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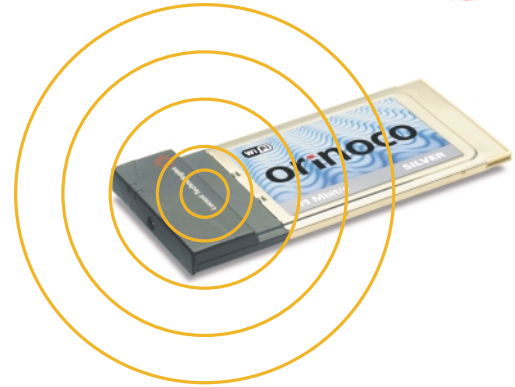
012459/C August 2000

Your Mobile Broadband Connection

Lucent Technologies
Bell Labs Innovations



orinoco™

PC Card Getting Started Guide

- Introduction
- Installing your PC Card
- Working with ORiNOCO

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About ORiNOCO

1

Kit Contents

The ORiNOCO PC Card kit includes the items as pictured in Figure 1-1:

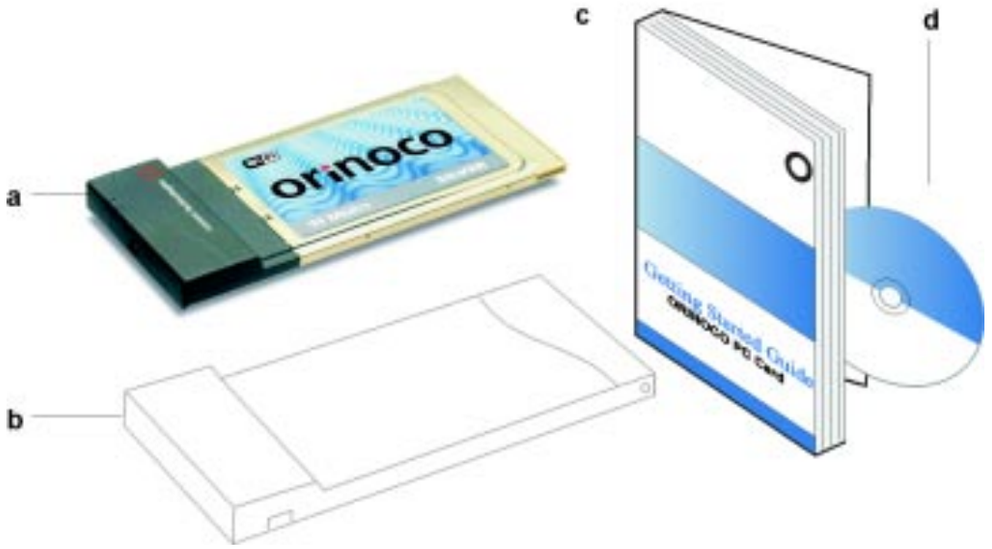
a. One ORiNOCO PC Card.

b. Transparent protective casing
(for storing your PC Card while not in use).

c. The “ORINOCO PC Card - Getting Started” guide.

d. The ORiNOCO Software CD-ROM.

Figure 1-1 ORiNOCO Kit Contents



The printed document “ORINOCO PC Card - Getting Started” is an abstract of the “ORINOCO PC Card - User’s Guide” that is available in Adobe’s Acrobat Portable Document File (*.pdf) format on the ORiNOCO Software CD-ROM. This printed copy will help you installing your ORiNOCO PC Card using the minimum set of parameters. For detailed information you may wish to consult the “ORINOCO PC Card - User’s Guide”.

NOTE:

In order to extend the life of the PC Card hardware it is advised to store the card in the protective casing whenever carrying the computer on travel without operating the device.

ORiNOCO Network Scenarios

The ORiNOCO PC Card Kit enables you to:

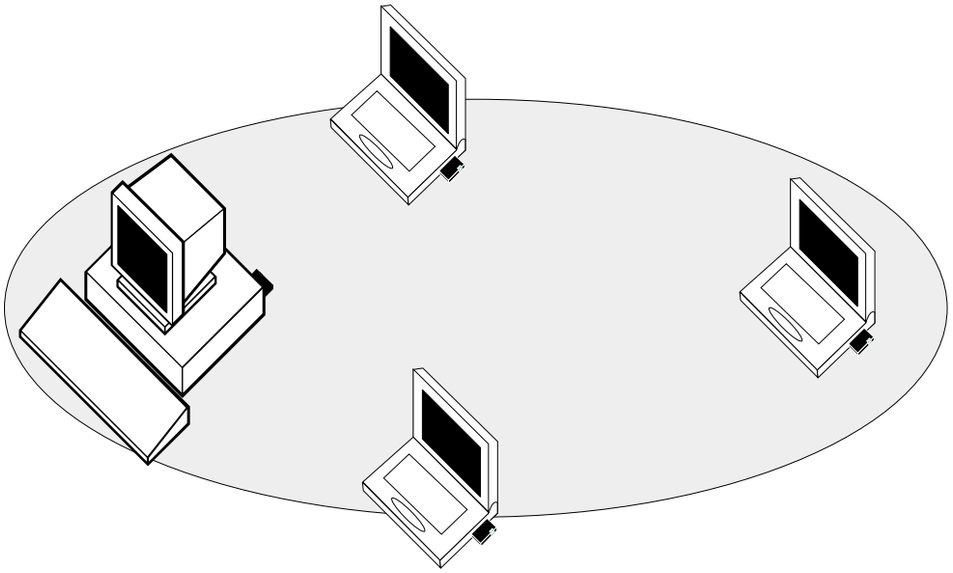
- Connect your computer to a Peer-to-Peer workgroup of wireless computing devices (see Figure 1-2 on page 1-4).
- Connect your computer to a Small Office/Home Office (SOHO) network that includes a Lucent Technologies Residential Gateway (RG) access point (see Figure 1-3 on page 1-5).
- Connect your computer to a Local Area Network (LAN) Infrastructure that includes Lucent Technologies ORiNOCO AP-1000s[1] (Access Points), or other IEEE 802.11 compliant LAN systems (see Figure 1-4 on page 1-6 and Figure 1-5 on page 1-7).
- Expand the capabilities of your AP-1000s, to support wireless devices that have been equipped with ORiNOCO PC Cards.

Peer-to-Peer Workgroup

The Peer-to-Peer workgroup configuration enables you to quickly set up a small wireless workgroup, where the workgroup participants can exchange files using features like “Files and Printer Sharing” as supported by Microsoft Networking.

1 The AP-1000 is formerly identified as WavePOINT-II AP.

Figure 1-2 Peer-to-Peer Wireless Workgroup

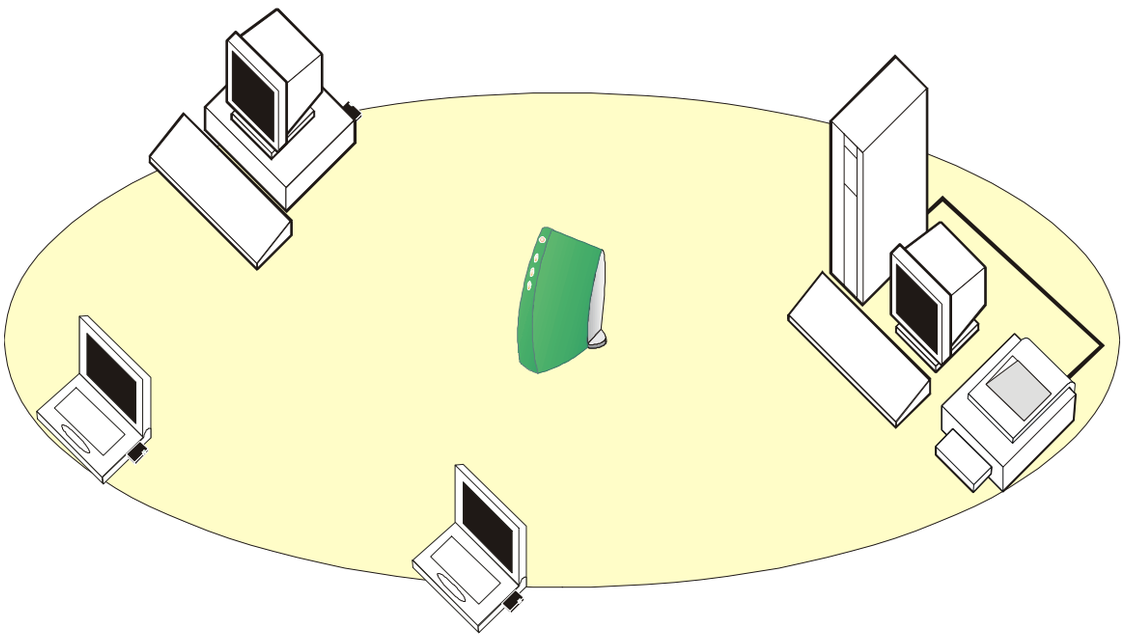


You can use this option to setup a temporary or ad-hoc network in environments where no access points are available (for example in Small Office/Home Office (SOHO) environments).
As long as the stations are within range of one another, this is the easiest and least expensive way to set up a wireless network.

Home Networking

With the Lucent Technologies ORiNOCO Residential Gateway (RG), wireless access to the Internet or other computers is at your fingertips.

Figure 1-3 Connect to a Residential Gateway (RG)



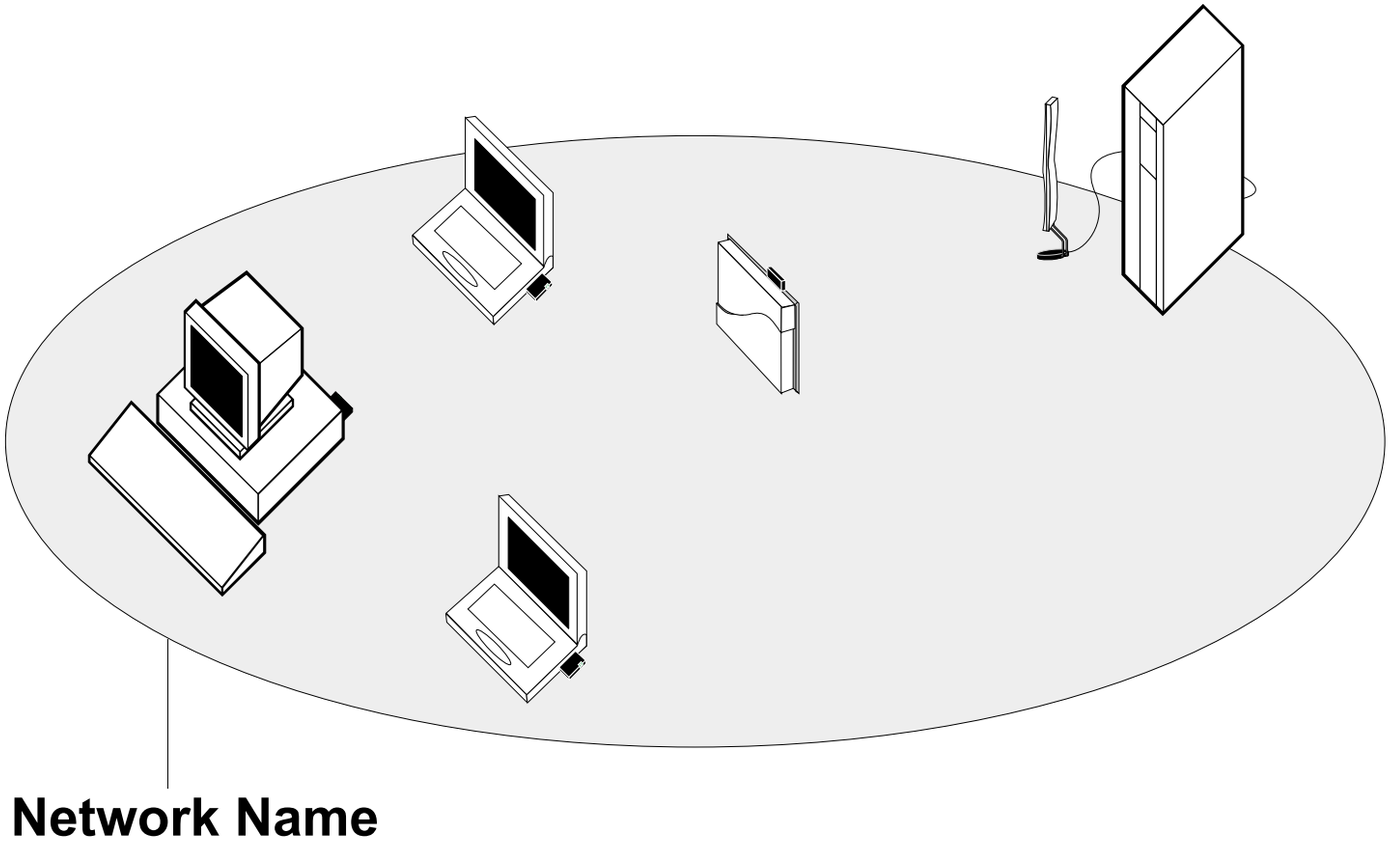
All you need to do is connect the wireless computers to the ORiNOCO Residential Gateway (RG), and you are ready to:

- Share files and printers, and
- Access the Internet via the built-in modem of the RG.

Optionally the RG allows you to connect your wireless stations to previously installed wired computers and/or an external cable, an xDSL or a ISDN modem.

Enterprise Networking

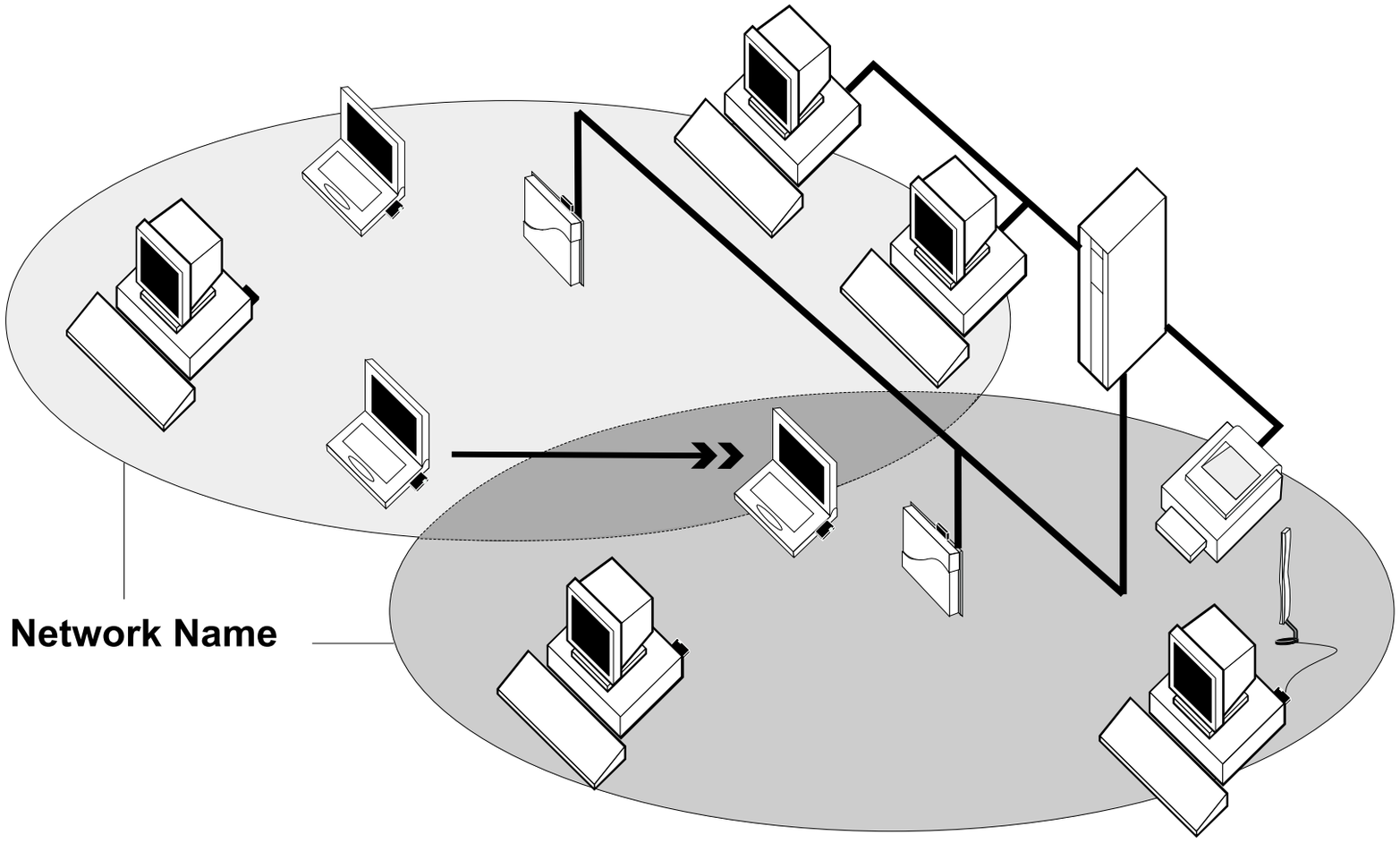
Figure 1-4 Stand Alone Wireless LAN



With the ORiNOCO AP-1000 you can connect to a corporate Local Area Network (LAN) infrastructure to have wireless access to all network facilities. LAN Infrastructures may either be:

- Stand-alone wireless LANs as pictured in Figure 1-4.
- Wireless network infrastructures connected to an existing Ethernet network as pictured in Figure 1-5 on page 1-7.

Figure 1-5 LAN Infrastructure



It’s Easy

The ORiNOCO PC Card functions like any standard wired Ethernet card, but ORiNOCO does not need any wires!

Where an Ethernet card requires a cable connection to a hub and/or patch panel, the cable physically ties you down to the location of the wired connection.

ORiNOCO allows you to connect your computer to a Local Area Network (LAN) system from anywhere within the wireless coverage area. Expanding or re-designing your network is easy: Add or relocate AP-1000s, power-up your (new) ORiNOCO computers, and you’re done!

Unlike Ethernet, ORiNOCO will enable you to roam throughout the network while remaining connected to the LAN.

NOTE:
The ORiNOCO PC Card is a radio product. Refer to the flyer “Information to the User” for regulatory information that may apply in your country.

ORiNOCO PC Card Features

The ORiNOCO PC Card is a wireless network PC Card that fits into any standard PC Card Type II slot.

The ORiNOCO PC Card has two LED indicators and two integrated antennas. Optionally you can use the ORiNOCO PC Card in combination with an external antenna.

Figure 1-6 The ORiNOCO PC Card

a. Integrated Antennas

b. Transmit/ Receive LED
   - Off - No wireless activity
   - Blinking - Sensing/transmitting wireless data

c. Power ON/OFF LED
   - Solid Green - standard operational mode
   - Blinking Green - Power Management mode

d. Connector for optional External Antenna (see the ORINOCO PC Card - User's Guide provided on the CD-ROM for more information).

ORiNOCO PC Card Types

The ORiNOCO PC Card is a wireless network PC Card that complies with the IEEE 802.11 standard on wireless LANs (Revision B). The ORiNOCO PC Card supports data rates up to 11 Mbit/s and is available in two variants:

- ORiNOCO Silver Label, and
- ORiNOCO Gold Label.

Both types of ORiNOCO PC Cards are:

- Wi-Fi (Wireless Fidelity) certified by the Wireless Ethernet Compatibility Alliance (WECA). This means that your ORiNOCO hardware will communicate with other vendors' IEEE 802.11 compliant wireless LAN products.

- Fully compatible with any other wireless LAN system based on Direct Sequence Spread Spectrum (DSSS) radio technology that complies with the "IEEE 802.11 standard on wireless LANs (Revision B)".
- Backwards compatible with any other previously released model of the WaveLAN/IEEE product family.

Silver Label Cards

The ORiNOCO Silver PC Cards supports the following wireless LAN features:

- Automatic Transmit Rate Select mechanism in the transmit range of 11, 5.5, 2 and 1 Mbit/s.
- Frequency Channel Selection (2.4 GHz).
- Roaming over multiple channels.
- Card Power Management.
- Wired Equivalent Privacy (WEP) data encryption, based on the 64 bit RC4 encryption algorithm as defined in the IEEE 802.11 standard on wireless LANs.

These features are described in more detail in the ORINOCO PC Card - User's Guide provided on the CD-ROM.

Gold Label Cards

The ORiNOCO Gold PC Cards support the same functionality as the ORiNOCO Silver cards. The Gold card however provides an enhanced type of WEP data encryption, based on the 128 bit RC4 algorithm.

NOTE:
The ORiNOCO Gold PC Card may not be marketed in all parts of the world, subject to national legislation or local regulations. For availability in your country, please consult your authorized ORiNOCO Reseller.

About the Software CD-ROM

The ORiNOCO software CD-ROM contains both software and documentation for all ORiNOCO products in indoor environments.

If you wish to install ORiNOCO driver software, turn to Chapter 2 ”Installation for Windows” and follow the instructions as described for installing your ORiNOCO PC Card.

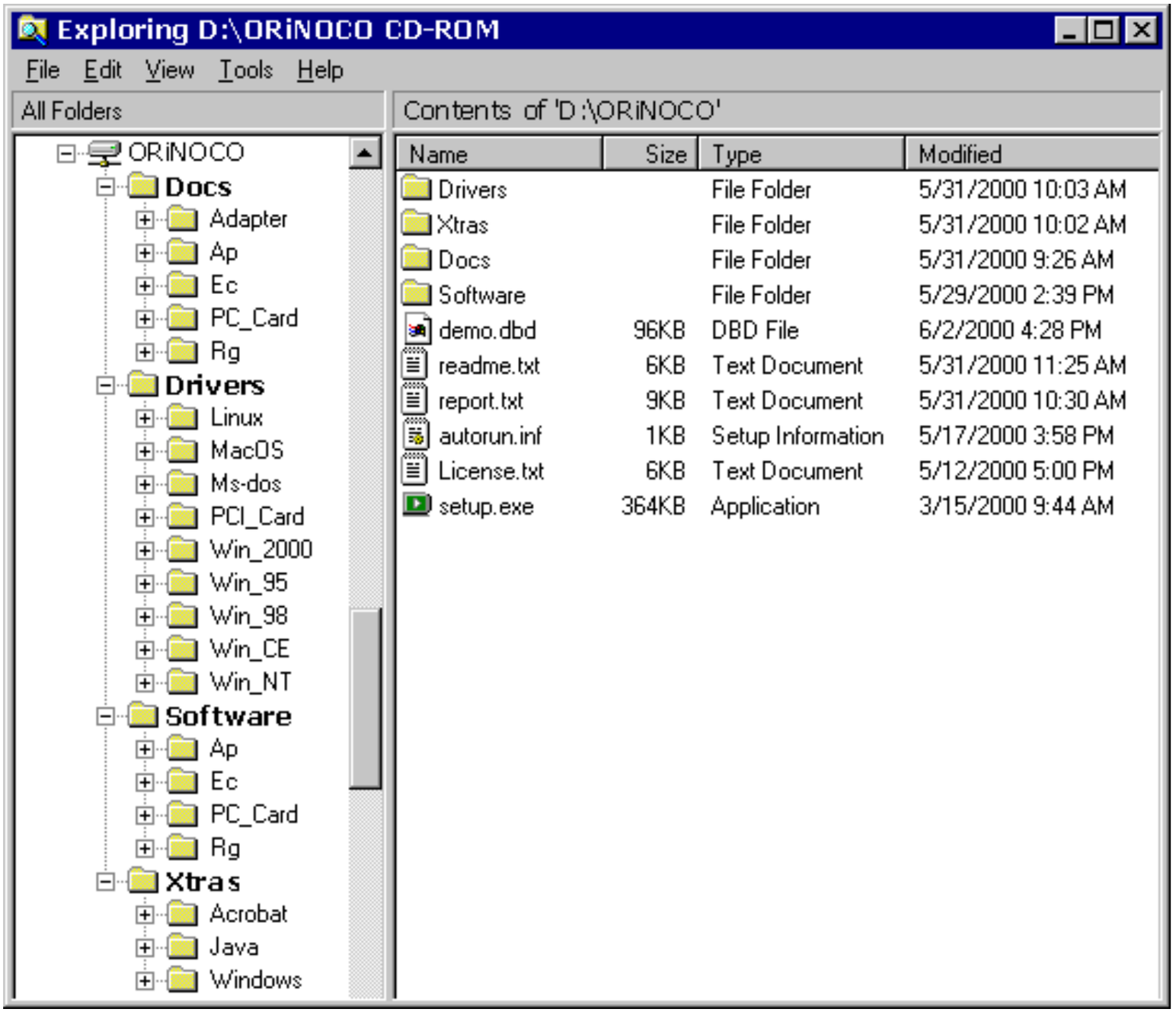
If you would like to explore the contents of the CD-ROM, the contents map as pictured in Figure 1-7 on page 1-13, may help you find the items you are looking for:

- ORiNOCO User Guides and other reference documents are located in “D:\Docs\”[1].
- Software for ORiNOCO client stations and/or infrastructure products, such as the AP-1000s, are located in “D:\Software\”[1].

NOTE:
Prior to copying or installing the software, you are advised to read the Software License Agreement “License.txt”, located in the root folder of the CD-ROM. By installing, copying or using the ORiNOCO software, you are consenting to be bound by this agreement. If you do not agree to all of the terms of the Software License Agreement, do not download, copy or install the ORiNOCO software.

1 The drive letter of your CD-ROM drive may differ from this example.

Figure 1-7 Contents of the Software CD-ROM



NOTE:

It is the policy of Lucent Technologies to improve products as new technology, components, software and firmware become available. Before you proceed with the installation of this product, we recommend you to consult the ORiNOCO website to:

- Verify if newer versions of the software that was shipped with your product are available.
- Download and install the latest software with your purchased product.
  You can download the latest software and documentation from the ORiNOCO website at: **http://www.lucent.com/orinoco**.

Looking again at Figure 1-7 on page 1-13 you will see that the CD-ROM also includes a folder named “Xtras”. This folder contains additional tools, that may help you install and manage your ORiNOCO Network.

The folder “Acrobat” includes a copy of the **Adobe Acrobat Reader ®,** required to view and/or print the ORiNOCO user documentation included on this CD-ROM.

NOTE:

The Adobe Acrobat Reader is owned by and licensed from Adobe Systems Incorporated. This software is provided “as is.”

Lucent makes no warranty or representation, express or implied, relating to the completeness, reliability, effectiveness, accuracy, performance, or operation of the Adobe software, or as to its suitability, merchantability or fitness for a particular purpose or against infringement of intellectual property rights of any party.

For more information about Adobe Acrobat software, please consult the Adobe Website at: **http:\\www.adobe.com\acrobat**

ORiNOCO Adapter Cards

The Lucent Technologies ORiNOCO solution has been based upon a single wireless PC Card that can be used in a variety of computing systems.

Optionally available are the following adapters for computer systems that do not have a PC Card Type II slot:

- ISA and PCI adapter cards, that enable you to use the ORiNOCO PC Card inside desktop computers
- WaveLAN/EC and WaveLAN/EC-S[1] devices, that allow you to connect computer with a standard 10Base-T interface to your ORiNOCO network.

1 The WaveLAN/EC-S features an additional Serial Port.

Finding Information

This printed document was designed to give you a brief introduction about the ORINOCO PC Card and the ORiNOCO wireless network system.

In this printed document you will find the most important information to get your ORiNOCO network up and running, with a minimum set of parameters for the MS-Windows 95/98 operating systems.

NOTE:
For installing procedures using other operating systems than Windows 95/98 please refer to the ORINOCO PC Card - User's Guide on the ORiNOCO Software CD-ROM.

The ORINOCO PC Card - User's Guide on the ORiNOCO Software CD-ROM, also describes:

- Advanced ORiNOCO parameters (required for special situations only).
- Extensive Troubleshooting information, beyond the basic hints provided in Appendix B "Troubleshooting" of this manual.

Alternatively you can consult the on-line help documentation for the ORiNOCO drivers and/or tools by:

- Clicking the Help button on your screen, or
- Pressing the F1 function key on your keyboard.

To view or print the “ORINOCO PC Card - User’s Guide” you will need the Adobe Acrobat Reader. A copy of this software is included on the ORiNOCO Software CD-ROM.

Installation for Windows 2

Introduction

The complete installation of your PC Card and the necessary drivers (for Windows 95/98) consist of the following steps:

1. Insert the ORiNOCO Software CD-ROM and install the Client Manager software by clicking the **Install Software** button on the start-up screen of the CD-ROM. (see page 2-3).
2. Insert your ORiNOCO PC Card (see page 2-5).
3. Install drivers (see page 2-6).
4. Set basic parameters (see page 2-11).
5. Finish installation (see page 2-19).

This chapter describes the installation of the ORiNOCO PC Card for Microsoft Windows 95 and 98 operating systems only.

For other operating systems please consult the following appendices of the ORINOCO PC Card - User's Guide provided on the CD-ROM:

Document	Operating System
Appendix C	Windows CE
Appendix D	DOS
Appendix E	Apple/MAC OS
Appendix F	Windows NT
Readme.txt	Linux

Installation procedures for other operating systems are described in the online ORINOCO PC Card - User's Guide provided on the ORiNOCO CD-ROM.

To view and/or print this document in Adobe's Acrobat Portable Document File format (*.pdf) you will need to install the Adobe Acrobat Reader software. You can find a copy of this software in the CD-ROM folder: "D:\Xtras\Acrobat"[1]

NOTE:

If you intend to use the ORiNOCO PC Card in a ORiNOCO AP-1000[2] (Access Point), please refer to the User Documentation that was shipped with the device. Alternatively you can download

1 Where "D:\" represents the drive letter of your CD-ROM drive.

2 The AP-1000 is formerly identified as the WavePOINT-II AP

these documents from the ORiNOCO website at: **http://www.lucent.com/orinoco**.

Installing the Client Manager Software

The ORiNOCO Client Manager program is a software tool that you can use to check the quality of your network connection.

NOTE:

It is not mandatory to install the Client Manager program in order to establish a network connection, but it provides you with more options to:

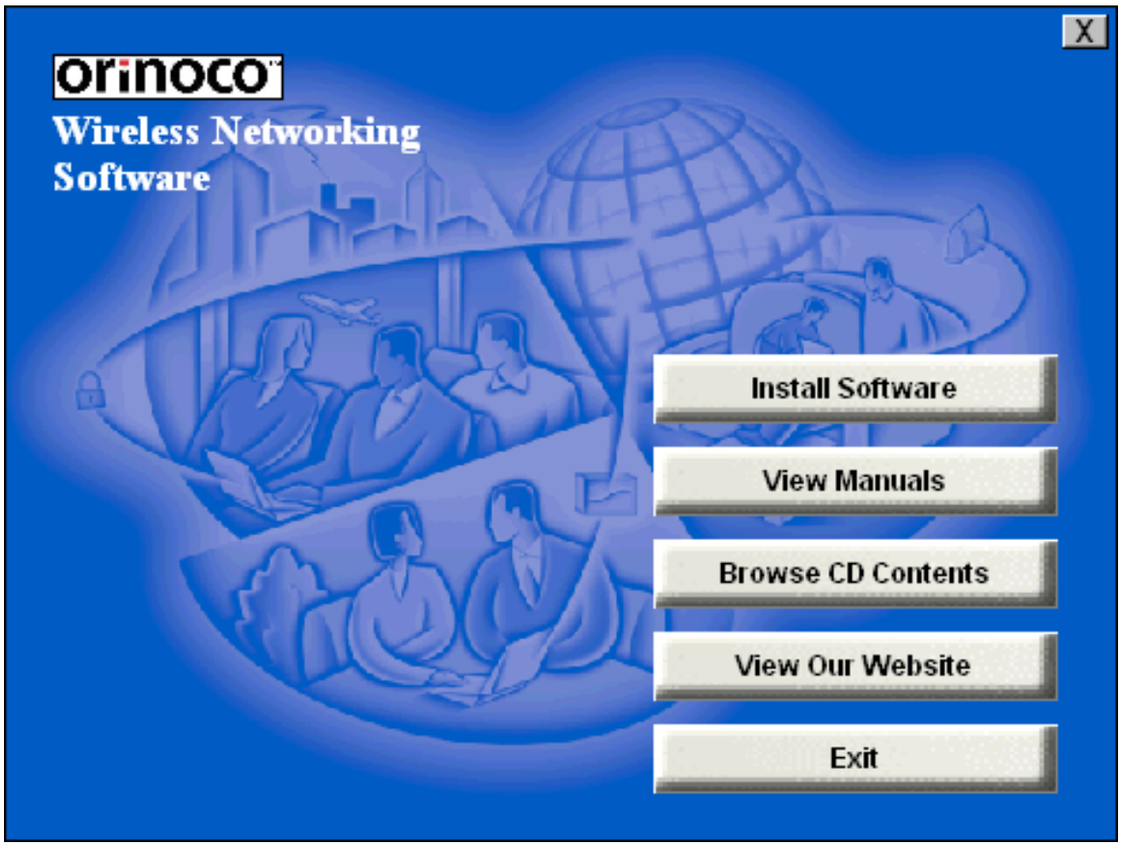
- View/change the settings of your network connection.
- Monitor your network connection.

To install the Client Manager software, proceed as follows:

1. Insert the ORiNOCO software CD-ROM that came with your PC Card kit in your CD-ROM drive.

   Your operating system will automatically start the CD and display the menu pictured in Figure 2-1 on page 2-4.

Figure 2-1 Start-Up Screen ORiNOCO Software CD-ROM



2. Select button **Install Software**.
3. Select **Install Client Manager**.
4. Follow the instructions on your screen.

NOTE:

If the CD-ROM does not start automatically:

1. Click the Windows **Start** button
2. Select **Run**
3. Browse to the CD-ROM
4. Select the file “setup.exe”.

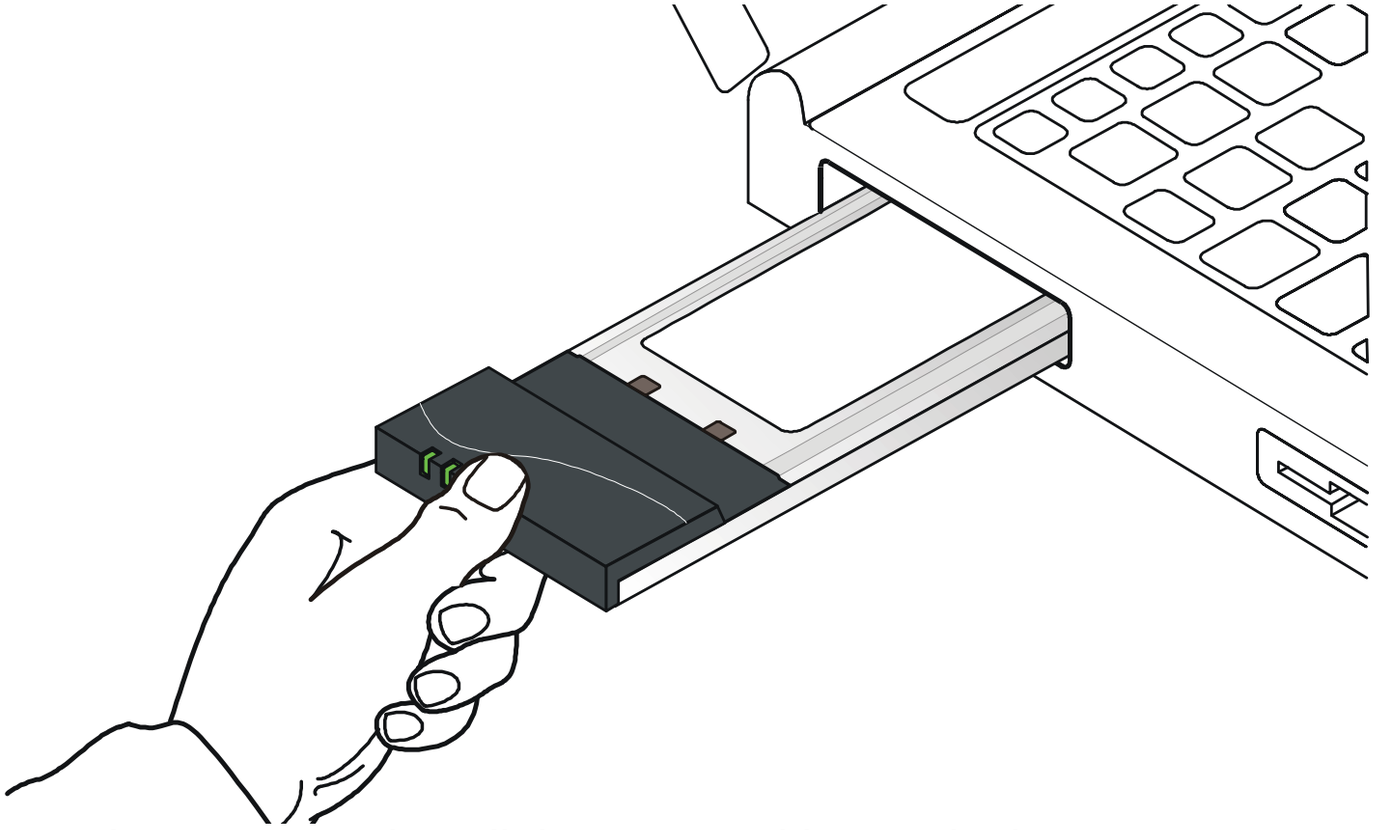
Insert your ORiNOCO PC Card

1. Unpack your ORiNOCO PC Card kit and verify that all items are present, as described in “Kit Contents” on page 1-1.

   If any of the items described appear to be damaged or missing, please contact your supplier.

2. Insert the ORiNOCO PC Card into the PC Card slot of your computer as pictured in Figure 2-2.

Figure 2-2 Inserting the PC Card into Your Computer



If you want to install the PC Card into a desktop computer, use an ISA Adapter or PCI Adapter.

Install Drivers

Before You Start the Installation

Before you start the installation, you are advised to keep the Windows CD-ROM or software diskettes close at hand. If your computer came with a factory-installed Windows operating system, these files will be stored on your computer's hard disk, in the form of cabinet (*.cab) files.

NOTE:
If you are upgrading from an earlier version of the ORiNOCO Miniport driver, please read Appendix B of the ORINOCO PC Card - User's Guide provided on the ORiNOCO Software CD-ROM.

What You Need to Know

Installing a ORiNOCO PC Card requires the same level of expertise that you would need to install a standard Ethernet network adapter card. It is assumed that you have a working knowledge of standard Windows 95/98 operations and of installing network adapter cards. Refer to the Windows Help when necessary (on the Windows task bar, press the **Start** button and select **Help**).

Driver Installation for Windows 95/98

Windows 95/98 operating systems support “Plug & Play” for PC Cards. Once you insert the ORiNOCO PC Card into your computer, these operating systems will automatically:

- Detect the card, and enable the ORiNOCO Driver, or
- Start the **Add New Hardware** wizard and prompt you to install the driver, when the operating system cannot find the required driver.

  This would typically occur when inserting the ORiNOCO PC Card into your computer for the very first time.

To install the driver proceed as follows:

1. If Windows starts the **Add New Hardware** wizard follow the instructions of the **New Hardware Found** wizard to install the drivers.
   - When you are prompted to locate the driver installation files:
     - — Select the ORiNOCO CD-ROM that was included with your PC Card kit and.
     - — If you downloaded the drivers from the ORiNOCO website navigate to the folder that matches your Operating system.
       Windows 95:D:\Drivers\Win_95
       Windows 98:D:\Drivers\Win_98
       Windows 2000:D:\Drivers\Win_2000

     When finished installing the drivers, Windows automatically opens the **Add/Edit Configuration Profile** window.

2. Continue with setting the basic parameters as described on page 2-11.

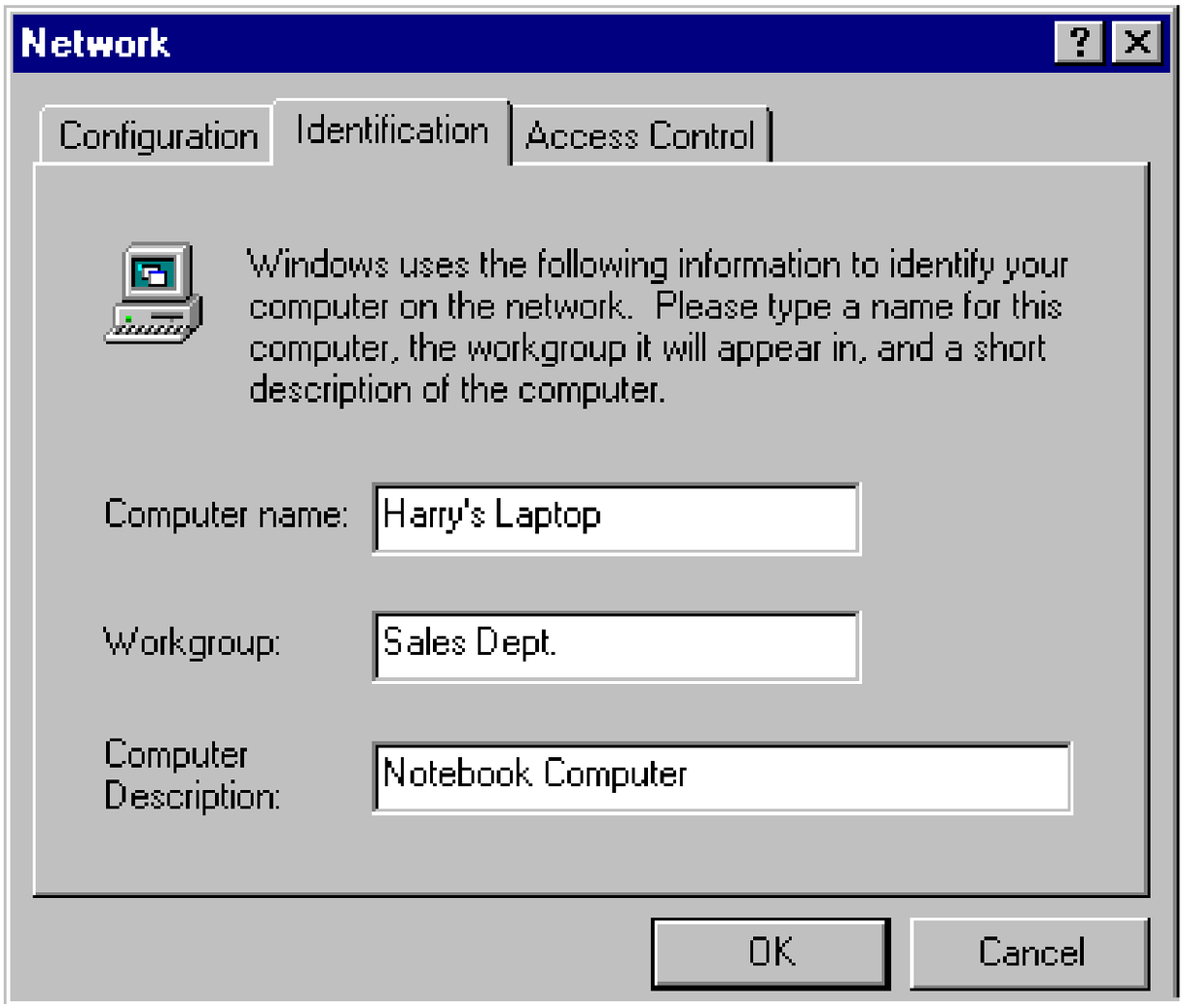
NOTE:

If your computer does not detect the new hardware consult Appendix B.

Windows Network Properties

If this is the very first time that Networking support is installed onto your computer, the Windows operating system will prompt you to enter a computer and workgroup name. These names will be used to identify your computer on the Microsoft Network Neighborhood.

Figure 2-3 Windows Network Identification Properties



NOTE:
The screen displayed in Figure 2-3 on page 2-9 will not appear if network support had not been installed. If so, move to page 2-11 and proceed with setting the basic parameters.

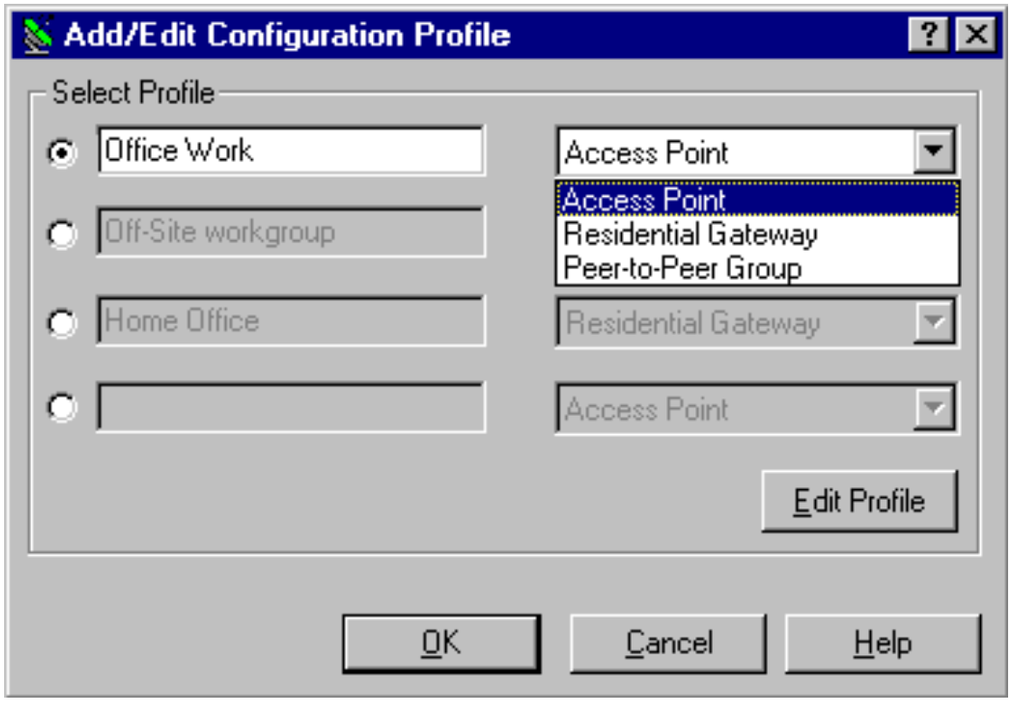
1. The window will pop-up automatically.
2. In the **Computer Name** field, enter a unique name for your computer.
3. In the **Workgroup** field, enter the name of your workgroup.
4. (Optional) Provide a description of the computer in the **Computer Description** field.

For more information about setting your Windows Network Properties, consult your Windows documentation or the Windows on-line help information.

Set Basic Parameters

After installing the drivers, Windows will open the Add/Edit Configuration Profile window for your ORiNOCO PC Card as pictured in Figure 2-4.

Figure 2-4 Add/Edit Configuration Profile window



The Add/Edit Configuration Profile window enables you to specify one or more network connection profiles.

For example you can setup profiles for:

- **Office**, to connect to an Enterprise Network via an Access Point.
- **Workgroup Computing**, to share files with colleagues or friends in small Peer-to-Peer workgroups without access point.
- **Home**, to connect to a Residential Gateway (RG) that provides access to the Internet or your home printers.

For more information about the different types of networks, refer to “ORiNOCO Network Scenarios” on page 1-3.

To connect your computer to a wireless network you will need to:

1. Assign a name to the network connection profile
2. Use the pull-down menu on the right to select how you wish to connect to the wireless network.
3. Click the **Edit Profile** button to view/modify the parameters for the selected profile.

For first-time installations, you are advised to setup the single profile using only the Basic Settings.

NOTE:

The number and type of parameters you need to specify may differ according to the selected connection type. See page 2-13 for Access Point connection settings and page 2-15 for the Residential Gateway connection settings.

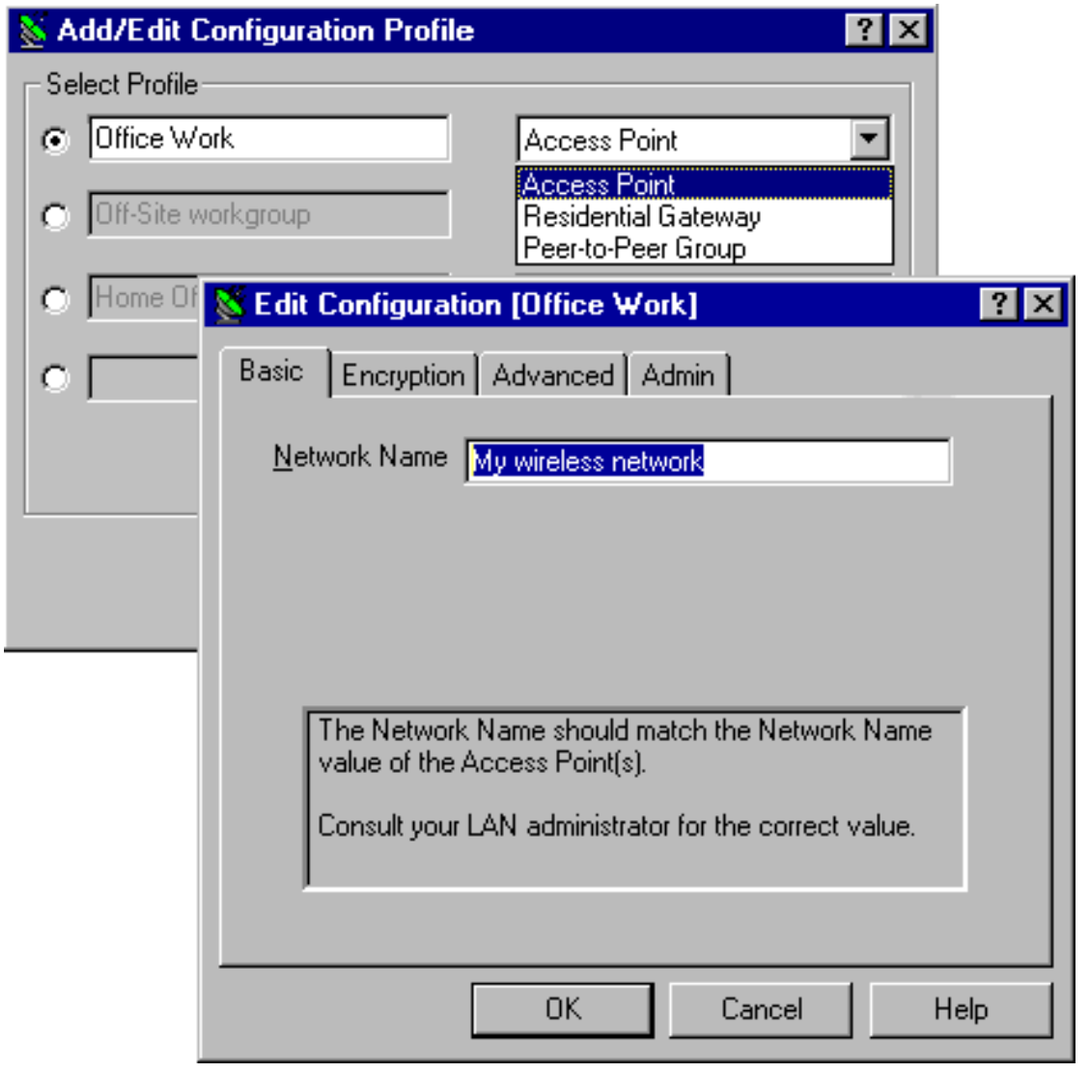
For information about various option press the F1 key or click the **Help** button.

Basic Settings for Enterprise Networks

If you wish to connect to an Enterprise Network, use the Add/Edit Configuration Profile window to:

- Select to connect to an **Access Point**.
- Set the correct **Network Name**.

Figure 2-5 Edit Configuration window



1. In the field **Network Name** define the name of the wireless network to which you want to connect. You can either use:
   - **The value “ANY”**

     To connect to any ORiNOCO network in the vicinity of your computer.
   - **An “exact” value to connect to**

     Consult your LAN Administrator for the value that applies to your network.

     The Network Name can be any alphanumeric string in the range of “a” to “z”, “A” to “Z” and “0” to “9” with a maximum of 32 characters (case-sensitive).
2. Click **OK** to confirm and return to the Add/Edit Configuration Profile window.
3. Click **OK** again to finish with the installation as described on page 2-19.

The ORiNOCO Edit Configuration window, also provides you the possibility to change other parameters (Encryption, Advanced and Admin parameters). These parameters are described in the on-line help file of the drivers, and in Chapter 4 of the on-line “ORiNOCO PC Card User’s Guide” on the ORiNOCO Software CD-ROM.

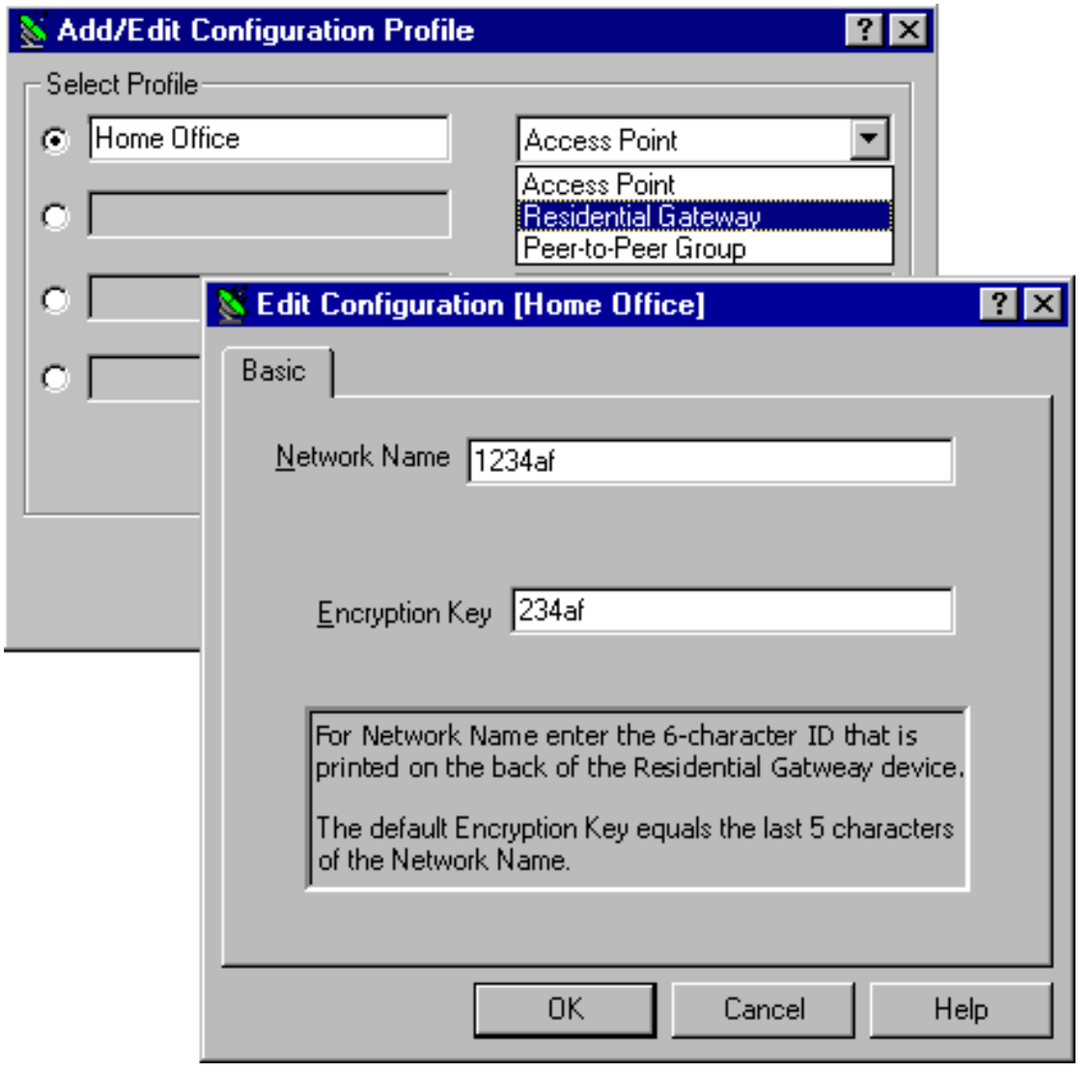
You are advised to leave these parameters to their default settings, unless there are special situations, for example, upon advice of an ORiNOCO expert.

Basic Settings for Residential Gateways

If you wish to connect to a Home Network via a Residential Gateway, use the Add/Edit Configuration Profile window to:

- Select to connect to a **Residential Gateway**.
- Set the correct **Network Name** and **Encryption Key**.

Figure 2-6 Edit Configuration window: Residential Gateway



1. In the field **Network Name** enter the 6-character RG ID to define the name of the wireless network to which you want to connect.
   The **Network Name** has to match the unique RG ID (which can be found on the device).
2. In the **Encryption Key** field enter the last 5 digits of the RG ID (default).

NOTE:

If you changed the default Encryption Key on the Residential Gateway (RG) you will need to enter the new value here as well.

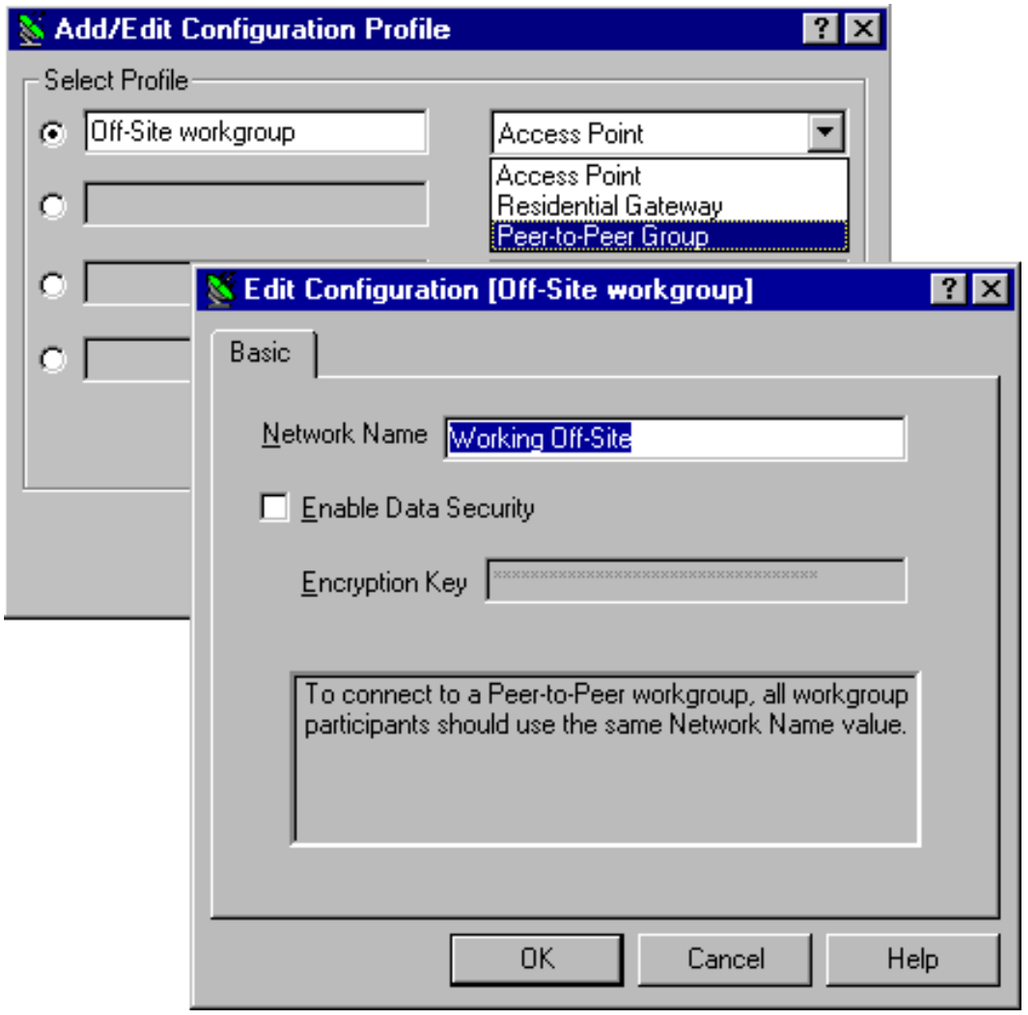
3. Click **OK** to confirm and return to the Add/Edit Configuration Profile window.
4. Click **OK** again to finish the installation as described on page 2-19.

Basic Settings for Peer-to-Peer Workgroups

If you wish to connect to a Peer-to-Peer workgroup, use the Add/Edit Configuration Profile window to:

- Select to connect to a **Peer-to-Peer Workgroup**.
- Set the correct **Network Name** and **Encryption Key**.

Figure 2-7 Edit Configuration window: Peer-to-Peer



1. In the field **Network Name** define the name of the wireless network to which you want to connect.

   The Network Name can be any alphanumeric string in the range of “a” to “z”, “A” to “Z” and “0” to “9” with a maximum of 32 characters (case-sensitive).

   - If there is already a Peer-to-Peer group with this name available your computer will automatically connect to this workgroup.
   - If there is not yet such a group available, your computer will automatically start one with this name.

2. Click **OK** to confirm and return to the Add/Edit Configuration Profile window.
3. Click **OK** again to proceed with the installation.

   Continue with “Finish the Installation” on page 2-19 to complete the installation procedure.

Finish the Installation

When you have finished “Set Basic Parameters”, click the **OK** button to close the Add/Edit Configuration window and to proceed with the installation process. Windows will finish building the driver configuration database and copy some files to your computer’s hard disk.

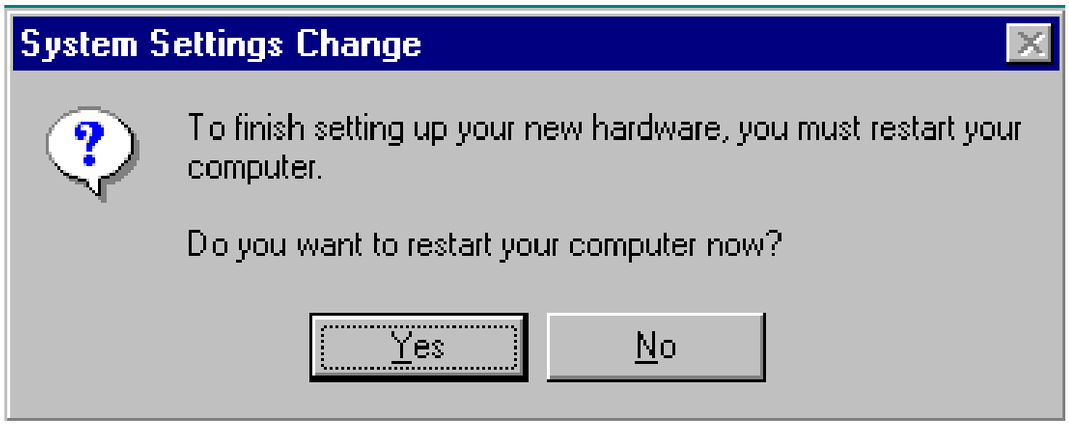
- If the Windows operating system prompts you to identify the location of the Windows files, specify the drive and directory of the Windows Installation CD-ROM or diskettes.

  When you had a PC Card installed on your computer before, most of these files are already available on your hard disk drive. If you do not have the Windows CD-ROM available, you may try replacing the proposed path in the Copy Files From dialog box with: “C:\Windows\System” or “C:\Windows\”

- If the Windows operating system prompts you to identify the location of the ORiNOCO driver files (typically file names starting with the characters wv*.v) specify the drive and directory of the ORiNOCO Software:
  - if installing from the ORiNOCO CD-ROM specify the drive in one of the following directories on the ORiNOCO Software CD-ROM.
    Windows 95:D:\Drivers\Win_95
    Windows 98:D:\Drivers\Win_98
    Windows 2000:D:\Drivers\Win_2000
  - if installing files that you downloaded from the Internet, point to the disk drive or directory where you saved the downloaded files.

When Windows has finished the copying of files, it will prompt you to restart your computer (see Figure 2-8). Click the **OK** button to restart your computer.

Figure 2-8 Finished Setting up the Hardware



After Restarting Your Computer

After you have restarted your computer, the Windows operating system will detect the ORiNOCO PC Card (you can hear the two-tone sound of the PC Card Socket Controller).

Load the ORiNOCO driver, in a dialog box enter a Windows user name and password.
The password you enter here will be the one used to login to the Windows Network Neighborhood.

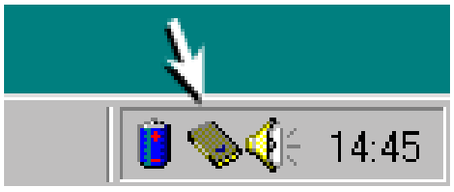
Verifying installation

To verify if the installation of the drivers was completed successfully:

- Check if the PC Card icon on the Windows task bar is visible as pictured in Figure 2-9.
- Check the LEDs on your PC Card. The following should be visible:
  - A steady green Power LED to indicate the PC Card is active.
  - A flickering green Transmit/Receive LED to indicate wireless activity while transmitting data.

  For other LED behavior see Appendix B.
- (Optional) To check the quality of the network connection, install the ORiNOCO Client Manager program as described in “Installing the Client Manager Software”.

Figure 2-9 PC Card icon on the Windows task bar



Using ORiNOCO and Windows

3

Introduction

This chapter provides general information about:

- Using your PC Card
- View Other Computers
- View Wireless Link Quality
- View/Modify PC Card Settings
- Finding More Information

Using your PC Card

Radio Antennas

The built-in radio and antennas of your ORiNOCO PC Card perform best in an open environment with as few obstacles as possible.

- To achieve the maximum range for wireless communications do not cover the card with objects such as books or thick stacks of paper.
- If you are using the card inside a desktop computer you may consider the purchase of the optional Range Extender Antenna.

Removing the PC Card

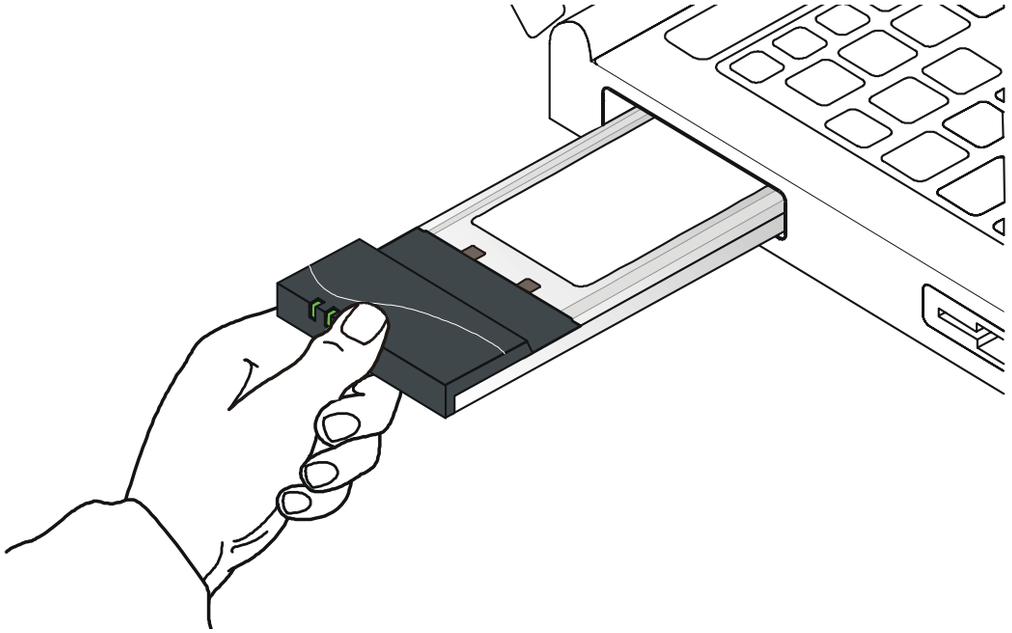
If you do not need the wireless connectivity of your ORiNOCO PC Card, you can remove the PC Card from its slot as pictured in Figure 3-1.

CAUTION:
When removing the ORiNOCO PC Card you will lose your connection to the network. Prior to removing the PC Card, make sure you have closed all files and network applications (such as e-mail).

You are advised to always disable the PC Card **prior** to removing the card from the PC Card slot. This will allow the Windows operating system to:

- Log off from the network server
- Disable the ORiNOCO PC Card driver
- Disconnect power to the PC Card slot (which will extend battery life for mobile computers).

Figure 3-1 Removing the PC Card



To stop using the ORiNOCO PC Card:

1. Click once on the PC Card icon on the right side of the Windows task bar.
2. Select the option **Stop ORiNOCO PC Card**[1].

1 Alternatively, disable the PC Card via the PC Card icon on the Control Panel menu.

3. Wait a few seconds until the operating systems displays a pop-up message to indicate you can safely remove the PC Card.

Maintenance of your PC Card

If you are not using the ORiNOCO PC Card for wireless communications, extend its life by storing it inside the transparent plastic casing that was shipped with the product.

To clean the PC Card, gently wipe it with a soft (damp) cloth.

CAUTION:
To avoid damage to the PC Card do not use abrasive materials, or rinse the card with liquids.

View Other Computers

When multiple ORiNOCO stations are up-and-running in your wireless network, you can use the procedure described below to display the other computers:

1. Start Windows Explorer.
2. Scroll down the list of files and folders to look for the item **Network Neighborhood**.
3. Double-click the **Network Neighborhood** item to display all stations in your Microsoft Networking Group.
4. To display other workgroups in the network environment, double-click the **Entire Network** icon.

If you cannot find other (ORiNOCO) networked computers, verify whether the other ORiNOCO computers are:

- Powered up and logged on to the network.
- Configured to operate with identical Microsoft Network settings concerning:
  - Networking Protocol.
  - Wireless Network Name
  - Workgroup Name

To view or modify the **Station Name** or **Workgroup** of your computer, proceed as follows:

1. Click the button from the Windows task bar.
2. Click on **Settings**, and then on **Control Panel**.
3. In the Control Panel window, double-click the **Network** icon.
4. In the Network Settings window, select the **Identification** tab.
   You can verify and change the **Station Name** or **Workgroup** parameters.

NOTE:
You have to restart your computer before changes to the Network Settings will be effected.

To verify the radio connection with other stations refer to “View Wireless Link Quality” on page 3-7.

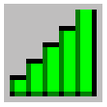
Using the Client Manager

If you installed the ORiNOCO Client Manager as described in “Installing the Client Manager Software” on page 2-3, you can use the Client Manager to:

- Verify the quality of your wireless connection to the network.
- View/Modify the configuration settings of your wireless PC Card.

The Client Manager will start automatically every time you power up your computer.

The Client Manager icon is displayed in the “System Tray” of your Windows task bar at the right-side on the bottom of your screen, indicating that the Client Manager program is running.



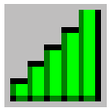
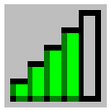
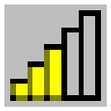
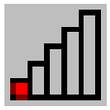
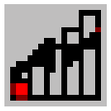
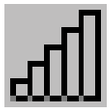
- Click the icon once with your **left** mouse button to retrieve a more detailed status overview.
- Click the icon once with your **right** mouse button to display a menu with more options.

View Wireless Link Quality

You can use the Client Manager icon on the Windows task bar to verify the link quality of your network connection.

An overview of all possible icons is given in Table 3-1. When the Client Manager icon is not indicating excellent or good radio connection, act as described below.

Table 3-1 Client Manager Icon

Icon	Description	Color
	Excellent radio connection	Green
	Good radio connection	Green
	Marginal radio connection: The radio signal is weak. Move closer to the: ■ ORiNOCO AP-1000, or ■ ORiNOCO Base Station	Yellow
	Poor radio connection: The radio signal is very weak. Save your files and move closer to the: ■ ORiNOCO AP-1000, or ■ ORiNOCO Base Station	Red
	No radio connection because: ■ Looking for initial connection, or ■ You have moved out of range of the network.	Red
	Peer-to-Peer network connection	Blank

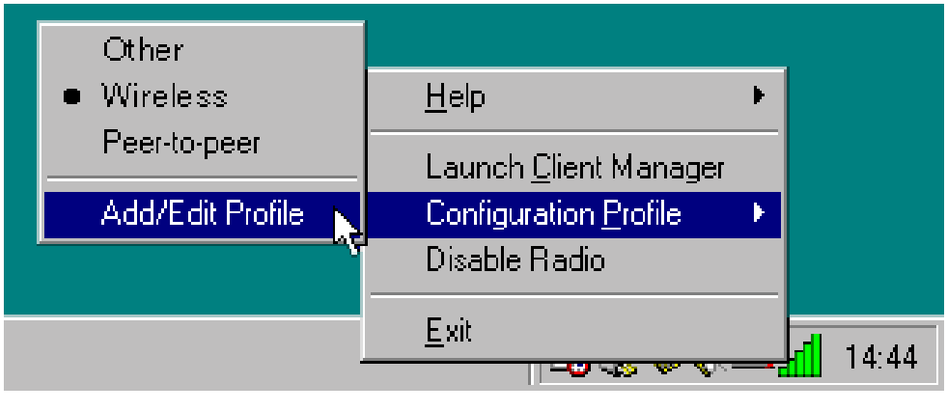
View/Modify PC Card Settings

If you would like to view or modify ORiNOCO parameters, for example because you would like to connect to another network or type of network, proceed as follows:

1. Right-click on the Client Manager icon on the Windows task bar.
2. From the menu, select **Configuration Profile** (see Figure 3-2) and select:
   - **Add/Edit Profile** to add a new profile or to modify an existing profile.
   - **One of the existing profiles** (if present) to select a profile without viewing or modifying the settings.

After selecting and another profile, the PC Card will use the selected profile to connect to the wireless network.

Figure 3-2 Edit Wireless Configuration Settings



If your Client Manager icon is not visible, you have to start the Client Manager program again:

1. Click the button from the Windows task bar.
2. Select **Programs**, and then select the **ORiNOCO** workgroup.
3. Next select **Client Manager** to start the Client Manager program.

Alternatively you can to change the PC Card configuration via the Control Panel:

1. Click the button from the Windows task bar.
2. Click on **Settings**, and then on **Control Panel**.
3. In the Control Panel window, double-click the **Wireless Network** icon.
4. (Optional) Change the parameters you would like to modify, and click
   - the **OK** button to confirm your changes, or
   - the **Cancel** button to ignore your modifications.

Finding More Information

If you are looking for more information than contained in this manual, please consult one of the following options:

- **The online "**ORINOCO PC Card - User's Guide**"** - for more information about the Client Manager program and for information about installing the ORiNOCO PC Card in other operating systems, such as:
  - MS Windows NT
  - MS Windows CE
  - MS DOS
  - Apple Macintosh

  The online **"**ORINOCO PC Card - User's Guide**"** can be found on the ORiNOCO Software CD-ROM that came with your PC Card kit.
- **The on-line help system** of your ORiNOCO wireless system - for information about software and driver functionality.

  To view the on-line help system click the **Help** button or press the F1 function key on your keyboard in any ORiNOCO window, or
- **The "ORiNOCO Manager Suite User's Guide"** - a reference guide for LAN Administrators that need to setup, monitor and manage corporate LANs.

Card Specifications

A

Physical Specifications

Form Factor	PC Card Type-II Extended	
Color[1]	■ Black for ORiNOCO PC Card (both Gold and Silver Label) ■ Red for IEEE Fixed Wireless PC Cards	
Dimensions	(LxWxH)	117.8 x 53.95 x 8.7 mm
Weight	45 gram (PC Card)	
Temperature & Humidity		
Operation	0° to 55° C[2]	maximum humidity 95%
Transit	-20° to 70° C	15 to 95% (no condensation allowed)
Storage	-10° to 60° C	10 to 90% (no condensation allowed)

1 Color of the Range Extender Antenna is related to the Radio Characteristics described on page A-3

2 Although the PC Card may still operate in the range of -20° to 70°C, operation outside the range of 0° to 55° C may no longer be according to specifications.

Power Characteristics

Doze Mode	10 mA
Receive Mode	180 mA
Transmit Mode	280 mA
Power Supply	5 V

Networking Characteristics

Compatibility	■ IEEE 802.11 Standard for Wireless LANS (DSSS) ■ Wi-Fi (Wireless Fidelity) certified by the Wireless Ethernet Compatibility Alliance (WECA).	
Network Operating System	■ Novell® Client 3.x & 4.x ■ Microsoft Windows® Networking	
Host Operating System	Microsoft Windows® 95: ■ NDIS3 Miniport Driver	
	Microsoft Windows® NT v4.0: ■ NDIS4 Miniport Driver	
	Microsoft Windows® 98 and 2000: ■ NDIS5 Miniport Driver	
	MS-DOS & Microsoft Windows 3.x: ■ DOS ODI Driver ■ Packet Driver	
	Windows CE ■ Windows CE v.2.0 & 2.11	
	Apple Macintosh Operating Systems: ■ Apple PowerBook G3	
Media Access Protocol	CSMA/CA (Collision Avoidance) with Acknowledgment (ACK)	
Data Rate	■ High	11 Mb/s
	■ Medium	5.5 Mb/s
	■ Standard	2 Mb/s
	■ Low	1 Mb/s
	The cards use an automatic Transmit Rate Select mechanism.	

Radio Characteristics

Radio Characteristics of ORiNOCO PC Cards may vary:

- According to the country where the product was purchased.
- According to the type of product that was purchased.

Wireless communication is often subject to local radio regulations. Although ORiNOCO wireless networking products have been designed for operation in the license-free 2.4 GHz band, local radio regulations may impose a number of limitations to the use of wireless communication equipment.

NOTE:
Refer to the flyer “Information to the User” for regulatory information that may apply in your country.

To comply with such regulations, ORiNOCO PC Cards are marketed with dedicated channel-sets with a number of factory-programmed channels identified by the following acronyms:

- ETS for countries that adhere to the regulations as defined by the European Telecommunications Standards Institute (ETSI).
- FCC for countries that adhere to the regulations as defined by the US Federal Communications Commission (FCC).
- FR for France, and
- JP for Japan.

The acronym of the channel-set supported by your card is printed on a label on the back-side of your ORiNOCO PC Card (see Table “ORiNOCO IEEE 802.11 Channels Sets” on page A-10 for a detailed list of channels).

If you plan to install and use ORiNOCO PC Cards to connect your AP-1000 or other computing device to an outdoor antenna installation, additional regulations may apply.

To comply with such regulations Lucent Technologies offers two types of ORiNOCO PC Cards:

- In countries that adhere to the FCC regulations, you can use the standard black-colored ORiNOCO PC Card.
- In countries that adhere to the ETSI regulations, including France and Japan, you must select the card-type based upon the antenna that will be used:
  - You can use the black-colored ORiNOCO PC Card when connecting the device to standard Lucent Technologies omni-directional antennas.
  - You ***must*** use the red-colored IEEE Fixed Wireless PC Card when connecting the device to the standard Lucent Technologies 14 dBi directional antenna for outdoor use.

When you ordered the ORiNOCO Outdoor Router kit[1] for outdoor antenna installations, your kit includes the correct card type that complies with the regulations that apply in your country.

WARNING:

At all times, it will be the responsibility of the end-user to ensure that an outdoor antenna installation complies with local radio regulations. The end-user must verify that:

- *The antenna installer is aware of these regulations.*
- *The correct type of PC Card is used to connect the host device to the outdoor antenna installation.*

Lucent Technologies and its resellers or distributors are not liable for any damage or violation of government regulations that may arise from failing to comply with these guidelines.

1 Formerly identified as the WaveLAN Office Router, WaveACCESS LINK WP-II, or WaveLAN IEEE PTP Kit

Radio Characteristics ORiNOCO PC Card

R-F Frequency Band	**2.4 GHz** (2400-2500 MHz)			
Number of selectable sub-channels	North America (FCC)	11		
	Europe (ETS)	13		
	France (FR)	4		
	Japan (JP)	1		
	Other Countries:	FCC 11, ETS 13		
Modulation Technique	Direct Sequence Spread Spectrum ■ CCK for High & Medium Transmit Rate ■ DQPSK for Standard Transmit Rate ■ DBPSK for Low Transmit Rate			
Spreading	11-chip Barker Sequence			
Bit Error Rate (BER)	Better than 10^{-5}			
Nominal Output Power	15 dBm			
Range (100 bytes User Data) / Transmit Rate	**High Speed 11 Mb/s**	**Medium Speed 5.5 Mb/s**	**Standard Speed 2 Mb/s**	**Low Speed 1 Mb/s**
Open Office Environment	160 m (525 ft.)	270 m (885 ft.)	400 m (1300 ft.)	550 m (1750 ft.)
Semi-Open Office Environment	50 m (165 ft.)	70 m (230 ft.)	90 m (300 ft.)	115 m (375 ft.)
Closed Office	25 m (80 ft.)	35 m (115 ft.)	40 m (130 ft.)	50 m (165 ft.)
Receiver Sensitivity	-83 dBm	-87 dBm	-91 dBm	-94 dBm
Delay Spread (at FER of <1%)	65 ns	225 ns	400 ns	500 ns

The range of the wireless signal is related to the Transmit Rate of the wireless communication. Communications at lower Transmit range may travel larger distances.

NOTE:

The range values listed in Table “Radio Characteristics” are typical distances as measured at the Lucent Technologies ORiNOCO laboratories. These values may provide a rule of thumb and may vary according to the actual radio conditions at the location where the ORiNOCO product will be installed.

- The range of your wireless devices can be affected when the antennas are placed near metal surfaces and solid high-density materials.
- Range is also impacted due to “obstacles” in the signal path of the radio that may either absorb or reflect the radio signal.

Table “Radio Characteristics” on page A-3 lists the typical ranges when used indoors in “office environments” that can be described as follows:

- In **Open Office environments**, antennas can “see” each other, i.e. there are no physical obstructions between them.
- In **Semi-open Office environments**, work space is divided by shoulder-height, hollow wall elements; antennas are at desktop level.

In **Closed Office environments**, work space is separated by floor-to-ceiling brick walls. If you intend using the ORiNOCO PC Card as part of an outdoor antenna installation, the range of the outdoor antenna installations will be related to:

- Type of outdoor antennas connected to the ORiNOCO PC Card.
- Length of antenna cables.
- Clearance of the radio signal path.

For more information please consult the “ORiNOCO Outdoor Antenna Installation Guide”

ORiNOCO Fixed Wireless PC Card

R-F Frequency Band	**2.4 GHz** (2400-2500 MHz)	
Number of selectable sub-channels:	Europe (ETS)	13
	France (FR)	4
	Japan (JP)	14
	Other Countries (ETS)[1]	13
Modulation Technique:	Direct Sequence Spread Spectrum ■ CCK for High & Medium Transmit Rate ■ DQPSK for Standard Transmit Rate ■ DBPSK for Low Transmit Rate	
Spreading	11-chip Barker Sequence	
Bit Error Rate (BER)	Better than 10^{-5}	
Nominal Output Power:	8 dBm	
Range	Consult the “ORiNOCO Outdoor Antenna Installation Guide”[2]	

1 The Fixed Wireless PC Card is not available in FCC regulated countries.

2 This card is designed for outdoor antenna installations in countries that adhere to radio regulations as defined by the ETSI.

Supported Frequency Sub-bands

Subject to the radio regulations that apply in your country, your ORiNOCO PC Card may support a different set of 2.4 GHz channels (see table below). Consult your Authorized ORiNOCO Reseller or Lucent Technologies Sales office for information about the radio regulations that apply in your country.

ORiNOCO IEEE 802.11 Channels Sets

Frequency Range	2400-2500 MHz[1]			
Channel ID	**FCC**	**ETSI**	**France**	**Japan**
1	2412	2412	-	2412
2	2417	2417	-	2417
3	**2422**	**2422**	-	2422
4	2427	2427	-	2427
5	2432	2432	-	2432
6	2437	2437	-	2437
7	2442	2442	-	2442
8	2447	2447	-	2447
9	2452	2452	-	2452
10	2457	2457	2457	2457
11	2462	2462	**2462**	2462
12	-	2467	2467	2467
13	-	2472	2472	2472
14	-	-	-	**2484**

1 printed in bold are the factory-set default channels

When installing ORiNOCO PC Cards the channel configuration is managed as follows:

- For wireless clients that operate in an ORiNOCO Infrastructure, the ORiNOCO PC Card will automatically start operation at the channel identified by the AP-1000s. When roaming between different access

points the station can dynamically switch to another channel if required.

- For ORiNOCO PC Cards installed into wireless clients that operate in an “Peer-to-Peer” mode, the PC Card will default use channel 10.

When inserted into a AP-1000, the ORiNOCO PC Card will use the factory-set default channel (printed in bold), unless the LAN Administrator selected a different channel when configuring the AP-1000 device.

Troubleshooting

B

Common Troubleshooting Tips

LED Activity

If you encounter difficulty using and/or installing your ORiNOCO product, the error may be related to various causes:

- Out-of range situation, which prevents the ORiNOCO PC Card from establishing a wireless connection with the network.
- Configuration mismatch, which prevents the ORiNOCO PC Card from establishing a wireless connection with the (correct) network.
- Absence of, or conflict of the ORiNOCO Driver.
- A problem or conflict with the PC Card slot which prevents the PC Card from powering on.
- A conflict of the ORiNOCO hardware with another device.

The starting point to troubleshoot problems with your ORiNOCO PC Card is looking at the LED activity of the ORiNOCO PC Card.

Table B-1 on page B-2 provides an overview of the various modes of operation and the associated LED activity. Table B-1 also includes a number of troubleshooting hints, if required, that may help you solve the problem.

Table B-1 LED Activity Table

Power LED	Transmit Receive LED	Description/Action
Continuous Green	Blinking	Standard operational mode. ■ Card is powered on. ■ Sensing/transmitting wireless data.
	Off	■ Card is powered on. ■ No wireless activity. No action is required.
Flicker	Flicker	Power Management mode: ■ Card is powered on, but set to power saving mode, to conserve battery life. ■ Flashes indicates that the card wakes up at regular intervals to verify if there is wireless data addressed to your computer.

Table B-1 LED Activity Table—*Continued*

Power LED	Transmit Receive LED	Description/Action
Both LEDs blink once every 10 seconds		The PC Card works fine, but did not yet succeed establishing a wireless connection with the wireless Infrastructure. Actions: ■ Contact the LAN Administrator to verify the ORiNOCO Network Name assigned to the wireless infrastructure. ■ Contact the LAN Administrator to verify the correct value(s) of the encryption keys. ■ Contact the LAN Administrator to verify whether the network infrastructure has been closed[1]. ■ Change the configuration of your ORiNOCO PC Card to enter the correct Network Name ■ If there are no AP-1000 devices available, change the configuration of your ORiNOCO PC Card to run in “Peer-to-Peer” mode.

Table B-1 LED Activity Table—*Continued*

Power LED	Transmit Receive LED	Description/Action
Off	Off	Card is not powered on, so it can not transmit/receive data. The cause may either be: ■ No Driver loaded/installed ■ Card - Driver mismatch which prevented the driver from loading ■ Device conflict which prevented the driver from loading Actions: ■ Verify if a driver has been installed, if not install the driver. ■ Verify the device settings of the PC Card to determine the occurrence of a conflict with another device. If so, change the settings of either your PC Card or the conflicting device to resolve the problem. ■ Verify the versions of the driver, and the embedded software in the PC Card (also referred to as Station firmware). ■ Consult the ORiNOCO website at: **http://www.lucent.com/orinoco** to see if newer versions are available and if so, upgrade both the embedded software and driver to the latest available version.

1 Only for networks that include ORiNOCO AP-1000s.

Can Not Connect To The Network

If your PC Card seems to be working fine, but you are not able to connect to the network, this error might be due to a configuration mismatch.

For example if both LEDs of your PC Card blink once every ten seconds, the problem is likely to be caused by a configuration mismatych of:

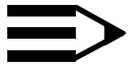
- Network Name
- Encryption Key

The ORiNOCO Network Name is case-sensitive.

On MS-DOS systems the Network Name should be entered between quotation marks. If you omit the quotation marks, the driver will interpret the value as all upper-case e.g. 12CAFE instead of "12Cafe".
If your AP-1000s have been configured with both lower- and upper-case characters, the driver will not be able to establish a radio connection.

LEDs Work But Can’t Connect to Network

If you can not connect to the network while the LEDs indicate that the network is working properly (Power LED is on, Transmit Receive LED blinks) probably the TCP/IP settings of your network are not properly set.



NOTE:
Some older versions of the Windows 95 operating system will not automatically install the necessary TCP/IP network protocol.

Changing TCP/IP Settings

Consult your LAN Administrator for your the values of your TCP/IP settings.

To change the TCP/IP Settings:

1. On the Windows task bar click the **Start** button
2. Select **Settings** and then select **Control Panel**.
3. On the Control Panel window, double click on the **Network** icon to view the **Network Properties**.
4. From the list of installed components, check if the **TCP/IP -> ORiNOCO PC Card** protocol is installed.
   - If this protocol is not yet installed, click the **Add** button and select the **TCP/IP** protocol from the list. Refer to the Windows Help for more information.
   - If this protocol is installed, select this protocol and click the **Properties** button. Check if the parameters resemble the settings provided by your LAN Administrator. Make Changes if necessary, and click **OK** when you're done.
5. When prompted, restart your computer.

For more detailed Troubleshooting hints, and/or information about upgrading the ORiNOCO drivers, please consult the "ORINOCO PC Card - User's Guide" provided on the CD-ROM.

Warranty Repair Card

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About Warranty and Repair

In case your ORiNOCO product is not working properly, you are advised to consult Appendix B ”Troubleshooting” prior to contacting ORiNOCO Technical Support.

In case this does not help you solving the problem, contact ORiNOCO Technical Support as described on the last pages of this document.

If it appears that your unit needs a rpair or replacement retrun to your Dealer/Distributor in its original packaging

Warranty Repairs:

When returning a defective product for Warranty, always include the following documents:

- Problem Report Form (an electronic copy is available on the CD-ROM (**report.txt**).
- The Warranty Repair card, and
- A copy of the invoice/proof of purchase

All other Repairs:

When returning a defective product for Repair, always include the the Warranty Repair card.

You are advised to read the Information about “Limited Warranty” as described on the following page.

Limited Warranty

Lucent Technologies extends a limited warranty from date of purchase of:

- Thirty-six (36) months for ORiNOCO hardware products
- Twelve (12) months for AP-1000
- Twelve (12) months for the media on which the software is furnished and the reproduction of the software on the media.

Upon proof-of-purchase Lucent Technologies shall at its option, repair or replace the defective item at no cost to the buyer.

Defective items shall be returned to the dealer/distributor:

- Freight prepaid.
- Accompanied by a copy of proof-of-purchase.
- Accompanied by a filled out Warranty/Repair card.

This warranty is contingent upon proper use in the application for which the products are intended and does not cover products which have been modified without the seller's approval or which have been subjected to unusual physical or electrical demands or damaged in any way.

This Warranty constitutes the sole and exclusive remedy of any buyer or seller's equipment and the sole and exclusive liability of Lucent Technologies in connection with the products and is in lieu of all other warranties, express, implied or statutory, including, but not limited to, any implied warranty of merchantability of fitness for a particular use and all other obligations or liabilities of Lucent Technologies.
In no event will Lucent Technologies Inc. or any other party or person be liable to you or anyone else for any damages, including lost profits, lost savings or other incidental or consequential damages, or inability to use the software provided on the software media even if Lucent Technologies or the other party person has been advised of the possibility of such damages.

Warranty Repair Card

To be filled out by the User:

Product Description:	
COMCODE (Product ID):	
Serial Number:	
Invoice Date:	(dd/mm/yyyy)
Name:	
Title:	
Company:	
Address:	
City/State/Zipcode:	
Country:	
Telephone:	
Fax:	
Email:	

To be filled out by the Dealer/Distributor:

Dealer Name:	
Address:	
City/State/Zipcode:	
Country:	
Telephone:	
Fax:	
Warranty	**Comment**
❑ Yes	
❑ No	

Return Approval Reference:

Reported Problem:		**Problem Description:**
❑	Out-of-Box Failure	
❑	Other	

Technical Support

If you encounter problems when installing or using this product, please consult the ORiNOCO website at: **http://www.lucent.com/orinoco** for:

- the latest software, user documentation and product updates
- the Frequently Asked Questions (FAQ)

Alternatively please contact your local authorized ORiNOCO reseller for Technical Support.

Help us helping you by completing the ORiNOCO problem report form and include it with your e-mail or fax when contacting Technical Support.
You can find the problem report form (**report.txt**) on:

- the ORiNOCO CD-ROM, and
- the support pages of the ORiNOCO website.

Addresses of authorized ORiNOCO resellers are listed in the “Contact & Ordering” section of the ORiNOCO website.