

**802.11n compliant 2.4GHz
Mini-PCI Module**

User's Manual

REGULATORY STATEMENTS

FCC Certification

The United States Federal Communication Commission (FCC) and the Canadian Department of Communications have established certain rules governing the use of electronic equipment.

Part15, Class B

This device complies with Part 15 of 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. 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 off and on, the user is encouraged to try to correct the interference by one or more 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 receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.



CAUTION

1. To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.
2. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
3. For product available in the USA market, only channel 1~11 can be operated. Selection of other channels is not possible.

Agency in the United States of America:
Company Name: Xterasys Corporation
Tel: 909-590-0600 Fax: 909-590-0388
Address: 4711 CHINO AVE. CHINO, CA91710 USA

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INTRODUCTION

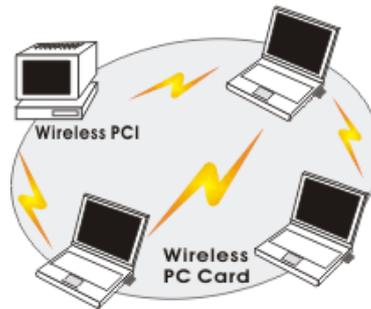
The **802.11n compliant 2.4GHz Mini-PCI Module** is a device that allows you connect your computer to a wireless local area network (LAN). A wireless LAN allows your system to use wireless Radio Frequency (RF) technology to transmit and receive data without physically attaching to the network. The Wireless protocols that come with this product ensure data security and isolation from interference generated by other radio frequencies.

This card also allows you to take full advantage of your computer's mobility with access to real-time information and online services anytime and anywhere. In addition, this device eliminates the bother of pulling cable through walls and under furniture. It even allows you to place your system in locations where cabling is impossible. Modifying and augmenting networks has never been so easy.

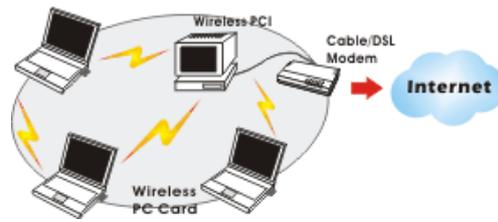
Wireless Network Options

The Peer-to-Peer Network

This network installation lets you set a small wireless workgroup easily and quickly. Equipped with wireless PC Cards or wireless PCI, you can share files and printers between each PC and laptop.

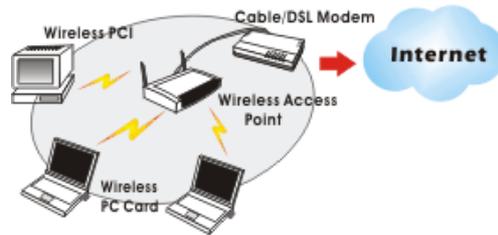


You can also use one computer as an Internet Server to connect to a wired global network and share files and information with other computers via a wireless LAN.



The Access Point Network

The network installation allows you to share files, printers, and Internet access much more conveniently. With Wireless LAN Cards, you can connect wireless LAN to a wired global network via an **Access Point**.



INSTALLATION

Install the device

1. Make sure the computer is turned off. Remove the expansion slot cover from the computer.
2. Carefully slide the **802.11n compliant 2.4GHz Mini-PCI Module** into the mini PCI slot. Push evenly and slowly and ensure it is properly seated.
3. After the device has been connected to your computer, turn on your computer. Windows will detect the new hardware and then automatically copy all of the files needed for networking.

Note for Windows 98 users:

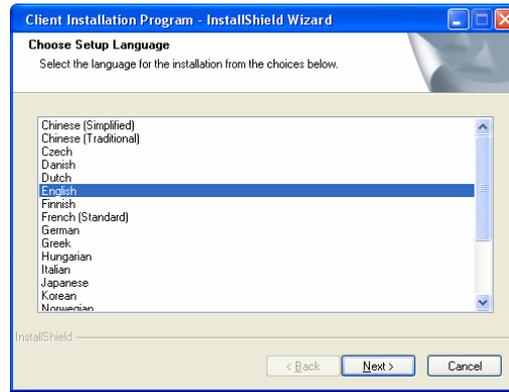
Before installation of the device, make sure you have your operating system CD-ROM at hand. You may be asked to insert the OS CD-ROM in order to download specific drivers.



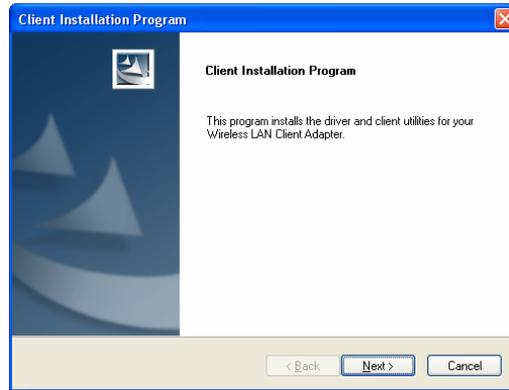
Install the Driver & Utility

1. Exit all Windows programs. Insert the CD-ROM into the CD-ROM drive of your computer.
 - If the CD-ROM is not launched automatically, go to your CD-ROM drive (e.g. drive D) and double-click on **Setup.exe**.

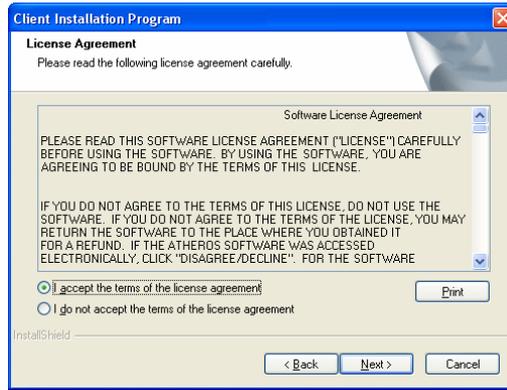
2. When the **Choose Setup Language** screen appears, select the language you prefer and then click **Next** to continue.



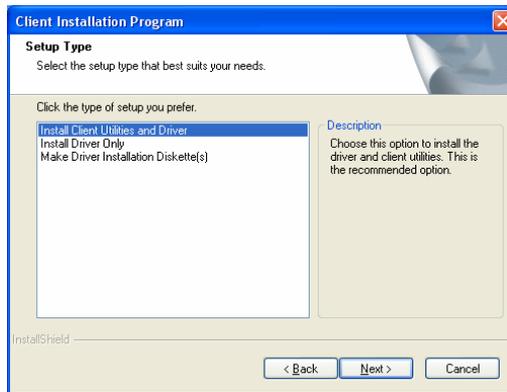
3. Click **Next** to process the installation.



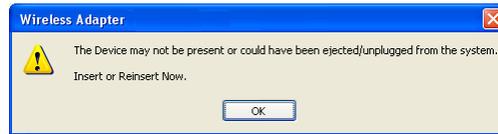
4. When the License Agreement screen appears, select **“I accept the terms of the license agreement”** view the contents and then click **Next** to continue.



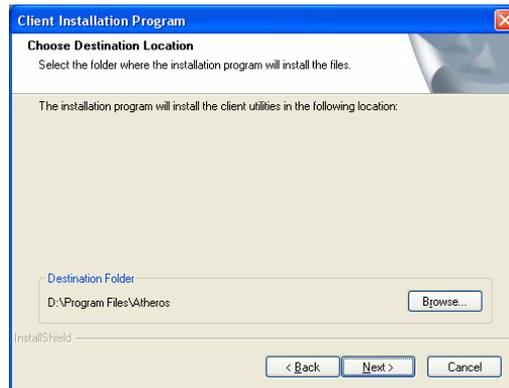
4. When it comes to **Setup Type** screen, choose **“Install Client Utilities and Driver”** then click **Next**.



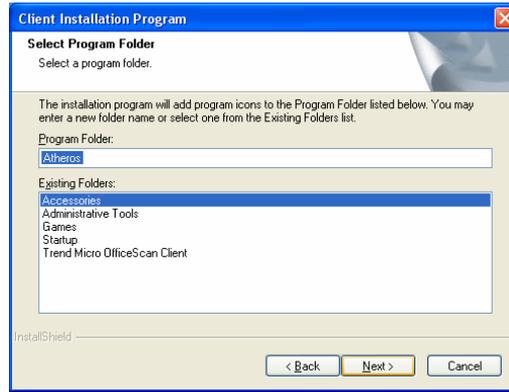
5. When this window comes up, please insert the wireless device and click **OK** to continue.



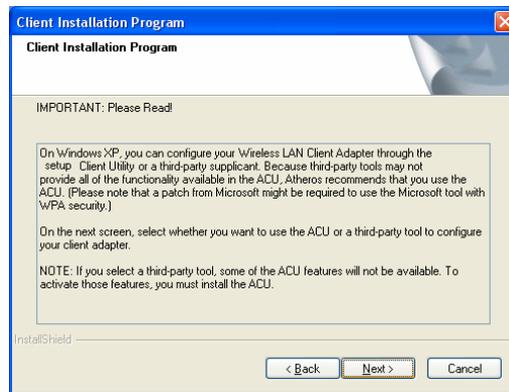
6. Click **Browse** button to choose the destination location you prefer, or use the default location, click **Next** to process.



7. Select existing program folder you prefer, or enter a new folder name then click Next.



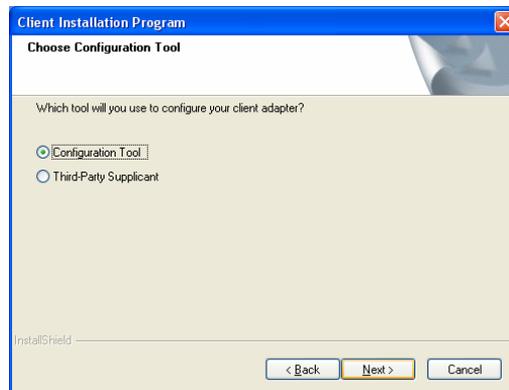
8. Read the important notice the click **Next** to continue.



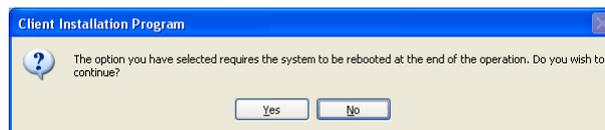
9. Select the check box to choose a Configuration Tool from the listed two choices.

- **Configuration Tool:** Choose to use our configuration utility.
- **Microsoft Zero Configuration Tool:** Choose to use Windows XP's built-in Zero Configuration Utility (ZCU).

Click **Next** to continue.



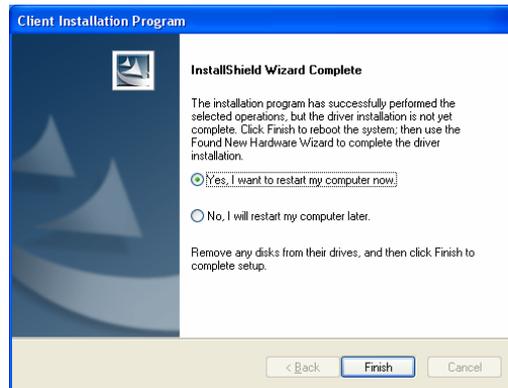
10. Click **Yes** to reboot the system after complete the software installation.



11. When this window shows up, the driver will be installed automatically, click **OK** to continue.

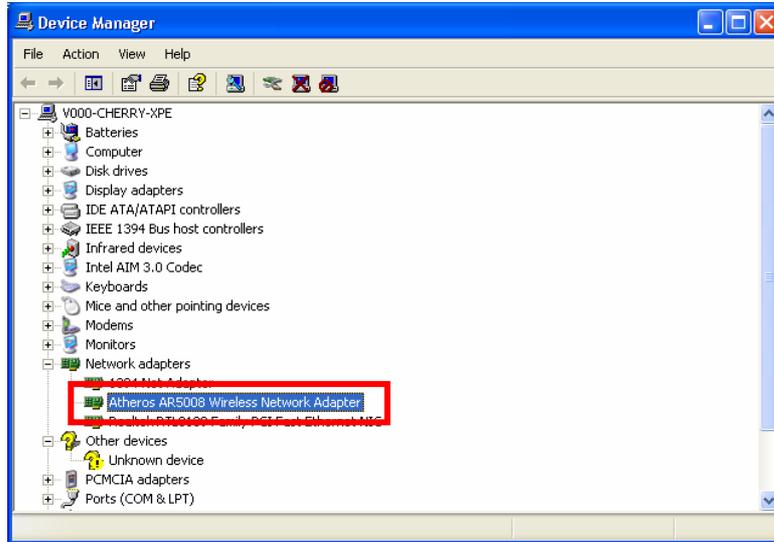


12. Select "**Yes, I want to restart my computer now.**" Then click **Finish** to complete the installation.



Verify Device Installation

To verify that the device has been properly installed in your computer and is enabled, go to **Start → Settings → Control Panel → System (→ Hardware) → Device Manager**. Expand the **Network adapters** item. If the **Atheros AR5008 Wireless Network Adapter** is listed, it means that your device is properly installed and enabled.

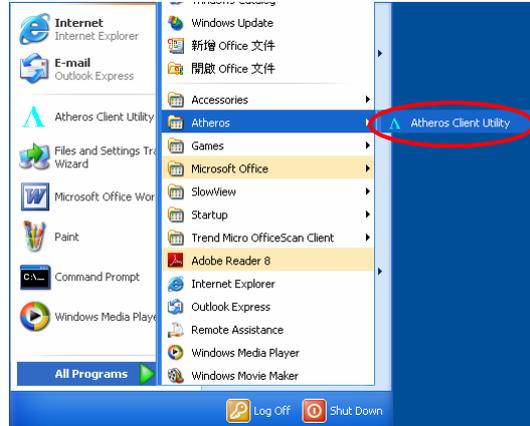


CONFIGURATION

After successful installation of the Wireless Network Adapter driver, the utility icon will be displayed on the task bar. You will be able to access the Configuration Utility through the Network Status icon.



If the icon doesn't appear automatically, go to **Start → Programs → Wireless Utility → Wireless Utility**, it will appear in the task bar.



Accessing the Configuration Utility

All settings are categorized into three Tabs:

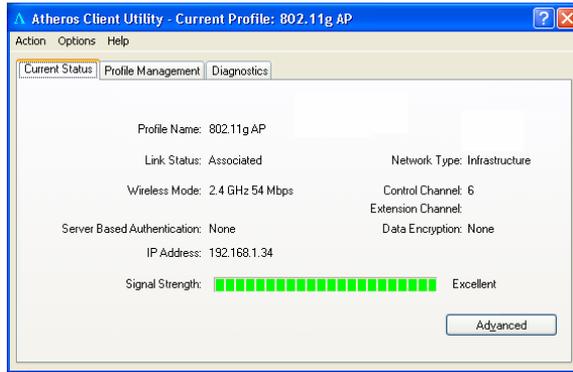
Current Status Tab

Profile Manager Tab

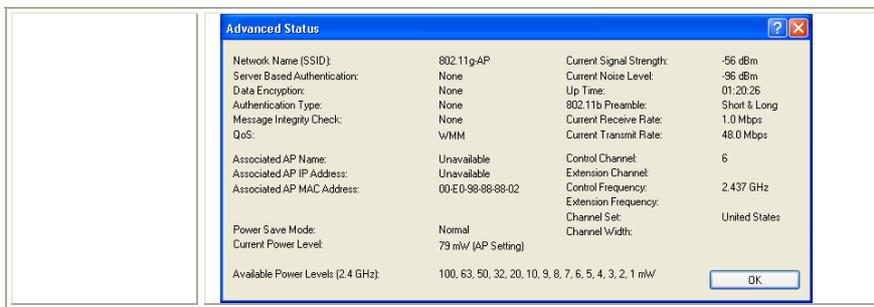
Diagnostics Tab

Current Status Tab

Current Status shows the profiles information of the connection.

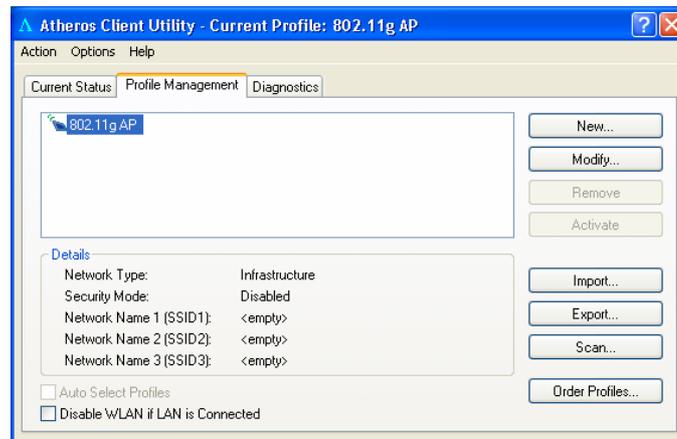


Current Status Tab	
Profile Name	Show the profile names that are saved in your profile page.
Link Status	Shows the current connection status.
Wireless Mode	AP support wireless mode. It may support 802.11a, 802.11b, 802.11g or 802.11n wireless mode.
Server Based Authentication	Shows the network authentication in use.
IP Address	Shows the IP address information.
Signal Strength	Shows the signal strength.
Network Type	Shows the Network type of the profile.
Control Channel	The channel that is currently used.
Extension Channel	Show the extension channel.
Data Encryption	Shows the encryption type of the profile.
Advanced	Click this button to show the detail information of the device.



Profile Manager Tab

Profile can book keeping your favorite wireless setting among your home, office, and other public hot-spot. You may save multiple profiles, and activate the correct one at your preference. The Profile manager enables you to **New (Add)**, **Modify**, **Remove**, **Activate**, **import**, **export** and **order** profiles.

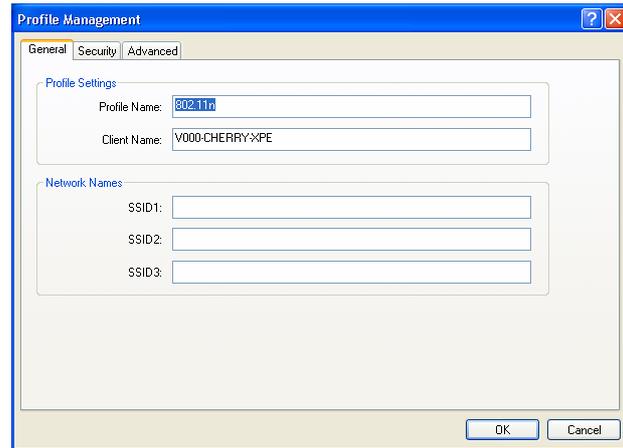


Profile Manager Tab

New

Click the **New** button to add up a new profile into the list and configure your profile settings.

General Tab:



The screenshot shows a 'Profile Management' dialog box with three tabs: 'General', 'Security', and 'Advanced'. The 'General' tab is active. It contains two sections: 'Profile Settings' and 'Network Names'. Under 'Profile Settings', there are two text input fields: 'Profile Name' (containing '80211b') and 'Client Name' (containing 'V000-CHERRY-XPE'). Under 'Network Names', there are three text input fields labeled 'SSID1', 'SSID2', and 'SSID3', all of which are currently empty. At the bottom right of the dialog box are 'OK' and 'Cancel' buttons.

Profile Settings:

Profile Name: You must enter a profile name in this blank.

Client Name: Shows the client information.

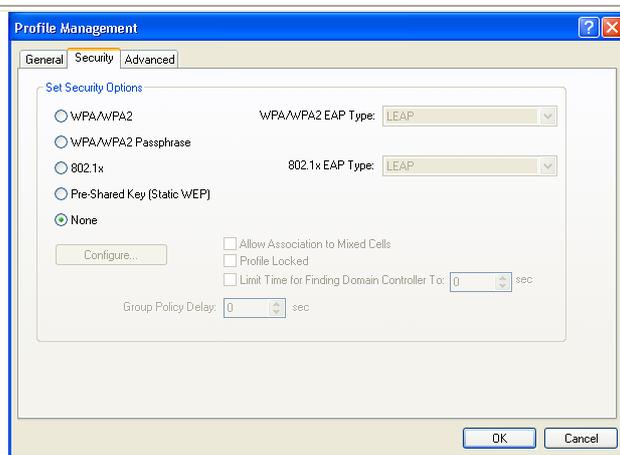
Network Names:

SSID: The SSID is the unique name shared among all points in your wireless network. The name must be identical for all devices and points attempting to connect to the same network.

OK: Click to save and exit the current page.

Cancel: Click to exit the current page.

Security Tab:



Set Security Options: Select an authentication type from the below list, including WPA/WPA2, WPA/WPA2 Passphrase, 802.1x, Pre-Shared Key (Static WEP) and None.

- **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
 - EAP-TLS
 - EAP-TTLS
 - PEAP (EAP-GTC)
 - PEAP (EAP-MSCHAP V2)
 - LEAP
- **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.

- **Pre-Shared Key (Static WEP):** Enables the use of pre-shared keys that are defined on both the access point and the station. To define pre-shared encryption keys, choose the Pre-Shared Key and click the Configure button to fill in the Define Pre-Shared Keys. 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.
- **None:** No security (not recommended).

Allow Association to Mixed Cells: Check this check box if the access point with which the client adapter is to associate has WEP set to Optional and WEP is enabled on the client adapter. Otherwise, the client is unable to establish a connection with the access point.

Profile Locked: Choose this to activate the function.

Limit Time for Finding Domain Controller to: Check this check box and enter the number of seconds (up to 300) after which the authentication process times out when trying to find the domain controller. Entering zero is like unchecking this check box, which means no time limit is imposed for finding the domain controller.

Note: The authentication process times out whenever the authentication timer times out or the time for finding the domain controller is reached.

Group Policy Delay: Specify how much time elapses before the Windows logon process starts group policy. Group policy is a Windows feature used by administrators to specify configuration options for groups of users. The objective is to delay the start of Group Policy until wireless network authentication occurs. Valid ranges are from 0 to 65535 seconds. The value that you set goes into effect after you reboot your computer with this profile set as the active profile.

Advanced Tab-

The screenshot shows the 'Advanced' tab of a 'Profile Management' window. It contains several configuration sections: 'Transmit Power Level' with dropdowns for 2.4 GHz (100 mW) and 5 GHz (40 mW), and a 'Lock Transmit Power' checkbox; 'Power Save Mode' set to 'Normal' and 'Network Type' set to 'Infrastructure'; 'Wireless Mode' with three checked options: '2.4 GHz 300 Mbps', '2.4 GHz 54 Mbps', and '2.4 GHz 11 Mbps'; 'Wireless Mode When Starting Ad Hoc Network' with radio buttons for '2.4 GHz 11 Mbps' and '2.4 GHz 54 Mbps', and a 'Channel' dropdown set to 'Auto'; '802.11 Authentication Mode' with radio buttons for 'Auto', 'Open' (selected), and 'Shared'; and a 'Roaming' dropdown set to 'Default'. At the bottom right, there is a 'Preferred APs...' button and 'OK' and 'Cancel' buttons.

Transmit Power Level: Selects the transmit power level for 802.11b/g or 802.11a in mW. Actual transmit power may be limited by regulatory domain or hardware limitations. Also note that administrator has the privilege of locking these power levels, so that these values are pre-selected and not editable.

Power Save Mode:

- **Maximum** mode causes the access point to buffer incoming messages for the wireless adapter. The adapter periodically polls the access point to see if any messages are waiting.
- **Normal** uses maximum when retrieving a large number of packets, then switches back to power save mode after retrieving the packets.
- **Off** turns power saving off, thus powering up the wireless adapter continuously for a short message response time.

Network Type: Specifies the network as either infrastructure (access point mode) or ad hoc.

Wireless mode: Specifies 2.4 GHz 300Mbps, 2.4 GHz 54Mbps, 2.4 GHz 11Mbps, Quality of Service. The wireless adapter must match the wireless mode of the access point it associates to.

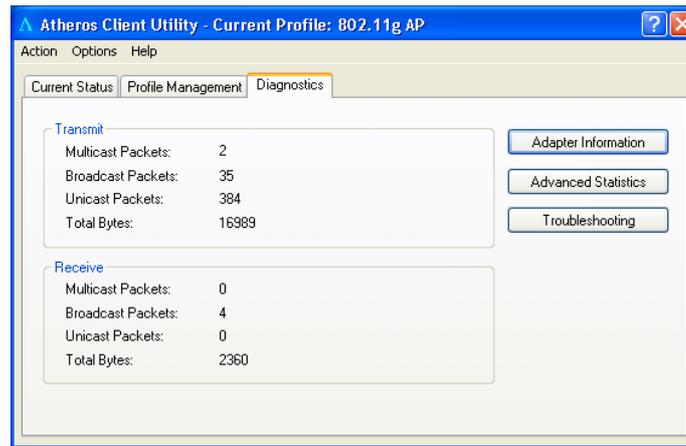
Wireless Mode when Starting an Ad Hoc Network: Specifies 2.4 GHz 11Mbps and 2.4 GHz 54Mbps to start an ad hoc network

	<p>if no matching network name is found after scanning all available modes. This mode also allows selection of the channel the wireless adapter uses. The channels available depend on the regulatory domain. If the adapter finds no other ad hoc adapters, this selection specifies the channel with the adapter starts the ad hoc network with. The wireless adapter must match the wireless mode and channel of the clients it associates to.</p> <p>802.11 Authentication Mode: Select what mode the wireless adapter uses to authenticate to an access point:</p> <ul style="list-style-type: none"> • Auto causes the adapter to attempt authentication using shared, but switches it to open authentication if shared fails. • Open enables an adapter to attempt authentication regardless of its WEP settings. It will only associate with the access point if the WEP keys on both the adapter and the access point match. • Shared only allows the adapter to associate with access points that have the same WEP key. <p>Roaming Strength: Select the roaming level to suit the roaming aggressiveness of the client. Five roaming levels ranging from Very Low to Very High allow for the best performance in different environments such as home or office.</p> <p>For infrastructure (access point) networks, click the Preferred APs button to specify up to four access points to which the client adapter should attempt to associate.</p> <p>OK: Click to save and exit the current page. Cancel: Click to exit the current page.</p>
Modify	Click to edit your existing profiles.
Remove	Select the profile to remove from the list of configuration profiles.
Activate	Click to activate your existing profiles.
Import	Click the Import button then browse to the directory where the profile is located.
Export	Click the Export button then browse to the directory to export the profile to.
Scan	Click the Scan button to scan for available infrastructure and ad hoc networks. On this list, click Refresh to refresh the list at any time. Highlight a network name and click the Activate button to connect an available network.

Order profiles	Click this button to manage the profiles.
Auto Select Profiles	When auto profile selection is enabled, 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.
Disable WLAN if LAN is connected	A connected WLAN is automatically disabled when a LAN connects. This WLAN automatically is re-enabled when the LAN is not available.
OK	Click to save and exit the current page.
Cancel	Click to exit the current page.

Diagnostics Tab

The Diagnostics tab lists the following receive and transmit diagnostics for frames received by or transmitted by the wireless network adapter.



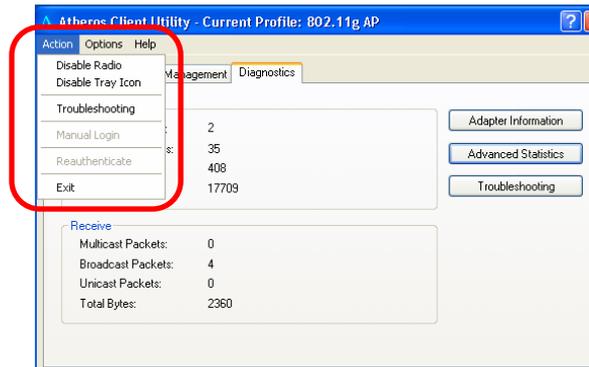
Diagnostics Tab

Multicast packets	Shows the transmitted and received.
--------------------------	-------------------------------------

Broadcast packets	Shows the transmitted and received.
Unicast packets	Shows transmitted and received.
Total bytes	Shows transmitted and received.
Adapter Information	Click the button for more general information about the wireless network adapter and the network driver interface specification driver.
Advanced Statistics	Click the button on the Diagnostics tab to also show receive and transmit statistical information.
Troubleshooting	Click the Troubleshooting button to run the Troubleshooting Utility.

Action

Use the Action menu to access the Client Utility tools:

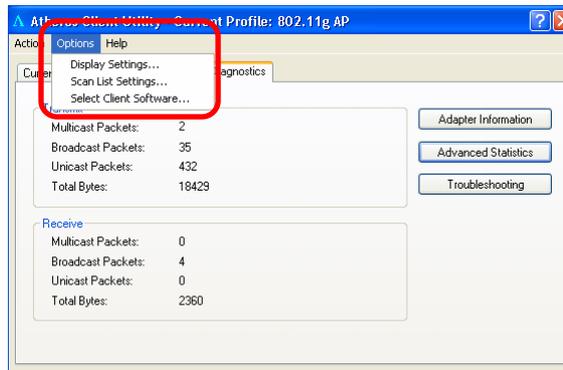


Action	
Disable Radio	Enable or disable the RF Signal on all station reference designs.
Disable Tray Icon	Enable or disable the tray icon.
Troubleshooting	Run the optional Troubleshooting Utility.
Manual Login	Log in to LEAP manually, if LEAP is set to manually prompt for user name and password on each login.

Reauthenticate	Reauthenticate to a LEAP-configured access point.
Exit	Exit the Client Utility application.

Options

The display settings dialog box contains tools to set the display settings, scan list settings and select client software.



Options

Display Settings

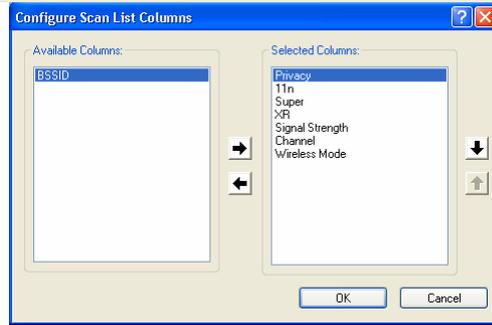
Signal Strength Display Units: Sets the units used when displaying signal strength: percentage (%) or dBm.

Refresh Interval: Use the up/down arrows to set the display refresh interval in seconds.

Data Display: Sets the display to cumulative or relative:

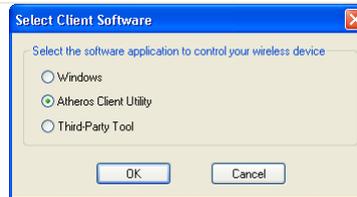
- Relative displays the change in statistical data since the last update.
 - Cumulative displays statistical data collected since opening the profile.
- OK:** Click to save and exit the current page.
Cancel: Click to exit the current page.

Scan List Settings



Available Columns: Displays the columns available to use for the scan list.
Selected Columns: Displays the columns selected for the scan list. Use the up/down arrows to change the column order. To remove a column, highlight the column then click the left arrow to remove it from the Selected Columns list. After selecting the required columns, click OK to continue or Cancel to ignore.

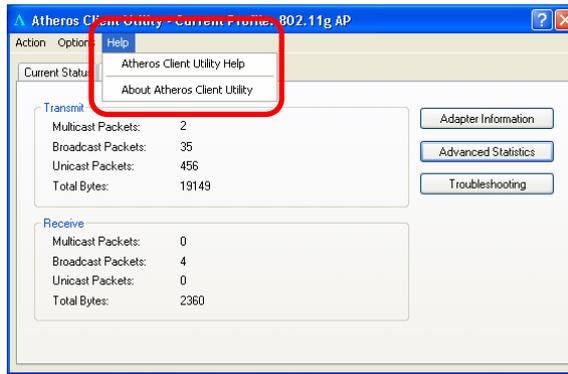
Select Client Software



Select a software application you prefer to control your wireless device.
OK: Click to save and exit the current page.
Cancel: Click to exit the current page.

Help

The Client Utility is a user-mode utility designed to edit and add profiles for, as well as display and diagnostics pertaining to a selected network interface card (wireless adapter).



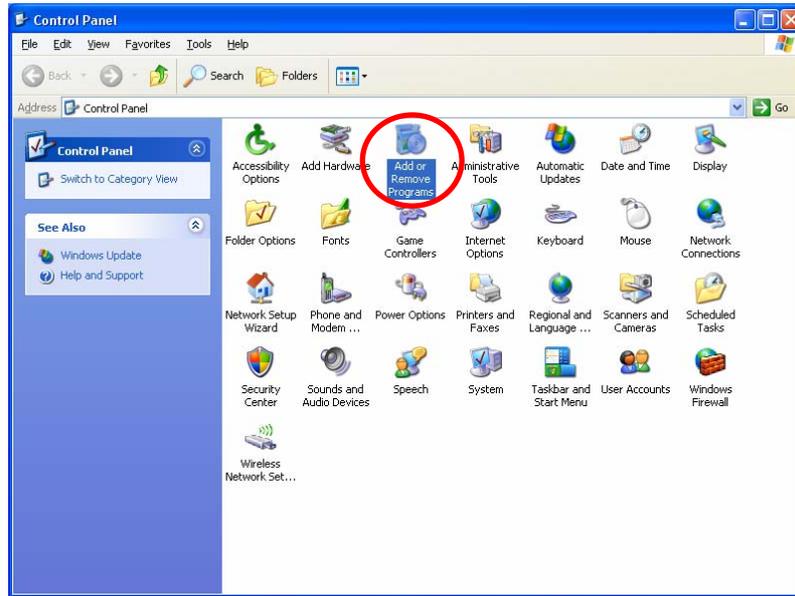
Help	
Client Utility Help	Select to see the Client Utility Help files.
About Client Utility	<p>Shows the version numbers of various software components. OK: Click to save and exit the current page. Help: Select to see the Client Utility help files.</p>

UNINSTALLATION

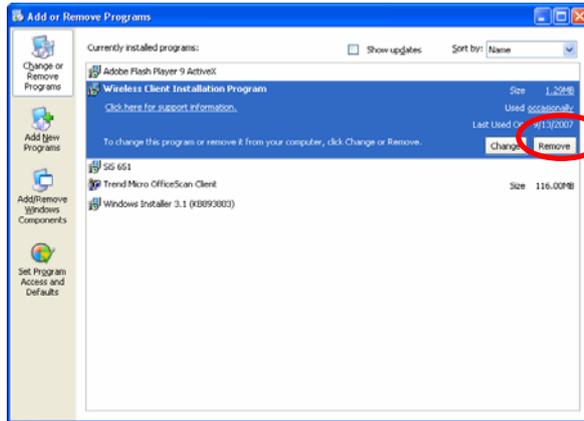
In case you need to uninstall the Utility and driver, please refer to below steps.

(As you uninstall the utility, the driver will be uninstalled as well.)

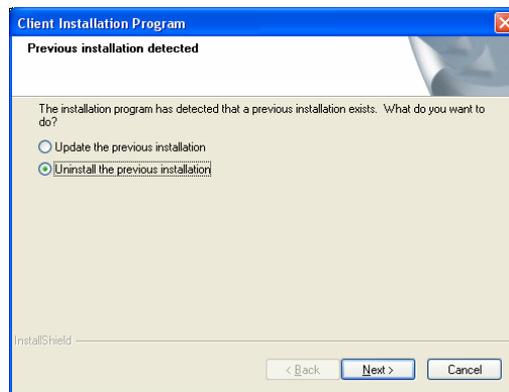
1. Go to **Start** → **Control Panel** → **Add or Remove Programs**.



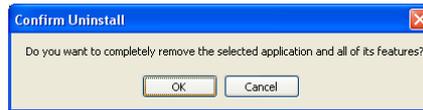
2. Select **Wireless Client Installation Program**, then click **Remove** to process uninstallation.



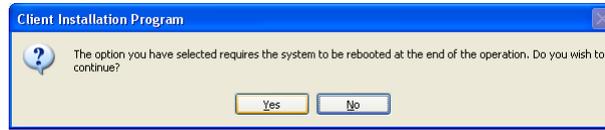
3. When below window appears, select “**Uninstall the previous installation**” then click **Next** to continue.



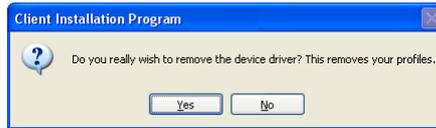
- When the screen pops up, click **OK** to remove the selected application.



- Click **Yes** to reboot the system after complete the software uninstallation.



- Click **Yes** to confirm the software removing.



- When this window shows up, click **OK** to reboot the computer to complete the uninstallation.

