User's Guide

for

PN15g XPC 802.11b/g Wireless Kit

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 interface, and
2) This device must accept any interface received, including interface 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 distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

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.

Table of Contents

1. INTRODUCTION 1

1.1 FEATURES 1

1.2 PACKAGE CONTENTS 2

1.3 SYSTEM REQUIREMENTS 2

1.4 THE XPC 802.11B/G WIRELESS KIT 2

2. INSTALLATION OF THE XPC 802.11b/g Wireless Kit 3

2.1 HARDWARE SETUP 3

2.2 SOFTWARE INSTALLATION 9

2.3 HARDWARE INSTALLATION 11

2.4 NETWORK CONNECTION 14

2.5 IP ADDRESS 19

2.6 CONFIGURATION UTILITY 19

2.7 STATION 22

2.8 ACCESS POINT 29

3. Appendix 36

3.1 SOFT AP CONFIGURATION 36

3.2 PN15G SPECIFICATIONS 39

1. INTRODUCTION

The XPC 802.11b/g Wireless Kit aims to let your XPC quickly and seamlessly communicate with a 802.11b/g (at up to 54 Mbps) networks. Wireless LAN is local area networking without wires, which uses radio frequencies to transmit and receive data between PC's or other network devices. With this Wireless Kit, surfing on the Internet couldn't be any easier. Simply install the USB Kit into the reserve area, launch the attached friendly-interfaced program – Shuttle Wireless LAN to configure the Module, and you will be ready to experience how the LAN (local area network) can be accessed anywhere. You can operate the network in either an independent mode or an infrastructure mode. The former, which is also known as peer-to-peer or ad-hoc network, lets you directly make connection with other wireless-equipped computers, and the later, the so-called infrastructure network, allows you to communicate with wired LAN via an access point. To obtain the complete benefits your XPC 802.11b/g Wireless Kit provides, please read this manual carefully before using it.

1.1 Features

With XPC 802.11b/g Wireless Kit, you can

- exchange data over the air, which minimizes the need for wired connections
- possess the portability and mobility of wireless networking connectivity wherever you are
- operate Ad-Hoc or Infrastructure modes
- utilize up to 128-bit WEP,WPA encryption
- enjoy high-speed data transfer rate up to 54 Mbps
- employ automatic data rate switching which offers maximum reliability, throughput and connectivity
- monitor and configure the network via the supplied friendly-interfaced application ~ Shuttle Wireless LAN Tool
- Shuttle Software Access Point Function.

1.2 Package Contents

Before starting installation, please make sure the package you purchased includes the following items:

- One 802.11g Wireless LAN Module
- One Antenna
- Two Washers
- One Daughterboard
- One USB data cable
- 4 x Screws
- One Setup Wizard CD-ROM with Shuttle SoftAP
- One User Manual

If any of the items listed above are missing or damaged, please contact your distributor.

1.3 System Requirements

To properly operate your XPC 802.11b/g Wireless Kit, your computer must meet the following minimum requirements:

- Pentium III MHz processor or higher
- 128 MB RAM or above
- A CD-ROM drive
- Microsoft Windows 98 SE/ Me/ 2000 or Windows XP

1.4 The XPC 802.11b/g Wireless Kit

Your XPC 802.11b/g Wireless Kit should be located in the USB port on the back panel of your XPC.

2. INSTALLATION OF THE XPC 802.11b/g Wireless Kit

Installing the PN15g is quick and easy. Simply follow the steps below to install the hardware, followed by a few clicks of the mouse and you will be up and running on your own wireless network.

2.1 Hardware Setup

➢ **STEP1.**

Unfasten the three screws on the back panel and remove the case.

➢ **STEP2.**

Use a 6mm screwdriver to puncture the perforated hole on the back panel from the outside in. Once the screwdriver can pass through the hole, carefully snap the metal tag off.

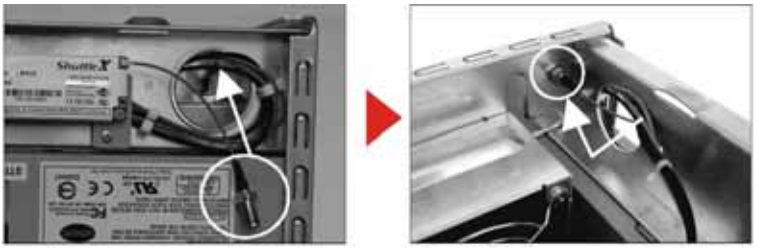
Note : *If the cover still does not detach, carefully bend it by pushing down from the inside of the chassis.*

➢ **STEP3.**

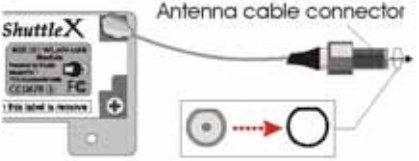
Screw the Wireless Kit to the two holes on the outside of the chassis arm, near the rear of the XPC.

➢ **STEP4.**

Weave the antenna cable connector through the reserve hole and insert it flush into the back of the chassis.

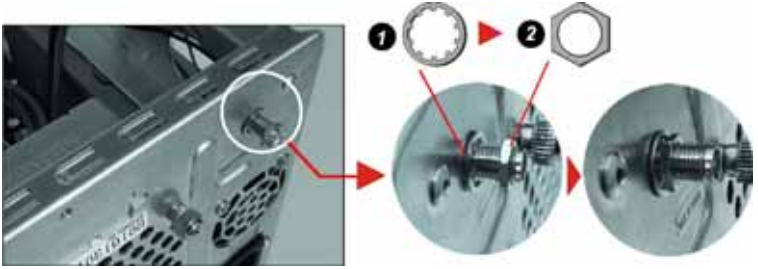


Caution : *When inserting the cable connector, check the socket alignment and only push horizontally.* ***Do not*** *turn or twist the cable.*



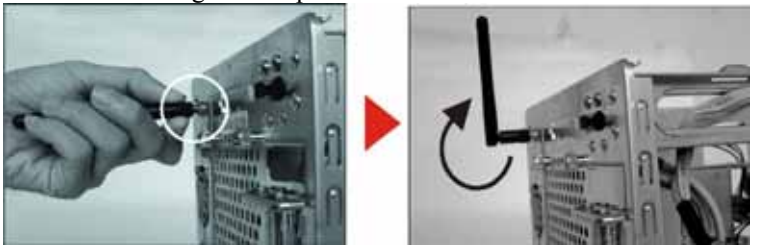
Note : *If some difficulty is found while inserting the antenna socket into the reserve hole, make sure the surface is clean. Finally, check the alignment and then use some more force .*

Use a washer and lock nut from the outside to secure the antenna in position.



➢ **STEP5.**

Screw the antenna onto the exposed thread. Set the antenna to vertical for good reception.



Note : *Make sure all the connectors are aligned in the correct direction.*

If you are installing this wireless module on either the ST61G4 or SK83G, please proceed directly to step 10.

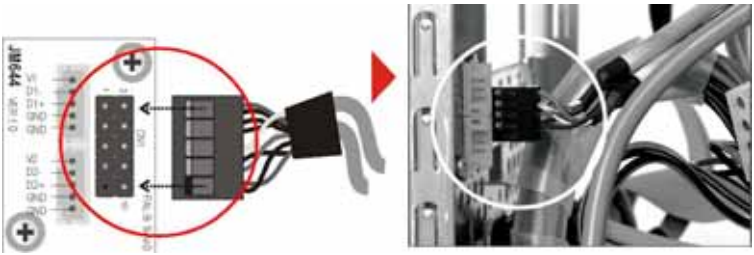
➢ **STEP6.**

Screw the daughterboard to the front inside panel of the chassis in the position shown.

Caution : *The white USB sockets should be facing outwards as you install the daughterboard.*

➢ **STEP7.**

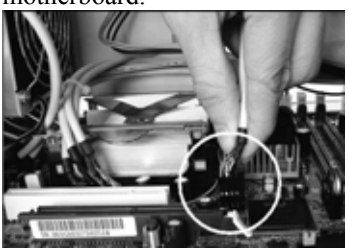
Connect the standard USB cable to the daughterboard. The standard USB cable connects to the black USB header.



Note : *Make sure all the connectors are aligned in the correct direction.*

➢ **STEP8.**

Connect the other end of the USB cable to a USB header on the motherboard.



➢ **STEP9.**

Connect the signal cable from the Wireless LAN module to the 5pin USB header located on the daughterboard.

Double check all connections before continuing to step 11.

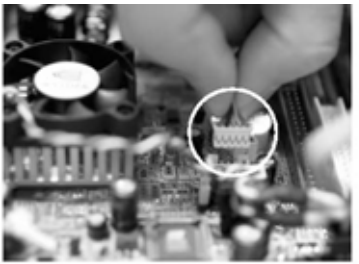
➢ **STEP10.**

Connect the signal cable from the Wireless LAN module to the 5-pin USB header located on the motherboard.

Double check all connections before continuing.

➢ **STEP11.**

Attach the case and fasten the three thumbscrews to complete the hardware installation.



2.2 SOFTWARE INSTALLATION

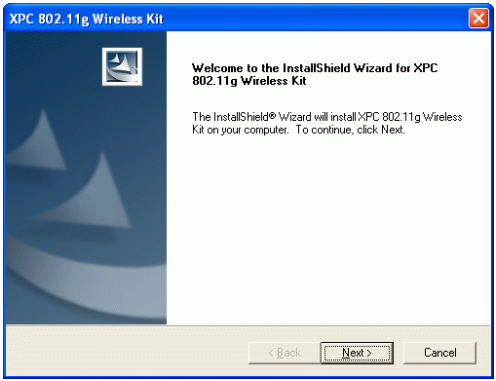
- **Step 1: Install the Driver & Utility**
- **For Windows 98, 2000, ME and XP users**

Caution!

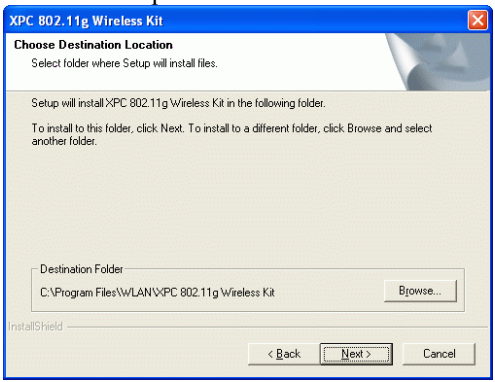
Do not insert the wireless LAN adapter into your computer until the procedures in " Install the Driver& Utility" have been performed.

1. Exit all Windows programs. Insert the included CD-ROM into your computer. The CD-ROM will run automatically.
2. When the Main Menu screen appears, click **" Driver & Utility Installation"** to continue.

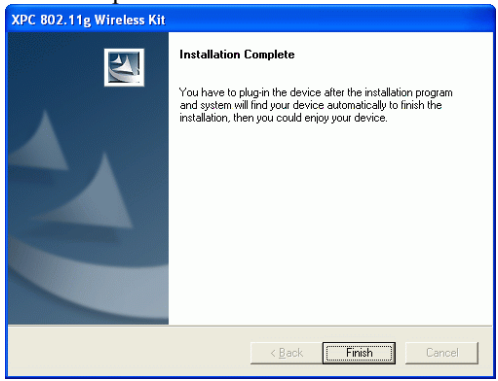
3. When the Welcome screen appears, click **Next** to continue.



4. The installation program will start running automatically. Follow the on-screen instruction to proceed.



5. Click **Finish** to complete the software installation.



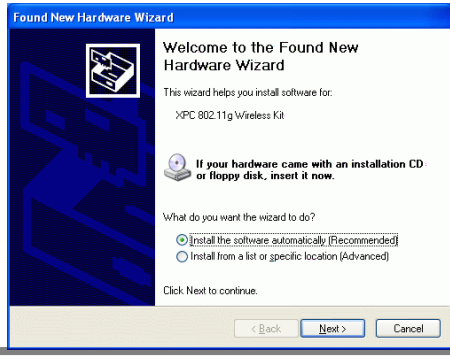
2.3 HARDWARE INSTALLATION

- Windows 2000/XP

Note: Before you install the device to your computer, make sure you have installed the **driver** and **utility** as described in the previous section.

Windows 2000/XP

1. Locate your USB host and insert the USB Adapter.
2. Once the device has been inserted to your computer, Windows will detect the new hardware.
3. When the following screen appears, select **Install the software automatically (Recommended).**



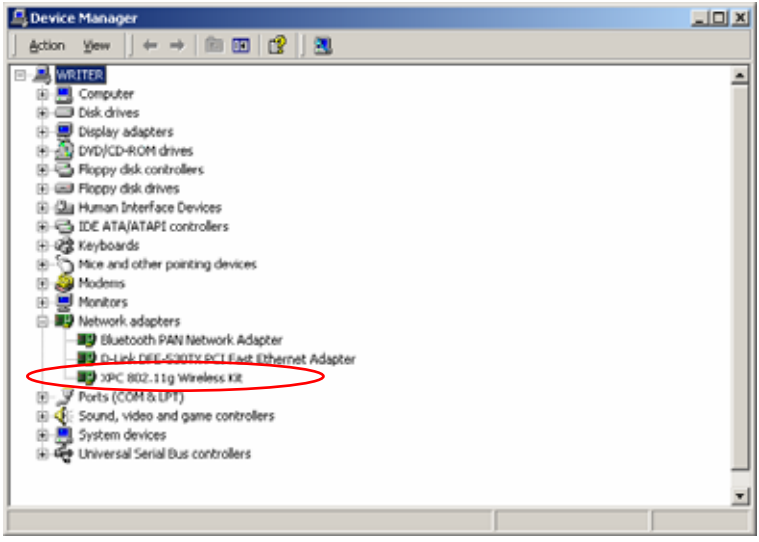
4. Click **Continue Anyway → Finish** to complete the hardware installation.

- **Windows 98/ME**

In Window 98/ME, you only have to insert the USB adapter into the USB port of your computer to complete the hardware installation.

Verify

To verify if the device exists in your computer and is enabled, go to **Start → Settings → Control Panel → System (→ Hardware) → Device Manager**. Expand the **Network Adapters** category. If the **XPC 802.11g Wireless Kit** is listed here, it means that your device is properly installed and enabled.

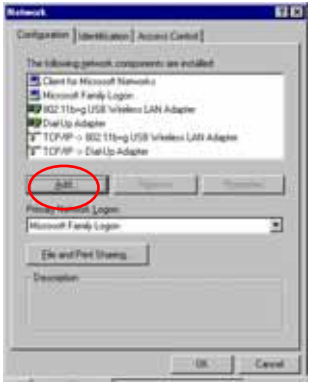


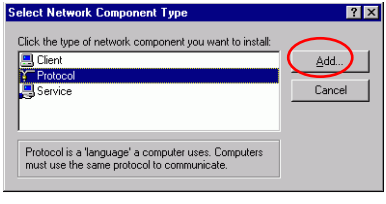
2.4 NETWORK CONNECTION

Once the device driver is well installed, a network setting described in the following should be also established.

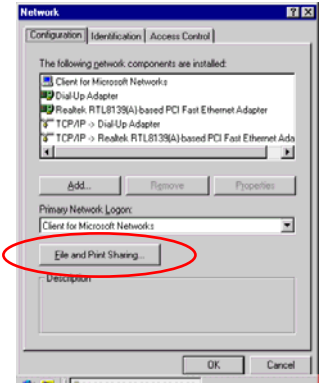
- **In Windows 98SE/ME**

1. Go to **Start → Settings → Control Panel → Network**.
2. Make sure that all the required components are installed. If any components are missing, click on the **Add** button to add them in.



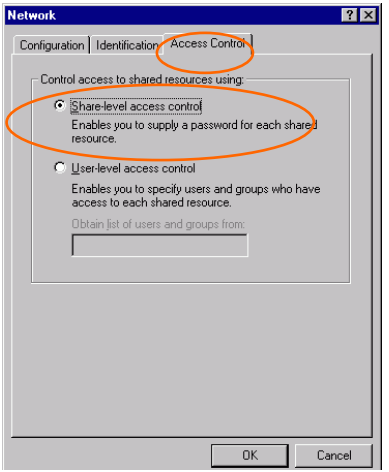


3. For making your computer visible on the network, enable the **File and Print Sharing**.



4. Click the **Identification** tab. Make up a name that is unique from the other computers' names on the network. Type the name of your workgroup, which should be the same used by all of the other PCs on the network.

5. Click the **Access Control** tab. Make sure that "**Share-level access control**" is selected. If connecting to a Netware server, share level can be set to "**User-level access control**."



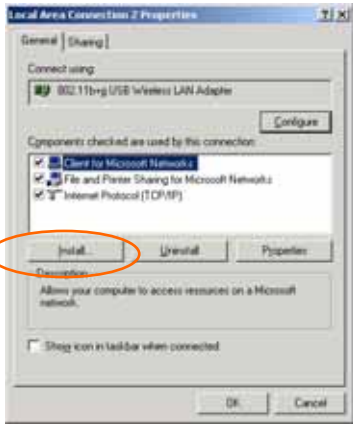
6. When finished, restart your computer to activate the new device. In Windows 2000/XP

1. (In **Windows 2000**)

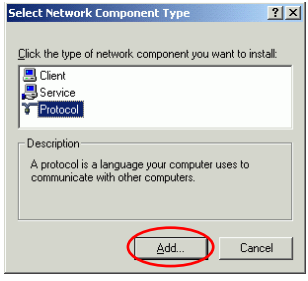
   Go to **Start→ Settings → Control Panel → Network and Dial-up Connections → Local Area Connection → Properties**.

   (In **Windows XP**)
   Go to **Start → Control Panel → Network and Internet Connections → Network Connection → Wireless Network Connection Enabled USB Wireless Network Adapter.**

2. Make sure that all the required components are installed.



3. If any components are missing, click on the **Install…** button to select the **Client/Service/Protocol** required. After selecting the component you need, click **Add…** to add it in.



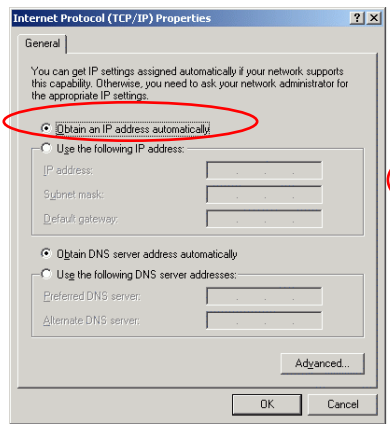
4. For making your computer visible on the network, make sure you have installed **File and Printer Sharing for Microsoft Networks**.

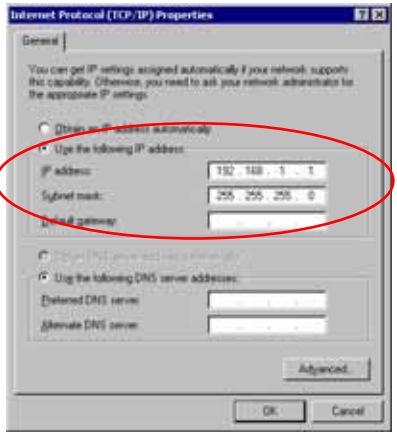
2.5 IP Address

Note: *When assigning IP Addresses to the computers on the network, remember to have the IP address for each computer set on the same subnet mask. If your Broadband Router use DHCP technology, however, it won't be necessary for you to assign Static IP Address for your computer.*

1. To configure a dynamic IP address (i.e. if your broadband Router has the DHCP technology), check the **Obtain an IP Address Automatically** option.
2. To configure a fixed IP address (if you broadband Router is not DHCP supported, or when you need to assign a static IP address), check the **Use the following IP address** option. Then, enter an IP address into the empty field, for example, enter ***192.168.1.1*** in the IP address field, and ***255.255.255.0*** for the Subnet Mask.

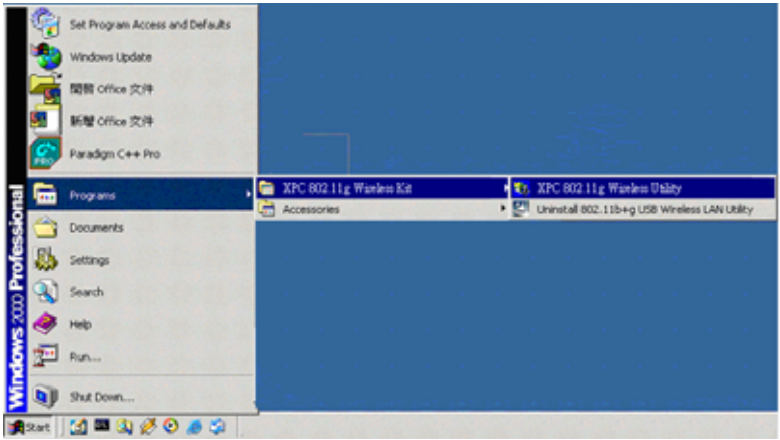
2.6 Configuration Utility





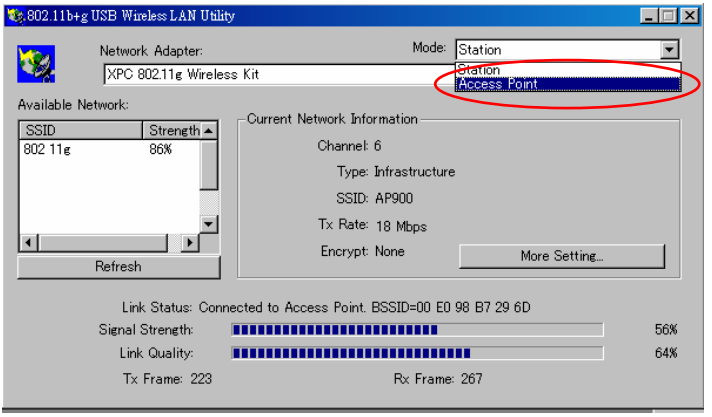
After the Wireless adapter has been successfully installed, users can use the included Configuration Utility to set their preference.

Go to **Start→ Program→802.11b+g Wireless Kit → 802.11b+g USB Wireless Utility**



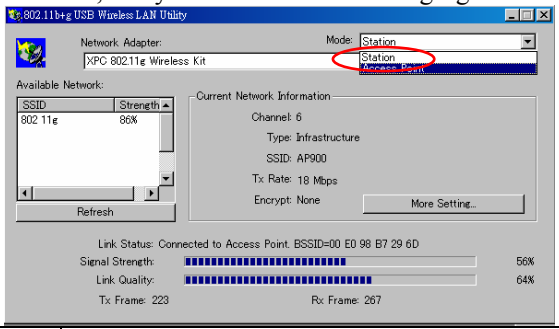
For **Windows 2000/XP**, the Configuration Utility icon will also appear in the taskbar. You can open the Configuration Utility by clicking the icon.

Note: There will be two modes – **Station** and **Access Point** for you to switch, you can select the mode you need from the pull-down menu.

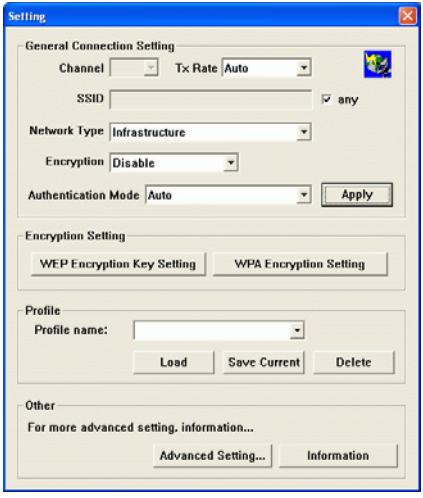

802.11b+g USB Wireless LAN Utility
Network Adapter:
XPC 802.11g Wireless Kit
Mode:
Station
Station
Access Point
Available Network:
SSID
Strength
802 11g
86%
Refresh
Current Network Information
Channel: 6
Type: Infrastructure
SSID: AP900
Tx Rate: 18 Mbps
Encrypt: None
More Setting...
Link Status: Connected to Access Point. BSSID=00 E0 98 B7 29 6D
Signal Strength:
56%
Link Quality:
64%
Tx Frame: 223
Rx Frame: 267

2.7 Station

Select **Station** mode, and you will see the following figure.

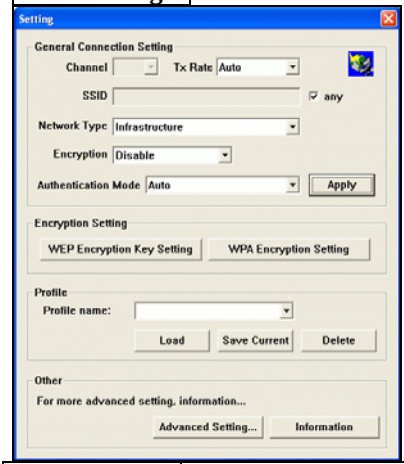


Channel	Shows the selected channel that is currently in use. (There are 14 channels available, depending on the country.)
Type	The **infrastructure** is intended for the connection between wireless network cards and an Access Point. With the wireless adapter, you can connect wireless LAN to a wired global network via an **Access Point** The **Ad-hoc** lets you set a small wireless workgroup easily and quickly. Equipped with the wireless adapter, you can share files and printers between each PC and laptop.
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. It shows the current SSID setting of the Wireless USB Adapter.
Tx Rate	Click the down arrow ▼ to select the Tx Rate from **Auto**, **1, 2, 5.5, 11, 6, 9, 12, 18, 24, 36, 48, 54 Mbps**, you can select up to **54 Mbps.**

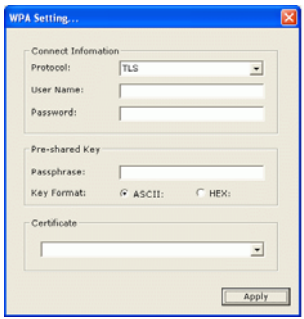
Encrypt	WEP is a data privacy mechanism based on a 64-bit/128-bit shared key algorithm.
More Setting…	Click the **More Setting** button to configure, see the following figure (Refer to the More Setting part on the next page for more information about this figure)： 
Link Status	Displays the information about the status of the communication between the Wireless USB Adapter and the Access Point.
Signal Strength	Displays the signal strength of the connection between the Wireless USB Adapter and the Access Point it connects.
Link Quality	Displays the link quality of the connection between the Wireless USB Adapter and the Access Point it connects.
Tx Frame	The quantities for the wireless network card transmit. (Frame: The unit of packet)

Rx Frame	The quantities for the wireless network card receive. (Frame: The unit of packet)

More Setting…



Channel	The Channel will change automatically according to AP's setting.
Tx Rate	Click the down arrow ▼ to select the Tx Rate from **Auto**, **1, 2, 5.5, 11, 6, 9, 12, 18, 24, 36, 48, 54 Mbps**, you can select up to **54 Mbps.**
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.
Any	You may select to have **SSID** by choosing **any,** the SSID will be obtained automatically from whichever Access Point with the optimal signal for this device. If **any** is left unchecked, it means you will have to enter the SSID manually.
Network Type	The **infrastructure** is intended for the connection between wireless network cards and an Access Point. With the

	wireless adapter, you can connect wireless LAN to a wired global network via an **Access Point** The **Ad-hoc** lets you set a small wireless workgroup easily and quickly. Equipped with the wireless adapter, you can share files and printers between each PC and laptop.
Encryption	You can only set your Security preference when **Change** is selected and then all fields are active for change. To save settings, press **Apply** when you are done with the settings. Select from the pull-down menu, there are four options including **Disable**, **WEP**, **TKIP** and **AES**.
Authentication Mode	You can select the Authentication Mode from the pull-down men, including **Auto, Open System, Shared Key, WPA and WPA PSK**.
Encryption Setting	**WEP Encryption Setting**：  **WPA Encryption**  You can only set your Security preference when **Change** is selected and then all fields are active for change. To save settings, press **Apply** when you are done with the settings. **WEP Encryption Setting** **Key length** ： **Default Key ID**：You can set your default key ID at #1~#4.

Key Format ：Select **Hexadecimal** if you are using hexadecimal numbers (**0-9, or A-F**).
Select **ASCII** if you are using ASCII characters (**case-sensitive**).
10 hexadecimal digits or **5 ASCII characters** are needed if **64-bit WEP** is used; **26 hexadecimal digits** or **13 ASCII characters** are needed if **128-bitWEP** is used；**58 hexadecimal digits** or **29 ASCII characters** are needed if **256-bitWEP** is used.

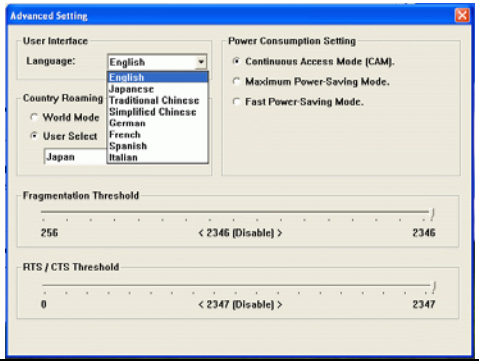
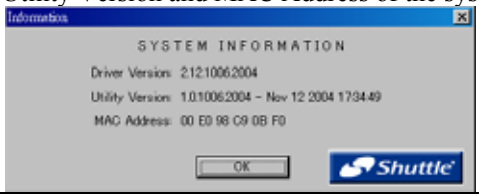
Key Value:
#1~#4 This setting is the configuration key used in accessing the wireless network via WEP encryption. You can specify up to 4 different keys to *encrypt* or *decrypt* wireless data.

☐ **The Key is provided via 802.1x authentication**：
Please query your network manager about the currently used security protocol, if 802.1x authentication is currently used, then you can check this item to enable 802.1x security protocol. The key value will be configured automatically, just click **Apply** to take effect.

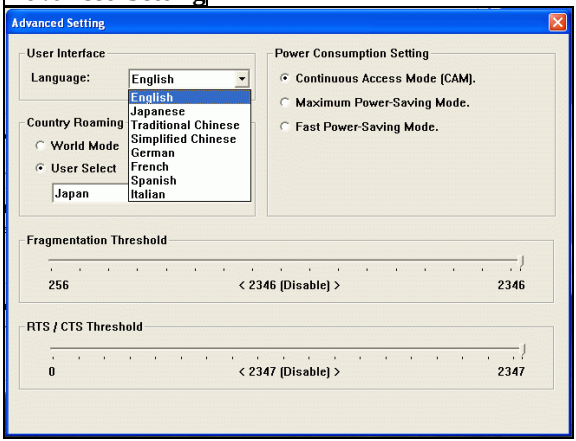
WPA Encryption Setting

Protocol ： This panel enables you to select an authentication protocol.
User Name：Type in the user name assigned to the certificate.
Password：This panel is available when EAP-TLS is not selected (either MSCHAP V2 over PEAP is selected with WEP or LEAP is selected for CCX). This panel enables you to enter a login name and password or request that the driver prompt for them when you connect to a network.
Passphrase：Enter the key that you are sharing with the network for the WLAN connection.

Key Format：Select **Hex** if you are using hexadecimal numbers (**0-9, or A-F**).

	Select **ASCII** if you are using ASCII characters. **Certificate**：Please query your network manager about the certificate, select the same certificate as the certification server.
Load	You may select already saved file from the **"Profile name"** list, and then press **"Load "**. The setting status will then be restored.
Save Current	You may save current setting to profile and add one new item in **"Profile name"**.
Delete	Delete the files in the "**Profile name**"
Advanced Setting	Click the **Advanced Setting** button to configure the following figure （Refer to the **Advanced Setting** part on the next page to see more information about the **Advanced Setting**）： 
Information	Click the Information button to show the Driver Version, Utility Version and MAC Address of the system. 

Advanced Setting



User Interface

Language	Select English or Traditional Chinese.

Power Consumption Setting

Continuous Access Mode (CAM)	When this mode is selected, the power supply will be normally provided even when there is no throughput.
Maximum Power-Saving Mode	When this mode is selected, this device will stay in power saving mode even when there is high volume of throughput.
Fast Power-Saving Mode	When this mode is selected, the power mode will switch between CAM and Maximum Power-Saving Mode depending on the volume of throughput. The device driver checks the total bytes (only data frame) every 4 seconds to decide the power mode. If the total bytes sent exceed 10k bytes, the device driver will choose “CAM”. If the total bytes are less than 10k bytes, however, the device driver will choose “Maximum Power-Saving Mode”.

Country Roaming

World Mode	This function is only enabled and effective with 802.11d standard.
User Select	Enable this function to select the country you are now locating.
Fragmentation Threshold	The mechanism of Fragmentation Threshold is used to improve the efficiency when high traffic flows along in the wireless network. If your 802. Wireless LAN Adapter often transmit large files in wireless network, you can enter new Fragment Threshold value to split the packet. The value can be set from 256 to 2346. The default value is **2346**.
RTS/CTS Threshold	RTS/CTS Threshold is a mechanism implemented to prevent the "**Hidden Node**" problem. If the "Hidden Node" problem is an issue, users have to specify the packet size. *The RTS/CTS mechanism will be activated if the data size exceeds the value you set.*. The default value is **2347**. This value should remain at its default setting of **2347**. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.

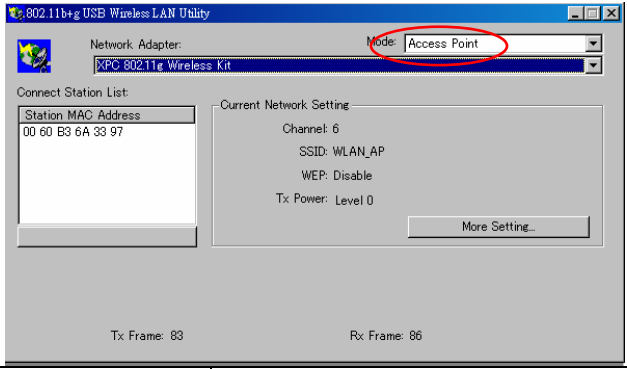
2.8 Access Point

To set your 802.11b/g Wireless Kit as an Access Point (AP). In access point mode, the **802.11b/g Wireless Kit** will function as an access point. This allows you to set up your wireless networks without using a dedicated AP device. Up to 16 wireless stations can associate to the **802.11b/g Wireless Kit.**

To the **802.11b/g Wireless Kit** to bridge your wired and wireless network, the following requirements must be met：

1. The **802.11b/g Wireless Kit** must be installed on a computer connected to the wired network.
2. Either configure network sharing (refer to the appendix for an example) or bridge the two interfaces (wireless and wired) on the computer.
3. Set the wireless station's IP address to be in the same subnet as the computer in which the **802.11b/g Wireless Kit** is installed. Refer to **Configuring the Wireless Station Computer**.

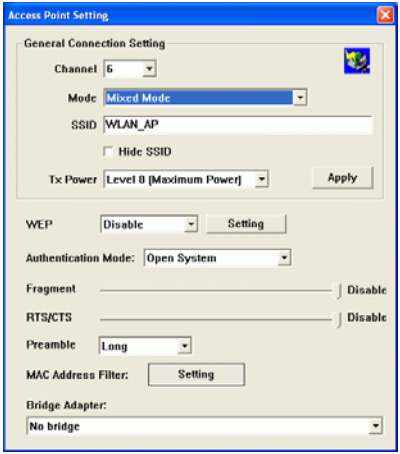
Select the Access Point mode, and you will see the following figure.



Network Adapter	You can select the network adapter from the pull-down menu, it shows the device itself （the 802.11b/g Wireless Kit） and also shows the devices supported by the 802.11b/g Wireless Kit.
Connection Station List	It shows the stations which are now connecting to the AP.
Channel	Shows the selected channel that is currently in use. (There are 14 channels available, depending on the country.)
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. It shows the current SSID setting of the Wireless USB Adapter.
WEP	The WEP function here has been disabled. If you want to change to Enabled, click **More Setting…** to configure.
Tx Power	The Tx power here is configured as Level 0, to change the Tx power, click **More Setting…** to configure.
More Setting…	Click the **More Setting…** button and the following figure will appear for you to configure（Refer to the **More Setting…** part on the next page for more information about this figure.） 
Tx Frame	The quantities for the wireless network card transmit. (Frame: The unit of packet)
Rx Frame	The quantities for the wireless network card receive. (Frame: The unit of packet)

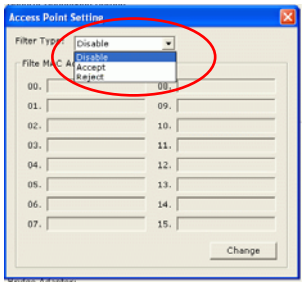
More Setting…



Channel	Shows the selected channel that is currently in use. (There are 14 channels available, depending on the country.)
Mode	Select **Mixed Mode** or **802.11b only**, **802.11b/g only** standard Mode (If you choose this option the device will automatically convert the suitable standard).
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. It shows the current SSID setting of the Wireless USB Adapter.
Tx Power	Select the Tx power from the pull-down menu, there are four levels including **Level 1, Level 2, Level 3 (Minimum).**

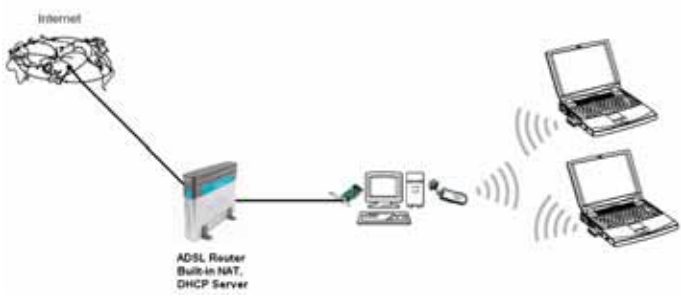
Change or **Apply**	Click Change to set the General Connection Setting. After Completing the setting Click Apply.
WEP	You can select to **Enable** or **Disable** the WEP function by selecting from the pull-down men. Click Setting and the following figure will appear. 
Authentication Mode	Select the Authentication mode from the pull-down menu, there are two modes for you to choose, **Open System** and **Shared Key**.
Fragment	The mechanism of Fragmentation Threshold is used to improve the efficiency when high traffic flows along in the wireless network. If your 802. Wireless LAN Adapter often transmit large files in wireless network, you can enter new Fragment Threshold value to split the packet. The value can be set from 256 to 2346. The default value is **2346**.
RTS/CTS	RTS/CTS Threshold is a mechanism implemented to prevent the "**Hidden Node**" problem. If the "Hidden Node" problem is an issue, users have to specify the packet size. *The RTS/CTS mechanism will be*

	activated if the data size exceeds the value you set.. The default value is **2347**. This value should remain at its default setting of **2347**. Should you encounter inconsistent data flow, only minor modifications of this value are recommended.
Preamble	A preamble is a signal used in wireless environment to synchronize the transmitting timing including Synchronization and Start frame delimiter. Select from the pull-down menu to change the Preamble type into **Long** or **Short**.

MAC Address Filter	Click **Setting** and you will see the following figure. You can select the Filter Type from the pull-down menu. **Disable**：Select to disable the filter function. **Accept**：You can type in 15 MAC addresses by clicking **Change**. If you select Accept, then the MAC address(es) you type in will be connected to the AP. **Reject**：You can type in 15 MAC addresses by clicking Change. If you select Reject, then the MAC address(es) you type in will not be connected to the AP. 
Bridge Adapter	The stations will not be allowed to connect to the internet if you select **No bridge**. The stations will be allowed to connect to the internet if you select the device listed in the pull-down menu.

3. Appendix

3.1 Soft AP Configuration



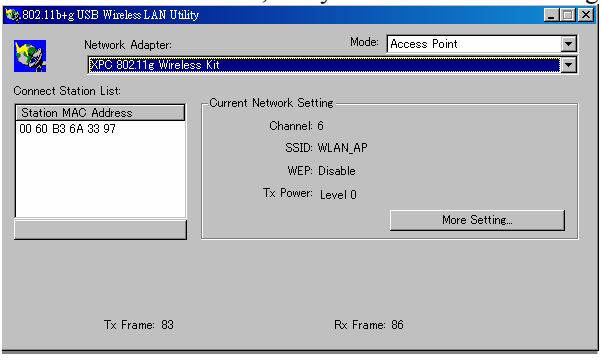
Setup Requirement:

To bridge your wired and wireless network using 802.11b+g Wireless Kit, the following must be met:

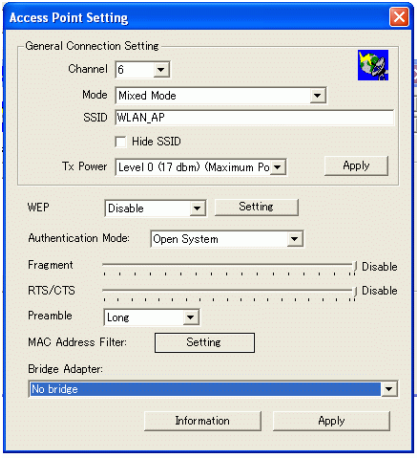
1. Install the 802.11b+g Wireless Kit on the LAN-connected computer.
2. The Soft Access Point should be connected to a network switch, hub or a Broadband Router. Use a standard Category 5 UTP Ethernet cable with an RJ-45 connector to connect the Soft Access Point to one of router, hub, or switch.
3. The computer that you are installing the wireless card into has an Ethernet connection, and is connected to a LAN with a DHCP server.

SoftAP Configuration：

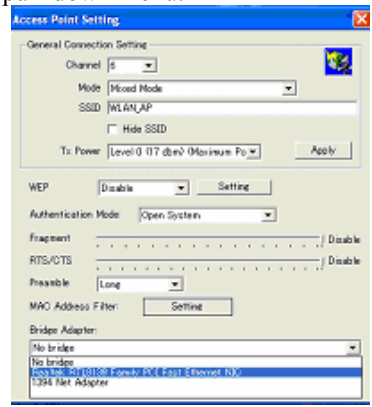
1. Select the Access Point mode, and you will see the following figure



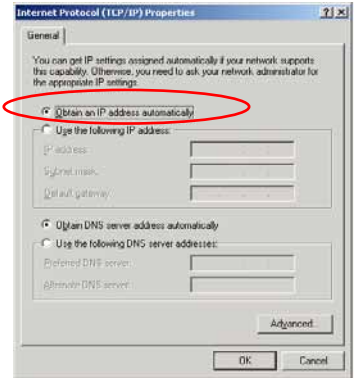
2. Click the **More Setting…** button and the following figure will appear for you to configure

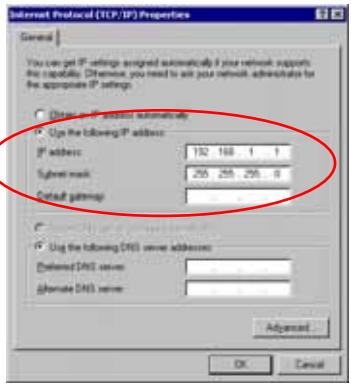


3. Select the wired Network Adapter that has already installed in the PC from the pull-down menu.



4. If the network connected to the wired LAN card has a DHCP server, you just need to configure the wireless station as a DHCP client (select **Obtain an IP address automatically**). If the network does not have a DHCP server, you must assign a fixed IP to the wired PC (select Use the following IP address).





3.2 PN15g Specifications

Product Name	PN15g XPC 802.11b/g Wireless Kit
Model Name	PN15g
Host Interface	Standard USB2.0 Interface
Dimensions	74(W)x23(L)x7.4(H)mm
Weight	5g
Frequency Band	2.4~2.4835GHz(subject to local regulations)
Operating Voltage	5V
Current Consumption	Tx: 350mA/ Rx:250mA / Standby: 10mA
Spreading	OFDM(Orthogonal Frequency Division Multiplexing)
Data Rate	1Mbps, 2Mbps, 5.5Mbps, 6Mbps, 9Mbps, 11Mbps, 12Mbps, 18Mbps, 24Mbps,36Mbps, 48Mbps, 54Mbps,
Transmit Power	11g: 13.5dBm 11b: 16.5dBm
Receive Sensitivity	11Mbps @-82dBm Typical 54Mbps @-70dBm Typical
Modulation	11 Ck(802.11b), BPSK, QPSK, 16-QAM, 64QAM(802.11b/g)
Security	64/128 bit WEP Encrytion, WPA Encryption
Antenna	HIROSE U.FL-R-SMT(10)
Supplied Driver	Windows 98SE/ME/2000/XP
Standards	IEEE 802.11b/g
Media Access protocol	CSMA/CA with ACK
Temperature Range	0~-65° C(Operating), -20~70° C(storage)
Humidity	Max. 95% Non-condensing
Operating Range	Open Space: Up to 400m
Management Utility	Link Configuration for network join and diagnostics
EMC certification	FCC,CE, Japan RF
Warranty	1 year