

# **USER'S MANUAL**



## COMPEX *iWave*Port SERIES

WLU108AG-MC 2A WLU108AG-MC 6A RoHS Lead-Free Version

Manual Number: U-0550-V1.2C

s 108Mbps Super-AG XR<sup>TM</sup> USB 2.0 Adapt VITE ES S S

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Manual Revision by Daniel

Manual Number: U-0550-V1.2C, Version 1.2, September 2006

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## FCC NOTICE

This device 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 device 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 device does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

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

**Caution**: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

FCC Compliance Statement: 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.

This device must accept any interference received, including interference that may cause undesired operation.

Products that contain a radio transmitter are labelled with FCC ID and may also carry the FCC logo.

Caution: Exposure to Radio Frequency Radiation.

To comply with the FCC RF exposure compliance requirements, the following antenna installation and device operating configurations must be satisfied:

- a. For configurations using the integral antenna, the separation distance between the antenna(s) and any person's body (including hands, wrists, feet and ankles) must be at least 2.5cm (1 inch).
- b. For configurations using an approved external antenna, the separation distance between the antenna and any person's body (including hands, wrists, feet and ankles) must be at least 20cm (8 inch).

The transmitter shall not be collocated with other transmitters or antennas.

#### ICES 003 Statement

This Class B digital apparatus complies with Canadian ICES-003.

## **DECLARATION OF CONFORMITY**

#### Compex, Inc. declares that the product:

Product Name: Compex Wireless 108Mbps Super-AG XR™ USB 2.0 Adapter Model No.: WLU108AG-MC conforms to the following Product Standards: This device complies with the Electromagnetic Compatibility Directive (89/336/EEC) issued by the Commission of the European Community. Compliance with this directive implies conformity to the following European Norms (in brackets are the equivalent international standards.)

#### Electromagnetic Interference (Conduction and Radiation):

EN 55022 (CISPR 22)

#### EMC Standards:

FCC Part 15: Subpart B, Subpart C, Subpart E; CE: EN 301 893, EN 300 328, EN 301 489-1, EN 301 489-17.

#### Low Voltage Directive:

EN 60 950-1: 2001.

*Therefore, this product is in conformity with the following regional standards:* FCC Class B - following the provisions of FCC Part 15 directive; CE Mark - following the provisions of the EC directive.

## **Technical Support Information**

The warranty information and registration form are found in the Quick Install Guide.

For technical support, you may contact Compex or its subsidiaries. For your convenience, you may also seek technical assistance from the local distributor, or from the authorized dealer/reseller that you have purchased this product from. For technical support by email, write to support@compex.com.sg.

Refer to the table below for the nearest Technical Support Centers:

	Technical Support Centers
Со	ntact the technical support center that services your location.
	U.S.A., Canada, Latin America and South America
🖂 Write	Compex, Inc.
	840 Columbia Street, Suite B,
	Brea, CA92821, USA
🖀 Call	Tel: +1 (714) 482-0333 (8 a.m5 p.m. Pacific time)
	Tel: +1 (800) 279-8891 (Ext.122 Technical Support)
Fax	Fax: +1 (714) 482-0332
Asia	, Australia, New Zealand, Middle East and the rest of the World
🖂 Write	Compex Systems Pte Ltd
	135, Joo Seng Road #08-01, PM Industrial Building
	Singapore 368363
🖀 Call	Tel: (65) 6286-1805 (8 a.m5 p.m. local time)
[W] _	Tel: (65) 6286-2086 (Ext.199 Technical Support)
Fax	Fax: (65) 6283-8337
Internet	E-mail: support@compex.com.sg
access/	FTPsite: ftp.compex.com.sg
Website:	http://www.cpx.com or http://www.compex.com.sg

## About This Document

The product described in this document, Compex Wireless 108Mbps Super-AG XR<sup>™</sup> USB 2.0 Adapter, Compex WLU108AG-MC is a licensed product of Compex Systems Pte Ltd. This document contains instructions for installing, configuring and using Compex WLU108AG-MC. It also gives an overview of the key applications and the networking concepts with respect to the product.

This documentation is for both Network Administrators and the end user who possesses some basic knowledge in the networking structure and protocols.

It makes a few assumptions that the host computer has already been installed with TCP/IP and already up & running and accessing the Internet. Procedures for Windows 2000/XP operating systems are included in this document.

## How to Use this Document

This document may become superseded, in which case you may find its latest version at <a href="http://www.compex.com.sg">http://www.compex.com.sg</a>

The document is written in such a way that you as a user will find it convenient to find specific information pertaining to the product. It comprises of chapters that explain in detail the installation and configuration of Compex WLU108AG-MC.

## **Drivers & Utilities**

This manual is written based on Drivers version 1.1.0.25; Utility version 3.1.3.115

## Conventions

In this document, special conventions are used to help and present the information clearly. The Compex Wireless 108Mbps Super-AG XR<sup>TM</sup> USB 2.0 Adapter is often referred to as Compex WLU108AG-MC in this document. Below is a list of conventions used throughout.



#### NOTE

This section will consist of important features or instructions



## CAUTION

This section concerns risk of injury, system damage or loss of data

#### WARNING

This section concerns risk of severe injury

References on Menu Command, Push Button, Radio Button, LED and Label appear in **Bold**. For example, "Click on **Ok**."

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## Chapter 1 Product Overview

#### 1.1 Introduction



The Compex iWavePort WLU108AG Wireless 108Mbps Super-AG XR<sup>™</sup> USB 2.0 adapter now comes equipped with a MC connector for convenient connection to Compex External

Range extenders that allow you to boost your wireless connection range further. This USB adapter delivers the performance and capabilities that every mobile user is looking for. The built-in Atheros Super AG technology provides higher throughput at 802.11a (5GHz) vs. 802.11g's congested 2.4GHz band and the ability to operate in more channels. Embedded with Atheros chipset, it boasts network robustness, stability and wider coverage for long-range connectivity. Despite its small size, the USB adapter is big on features; compatibility with wireless 802.11a/b/g networks ensures that you can be connected easily. Super AG compatibility allows fast transfer rates of up to 108Mbps at 5GHz.

Bandwidth needs in the home are increasing rapidly with the introduction of new devices and services. As broadband infrastructure becomes common in homes, the demand for multimedia services such as video streaming or VoIP also increases. This will cause the already crowded 802.11g(2.4GHz) bandwidth to maximize its load. The USB adapter makes use of the 802.11a "ClearVoice" band to avoid collision of bandwidth usage. Equipped with a MC connector for convenient connection to an external antenna, the USB adapter helps to boost your wireless connection range further.

Connecting to a wireless LAN without adequate security measures generally opens up your shared folders to any casual snoopers. To protect your privacy, the USB adapter is armed with many enhanced wireless security features such as Wi-Fi Protected Access (WPA), IEEE 802.1x Authentication and 64/128/152-bit WEP (Wired Equivalent Privacy) to ensure privacy for the heterogeneous mix of users within the same wireless LAN while maintaining full access to the establishment's resources.

#### 1.2 Features and Benefits

#### Compact and Mobile

The USB adapter is designed especially for the mobile generation. The casing is compact and sleek, and the antenna is built-in to further preserve the miniature footprint. Weighing just 20 grams, the device is light enough to be carried around!

#### • Fast and Reliable Transmission

The USB adapter can deliver up to 108Mbps wireless throughput and 10 times the performance of any standard Wireless-B devices through the Super-AG technology. At the same time, the USB adapter provides reliable wireless transmission to all wireless users with its auto rate fallback capability. Its extended range feature allows up to 2x the standard range of Wireless-B standards.

The router/AP that you are connecting to using the USB adapter must be enabled with Super AG technology in order to achieve higher throughput.

#### USB powered and USB 2.0 fast transfer rate

Leveraging on the USB standard, the USB adapter is powered through its USB connection and requires no additional power adapter. USB 2.0 standard allows a significant improvement in transfer rate, of up to 40 times that of USB 1.1. You have access to the full 108Mbps transfer rate of Super-AG on USB 2.0. The small form factor of the USB adapter is conveniently designed to fit exactly into a USB port without blocking up neighboring USB ports.

Designed with a USB2.0 interface, the USB adapter can provide 40 times higher throughput when connected to the USB2.0 slot of your PC/notebook. It is also backwards compatible with USB1.1 though the throughput will then be limited to the 12Mbps of the USB1.1 standard.

#### Easy Set up

Using your wireless USB adapter is quick and convenient with USB plug-and –play. The USB adapter is installed externally so you do not have to open up your PC.

#### • Highly Secured Traffic The USB adapter supports wireless security features such as 64/128/152-bit WEP and the stronger industry standard WPA and 802.1x authentication to ensure that your data remains secure while in transit.

### Chapter 2 Getting Started

This chapter outlines the basic requirement for any installation and configuration on the USB adapter.

#### 2.1 Overall Setup Procedures

Here are some of the basic steps to guide you along:

- 1. Hardware Installation Please refer to Section 3.1 "Hardware Installation".
- 2. Drivers and Utility Installation Please refer to Section 3.2 "Drivers and Utility Installation".
- 3. Configure your USB adapter Please refer to Chapter 5 "The Atheros Utility Configuration".

For Windows XP user, you can use the built-in utility – Wireless Zero Configuration to configure your USB adapter. Please refer to **Appendix III "Windows XP Wireless Zero Configuration Utility"**.

## NOTE

NOTE

It is advisable to activate EITHER one of the utilities: the Wireless Zero Configuration Utility OR the Atheros Utility.

## Chapter 3 Compex WLU108AG-MC Installation

#### Chapter 3 Compex WLU108AG-MC Installation

The USB adapter is a plug-and-play device. You can plug it into the USB slot of your PC/notebook for auto-detection.

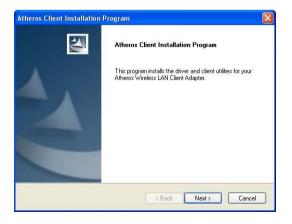
#### 3.1 Hardware Installation

1. Insert the USB adapter directly into the USB slot of your PC/notebook.



#### 3.2 Drivers & Utility Installation

- 1. Insert the Product CD into your computer CD-ROM drive. Click on **Utilities** and the system will run the *setup.exe* automatically.
- 2. Click on **Drivers & Utilities** section and the system will run the *setup.exe* automatically. Soon the **Atheros Client Installation Program** screen appears.
- 3. Next, the Atheros Client Installation Program screen appears. Click on the Next> button to proceed.



- When the License Agreement screen appears, you are required to read and accept the agreement to continue. Click on the Next> button to proceed.
- 5. Select your preferred setup:

Atheros Client Installation Program	×
Setup Type Select the setup type that best suits your needs.	
Click the type of setup you prefer. Install Client Utilities and Driver (recommended) Install Driver Only Make Driver Instalation Diskette(s)	Description Choose this option to install the driver and client utilities. This is the recommended option.
InstallShield	ack Next > Cancel

#### Install Client Utilities and Driver (Recommended) option

You are recommended to select this setup type. This option will install both the drivers and utility that support your USB adapter.

#### Install Driver Only option (For Windows XP user only)

Select this option if you are going to use the Wireless Zero Configuration Utility to configure your USB adapter. Note that only Windows XP comes with the Wireless Zero Configuration Utility.

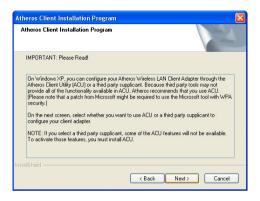
#### Make Driver Installation Diskette(s)

Select this option if you wish to make a duplicate copy of the drivers and store in the diskette/s.

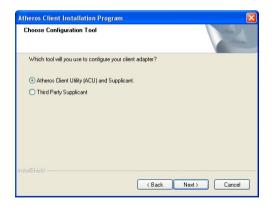
6. Click on the **Next>** button and follow the instructions stated on the screen.

#### For Windows XP users

 If you are using Windows XP as operating system, the following screen will appear. Read the notice carefully and click on the Next> button to proceed.



8. Select your choice of tool to assist you in configuring your USB adapter. Click on the **Next>** button to proceed.



#### Atheros Client Utility (ACU) and Supplicant option

Select this option to install your USB adapter's utility. (Recommended)

#### Third Party Supplicant option

Select this option if you decide to use Wireless Zero Configuration Utility to configure your wireless device. Installing this tool will only allow you to view the status of the connected wireless device/s through the USB adapter's utility; configuration using the USB adapter's utility will not be allowed.

#### Third Party Supplicant option (continued..)

If you have selected **Third Party Supplicant** configuration tool, a screen similar to that on the right will appear, prompting you to enable/disable the system tray icon.

 Click on the checkbox besides Enable Atheros System Tray Utility and click on the Next> button to proceed.

Enable Tray Icon		1
Would you like to enable the Ather ACU features and is accessible fror		
Enable Atheros System Tray Uti		ion day.
	sediol	
nstallShield		

10. The screen below appears to inform you that the driver will be automatically installed if you have already inserted your client adapter into the USB slot of your computer.

Atheros	Client Installation Program
	The installation program installs the driver automatically when the client adapter is inserted. Insert the adapter now if it is not yet inserted, cancel the Found New Hardware Wizard if it appears, and proceed with the installation. Click OK to continue.
	OK

Cancel the **Found New Hardware** Wizard if it appears and click on the **OK** button to begin the installation.

11. Click on the **OK** button to reboot your system and this will complete the installation.



## Chapter 3 Compex WLU108AG-MC Installation

To confirm if the driver has been successfully installed on your system,

1. Proceed to your desktop, right click on My Computer and select Properties.



2. Select the Hardware tab and click on Device Manager.

oyotomino	store Autom	atic Updates	Remote
General	Computer Name	Hardware	Advanced
Add Hardwar	e Wizard		
💐 <sup>Th</sup>	e Add Hardware Wizard H	nelps you install hardv	vare.
		Add <u>H</u> ardwar	e Wizard
Device Mana	ger		
in on	e Device Manager lists al your computer. Use the D perties of any device.		
	Driver Signing	Device Ma	nager
Hardware Pro	ofiles		
lange 🔊 🖂	ofiles rdware profiles provide a erent hardware configura		and store
lange 🔊 🖂	rdware profiles provide a		

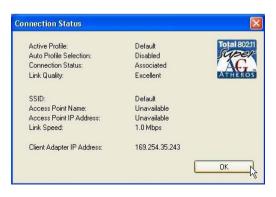
The folder name, Atheros USB 2.0 Wireless Network Adapter will appear in the Network Adapters section. This indicates that the driver for the USB adapter has been successfully installed on your system!



To activate the utility program, double click on the icon shown in the system tray.



If you have double-click on the utility option, the following screen will appear to give you a glimpse of your connection status. To exit it, click on the **OK** button.

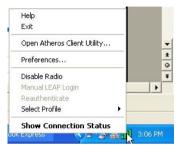


To use the **Atheros Client Utility**, go to the **Start** Menu followed by **Programs**. Then select **Atheros**. From **Atheros**, select **Atheros Client Utility**. You may now start to configure your USB adapter.

on Options	Help			
urrent Status	Profile Management	Diagnostics		
Total 802.11	Profile Name:	Default		Total 8021
THEROS	Link Status:	Associated		ATHERO
	Wireless Mode:	2.4 GHz 54 Mbps	IP Address:	192.168.168.28
	Network Type:	Infrastructure	Current Channel:	10
Serve	er Based Authentication:	None	Data Encryption:	None
	Signal Strength:		********	Excellent
				Advanced

## Chapter 4 Using the System Tray Utility

This chapter will elaborate on the Atheros system tray utility found at the right bottom corner of your screen. Right click on the utility icon and the menu will appear.



The following explains the different options available on the menu:

#### <u>Help</u>

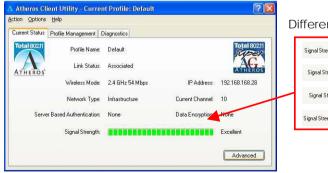
Open the online help.

#### <u>Exit</u>

Exit the Atheros Client Utility application. Once you exit, the icon will disappear from the system tray.

#### Open Atheros Client Utility...

Launch the Client Utility.



#### Different signal strength indications

Signal Strength:	No Link
Signal Strength:	Fair
Signal Strength:	Poor
Signal Strength:	Excellent

## Chapter 4 Using the System Tray Utility

#### **Preferences**

This option allows you to set the startup and menu options for the utility. You can decide whether the program should start automatically when Windows starts, and which menu items should appear on the pop up menu.

Startup Options  Run the program automatically when Windows sta Menu Options	arts
Menu Options	arts
or 1 a - a	
Check the items that you want to appear on the popu menu. (Unchecked items are hidden.)	p
<b>v</b> Help	_
✓ E xit	
Open Atheros Client Utility	
✓Disable Radio	
Manual LEAP Login	
Reauthenticate	
Select Profile	
Show Connection Status	

#### Disable/Enable Radio

If you are unable to detect the RF signal, disable and enable the radio again. Once the radio is enabled, the system will prompt you that the RF signals have been successfully enabled.



Click on the **OK** button to proceed.

#### Manual LEAP Login

If you select this option, you will have to manually start the LEAP authentication process to login to the network instead of being prompted for your LEAP username and password during your windows logon.

Enter Wireless	Network Password	? ×				
User Name :	Please enter your LEAP username and password to log on to the wireless network	OK Cancel				
Password :	[		Г			
Log on to :				(Optional) domain nam	ne that	
Card Name : Profile Name :	Atheros USB 2.0 Wireless Network Adapter Default		L	wish to logo	n to.	

#### **Reauthenticate**

Reauthenticate to a LEAP-configured access point each time you login to a LEAP network.



#### Select Profile

Click on a configuration profile name to switch to a particular wireless network. If no configuration profile exists, you will need to add a profile first. Refer to Page 21 for details.

#### **Connection Status**

To view the connection status of your wireless USB adapter.

Alternatively, you may also double click on the utility icon in the system tray.

Active Profile:	Default	Total 802
Auto Profile Selection:	Disabled	Supe
Connection Status:	Associated	/ AC
Link Quality:	Excellent	ATHERO
SSID:	Default	
Access Point Name:	Unavailable	
Access Point IP Address:	Unavailable	
Link Speed:	1.0 Mbps	
Client Adapter IP Address:	169.254.35.243	

Active Profile	Displays the name of the active configuration profile.
Auto Profile Selection	Shows whether auto profile selection is enabled.
Connection Status	Displays whether the adapter is connected to a wireless network.
Link Quality	States the quality of the link connection.
SSID	Displays the SSID of the network to which the WLU108AG-MC is associated.
Access Point Name	Shows the name of the access point the wireless adapter is connected to (if any).
Access Point IP Address	Shows the IP address of the access point the wireless adapter is connected to (if any).
Link Speed	States the speed of the link connection.
Client Adapter IP Address	Displays the IP address of the wireless adapter.

## Chapter 5 Compex WLU108AG-MC Utility Features

This chapter shows you how to make use of the utility to view the status of your wireless connection; to change your settings and also to monitor your wireless performance via the statistics.

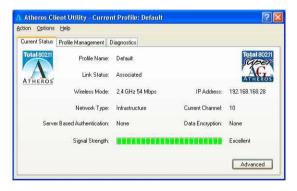


#### NOTE

It is advisable to activate only one of the utilities: Either the Wireless Zero Configuration Utility OR the Atheros Utility.

#### 5.1 Current Status Tab

Displays the performance of the USB adapter in the wireless network.



## Chapter 5 Compex WLU108AG-MC Utility Features

Upon clicking on the **Advanced** button, you will be able to view all information on the respective profile, e.g. the types of encryption and authentication, the signal strength, the MAC address of the connected AP (if you are in Infrastructure mode), etc.

Advanced Status			? 🛛
Network Name (SSID): Server Based Authentication: Data Encryption: Authentication Type: Message Integrity Check:	wireless-AP None AES Open AES	Current Signal Strength: Current Noise Level: Up Time: 802.11b Preamble: Current Receive Rate:	-60 dBm -100 dBm 02:40:14 Short & Long 36.0 Mbps
Associated AP Name: Associated AP IP Address: Associated AP MAC Address:	Unavailable Unavailable 00-80-48-00-34-8D	Current Transmit Rate: Channel:	48.0 Mbps 1
Power Save Mode: Current Power Level:	Normal 50 mW	Frequency: Channel Set:	2.412 GHz United States
Available Power Levels (802.11b/g):	100, 63, 50, 30, 20, 10 mW	C	ок

#### 5.2 Profile Management Tab

This option allows you to manage your profile, set your security options, and scan for other wireless networks.

t <mark>heros Client Utility</mark> on Options Help	- Current Profile: Any	?
rrent Status Profile Mana	gement Diagnostics	
wireless-AP default		New
		Modify
		Remove
		Activate
Details		
Network Type:	Infrastructure	Import
Security Mode:	None	
Network Name (SSID)	Any	Export
Network Name 2 (SSI	)2): <empty></empty>	Scan
Network Name 3 (SSI	03): <empty></empty>	
Auto Select Profiles		Order Profiles

## Chapter 5 Compex WLU108AG-MC Utility Features

#### New...

Click on **New** button to create a new profile. Enter the profile name (a unique name to identify this profile), a client name and the SSID of the wireless network to connect to. Note that the **Client name** refers to the name that is registered to your PC/notebook. You can enter up to 3 different SSIDs in order of preference, per profile. We are using *ABC* as the profile name and *APP* as the SSID1.

	Profile Management	? 🔀
For details on how to set the different authentication and encryption types available under the Security Tab, kindly refer to Chapter 7 "Types of Authentication and Encryption mode" on Page 52.	General Security Advanced Profile Name: ABC Client Name: shawn Network Names SSID1: APP SSID2: SSID3: OK	Cancel

Click on the OK button to update the changes.

Notice that ABC has been added to the profile list.

\Lambda Atheros Client Utility - Curr	ent Profile: Any
Action Options Help	
Current Status Profile Management	Diagnostics
wireless-AP	
default	
Any ABC	
- Details	

#### Modify...

To modify an existing profile, select the profile that you wish to modify and click on this button. We are using profile: *Any* as an example.

rent Status Profile Mana	gement Diagnostics	
wireless-AP default Anv		New
		Modify
ABC		Remove
		Activate
Details		
Network Type:	Infrastructure	Import
	None	
Security Mode:		Export
Security Mode: Network Name (SSID)	: Any	2 iport.it
		Scan

Remove

To delete an existing profile, select the particular profile that you wish to delete and click on this button. We are using profile: *default* as an example.

Note that the active profile (the profile that you are currently using) cannot be deleted!

	A Atheros Client Utility - Current Profile: Any Action Options Help Current Status Profile Management Diagnostics	£
	witelessAP default Sany ABC	New Modify Remove
Active profile indicated by this icon cannot be	Details Network Type: Infrastructure Security Mode: None Network Name (SSID): adfa	Activate
deleted!	Network Name 2 (SSID2): <empty> Network Name 3 (SSID3): <empty></empty></empty>	Scan

#### Activate

To activate a profile, select the profile and click on this button. We are using profile: *wireless-AP* as an example.

on Options Help	7 - Current Profile: Any	
rrent Status Profile Man	agement Diagnostics	
wireless-AP		New
Any ABC		Modify
		Remove
		Activate
Details		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Network Type:	Infrastructure	Import
Security Mode:	WPA Passphrase	
Network Name (SSID	): wireless-AP	Export
Network Name 2 (SS	D2): <empty></empty>	Scan
Network Name 3 (SS	D3): <empty></empty>	
Auto Select Profiles		Order Profiles

Once a profile is activated, this *icon* will appear next to the profile name: *wireless-AP*.

New
Modify
Remove
Activate
Import
Export
Scan

#### Export...

This function allows you to save the settings of your profile onto disk. Select the profile that you wish to save and click on this button. We are using profile: *ESSID* as an example.

Choose the folder to save to, enter the name under which to save the profile and click on the **Save** button.

Export P	rofile	? 🛛
Save in:	S DOCUMENT (D:)	🔽 🥝 🌶 📂 🛄 -
b4a55	lanage 👝 tools Obe7a7 ok Express	
File name	ESSID	Save
Save as t	ype: Config files (*.prf)	Cancel

Now, your profile is saved to your selected folder.

Import...

This function allows you to retrieve a saved profile from disk. We are using profile: *ESSI*D as an example.

Go to the folder where you have saved your profile, select *ESSID.prf* and click on the **Open** button.

Import Prof	ile 🛛		? 🛛
Look in: 🥌	DOCUMENT (D:)	💌 😋 🌶 🖻	•
i-Manual 4-M-Mana b4a550be FMlist Outlook E: Program F	7a7 ESSID		
File name:	ESSID		Open
Files of type:	Config files (*.prf)	<b>v</b> (	Cancel

Notice that the profile: *ESSID* has been imported to the list of profiles.

on Options Help		
rrent Status Profile Manag	jement Diagnostics	
🝆 wireless-AP		New
Any ABC		Modify
ESSID		Remove
		Activate
Details		
Network Type:	Infrastructure	Import
Security Mode:	None	
Network Name (SSID):	ESSID	Export
Network Name (3310).	2): <empty></empty>	Scan
Network Name 2 (SSID)		Juan
	3): <empty></empty>	

Scan...

This function allows you to scan for wireless networks detected by the adapter.

ilable Infrastructure and Ad Ho	oc Networks		?
Network Name (SSID) 🔞 Supe	r XR Signal Strength	Channel	Wireless Mode 🔥
I RC-IP8	28 dB	6	2.4 GHz 54 Mbps
& RC-IP9	1] 8 dB	1	2.4 GHz 54 Mbp:
k RD-Pserver 🖘	1 22 dB	1	2.4 GHz 54 Mbp:
🗼 ts-AP54G-IP56 Test 🖘	17 dB	6	2.4 GHz 54 Mbp:
🗼 ts-np18-23 RC (D 🖘	1 20 dB	6	2.4 GHz 54 Mbp:
1 ts-np18-24 RC (D	19 dB	11	2.4 GHz 54 Mbp:
🗼 ts-np18a-IP18-11g 🖘	1 20 dB	1	2.4 GHz 54 Mbp:
🕻 Weak Signal Test 🖘	1] 6 dB	11	2.4 GHz 54 Mbp:
🖞 wireless-AP 🖘 🖊	11 62 dB	1	2.4 GHz 54 Mbp: 🧹
<			>
Act	ivate Refre	sh N	OK

#### Chapter 5 **Compex WLU108AG-MC Utility Features**

The icons shown beside the Network Name (SSID) indicate the type of WIAN detected.



Infrastructure (AP) Network



Connected to Infrastructure (AP) Network



Ad-hoc Network



Connected to Ad-hoc Network



Notice that if there is a  $\mathcal{I}$ icon appearing in the Super column, this network supports Super-AG technology shows that the wireless (108Mbps).

Click on the **Refresh** button to renew the list of wireless networks detected.

Click on the **OK** button to exit the window.

#### Order Profiles ...

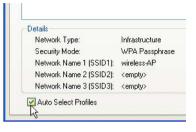
If you have created several profiles, this function allows you to establish the priority order in which the USB adapter should try to connect to a WLAN. If the USB adapter is unable to connect to the 1st profile, it will then try to connect to the 2<sup>nd</sup> profile and so on.

Notice that if this function is disabled, this means that you have not added any profile in the Auto Selected Profiles list



When auto profile selection is enabled, the USB adapter scans for available wireless networks and will connect to the highest priority profile that matches the networks detected.

To do so, simply click on the **Add** button from the **Available Profiles** list. Refer to the screen shown below.



Please note that you need AT LEAST TWO profiles to activate the **Auto Select Profiles** function; and that each of your profile must connect to at least one **Network Name (SSID)**.

wireless-AP	Add N
Any ABC	Add
ESSID	
ito Selected Profiles:	
	Move up
	Move down
	Remove

Notice that when a selected profile has been added, it will be transferred to the **Auto Selected Profiles** list.

Select and click on the Add button to transfer another profile.

Auto Profile Selection Management	? 🛛
Available Profiles:	Add
ABC ESSID	
-Auto Selected Profiles:	
wireless-AP	Move up
	Move down
	Remove
Ok	Cancel

You need to transfer at least two profiles to the **Auto Selected Profiles** list to activate the **Auto Select Profile** function.

#### 5.2.1 Security Tab

Please refer to Chapter 7 "Types of Authentication and Encryption mode" on Page 52.

#### 5.2.2 Advanced Tab

This option allows you to configure the more advanced connection settings of your wireless client.

ieneral Security Advanced			
Transmit Power Level	Power Save Mode:	Normal	
802.11b/g: 100 mW	Network Type:	Infrastructure	
802.11a: 40 mW 💌	802.11b Preamble:	⊙ Short & Long O Lo	ong Only
Wireless Mode V 5 GHz 54 Mbps 2.4 GHz 54 Mbps V 2.4 GHz 11 Mbps V Super A/G	© 5 GHz 54 Mbps 5 GHz 54 Mbps 5 GHz 108 Mbp 2.4 GHz 54/11	os Channel: Auto	2
802.11 Authentication Mode Auto Open OShared		Preferred	IAPs
Preferred Access Points Specified Access Point MAC Ac Access Poin Access Poin Access Poin	t 1: 00801E5F2A74		Only applicable to Infrastructure mode. You may key in the MAC address of at most four access points to which you would prefer to connect.

#### Transmit Power Level

Specifies the wireless transmit power to be used. Reducing the power level lowers the risk of interference with other nearby wireless devices and conserves battery power but decreases radio range.

#### Power Save Mode (Only applicable to Infrastructure mode)

This feature reduces power consumption by the USB adapter to extend the battery life of your notebook. There are 3 options for this mode:

#### • Off

The power management is disabled and the card consumes full power from the computer.

#### Normal

The driver turns off the power to the adapter for brief periods over briefly spaced time intervals.

#### Maximum

The driver turns off power to the adapter for longer periods over more widely spaced time intervals.

The guideline for choosing between the **Normal** and **Maximum** options:

The USB adapter wakes up more often and responds sooner to network requests in **Normal** mode than in **Maximum** mode; and the **Maximum** mode consumes less power than **Normal** mode.

#### Network Type

Select either Infrastructure if you are connecting to the WLAN using an access point or Ad-hoc if you are connecting directly to another computer equipped with a wireless adapter.

#### 802.11b Preamble

The preamble is part of the IEEE 802.11b physical layer specification. It is mandatory for all 802.11b devices to support the long preamble format, but they may optionally support the short preamble. This USB adapter supports both the short and long preambles.

### Short & Long

This option allows communication with other 802.11b devices that support short preamble to boost the throughput.

### Long

If your device is having trouble to communicate with other 802.11b devices, you may try to select the Long Only option.

### Wireless Mode

Specifies 5GHz 54 Mbps, 2.4 GHz 54 Mbps, 2.4 GHz 11 Mbps, or Super A/G operation in a wireless network where there is an access point.

The wireless adapter must match the wireless mode of the access point it associates to.

# Wireless Mode when starting Ad-hoc Network (Only applicable to Ad-hoc mode)

Specifies the mode: 5GHz 54 Mbps, 5GHz 108 Mbps, or 2.4 GHz 54/11 Mbps to start an ad hoc network if no network name is found after scanning for all available networks.

This mode also allows selection of the channel used by the wireless adapters in the Ad-hoc network. The channels available depend on the regulatory domain. If no other wireless adapters are found matching the ad hoc mode, this selection specifies the channel with which the adapter starts a new ad hoc network.

The wireless adapter must match the wireless mode and channel of the other wireless clients it associates to.

# 802.11 Authentication Mode (Only applicable to Infrastructure mode, after you have enabled the encryption mode)

Select which mode the wireless adapter uses to authenticate to an access point:

Auto

Causes the adapter to attempt authentication using shared authentication. It then switches to open authentication if shared authentication fails.

### • Open

Enables an adapter to attempt authentication regardless of its WEP settings. It will only associate with the access point if the WEP key of the adapter matches that of the access point.

• Shared only

Allows the adapter to authenticate and associate only with access points that have the same WEP key.

### Note:

The USB adapter's authentication mode settings must match those of the AP it is trying to connect to for successful communication.

### 5.3 Diagnostics Tab

The Diagnostics tab lists the following receive and transmit diagnostics for packets received by or transmitted to the USB adapter.

- Multicast packets transmitted and received
- Broadcast packets transmitted and received
- Unicast packets transmitted and received
- Total bytes transmitted and received

ent Status Profile Ma	anagement Diagnostics	
Transmit Multicast Packets: Broadcast Unicast Packets: Total Bytes:	4142	Adapter Information
Receive		
Multicast Packets:		
Broadcast	10	
Unicast Packets:	4	
Total Bytes:	2987	

#### Adapter Information

This button contains general information about the network interface card (the wireless USB adapter) and the network driver interface specification (NDIS).

Card Name:	
Lard Name:	Atheros USB 2.0 Wireless Network Adapter
MAC Address:	00-03-7F-BE-F0-E3
Driver:	C:\WINDOWS\system32\DRIVERS\ar5523.sys
Driver Version:	1.1.0.25
Driver Date:	24 Feb 2005 22:38:30
Client Name:	Shawn

- Card Name The name of the USB adapter
- MAC Address The MAC address of the USB adapter
- Driver The driver name and path of the USB adapter's driver
- Driver version The version of the USB adapter's driver
- Driver date The creation date of the USB adapter's driver
- Client Name The name of the client computer

#### Advanced Statistics

This button shows more detailed statistical information on frames that are either received by or transmitted to the USB adapter.

Transmit			
Frames Transmitted OK:	6649	RTS Frames:	0
Frames Retried:	402	CTS Frames:	0
Frames Dropped:	3055	No CTS Frames:	0
No ACK Frames:	47	Retried RTS Frames:	0
ACK Frames:	6649	Retried Data Frames:	402
Receive			
Beacons Received:	588	Authentication Time-Out:	0
Frames Received OK:	20	Authentication Rejects:	0
Frames Received with Errors:	198	Association Time-Out:	0
CRC Errors:	95	Association Rejects:	0
Encryption Errors:	0	Standard MIC OK:	0
Duplicate Frames:	0	Standard MIC Errors:	0
AP Mismatches:	0	CKIP MIC OK:	0
Data Rate Mismatches:	0	CKIP MIC Errors:	0

This chapter will elaborate on the Client Manager configuration of the USB adapter using some simple examples.

The USB adapter can be configured for 2 types of wireless architectures – Adhoc and Infrastructure. The different operational modes are shown in the following diagrams to allow you to easily understand how to configure your USB adapter.

### 6.1 Ad-hoc Mode

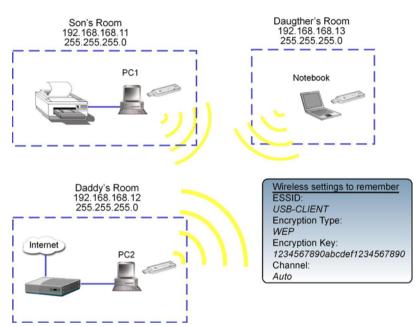
In an Ad-hoc architecture, the wireless clients communicate directly with one another. No access point exists in such a wireless LAN configuration. Each wireless client can directly transfer data packets with each other.

Usually, the operation would be automatically detected and configured between the peers. However, if you wish to, you can also set a common channel for all Ad-hoc clients to use. This will be illustrated in the following section.



### 6.1.1 When to set up Ad-hoc Mode

Ad-hoc mode is also referred to as peer-to-peer mode or as Independent Basic Service Set (IBSS). Ad-hoc mode is useful when wireless devices are within range of each other and can discover and communicate among themselves without an AP. The figure below illustrates a family using Ad-hoc mode to share files and devices directly with one another.



### For PC1

1. Set your PC1's IP address to *192.168.168.11*; subnet mask to *255.255.255.0* and activate your USB adapter's Utility.



### NOTE

Ad-hoc mode works best when the network uses static IP addressing. The IP addresses of all the computers in the Ad-hoc network must be in the same subnet (e.g. 192.168.168.xxx); and the subnet mask must also be the same.

### 2. Proceed to the **Profile Management** tab.

Once you have installed the utility, the system will automatically create a default profile.

If you wish to create a new profile, click on **New** button. If not, simply click on **Modify** button to change the default settings.

Atheros Client Utility - Current Profile: Defau tion Options Help	1
Current Status Profile Management Diagnostics	
Default	New
	Modify
	Remove
	Activate
/ Details	
Network Type: Infrastructure	Import
Security Mode: None	
Network Name 1 (SSID1): <empty></empty>	Export
Network Name 2 (SSID2): <empty></empty>	Scan
Network Name 3 (SSID3): <empty></empty>	Julian
Auto Select Profiles	Order Profiles

- 3. Enter your own profile name, e.g. *son*. The **Client name** refers to the name that is registered to your PC/notebook.
- 4. Set the SSID to *USB-CLIENT* and click on the **OK** button to update the changes.

Please ensure that all the clients in your Ad-hoc network use the same SSID, which in our example is set to USB-CLIENT.

ofile Management		? 🛽
General Security Advance	d	
Profile Settings		
Profile Name:	Son	
Client Name:	Tom_Teo	
Network Names		
SSID1:	USB-CLIENT	
		OK N Cancel

- 5. Next, proceed to **Advanced** tab. Set your **Network Type** to *AdHoc* and **802.11b Preamble** to *Short &Long*.
- 6. You may leave the Transmit Power Level at their default values.
- 7. In the **Wireless Mode** section, check and confirm whether all options are ticked.
- 8. Next, proceed to **Wireless Mode when starting Ad-hoc Network** section. The channels available depend on the regulatory domain. If no other wireless adapters are found matching the ad hoc mode, this selection specifies the channel with which the adapter starts a new ad hoc network. Please note that the wireless adapter must match the wireless mode and channel of the other wireless clients it associates to.
- 9. Set the **Channel** to *Auto* to let the USB adapter automatically detect the channel to use.

However, if you wish to set a specific channel, you must ensure all clients are in the same channel in order to communicate to one another.

Transmit Power Level	Power Save Mode. 08	
802.11b/g: 100 mW	Network Type: Ad Hoc	
802.11a: 40 mW 🛩	802.11b Preamble: Short & Long O Lo	ong Only
Wireless Mode	Wireless Mode When Starting Ad Hoc Network	
5 GHz 54 Mbps		
2.4 GHz 54 Mbps	O 5 GHz 54 Mbps	
2.4 GHz 11 Mbps	<ul> <li>5 GHz 108 Mbps</li> <li>Channel: Auto</li> <li>2.4 GHz 54/11 Mbps</li> </ul>	· ·
Super A/G	C 2.4 dH2 34/11 Mbps	
802.11 Authentication Mode	Preferred	AD-

10. Proceed to the **Security** tab. Select **Pre-Shared Key (Static WEP)** option and click on the **Configure...** button.

eneral Security Advanced			
- Set Security Options			
O WPA	WPA EAP Type:	LEAP	~
◯ WPA Passphrase			
() 802.1x	802.1x EAP Type:	LEAP	~
Pre-Shared Key (Static WEP)			
O None			
Configure		Allow Association to Mixed	Cells
This Device is controlled by the Windows (	YP Automatica ) (inclose	Notwork Configuration It may	ouorrido
Network Name, Security and other setting:		recovery connigulation. It may	ovenue

11. Click on the radio button for **WEP Key Size:** *128*, type in, e.g. *1234567890abcdef1234567890* and click on the **OK** button to update the changes.

Note that the length of the WEP key depends on the type of encryption key that you have selected: For 64- bit WEP: 10 hexadecimal or 5 ASCII Text For 128-bit WEP: 26 hexadecimal or 13 ASCII Text For 152-bit WEP: 13 hexadecimal or 16 ASCII Text

(ey Entry	⊙ He	xadecimal (0-9, A-F)	O ASCII Text (all ke	yboard characters)
Encryption Keys				
	Transmit Key			WEP Key Size:
WEP Key 1:	0	1234567890ABCDEF123	4567890	64 128 152 O O O
WEP Key 2:				
WEP Key 3:				
WEP Key 4:				

You may now go to the **Current Status** tab to check the status of the connection. Notice that if there is no connection established (Refer to Link Status), this indicates that your USB adapter has not yet detected any other wireless client with SSID set to USB-CLIENT.

A Atheros Client Utility - Currer	rt Profile: Son		? 🛛
Action Options Help			
Current Status Profile Management	liagnostics		
Profile Name:	Son		Total 802.11
ATHEROS Link Status:	Not Associated		ATHEROS
Wireless Mode:	2.4 GHz 11 Mbps	IP Address:	0.0.0.0
Network Type:	Ad Hoc	Current Channel:	Scanning
Server Based Authentication:		Data Encryption:	
Signal Strength:			No Link
			Advanced N

Now, we proceed to configure PC2.

### For PC2

- 1. Set your PC's IP address to *192.168.168.12*; subnet mask to *255.255.255.0*.
- 2. Go to the **Profile Management** tab and click on the **Scan** button to look for *USB-CLIENT* (the SSID that you had previously created in PC1).
- 3. Once detected, highlight this profile and click on the **Activate** button.

Network Name (SSID)	Super XR S	ignal Strength	Channel	Wireless Mode
& RC-IP9	al l	10 dB	1	2.4 GHz 11 Mbps
🕻 RD-Pserver 🛛 🖘	11	32 dB	1	2.4 GHz 11 Mbps
🗼 ts-AP54G-IP56 Test 🖘	all	23 dB	6	2.4 GHz 11 Mbp:
🗼 ts-np18-23 RC (D 🖘	all	24 dB	6	2.4 GHz 11 Mbp:
👗 ts-np18-24 RC (D	11	27 dB	11	2.4 GHz 11 Mbp:
👗 ts-np18-IP18 Test	all	31 dB	6	2.4 GHz 11 Mbps
🗼 ts-np18a-IP17-11g 🖘	all	28 dB	1	2.4 GHz 11 Mbps
🥔 USB-CLIENT 🛛 🖘	all	22 dB	2	2.4 GHz 11 Mbps
🕻 Weak Signal Test 🖼 🖘	all	] 12 dB	11	2.4 GHz 11 Mbps
1				

Notice that there is a key beside the Network name (SSID). This shows that you need the encryption key to connect to this network.

Next, you can see that the **SSID** is set to the same SSID as PC1 and that **Client Name** is pre-configured to the name registered to PC2. You need to give a name to your profile, e.g. *Daddy*.

Profile Management		? 🛛
General Security Advance	d	
Profile Settings		
Profile Name:	Daddy	
Client Name:	Thomas_Teo	
Network Names		
SSID1:	USB-CLIENT	
		OK Cancel

4. Next, proceed to the **Security** tab and set the same security settings as for PC1. You may refer to Step 10 and Step 11 on Page 40.



#### NOTE

The SSID and encryption key for PC1, PC2 and the notebook must be the same in order to communicate with one another.

Also, if you are using a specific channel instead of Auto, PC1, PC2 and notebook must be set with the same channel.

 Click on the OK button and go to the Current Status tab. Notice that once the connection has been successfully established, the link status will display <associated> and the signal strength will appear as a green bar.

A Atheros Cl	ient Utility - Curre	nt Profile: Daddy		? 🛛
Action Options	Help			
Current Status	Profile Management	Diagnostics		
Total 802.11	Profile Name:	Daddy		Total 802.11
ATHEROS	Link Status:	Associated		ATHEROS
	Wireless Mode:	2.4 GHz 11 Mbps	IP Address:	0.0.0.0
	Network Type:	Ad Hoc	Current Channel:	2
Serve	er Based Authentication:	None	Data Encryption:	None
	Signal Strength:			Excellent
				Advanced N

If you go to view the current status from PC1, the status for **Profile:** *Son* will be updated as shown below:

A Atheros Client Utility - Currer	rt Profile: Son		? 🛛
Action Options Help			
Current Status Profile Management	Diagnostics		
Profile Name:	Son		Total 802.11
ATHEROS Link Status:	Associated		ATHEROS
Wireless Mode:	2.4 GHz 11 Mbps	IP Address:	192.168.168.43
Network Type:	Ad Hoc	Current Channel:	2
Server Based Authentication:	None	Data Encryption:	None
Signal Strength:			Good
			Advanced

Alternatively, you may also go to the MS-DOS Prompt window of each PC to ping the other PC.

- 1. From the **Start** menu, go to **Run**...
- 2. Type in *cmd* and *c*lick on the **OK** button.

From the MS-DOS Prompt window of PC2, type *ping 192.168.168.11 –t*, to ping PC1.

When this screen appears: Pinging 192.168.168.11: bytes=32 time=2ms TTL=128 Pinging 192.168.168.11: bytes=32 time=2ms TTL=128

. . . . . . .

This indicates that the connection between PC1 and PC2 has been established successfully! You can now access to one another wirelessly!

#### For notebook

For setting up another wireless client, e.g. the notebook in the daughter's room, you may refer to the steps mentioned for configuring PC2.

If your other wireless clients are not using the USB adapter, you may refer to the manual of these other adapters for details on Ad-hoc configuration.

For details on other authentication and encryption types, kindly refer to **Chapter 7 "Types of Authentication and Encryption mode**" on Page 52.

#### Note:

All clients need to use the same SSID, channel, security mode, and encryption key.

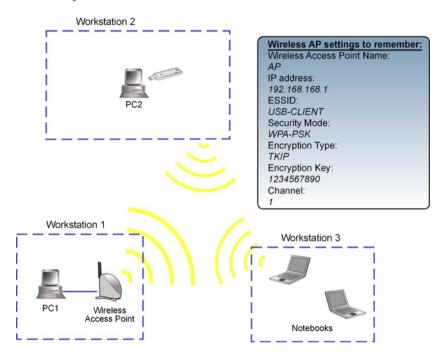
### 6.2 Infrastructure Mode

In infrastructure architecture, the wireless clients communicate through access points that are devices that act as base station for all wireless communication. Data packets from the wireless clients are transferred to the access points before being transmitted to other hosts on the network. The number of wireless clients supported depends on the access points.



### 6.2.1 Configuration on Infrastructure Mode

In this example, two notebooks and PC2 act as wireless clients to communicate with the wireless AP. Once all configuration has been done, wireless clients with the same SSID as the AP will be able to access wirelessly to PC1 via the wireless AP.



### For AP

Ensure that you have enabled the DHCP server in your access point and that your wireless clients are set to receive their IP address dynamically so that the wireless AP can assign an IP address to its wireless clients. Note the wireless configuration settings of your access point as shown in the figure above.

### For PC 2

- 1. Activate your USB adapter's utility.
- 2. Go to the **Profile Management** tab, click on the **Scan** button to look for the wireless AP.

Atheros Client Utility - Current Profile: default	?
tion Options Help	
Current Status Profile Management Diagnostics	
The default	New
	Modify
	Remove
	Activate
C Details	
Network Type: Ad Hoc	Import
Security Mode: None Network Name 1 (SSID1): USB-CLIENT	Export
	Scan
Auto Select Profiles	Order Profiles

 Click on the **Refresh** button if your system is unable to detect your wireless AP. Once found, select the **Network Name (SSID)** used by the AP: *Wireless-AP* and click on the **Activate** button to add it to your profile list.

1			Wireless Mode 🦉
& RC-IP8	11 39 dB	6	2.4 GHz 54 Mbp:
🗼 RD-Pserver 🖘	11 23 dB	1	2.4 GHz 54 Mbp:
🗼 ts-AP54G-IP56 Test 🖘	11 dB	6	2.4 GHz 54 Mbp:
🗼 ts-np18-23 RC (D 🖘	11 22 dB	6	2.4 GHz 54 Mbp:
🗼 ts-np18-24 RC (D	1 22 dB	11	2.4 GHz 54 Mbp:
👗 ts-np18a-IP18-11g 🖘	17 dB	1	2.4 GHz 11 Mbp:
USB-CLIENT	1]] 0 dB	10	2.4 GHz 11 Mbp:
👗 Weak Signal Test 🖘	16 dB	11	2.4 GHz 54 Mbp:
🗼 wireless-AP 🖘 🎵	11 41 dB	1	2.4 GHz 54 Mbp:

Notice that the SSID has already been pre-configured in this profile.

The SSID of both the wireless AP and the wireless client must be the same for them to communicate with one another.

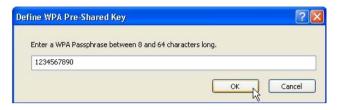
4. Enter the **Profile Name**, e.g. *Workstation 2* for easy identification.

eneral Security Advance	d	
Profile Settings Profile Name:	Workstation 2	
Client Name:	shawn	
Network Names		
SSID1:	wireless-AP	
SSID2:		
SSID3:		
		OK N Cancel

5. Next, proceed to the **Security** tab. The wireless client must use the same security mode as the AP. In our example, select **WPA Passphrase** and click on the **Configure...** button.

Set Security Options			
○ WPA ○ WPA Passphrase	WPA EAP Type:	LEAP	~
O 802.1x	802.1x EAP Type:	LEAP	~
<ul> <li>Pre-Shared Key (Static WEP)</li> <li>None</li> </ul>			
Configure		Allow Association to Mixed (	Cells
Configure		Allow Association to Mixed (	Cells

- 6. Enter the encryption key in the field provided. Please note that this key must be the same as the one that you had configured for your access point.
- 7. Click on the **OK** button to update the changes.



Proceed to your **Current Status** tab to monitor the connection between the access point and the wireless client (PC2).

A Atheros Client Utility - C	Curren	t Profile: Worksta	tion 2	? 🛛
Action Options Help				
Current Status Profile Manager	ment D	iagnostics		
Total 80211 Profile	Name:	Workstation 2		Total 80211
ATHEROS Link S	Status:	Authenticated		ATHEROS
Wireless	Mode:	2.4 GHz 54 Mbps	IP Address:	192.168.168.43
Network	Туре:	Infrastructure	Current Channel:	1
Server Based Authenti	cation:	None	Data Encryption:	AES
Signal Str	rength:			Excellent
				Advanced

Alternatively, you can also check the connection from the MS-DOS Prompt. From PC2, simply proceed to the **Start** Menu, **Run...** and type in *cmd*. Click on the **OK** button.

In the MS-DOS Prompt window, type *ping 192.168.168.1 –t*, whereby this IP address belongs to your access point.

When the screen appears: Pinging 192.168.168.1: bytes=32 time=2ms TTL=128 Pinging 192.168.168.1: bytes=32 time=2ms TTL=128 Pinging 192.168.168.1: bytes=32 time=2ms TTL=128

This indicates that the connection between the access point and the wireless client has been established successfully! You can now access to one another wirelessly!

### For the rest of the workstations

Refer to the steps for configuring PC2.

If your other wireless clients are not using the USB adapter, you may refer to the manual of these other adapters for details on Ad-hoc configuration.

For details on other authentication and encryption types, kindly refer to **Chapter 7 "Types of Authentication and Encryption mode**" on Page 52.

### Chapter 7 Types of Authentication and Encryption mode

This chapter illustrates the different types of authentication and encryption that can be used in the wireless LAN.

### 7.1 Ad-hoc Network Security

In a Ad-hoc network, only Pre-shared key (Static WEP) can be configured.

Set Security Options		
O WPA	WPA EAP Type:	LEAP
WPA Passphrase		
() 802.1x	802.1x EAP Type:	LEAP
Pre-Shared Key (Static WE	E)	
O None		
Configure		Allow Association to Mixed Cells

Click on the **Configure**.. button and the following screen will appear:

ley Entry	~		C 1000 T	
	• He	xadecimal (0-9, A-F)	ASCII Text (all keybo	bard characters)
Incryption Keys				
	Transmit Key			WEP Key Size:
		[		64 128 152
WEP Key 1:	۲	1234567890		
WEP Key 2:				000
WEP Key 3:				000
WEP Key 4:				000

#### Key Entry Method

There are 2 types of key entries:

- Hexadecimal: Enter only digits 0 ~ 9 and letters a ~ f/A ~ F.
- ASCII Text: Enter any character that can be found on the keyboard.

#### WEP Key (1 ~ 4)

Defines a set of shared keys for network security. You must enter at least one WEP key to enable security using a shared key.

If the key that you entered is too long, the utility will truncate it to fit.

#### WEP Key size

Defines the length of each encryption key.

- 64-bit WEP: 10 hexadecimal or 5 ASCII Text
- 128-bit WEP: 26 hexadecimal or 13 ASCII Text
- 152-bit WEP: 32 hexadecimal or 16 ASCII Text

### 7.2 Infrastructure Network Security

Extensible Authentication Protocol (EAP) is used to authenticate network clients before letting them access the enterprise network. It allows the network administrator to create an arbitrary authentication scheme (such as EAP-TLS, etc) to validate network access.

### 7.2.1 EAP-TLS

Extensible Authentication Protocol-Transport Layer Security (EAP-TLS) makes use of client-side and server-side certificates for mutual authentication.

To use EAP-TLS security, access the **Security** tab in the **Profile Management** window.

1. You can select

WPA radio button (WPA stands for Wi-Fi Protected Access) VroTHC Monagement

Servers

Servers
Servers

Servers

Servers

Servers

Servers

Servers

Servers

Servers

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Servers

Servers

Servers

Servers

Ser

Or

802.1x radio button (802.1x enables 802.1x security.

If the access point that the wireless adapter is associating to has WEP set to **Optional** while the wireless adapter has WEP enabled, ensure that **Allow Association to Mixed Cells** is checked to allow association.

Note that this option is available only in **802.1x** and **Pre-Shared Key (Static WEP)**.

General Security Advanced		
Set Security Options		
OWPA	WPA EAP Type	EAPTLS
WPA Passphease		
@ 002.1x	802.1x EAP Type	EAPHLS
O Phe-Shared Key (Static WEP)		
O None		
Configure.	-	Allow Association to Mixed Cells
- A		

### Chapter 7 Types of Authentication and Encryption mode

2. Choose EAP-TLS from the drop-down menu and click on the Configure... button.



### NOTE

To enable this security, you must ensure that your PC/notebook has already downloaded its EAP-TLS certificates. Check with your system administrator for details.

3. If your system does not support EAP-TLS, the following message will pop up:

Profile Management (Security)	
No certificates were found in your computer. Please select a different EAI	<sup>o</sup> option.
OK	

If EAP-TLS is supported, select the appropriate certificate authority from the list. The server/domain name and the login name are filled in automatically from the certificate information.

4. Click on the **OK** button twice to activate the profile.

### 7.2.2 EAP-TTLS

**EAP-TILS (T**unnel Transport Layer Security) authentication is an extension to EAP-TLS. It uses certificates and EAP-TLS to authenticate the server only and establish an encrypted tunnel. Then within that tunnel, the client authenticates to the server using either a username and password or a token card.

## Chapter 7 Types of Authentication and Encryption mode

To use EAP-TTLS security, access the **Security** tab in the **Profile Management** window.

1. You can select

WPA radio button

Set	Security Op	tions			
	WPA		WPA EAP Type	EAP-TTLS	
(	WPAP	suphrase			
(	) 802.1x		802.1x EAP Type:	EAP-TLS	
(	Pre-Sha	red Key (Static WEP)			
(	None				
1	Config	ure		Allow Association	to Mored Cell

Or

802.1x radio button

Security Advanced			
Set Security Options			
OWPA	WPA EAP Type:	EAPITLS	Ň
O WPA Pattphrate			
@ 802.1x	802.1x EAP Type	EAP-TTLS	
O Pre-Shared Key (Static WEP)			
O None			
Configure.		Allow Association to Mixed Cr	

- 2. Choose **EAP-TILS** from the drop-down menu and click on the **Configure...** button.
- 3. Select the appropriate certification authority (CA) from which the server certificate will be downloaded from the **Trusted Root Certification Authorities** drop-down list.
- 4. The EAP username is pre-defined in the **User Name** field. IF not, specify your username (which is registered with the server) for EAP authentication. Enter your password in both the **Password** and **Confirm Password** fields.

5. Click on the **Advanced**... button.

fine EAP-TTLS Confi	guration 🦳
Frusted Root Certification	Authorities
Microsoft Root Certificate	Authority
User Information for EAF	P-TTLS Authentication
User Name:	thomas_teo
Password:	•••••
Confirm Password:	•••••
	Advanced NOK Cancel

- 6. Leave the specification server/domain field blank to allow the client to accept a certificate from any server that supplies a certificate signed by the CA listed previously. The login name is pre-defined in the **Login name** field.
- 7. Click the **OK** button.

Advanced Configuration	? 🛛
Specific Server or Domain:	
Login Name:	thomas_teo
	OK Cancel

### 7.2.3 PEAP (EAP-GTC)

The PEAP (EAP-Generic Token Card) method is intended for use with Token Cards supporting challenge/response authentication and MUST NOT be used to provide support for clear text passwords in the absence of a protected tunnel with server authentication.

To use PEAP-GTC security, access the **Security** tab in the **Profile Management** window.

1. You can select

WPA radio button

Set Security Options			
⊙ WPA	WPA EAP Type:	PEAP (EAP-GTC)	2
O WPA Pacsphrase			
O 802.1×	802.1x EAP Type:	LEAP	
O Pre-Shared Key (Static WEP)			
O None			

Or

802.1x radio button

ieneral Security Advanced			
Set Security Options			
O WPA	WPA EAP Type:	PEAF (EAF-GTC)	
OWFA Passphyase			
@ 802.1x	802.1x EAP Type:	PEAP (EAP GTC)	
O Pre-Shared Key (Static WEP)			
O None			

2. Choose **PEAP-GTC** from the drop-down menu and click on the **Configure...** button.



NOTE

To enable this security, you must ensure that your PC/notebook has already downloaded WPA-PEAP certificates; and the server properties must already be set. Check with your system administrator for details.

### Chapter 7 Types of Authentication and Encryption mode

- 3. Select the appropriate certificate authority (CA) from which the server certificate is downloaded from the drop-down list.
- 4. Enter your PEAP username (which is registered with the server) in the **User Name** field.
- 5. Specify whether you are using a **Token** or a **Static Password**. Click on the **Advanced** button.

Note that the Token can take the form of hardware token device or the Secure Computing SofToken Program (version 1.3 or later) to obtain and enter a one-time password for authentication.

Trusted Rool	Certification Authorities	
Microsoft Ro	oot Certificate Authority	~
User Name:	thomas_teo	]
Set Passwo		
O Toke	n	

- 6. Leave the specification server/domain field blank to allow the client to accept a certificate from any server that supplies a certificate signed by the CA listed previously.
- 7. The login name will be pre-defined in the field provided. This login name is used for PEAP tunnel authentication. It will be filled in automatically as PEAP-*xxxxxxxxxx*, where xxxxxxxxxxx is the computer's MAC address. You may change the login name if needed. Click on the **OK** button to save your settings.

Advanced Configuration	? 🛛
Specific Server or Domain:	[]
Login Name:	PEAP-00037FBEF0E3
	OK Cancel

#### Chapter 7 Types of Authentication and Encryption mode

#### 7.2.4 PEAP (EAP-MSCHAP V2)

Microsoft-Challenge Handshake Authentication Protocol V2 (MS-CHAP V2) is a mutual authentication protocol that requires both the client and server's identities to be proven. If your connection is configured to use MS-CHAP V2 as its only authentication method, and the server that you are connecting to does not provide proof of its identity, your connection disconnects.

To use PEAP-MSCHAP V2 security, access the Security tab in the Profile Management window.

You can select 1

WPA radio button	Profile Management	
	General Security Advanced	
	Set Security Options	
	© WPA WPA EAP	Type: PEAP (EAP MSCHAP V2)
	O WPA Passphrase	
	O 802.1x 802.1x EAP	Type: PEAPIEAPIOTCI
	O Pre-Shared Key (Static WEP)	
Or	O None	
	Configure	Allow Association to Mixed Calls
802.1x radio button	Profile Management	1
	General Security Advanced	
	Set Security Options	
	O WPA WPA EAP	Type: PEAF EAP MSCHAP V2
	O WPA Passphrase	
	802.1x 802.1x EAP	ype: FEAP (HAP MODHAP V/)
	Pre-Shared Key (Static WEP)	
	O None	
	Contiguen	Allow Association to Mixed Cells

2. Choose PEAP (MS-CHAPV2) from the drop-down menu and click on the Configure... button.



### NOTE

To enable this security, you must ensure that your PC/notebook has already downloaded WPA-PEAP certificates; and the server properties must already be set. Check with your system administrator for details.

### Chapter 7 Types of Authentication and Encryption mode

- 3. Enter your PEAP username and password (which are registered with the server) in the User Name and Password field respectively. Re-type the password in the Confirm Password field.
- 4. Click on the **Advanced** button.

icrosoft Root Certificate Authority	
User Information for EAP-TTLS Authentication	
User Name: thomas_teo	
Password:	
Confirm Password:	

- 5. Leave the specification server/domain field blank to allow the client to accept a certificate from any server that supplies a certificate signed by the CA listed previously.
- 6. Click the **OK** button to enable the profile.

Advanced Configuration	2
Specific Server or Domain:	
Login Name:	thomas_teo
	OK Cancel

### 7.2.5 LEAP

Lightweight Extensible Authentication Protocol (LEAP) security requires all infrastructure devices (e.g. access points and servers) to be configured for LEAP authentication.

To use LEAP security, access the **Security** tab in the **Profile Management** window.

1. You can select

	General Security Advanced		
	Set Security Options		
	© WPA	WPA EAP Type	LEAP
	O WPA Passphrate	THACK INC	
	0 802 1x	902 1x EAP Type	PEAP IEAP MSCHAP VZI
	O Pre-Shared Key (Static WEP)		
Dr	O None		
			Allow Association to Mand Cells
	Configure A		
<b>302 1x</b> radio button	Cordgae.		
<b>302.1x</b> radio button	Profile Management		
<b>302.1x</b> radio button			
<b>802.1x</b> radio button	Profile Management Bereial Security Advanced	WPA EAP Type	
<b>802.1x</b> radio button	Profile Management General Security Advanced Set Security Options	WPA EAP Type	
<b>302.1x</b> radio button	Profile Kanagement General Security Advanced Set Security Options O WPA	WPA EAP Type 802 1x EAP Type	LEAP U
<b>02.1x</b> radio button	Profile Management Bereit Security Advanced Set Security Options OWPA OWPA Passphrace		LEAP U
302.1x radio button	Profile Kanagement General Security Advanced Set Security Advanced WPA WPA Pattphane © MPA		LEAP U

- 2. Choose **LEAP** from the drop-down menu and click on the **Configure...** button.
- 3. You may set your username and password to:
  - Use Temporary User Name and Password

Each time your PC reboots, you will be require to enter your LEAP username and password in order to be authenticated and obtain access to the network.

- Use Saved User Name and Password.

Authentication is obtained using a saved username and password (registered with the server) so you will not be require to enter your LEAP username and password each time your PC reboots.

### Chapter 7 Types of Authentication and Encryption mode

#### Temporary User Name and Password

1. The login page will pop up as shown below. Fill up the respective fields and click on the **OK** button twice.

ter wiretess	Network Password Please enter your LEAP username and password to log on to the wireless network	ОК
User Name :	[	Cancel
Password :		
Log on to :		
Card Name :	Atheros USB 2.0 Wireless Network Adapter	
Profile Name :	Default	

Next, the system will start the LEAP authentication.



#### Saved User Name and Password

- Enter the username, password and re-enter password in Confirm Password field.
   (Optional) You may enter a specific domain name, which will be passed to the server.
- 2. Enter the LEAP authentication timeout (between 30 and 500 seconds) to specify how long LEAP should wait before considering an authentication as failed, and sending an error message. The default is 90 seconds.
- 3. Click on the **OK** button.

Check the Include Windows Logon Domain with User Name option to automatically send your Windows login domain together with your user name to the RADIUS server. (Default)

Check the No Network Connection Unless User Is Logged In option to force the wireless adapter to disassociate after you log off.

OUse Ten	porary User Name and Password	
() Man	ually Prompt for LEAP User Name and	d Password
💿 Use Save	d User Name and Password	
Us	er Name:	
Р	assword:	1
Confirm P	assword:	
	Domain:	
Include Wir	dows Logon Domain with User Name	
No Network	Connection Unless User Is Logged I	
	LEAP Authentication Timeout Va	lue (in seconds) 90 😂

### 7.2.6 WPA Passphrase

WPA Passphrase is also known as WPA-PSK (Pre-shared Key). It provides strong encryption protection for home/SOHO users who do not use an enterprise authentication server.

1. Click on the **WPA Passphrase** radio button and click on the **Configure...** button.

Profile Management			? 🛛
General Security Advanced			
Set Security Options			
O WPA	WPA EAP Type:	LEAP	
💿 WPA Passphrase			
◯ 802.1x	802.1x EAP Type:	LEAP	
O Pre-Shared Key (Static WEP)			
◯ None			
Configure		Allow Association to Mixed Cells	
Sec. 1		ОК С	ancel
			ancer

2. Enter the password and click on the **OK** button.



#### Note:

The WPA Passphrase must match that used by the AP/other wireless clients in the network.

#### 7.2.7 Pre-shared Key (Static WEP)

Wired Equivalent Privacy is a security protocol that allows the wireless client adapter to communicate ONLY with access points or other wireless clients that have the same WEP key.

WEP Key is categorized into two types: Hexadecimal and ASCII. Hexadecimal values consist a to f and numbers 0 to 9 whereas ASCII values consist of alphanumeric characters a to z; 0 to 9.

To define pre-shared encryption keys,

Choose the Pre-shared Key (Static WEP) radio button and 1. click the **Configure**... button to fill in the encryption key.

Profile Management			
General Security Advanced			
Set Security Options			
O WPA	WPA EAP Type:	LEAP	~
🔿 WPA Passphrase			
O 802.1x	802.1x EAP Type:	LEAP	~
Pre-Shared Key (Static WI	EP)		
◯ None			
Configure		Allow Associat	ion to Mixed Cells
			OK Can
			DK Can

Note that this option is available only in 802.1x and Pre-Shared Key (Static WEP).

2. Enter your WEP key and click on the **OK** button.

Define Pre-Shared Keys				
Key Entry	⊙ He	xadecimal (0·9, A-F)	🔿 ASCII Text (all keyb	oard characters)
Encryption Key	/s			
	Transmit Key			WEP Key Size: 64 128 152
WEP Key 1		1234567890		● ● ● ● ●
WEP Key 2	0			000
WEP Key 3	0			000
WEP Key 4	0			000
<u>.</u>				OK Cancel

#### WEP Key size

- 64-bit WEP: 10 hexadecimal or 5 ASCII Text
- 128-bit WEP: 26 hexadecimal or 13 ASCII Text
- 152-bit WEP: 13 hexadecimal or 16 ASCII Text

#### Appendix I Remove USB Adapter from the System

To safely remove your USB adapter from your system,

1. From the system tray, go to **Safely Remove Hardware** icon and click **Safely Remove Hardware**.



2. Select Atheros USB 2.0 Wireless Network Adapter and click on the Stop button to terminate all activities.

Safe	ely Remove Hardware		? 🛽
	Select the device you want to Windows notifies you that it is computer.		
<u>H</u> ardw	are devices:		
	theros USB 2.0 Wireless Netwo	ork Adapter	
Athero:	s USB 2.0 Wireless Network Ad	lapter at Location U	
		Properties	Stop
		Liphenes	200
_			
<u>D</u> is	play device components		
			Close

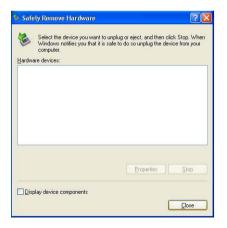
3. Next, select **Atheros USB 2.0 Wireless Network Adapter** to confirm you will be removing it from the USB port and click on the **OK** button.

to continue. levices. After the devices are
lapter
DK Cancel
1

4. The system will then inform you that the device can now be safely removed from the system.

🤹 🔱 Safe To Rem	ove Hardware	×
The 'Atheros USB 2 now be safely remo		Adapter' device can
(		
		👋 🖥

5. Click on the **Close** button to exit this window.

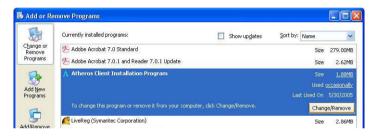


#### Appendix II Un-install Compex WLU108AG-MC

Please note that in case there is a software upgrade for WLU108AG-MC, you will need to un-install the current software version before installing the new software.

When you un-install the USB adapter's software, any existing profiles will be removed. If you want to re-use your profiles, please refer to **Section 5.2 Profile Management Tab** for further details on how to export a profile to disk. You are advised to close all programs and to leave the USB adapter in the USB slot of your PC/notebook before un-installing your USB adapter.

- 1. From your **Start** menu, go to **Settings**, **Control Panel** and then click on the **Add or Remove Programs** icon.
- 2. Highlight the Atheros Client Installation Program and click on the Change/Remove button.



#### Appendix II Un-install Compex WLU108AG-MC

 Wait until you see the Atheros Client Installation Program screen. Select Uninstall the previous installation. Then click on the Next> button to proceed.

Atheros Client Installation Program	×
Previous Installation Detected	
The installation program has detected that a previous installation exists. What do you want to do?	
Update the previous installation	
Uninstall the previous installation	
InstallShield < <u>Back Next&gt;</u> Cancel	)

4. The prompt screen appears to notify you that the uninstall option requires the system to be rebooted at the end of the uninstall process. Click on the **Yes** button to proceed.

Question	n 🛛 🕅
?	The option you have selected requires the system to be rebooted at the end of the operation. Do you want to continue? Yes No

5. Your system will prompt you to confirm whether you want to remove the application completely. Click **OK** to proceed.



6. You will be asked to decide whether to remove the device driver or not. Click on the **Yes** button to accept.



7. The uninstall process will then begin. Soon the prompt screen will appear informing you that the uninstall process is successful, and that your system needs to be rebooted.

Atheros	Client Installation Program	K
1	The Installation Program has successfully performed the selected operations, but the system needs to be rebooted before all of the changes will take effect. Click OK to reboot the system.	ł

8. Click **OK** to reboot the system.

#### Appendix III Certificate Application for WPA mode

The USB adapter supports Wi-Fi Protected Access (WPA) and Wi-Fi Protected Access-Pre Shared Key (WPA-PSK) mode in Windows 2000/XP.

Wi-Fi Protected Access (WPA) is a specification of standards-based, interoperable security enhancement that strongly increases the level of data protection (encryption) and access control (authentication) in your wireless network. The technical components of WPA include Temporal Key Integrity Protocol (TKIP) for dynamic key exchange, and 802.1x for authentication.

WPA requires a RADIUS Server to complete the authentication among wireless stations and Access Points. Typically, this mode is used in an enterprise environment. WPA-PSK does not require a RADIUS Server and is very convenient for home/SOHO users. In this chapter, we will explain how to apply for a certificate in order to access to a wireless network using WPA mode.



#### NOTE

For Windows XP users with Service Pack 1 (SP1), you need to upgrade to SP2, available from the Microsoft website or to install the two patch files provided in the Product CD.

#### Overall procedures to apply certificate for WPA mode

- Install Windows XP Service Pack 2
- Apply certification via Internet Browser
- Become domain member

# AIII.I Installing Window XP Service Pack Patch File (For Windows XP users)

To check whether you have already installed Windows XP SP2, go to **My Computer**, right click and select **Properties**.





If you are using the Windows XP SP1 and do not intend to upgrade to SP2, you will need to install the two patch files provided in the Product CD.

1. After ensuring that you have installed Windows XP SP1, insert your Product CD into your CD-ROM drive, go to Drivers & Utilities section, select to install *WindowsXP- Q815485\_WXP\_SP2\_x86\_ENU.exe* followed by *WindowsXP-KB826942-x86-ENU.exe*.

You may need to restart your PC to complete the installation. Windows XP Q815485 Setup Wizard Before you install this update, we recommend that you: -Back up your system -Close all open programs To complete this installation, Windows might require restarting after you finish this wizad. To continue, click Next:

#### All.2 Installing certificate on your server

If you are using Microsoft Certificates services,

1. Click on the **Install this certificate** link in the window to start the installation.

Microsoft Certificate Services - Microsoft Internet Explorer	
Elle Edit View Favorites Iools Help	27
😋 Back 🔹 💿 👻 📓 🏠 🔎 Search 🤺 Favorites 🜒 Media 🤣 🎯 - 💺 🖂	
Address 🕘 http://192.168.88.26/certsrv/certfnsh.asp	So Links »
Microsoff Certificate Services test Certificate Issued	Home
The certificate you requested was issued to you.	

2. Click on the **Yes** button on the pop up window to continue with the installation.

Potentia	Potential Scripting Violation		
<u>.</u>	This Web site is adding one or more certificates to this computer. Allowing an untrusted Web site to update your certificates is a security risk. The Web site could install certificates you do not trust, which could allow programs the you do not trust to run on this computer and gain access to your data. Do you want this program to add the certificates now? Click Yes if you trust this Web site. Otherwise, click No.	nat	

3. To add the certificate to the Root Store, click on the Yes button.

loot Ce	rtificate Store
♪	Do you want to ADD the following certificate to the Root Store? Subject : test, aaa, workgroup, aa, aa, CN, asdf@test.com Issuer : Self Issued Time Validity : Thursday, April 15, 2004 through Saturday, April 15, 2006 Serial Number : 25089187 78184398 4038DA5B A924B4AA Thumbprint (sha1) : D5709557 B078B014 E4DF2568 34966067 593BE0F8 Thumbprint (md5) : AF45D0FF DC4D7953 EE31B864 6C529AB6
	Yes Mo

4. The following window will appear showing that the certificate has been successfully installed into your PC.



#### AIII.3 Applying for Client Certifications

If you have installed Microsoft SP2 or Microsoft XP SP1 with the 2 patch files provided on the Product CD, you are now ready to apply for a certificate for your wireless client.

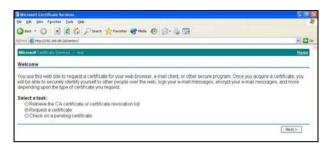
At this stage, ensure that your wireless client has connectivity to the CA server. You should disable your key encryption.

- 1. Open your Internet browser; enter e.g. *http://192.168.88.26/certsrv* where 192.168.88.26 is the server's IP address.
- 2. Next, you need to connect to your server in order to get a certification. Enter the **username** and **password** that are provided by your system administrator.

Connect to 19	2.168.88.26
Connecting to 19	2.168.88.26
User name:	😰 user1 🔛 💽
Password:	••••
	Remember my password
a	OK Cancel

#### Appendix III Certificate Application for WPA mode

 Once you get connected to your server, the following screen shot will appear. Select the **Request a certificate** radio button and click on the **Next**> button. Follow the instructions shown on the screen.



The screen below will appear to indicate that a certificate has been successfully issued to your PC.

<b>A</b> *
💌 🛃 Go Units "
Heme

 To confirm whether you have received your certificate, go to your web browser and select Internet Options... from your Tools pull down menu.

Internet	Options					? 🛛
General	Security	Privacy	Content	Connections	Programs	Advanced
-	Rating viewed	help you on this co	omputer.	Enable	nt that can Setting	
Certifi	Use ce authori	ies, and p	ublishers.	videntity yourse	if, certificati Publishe	_

5. Go to the **Content** tab and click on the **Certificates...** button. Notice that your username is in the listing. This shows that the certificate has been issued to you.

ntended p	urpose:	<all></all>				
Personal	Other Peop	ple    Intermediate Certifica	ation Authorities	Trus	ted Root Certifica	ation 🔨
Issued	То	Issued By	Expirat	o	Friendly Name	
🔤 user	r1	test	5/18/20	05	<none></none>	
	e intended p	port <u>R</u> emove Nurposes m, Secure Email, Client Aut	) hentication		Adv	vanced

#### AllI.4 Becoming a domain member

Next, you need to add your username in the domain so that you can communicate with the access point connected to your server.

- 1. From the **My Computer** icon on your desktop, right click and go to **Properties**.
- Go to the Computer Name tab and select Change... button as shown in the screen on the right.

Workgroup: WORKSROUP formain and create a local user account, click Network ID 0.	System Restore	Automa	nic Updates	Remote
on the network.      Computer description:         For example: "Vick-then Computer" or "Mary's         Computer".      vid computer name:         tert1.      vide group:         WORKSROUP      rouse the Network. Identification: Vicand to pins a         too         on and craste a food user account; dick Network. ID	General Cor	mputer Name	Hardware	Advanced
For example: "Victoren Computer" or "Mary's Computer" Vill computer mane: teat1. Workgroup: WORKGROUP or use Tite Network Identifications in a fourier and come a local user account, click Network. ID 0.			ormation to identify	your computer
Conputer     Conputer     Workgroup:     WORKSROUP     to use the Network Identification Viceod to pins a     Monon and a faced user account, dick Network ID	Computer description:			
Workgroup: WORKGROUP To use the Network Identification Wizard to join a Soman and create a local user account, click Network: ID D.		For example: "I Computer".	Kitchen Computer"	or "Mary's
To use the Network Identification Wizard to join a domain and create a local user account, click Network. D.	ull computer name:	test1.		
domain and create a local user account, click Network	Vorkgroup:	WORKGROUP		
		er or join a domain	. click Change.	Change

3. From the **Member of** section, select the **Domain:** radio button and enter the name of your domain. In this example, we are using *test* as the domain name.

You o	uter Name Chan an change the name uter. Changes may af	and the		
Comp	uter name:			
test1				
test1.	nber of			<u>1</u> ore
0	) <u>D</u> omain:			
С	test Workgroup: WORKGROUP			
			OK.	Cancel

- 4. Next, you need to enter your username and password again for verification. Please note that your system administrator provides this information.
- 5. Click on the **OK** button to proceed.

Computer Nam	e Changes	? 🛛
Enter the name a to join the domain User name:	nd password of an account	with permission
Password:	•••••	
8	ОК	Cancel

6. When done, a message will appear as shown below. You may need to restart your computer for the changes to take effect.

Comput	er Name Changes 🛛 🔀
(į)	Welcome to the test domain.
	ОК

#### Appendix IV Wireless Zero Configuration Utility

If your computer is running under the Windows XP operating system, you can opt to configure the **Wireless Network Connection** from your Windows XP operating system, instead of the Atheros Utility. You need to exit from the Atheros Utility before accessing to Windows XP's Wireless Zero Configuration Utility.

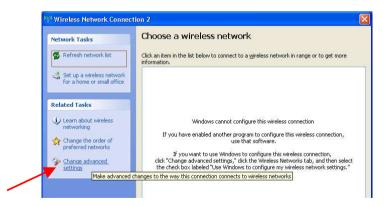
#### AIV.1 Enable Wireless Zero Configuration Utility

To set Wireless Zero Configuration on Windows XP, take the following steps:

 From the system tray, right click on the Wireless Network icon and select View Available Wireless Networks option.



2. Click on the **Change advanced settings** option on the left-hand column.



3. Select the check box **Use Windows to configure my wireless network settings** to activate Wireless Zero Configuration Utility.

- Wirel	ess Network Con	nection	i 3 Prop	erties	?
General	Wireless Networks	Advanc	ed		
- Availa To co	Windows to configur able <u>networks:</u> onnect to, disconnect wireless networks in	from, or	find out mo	re information	
		1		eless Network	s
below	natically connect to a r.	vallable i	networks in	Move up	
Learn	Add Berno about <u>setting up wire</u> uration.		Pr <u>o</u> pertie vork	s Ad <u>v</u> ance	а
<u> </u>			ОК		ancel

When this check box is selected, Windows XP takes control of these settings for all configuration profiles:

- SSID
- Security Keys
- Ad-hoc settings

#### Appendix IV Wireless Zero Configuration Utility

When the Wireless Zero Configuration Utility is in use, a pop-up message is displayed on the Utility when you attempt to create or edit a configuration profile from the **Profile Management** tab of the utility.

Atheros Client Utility 🛛 🔀
This Device is controlled by the Windows XP Automatic Wireless Network Configuration. It may override Network Name, Security and other settings from this profile.



#### CAUTION

If you activate BOTH (not recommended) the Wireless Zero Configuration Utility and the Atheros Utility simultaneously, the Profile setting configured by the Atheros Utility will be overridden by those of the Wireless Zero Configuration Utility.

#### AIV.2 Disable Wireless Zero Configuration Utility

To turn Wireless Zero Configuration Utility off on Windows XP,

- 1. Open the Wireless Zero Configuration Properties dialog box.
- 2. Clear the check box Use Windows to configure my wireless network settings.
- 3. When this check box is cleared, all profile settings will be controlled by the USB adapter's utility.

### Appendix V Panel Views and Descriptions



	Components	Indications & Descriptions
1	Power	Green Indicates that power is being supplied to the USB adapter.
2	USB Connector	Connect this end to the USB port of you PC/notebook.
3	MC Connector	Connect the external antenna to the MC connector.

## Appendix VI Technical Specifications

Network Protocol,	Standards and Electrical Emissions
Industry Standards	<ul><li>IEEE 802.11b/g/A</li><li>USB 2.0</li></ul>
Safety Certifications	<ul> <li>CE Mark</li> <li>FCC Class B</li> <li>Gost</li> </ul>
	Performance
Frequency Band IEEE 802.11g: IEEE 802.11b: IEEE 802.11a:	2.400 ~ 2.4835GHz (US, Canada) 2.400 ~ 2.497GHz (Europe, Japan) 4.900 ~ 5.825
Data Rates (with automatic fallback)	108Mbps, 54Mbps, 48Mbps, 36Mbps, 24Mbps, 18Mbps, 12Mbps, 11Mbps, 9Mbps, 6Mbps, 5.5Mbps, 2Mbps, 1Mbps
Modulation	<ul> <li>BPSK (Binary Phase Shift Keying)</li> <li>QPSK (Quadrature Phase Shift Keying)</li> <li>CCK (Complementary Code Keying)</li> <li>16 QAM, 64 QAM (Quadrature Amplitude Modulation)</li> </ul>
Radio Technology	<ul> <li>DSSS (Direct Sequence Spread Spectrum)</li> <li>OFDM(Orthogonal Frequency Division Multiplexing)</li> </ul>
Antenna	external dielectric antenna

# Appendix VI Technical Specifications

Operating Channels IEEE 802.11b/g: IEEE 802.11a:	<ul> <li>11 Channels (North America)</li> <li>13 Channels (Most European countries)</li> <li>14 Channels (Japan)</li> <li>12 Channels (North America)</li> <li>19 Channels (Most European countries)</li> <li>4 Channels (Japan)</li> </ul>
	Availability of channels is dependent on the country of location.
Drivers/Operating system Supported	Windows XP/2000
Media Access Protocol	Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)
RF Output Power	17 dBm (typical)
Receiver Sensitivity	-95 dBm at 1Mbps (typical) -92 dBm at 6Mbps (typical) -90 dBm at 11Mbps (typical) -73 dBm at 54Mbps (typical)
Host Interface	USB 2.0
Security	<ul> <li>64/128/152-bit WEP encryption</li> <li>IEEE 802.1x supports – EAP-TLS,EAP- TTLS, PEAP-GTC, PEAP_MSCHAP V2, LEAP</li> <li>WPA, WPA-PSK</li> </ul>
Wireless Operating Range Indoor: Outdoor:	Up to 100 meters Up to 200 meters

Physical and Environment	
Environmental Requirements	
Operating temperature:	0°C to 55°C
Storage temperature:	-20°C to 70°C
Operating humidity:	10% to 70% RH
Non-operating humidity:	5% to 90% RH
Power Consumption	5V DC, 500mA max
Physical Dimensions	87mm x 26.6mm x 7.7mm