you want to use, select **DEFAULT.PRS**.)

Figure 2-1: The Open Dialog Box for Selecting a Configuration File

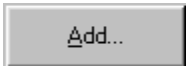


The following files are included automatically as part of the NetWare Client download:

- **WAVECAD.SYS** - WaveLAN card access driver
- **LSL.COM** - Link support layer driver
- **NET.CFG** - ODI configuration file
- **WVLAN43.COM** - WaveLAN ODI driver
- **TCPIP.EXE** - TCP/IP protocol driver

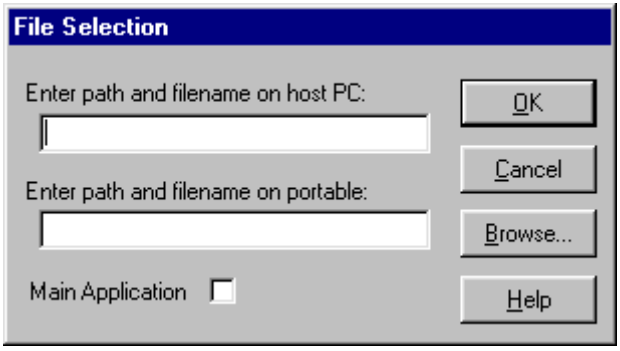
You need to select your Falcon application and related files.

4. Select the **File Configuration** button in the Custom Configuration menu.



5. Select the **Add** button, and use the File Selection dialog box (see figure 2-2) to include the main application and additional files in your custom installation. Be sure to turn on the **Main Application** switch for the one you want the Falcon to use.

Figure 2-2: The File Selection Dialog Box for Adding an Application File

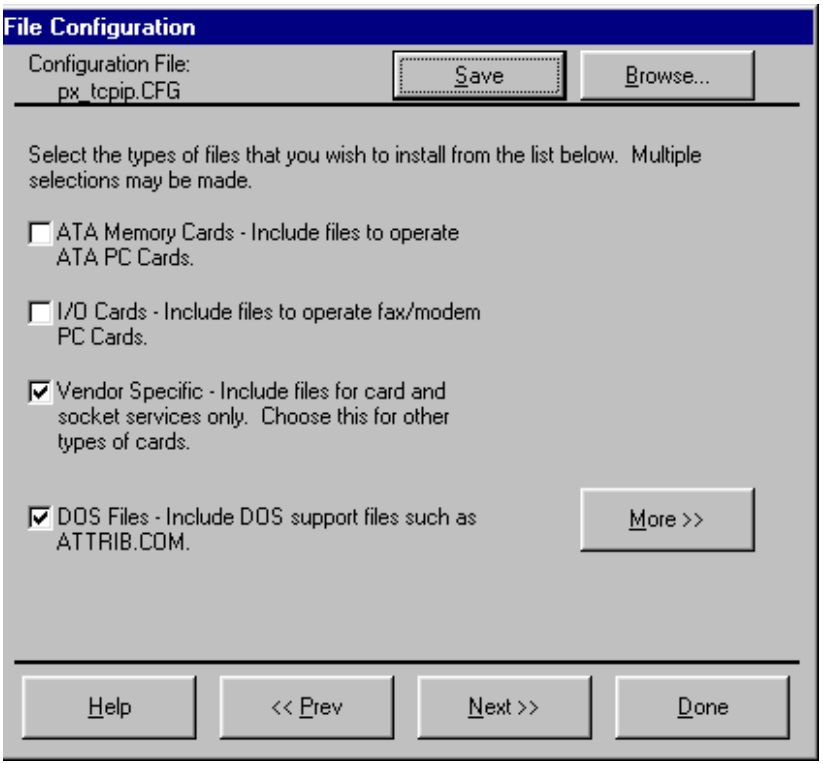


REMINDER: *See the* Falcon User's Guide *for complete information on using the menus and dialog boxes in the Falcon Configuration Utility.*

6. Select the **Next** button at the bottom of the File Configuration window.
7. In the second File Configuration window, make sure the **Vendor Specific** option is selected (see figure 2-3). This option identifies which Phoenix drivers to download.

   NOTE: *The I/O-card drivers are not compatible with WaveLAN's client driver. Do not select the* **I/O Cards** *options when using RF.*

Figure 2-3: The Second File Configuration Window



8. Select the **More** button to verify that the DOS files you need are included in the download. After viewing the file list and making any necessary changes, return to the File Configuration window.
9. Select the **NEXT** button to move to the third File Configuration window.
10. If you want to include commands to be executed in the **AUTOEXEC.BAT** file, select the **AUTOEXEC.BAT** button. Enter the commands, and save the revised file before exiting from the text editor.

    NOTE: *Verify that the drive and directories of any drivers loaded in the* **AUTOEXEC.BAT** *file are correct. The default* **PX_TCPIP.CFG** *file assumes these drivers will go to a specific location on the Falcon. If you change the destination directory on the Falcon for these files, be sure to change them here, too. The file that you selected as the main application will automatically be appended to the* **AUTOEXEC.BAT** *file before it is downloaded to the Falcon.*

11. If you want to make changes to the CONFIG.SYS file, select the **CONFIG.SYS** button.

    NOTE: *Certain default configuration parameters and card and socket services drivers will automatically be included at the beginning of the* CONFIG.SYS *file before it is downloaded to the Falcon.*

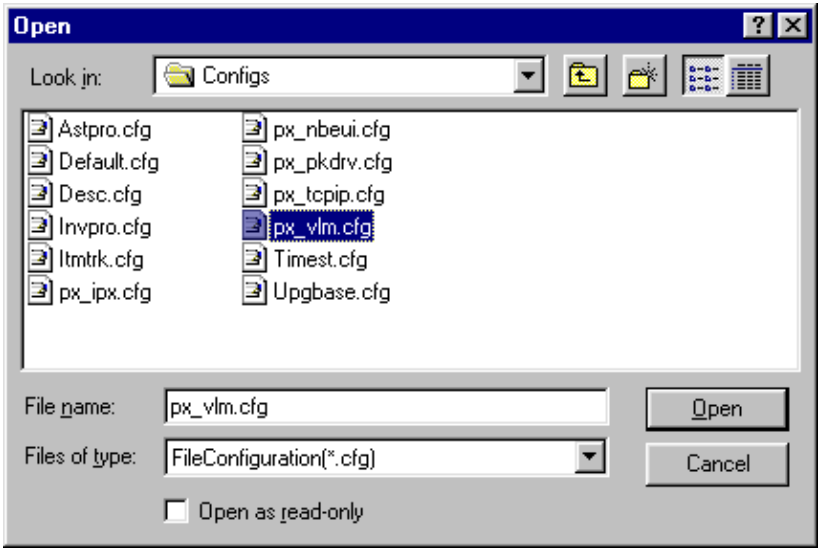
12. Select the **Text File** button and open the NET.CFG file in the PERCON\FALCON\RF\LUCENT directory.
13. Under the heading `Protocol TCPIP`, replace the `X`s with the appropriate IP address, IP router, and IP netmask numbers.
14. Save the NET.CFG file before exiting from the text editor.
15. Select the **Done** button in the File Configuration window to return to the Custom Configuration menu.
16. Modify your program settings and communications settings, if necessary.
17. Select the **Download** button in the Custom Configuration menu to install the custom TCP/IP configuration on the Falcon.
18. Reboot the Falcon when the download is completed.

ODI with NetWare Client

Complete the following steps to install the ODI drivers for NetWare Client:

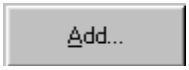
1. Start the Falcon Configuration Utility by double-clicking on the Falcon icon in the Falcon Configuration Utility group on your PC.
2. From the Main Menu, select the **Custom** button.
3. An Open dialog box will appear (see figure 2-4). Select the **PX_VLM.CFG** configuration file. In the next Open dialog box, select a program-settings file. (If you do not have a specific one that you want to use, select **DEFAULT.PRS**.)

Figure 2-4: The Open Dialog Box for Selecting a Configuration File



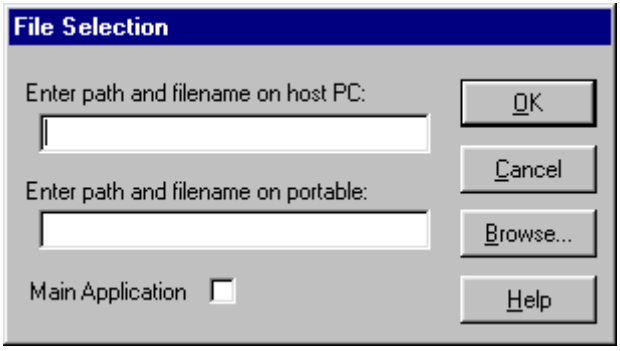
The following files are included automatically as part of the Novell TCP/IP download:

- **WAVECAD.SYS** - WaveLAN card access driver
- **IPXODI.COM** - IPX/SPX driver
- **LSL.COM** - Link support layer driver
- **NET.CFG** - ODI configuration file
- **WVLAN43.COM** - WaveLAN ODI driver
- **VLM.EXE** - Virtual loadable module manager
- ***.VLM** - Virtual loadable modules



4. Select the **File Configuration** button in the Custom Configuration menu.
5. Select the **Add** button, and use the File Selection dialog box (see figure 2-5) to include the main application and additional files in your custom installation. Be sure to turn on the **Main Application** switch for the one you want the Falcon to use.

Figure 2-5: The File Selection Dialog Box for Adding an Application File

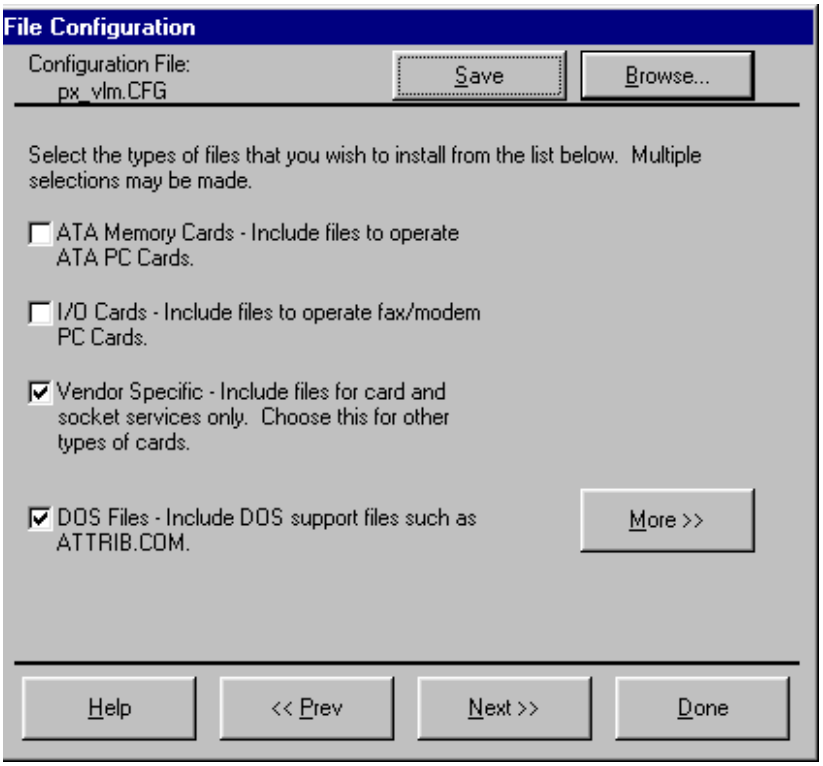


REMINDER: *See the* Falcon User's Guide *for complete information on using the menus and dialog boxes in the Falcon Configuration Utility.*

6. Select the **Next** button at the bottom of the File Configuration window.
7. In the second File Configuration window, make sure the **Vendor Specific** option is selected (see figure 2-6). This option identifies which Phoenix drivers to download.

   NOTE: *The I/O-card drivers are not compatible with WaveLAN's client driver. Do not select the* ***I/O Cards*** *options when using RF.*

Figure 2-6: The Second File Configuration Window



8. Select the **More** button to verify that the DOS files you need are included in the download. After viewing the file list and making any necessary changes, return to the File Configuration window.
9. Select the **NEXT** button to move to the third File Configuration window.
10. If you want to include commands to be executed in the **AUTOEXEC.BAT** file, select the **AUTOEXEC.BAT** button. Enter the commands, and save the revised file before exiting from the text editor.

    NOTE: *Verify that the drive and directories of any drivers loaded in the* **AUTOEXEC.BAT** *file are correct. The default* **PX_VLM.CFG** *file assumes these drivers will go to a specific location on the Falcon. If you change the destination directory on the Falcon for these files, be sure to change them here, too. The file that you selected as the main application will automatically be appended to the* **AUTOEXEC.BAT** *file before it is downloaded to the Falcon.*

11. If you want to make changes to the CONFIG.SYS file, select the **CONFIG.SYS** button.

    NOTE: *Certain default configuration parameters and card and socket services drivers will automatically be included at the beginning of the* CONFIG.SYS *file before it is downloaded to the Falcon.*

12. Select the **Text File** button and open the NET.CFG file in the PERCON\FALCON\RF\LUCENT directory.

13. In the **NetWare DOS Requester** section, assign whatever drive letter you want to **FIRST NETWORK DRIVE**. Set **PREFERRED SERVER** to the name of the network to which you will be connecting.

14. Save the NET.CFG file before exiting from the text editor.

15. Select the **Done** button in the File Configuration window to return to the Custom Configuration menu.

16. Modify your program settings and communications settings, if necessary.

17. Select the **Download** button in the Custom Configuration menu to install the NetWare Client configuration on the Falcon.

18. Reboot the Falcon when the download is completed.

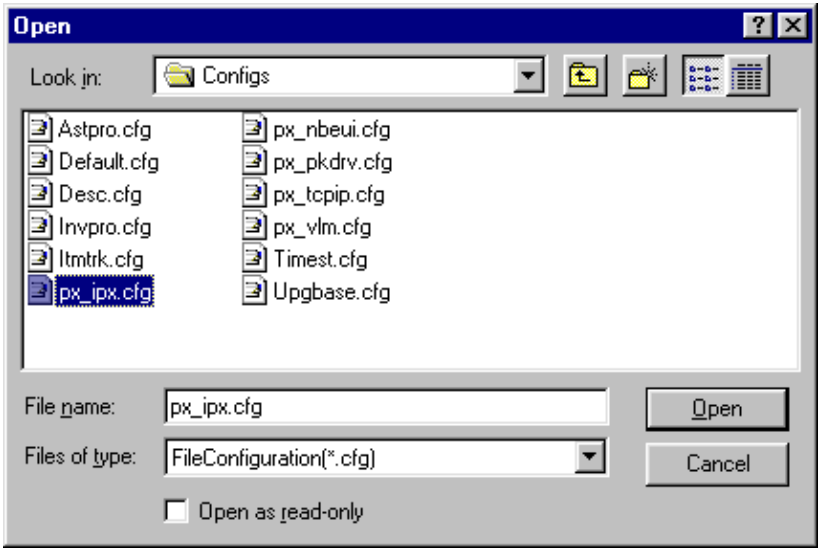
ODI with IPX/SPX

The IPX/SPX configuration downloads the same adapter and protocol drivers as the NetWare Client configuration. It does not download the VLM files.

Complete the following steps to install the ODI drivers for IPX/SPX:

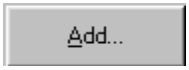
1. Start the Falcon Configuration Utility by double-clicking on the Falcon icon in the Falcon Configuration Utility group on your PC.
2. From the Main Menu, select the **Custom** button.
3. An Open dialog box will appear (see figure 2-7). Select the **PX_IPX.CFG** configuration file. In the next Open dialog box, select a program-settings file. (If you do not have a specific one that you want to use, select **DEFAULT.PRS**.)

Figure 2-7: The Open Dialog Box for Selecting a Configuration File



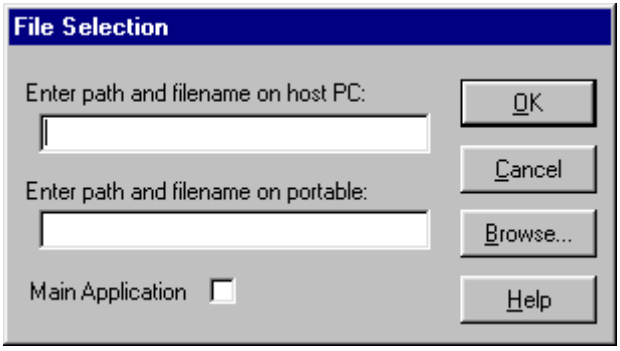
The following files are included automatically as part of the IPX/SPX download:

- **WAVECAD.SYS** - WaveLAN card access driver
- **IPXODI.COM** - IPX/SPX driver
- **LSL.COM** - Link support layer driver
- **NET.CFG** - ODI configuration file
- **RL2PCM.COM** - Lucent RF ODI Driver



4. Select the **File Configuration** button in the Custom Configuration menu.
5. Select the **Add** button, and use the File Selection dialog box (see figure 2-8) to include the main application and additional files in your custom installation. Be sure to turn on the **Main Application** switch for the one you want the Falcon to use.

Figure 2-8: The File Selection Dialog Box for Adding an Application File

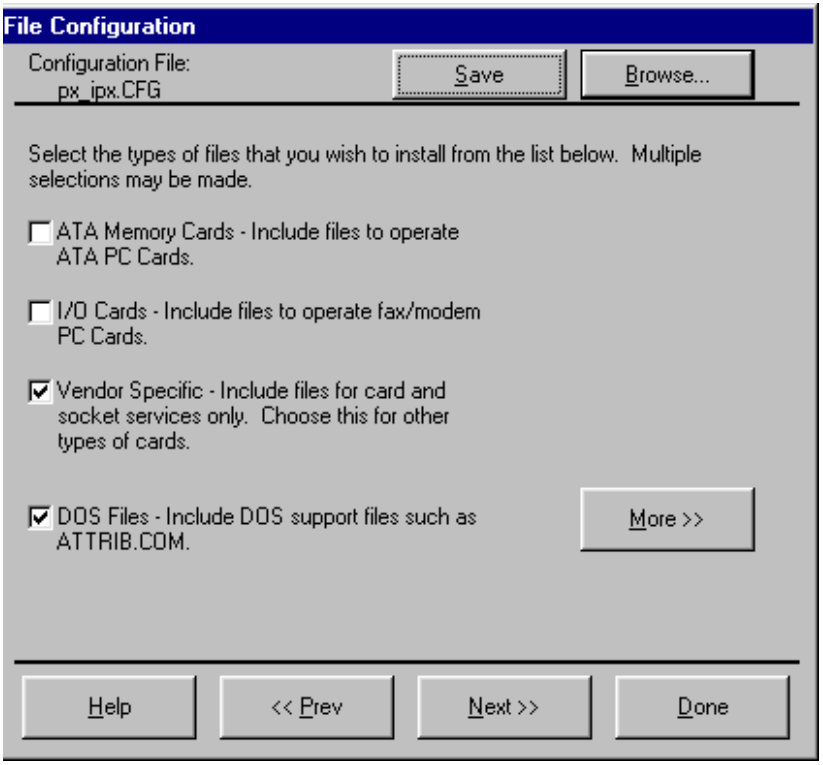


REMINDER: *See the* Falcon User's Guide *for complete information on using the menus and dialog boxes in the Falcon Configuration Utility.*

6. Select the **Next** button at the bottom of the File Configuration window.
7. In the second File Configuration window, make sure the **Vendor Specific** option is selected (see figure 2-9). This option identifies which Phoenix drivers to download.

   NOTE: *The I/O-card drivers are not compatible with WaveLAN's client driver. Do not select the* ***I/O Cards*** *options when using RF.*

Figure 2-9: The Second File Configuration Window



8. Select the **More** button to verify that the DOS files you need are included in the download. After viewing the file list and making any necessary changes, return to the File Configuration window.
9. Select the **NEXT** button to move to the third File Configuration window.
10. If you want to include commands to be executed in the **AUTOEXEC.BAT** file, select the **AUTOEXEC.BAT** button. Enter the commands, and save the revised file before exiting from the text editor.

    NOTE: *Verify that the drive and directories of any drivers loaded in the* **AUTOEXEC.BAT** *file are correct. The default* **PX_IPX.CFG** *file assumes these drivers will go to a specific location on the Falcon. If you change the destination directory on the Falcon for these files, be sure to change them here, too. The file that you selected as the main application will automatically be appended to the* **AUTOEXEC.BAT** *file before it is downloaded to the Falcon.*

11. If you want to make changes to the CONFIG.SYS file, select the **CONFIG.SYS** button.

    NOTE: *Certain default configuration parameters and card and socket services drivers will automatically be included at the beginning of the* CONFIG.SYS *file before it is downloaded to the Falcon.*

12. Select the **Done** button in the File Configuration window to return to the Custom Configuration menu.
13. Modify your program settings and communications settings, if necessary.
14. Select the **Download** button in the Custom Configuration menu to install the IPX/SPX protocol stack on the Falcon.
15. Reboot the Falcon when the download is completed.

ODI with Custom Installations

This section covers the fundamental theory behind the various configuration files used to configure a generic ODI implementation on the Falcon. The sample files can be used as a starting point for any implementation that relies on ODI.

AUTOEXEC.BAT The following is a sample AUTOEXEC.BAT file that could be used for NetWare Client:

```
@echo off
REM ****************************************************************
REM *** THE FOLLOWING LINES SET UP DEFAULT PARAMETERS FOR SOME
REM *** ENVIRONMENT VARIABLES. THESE LINES MAY BE MODIFIED OR
REM *** OEVERRIDDEN IN THE USER SECTION BELOW.
REM ****************************************************************
SET PROMPT=$P$G
SET DIRCMD=/OGN /P

REM ****************************************************************
REM *** THE FOLLOWING SECTION IS FOR CUSTOMIZED USER ENTRIES.
REM *** INSERT USER-SPECIFIC OPTIONS AND COMMANDS HERE.
REM *** LOAD THE LINK SUPPORT LAYER, THE LUCENT WAVELAN ODI
REM *** DRIVERS, AND THE IPX/SPX PROTOCOL STACK.
REM ****************************************************************
C:\NET\LSL.COM
C:\NET\WVLAN43.COM
C:\NET\IPXODI.COM

REM ****************************************************************
REM *** THE FOLLOWING LINES ADD SYSTEM COMPONENTS TO THE PATH AND
REM *** RUN THE MAIN APPLICATION EXECUTABLE, IF ONE WAS SPECIFIED.
REM ****************************************************************
IF EXIST C:\BPARAMS.INI COPY C:\BPARAMS.INI PARAMS
SET PATH=C:\;C:\NET;C:\DOS;%PATH%
C:
CD\NET
VLM /V4
F:
LOGIN SUPERVISOR
```

```
REM ****************************************************************
REM *** Change into the root directory of the C drive and run the app.
C:
CD\
MYPROG.EXE
```

The next example is a sample **AUTOEXEC.BAT** file that could be used with Novell TCP/IP software:

```
@echo off
REM ****************************************************************
REM *** THE FOLLOWING LINES SET UP DEFAULT PARAMETERS FOR SOME
REM *** ENVIRONMENT VARIABLES. THESE LINES MAY BE MODIFIED OR
REM *** OEVERRIDDEN IN THE USER SECTION BELOW.
REM ****************************************************************
SET PROMPT=$P$G
SET DIRCMD=/OGN /P

REM ****************************************************************
REM *** THE FOLLOWING SECTION IS FOR CUSTOMIZED USER ENTRIES.
REM *** INSERT USER-SPECIFIC OPTIONS AND COMMANDS HERE.
REM *** LOAD THE LINK SUPPORT LAYER, THE LUCENT WAVELAN ODI
REM *** DRIVERS, AND THE TCP/IP PROTOCOL STACK.
REM ****************************************************************
C:\NET\LSL.COM
C:\NET\WVLAN43.COM
C:\NET\TCPIP.EXE /X

REM ****************************************************************
REM *** THE FOLLOWING LINES ADD SYSTEM COMPONENTS TO THE PATH AND
REM *** RUN THE MAIN APPLICATION EXECUTABLE, IF ONE WAS SPECIFIED.
REM ****************************************************************
IF EXIST C:\BPARAMS.INI COPY C:\BPARAMS.INI PARAMS
SET PATH=C:\;C:\NET;C:\DOS;%PATH%
C:
CD\
```

CONFIG.SYS The **CONFIG.SYS** file is generally not used to load drivers specific to the ODI implementations. Standard card and socket services must be loaded in the **CONFIG.SYS** file, along with any DOS configuration commands that would normally be used. You can select the **Vendor Specific** option in the second File Configuration window to cause the appropriate card and socket services drivers to be loaded automatically.

NET.CFG The following code contains explanations of the contents of the **NET.CFG** ODI configuration file for the WaveLAN wireless LAN PC card. The **NET.CFG** file is suitable for use with Novell TCP/IP and the client redirector. The **Protocol ODIPKT** section also allows this **NET.CFG** file to work correctly with an ODI–to–packet driver shim, if one is needed for a third-party TCP/IP stack over ODI.

```
;Configuration settings for LSL.COM (Link Support Layer)
;  Mempool 4096     : required for Novell LSL and TCP/IP
;  Buffers 8 1500   : required to avoid "Network jammed" message
;                   : in Clarkson Terminal Emulator
Link Support
        MEMPOOL 4096
        BUFFERS 8 1500

;Configuration for Packet Driver shim. This shim is used by third-
;party protocol stacks.
Protocol ODIPKT
        BIND WVLAN43

;Configuration for TCPIP protocol.
;Substitute the appropriate IP addresses in order for your network
;to function properly.
;  IP_Address XXX.XXX.XXX.XXX
;  IP_Router XXX.XXX.XXX.XXX
;  IP_Netmask XXX.XXX.XXX.XXX
Protocol TCPIP
        IP_Address 208.152.16.84
        IP_Router 255.255.255.0
        IP_Netmask 255.255.255.0

;Configuration Information to Install Lucent WaveLAN II drivers
Link Driver WVLAN43
;       WAVELAN_NETWORK_NAME    ANY
        STATION_NAME            WAVELAN TEST 1
        AP_Density              1
        Transmit_Rate           3
        Medium_Reservation      2345
;       Node Address            02000000cafe
        Card_Power_Management   N
        Maximum_Sleep_Duration  100
        Receive_All_Multicasts  Y
        Frame                   Ethernet_II
        Frame                   Ethernet_802.2
        Frame                   Ethernet_802.3

; Configuration Information for Novell's Network Shell
;  FIRST NETWORK DRIVE              : F is standard first drive.
;                                     NOTE: First available drive
;                                     is E
;  PREFERRED SERVER                 : Update for your server
NetWare DOS Requester
        FIRST NETWORK DRIVE = F
        PREFERRED SERVER = SERVER
```

NOTE: *Some of the driver-specific information is set up to work on the Falcon, and changing these values will likely produce failures. See "DOS Configuration Parameters," beginning on page 21, for more information.*

>> DOS Configuration Parameters

Configuration parameters for DOS are contained in the **NET.CFG** file. You can use an ASCII text editor to add or modify parameters in those files, or you can edit them using the **Text File** button in the third File Configuration window of the Falcon Configuration Utility. The modifiable parameters are described in table 3-1.

Table 3-1: DOS Parameters

NOTE: *Hex values are indicated with a leading* **0x**. **NET.CFG** *values do not use the* **0x**; **PROTOCOL.INI** *values require the* **0x**.

Keyword	Description
WAVELAN_NETWORK_NAME	Specifies an IEEE 802.11 network to connect to. If you do not provide a specific network name, the WaveLAN card will connect automatically to the network that provides the best level of communication.
STATION_NAME	Identifies your WaveLAN station to other computers on the network.
AP_Density	Controls the roaming sensitivity of your wireless station. This parameter should be set according to the density of the WavePOINT-II access points that have been installed through the wireless network area and the respective setting of this parameter in the configuration of the access points. Valid values are **1**, Low (default), **2**, Medium and **3**, High.
Transmit_Rate	Identifies the preferred data-transmission speed of your WaveLAN PC Card. Where transmissions at lower data speed are usually more reliable, your may prefer higher throughput performance over a greater coverage of the WaveLAN radio signal. The transmit rate selector enables you to balance speed versus reliability. Valid values are **1**, Fixed 1 Mbit/second, **2**. Fixed 2 Mbit/second, and **3**, Auto Rate Select 2 Mbit/s-1 Mbit/2 (default).
Medium_Reservation	Enables Request to Send (RTS) / Clear to Send (CTS) protocol based on the length of the WaveLAN message that is to be transmitted. The length of the message is identified by the medium reservation threshold. When a message is shorter than the "user-defined" medium reservation threshold, your WaveLAN card will transmit the message when it senses that the medium is free. When the length of a message exceeds the "user-defined" threshold, the station will send an RTS to the WavePOINT-II access point and defer transmission until the WavePOINT-II has responded with a CTS message. Valid values: **2347** (default) disables medium reservation **0–2346** enables RTS/CTS mechanism and sets the frame length threshold

Keyword	Description
`Node Address`	??? Can't find in their manual
`Card_Power_Management`	??? Can't find in their manual. Valid values Y/N.
`Maximum_Sleep_Duration`	??? Can't find in their manual.
`Receive_All_Multicasts`	??? Can't find in their manual.

>> Chapter Three

Wireless Topologies and Site Surveys

Many companies have an existing Ethernet or wired LAN infrastructure and want to be able to extend that capability to wireless nodes. This is accomplished by attaching an access point to the wired LAN, allowing the wireless clients to access the network resources.

Falcon portable data terminals, like other 386-compatible DOS computers, can be connected to networks. With Falcon RF models, radio signals between the Falcon units and the AP replace the wires connecting the nodes to the network.

Falcon RF units may be used in various network topologies, which are described in this chapter. All of your Falcon applications will work with the WaveLAN wireless LAN without any special wireless-networking software.

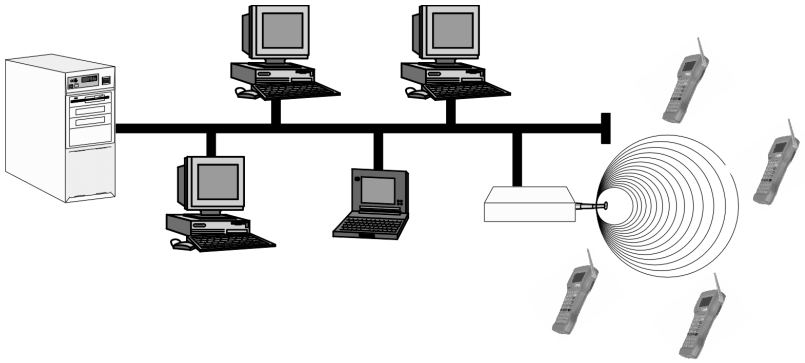
A site survey is an important part of setting up a wireless network. This chapter also provides information about site surveys.

CHAPTER CONTENTS

>> Single-Cell Topology

A single *access point (AP)* can be used as a bridge between the Ethernet and the radio network. This results in a *single-cell* wireless network for *mobile units (MUs),* as shown in figure 3-1.

Figure 3-1: A Single AP on a Network

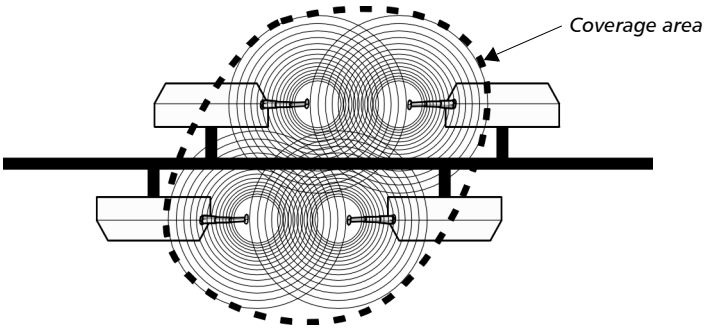


>> Multiple-Cell Topology

WaveLAN supports the ability to roam from one wireless communication range, or *cell*, to another while maintaining the same network connection. APs establish cells similar in concept to those of a cellular phone network. Any mobile unit (in this case, a Falcon RF unit) will connect with any access point that is within range.

Multiple access points can also be used to increase the aggregate throughput supported by the network. The APs can coexist as separate, individual radio networks without interference. The total range of communication of the cells is called the *coverage area* (see figure 3-2). Overlapping cells in a coverage area ensure that there are no gaps in coverage.

Figure 3-2: Multiple APs with Overlapping Cells



Each cell in a coverage area is identified with an *access point identifier (AP_ID).* When a mobile unit is located in a particular cell, the AP for that cell provides communication, or *association,* to the MU. The MU uses the AP_ID to recognize which AP it is associated with.

All APs in a single coverage area use the same *network domain.* The MU searches for an AP with a matching domain and establishes communication with it. This allows the MU to move freely, or *roam,* within the coverage area. Roaming is transparent in high-level applications, such as those used with the Falcon RF.

In a WaveLAN wireless LAN, the user can move freely between the access points in the network. When the roaming Falcon RF unit leaves the transmission range of one WaveLAN access point, the PC card automatically polls other access points in the same domain to continue the network connection.

You can install multiple wireless LANs in a single environment by assigning their APs to different domains. As an MU roams, it preserves its network connectivity by switching APs. The MU selects an AP on the basis of best signal strength and load on the AP. If the MU does not find an AP with a workable signal, it performs a scan to find any AP in the same domain.

Once the WaveLAN PC card associates with an AP, the transmit and receive functions to support user messages are enabled. When the PC card is unassociated or attempting to associate, only system transmit and receive functions are enabled.

>> *Site Surveys*

For most office environments, a site survey is not necessary. For large, industrial environments requiring multiple APs, however, you should perform a site survey before installing a WaveLAN network system. Run Lucent's setup program on a laptop using a WaveLAN card.

The purpose of a site survey is to calculate the most effective number of access points at a site and the best placement and positioning of antennas for optimal reception of radio signals. This is done by identifying areas where transmission failures occur.

As each site is unique, the surveyor needs to consider the exact conditions as they will appear in the final installation. In addition to such climate factors as moisture, excessive heat, and dust, a site survey can also be affected by physical obstructions and electromagnetic interference. Also important is the identification of potential cabling, connector, or power problems.