NoWiresNeeded

11 Mbps Wireless LAN PC Card
-
11 Mbps Wireless LAN ISA Card

User Manual

Version 3.0.x - March 2000

CE 0122 ⓘ	**Important Notice:** This device is a 2.4 GHz low power RF device intended for normal use in all EU member states except in France where restrictive use applies. Please refer to page 9 in this manual for further details

User Manual

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-
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www.nwn.com

Version 3.0.x - March 2000

Table of contents

Trade Marks

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Copyright statement

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with the minimum distance of 20 centimeters (8 inches) between your body, excluding hands, wrists, feet and ankles (see table below).

Antenna	Minimum Distance
Integrated PCMCIA antenna	20 cm (8 inches)

R&TTE Compliance Statement

This equipment complies with all the requirements of the DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 March 1999 on Radio Equipment and Telecommunication Terminal Equipment and the mutual recognition of their conformity (R&TTE).

The R&TTE Directive repeals and replaces in full the Directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) as of April 8, 2000.

Safety

This equipment is designed with utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electronical equipment. All guidelines of this manual and of the computer manufacturer must therefore be followed at all times to ensure the safe use of the equipment.

Restriction of use

The NoWiresNeeded 11Mbps WLAN PC Card is a passive scanning device. Passive scanning means that it will never start to transmit before it has detected an active IEEE 802.11 Access Point. In order to avoid illegal use of channels, please check if the Access Point you want to connect to has legal regulatory settings. Please check chapter 7 for an overview of regulatory settings.

Intended use

This product is a low power 2.4 GHz WLAN PC Card transceiver intended for home and office use.

EU countries intended for use

This device is intended for home and office use in Austria, Belgium, Denmark, Finland, France (with frequency channel restrictions), Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and the United Kingdom.

This device is also authorized for use in EFTA member states Iceland, Liechtenstein, Norway and Switzerland.

EU Countries not intended for use

None.

Potential restrictive use

France: only channels 10, 11, 12 and 13.

Declaration Of Conformity

NoWiresNeeded

Declaration of Conformity

We, the undersigned,

Company	NoWiresNeeded B.V.
Address, City	Rembrandtlaan 1a, 3723 BG Bilthoven
Country	The Netherlands
Phone number	+31 30 2296060
Fax number	+31 30 2296061

certify and declare under our sole responsibility that the following equipment:

Brand	NoWiresNeeded
Type	NoWiresNeeded 11Mbps WLAN Pc card
Product description / Supplementary info	2.4 GHz Low Power RLAN PCMCIA card transceiver

is tested to and conforms with the essential radio test suites included in following standards:

Standard	Issue date
ETS 300 328	Ed.2, Nov.1996
ETS 300 826	Ed.1, Nov. 1997
EN 60950	(1992), incl. A1(1993), A2(1993),A3(1995), A4(1997)

and therefore complies with the essential requirements and provisions of the Directive 1999/5/EC of the European Parliament and of the council of 9 march 1999 on Radio equipment and Telecommunications Terminal Equipment and the mutual recognition of their conformity and Annex IV (Conformity Assessment procedure referred to in article 10(4)).

The following Notified Bodies have been consulted in the Conformity Assessment procedure:

Notified Body number	Name and address
0122	NMi Certin B.V., P.O. Box 15, 9822 ZG Niekerk, The Netherlands

The technical documentation as required by the Conformity Assessment procedure is kept at the following address:

Company	NoWiresNeeded B.V.
Address, City	Rembrandtlaan 1a, 3723 BG Bilthoven
Country	The Netherlands
Phone number	+31 30 2296060
Fax number	+31 30 2296061

CE

Drawn up in	Bilthoven
Date	9-March-2000
	
Name and function	Remi Blokker, Vice President

1 Introduction

Thank you for purchasing your NoWiresNeeded 11 Mbps Wireless LAN PC Card/11 Mbps Wireless LAN ISA Card. This manual will assist you in the installation procedure.

If you have purchased the 11Mbps Wireless LAN PC Card only, the package you received contains the following items:

- 11 Mbps Wireless LAN PC Card
- CD containing User Manual, Connect utility and drivers labeled 11 Mbps Wireless LAN PC Card

If you have purchased the 11 Mbps Wireless LAN PC Card/11 Mbps Wireless LAN ISA Card combination, the package you received contains the following items:

- 11 Mbps Wireless LAN PC Card
- 11 Mbps Wireless LAN ISA Card
- CD containing User Manual, Connect utility and drivers labeled 11 Mbps Wireless LAN PC Card
  If anything is missing, please contact your vendor

The CD contains the User Manual, the 11 Mbps Wireless LAN PC Card drivers and the Connect™ program. These are used for managing the 11 Mbps Wireless LAN PC Card and establishing the wireless connection with your Local Area Network (LAN).

2 Wireless LAN basics

Wireless Local Area Network systems (WLANs) offer a great number of advantages over a traditional, wired system. WLANs are more flexible, easier to setup and manage and more cost effective than their wired equivalence.

Using radio frequency (RF) technology, WLANs transmit and receive data through the air, minimizing the need for wired connections. Thus, WLANs combine data connectivity with user mobility, and, through simplified configuration, enable movable LANs.

Through wireless LANs, users can access shared information without looking for a place to plug in and network administrators can set up or augment networks without installing or moving wires. Wireless LANs offer the following productivity, convenience and cost advantages over traditional wired networks:

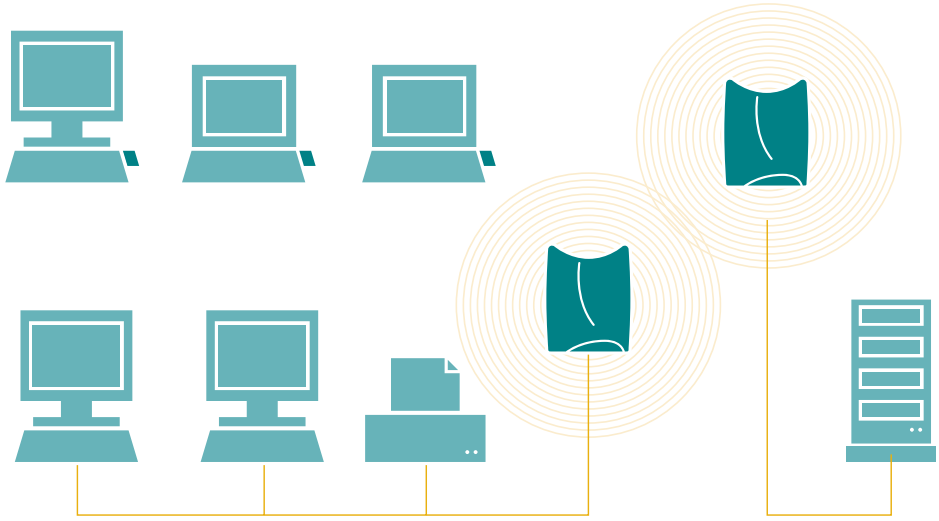
- Mobility - WLANs can provide LAN users with access to real-time information anywhere in their organization. This mobility supports productivity and service opportunities not possible with wired networks.

- Installation Speed and Simplicity - Installing a WLAN is fast and easy and can eliminate the need to pull cable through walls and ceilings.

- Installation Flexibility - Wireless technology allows the network to go where wires cannot go.

- Reduced Cost-of-Ownership - After an initial investment in wireless LAN hardware, overall installation expenses and life-cycle costs will be significantly lower than is the case with wired networks. Long-term cost benefits are most significant in dynamic environments requiring frequent moves, additions and changes.

- Scalability - WLANs can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to full infrastructure networks of thousands of users roaming over a broad area.



3 Series 1100 installation

3.1 Hardware installation

For detailed information on how to add new hardware to your specific computer configuration, please follow the guidelines of your computer manufacturer.

3.2 11 Mbps Wireless LAN ISA Card installation

The 11 Mbps Wireless LAN ISA Card is used as an adapter for the 11 Mbps Wireless LAN PC Card in systems without a free PCMCIA slot, but with a free ISA slot.

Important: always install the 11 Mbps Wireless LAN ISA Card first before inserting the 11 Mbps Wireless LAN PC Card into it.

Please follow the procedure below to install the 11 Mbps Wireless LAN ISA Card in your computer.

1. Shut down the computer.

2. Remove the computer's metal casing.

3. Place the 11 Mbps Wireless LAN ISA Card in a free ISA slot (the 11 Mbps Wireless LAN PC Card should **not** be inserted in the 11 Mbps Wireless LAN ISA Card at this time).

4. Replace the computer's metal casing.

5. Switch on the computer.

Some extra steps are required to complete the installation under Windows 95/98:

6. When starting Windows 95/98, a window will appear, indicating that new hardware has been found. The SCM Plug & Play Swap Box will be installed automatically.

The SCM Swap Box is disabled by default. To enable it, you should do the following:

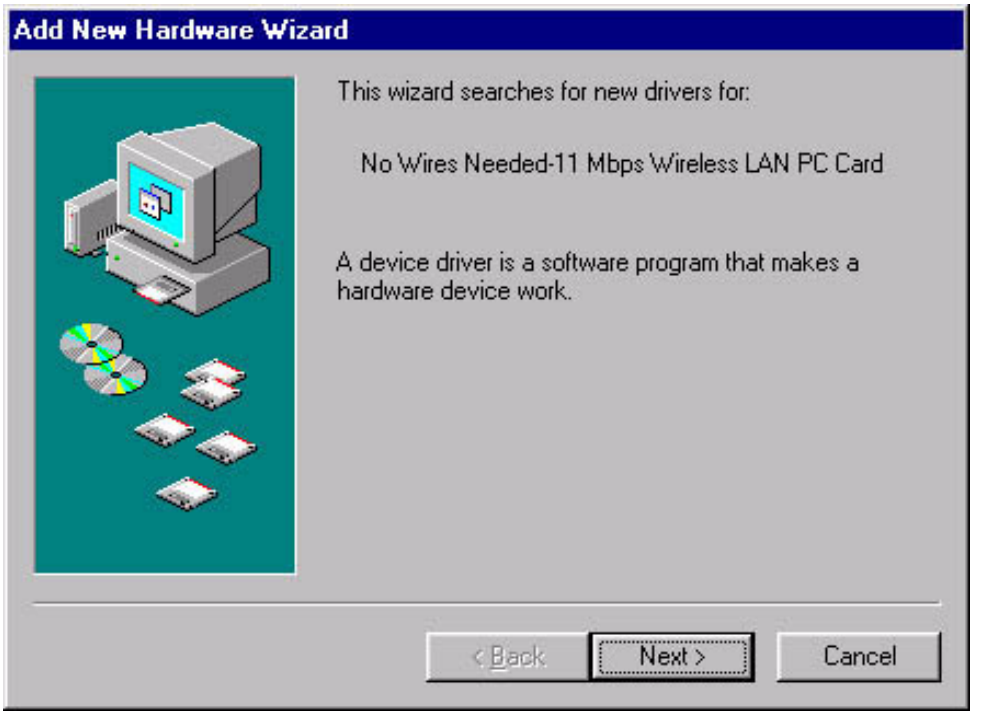
7. Go to the Windows *Control Panel* and double-click on PC Card (PCMCIA). Click <Next>, <Next> and <Finish> to complete the installation.

The installation procedure of the 11 Mbps Wireless LAN ISA Card is now completed. Depending on your operating system, you should proceed to one of the following paragraphs for the 11 Mbps Wireless LAN PC Card installation.

3.3 11 Mbps Wireless LAN PC Card Windows 95 installation

This chapter will assist you in installing the 11 Mbps Wireless LAN PC Card under the Windows 95 operating system.

1. Insert the 11 Mbps Wireless LAN PC Card in a free PC Card slot. After a few seconds, a window will appear, indicating that new hardware has been found, for which software must be installed.



2. Insert the CD that is included with the package in the drive and click <Next>. Windows will start looking for the 11 Mbps Wireless LAN PC Card drivers.

3. A window will appear, indicating that the drivers are found on the CD. Click <Finish> to continue.

4. Windows will now prompt for the Windows 95 CD-ROM, which contains some driver files, like "connect2.cpl". Enter the location of your Windows 95 cab files and click <OK>. Windows will start copying the necessary files.

5. In most cases, you will now have to reboot your computer.

The installation procedure of the 11 Mbps Wireless LAN PC Card under the Windows 95 operating system is now completed. Please proceed to chapter 4 of this manual for an explanation of the Connect™ program.

3.4 11 Mbps Wireless LAN PC Card Windows 98 installation

This chapter will assist you in installing the 11 Mbps Wireless LAN PC Card under the Windows 98 operating system.

1. Insert the 11 Mbps Wireless LAN PC Card in a free PC Card slot. After a few seconds, a window will appear, indicating that new hardware has been found, for which software must be installed.

2. Use the recommended setting and click <Next> to continue.

3. A window will appear which indicates the locations in which Windows will search for the 11 Mbps Wireless LAN PC Card driver files. Insert the 11 Mbps Wireless LAN PC Card CD and make sure the "CD-ROM drive" box is checked. Click <Next> to continue.

4. When Windows reports that the necessary drivers are found, click <Next> to continue.

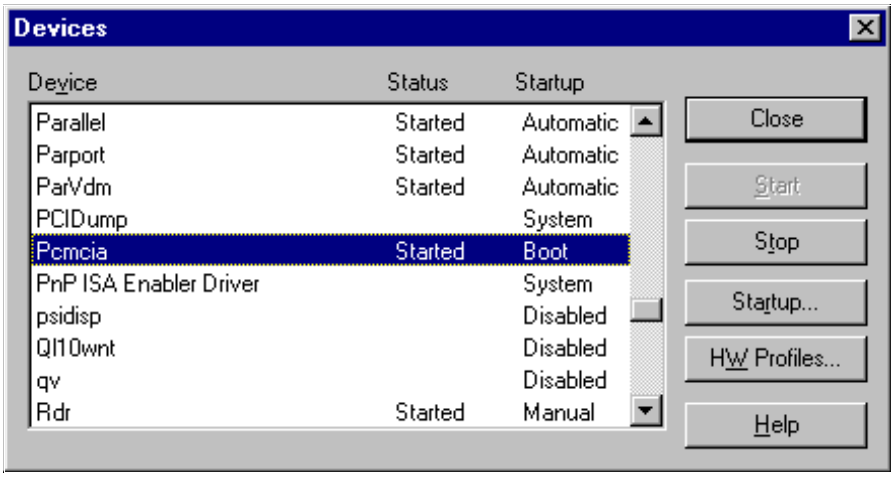
5. In most cases, you will now have to reboot your computer.

The installation procedure of the 11 Mbps Wireless LAN PC Card under the Windows 98 operating system is now completed. Please proceed to chapter 4 of this manual for an explanation of the Connect™ program.

3.5 11 Mbps Wireless LAN PC Card Windows NT4 installation

1. Go to the Windows Control Panel and double-click on 'Devices'.

2. Look for 'PCMCIA' in the list that appears. If the Status column indicates 'Started' and the Startup column indicates either 'Boot' or 'Automatic', proceed to step 4. If this is not the case, you should continue with step 3 first.

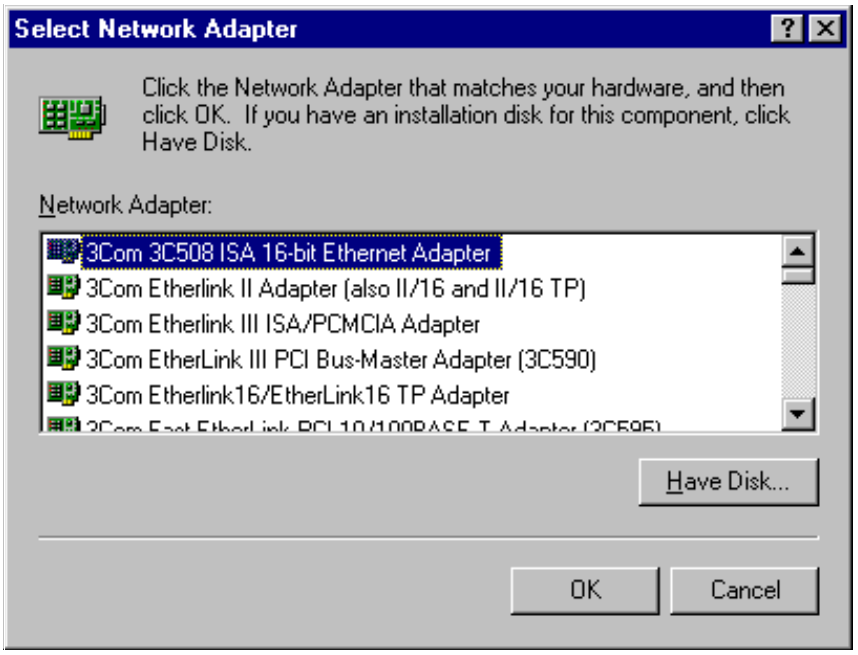


3. Click on the Startup button, check the 'Boot' radio button and click on <OK>.

4. Go to the Windows Control Panel and double-click on Network.

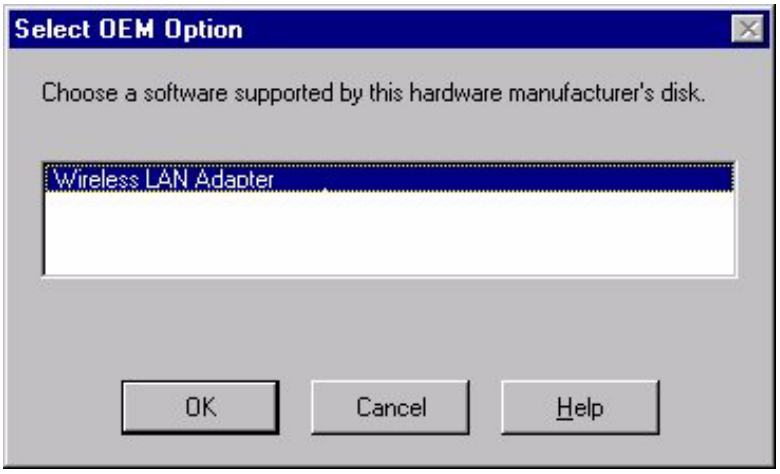
5. In the window that appears, go to the *Adapters* tab and click on <Add>.

6. A list of network adapters appears. Insert the 11 Mbps Wireless LAN PC Card CD and click on the <Have Disk> button.



7. Indicate the path of the 11 Mbps Wireless LAN PC Card installation CD (typically D:\) and click on <OK>.

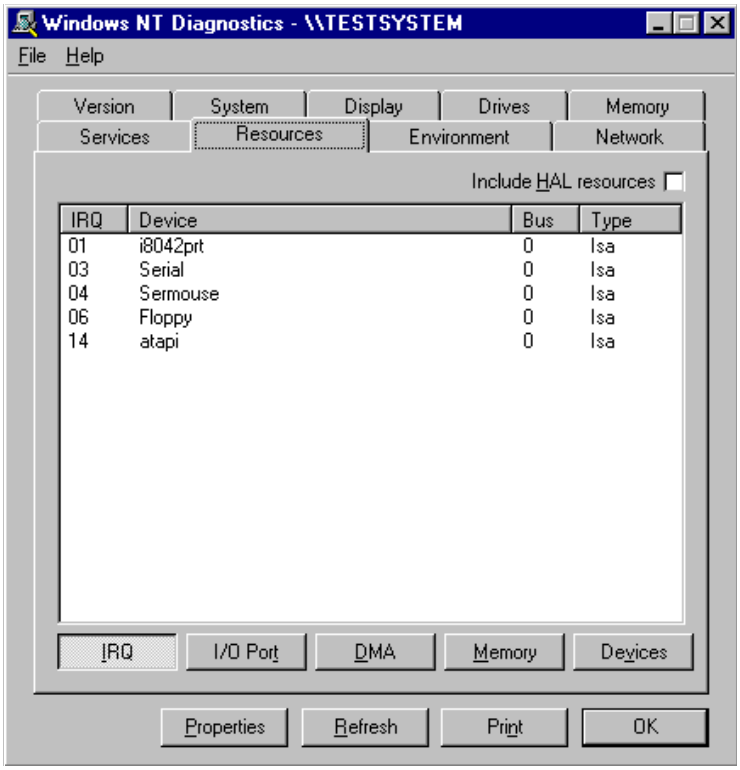
8. A dialog box appears, containing "1100 Wireless LAN Adapter". Click <OK> to select this item.



9. Now you must select an IRQ number and an I/O Base. Select an unused IRQ and an unused I/O base for the 11 Mbps Wireless LAN PC Card and click <OK>.

   Note: Windows NT cannot see whether the default values are conflicting with other hardware. You can see which IRQs are already in use by following these steps:

- Go to the *Administrative Tools* folder in the Windows Program menu and run *Windows NT Diagnostics.*
- Select the *Resources* tab. Here, all IRQs in use will be listed.
- Click on the <I/O Port> button to see which I/O ports are already in use (The 11 Mbps Wireless LAN PC Card requires 8 I/O ports, so it will occupy the I/O base + 7 ports).



10. The 11 Mbps Wireless LAN PC Card is now listed as a network adapter. Click on <Close>.

11. If you have other network protocols installed, these will review their bindings and ask some questions to complete the process. TCP/IP, for example, will ask you whether you would like to use DHCP or give a static IP address.

12. You are asked to reboot. Insert the 11 Mbps Wireless LAN PC Card and reboot.

13. After rebooting, the icon for Connect™ should be visible in the right-hand corner of the taskbar. Double-click on this icon to configure the 11 Mbps Wireless LAN PC Card, if necessary.

The installation procedure of the 11 Mbps Wireless LAN PC Card under the Windows NT4 operating system is now completed. Please proceed to chapter 4 of this manual for an explanation of the Connect™ program.

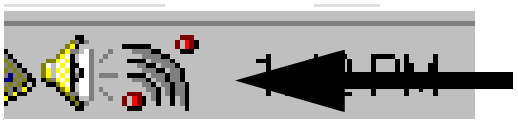
4 Connect™

Now that you have successfully installed your 11 Mbps Wireless LAN PC Card you can establish a connection with a network.

Connect™ is an application that shows the user the current status of the network connection. Using Connect™, you can diagnose your connection and choose a wireless network to establish a connection with.

4.1 Appearances

When you have successfully installed the drivers and the Connect™ software on your computer, the taskbar will show a new icon:



This icon will give you information on the status of your computer in relation to the wireless networks in your environment.

The wireless network icon can have three different appearances. Each appearance shows the status of the connection between your computer and the wireless network:

There is no 11 Mbps Wireless LAN PC Card present in the PC Card slot of your computer.

Everything is installed but there is no connection with a wireless network.

Hard- and software are okay and there is a connection with a wireless network.

By clicking on the icon once with the right mouse button, a pop-up menu appears, providing the following options:

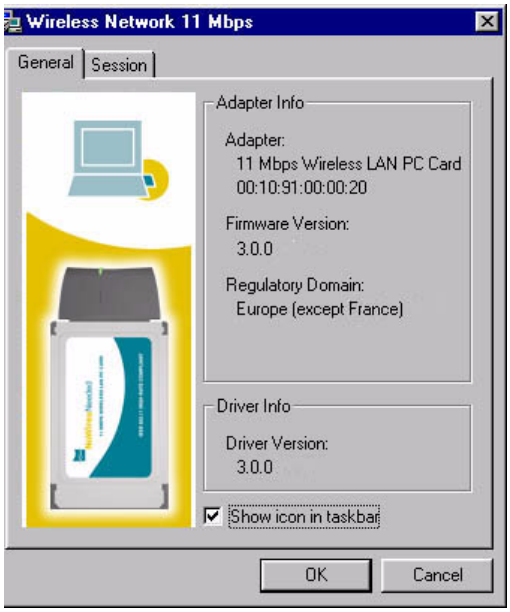
- General Info and Session Info: these options will open the dialog box of Connect™ with the respective tab sheet.

- About Connect: this option will open a box with information about the version and the copyrights.

- Exit: this option will remove the icon from the taskbar, but will **not** disconnect you from a network (if you are connected; check for disconnecting paragraph 4.2, note 3).
  Note: To display the icon again, go to *Wireless Network* in the Windows Control Panel and check the *Show icon in taskbar* box.

4.2 Establishing a connection

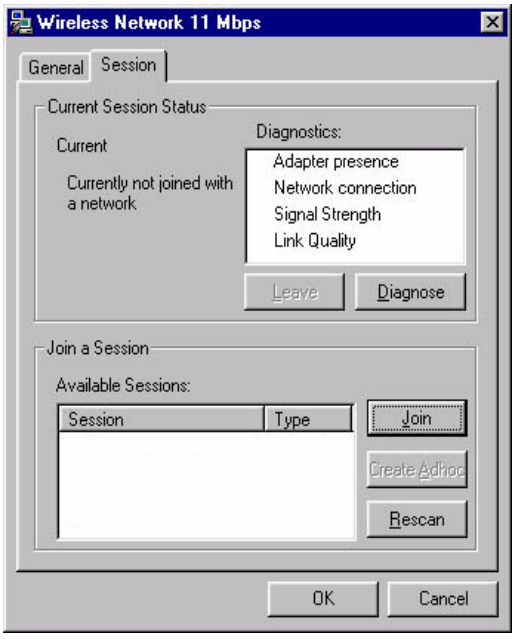
By double-clicking on the icon in the taskbar with the left mouse button, the following dialog window will appear:



This window provides information on the adapter you are using. It also displays the driver and software versions.

- Check the *Show icon in taskbar* box to display the icon in the taskbar. If this box is not checked, the icon will be invisible.

'Regulatory Domain' provides information on where this product can be used.



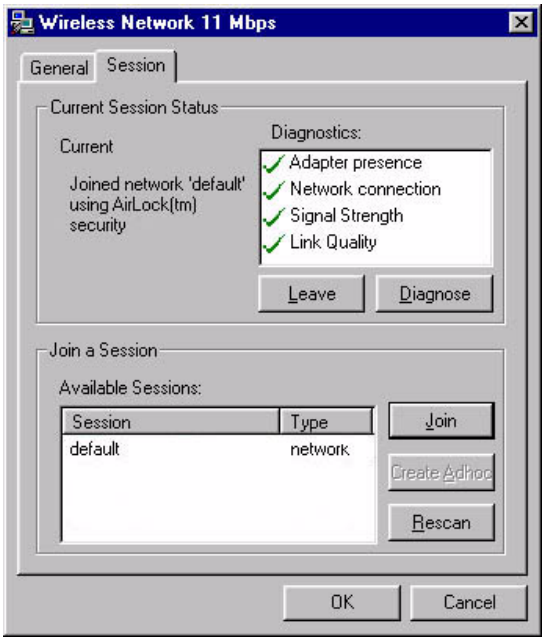
This window appears when clicking on the *Session* tab.

- The upper part of the window provides information on the current session.
- The lower part of the window displays the available sessions.

If you have not yet established a network connection, the text: "Currently not joined with a network" will be displayed in the Current Session Status box.

In the lower part of the screen a connection to a wireless network can be established. Follow the procedure below to establish a network connection:

1. Select the network you want to join. The selected network will be highlighted. Use the <Rescan> button if the network you are looking for is not displayed. The program will then scan again for available networks. Click on <Join> to join the selected network.



- After joining the network the "Current Session Status" will change into, e.g. "Current joined network 'default' using 802.11 security". This depends on the options set by the Network Administrator.
- At this moment, a connection with the wireless network can be established.

2. Click on the <Diagnose> button to diagnose various aspects of the connection. If everything is okay, checkmarks will appear in front of each item.

3. Click on the <Leave> button to disconnect from the network.

4. Click on the <OK> button to have the window disappear and to continue working on the network.

Configuration information on the network you are joining will be saved in the registry. No configuration information is stored in the 11 Mbps Wireless LAN PC Card.

4.3 LED indicator

In addition to the information provided by the icon in the taskbar, the 11Mbps Wireless LAN PC Card is equipped with a green LED indicator. This indicator shows the status of the network connection:

- off - No wireless activity
- blinking - Receiving/transmitting wireless data

5 Network protocols

Please contact your system administrator for additional network settings.

6 Troubleshooting

The following paragraphs describe the troubleshooting tips for the various operating systems and the Connect™ utility:

- Windows 95/98
- Windows NT4
- Connect™

If these tips do not provide sufficient support, please contact your vendor.

6.1 Windows 95/98

Q : I inserted the 11 Mbps Wireless LAN PC Card but Windows didn't recognize it.

A : Please follow the steps below:

1. Go to the Windows Control Panel to check if PC Card support is installed. If there is a PC Card icon in the Control Panel, double-click this icon. When PC Card support is not activated, you will get the opportunity to activate it now.

2. If PC Card support is available, a window will appear showing the status of the PC Card slots. If you cannot find a PC Card icon in the Control Panel, try "New Hardware" to detect your PC Card controller.

Q : I installed the 11 Mbps Wireless LAN PC Card but it does not work.

A : Please follow the steps below:

1. Look for the Connect icon in the right-hand corner of the taskbar. If it is there and it does not show a red exclamation mark, proceed with step 3.

2. Something went wrong during the installation of the adapter.

- Double-click on "System" in the Windows Control Panel and select the *Device Manager* tab. Check the status of the 11 Mbps Wireless LAN PC Card adapter under "Network Adapters". Double-click this item to check the status of the adapter. Check the *Resource* tab to see if there is a resource conflict.
- Double-click on "System" in the Windows Control Panel to check if there is a reference to the 11 Mbps Wireless LAN

PC Card under "Other Devices". If so, remove this reference.

- Make sure the 11 Mbps Wireless LAN PC Card is detected by the PCMCIA socket. Double-click on "PCMCIA" in the Windows Control Panel and check if the 11 Mbps Wireless LAN PC Card is listed there.
  If it is not, check your PCMCIA socket connections and re-insert the 11 Mbps Wireless LAN PC Card.

3. Double-click the Connect icon and see if Connect provides information on the adapter in the *General* tab. If so, the 11 Mbps Wireless LAN PC Card was successfully installed under Windows 95.

4. Now, go to the *Session* tab and select <Diagnose> to determine your problem. If no problems were found, the connection with the Access Point is also functioning properly. If you still cannot use your network now, you should check your client and protocol settings by double-clicking on "Network" in the Windows Control Panel (e.g. NT domain, your workgroup and IP address).

5. If Diagnose revealed that you do not have a connection with an Access Point, you must join a network first. Click one of the networks listed under the *Session* tab and press the <Join> button. If no networks are listed, you should check if there is an Access Point in your neighborhood and if it has been switched on. Also, there should be no red lights blinking on the Access Point.

Q: The label of the second tab of Connect contains nonsense.

A: Use a newer version of the Microsoft Common Controls DLL. Contact your vendor for a software patch.

6.2 Windows NT4

Q: I inserted the 11 Mbps Wireless LAN PC Card before it was installed and I rebooted the system. I also have another network card. Now my other network card does not function properly.

A: You should insert the 11 Mbps Wireless LAN PC Card only after you have installed it via the Network Control Panel.

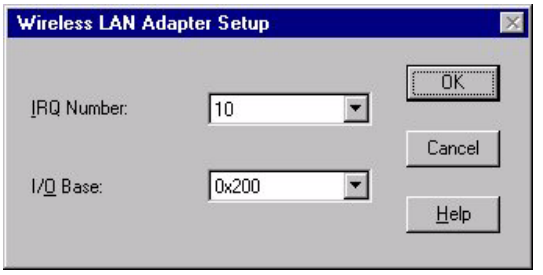
Q: I installed the 11 Mbps Wireless LAN PC Card but it does not work. What can I do?

A: Please follow the steps below:

1. Look for the Connect icon in the right-hand corner of the taskbar. If it is there, proceed with step 3.

2. If the Connect icon is **not** there, there is something wrong with the NT installation. Run the Event Viewer in Administrative Tools (Windows Program menu). Select the System Log in the Log menu. Look at the recent entries by double-clicking.

- If the description indicates a resource conflict, the IRQ or I/O base settings must be adjusted. Double-click on "Network" in the Windows Control Panel and select the *Adapters* tab. Select <Properties> of the 11 Mbps Wireless LAN PC Card Adapter.
- If NT did not detect a resource conflict but you used **0x278** for the 11 Mbps Wireless LAN PC Card, there may be an undetected conflict with the Plug-and-Play features of the ISA bus. Try another I/O base.



- Make sure the 11 Mbps Wireless LAN PC Card is detected by the PCMCIA drive. Double-click on "PCMCIA" in the Windows Control Panel and see if the 11 Mbps Wireless LAN PC Card is listed there. If it is not listed, check your PCMCIA socket connections, re-insert the 11 Mbps Wireless LAN PC Card and reboot.

3. Double-click on the Connect icon and see if Connect provides information about the adapter in the *General* tab. If so, the 11 Mbps Wireless LAN PC Card was successfully installed under NT.

4. Now go to the *Session* tab and select <Diagnose> to determine your problem. If no problems were found, the connection with the Access Point is also functioning properly. If you still cannot use your network now, you should check your client and protocol settings by double-clicking on "Network" in the Windows Control Panel.

5. If Diagnose revealed that you do not have a connection with an Access Point, you must first join a network. Click one of the networks listed under the *Session* tab and press the <Join> button. If no networks are listed, you should check if there is an Access Point in your neighborhood and if it has been switched on. Also, there should be no red lights blinking on the Access Point.

Q: At first it seemed to work, but I ejected the 11 Mbps Wireless LAN PC Card and inserted it again and now it does not work anymore.

A: PCMCIA hot swapping capabilities as available in Windows 95 and Windows 98 are not available in Windows NT 4.0. Reboot your system with the 11 Mbps Wireless LAN PC Card inserted.

6.3 Connect™

Q : No icon in the taskbar although the *Show icon in taskbar* box is checked.

A : Select "Run" from the start menu and type "connect2". Press the <OK> button and in a few seconds the icon will appear on the taskbar.

7 Technical Specifications 11 Mbps Wireless LAN PC Card

Hardware compatibility
IBM-compatible computer with a PC Card Type II-slot, 16 bit, both 3.3 and 5 V.

Driver support
NDIS 3.1
Windows 95
Windows 98
Windows NT 4 or higher
Windows 2000*
Linux*

* not as standard supplied on enclosed cd.
Please see www.nwn.com for further information.

Standards supported
Compliant with ETS 300 328 and ETS 300 826 (CE Marked)
IEEE 802.11 standard for Wireless LAN
EN 60950 (Electrical Safety)
All major networking standards (including TCP/IP, IPX, Netbios)
CE Marked

Environmental

Operating temperature (ambient)	0°C to 40°C (32°F to 104°F)
Relative humidity	10 to 85% non-condensing

Power specifications

Operating voltage	+3.3V or +5 V DC ±5%
Active transmitting	450 mA
Active receiving	300 mA
Idle status	3 mA
Average office use (80%sleep, 16% RX, 4% TX)	• Typical: 68 mA • Minimum: 58 mA • Maximum 79 mA

Radio specifications

Range	• per cell indoors approx. 50 meters (150 ft) or more • per cell outdoors up to 300 meters (1000 ft)
Transmitting power	+ 18 dBm
Frequency range (US, Canada, ETSI)	2.4-2.4835 GHz, direct sequence spread spectrum
Number of Channels	• Europe: 13 (3 non-overlapping) • US: 11 (3 non-overlapping) • France: 4 (1 non-overlapping)
Antenna system	• Two integrated antennas
ASBF™, Automatic Scale Back Functionality	
Mobility	Seamless roaming across cell boundaries with handover

Modulation

1 Mbps	DBPSK
2 Mbps	DQPSK
5.5 Mbps	CCK
11 Mbps	CCK

Specific Features

Supported bit rates	• 11 Mbps • 5.5 Mbps • 2 Mbps (IEEE 802.11 DSS compliant devices, using ASBF™) • 1 Mbps (IEEE 802.11 DSS compliant devices, using ASBF™) *ASBF™ = Automatic Scale Back Functionality*
Data encryption	• AirLock™ security,128-bit key length, RC-4 • WEP128 (IEEE802.11 compliant) • WEP40 (IEEE802.11 compliant)
Utility software	Connect™ User setup & diagnostics tool
Key Management	Automatic Dynamic Key Allocation (ADKA) through public key

Physical Dimensions

Extended type-II PC Card 110.4 x 54.0 x 8.4 mm

8 Software Installation

Choose your operating system in the list below to install the 11 Mbps Wireless LAN PC Card Software:

- Windows 95 Software Installation
- Windows 98 Software Installation
- Windows NT Software Installation

If you plan to use this card in an environment with previously installed NoWiresNeeded IEEE802.11 WLAN products, we recommend you to update all WLAN products with the WLAN Software Update Kit that can be downloaded from the NWN website at www.nwn.com.

For most recent drivers and firmware updates, you can also visit our website at www.nwn.com.