

***11Mbps WLAN  
Smart Wireless Ethernet Adapter***

***User Guide***

***Version 1.2***

***Oct.2002***

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# 1 Introduction

Thank you for purchasing your Wireless Ethernet Adapter.  
This manual will assist you with the installation procedure.

The package you have received contains the following items:

- 11Mbps Smart Wireless Ethernet Adapter,
- Plastic Bracket,
- Power Adapter,
- Power Cord,
- Special Cable for Notebook
- RJ45 Cat.5 UTP Cable,
- User Guide

Note: if anything is missing, please contact your vendor

A wireless LAN is normally used in a predefined environment. In such a network, Wireless Ethernet Adapters are mounted at assigned places, each covering its own area in which wireless nodes can operate. These Wireless Ethernet Adapters are connected to a wired network to communicate with each other and with servers and clients on that network.

The 11MBPS Wireless Ethernet Adapter can be connected to a 10 Mbps Ethernet network through a RJ45 (UTP) connector.

## 2 Installation

1. Mount the Wireless Ethernet Adapter firmly on the position that is determined during the site survey.
2. Insert the power connector.
3. Attach the Wireless Ethernet Adapter to Ethernet network by using UTP Ethernet cable.

At the front of the Wireless Ethernet Adapter you will see three LEDs.

If all goes well, the LED (Power) is red and the (LINK) and (ACT) LEDs flash whenever there is traffic on the respective networks.

The Wireless Ethernet Adapter automatically selects the medium attached. When the cable network is detected, the network LED will turn yellow.

### **Reset the Wireless Ethernet Adapter**

If you press the reset button for more than four seconds, the Wireless Ethernet Adapter will be reset to the default factory settings. All changes you made to the configuration will be lost.

1. Insert one end of a paperclip into the hole for the reset button and keep it pressed for more than four seconds. After about three seconds, the ACT LED goes from constantly on to being blinking.
2. Release the reset button when the LED has gone off. All settings are deleted. You will need to reconfigure the Wireless Ethernet Adapter.

### 3 Configuring the Wireless Ethernet Adapter

The Wireless Ethernet Adapter is a ready to use device. It is delivered with default settings which allow you to have access to it without configuring it.

You configure the Wireless Ethernet Adapter via a *JavaScript-enabled web-browser such as the Internet Explorer 4.0 or higher, or the Netscape Navigator 4.0 or higher.*

***The computer that you are using for initial configuration must have an IP Address within the same range as the IP Address of the Wireless Ethernet Adapter.***

***The Wireless Ethernet Adapter has a default IP Address of 192.168.5.90 with a subnet mask of 255.255.0.0***

#### Factory Default Settings for the Wireless Ethernet Adapter

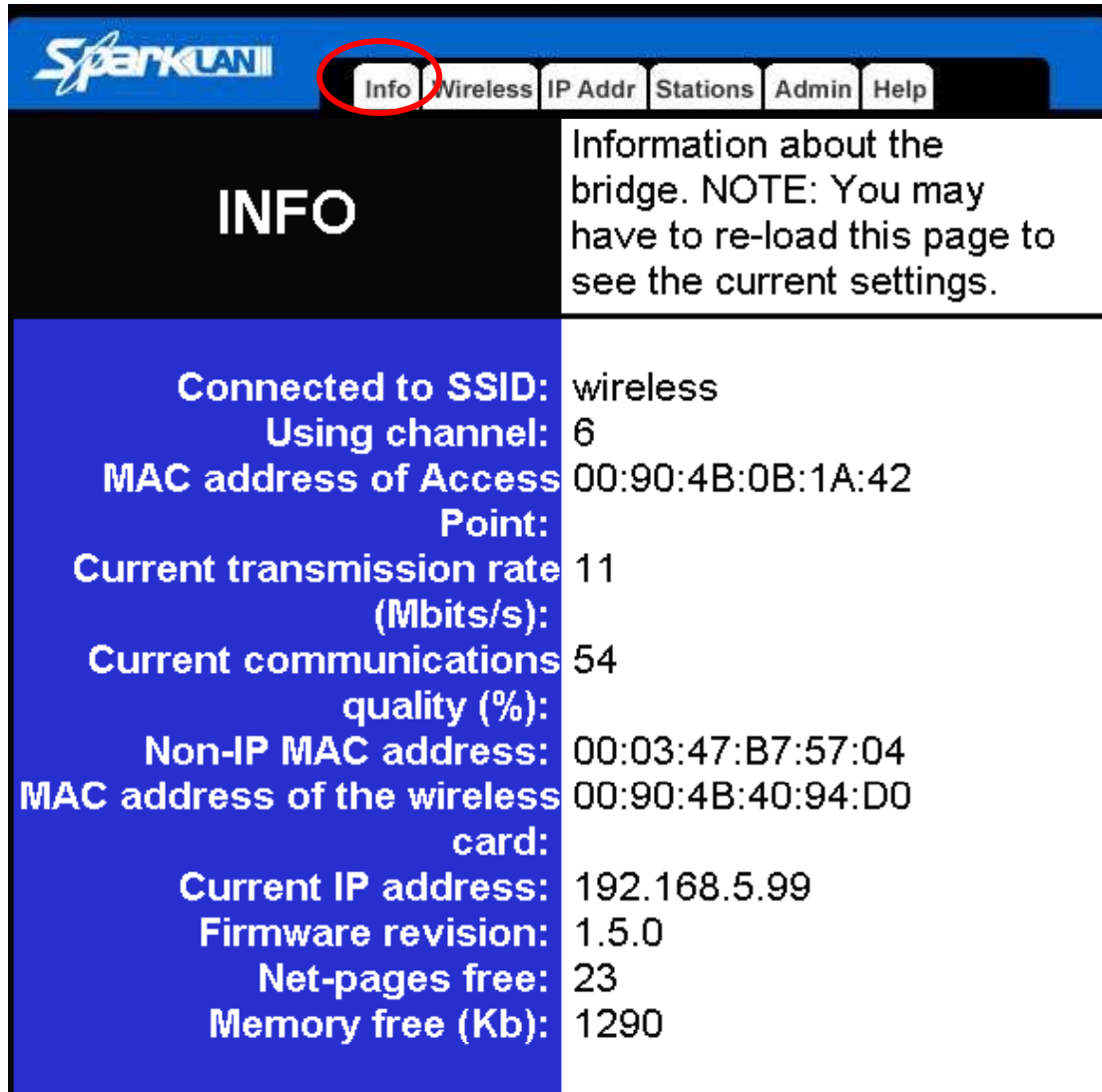
SSID	
Channel	6
Transmission rates	Auto
WEP enable	No
IP Address mode	Static
IP Address	192.168.5.99
Subnet mask	255.255.0.0
User Name	Blank
Administrator or password	Blank (no password needed)

When you do configure the Wireless Ethernet Adapter, you can change the settings with respect to security, radio channels, etc.

## 4 Contents of Web Interface

The Web Interface application contains the following subjects:

### 4.1 Info Page



The screenshot shows the SparkLAN web interface. At the top, there is a navigation menu with tabs for 'Info', 'Wireless', 'IP Addr', 'Stations', 'Admin', and 'Help'. The 'Info' tab is selected and highlighted with a red circle. Below the navigation menu, the main content area is divided into two sections. The top section has a black background with the word 'INFO' in white. To the right of this, there is a white box containing the text: 'Information about the bridge. NOTE: You may have to re-load this page to see the current settings.' The bottom section has a blue background with white text listing various network status parameters:

Connected to SSID:	wireless
Using channel:	6
MAC address of Access Point:	00:90:4B:0B:1A:42
Current transmission rate (Mbits/s):	11
Current communications quality (%):	54
Non-IP MAC address:	00:03:47:B7:57:04
MAC address of the wireless card:	00:90:4B:40:94:D0
Current IP address:	192.168.5.99
Firmware revision:	1.5.0
Net-pages free:	23
Memory free (Kb):	1290

The **Info** window displays the current setup status of the Wireless Ethernet Adapter..

**Communication Quality:** Specifies the Communications Quality of the Basic Service Set to which the station is currently connected. The value for the field of this record is based on signal level and noise level measurements.

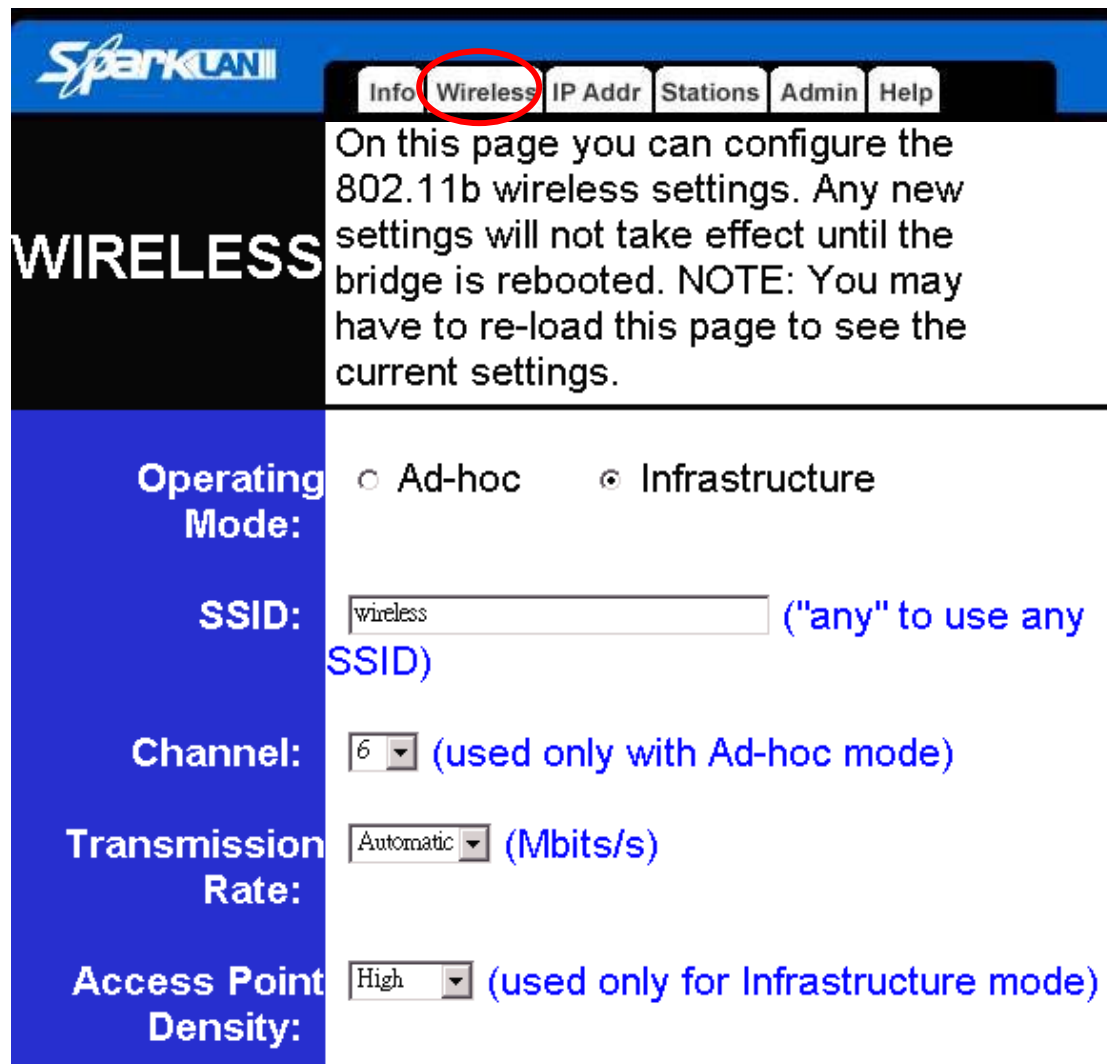
**Firmware Version.** This indicates the Wireless Ethernet Adapter's firmware version.

**Current setting of IP Address:** The IP address of the wireless Ethernet adapter.

**Non-IP MAC Address:** The MAC Address of Ethernet port that bridging to  
Wireless Ethernet Adapter.

## 4.2 Wireless Settings

The settings of the wireless device are displayed here, and you can edit some of these settings.



**WIRELESS**

On this page you can configure the 802.11b wireless settings. Any new settings will not take effect until the bridge is rebooted. NOTE: You may have to re-load this page to see the current settings.

Operating Mode:  Ad-hoc  Infrastructure

SSID:  ("any" to use any SSID)

Channel:  (used only with Ad-hoc mode)

Transmission Rate:  (Mbits/s)

Access Point Density:  (used only for Infrastructure mode)

**Operating Mode: Infrastructure** - is the default setting. Switch to **Ad-Hoc** mode when communicating to another client device without the presence of the Access Point.

**SSID:** The SSID is also known as Service Set ID. This is the name of your wireless network. Only Wireless Ethernet Adapters and clients that share the same SSID are able to communicate with each other.

**Channel:** This is the channel that the Wireless Ethernet Adapter uses to transmit and receive information. The channel that you select here is restricted to the channels that can be used within your Regulatory domain.

**Tx rate:** The transmit rate identifies the preferred data transmission speed of the Wireless Ethernet Adapter. Transmissions at faster rates allow for higher data throughput and quicker network response times. However, transmissions at lower rates are usually more reliable and cover longer distances than the higher rates.

**Access Point Density:** When connecting to the Access Point, it is generally necessary to specify an Access Point Density. This provides some control over handoff of clients during roaming between Access Points. Three values, Low, Medium, and High

### 4.3 Bridging Table

The screenshot shows the SparkLAN web interface. At the top, there is a navigation menu with items: Info, Wireless, IP Add, Stations (circled in red), Admin, and Help. Below the menu, the page title is 'STATIONS'. A note reads: 'Information about the stations that are being bridged. NOTE: You may have to re-load this page to see the current settings.' Below the note, the text 'The bridge table' is centered. A table follows with two columns: 'IP Address' and 'MAC address'. The first row of data shows '192.168.2.102' and '00:03:47:B7:57:04'.

IP Address	MAC address
192.168.2.102	00:03:47:B7:57:04

The table lists all of stations that are bridging with the Wireless Ethernet Adapter.

## 4.4 IP Setting

**SERVER**

On this page you can configure the IP address used by the Web and TFTP servers running on this bridge. For "static" mode, the IP address setting are given below. For "DHCP" mode, these settings may be overridden by a DHCP server on your network. Any new IP settings will not take effect until the bridge is rebooted. NOTE: You may have to re-load this page to see the current settings.

Info Wireless **IP Addr** Stations Admin Help

IP Address Mode:  Static  DHCP

IP Address:

IP Subnet:

IP Gateway:

Device name:  (This is optional)

Allow upgrade uploads:  (Leave this off during normal operation)

Apply Cancel

**Static:** Select **Static (recommended)** to assign the IP Address, the Subnet Mask and the Gateway Address.

**DHCP:** If the Wireless Ethernet Adapter is part of a network with a DHCP server, the DHCP server assigns the IP settings to the Wireless Ethernet Adapter for you. **(This is not recommended because a DHCP-assigned IP Address will change frequently, making the Wireless Ethernet Adapter impossible to configure.)**

**Device Name:** Assign the name of the Wireless Ethernet Adapter

**Allow Upgrade Uploads:** Select this checkbox when performing upgrading firmware.

## 4.5 Administration

**SparkLAN!** Info Wireless IP Addr Stations **Admin** Help

**ADMIN**

On this page you can change the password, reboot the bridge, or reset all settings to their factory defaults. If you have changed any settings it is necessary to reboot the bridge for the new settings to take effect (however changes in the password, device name and "allow uploads" checkbox will be effective immediately).

**Change username:**  (New user id)  
Change username

**Change password:**  (New password)  
 (Re-enter password)  
Change password

**Reboot bridge:** Reboot

**Reset to factory defaults:** Reset

**Change Username and Password:** You can use a password to prevent tampering with the configuration of the Wireless Ethernet Adapter. By default, no username and password is required. However, if you choose to use a password, type in a password that is no more than 15 letters in length. Re-enter the password in the next field, and click **Change Password** for the change to take effect.

**Reboot Bridge:** Click **Reboot** to restart the Wireless Ethernet Adapter.

**Reset to Factory Defaults:** Click on **Factory Reset** to return all settings to the Factory Default values. *(Press and release the Reset button on the back of the unit to return the Wireless Ethernet Adapter to its factory default settings.)*

## 4.6 Security

**WEP Enabled:**   
(For proper use of WEP, also select "Deny Unencrypted Data" and "Shared Key Authentication" when WEP is enabled)

**WEP Key Length:**  64 bit  128 bit

For 64 bit keys you must enter 10 hex digits into the key fields, for 128 bit keys you must enter 26 hex digits. If you leave the key field blank this means a key of all zeros.

**WEP key 1:**

**WEP key 2:**

**WEP key 3:**

**WEP key 4:**

**WEP key to use:**

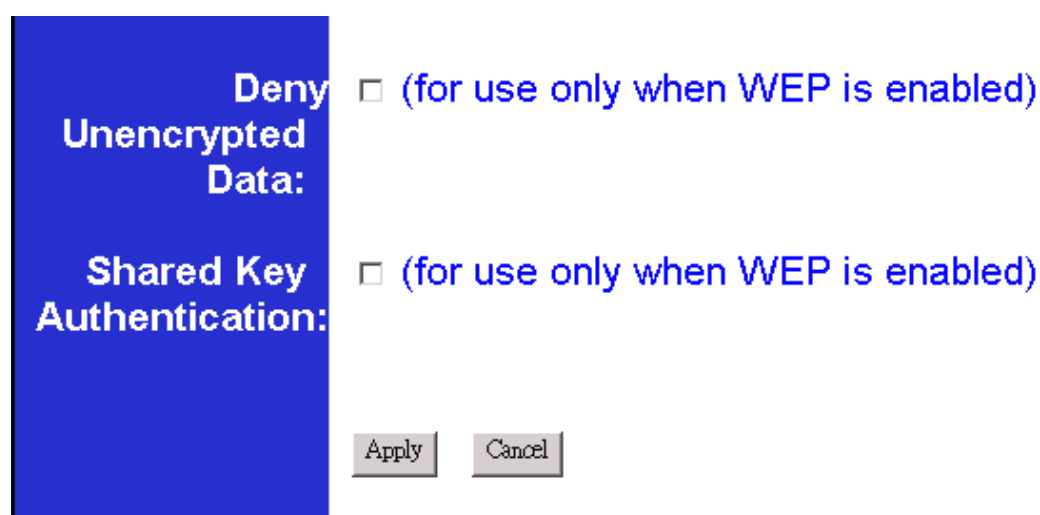
**WEP Enabled:** The default setting is **Disable**. Encryption (WEP)—additional measure of security on your wireless network which can be achieved by using WEP (Wired Equivalent Privacy) encryption. When an encrypted frame is received it will only be accepted if it decrypts correctly. This happens only if the receiver has the WEP Key used by the transmitter. All devices on the network, and the Wireless Ethernet Adapter, must share the same WEP selection – either **Enable** or **Disable**

To enable WEP Encryption, click on **WEP Enable**.

**WEP Key Length:** The default Key Length is **64-bit**. The WEP key is generated from **Hexadecimal** entries that are either 64 or 128-bit in length. (This is also sometimes referred to as 40-bit or 104-bit encryption) When enabling encryption, select the Key Length, either 64 or 128-bit, and then input the Hexadecimal digits. For 64 bit keys you must enter 10 hex digits into the key fields, for 128 bit keys you must enter 26 hex digits. If you leave the key field blank this means a key of all zeros.

Note: Only the following alphanumeric characters are allowed in the entry, which is 0 to 9, a to f.

**WEP Key to Use:** Use the pull-down menu to select the WEP key. All devices on the network must use the same key to communicate with one another.



The image shows a configuration window with a blue background. On the left, there are two sections: 'Deny Unencrypted Data:' and 'Shared Key Authentication:'. To the right of each section is a checkbox and a note in blue text: '(for use only when WEP is enabled)'. At the bottom of the window are two buttons: 'Apply' and 'Cancel'.

**Deny Unencrypted Data:** For additional security when WEP is enabled, select **Deny Unencrypted Data**. Data received without a WEP key is rejected when **Deny Unencrypted Data** is selected.

**Authentication Type.** You may choose between **Open System, Shared Key, and Both**. The Authentication Type default is set to **Open System**. **Shared Key** is when both the sender and the recipient share a secret key. All points on your network must use the same authentication type. It is recommended that you use the default setting.

## 5 Troubleshooting

**Q: If IP Address does not find the Wireless Ethernet Adapter you are looking for.**

**A:** There are several possible causes depending on the way the Wireless Ethernet Adapter is connected to the network.

### **a. Problems on the wireless side**

Always check the status of the LEDs to see whether you have:

- electricity problems,
- radio signal problems,
- networking problems.

**1. Possible cause:** Is the Wireless Ethernet Adapter powered up ?

**Solution:** Check the power LED. Check if the Wireless Ethernet Adapter is connected.

**2. Possible cause:** Is the Wireless Ethernet Adapter is in range of the Access Point?

**Solution:** Check the ACT signal LED. Check for possible problems with respect to range.

**3. Possible cause:** Is there a network connection? Check the network LINK LED.

**Solution:** The Wireless Ethernet Adapter may take up to a minute to find an IP address.

### **b. Problems on the wired side**

Always check if your cables and connections are in good order and properly installed.

**1. Possible cause:** Has the proper cable been used?

**Solution:** • If the Wireless Ethernet Adapter is connected to a hub, a 'normal' (not a crossover) cable must be used.

- If the Wireless Ethernet Adapter is connected directly to a computer, a crossover cable must be used.

## 6 Technical Specifications of Wireless Ethernet Adapter

### Standards supported

- IEEE 802.11 standard for Wireless LAN
- All major networking standards (including IP, IPX)

### Environmental

Operating temperature (ambient):

- -10 ~ 50°C

Humidity:

- Max. 95% Non-condensing

### Power specifications

DC power supply

- Input : DC 100-240 50-60 Hz 2A
- Output: 5V DC 2A converter incl.

### Radio specifications

Range:

- per cell indoors approx. 35-75 meters
- per cell outdoors up to 100-250 meters

Transmit power:

- Nominal Temp Range: 14 dBm, 12min.

Frequency range:

- 2.4-2.4835 GHz, direct sequence spread spectrum

Number of Channels:

- Most European countries: 13 (1-13)
- US and Canada: 11 (1-11) (3 non-overlapping)
- France: 4 (10-13) (1 non-overlapping)
- Japan : 14 (1-14)

### Specific features

Supported bit rates:

- 11 Mbps : CCK
- 5.5 Mbps : CCK
- 1 Mbps : DBSK

- 2 Mbps : DQPSK

Data encryption:

- 64-bits WEP Encryption
- 128-bits WEP Encryption

Utility Management:

- Web management and TFTP firmware upgrade