

Network

CREATIVE®

BLASTER®

Wireless PCMCIA Card

Getting Started

Getting Started

Creative Network Blaster Wireless PCMCIA Card 2021

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August 2002

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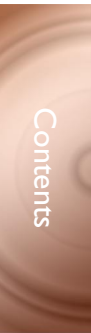
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Safety Instructions

General Safety



To avoid the risk of fire, electric shock or personal injury, note the following precautions when using the product:

- Do not expose the product to direct sunlight or excessive heat.
- Do not place the product in surroundings that exceed 40°C (104°F).
- Avoid humid conditions. Do not place the product near a water source or outlet.
- Do not clean the product with a damp cloth or liquid cleaner.
- Do not put any weight on the product.
- Allow only qualified personnel to service or repair the product, if such is necessary.

FCC Radiation Exposure Statement



- This equipment must be installed and operated in accordance with provided instructions and a minimum 2.5 cm spacing must be provided between the product and the user during wireless modes of operation.
- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.
- This device must not be co-located or operated in conjunction with any other antenna or transmitter.

Setup Guide

1

Before You Begin

- Go to "Before you Begin"—
Shows you what to do before you begin installing your PCMCIA card.

2

Understand your Product

- Go to Chapter 1—
Shows you the parts of your PCMCIA card.

3

Install your Product

- Go to Chapter 2—
Shows you how to install your product's hardware and software.

4

Connect Card

- Go to Chapter 3—
Shows you how to connect your PCMCIA card.

5

Configure Card

- Go to Chapter 4—
Shows you how to configure your PCMCIA card.

6

Secure Your Connection

- Go to Chapter 5 —
Shows you how to use the encryption feature to secure your wireless connection.

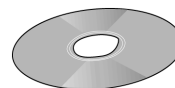
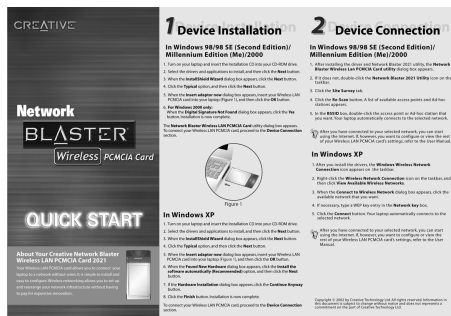
Before you Begin

Introduction

The Creative Network Blaster Wireless PCMCIA Card 2021 is a fully featured wireless network solution for your Notebook, from the makers of Sound Blaster®. It installs quickly and effortlessly, and uses auto-sensing capabilities to ensure fast connections and great performance.

Complete 802.11b compatibility allows you to connect wirelessly at home and work, or even connect directly to other wireless enabled computers or Notebooks. And with 128-bit WEP encryption, your personal information and sensitive work information will be secure wherever you use your Notebook.

Package Contents



Creative Network
Blaster Wireless
PCMCIA Card
2021

Quick Start leaflet

Installation CD
containing software and
PDF User Manual

Recording Model and Serial Numbers

Your PCMCIA card has a model number and a serial number. The numbers are found on the bottom-side of the device. After removing the Network Blaster from its packaging, write down its model and serial numbers for future reference. You will need to provide these numbers when contacting our Technical Support.

Checking System Requirements

The following are the minimum system requirements:

- Intel® Pentium® II 233 MHz processor or equivalent
- 20 MB of free hard disk space
- 64 MB RAM
- Microsoft® Windows® 98 Second Edition (SE), Windows 2000, Windows Millennium Edition (Me) or Windows XP
- CD-ROM drive
- Available PCMCIA slot (68-pin, 16 bit, Type II)

Document Conventions

This manual uses the following icons to highlight useful or urgent information:



- Tip. This tells you about shortcuts or hints relating to a feature.



- Note. This highlights additional or important information about a feature.



- Caution! This highlights proper usage of your product. Use this information to avoid situations involving risk.



- Warning! This warns you of possible hazards, which may result in injury to yourself or damage to the product.

1

About Your Product

About Your PCMCIA Card

The LEDs on your PCMCIA card can be seen in Figure 1-1:

Activity LED

This indicates the activity status.

Blinking green: the PCMCIA card is transferring or receiving data.

Power LED

Lights up when the PCMCIA card is connected to the Notebook and activated.

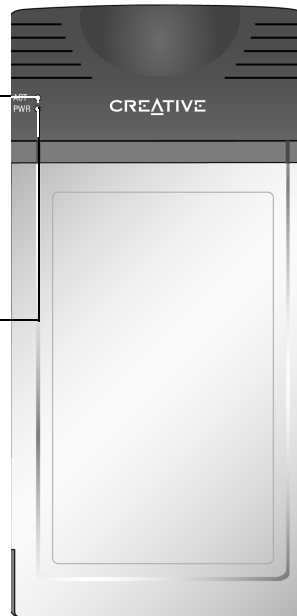


Figure 1-1: PCMCIA card



Do not tamper with the internal assembly or circuit board of the PCMCIA card as none of its parts are user replaceable.

2

Device Installation

DO NOT insert the PCMCIA card into your Notebook before installing the software. You will be required to do so halfway during the installation.

In Windows 98 SE/Me/2000/XP

- 1** Turn on your Notebook and insert the Installation CD into your CD-ROM drive.
- 2** Click the **Install Software** option.
- 3** Select the drivers and applications to install, then click the **OK** button.
- 4** When the **InstallShield Wizard** dialog box similar to Figure 2-1 appears, click the **Next** button.

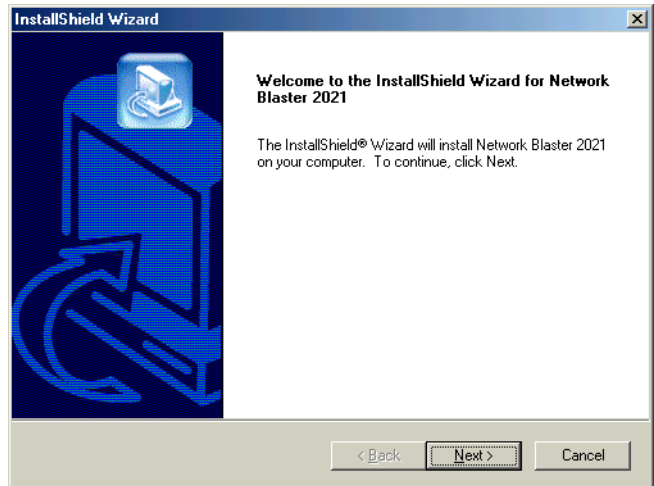


Figure 2-1

- 5 When the dialog box similar to Figure 2-2 appears, click the **Typical** option, and then click the **Next** button.

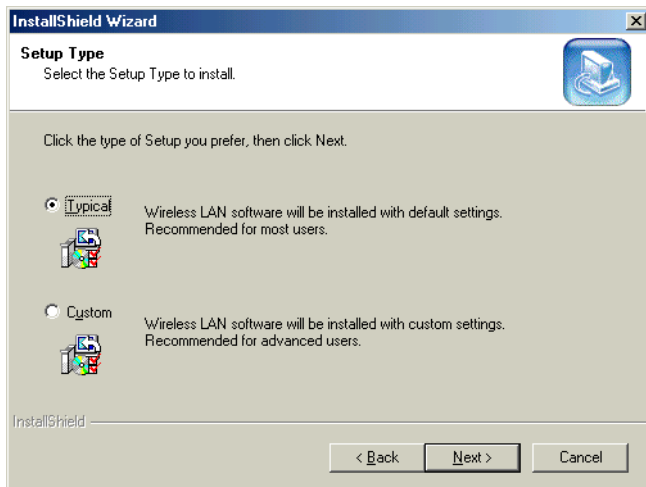


Figure 2-2

- 6 When the **Insert adapter now** dialog box similar to Figure 2-3 appears, insert your PCMCIA card into your Notebook (Figure 2-4), and then click the **OK** button.

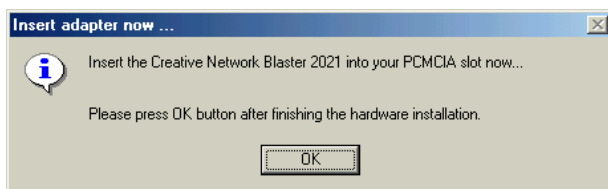


Figure 2-3



Figure 2-4



Windows 98 SE users may be prompted to insert the Win 98 SE installation CD. Insert the Win 98 SE installation CD into your CD-ROM drive, and then click the **OK** button.

7 For Windows 2000 only:
When the **Digital Signature not Found** dialog box similar to Figure 2-5 appears, click the **Yes** button.

For Windows XP only:
When the **Found New Hardware Wizard** dialog box similar to Figure 2-6 appears, click the **Install the software automatically (Recommended)** option, and then click the **Next** button.

If the **Hardware Installation** dialog box similar to Figure 2-7 appears, click the **Continue Anyway** button.

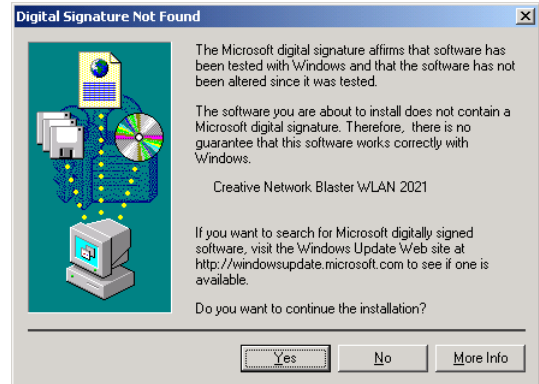


Figure 2-5

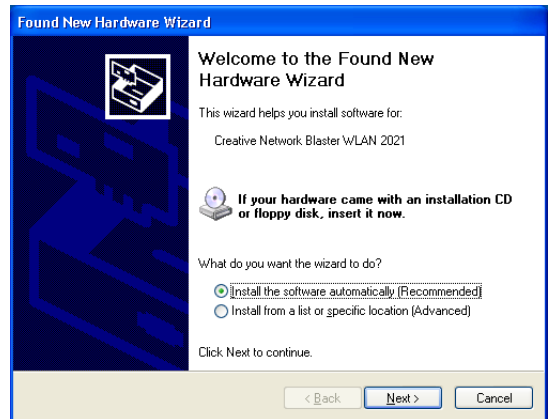


Figure 2-6



Figure 2-7



At the time of this product's release, Microsoft strongly encouraged companies to submit their hardware solutions for certification. If a hardware device driver is not submitted, or does not qualify, for Microsoft certification, a warning message similar to Figure 2-u appears.

You may see this message when installing this driver. If you do, you may choose to click the **Continue Anyway** button. Creative has tested this driver on Windows XP, and it does not impair or destabilize your computer. If you need more XP-related information, go to the product web site's Help or speak with Creative Technical Support staff.

- 8** Click the **Finish** button.
For Windows 98 SE/Me/2000 only:
The **Network Blaster Wireless LAN PCMCIA Card utility** dialog box appears.

Installation is now complete.
Go to "Device Connection" on page 15 to connect your PCMCIA card.

Uninstalling Driver and Network Blaster 2021 Utility



You may at times need to uninstall and then reinstall the drivers to correct problems or make version upgrades. The following instructions tell you how to uninstall the driver and Network Blaster 2021 Utility in all Windows operating systems.

- 1** Close all applications.
- 2** Click **Start -> Programs** or **All Programs -> Creative Network Blaster 2021 -> Uninstall Network Blaster 2021 Utility**.
- 3** When the **Confirm File Deletion** dialog box appears, click the **OK** button.
- 4** When the **Uninstallation Completed** dialog box appears, click the **OK** button.
- 5** Restart your Notebook if it does not restart automatically.
- 6** Eject the PCMCIA card.

Ejecting the PCMCIA Card

You can remove the PCMCIA card from your Notebook. You need not turn off your Notebook when removing the card. However, before ejecting the card, you should exit any applications, and disable the PCMCIA card. This is to prevent data loss.

To disable the PCMCIA card:

- 1** Double-click the PC card icon  OR  on the taskbar.
- 2** On the menu that appears, click **Wireless LAN PCMCIA Card**, and then click the **Stop** button.
- 3** Click the **OK** button.
- 4** Click the **Close** button.

If you remove the PCMCIA card without disabling it, a dialog box similar to Figure 2-8 appears. Click the **OK** button.

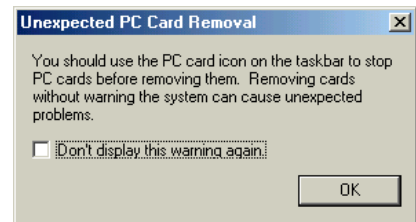


Figure 2-8

3

Device Connection

This chapter explains how to connect your PCMCIA card in Windows 98 SE, Windows Me, Windows 2000 and Windows XP. Before you can connect your PCMCIA card, you need to choose whether you will be connecting directly to another wireless enabled Notebook, computer or to an access point. You may easily switch between modes if your requirements change

Use Ad-hoc mode when connecting directly to other wireless computers or Notebooks. Use Infrastructure mode when connecting to an access point. In either mode the Service Set Identifier (SSID) and Wired Equivalent Privacy (WEP) must have the same settings. For more information, see “What Is A Wireless Network?” on page 32.

About your Network Blaster 2021 Utility Icon

The **Network Blaster 2021 Utility** icon appears on your Notebook’s taskbar after you have installed the driver and Network Blaster 2021 Utility. It disappears when you remove the PCMCIA card from you Notebook, or when you are not running Network Blaster 2021 Utility.

Ad-Hoc mode (Figure 3-1).

The black bars on it indicate the signal strength in either mode.

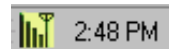


Figure 3-1

Infrastructure mode (Figure 3-2).

The black bars on it indicate the signal strength in either mode.

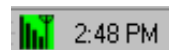


Figure 3-2

In Infrastructure mode, your PCMCIA card is not connected to the access point (Figure 3-3).

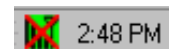


Figure 3-3

Connecting to a Network in Windows 98 SE/Me/2000

1 After installing the driver and software, the **Network Blaster Wireless LAN PCMCIA Card Utility** dialog box appears (Figure 3-4).

If it does not, double-click the **Network Blaster 2021 Utility** icon on the taskbar (Figure 3-1).

2 Click the **Site Survey** tab.
3 Click the **Re-Scan** button. A list of available access points and Ad-hoc stations appear.

4 In the **BSSID** box, double-click the access point or Ad-hoc station that you want to connect to. Your PCMCIA card automatically connects to the selected network.

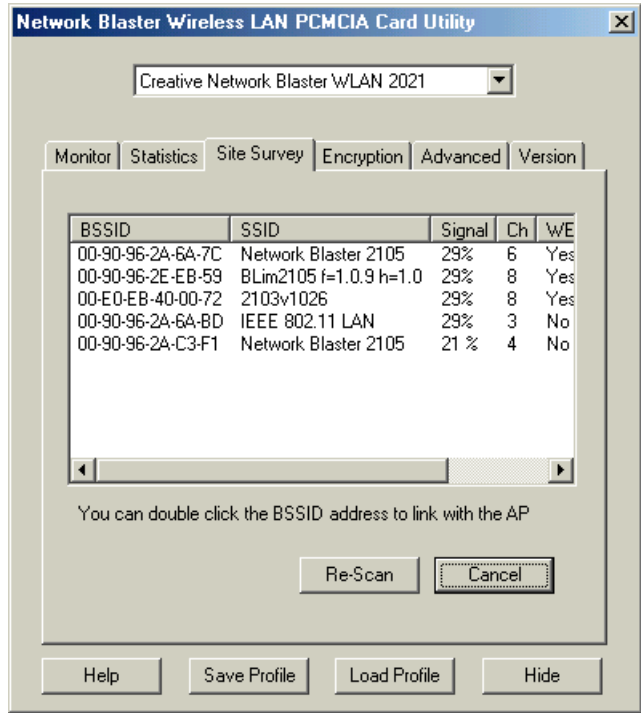


Figure 3-4



After your Notebook connects to a network, you can start using the Internet. If, however, you want to configure or view the rest of your PCMCIA card's settings, proceed to "Configuring a Network in Windows 98 SE/Me/2000" on page 18.

Connecting to a Network in Windows XP

1 After installing the driver and Network Blaster 2021 Utility, the **Windows Wireless Network Connection** icon (Figure 3-5) appears on the taskbar.



Figure 3-5

2 Right-click the **Windows Wireless Network Connection** icon, and then click **View Available Wireless Networks**.

3 When the **Connect to Wireless Network** dialog box similar to Figure 3-6 appears, click the available network that you want, to select it.

4 If necessary, type a WEP key entry in the **Network key** box.

5 Click the **Connect** button. Your Notebook automatically connects to the selected network.

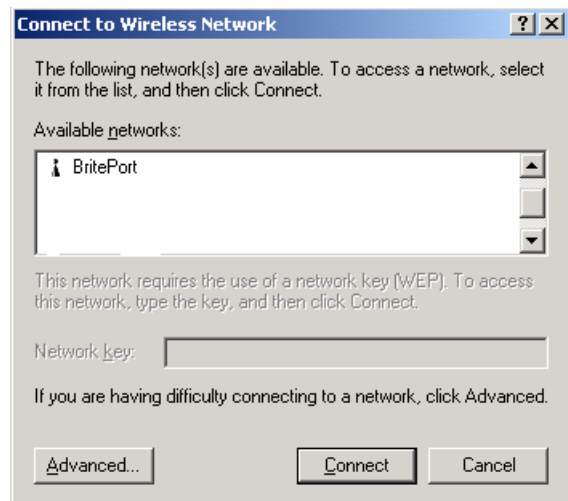


Figure 3-6



After your Notebook connects to a network, you can start using the Internet. If, however, you want to configure or view the rest of your PCMCIA card's settings, proceed to "Configuring a Network in Windows XP" on page 22.

4

Device Configuration

After connecting to a selected network, you should configure your PCMCIA card's network settings.

Configuring a Network in Windows 98 SE/Me/2000

- 1 After connecting to a selected network, the **Network Blaster Wireless LAN PCMCIA Card Utility** dialog box appears (Figure 4-1). The status of your wireless connection is displayed.
- 2 Click the **Monitor** tab.
- 3 Determine if your wireless network is operating in Ad-hoc or Infrastructure mode (see “What Is Wireless Network?” on page 32).
- 4 In Ad-hoc mode, click the **Channel** box, and then click the channel that is the same as your Ad-hoc network.
In Infrastructure mode, this setting is disabled.
- 5 Click the **SSID** box, and then type the SSID that is the same as your access point or Ad-hoc network.

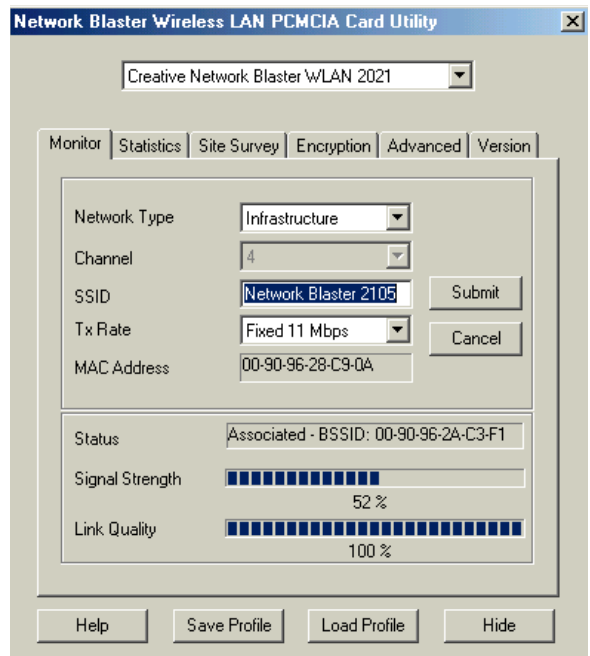


Figure 4-1



For more information on SSID, refer to “Service Set Identity (SSID)” on page 46.

5 Click the **Statistics** tab (Figure 4-2). The available statistic information is displayed.

6 ☐ To renew or update the statistics, click the **Clear** button.

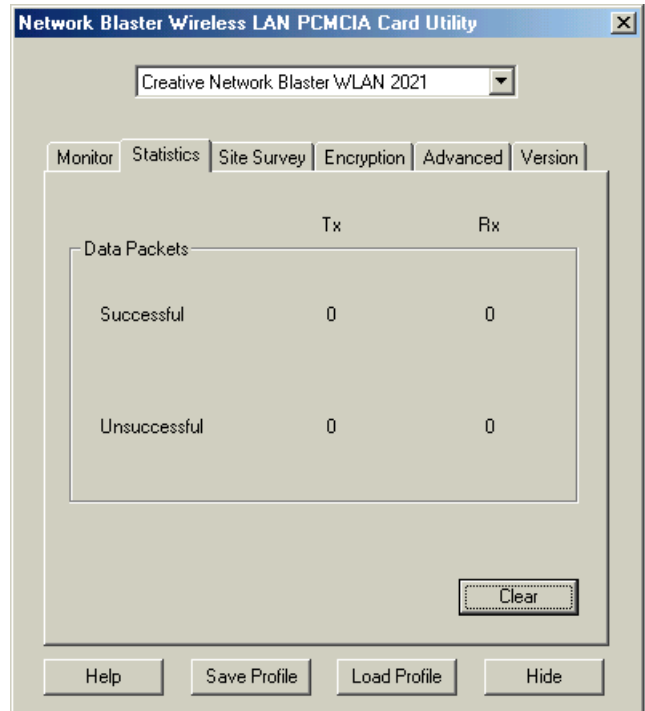


Figure 4-2

8 Click the **Encryption** tab (Figure 4-3).

9 Click the **Encryption** box, and then select either 64 or 128 bit.

10 Click either the **Hex** or **ASCII** option to select it, and then complete the key table with either hexadecimal or ASCII values. These keys serve as passwords that encrypt your data before transmission.

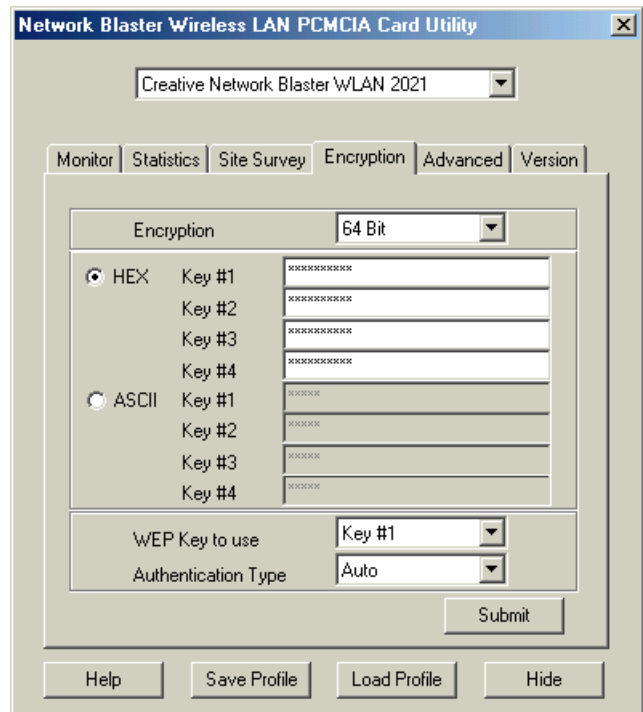


Figure 4-3



For more information on hexadecimal (HEX) values, refer to “Hexadecimal” on page 42 and for more information on ASCII values, refer to “American Standard Code for Information Interchange (ASCII)” on page 39.

11 Click the **Authentication Type** box, and then click the authentication type that is the same as your access point or Ad-Hoc network.

12 Click the **Submit** button.

12 Click the **Advanced** tab (Figure 4-4).

13 Drag the **Fragmentation Threshold** and **RTS/CTS Threshold** sliders to the rate that you want.

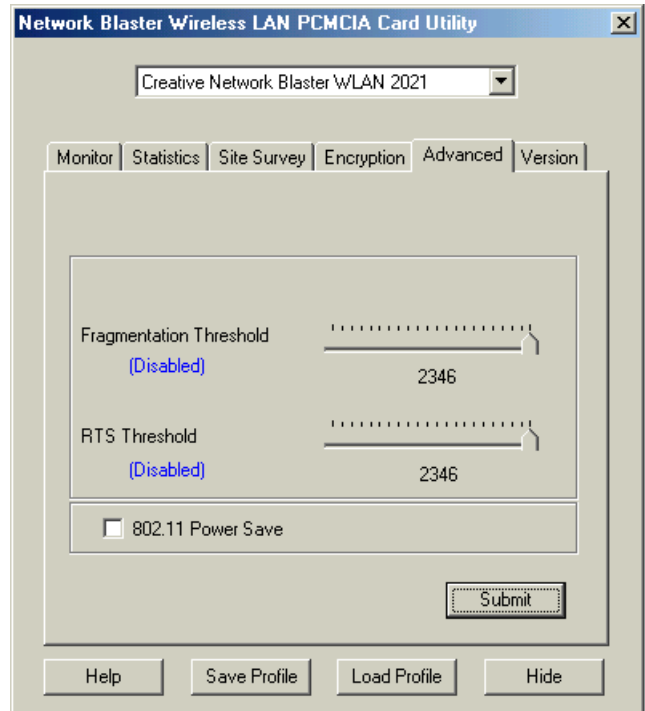


Figure 4-4



For more information on Fragmentation Threshold, refer to “Fragmentation Threshold” on page 42, and for more information on RTS Threshold, refer to “Request to Send (RTS) Threshold” on page 45.

14 To enable the power saving mode, click the **802.11 Power Save** check box to select it.

15 Click the **Submit** button.

Configuring a Network in Windows XP

1 Right-click the **Windows Wireless Network Configuration** icon on the taskbar, and then click **View Available Networks**.

2 When the **Connect to Wireless Network** dialog box (Figure 4-6) appears, click the **Advanced** button.

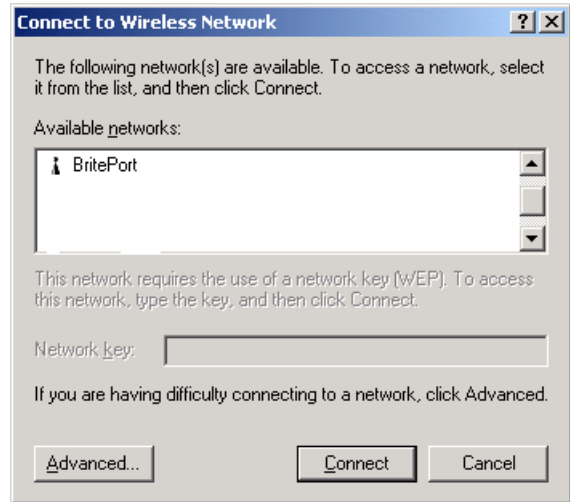


Figure 4-5

3

When the **Wireless Network Connection Properties** dialog box similar to Figure 4-7 appears, click the available network that you want.

4

Click the **Configure** button.

5

When the **Wireless Network Properties** dialog box appears, click the **Data Encryption (WEP enabled)** check box to select it.

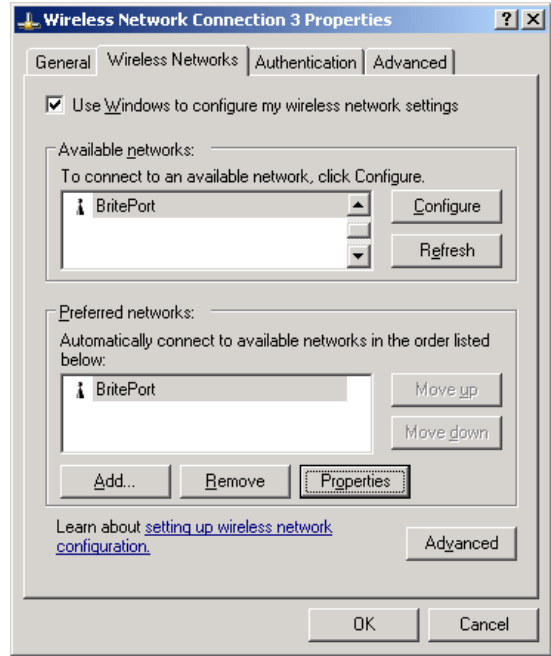


Figure 4-7



Wired Equivalent Privacy (WEP) ensures that information is encrypted before transmission. All wireless stations in a network must have the same WEP settings and WEP Key Entry for this feature to work.

6 Click the **The key is provided for me automatically** check box to deselect it.

7 Click the **Key format** box, and then click either **ASCII characters** or **Hexadecimal digits**.

8 Click the **Key length** box, and then click the appropriate key length depending on your access point settings.



Depending on your access point settings, 40 bits may be indicated as 64 bits, and 104 bits may be indicated as 128 bits.

9 Complete the **Network key** box with random hexadecimal values or ASCII characters. These keys serve as passwords that encrypt your data before transmission.

10 Click the **OK** button.

11 Double-click the **Windows Wireless Network Connection** icon on the taskbar.

12 When the **Wireless Network Connection Status** dialog box similar to Figure 4-8 appears, click the **General** tab. This displays the connection status, duration, speed and signal strength.

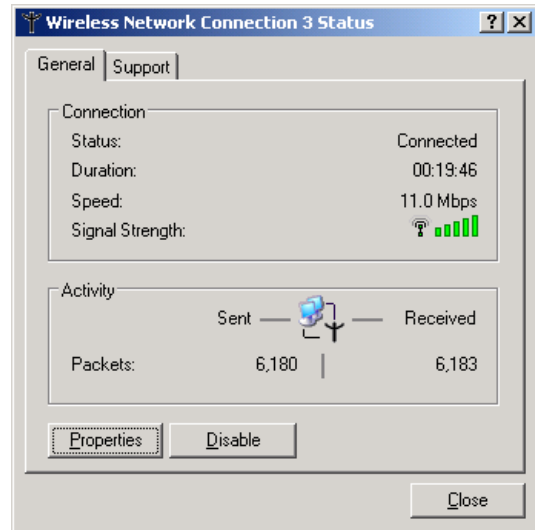


Figure 4-8

13 Click the **Support** tab (Figure 4-9). This displays the address type, IP address, subnet mask and default gateway.

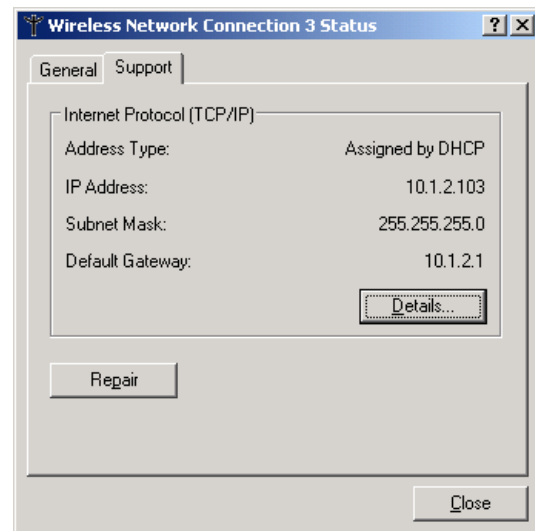


Figure 4-9

Configuring a Wireless Network

When configuring a wireless network, take note of the following points:

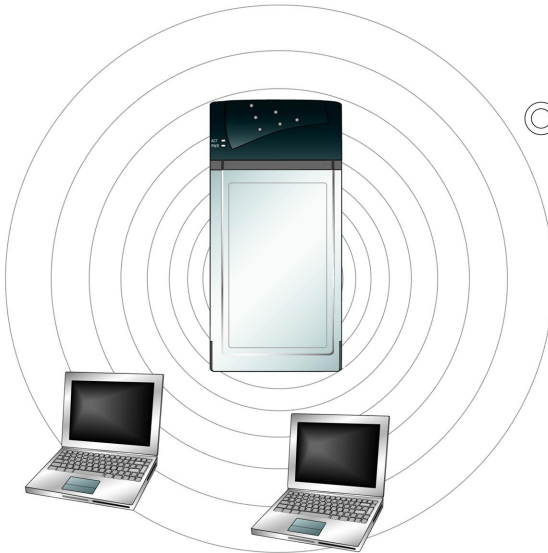
- Start by determining the areas to be networked, the number of users and the type of devices to be used. Then determine the number of access points required and where they should be placed.
- An access point provides a data rate of up to 11 Mbps, which is shared by all wireless clients in the area covered by the access point. If two access points are placed close to each other, you can optimize your bandwidth by setting them to different channels.
- Optimize the performance of the wireless network by ensuring that the distance between two access points is not too large. In most buildings, wireless network cards operate within a range of 100 to 300 feet (30 to 91 meters), depending on the thickness and structure of the walls. Under normal conditions, an access point provides a coverage of up to 150 feet (46 meters). However, in offices with walls or cube walls, the coverage is only around 80 feet (24 meters).
- Radio waves can pass through walls and glass but not metal. If the signal on the other side of a wall is weak, it may be that the wall has reinforcing metal in its structure. Install another access point to circumvent this problem or move the access point to another location.
- Floors usually have metal girders and metal reinforcing struts that weaken radio waves.

5

Network Security

The Importance of Network Security

Your PCMCIA card comes with security features that protect your wireless network. As your information is transmitted and received by radio waves, enabling the encryption security will keep your data safe.



Protected by WEP feature

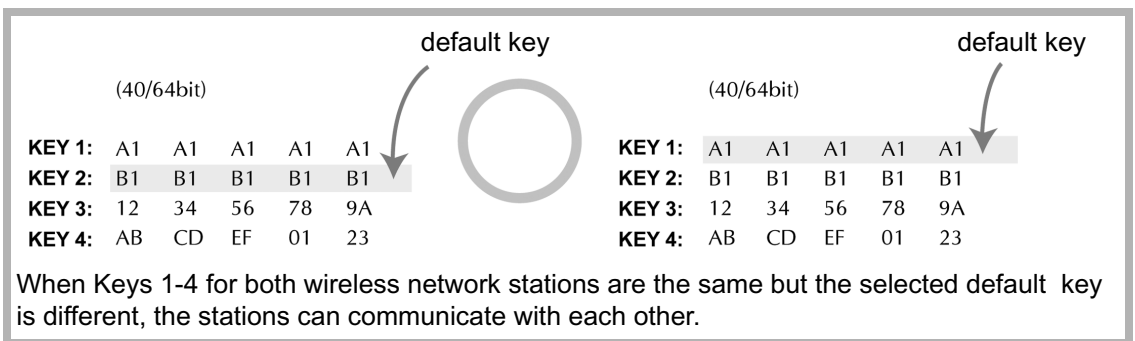
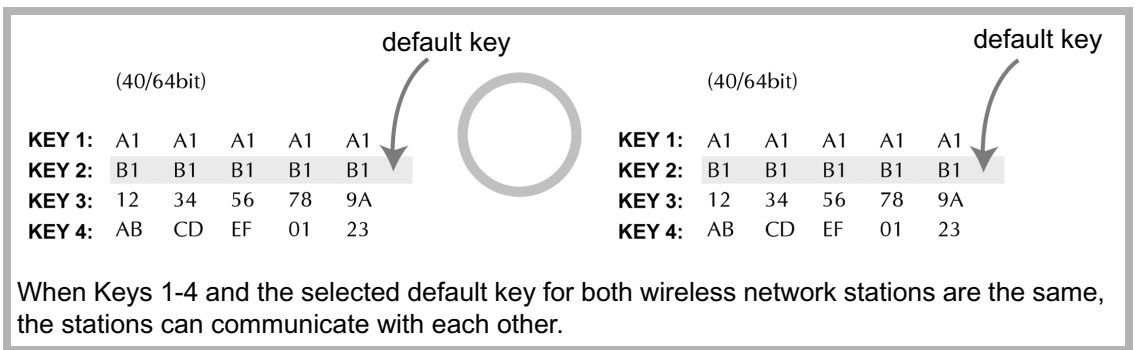


Potential hacker

Security Features

The following security features are incorporated in your PCMCIA card:

- **Wireless Encryption Protocol (WEP)** — This data stream encryption technology allows for the definition of up to four keys shared between access points and clients. Unauthorized wireless network stations not having the same keys are locked out. When typing the keys, use either hexadecimal characters, which are the letters A to F and the numbers 0 to 9, or alphanumeric characters.
- WEP encryption is not necessary for your product to work. It is an additional data security measure. **See ‘Device Configuration’ on page 18 for instructions on how to enable this feature.**
- Only wireless network stations with the same keys can communicate with each other. For more information, refer to the diagrams below.



(40/64bit)

KEY 1:

A1

A1

A1

A1

A1

KEY 2:

B1

B1

B1

B1

B1

KEY 3:

44

44

44

44

44

KEY 4:

AB

CD

EF

01

23

default key

(40/64bit)

KEY 1:

44

44

44

44

44

KEY 2:

B1

B1

B1

B1

B1

KEY 3:

A1

A1

A1

A1

A1

KEY 4:

AB

CD

EF

01

23

default key

When Keys 1-4 for both wireless network stations are different but the selected default key is the same, the stations can communicate with each other.

(40/64bit)

KEY 1:

KEY 2:

KEY 3:

KEY 4:

A1

A1

B1

12

AB

A1

B1

34

CD

A1

B1

56

EF

A1

B1

78

01

A1

B1

9A

23

default key

X

(40/64bit)

KEY 1:

KEY 2:

KEY 3:

KEY 4:

44

00

12

AB

44

00

34

CD

44

00

56

EF

44

00

78

01

44

00

9A

23

default key

When Keys 1-4 and the selected default key in both wireless network stations is different, the stations cannot communicate with each other.

A

Technical Specifications

This appendix lists the general specifications of your PCMCIA card.

Wireless Interface

- IEEE 802.11b compliant
- WEP security support (64-bit and 128-bit encryption)

Antenna

- Built-in strip antenna

Frequency Range

- 2.4 - 2.4835 GHz (ISM Band)

Modulation

- DSSS - Direct Sequence Spread Spectrum

Channels

- 11 Channels (US, Canada)
- 13 Channels (Europe)
- 14 Channels (Japan)

Data Rate

- 11/5.5/2/1 Mbps

Output Power

- 15 dBm (typical)

PCMCIA Interface

- 68-pin 16-bit PCMCIA socket connector compliant with release 2.1 standard

B

What Is A Wireless Network?

Wireless network is a revolutionary way of connecting devices to each other or to a Local Area Network wirelessly through the use of radio frequency waves.

This means that you will be able to move around in a room or move from one floor to another without being disconnected from the network. In most companies, a wireless network is an extension of a wired network. In small offices or hard-to-wire areas, it may be the only network solution.

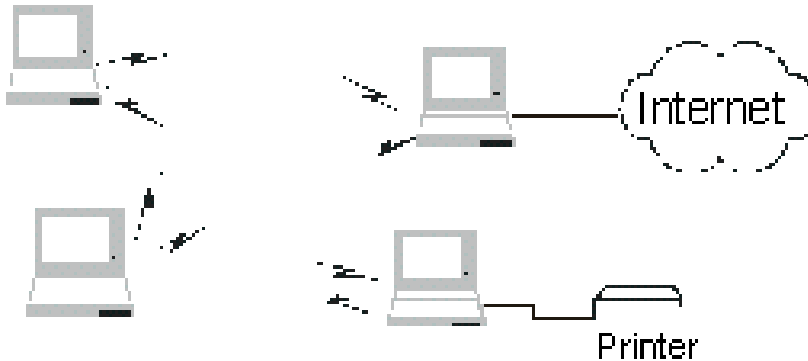
Features and Benefits

Using wireless network has many advantages! Here are some of them:

- Easy Installation — Installing a wireless network is easy, convenient, and fast.
- Cost Effective — You do not have to install cables into your walls and floors. Multiple Internet users will be able to share a single IP address.
- Speed — A wireless network provides data speeds of up to 11 Mbps, which increases the access rate to shared resources.
- Mobility — Unlike wired networks, a wireless network allows you to move around on a floor or building, or even across buildings, and still remain connected to the network.
- Flexibility — Adding new users and rearranging office space is convenient as it does not require any additional wiring.
- Scalability — You can choose to configure your wireless network to Ad-hoc mode or Infrastructure mode. In Ad-hoc mode, a wireless laptop can communicate with other wireless stations directly. In Infrastructure mode, one or more wireless computers are connected to an Access Point via radio waves, and the Access Point connects these wireless laptops to other wireless and wired laptops or computers.



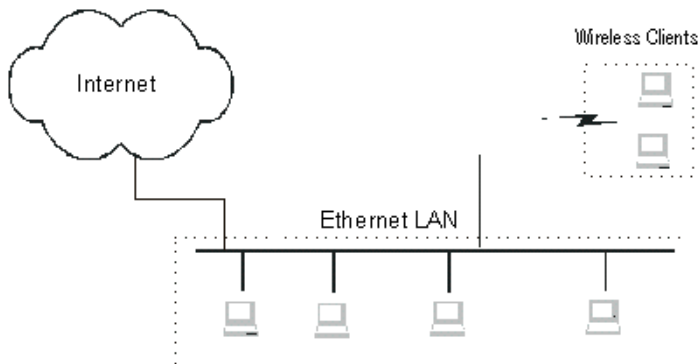
An Ad-hoc network is also known as a Peer-to-Peer network. Ad-hoc mode allows for wireless-to-wireless communication. Select this mode when connecting to other wireless adaptors, which comply to the 802.11b standard. Users on the network can share files, printers, drives and other peripherals, and access the Internet using a shared modem. However, users can only communicate with other wireless network stations that are in the wireless network workgroup and that are within a fixed range.



Ad-hoc Network



In Infrastructure mode, a wireless adaptor communicates with a wired network using an access point. It allows for roaming between a wireless station and access point, while maintaining connection to all network resources. In Infrastructure mode, a user on a wireless network can access an existing wired network to connect to the Internet, E-mail, transfer files, and share a printer. Moreover, the access point manages the bandwidth to maximize bandwidth utilization.



Infrastructure Network

C

Troubleshooting

This appendix provides tips and solutions for resolving some of the problems you might encounter with your PCMCIA card either during installation or normal use.

Problems With Your Card

Windows does not auto-detect the new PCMCIA card when it is inserted into the laptop.

To solve this problem, refer to the section that corresponds to your Windows operating system.

In Windows 98SE/Me:

- 1 Right-click the **My Computer** icon on your desktop.
- 2 On the menu that appears, click **Properties**. The **System Properties** dialog box appears.
- 3 Click the **Device Manager** tab.
- 4 Click the **View devices by type** option.
- 5 Click the plus sign next to **Network adapters**. The name of the PCMCIA card appears. Be sure that there is no red "X" or yellow "!" next to it. The red "X" or yellow "!" signs indicates incorrect or incomplete installation.
- 6 Click any items with the red "X" or yellow "!", and then click the **Remove** button.
- 7 Reinstall the drivers for the card. For more information, see 'Device Installation' on page 9.

In Windows 2000:

- 1** Right-click the **My Computer** icon on your desktop.
- 2** On the menu that appears, click **Properties**. The **System Properties** dialog box appears.
- 3** Click the **Hardware Profile** tab.
- 4** Click the **Device Manager** button.
- 5** Click the **View devices by type** option.
- 6** Click the plus sign next to **Network adapters**. The name of the PCMCIA card appears. Be sure that there is no red “X” or yellow “!” next to it. The red “X” or yellow “!” signs indicates incorrect or incomplete installation.
- 7** Click any items with the red “X” or yellow “!”, and then click the **Remove** button.
- 8** Reinstall the drivers for the card. For more information, see ‘Device Installation’ on page 9.

In Windows XP:

- 1** Click **Start -> Control Panel**.
- 2** Double-click the **System** icon. The **System Properties** dialog box appears.
- 3** Click the **Hardware** tab.
- 4** Click the **Device Manager** button.
- 5** Click the plus sign next to **Network adapters**. The name of the PCMCIA card appears. Be sure that there is no red “X” or yellow “!” next to it. The red “X” or yellow “!” signs indicates incorrect or incomplete installation.
- 6** Click any items with the red “X” or yellow “!”, and then click the **Remove** button.
- 7** Reinstall the drivers for the card. For more information, see ‘Device Installation’ on page 9.

Ejecting the PCMCIA card from the PCMCIA slot causes your laptop to restart or stop responding.

To solve this problem:

- Before removing the PCMCIA card, close all files and network applications, such as E-mail and Internet Explorer.
- Disable the PCMCIA card before removing it from the computer. See 'Ejecting the PCMCIA Card' on page 14.

When reinserted, the card is not detected.

When the PCMCIA card is removed and reinserted, the signals may become destabilized and cause the card to be misread. The Windows drivers may incorrectly read the card's status during this period of signal instability, and fail to detect the correct status of the PCMCIA card.

To solve this problem:

- Always disable the PCMCIA card before removing it from the laptop.
- Click **Start -> Settings -> Control Panel**. Double-click the **System** icon. In the **System Properties** dialog box, click the **Device Manager** tab, and then click the **Refresh** button.

Problems With Software

The Network Blaster 2021 Utility icon on the status bar has a red cross on it.

To solve this problem:

- If you are in Infrastructure mode, be sure that your PCMCIA card and the access point have the same SSID and WEP settings. The SSID is case sensitive. See 'Device Configuration' on page 18.
- In Advanced settings (refer to 'Device Configuration' on page 18), make sure that the Authentication Type is either in Shared or Auto mode.
- Make sure that all the wireless stations are within range of the access point.
- Restart the access point.
- Restart your laptop.

After inserting the PCMCIA card, my laptop can detect the PCMCIA card but not the drivers in the Installation CD.

To solve this problem:

- 1** When the **Add New Hardware Wizard** dialog box appears, click the **Cancel** button.
- 2** Remove the PCMCIA card, and then install the software from the beginning.
- 3** Insert the PCMCIA card only when instructed.

My laptop is unable to establish a connection with an access point.

To solve this problem:

- Be sure that the access point is connected and turned on. Observe the status LEDs to be sure that the access point is connected properly.
- Be sure that your laptop (wireless client) is set to Infrastructure mode.
- Be sure that the PCMCIA card is connected to your laptop, and that you have installed the drivers properly.
- Be sure that your laptop is configured with the same SSID as the access point. Also remember that SSID is case sensitive.
- Be sure that the WEP (Wired Equivalent Privacy) settings for your laptop and the access point are the same. If WEP is disabled on the access point, it must be disabled on the computer. If WEP is enabled, the key table must match.
- Restart the access point.
- Restart your laptop.

There is radio interference.

To solve this problem:

- Adjust the antennas of the access point until you get the best reception.
- Keep the access point and wireless clients away from microwave ovens and large metal objects.
- If possible, move the access point from its present location to other locations until you get the best reception.

My laptop cannot connect to the Internet.

To solve the problem:

In Windows 98 SE/Me:

- 1** Click **Start -> Run**.
- 2** In the **Open** box, type **winipcfg**, and then click the **OK** button. The **IP Configuration** dialog box appears.
- 3** Click the **Adaptor** box, and then click your product's name.
- 4** Click the **Release** button.
- 5** When the **IP Address** box displays **0.0.0.0**, click the **Renew** button.
- 6** Click the **OK** button.

In Windows 2000/XP:

- 1** Click **Start -> Run**.
- 2** In the **Open** box, type **command**, and then click the **OK** button. The **MS-DOS Prompt** window appears.
- 3** Type **ipconfig/release**, and then press the **<Enter>** key.
- 4** Type **ipconfig/renew**, and then press the **<Enter>** key.

D

Glossary

This appendix explains the technical terms used in this manual.

Access point

A networking device that transparently bridges wireless computers and laptops to a wired local network.

Ad-hoc mode

A small peer-to-peer network mode, in which wireless Notebooks are connected to each other directly without using an access point. Some of the wireless Notebooks are part of the network for a limited duration. They are also in close proximity with the rest of the network. According to the IEEE 802.11b specification, Ad-hoc mode is referred to as an independent basic service set.

American Standard Code for Information Interchange (ASCII)

ASCII is the most common format for text files in computers and on the Internet. In an ASCII file, each alphabetic, numeric, or special character is represented with a 7-bit binary number (a string of seven 0s or 1s). 128 possible characters are defined.

Antenna

A device that intercepts radio frequency (RF) waves from the atmosphere and converts them to corresponding signal voltages.

Bandwidth

A measure of the maximum rate of data transfer. A higher bandwidth allows more data transmission in a given period of time. For digital services, the bandwidth is usually expressed in bits or bytes per second.

Basic Service Set (BSS)

A group of wireless stations and an access point using the same ID (SSID).

Binary

A number system that has only two digits, 0 and 1.

Bridge

A hardware device that links two or more physical networks and manages the transfer of data between these networks. The two networks connected can be alike or dissimilar.

Broadband

A transmission media that can handle the transmission of multiple messages at different frequencies, at one time. Broadband signals use analog carriers.

Channel

A channel is a separate path through which signals can flow.

Decibels Per Milliwatt (dBm)

A unit of measurement used to express relative difference in power or intensity, relative to 1mW.

Dynamic Host Configuration Protocol (DHCP)

A method of assigning a temporary IP address to a host, such as a computer, connected on a specific network. With dynamic addressing, a particular host may have a different IP address each time it connects to the network.

Digital

Data expressed as a string of 0s and 1s. Each of these digits is referred to as a bit (and a string of 8 bits that a computer can address individually as a group is a byte).

DNS Server

A server that contains both the English and numerical addresses of all computers connected to the Internet. When you specify an e-mail or IP address using the “English” domain name, the DNS server will return the corresponding numeric address.

Domain Name

A domain name locates an organization or other entity on the Internet.

Domain Name System (DNS)

This allows you to specify a symbolic name, a meaningful and easy-to-remember “handle,” instead of an Internet Protocol address. The DNS is the way that Internet domain names are located and translated into Internet Protocol addresses.

Driver

A program that a computer uses to control the operation of a peripheral device, such as a keyboard, modem, monitor, card, or cable.

Direct Sequence Spread Spectrum (DSSS)

A digital modulation technique that spreads data transmissions across the entire available frequency band in a pre-arranged scheme. Under DSSS, each bit of data to be transmitted is encoded with a redundant pattern called a chip. The chipping code is known only to the sending and receiving stations, making it difficult for an intruder to intercept and decipher the encoded wireless data. DSSS is used in IEEE 802.11b networks.

Dynamic IP address

See DHCP.

Encryption

A procedure to convert a file from its original form to one that can be read only by the intended recipient.

Extended Service Set Identity (ESSID)

It is an ASCII string and can be as long as 32 characters. It is used by a wireless network. Wireless stations with a different ESSID from your network's ESSID cannot connect to your network.

Ethernet

A local-area network (LAN) protocol that supports data transfer rates of 10 Mbps. It is a widely implemented LAN standard that operates over the twisted pair or coaxial cable. A version of Ethernet, called 100 Base-T (or fast Ethernet), supports data transfer rates of 100 Mbps.

Extended Service Set (ESS)

A group of Wireless Stations and multiple access points using the same ID (ESSID) form an Extended Service Set.

Fast Ethernet

An Ethernet specification with a speed of 100 Mbps (10 times faster than 10BaseT).

Firewall protection

Creative's built-in router provides firewall protection to all the computers on its network. All these computers share a single public IP address and are assigned local IP addresses, which are hidden from the outside world. For the external world, there is no network, only a single device. Creative router blocks any attempt by any external computer to connect to local resources.

Fragmentation Threshold

The size at which the transmitted data packets are fragmented. The range extends from 256 to 2346 bytes.

Full duplex

Simultaneous and independent data transmission, between two communicating computers, in both directions.

Half duplex

A data transmission system where two Notebooks can send and receive data but in which data transmission can occur in only one direction at a time.

Hexadecimal

A number system with a base of 16. The 16 digits in the hexadecimal system are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, a, b, c, d, e, f.

Hub

A device used for connecting nodes in a star topology, that is all the nodes are connected to a central hub. A *passive* hub simply organizes the wiring, while an *active* hub, besides organizing the wiring, regenerates and retransmits the signals.

IEEE 802.11

A family of wireless network standards — 802.11a, 802.11b, 802.11e, and 802.11g, out of which 802.11b has won widespread adoption. The original 802.11 standard was first approved in 1997 but was not very successful because it was relatively slow at 2 Mbps.

IEEE 802.11b

A high-bit wireless network standard that works on the 2.4 GHz band and utilizes DSSS (direct sequence spread spectrum) technology. It offers data bit rates of up to 11 Mbps and the range is from 200 to 300 feet for maximum speed.

Infrastructure mode

A local area network or other small network mode in which wireless clients are part of the network and use one or more access points to connect to a wired network. Each access point is connected to the Ethernet network using a standard Ethernet cable. In IEEE 802.11b specification, the infrastructure mode is referred to as the Basic Service Set.

Interface

The physical arrangement that supports the attachment of a device to a connector or to another device.

Internet Protocol (IP)

The standard protocol within TCP/IP that defines the basic unit of information by breaking down data messages into packets, routing and transporting the packets over networks, then reassembling the packets at their destination. IP corresponds to the Network layer (layer 3) in the ISP/OSI model.

IP Address

The address for a computer on a TCP/IP network. The IP address identifies a particular machine on a network. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be 0 to 255, for example, 11.160.10.240 is an IP address. Any machine connected to the Internet is assigned an IP address.

Industrial, Scientific and Medical (ISM) band

There are four unlicensed bands for wireless networks and these bands are commonly known as ISM bands. These bands are found on the 900 MHz, 2.4 GHz and 5 GHz (two) frequency bands.

Local Area Network (LAN)

A computer network that spans a relatively small area. Most LANs are confined to an office, single building, or group of buildings.

Light Emitting Diode (LED)

An electric component that emits light (turns ON) when current flows through it.

Kilobits per second (Kbps)

A measure of data transfer speed.

Kilobytes (KB)

1,024 bytes.

Megabits per second (Mbps)

A measure of data transfer speed.

Megabits/Megabytes

One million bits/bytes.

Modem

A device that allows a computer to transmit data to other computers via telephone lines.

Network Address Translation (NAT)

An Internet standard that enables a local-area network to use one set of IP addresses for internal traffic and a second set of IP addresses for external traffic. NAT provides a type of firewall security by hiding internal IP addresses. Since they are used internally, such IP addresses will not be in conflict with those used by other companies and organizations.

Network Mask

See Subnet Mask.

Network Interface Card (NIC)

A card that is installed in a computer so that it can be connected to a network. The NIC manages the flow of network information to and from the computer.

Personal Computer Memory Card International Association (PCMCIA)

An industry group organized in 1989 to promote standards for a card-size memory or I/O device that would fit into a personal computer, usually a Notebook or computer.

PCMCIA Card

A card-size memory or I/O device that connects to a personal computer, usually a Notebook or computer. The PCMCIA card has a 68-pin connector that connects into a slot in the computer.

Packet Internet Groper (PING)

An Internet program used to determine whether a specific IP address is accessible. It works by sending a packet to the specified address and waiting for a reply. PING is used primarily to troubleshoot network connections.

Preamble

A preamble is a signal, in the form of series of pulses, used in network communication to synchronize the transmission timing between two or more systems. There are two options, Short and Long. The Short option improves throughput performance.

Protocol

A set of agreed-upon rules for transmitting data between two devices. A user's laptop must support the right protocols for the laptop to communicate with other computers.

Reboot

When a computer is shut down and restarted, it is rebooting.

RJ-11

A connector/socket for two pairs (four wires) of twisted pair cables that are used primarily to connect telephone equipment in the United States.

RJ-45

A connector/socket for four pairs of twisted pair cables that are used commonly to connect computers onto a local-area network, especially to the Ethernet. The only difference between an RJ-45 and RJ-11 connector is that an RJ-45 connector is slightly wider.

Router

A hardware device that connects two separately functional networks using the same or different protocols. Routers look at the destination addresses on the packets passing through them and then decide which route to send them on.

Request to Send (RTS) Threshold

This threshold refers to when your PCMCIA card sends out RTS frames to reserve bandwidth for maximum data transmission. If a transmitted data frame is larger than the threshold value, the RTS frame sent out will request for more bandwidth.

Service Set Identity (SSID)

A group name shared by all members of an IEEE 802.11 standard wireless network. Only wireless devices with the same SSID are allowed to establish connections.

Static IP address

A permanent IP address assigned to a computer (host) connected on a specific network.

Subnet or Subnetwork

Any network that is a part of a larger IP network and is identified by a subnet address.

Subnet Mask

A 32-bit string of a TCP/IP address — a part of which is the network address and another part the host address. A Subnet Mask is usually represented in dotted-decimal notation, for example, 255.255.255.0.

Switch

A device used for connecting nodes in a star topology. In a star topology, all nodes are connected to a central switch. By monitoring packets, a switch learns which devices are connected to its ports and then sends a packet to the appropriate port only.

Transmission Control Protocol/Internet Protocol (TCP/IP)

A suite of communication protocols that are used by computers or networking devices on the Internet so that they can communicate with each other. TCP/IP uses several protocols, the two main being TCP and IP.

10 Base-T

A wiring standard used for Ethernet networks that can transmit data at up to 10 Mbps transmission using baseband unshielded twisted pair cables. The maximum cable length is 100 meters (330 feet).

Twisted pair cable

A cable that consists of two wires twisted together. This cable is less expensive but more brittle than a coaxial cable.

Universal Serial Bus (USB)

A plug-and-play interface that allows the user to attach a device without having to add an adapter card and turning off the computer.

Wide Area Network (WAN)

A computer network that spans a relatively large geographical area. Typically, a WAN consists of two or more local-area networks (LANs).

Wired Equivalent Privacy (WEP)

A wired security policy defined by the IEEE 802.11 working group. WEP uses the RC-4 40-bit encryption algorithm to scramble all data before it is transmitted. Vendors add proprietary encryption features to their software, taking the encryption level up to 128 bits.

Wi-Fi

Wi-Fi is promoted by the Wireless Ethernet Compatibility Alliance (WECA). It places a stamp of certification on wireless products that are interoperable with other 802.11b compliant products.

E

Service and Warranty

This chapter provides Technical Support and Warranty information for the following geographic regions:

- The Americas
- Asia

The Americas

Visit our online help website at **www.americas.creative.com/support** for help with installation, answers to frequently asked questions, or troubleshooting tips. Our website holds a wealth of information as well as up-to-the-minute software and driver upgrades.

Product Returns

To return a Creative product for a factory service, contact the Creative Technical Support office. Once the staff has verified the product is defective, you will be given a Return Merchandise Authorization (RMA) number.

When returning a product for factory service:

- Shipment to Creative is at your expense and you assume all risk. Ship the package through a carrier that provides proof of delivery; insure the shipment at full product value.
- Place the RMA number on the outside of the package.
- Use proper materials for packing the product for shipment.
- For free repair or replacement, you must include a copy of a dated proof of purchase (store receipt), proving that the product is still under Warranty

Creative may replace or repair the product with new or reconditioned parts, and the faulty parts or product will become the property of Creative.

Technical Support

Tech Support

BEFORE YOU CONTACT US

Please fill out the following information and be seated at your computer.

- Model #: _____ Serial # _____ (both found on the back of the device)
- Error message on the screen and how it came about:

- Information on the adapter card that conflicts with the product (if applicable):

- Hardware configuration information:

- IRQ line: (if applicable):

- DMA channel used (if applicable):

- Computer type and speed:

- Type and version of your operating system; Windows 95/98/Me/NT/2000:

For comments or questions regarding our technical support, you can also contact us at the following address: Creative Labs, Inc., Technical Support, 1523 Cimarron Plaza, Stillwater, OK 74075.



If after consulting our online help, you still have an installation question on a Creative product, you may contact us by the following numbers (please have your system hardware and operating system configuration information and Creative product model and serial numbers available for the call):
Telephone (405) 742-6622.

Warranty Information

Warranty Information

CREATIVE ("the manufacturer") warrants that equipment furnished will be free from defects in material and workmanship for a period of one (1) year from the confirmed date of purchase of the product new from the retail location. Upon written notice of any such defect, the manufacturer will, at its option, repair or replace the defective item under the terms of this warranty, subject to the provisions and specific exclusions listed herein.

This warranty shall not apply to equipment that has been previously repaired or altered outside our plant in any way. Nor will it apply if the equipment has been used in a manner exceeding its specifications or if the serial number has been removed.

We do not assume any liability for consequential damages as a result from our products use, and in any event our liability shall not exceed the original selling price of the equipment.

The equipment warranty of Creative Technology Ltd., shall constitute the sole and exclusive remedy of any buyer of the manufacturer's equipment and the sole and exclusive liability of the manufacturer, its successors or assignees, in connection with equipment purchase and in lieu of all other warranties expressed, implied or statutory, including, but not limited to, any implied warranty of merchantability or fitness and all other obligations or liabilities of the manufacturer, its successors or assignees.

Asia

Our company is happy to assist and support our customers. If you have trouble or questions relating to any purchased equipment, follow the steps below:

- 1** Duplicate the problem. Once a problem occurs, try to restart your hardware and software from the beginning and see if the problem happens again. If a problem is intermittent, finding it may be difficult because there may be more than one cause and, consequently, more than one solution.
- 2** Contact the dealer who sold you the equipment. Your dealer may be able to provide the assistance you need.
- 3** Call our Technical Support Hotline at (65) 6895-4100.
- 4** Our representatives will be glad to help you over the phone Monday through Friday from 9:00 a.m. to 6:00 p.m. (Singapore Time).
- 5** Be at your computer when you call technical support.
- 6** Our technicians often need to ask you to perform certain functions while on the phone.
- 7** In the event that you need to return a product, you will need to obtain a Return Merchandise Authorization (RMA) number. Equipment returned without a RMA number will not be accepted.
- 8** Please keep a record of your RMA number for future reference.

9 When returning equipment to us, please use the following procedures:

- Include a note inside the package that has the RMA, along with your name and address. Also, write your RMA number on the shipping label and with your return address.
- Please send the package postage paid. We will not accept packages sent COD.
- Ship the well-packed equipment to:

Creative Technology Ltd.
31 International Business Park
Creative Resource
Singapore 609921
Attn: Asia Customer Service
RMA# (your RMA number here)

- Your equipment will be returned to you via United Parcel Service (UPS) ground service. Depending on your location, it could take two weeks to complete the return process.

Helpline Information

○ South Africa

Creative Labs Africa (Pty) Ltd, 1F North East Wing, Corner K101 & Old Pretoria Road, Midrand, JOHANNESBURG, SOUTH AFRICA.

Mailing Address: P O Box 76761, WENDYWOOD 2144, Republic of SOUTH AFRICA.

Operating Hours: 8:00 a.m.-12:00 p.m., 1:00 pm-5:00 p.m. Mon-Fri, except for Public Holidays.

Hotline: (27-11)805-0188.

Fax: (27-11)805-0190.

E-mail Form: <http://asia.creative.com/support/lookup.asp>.

○ Malaysia

Creative Labs Sdn Bhd, D-2-5 Megan Phileo Promenade, Jalan Tun Razak, 50400 KUALA LUMPUR, MALAYSIA.

Operating Hours: 9:00 a.m.-6:30 p.m. Mon-Thurs & 9:00 a.m.-6:00 p.m. Fri, except for Public Holidays.

Hotline: (60-3)2164-7199.

Fax: (60-3)2164-7198.

E-mail: techsupport@clsb.creative.com.

E-mail Form: <http://asia.creative.com/support/lookup.asp>.

○ **Hong Kong & Macau**

Creative Labs (Hong Kong) Ltd, Unit 31, 9/F, Hong Kong International Trade & Exhibition Centre, No 1 Trademart Drive, Kowloon Bay, KOWLOON, HONG KONG.
Operating Hours: 9:15 a.m.-5:45 p.m. Mon-Fri & 9:15 a.m.-12:45 p.m. Sat, except for Public Holidays.

Hotline: (852)2148-6151/6152.

Fax: (852)2331-2151.

Web Site: <http://asia.creative.com/hongkong/>

E-mail Form: <http://asia.creative.com/support/lookup.asp>

○ **The rest of the Asia Pacific region**

Creative Technology Ltd, 31 International Business Park, Creative Resource, SINGAPORE 609921, Republic of SINGAPORE.

Operating Hours: 9:00 a.m. - 6:00 p.m. Mon-Fri, except for Public Holidays.

Hotline: (65) 6895-4100.

Fax: (65) 6895-4029.

Web Site: <http://asia.creative.com/>

E-mail Form: <http://asia.creative.com/support/lookup.asp>

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