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1 Introduction

The TEW-203PI Wireless PCI Adapter enables high-speed access without wires to network assets. This Adapter uses the IEEE 802.11 protocol to enable communications between the host computer and other computers, using the 2.4GHz ISM Radio Band for the communications medium. The host computer uses the Intersil PRISM2.5 Chipset for communications in the same way that it would use an Ethernet Network Interface Card.

The PRISM WLAN Configuration Utility is a Windows application, which allows the user of a computer equipped with a TEW-203PI Wireless PCI Adapter to configure the adapter and to display the adapter's current configuration and status.

2 Installation for windows 98/Me/NT/2000/XP

The PRISM WLAN Configuration Utility is installed simultaneously with the driver by executing the PRISM for Windows.exe file. Installation procedures differ depending on whether this is an initial installation or an upgrade. The following sections discuss these scenarios.

Note also that some versions of Microsoft Windows operating systems require administrator privileges to install software. If this is the case for your operating system, be sure that you have such privileges before executing the PRISM for Windows.exe file.

2.1 Initial installation

NOTE: For initial installation, the PRISM for Windows.exe file should be run before the TEW-203PI Wireless PCI Adapter is installed in your computer. Only after you have run this file to install the utility and driver should you install the TEW-203PI Wireless PCI Adapter in your computer.

For PCI cards, you must shut down the computer, install the card in an available PCI slot, and restart the operating system.

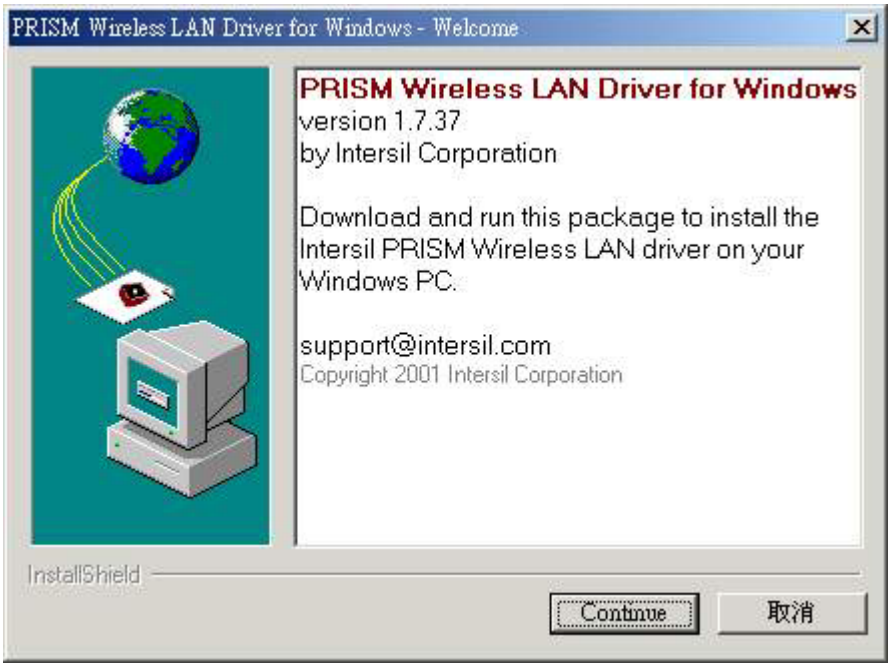
When it detects the adapter, the operating system starts the New Hardware Found wizard. Respond to the prompts displayed by the wizard, but do not check the Specify Location check box; since the operating system will find the driver on its own. The operating system then uses the newly-installed driver to operate the adapter.

2.2 Upgrade Installation

To upgrade an existing driver, it is not necessary to remove your TEW-203PI Wireless PCI Adapter from your computer. Simply run the PRISM for Windows.exe file to replace the existing driver with the latest version. After the new driver is installed, you must restart the operating system (if the system was not restarted during the installation procedure).

3 Operation

The utility is installed simultaneously with the driver by executing the PRISM for Windows.exe file. The following illustration shows this program's initial screen:



When you click the Finish button in this screen, both the driver and the Configuration Utility are installed on your computer.

3.1 System Tray Icon

After the installation of the PRISM WLAN Configuration Utility, its icon appears in the System Tray in the bottom right corner of your desktop.

The color behind the Intersil logo indicates the link status.

Red indicates no or very poor link quality.

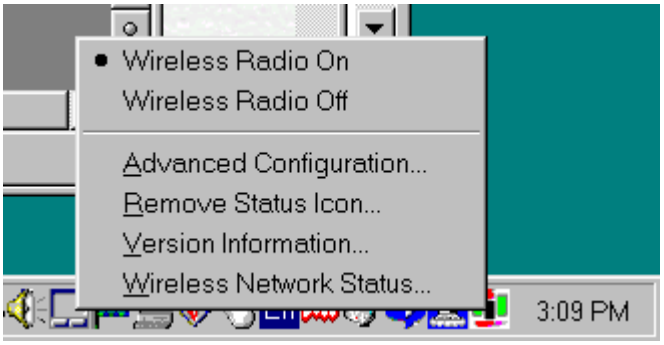
Yellow indicates a usable but weak link.

Green indicates a good or excellent link.

You can also view the status of the link by placing the cursor over the Configuration Utility icon, as shown in the following illustration. This illustration indicates that the TEW-203PI Wireless PCI Adapter is able to communicate, but that the signal to the radio is weak.

3.2 Icon Menu

Clicking the left mouse button on the System Tool Tray Icon displays a menu similar to the following illustration:



The first two items in this menu let you turn the wireless radio on or off. When the wireless radio is turned off, the following icon appears in the system tray.

Advanced Configuration… launches the Configuration Utility with the Configuration menu displayed, as discussed in the following section. This lets you set configuration parameters, which change the operation of the TEW-203PI Wireless PCI Adapter

Remove Status Icon… removes the System Tray Icon. The driver continues to operate the adapter in the last commanded configuration. The next time you power up your computer, the configuration utility will return. You can also restart the Configuration Utility from the Start Menu by selecting Programs and PRISM Wireless LAN Configuration.

Version Information… launches the Configuration Utility with the About menu selected, giving the revision level of the driver, configuration utility and firmware.

Wireless Network Status… launches the Configuration Utility with the Link menu selected. This shows the link status, including Signal Strength and Link Quality, when the card is operating in Infrastructure mode.

If you click the right mouse button on the System Tool Tray Icon, a Profile menu appears. This menu lets you quickly load an existing profile or create a new profile, as explained in the following section.

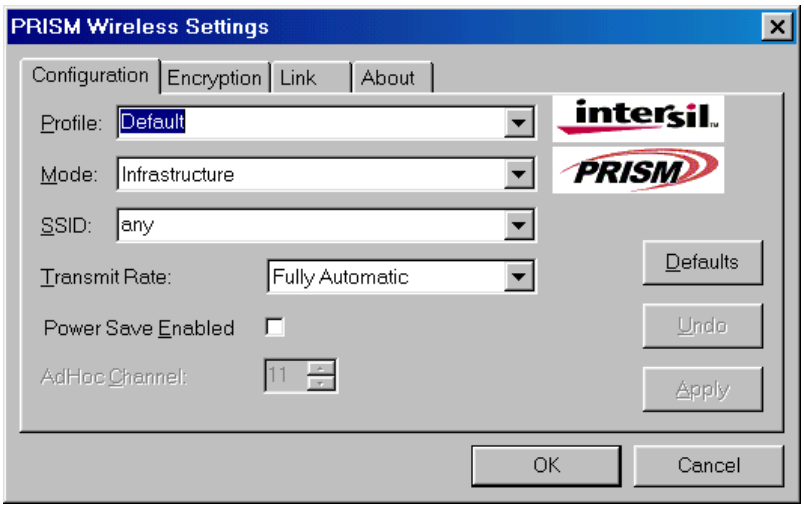
4 Starting the Configuration Utility

You can launch the Configuration Utility by clicking the left mouse button on the Configuration Utility icon and selecting Advanced Configuration… If the Configuration Utility icon is not displayed in the System Tray, you can restart the Configuration Utility from the Start Menu by selecting Programs and PRISM Wireless LAN Configuration.

The Configuration Utility consists of window with four tabs: Configuration, Encryption, Link, and About. The following sections describe the options displayed by these tabs in detail.

4.1 Configuration Tab

The Configuration menu lets you specify the operating parameters for your TEW-203PI Wireless PCI Adapter. When you first start the Configuration Utility, this menu is displayed. If another menu is displayed, you can display the Configuration options by clicking on its tab in the Configuration Utility panel.



4.1.1 Setting the Profile

A profile is a named set of operating parameters for your TEW-203PI Wireless PCI Adapter. The Profile field lets you set values for all parameters by selecting a previously defined profile. Click the down arrow at the right of the Profile field to display the available profiles for your TEW-203PI Wireless PCI Adapter.

You will always have at least one profile, named Default. Initially, this profile contains the parameters configured at installation. You can modify this profile

at any time after the installation. After changing parameters, you can save them in the profile named in this field by clicking the Apply button in the Configuration Utility panel.

You can also create additional profiles by typing a name in the Profile field. When you change the name in the Profile field and then click the Apply button, the Configuration Utility uses the current parameters for your card to create a separate profile. You can then switch between profiles by clicking the down arrow at the right of the Profile field, selecting a profile from the drop-down list, and clicking the Apply button.

The following example describes a situation in which you would want to create multiple profiles. Suppose that you use the wireless LAN at your work, but you also have a network in your home (with a wireless Access Point) for sharing an Internet connection and a printer between several computers. Suppose also that you have another office within your business which also has WLAN capability, but which is configured differently than your main office.

In this situation, you can create a different profile for each of these three environments. Each profile specifies the parameters used on a single network. Moving from one location to another, you only need to apply the appropriate profile to be able to participate in the local network.

4.1.2 Setting the Mode

The TEW-203PI Wireless PCI Adapter can operate in one of two modes, which are specified in the Mode field of the Configuration menu. Clicking the down arrow at the right of the Mode field displays the available modes.

4.1.2.1 802.11 AdHoc Mode

IEEE 802.11, the standard on which the WLAN protocol is based, defines two modes to handle two separate needs. The first, called AdHoc (or IBSS) mode is used when two or more wirelessly enabled PCs wish to exchange data directly, without an Access Point. In this case the PCs can establish an AdHoc network in which they are the only members and over which they can exchange data. To exchange data, each computer participating in the AdHoc network must also specify the same SSID and AdHoc Channel in this menu.

4.1.2.2 Infrastructure Mode

The second mode defined by the IEEE 802.11 standard is called infrastructure mode, and is the primary application for WLAN operation. In this mode all data on the wireless network is directed to an Access Point, which then routes the data to the appropriate wireless station. The Access Point may also be configured to allow data to be bridged from the wireless network to wired networks.

To participate in a wireless LAN in infrastructure mode, every station and Access Point must specify the same SSID. In infrastructure mode, all available channels are scanned for traffic, so there is no need to specify a channel.

4.1.3 Setting the SSID

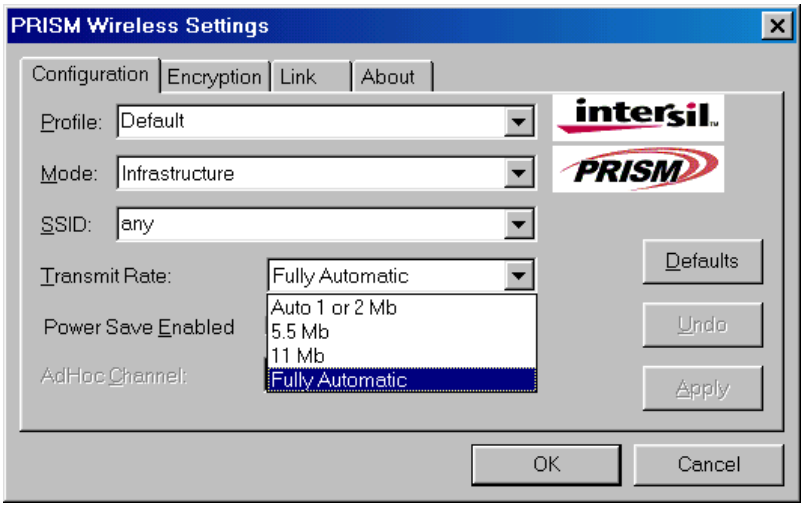
The SSID is the Service Set IDentifier used by Access Points and stations to identify a wireless LAN. Your TEW-203PI Wireless PCI Adapter scans the available channels looking for an Access Point (in infrastructure mode) or another station (in AdHoc mode) which has specified this same SSID. It then attempts to associate with these Access Points or stations to form a wireless LAN.

To change the SSID, simply highlight it, type the new SSID, and click the Apply button.

In typical infrastructure applications a company will use a single SSID for all Access Points. If the radio is scanning and cannot find a channel when an Access Point is known to be in range, verify that the SSID is set correctly.

4.1.4 Setting the Transmit Rate

The Transmit Rate field specifies the rate at which the radio in your TEW-203PI Wireless PCI Adapter transmits and receives data. You can view the available rates by clicking the down arrow at the right of the Transmit Rate field.



The transmit rate can be set to:

- Fully Automatic – your TEW-203PI Wireless PCI Adapter chooses the highest available rate providing reliable communications based on the capabilities of the Access Point or station with which it communicates and on the received signal quality
- Auto 1 or 2 Mb – allows only 1 and 2 Mb/s operation
- 5.5 Mb – allows only 5.5 Mb/s operation
- 11 Mb – allows only 11Mb/s operation

To change the Transmit Rate, click the down arrow at the right of the field, highlight the rate you want to set, and click the Apply button.

Under most conditions, you should choose Fully Automatic as the transmit rate. In general, fixed rates are used only in test environments.

4.1.5 Enabling Power Save Mode

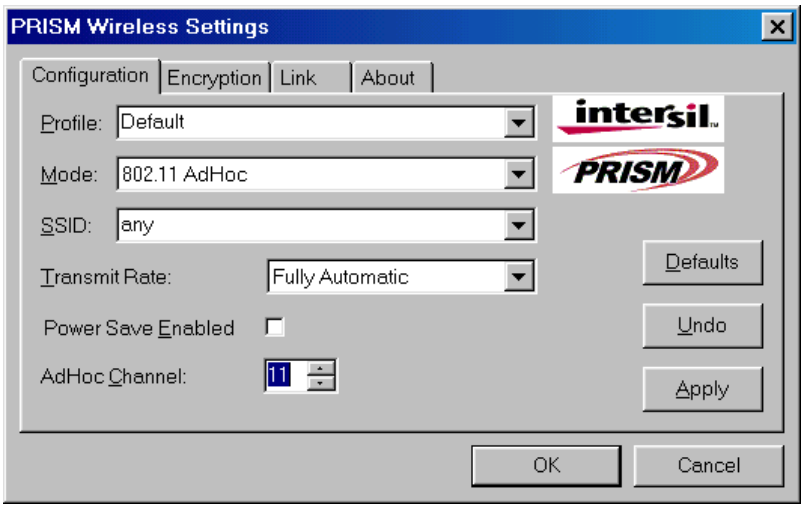
The IEEE 802.11 standard provides a Power Save Mode. In this mode your TEW-203PI Wireless PCI Adapter listens for a beacon (a periodic frame which defines the network type and attributes) and determines the beacon interval. Between beacons the card puts itself to sleep, enabling power savings. At the time of the expected beacon the adapter wakes itself up and

receives the beacon. The received beacon contains information about whether the Access Point or station has buffered frames for the adapter. If frames are available the adapter requests those frames until no more frames are available. The adapter then goes back to sleep until the next beacon.

For Access Points that support power save mode and for stations equipped with WLAN cards, enabling this mode can significantly reduce power consumption, which is particularly important if the host computer is operating on battery power. However, be aware that power save mode also results in lowered transmission and reception speed on the wireless LAN.

4.1.6 Selecting the Ad Hoc Channel

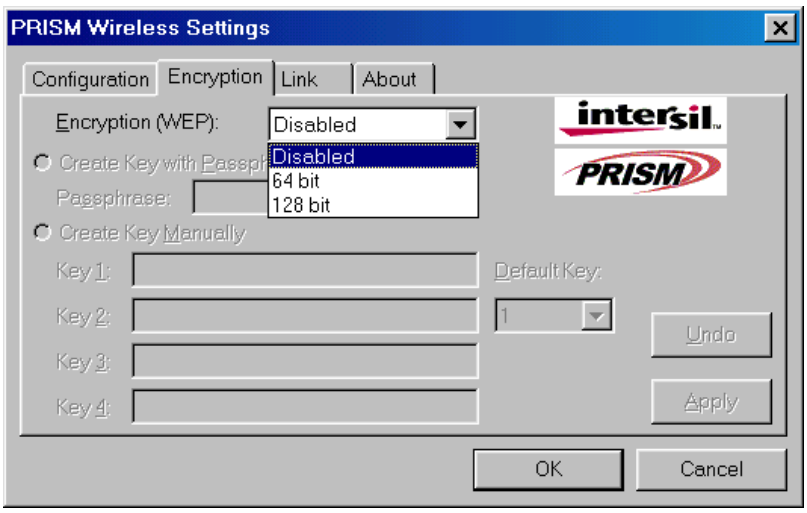
When communicating in AdHoc or Pseudo AdHoc mode, you must specify a channel on which communications will take place. To specify a channel, click the up or down arrow at the right of the AdHoc Channel field until the channel you want to set appears, and then click the Apply button.



This field is grayed in infrastructure mode because the Access Point automatically selects the channel.

4.2 Encryption Tab

The Encryption menu lets you enable encryption and set the encryption keys. To see the available encryption methods, click the down arrow at the right of the Encryption {WEP} field.



There are two encryption methods available. The IEEE 802.11 specification defines Wired Equivalent Privacy (WEP) using a 64-bit key. This capability was extended by the industry to allow a 128-bit key.

If you specify an encryption method, you will only be able to communicate with Access Points and stations that use the same encryption method and keys.

4.2.1 Disabling Encryption

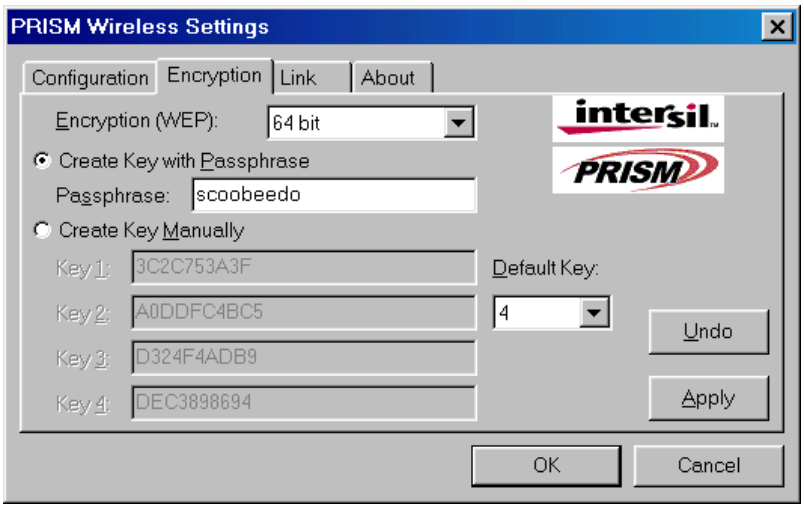
To disable encryption, click the down arrow at the right of the Encryption field, select Disabled, and click the Apply button.

4.2.2 Enabling Encryption

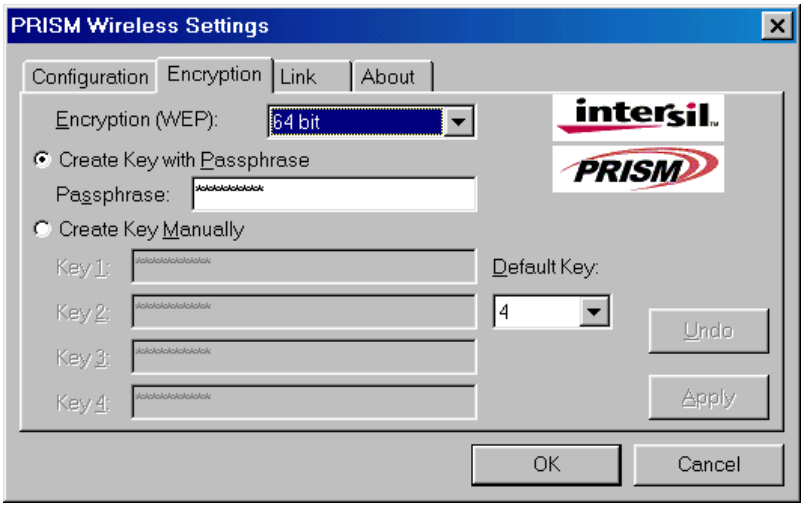
To enable encryption, click the down arrow at the right of the Encryption field, select either 64 bit or 128 bit, and click the Apply button. After enabling an encryption method, you must then specify encryption keys, as described in the following sections.

4.2.3 Creating Encryption Keys Using a Passphrase

To create encryption keys using a Passphrase, click the radio button next to Create Key with Passphrase and type a character string in the Passphrase field. As you type, the Configuration Utility uses an algorithm to generate four keys used for encryption.



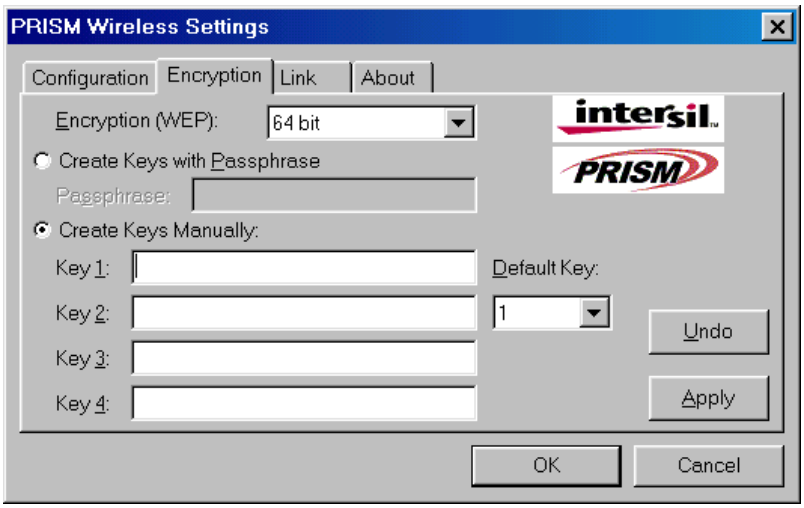
When you finish typing your character string and click the Apply button, the Configuration Utility uses asterisks to mask both your Passphrase and the keys it generates.



Using a Passphrase to generate the four keys makes it easy to set the same keys for all members of your wireless LAN.

4.2.4 Creating Encryption Keys Manually

If you want, you can create encryption keys manually by clicking the radio button next to Create Key Manually, as shown in the following illustration.



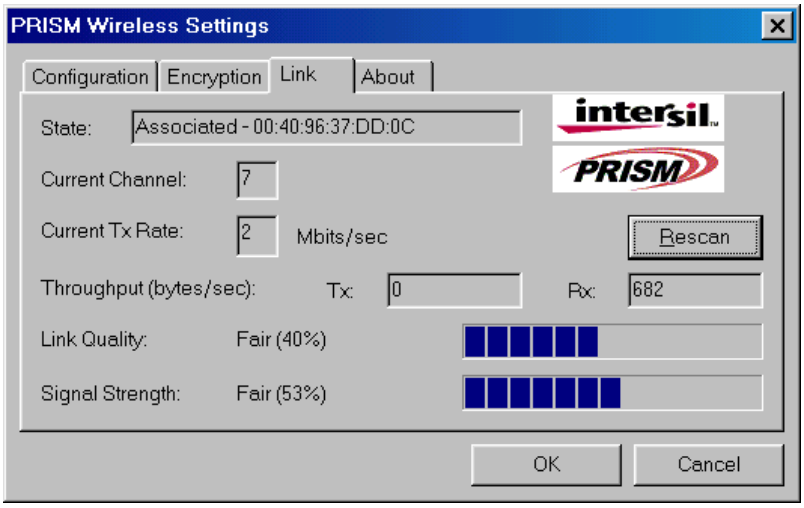
When you click this button, the cursor appears in the field for Key 1. For 64-bit encryption, you must type *exactly* 10 hexadecimal digits in each of the four key fields; for 128-bit encryption, you must type *exactly* 26 hexadecimal digits. You then click the Apply button to create your encryption keys. After you click the Apply button, the Configuration Utility uses asterisks to mask your keys.

4.2.5 Default Key

The Default Key field lets you specify which of the four encryption keys you use to transmit data on your wireless LAN. You can change the default key by clicking on the down arrow at the right of
this field, selecting the number of the key you want to use, and then clicking the Apply button. As long as the Access Point or station with which you are communicating has the same key in the same position, you can use any of the keys as the default.

4.3 Link Tab

The Link menu provides information on the status of your communications with the wireless LAN.



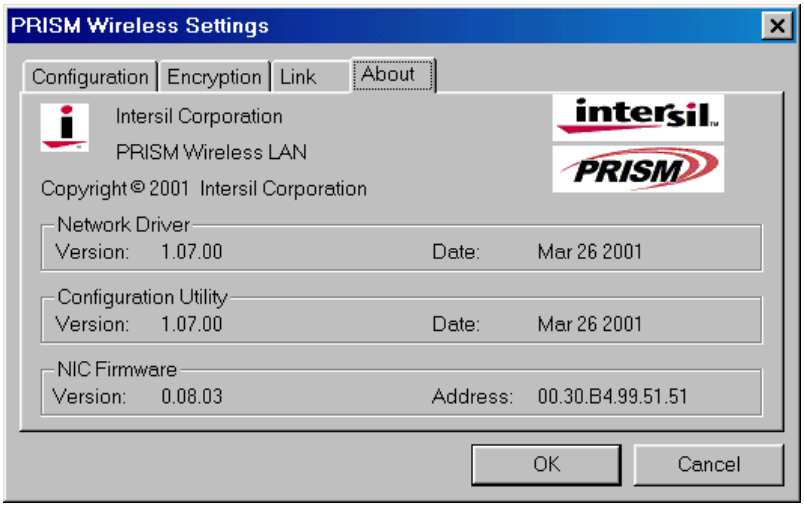
The fields in this menu provide the following information:

- State: shows the association state of your computer with the wireless LAN. When operating in Infrastructure mode, this field shows the MAC address of the Access Point with which you are communicating. When operating in AdHoc mode, this field shows the virtual MAC address used by computers participating in the AdHoc network.
- Current Channel: shows the channel on which the connection is made. In Infrastructure mode, this number changes as the radio scans the available channels.
- Current Tx Rate: shows the highest transmit rate of the current association.
- Throughput: shows the short term transmit and receive throughput in bytes/second, and is continuously updated.
- Link Quality: is based on the quality of the received signal of the Access Point beacon.
- Signal Strength: is based on the received signal strength measurement of the baseband processor of the Beacon signal.

You can click the Rescan button to force the radio to rescan all available channels. If your link quality or signal strength is poor, rescanning can be used to push the radio off a weak Access Point and search for a better link with another Access Point.

4.4 About Tab

The About menu provides information on the version of the Network Driver, the Configuration Utility, and the firmware in the TEW-203PI Wireless PCI Adapter. In addition, this menu also provides the MAC address of the TEW-203PI Wireless PCI Adapter.



5. Technical specifications of Wireless LAN

Host Interface: Standard PCI
PCI bus power management interface specification 1.0 compliant
.ACPI 1.0 compliant
.PCI Rev. 2.2 compliant

Dimensions: 59.7 x 59.95 x 3 mm

Weight: 76g

Operating Voltage: 3.3V ± 5%

Driver support

- Windows XP
- Windows 98
- Windows 2000
- Windows ME
- Windows NT
- **Standards supported**
- IEEE 802.11 standard for Wireless LAN
- All major networking standards (including TCP/IP, IPX)

Environmental

Operating temperature (ambient):

- 0°C to 55°C (Operating),-20 to 65°C (Storing)
- Max. Humidity*:* 95% Non-condensing
- Power specifications
- Nominal Temp Range: 15 dBm

Radio specifications

Range:

- per cell indoors approx.70 meters or more

– per cell outdoors up to 300 meters

Frequency range:

– 2.4-2.4835 GHz, direct sequence spread spectrum

Number of Channels:

– Europe: 13 (1-13)

– US: 11 (1-11)

– France: 4 (10-13)

– Japan: 14 (1-14)

Antenna system:

Antenna Reverse SMA connector with a detachable antenna

Mobility:

– Seamless roaming across cell boundaries with handover

Specific features

Supported bit rates:

– 11 Mbps

– 5.5 Mbps

– 2 Mbps

– 1 Mbps

Data encryption:

– 64 /128 bit WEP Encryption

Utility Software:

– Management utility software