TEW-504UB

108Mbps 802.11a/g USB 2.0 Wireless Adapter

User's Guide

TRENDnet®
TRENDware, USA
What's Next in Networking

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiv er is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

For operation within 5.15 ~ 5.25GHz frequency range, it is restricted to indoor environment, and the antenna of this device must be integral.

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.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This device complies with FCC RF Exposure limits set forth for an uncontrolled environment, under 47 CFR 2.1093 paragraph (d)(2).

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device was tested for typical by stander conditions that may occur during use. To comply with FCC RF exposure requirements a minimum separation distance of 1.5cm must be maintained between the user’s body and the device, including the antenna.

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

This transmitter must not be co-located or operation in conjunction with any other antenna or transmitter.

Table of Contents

Chapter 1 - Getting Started

This chapter introduces the Adapter and prepares you to use the Wireless Utility.

1.1 About Your 802.11a/b/g WLAN USB Adapter

The Adapter is an IEEE 802.11a, 802.11b, and 802.11g compliant wireless LAN adapter. With the Adapter, you can enjoy wireless mobility within almost any wireless networking environment.

The following lists the main features of your Adapter.

- ✓ Your Adapter can communicate with other IEEE 802.11a/b/g compliant wireless devices.
- ✓ Automatic rate selection.
- ✓ Standard data transmission rates up to 54 Mbps.
- ✓ Proprietary Atheros transmission rates of 108 Mbps
- ✓ Offers 64-bit, 128-bit and 152-bit WEP (Wired Equivalent Privacy) data encryption for network security.
- ✓ Supports IEEE802.1x and WPA (Wi-Fi Protected Access).
- ✓ Low CPU utilization allowing more computer system resources for other programs.
- ✓ A built-in antenna.
- ✓ Driver support for Windows XP/2000.

1.2 Package Content

- ➢ 802.11a/b/g WLAN USB Adapter
- ➢ Installation and Manual CD
- ➢ Quick Start Guide
- ➢ 1 x USB 2.0 Cable (102mm/4inches)
- ➢ Power Adapter

1.3 System Requirement

- Pentium class notebook computers with at least one available USB slot
- Microsoft Windows 98SE, ME, 2000 or XP
- CD-ROM drive

1.4 LED Definition

The following table describes the LED on the 802.11a/b/g WLAN USB Adapter

LED	COLOR	STATUS	DESCRIPTION
LINK	Blue	OFF	The Adapter has no connection
		Blinking Slowly	The Adapter is connected
		Blinking	The Adapter is sending or receiving data

1.5 Adapter Hardware and Utility Installation

NOTE: If you have connected the USB Adapter to your computer, please remove it first.

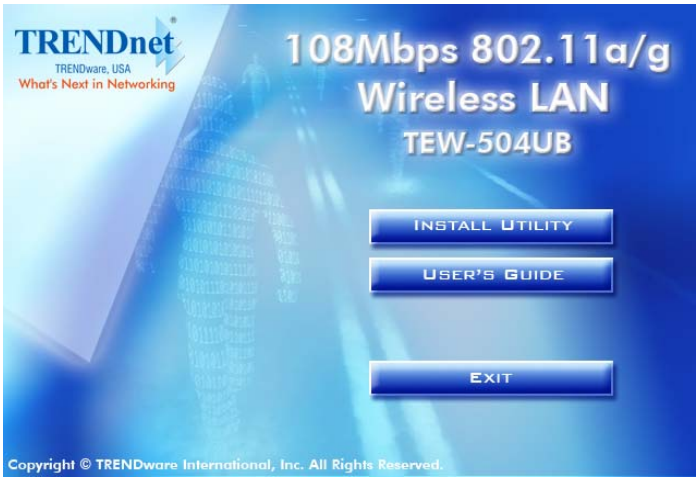
Follow the instructions below to install the USB Adapter and Utility.

STEP 1

Insert the Driver and Utility CD into CD drive

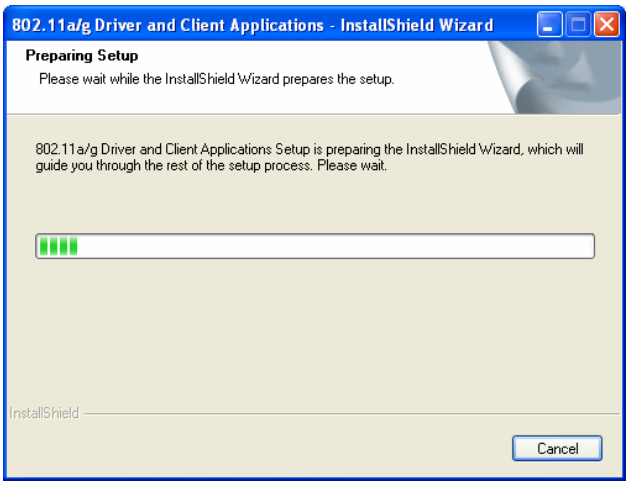
STEP 2

If your CD Autorun is enabled, the Main Installation Menu will show. (Otherwise open your CD folder and double-click on the “setup.exe” file) the following window will appear.



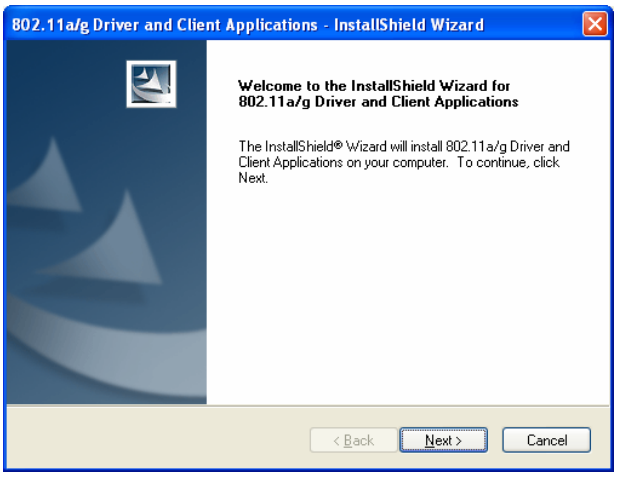
STEP 3

Click the **Install Utility** option. The InstallShield Wizard prepares for installation.



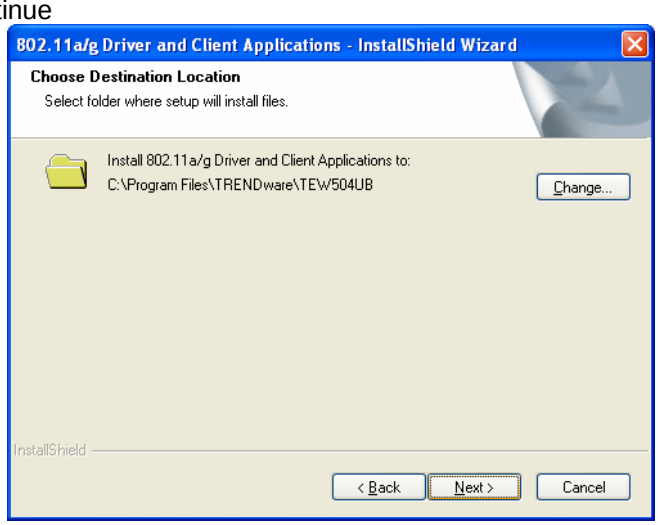
STEP 4

The InstallShield Wizard prompts you for confirmation. Click **Next** on the following menu.



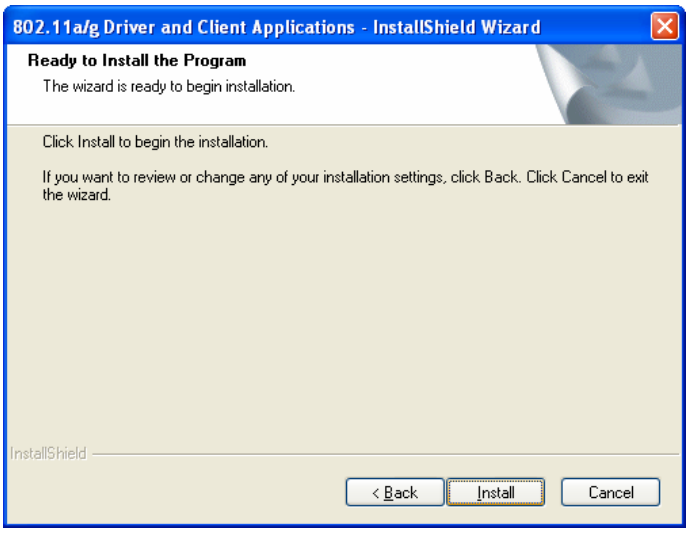
STEP 5

Click **Next** to continue



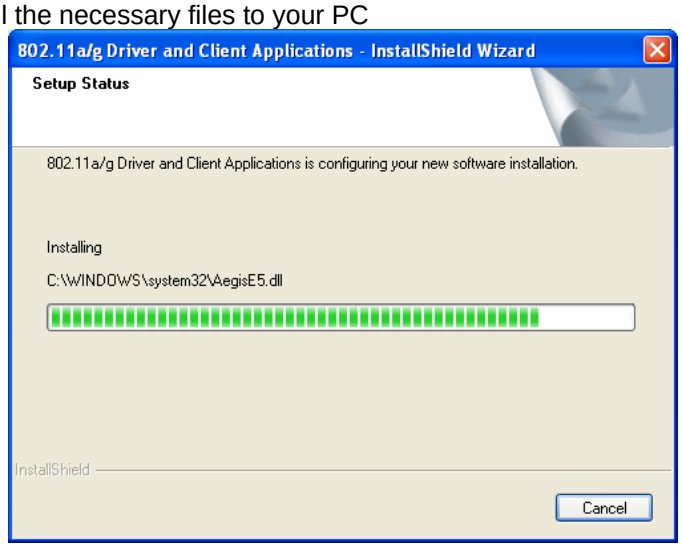
STEP 6

Click **Install** to start the installation process.



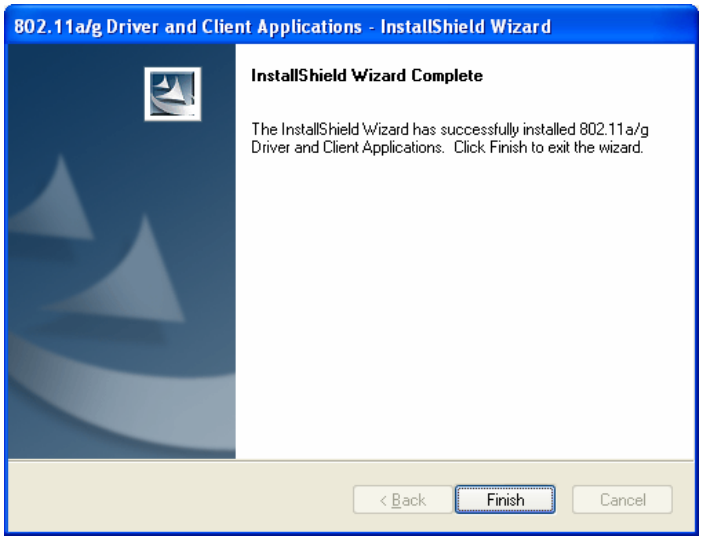
STEP 7

The utility will install the necessary files to your PC



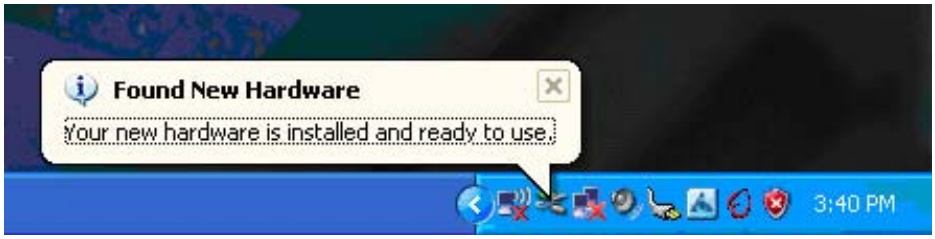
STEP 8

Click **Finish** to complete the Driver and Client application installation.



STEP 9

Plug the TEW-444UB Wireless USB 2.0 Adapter into your PC's USB port.
Windows will prompt the **Found New Hardware** message and the driver will load automatically.



STEP 10

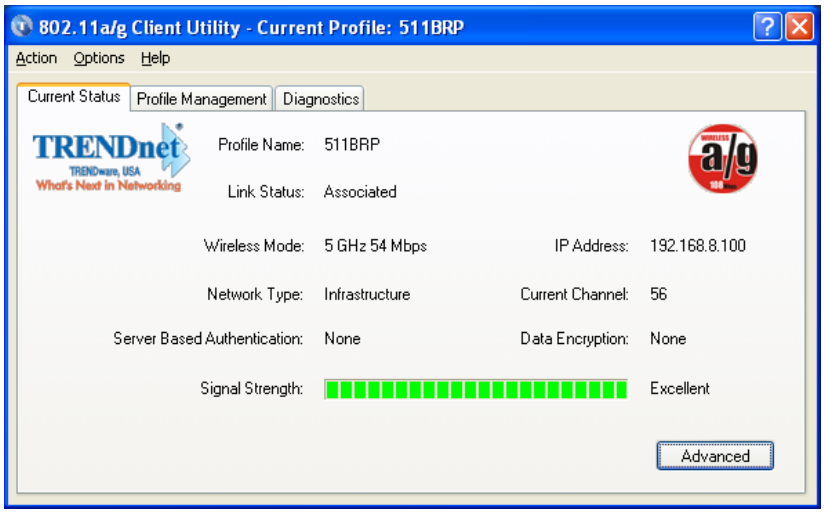
After the driver is loaded properly, The Client Utility icon resides on the Desktop at the System Tray automatically.

The Installation is complete.

1.6 Using the Utility to Configure Your Network

The following are explanations on how to configure and use the Utility program. After completing the installation procedure, a new icon as shown below will automatically appear on the desktop.

Double click on the icon and the 802.11a/g Client Utility window as shown below will appear.



The user can now use any of the management functions available in the 802.11b/g Client Utility.

Current Status

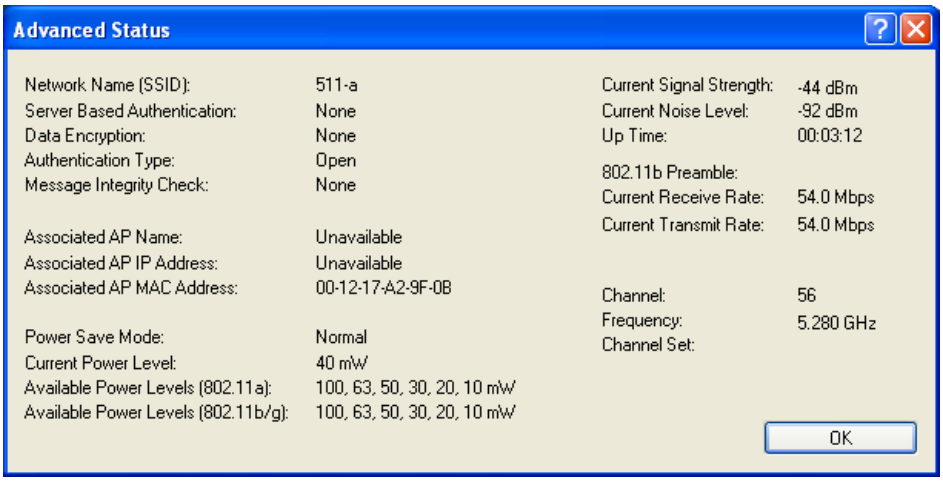
The Current Status tab contains general information about the program and its operations. The Current Status tab does not require any configuration.

The following table describes the items found on the Current Status screen.

Profile Name	The name of the current selected configuration profile. Set up the configuration name on the General tab.
Link Status	Shows whether the station is associated to the wireless network.
Wireless Mode	Displays the wireless mode. Configure the wireless mode on the Advanced tab.
IP Address	Displays the computer's IP address.
Network Type	The type of network the station is connected to. The options include:

	▪ Infrastructure (access point) ▪ Ad Hoc Configure the network type on the Advanced tab.
Current Channel	Shows the currently connected channel.
Server Based Authentication	Shows whether server based authentication is used.
Data Encryption	Displays the encryption type the driver is using. Configure the encryption type on the Security tab.
Signal Strength	Shows the strength of the signal.

Click the Advanced button to see the advanced status diagnostics.



Advanced Status Information

Click the Advanced button on the Current Status tab of the Client Utility to see advanced information about the program and its operations. The Current Status tab does not require any configuration.

The following table describes the items found on the Advanced Status screen.

Network Name (SSID)	Displays the wireless network name. Configure the network name on the General tab.
Server Based Authentication	Shows whether server based authentication is used.
Data Encryption	Displays the encryption type the driver is using. Configure the encryption type on the Security tab.
Authentication Type	Displays the authentication mode. Configure the authentication mode on the General tab.
Message Integrity Check	Shows whether MIC is enabled. MIC prevents bit-flip attacks on encrypted packets.
Associated AP Name	Displays the name of the access point the wireless adapter is associated to.
Associated AP IP Address	Shows the IP address of the access point the wireless adapter is associated to.
Associated AP MAC Address	Displays the MAC address of the access point the wireless adapter is associated to.
Power Save Mode	Shows the power save mode. Power management is disabled in ad hoc mode. Configure the power save mode on the Advanced tab.
Current Power Level	Displays the transmit power level rate in mW. Configure the transmit power level on the Advanced tab.
Available Power Levels	Shows the 802.11a and/or 802.11b/g available power levels.
Current Signal Strength	Shows the current signal strength in dBm.
Current Noise Level	Displays the current noise level in dBm.
Up Time	Shows how long the client adapter has been receiving power (in hours:minutes:seconds). If the adapter runs for more than 24 hours, the display shows in days:hours:minutes:seconds.
802.11b Preamble	Displays the 802.11b preamble format. Configure the preamble format on the Advanced tab.

Current Receive Rate	Shows the current receive rate in Mbps.
Current Transmit Rate	Displays the current transmit rate in Mbps.
Channel	Shows the currently connected channel.
Frequency	Displays frequency the station is using.
Channel Set	Shows the current channel set.

Create or Modify a Configuration Profile

To add a new configuration profile, click New on the Profile Management tab. To modify a configuration profile, select the configuration from the Profile list and click the Modify button.

The Profile Management dialog box displays the General tab.

Profile Management:

- Edit the General tab.
- Edit the Security tab.
- Edit the Advanced tab.

To configure a profile for ad hoc or access point (infrastructure) mode, edit the Network Type field on the Advanced tab.

Note that the ACU only allows the creation of 16 configuration profiles. After the creation of 16 profiles, clicking the New button displays an error message. Remove an old profile or modify an existing profile for a new use.

Auto Profile Selection Management

Including a profile in the auto selection feature allows the wireless adapter to automatically select that profile from the list of profiles and use it to connect to the network.

Including a profile in auto profile selection:

1. On the Profile Management tab, click the Order Profiles button.
2. The Auto Profile Selection Management window appears, with a list of all created profiles in the Available Profiles box.

3. Highlight the profiles to add to auto profile selection, then click Add. The profiles appear in the Auto Selected Profiles box.

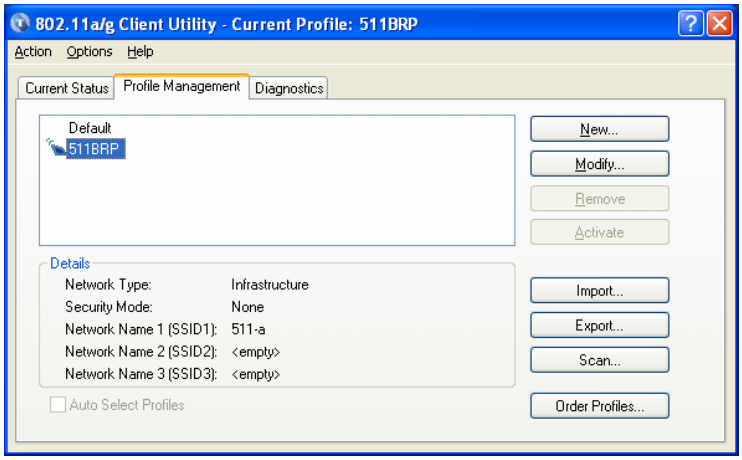
Ordering the auto selected profiles:

1. Highlight a profile in the Auto Selected Profiles box.
2. Click Move Up, Move Down, or Remove as appropriate.

   The first profile in the Auto Selected Profiles box has highest priority, and the last profile has lowest priority.
3. Click OK.
4. Check the Auto Select Profiles box.
5. Save the modified configuration file.

   When auto profile selection is enabled by checking Auto Select Profiles on the Profile Management tab, the client adapter scans for an available network. The profile with the highest priority and the same SSID as one of the found networks is the one that is used to connect to the network. If the connection fails, the client adapter tries the next highest priority profile that matches the SSID, and so on.

With auto profile selection enabled, the wireless adapter scans for available networks. The highest priority profile with the same SSID as a found network is used to connect to the network. On a failed connection, the client adapter tries with the next highest priority profile.

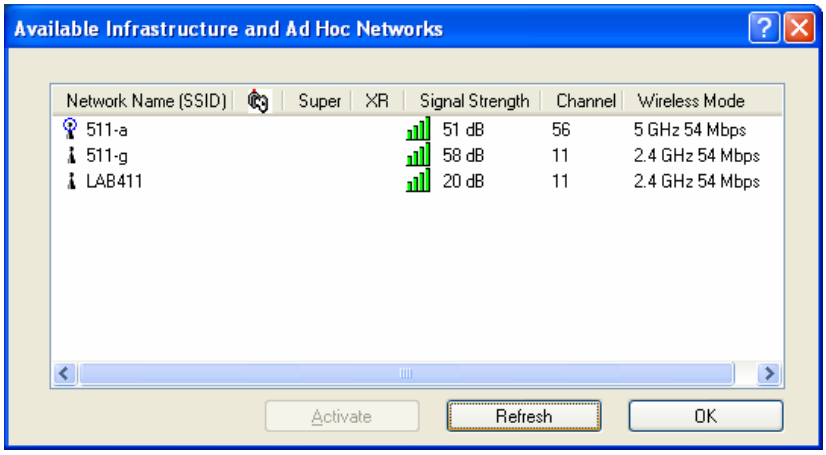


Scan Available Networks

Click the Scan button on the Profile Management tab to scan for available infrastructure and ad hoc networks. On this list, click Refresh to refresh the list at any time.

Connecting to a different network

- Highlight a network name and click the Activate button to connect an available network. If no configuration profile exists for that network, the Profile Management window opens to the General tab. Fill in the profile name and click OK to create the configuration profile for that network.



Security Tab

In the Client Utility, access the Security tab by clicking New or Modify on the Profile Management tab. Click the Security tab in the Profile Management window.

Edit the fields in the Security tab of Profile Management to configure the profile. To define the security mode, select the radio button of the desired security mode. Make sure to also edit the General and Advanced tabs.

WPA/WPA2	Enables the use of Wi-Fi Protected Access (WPA). Choosing WPA/WPA2 opens the WPA/WPA2 EAP drop-down menu. The options include: ■ EAP-FAST (**Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling)** EAP-FAST is to support customers who cannot enforce a strong password policy and wish to deploy an 802.1X EAP type that does not require digital certificates, supports a variety of user and password database types, supports password expiration and change, and is flexible, easy to deploy, and easy to manage. For example, a customer using Cisco LEAP who cannot enforce a strong password policy and does not want to use certificates can migrate to EAP-FAST for protection from dictionary attacks. (See help menu on configuration utility for more details) ■ EAP-TLS **(Extensible Authentication Protocol-Transport Layer Security)** is a Point-to-Point Protocol (PPP) extension supporting additional authentication methods within PPP. Transport Layer Security (TLS) provides for mutual authentication, integrity-protected cipher suite negotiation, and key exchange between two endpoints. ■ EAP-TTLS **(Extensible Authentication Protocol-Tunneled Transport Layer Security)** An EAP variant that provides mutual authentication using a certificate for server authentication, and via a secure TLS tunnel for the client ■ PEAP (EAP-GTC) (**Protected Extensible Authentication Protocol)** authenticates wireless LAN clients using only server-side digital certificates by creating an encrypted SSL/TLS tunnel between the client and the authentication server. The tunnel then protects the subsequent user authentication exchange. ■ PEAP (EAP-MSCHAP V2) (**Protected Extensible Authentication Protocol) To use PEAP (EAP-MSCHAP V2) security**, the server must have WPA-PEAP certificates, and the server properties must already be set. Check with the IT

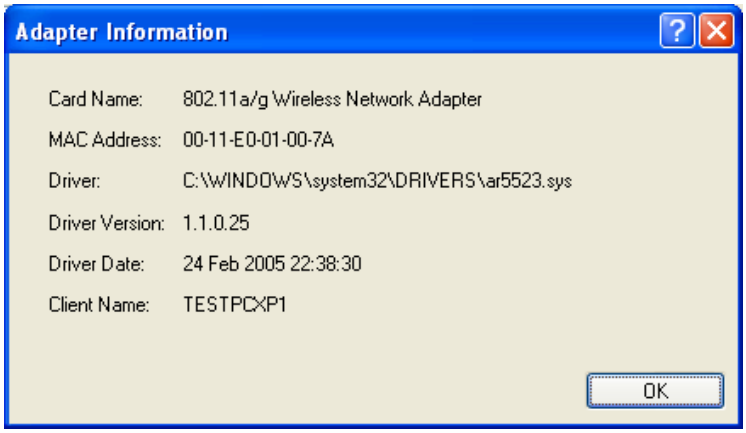
	manager • LEAP (**Lightweight and Efficient Application Protocol)** is the general framework for a set of high-performance, efficient protocols which are ideal for mobile and wireless applications. LEAP is designed to address all the technical requirements of the wireless data communications industry, and is oriented towards providing the greatest benefit to the industry and the consumer
WPA/WPA2 Passphrase	Enables WPA/WPA2 Passphrase security. Click on the Configure button and fill in the WPA/WPA2 Passphrase.
802.1x	Enables 802.1x security. This option requires IT administration. Choosing 802.1x opens the 802.1x EAP type drop-down menu. The options include: • EAP-FAST • EAP-TLS • EAP-TTLS • PEAP (EAP-GTC) • PEAP (EAP-MSCHAP V2) • LEAP If the access point that the wireless adapter is associating to has WEP set to Optional and the client has WEP enabled, make sure that Allow Association to Mixed Cells is checked on the Security Tab to allow association.

Chapter 2 – Maintenance

This chapter describes how to uninstall or upgrade the Wireless Utility.

2.1 The Version Screen

In the Client Utility, check the adapter information by clicking Adapter Information button on the Diagnostics tab.



2.2 Uninstall the Client Utility and Driver

Step 1. To remove the utility from the OS, go to **Start -> Control Panel**

Step 2. Double-click **Add-Remove Programs**

Step 3. Select 802.11b/g Wireless Client Installation Program, and click the Remove button

2.3 Upgrading the Wireless Utility

To perform the upgrade, follow the steps below.

Step 1. Download the latest version of the utility from the web site and save the file on your computer.

Step 2. Follow the steps in *Section* ***Error! Reference source not found.*** to remove the current Wireless Utility from your computer.

Step 3. Restart your computer if prompted.

Step 4. After restarting, refer to the procedure in the *Quick Start Guide* to install the new utility.

Step 5. Check the version numbers in the **Version** screen to make sure the new utility is installed properly.

Limited Warranty

TRENDware warrants its products against defects in material and workmanship, under normal use and service, for the following lengths of time from the date of purchase.

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If a product does not operate as warranted above during the applicable warranty period, TRENDware shall, at its option and expense, repair the defective product or part, deliver to customer an equivalent product or part to replace the defective item, or refund to customer the purchase price paid for the defective product. All products that are replaced will become the property of TRENDware. Replacement products may be new or reconditioned.

TRENDware shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to TRENDware pursuant to any warranty.

There are no user serviceable parts inside the product. Do not remove or attempt to service the product by any unauthorized service center. This warranty is voided if (i) the product has been modified or repaired by any unauthorized service center, (ii) the product was subject to accident, abuse, or improper use (iii) the product was subject to conditions more severe than those specified in the manual.

Warranty service may be obtained by contacting TRENDware office within the applicable warranty period for a Return Material Authorization (RMA) number, accompanied by a copy of the dated proof of the purchase. Products returned to TRENDware must be pre-authorized by TRENDware with RMA number marked on the outside of the package, and sent prepaid, insured and packaged appropriately for safe shipment.

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Governing Law: This Limited Warranty shall be governed by the laws of the state of California.

AC/DC Power Adapter, Cooling Fan, and Power Supply carry 1 Year Warranty

TRENDnet®

TRENDware, USA

What's Next in Networking

Product Warranty Registration

Please take a moment to register your product online.
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TRENDnet Technical Support

US/Canada Support Center	European Support Center
Contact **Telephone:** 1(310) 626-6252 **Fax:** 1(310) 626-6267 **Email:** support@trendnet.com **Tech Support Hours** 7:30am - 6:00pm Pacific Standard Time Monday - Friday	**Contact** **Telephone** Deutsch : +49 (0) 6331 / 268-460 Français : +49 (0) 6331 / 268-461 Español : +49 (0) 6331 / 268-462 English : +49 (0) 6331 / 268-463 Italiano : +49 (0) 6331 / 268-464 Dutch : +49 (0) 6331 / 268-465 **Fax**: +49 (0) 6331 / 268-466 **Tech Support Hours** 8:00am - 6:00pm Middle European Time Monday - Friday

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