
User's Guide
for
Shuttle Wireless LAN USB Module

Shuttle®

User's Guide for Wireless LAN USB Module

Manual Version 1.0

FCC Regulation Information

The 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 communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

The equipment is for home or office use.

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1. INTRODUCTION

The 802.11b Wireless LAN USB Module aims to let your XPC quickly and seamlessly communicate with a 802.11b (at up to 11 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 LAN USB Module, surfing on the Internet couldn't be any easier. Simply install the USB Module 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 802.11b Wireless LAN USB Module provides, please read this manual carefully before using it. This module is applicable for: SS51G/ SB51G/ SK41G/ SN41G2/ SB52G2/ SB61G2/ SN45G/ SB75G2.

1.1 Features

With 802.11b Wireless LAN USB Module, 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 encryption
- * enjoy high-speed data transfer rate up to 11 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**

1.2 Package Contents

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

- ✓ One 802.11b Wireless LAN USB Module
- ✓ One Antenna
- ✓ Two Washers
- ✓ One Daughterboard
- ✓ One USB data cable
- ✓ 4 x Screws
- ✓ One Setup Wizard CD-ROM with Installation Guide
- ✓ 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 802.11b Wireless LAN USB Module, your computer must meet the following minimum requirements:

- ✓ 300 MHz processor or higher
- ✓ 32 MB RAM or above
- ✓ A CD-ROM drive
- ✓ Microsoft Windows 98 SE/ Me/ 2000 or Windows XP

1.4 The 802.11b Wireless LAN USB Module

Your 802.11b Wireless LAN USB Module should be located in the USB port on the back panel of your XPC.

2. INSTALLATION OF THE 802.11b WIRELESS LAN USB MODULE

It's free and easy for you to install your 802.11b Wireless LAN USB Module and the attached software - **Shuttle Wireless LAN Tool**. Simply attach the hardware and with a few clicks of the mouse, you will complete the installation. To have the 802.11b WLAN USB Module operated appropriately, please read and follow the instructions below carefully.

2.1 Hardware Setup

Refer to the following steps to arm your XPC with the Module.

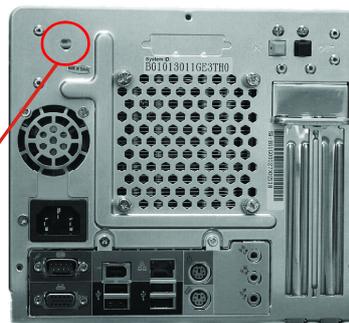
★ **STEP1.**

Remove the case by unfastening the three screws on the back panel.



★ **STEP2.**

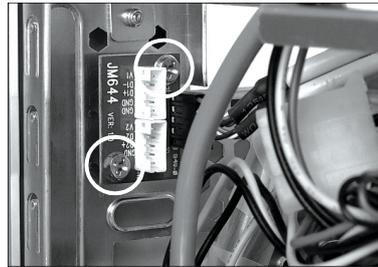
Use a 6mm screwdriver horizontally puncture the reserve hole from outside in. Once the screwdriver can pass through the reserve hole, make sure the cover is completely detached from the chassis.



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

✱ **STEP3.**

Screw the daughterboard to the front chassis, on which there are two locators as shown in the picture below.

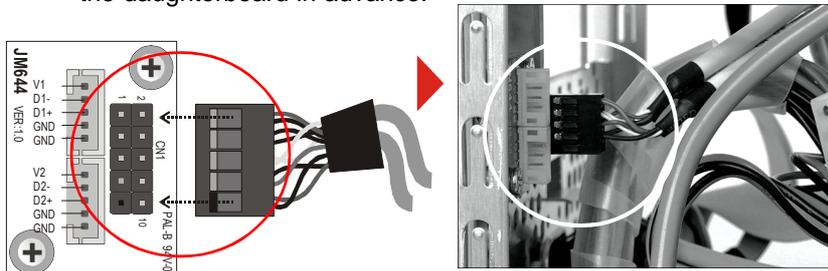


Caution : The white USB sockets should be facing outwards as you install the daughterboard.

Note : For SS51G, SB51G, SK41G, SN45G user, if user has installed the PN21 bluetooth module, use the existing daughterboard and connect the USB interface to the spare slot.

✱ **STEP4.**

Establish a link between the daughterboard and the mainboard with a USB cable by connecting one end of it to the black USB port on the daughterboard in advance.



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

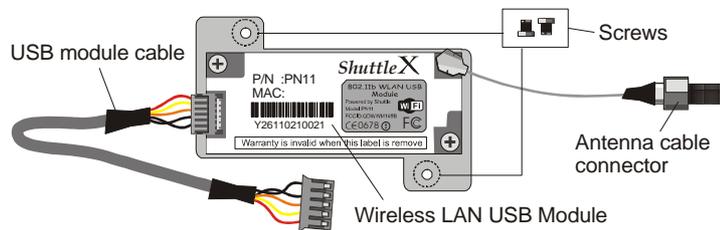
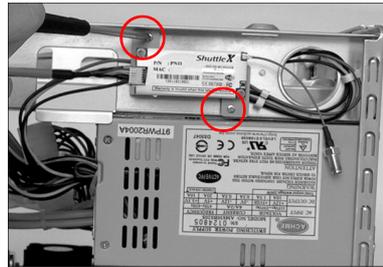
✱ **STEP5.**

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



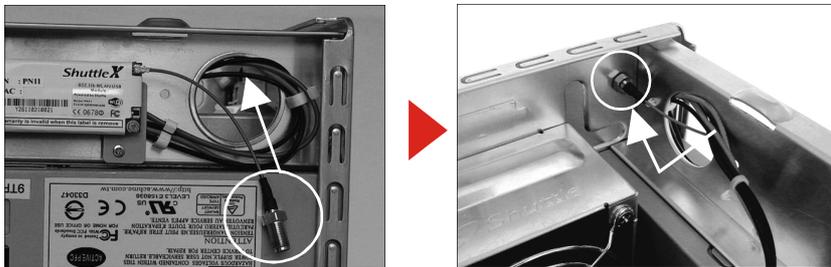
✱ **STEP6.**

Screw the Wireless LAN USB Module to the two holes on the upside of the chassis arm, near the rear of the XPC.

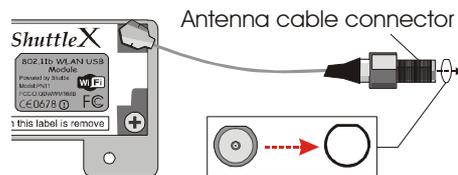


✱ **STEP7.**

Install the antenna cable connector flushly into the back chassis via the side reserve hole.

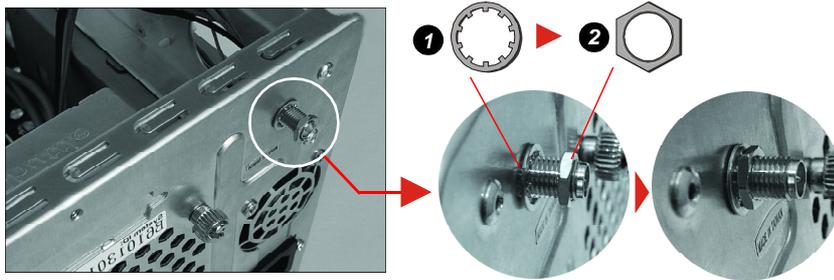


Caution : When inserting the cable connector, check the socket alignment and only push horizontally. **Do not** turning or twist the cable.



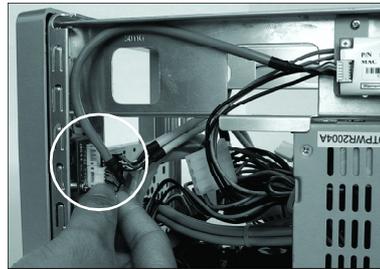
Note : If some difficulty is found while inserting the antenna socket into the reserve hole, make sure the surface is clean. Finally, check the alignment and then use some more force .

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



★ **STEP8.**

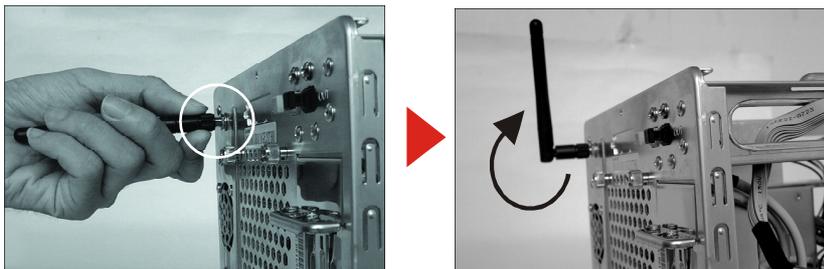
Connect the USB module cable to the daughterboard by attaching one end of the USB cable to either of the two white USB ports on the daughterboard.



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

★ **STEP9.**

Connecting the antenna with header and secure it properly. Adjust the antenna to the vertical position for good reception. Double check if all the connectors are secure properly.

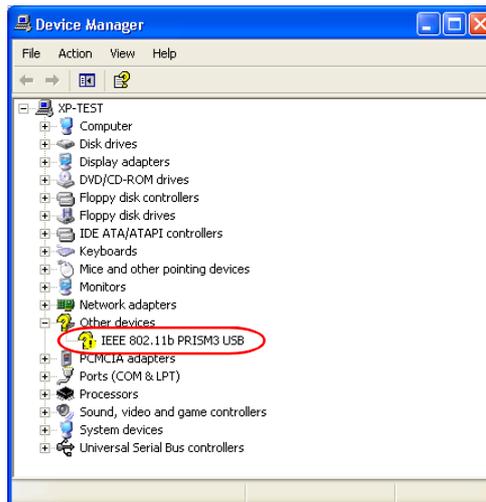


★ **STEP10.** Fasten the case and completed the installation.

2.2 Installation Precaution

Before the installation, please ensure the 802.11b WLAN USB Module has been setup in your XPC. To detect the existence of the Module, please follow the procedures below.

1. Click **Start** on the taskbar and choose **Control Panel** from the **Settings** menu.
2. Select **System** to open the **System Properties** dialog box, and then under the **Hardware** tab, click the **Device Manager** button to open the **Device Manager** dialog box.
3. Double-click **Other devices** from the list to display the item - **IEEE 802.11b PRISM3 USB**, and this presents the existence of your 802.11b WLAN USB Module.



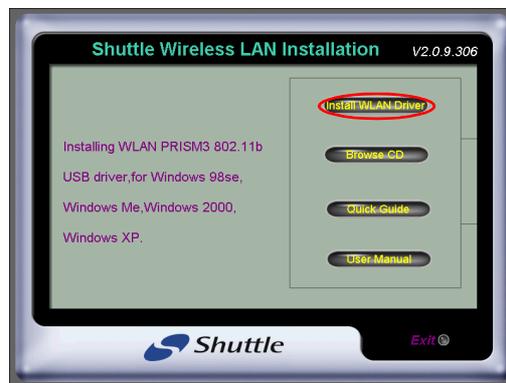
The Device Manager Dialog Box

Now you may proceed with the next topic to start installing the drivers for the module.

Note : *If you don't find the module, please turn off the XPC and replug the module, or contact your dealer immediately.*

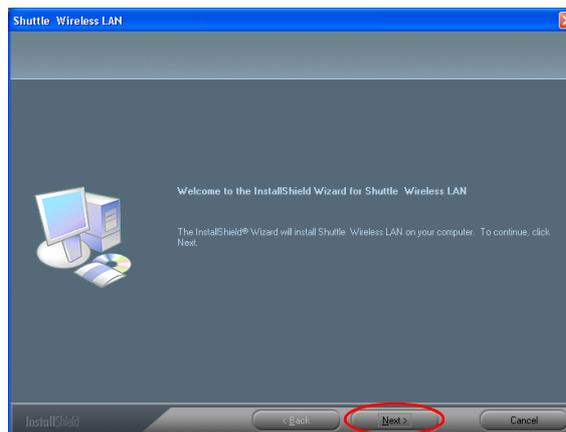
2.3 Installing the WLAN Driver

- a) Insert the supplied CD into your CD-ROM drive, and open Utility \Wireless LAN folder to run **AutoRun.exe**.
- b) From the prompted startup window, choose **Install WLAN Driver** to begin the installation.



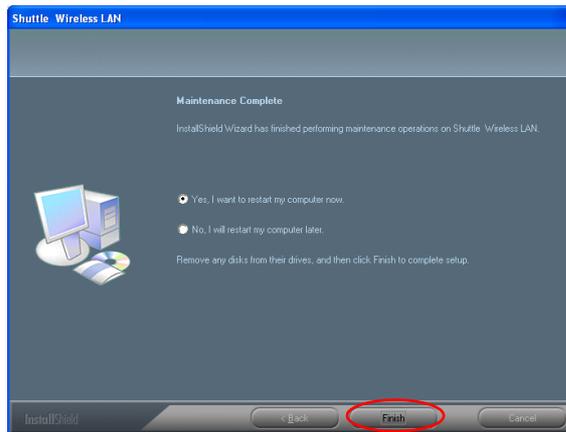
The Startup Window

- c) Click **Next** in the **Shuttle Wireless LAN** window to proceed. The system will start to copy the drivers found.



The Shuttle Wireless LAN Window

-
- d) On the **Maintenance Complete** screen, choose **Yes, I want to restart my computer now**, and then click **Finish** to restart the computer.



The Maintenance Complete Screen

Note : *Instead, if the system displays the **Update WLAN Driver Failed** message box, click **OK**, and then refer to the last topic - **Installation Precaution** for more details.*

- e) After rebooting, you shall find the **Shuttle Wireless LAN**  icon appearing in the system tray. The installation is entirely finished at the moment. Double-click the icon to launch the application and open the **PRISM Wireless Settings** dialog box, in which you may freely arrange your network connection afterwards.

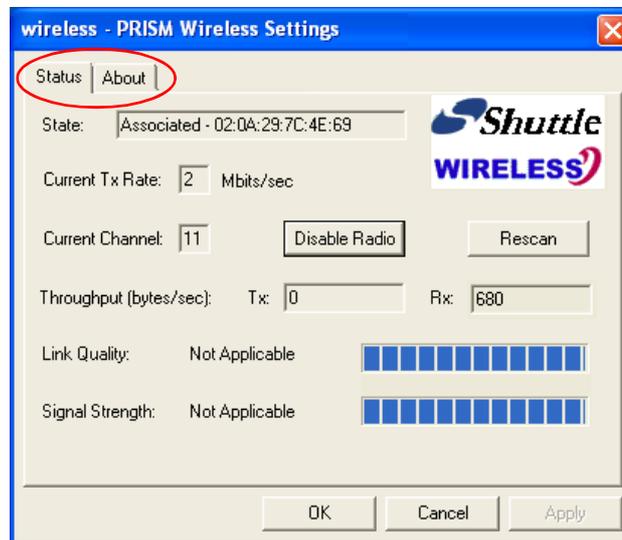
For more details about **Shuttle Wireless LAN**, please refer to **Shuttle Wireless LAN Basics** in this manual.

2.4 Installation Notes - Windows XP

If your current system is running Windows XP, you shall find that two tabs are contained in the **PRISM Wireless Settings** dialog box after you've followed the instructions above and successfully installed the drivers. However, normally, the dialog box should consist of five tabs. This is because Windows XP has its built-in configuration tools – **Windows XP Zero Configuration** to assist you in networking activities. It is recommended to utilize the attached **Shuttle Wireless LAN** to enjoy the maximum benefits it can bring. Thus, to employ your **Shuttle Wireless LAN** under Windows XP, please proceed to the next step to change the default settings of **Windows Zero Configuration** to **Shuttle Wireless LAN**.



The Shuttle Wireless LAN Tray Icon



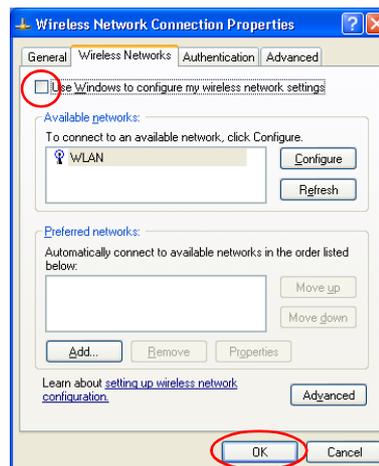
The PRISM Wireless Settings Dialog Box

- a) Right-click the **Network Connections** icon on the task bar to open the **Wireless Network Connection Status** dialog box, then select **Properties**.



*The **Wireless Network Connection Status** Dialog Box*

- b) Choose the **Wireless Networks** tab in the **Wireless Network Connection Properties** dialog box, and remove the tick from the **Use Windows to configure my wireless network settings** checkbox.



*The **Wireless Network Connection Properties** Dialog Box*

- c) Click **OK**. Now, you have successfully removed the **Windows Zero Configuration**.

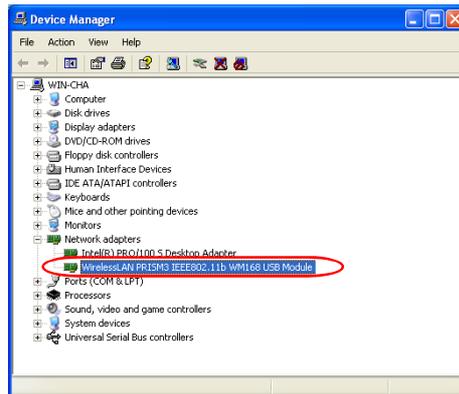
To monitor and configure the network via **Shuttle Wireless LAN**, double-click its tray icon, and you shall find four tabs contained in the popped up **PRISM Wireless Settings** dialog box this time. For more information on **Shuttle Wireless LAN**, please refer to **Shuttle Wireless LAN Basics** below.

2.5 Verifying a Successful Installation

To confirm that your 802.11b Wireless LAN USB Module is properly installed, please follow the procedures below.

1. Right-click the **My Computer** desktop icon and choose **Properties** from the opened menu.
2. In the **System Properties** dialog box, choose **Device Manager** if you are under Windows 98 or Me. If you are operating Windows 2000 or XP, click the **Hardware** tab, and then choose the **Device Manager** button.
3. In the opened window, expand **Network adapters** to find the USB Module - **WirelessLAN PRISM3 IEEE802.11b WM168 USB Module**. Right-click on the item and choose **Properties**.
4. From the opened dialog box, on the **General** tab, find the descriptions under the **Device Status** panel to learn if the module is working properly. However, if there's an error message shown, right-click the USB Adapter item and choose **Uninstall** from the opened menu, to which a red or yellow icon is attached beside, in the **Device Manager** dialog box. Then restart your system and go through the installation procedures again.

The following picture indicates a successful installation of the 802.11b Wireless LAN USB Module.



The Device Manager Dialog Box

3. CONFIGURATION FOR WINDOWS XP

As you already know, Windows XP has its built-in configuration tools – **Windows XP Zero Configuration**, to assist you in some basic configurations of wireless network connection. The service starts right after the completion of the installation of 802.11b WLAN USB Module, and you will find the icon automatically appears in your system tray like the following picture shows.

*The **Wireless Network Connection** Icon*

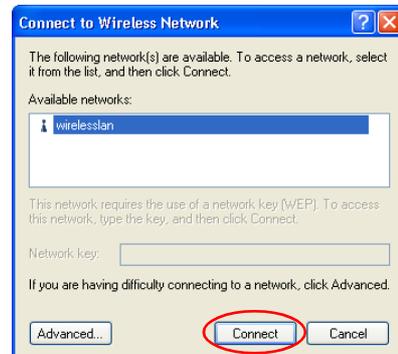


Please refer to the desired topics below to look for more details about utilizing your 802.11b WLAN USB Module via **Wireless Zero Configuration**.

3.1 To Connect an Available Network via Wireless Zero Configuration

1. Double-click the **Wireless Network Connection** icon.
2. In the opened **Connect to Wireless Network** dialog box, the currently available networks are listed in the **Available networks** field. From the list, choose an item that you intend to connect with.

3. If the chosen entry requires a WEP encryption key and also automatically provides it, leave the **Network Key** field blank and then choose the **Connect** button to build the connection. Otherwise, you will need to manually enter the identical key in the **Network Key** field before clicking **Connect**.



*The **Connect to Wireless Network** Dialog Box*

4. If the connection is established, there will be a pop-up message shown beside the **Wireless Network Connection** icon on the system tray. You could obtain the information on the status of connection from the message.

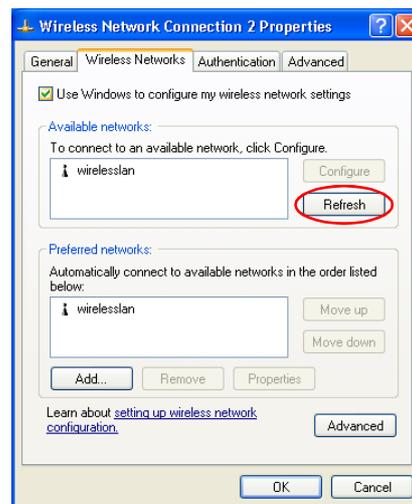
3.2 To Configure the Wireless Networks Properties

If you cannot establish a connection with the chosen entry or you wish to configure further wireless network connection settings, choose the **Advanced** button in the **Connect to Wireless Network** dialogue box.



The **Connect to Wireless Network** Dialog Box

After clicking **Advanced**, you will enter into the **Wireless Networks** tab of the **Wireless Network Connection Properties** dialog box, in which three other tabs are found, including **General**, **Authentication**, and **Advanced**. The **Wireless Networks** tab includes almost the main settings for the networking connection. Thus, please check the descriptions below to learn more about the tab.



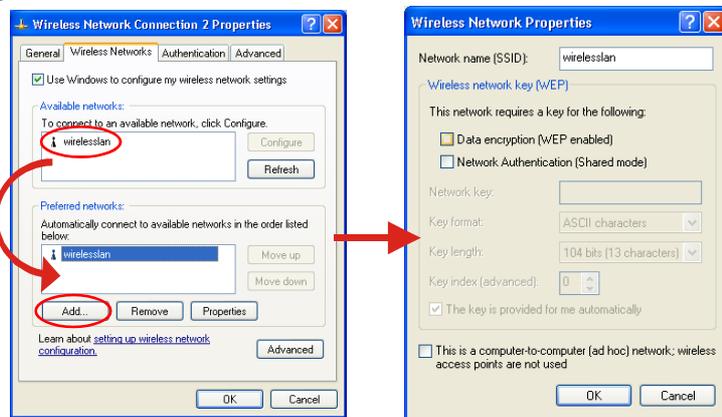
The **Wireless Network Connection Properties** Dialog Box

Note : For more detailed information about each tab, please refer to *Windows XP Online-Help*.

The **Wireless Networks** tab chiefly consists of two sections: **Available networks** and **Preferred networks**.

* Under the **Available networks** area, all the available access points or Wireless LAN PC Card equipped computers are displayed. You may wish to click **Refresh** to update the list. If you choose any listed item in the field and then click **Configure**, the **Wireless Network Properties** dialog box will appear as Figure 3-5 shows. Check the description below the figure to obtain more information about the dialog box.

* In the **Preferred networks** area, you could add any displayed networks to the list by clicking over the intended item from **Available networks** and then selecting the **Add** button. After clicking **Add**, the **Wireless Network Properties** dialog box will appear as Figure 3-5 displays. Note that to delete any item under the **Preferred networks** area, simply click on it and then select the **Remove** button. Additionally, you may adjust the items in the list by clicking the desired item and then choosing the **Move up** or **Move down** button. It is, however, important to realize that Windows XP will always choose the first one in the list to establish the networking connection.

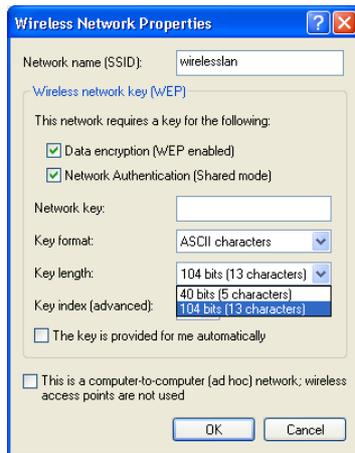


The **Wireless Network Properties** Dialog Box

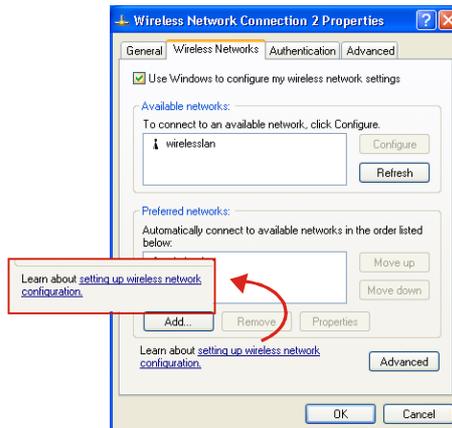
Note: Once you choose an item from the **Preferred networks** list and then click **Properties**, the **Wireless Network Properties** will also be affected.

* In the opened **Wireless Network Properties** dialog box, edit texts in the **Network Name (SSID)** field to identify the chosen network entry in the wireless LAN.

* If there's a need, go to the **Wireless network key (WEP)** area below to set the keys as the associated access point or Wireless LAN PC Card equipped computer requests. To set WEP, select **Data encryption (WEP enabled)** and **Network Authentication**. Then enter the encryption keys for the network you intend to connect in the **Network Key** field. Meanwhile, the **Key format** and **Key length** options change the settings according to **Network Key** string you just typed. Click **OK** when you are finished, and you will return to the **Wireless Network Connection Properties** dialog box.



Enter WEP

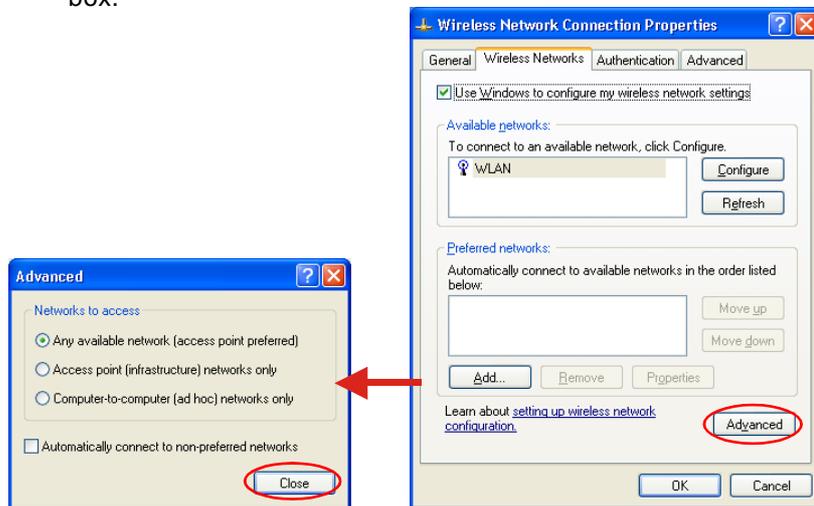


Setting up wireless network configuration

Note: For more details on this tab, you may click the link: **setting up wireless network configuration** at the bottom of the **Wireless networks** tab to launch the Windows XP Online-Help.

3.3 Access to Specific Wireless Network Types

The default network type of **Windows XP Zero Configuration** is any available access points (Access Point mode) or WLAN Card equipped computers (Ad-Hoc mode) within the range at the given time. However, you may wish to connect to a certain network type sometimes. To change the default settings, click the **Advanced** button in the **Wireless Network Connection Properties** dialog box.



The **Advanced** Dialog Box

The **Advanced** dialog box provides three options, **Any available network**, **Access point networks only**, and **Computer-to-computer networks only**. Choose one of them according to your need and click **Close** to finish. Then you will find under the **Available networks** area in the **Wireless Network Connection Properties** dialog box, only the specified networks are displayed.

Note: If you wish to use the attached application –**Shuttle Wireless LAN** of the 802.11b WLAN USB Module instead of Windows XP's **Wireless Zero Configuration**, please refer to **2.3 Installation Notes –Windows XP** in this manual to change the settings.

4. SHUTTLE WIRELESS LAN BASICS

After successfully installing the driver for your 802.11b Wireless LAN USB Module on your computer, you may see the **Shuttle Wireless LAN** icon , displayed in the system tray. To set configurations for your USB Module, double-click the icon to open the **PRISM Wireless Settings** dialog box, in which five tabs are contained, including **Status**, **Configuration**, **Encryption**, **Site Survey**, and **About**. Each of them offers different functions to assist you in configuring the network connections.

In this chapter, three topics are offered: **Tray Icon**, **Right-Click Menu of the Tray Icon**, and **Program Controls**. Please refer to the preferred topic to obtain more information and enjoy vast advantages **Shuttle Wireless LAN** brings.

4.1 Tray Icon

As long as you finish installing **Shuttle Wireless LAN** on your computer system, you will see the **Shuttle Wireless LAN** icon  shown on the bottom right corner of your screen. When you move the mouse cursor over it, the information on the current link quality is provided in the tips.

Furthermore, the color of the icon varies with the current state of your network connection. Check the list below to learn the definition of each color.

Icon	Quality
	Excellent Link Quality (Green)
	Data Frame Errors – Check WEP Settings (Blue)
	Fair Link Quality (Green/Yellow)
	Poor Link Quality or Not Linked (Yellow)
	Radio Off (Red)

Note: The blue icon indicates that you might have entered incorrect WEP keys. To solve the problems, choose the **Configuration** tab in the **PRISM Wireless Settings** dialog box to correct the keys for encryption.

4.2 Right-Click Menu of the Tray Icon

Right-clicking the **Shuttle Wireless LAN icon**  in the system tray will open a menu:



Right-Click Menu of the Tray Icon

Check the descriptions below to obtain detailed information about each command in the menu.

Wireless Radio On

Used to receive the radio frequency signal.

Wireless Radio Off

Used to stop receiving the radio frequency signal.

Remove Status Icon

If you don't wish to have the **Shuttle Wireless LAN** icon displayed in the system tray, choose this command to open the **Remove Wireless Status Icon** dialog box, and then choose **Yes** to have the icon disappeared. The icon will reappear next time when you restart the computer. If you intend to remove it permanently, put a tick in the checkbox next to the **Remove Status Icon Permanently** option.

To launch **Shuttle Wireless LAN** hereafter, click **Start** on the taskbar, choose **Program** from the menu, and then point to **Configuration Tool** from the submenu of **Shuttle Wireless-LAN Tools**. Clicking **No** will undo the removal.



*The **Remove Wireless Status Icon** Dialog Box*

🔑 Wireless Network Status

Choose this command to launch the **Status** tab of the **PRISM Wireless Settings** dialog box. For more details about the tab, please refer to **The Status Tab** in **Program Controls** section below.

🔑 Advanced Configuration

Choose this command to launch the **Configuration** tab of the **PRISM Wireless Settings** dialog box. Please refer to **The Configuration Tab** in **Program Controls** section below to gain more information about the tab.

🔑 WEP Encryption

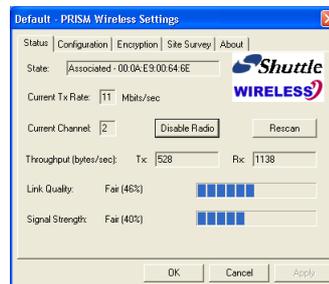
Choose this command to launch the **Encryption** tab of the **PRISM Wireless Settings** dialog box. This tab offers you various options to maintain the secure management in a wireless LAN environment. See the explanations in **The Encryption Tab** of **Program Controls** section below for more details.

🔑 Version Information

Choosing this command will launch the **About** tab of the **PRISM Wireless Settings** dialog box. The **About** tab reveals general information on your USB Module, including the release version of driver and the **Shuttle Wireless LAN** and the module's MAC Address.

4.3 Program Controls

When you double-click the **Shuttle Wireless LAN** tray icon, the **PRISM Wireless Settings** dialog box will be prompted as the picture shows. The application is a window-based program, which consists of five tabs, including **Status**, **Configuration**, **Encryption**, **Site Survey**, and **About**.



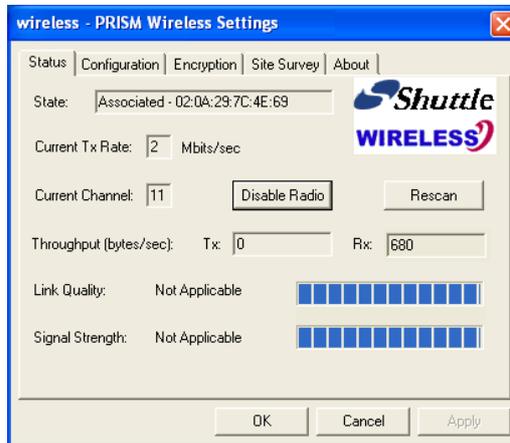
The **PRISM Wireless Settings** Dialog Box

These five tabs are respectively described as follows:

 **The Status Tab**

In the **PRISM Wireless Settings** dialog box, click the **Status** tab to show the following display. This presents the status of your current connection. To close the window, click **OK**.

Note: Choosing the **Wireless Network Status** command from the right-click menu of **Shuttle Wireless LAN** tray icon will also launch this tab.



The Status Tab

Note: The text before "PRISM Wireless Settings" in the caption bar of the dialog box is the profile name of the current connection. Thus, the caption text may vary according to the connectivity at the given time. From the above picture, the associated profile is named "**wireless**".

From the window, general information about the status of current connection entry is displayed. You may want to click the **Rescan** button to reinitiate the scanning process and update the status. Later the result of scanning will be renewed and displayed in the window. If you wish to stop the networking connection, click the **Disable Radio** button to stop scanning. However, if you are already in the disabled radio mode, you will find the **Enable Radio** button here instead. Click **Enable Radio** to regain the link.

➤ **State**

Displays the MAC Address of the current associated entry, which could be a connected access point in the Infrastructure mode or computers joining in the Ad-Hoc network.

➤ **Current Tx Rate**

This feature indicates the transmission rate of the current connection.

➤ **Current Channel**

Here reveals the current channel operated in the wireless network. Note that the channel number differs as the radio scans any available channels in the Infrastructure mode.

➤ **Throughput (bytes/sec)**

This feature indicates the rates of transmitting (**Tx**) and receiving (**Rx**) data with your WLAN USB module within a short period of time; thus, the values vary on a time basis.

➤ **Link Quality**

Link Quality is based on the percentage of successfully transmitted or received signal of the associated access point beacon within a limited period. The higher the percentage, the better the link quality. The bar graph also provides a visual interpretation of the current link quality. It is noted that the **Link Quality** and **Signal Strength** features only apply to the Infrastructure mode. They are inapplicable to the Ad-Hoc mode since data will be transferred from many different computers.

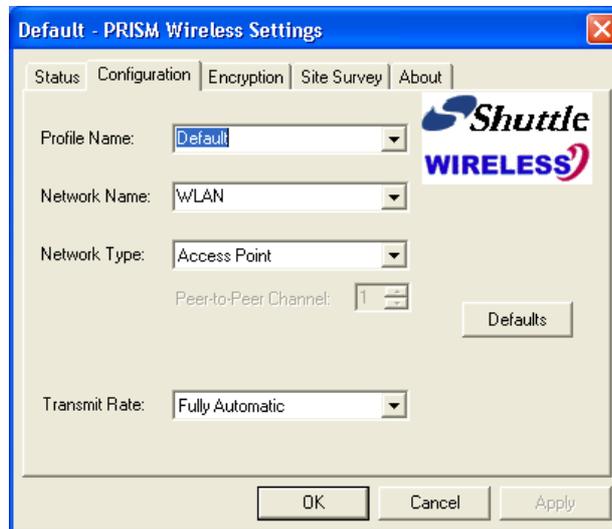
➤ **Signal Strength**

You may learn the received signal strength of the baseband processor beacon signal from the Signal Strength bar and it's also presented in terms of percentage. As the signal gets stronger, the signal percentage rate gets higher. It is noted that the **Signal Strength** and **Link Quality** features only apply to the Infrastructure mode. They are inapplicable in the Ad-Hoc mode since data will be transferred from many different computers.

The Configuration Tab

Click this tab to edit different profiles for different network configurations. After changing the settings, please click **Apply** to access the new configuration.

Note: Choosing the **Advanced Configuration** command from the right-click menu of **Shuttle Wireless LAN** tray icon will also launch this tab.



The Configuration Tab

➤ **Profile Name**

Enter texts in the **Profile Name** field to identify a new profile. After defining the configurations below, click the **Apply** button to establish the profile. To switch between any existing profiles, click the arrow button to the right of the **Profile Name** field to open the pull-down menu and then select an intended one from it.

Note: You will have at least one profile named **ANY**, which allows a link with any Access Point or a Wireless LAN PC Card equipped computer at the given time. When you click the **Defaults** button under the tab, a profile of the current connection is created.

➤ **Network Name**

Network Name, also known as SSID (Service Set Identifier), must be unique to distinguish itself as a particular wireless network, while all wireless points in this network area share the same SSID. Type the identical SSID in the **Network Name** field to associate with access points or stations within the specified wireless LAN. To change the **Network Name**, highlight the name in the box, edit a new SSID, and then click **Apply** to save the changes.

➤ **Network Type**

Two network types are offered here: **Access Point** and **Peer-to-Peer**. Choose the intended type from the two options. The **Access Point** mode, which is also known as the Infrastructure mode, allows you to communicate with a wired network via an access point. If you attempt to operate this mode, you must indicate the identical **Network Name** to make a communication with the intended access point. On the other hand, the **Peer-to-Peer** mode provides you with the so-called Ad-Hoc communication, which means each wireless-equipped computers within a group is able to connect with each other as an independent wireless LAN without the use of an access point. Each station within this Ad-Hoc network has to define the same **Network Name**.

➤ **Peer-to-Peer Channel**

This command is only available while you are operating the **Peer-to-Peer** mode, the so-called Ad-Hoc mode. Specify the operating radio frequency channel from the pull-down menu if you are the creator of the wireless network. If you are the joiner, just configure the SSID and click **Apply**. Note that the available channels differ from country to country, and the channel number must be the same between the entries/stations within the range, so that each can communicate with each other. While in the **Access Point** mode, the channel number would be the same as the associated access point. Thus, there's no need to manually set up the value.

➤ **Transmit Rate**

This command allows you to indicate the rate of transferring the data packet from the associated access point or any nodes within

the range. There are four options for you: **Auto 1 or 2 Mb**, **5.5 Mb**, **11 Mb**, and **Fully Automatic**. Specify the rate from the provided options according to the speed of your wireless network, or you may simply choose **Fully Automatic** to set the best available rate according to the received signal quality and the capabilities of the associated access point or station.

The Encryption Tab

Click the **Encryption** tab to define the encryption settings for a specific profile. It offers you various options concerning the so-called WEP (Wired Equivalent Privacy) to maintain the secure management in a wireless LAN environment. See the explanations below for more details, and before making an activation of any new settings, click **Apply**. To leave the window, click **OK**. To undo the new settings, select the Cancel button.

Note: Choosing the **WEP Encryption** command from the right-click menu of **Shuttle Wireless LAN** tray icon will also launch this tab.



*The **Encryption** Tab*

➤ **Encryption (WEP security)**

If you choose **Disabled** from the pull-down list, you will have the wireless module communicating with all stations within the same

networking community without any data encryption. Otherwise, two key lengths are offered: **64 bit** and **128 bit**. Specify a preferred one from the two, so that you may use the identical WEP key to make a communication with the chosen access point.

➤ **Create Key Manually**

Once you set the **Encryption** type as **64 bit** or **128 bit**, you may choose to edit WEP keys manually or create them via the passphrase of your wireless network. If you choose the **Create Key Manually** option, you may directly enter up to 4 WEP keys for use in WEP encryption. To generate the WEP keys, please define the key entry method as **Alphanumeric** or **Hexadecimal** (for hexadecimal characters, only digits 0-9 and letters A-F are valid). Then edit the texts in the blank fields below, from **Key 1** to **Key 4**, as the encryption codes. Note that these codes/keys shall be identical between the wireless nodes within the range and the access point only. Check the table below to find valid key length of each encryption type:

	64 bit	128 bit
Alphanumeric	5 characters	13 characters
Hexadecimal	10 digits	26 digits

➤ **Use WEP Key**

Indicate which WEP key you intend to apply to activate the WEP encryption from the pull-down menu. Make sure that the intended access point on the wireless network shares the same keys. By default, **Key 1** will be used.

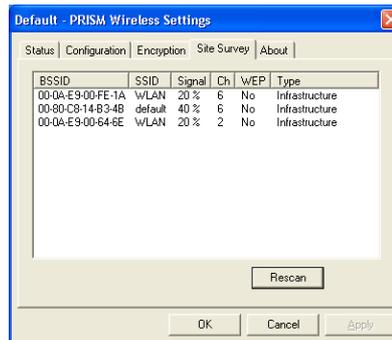
➤ **Create Keys with Passphrase**

Choose this command when the associated wireless network uses a passphrase to create WEP keys. Enter the **passphrase** string in the Passphrase field to generate four encryption keys in the Key fields above. Note that only letters A-F are valid for the **Passphrase** feature.

After finish configuring the **Encryption** features, remember to click the **Apply** button to initiate the new settings.

The Site Survey Tab

Choose this tab to learn general information on the status of current scan lines, including BSSID, SSID, signal strength, the channel number, WEP type, and network type. You may want to select the **Rescan** button to reinitiate the scanning process and update the list. The result of scanning will be renewed and displayed afterwards. In addition, if you double-click any of the displayed entries, you may directly make an association with it, and you will be led to the **Status** tab.



The Site Survey Tab

The About Tab

This tab reveals general information on your wireless LAN USB Module, including the following items:

➤ **Network Driver**

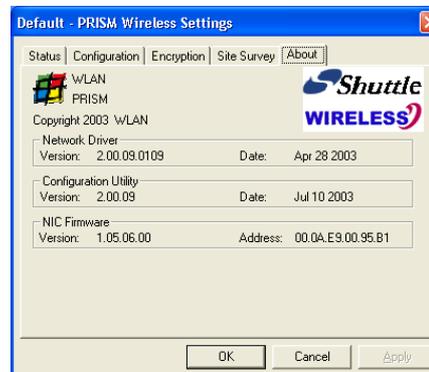
Displays the current version and released date of the 802.11b Wireless LAN USB Module's driver.

➤ **Configuration Utility**

Displays the current version and released date of the **Shuttle Wireless LAN** application.

➤ **NIC Firmware**

Displays the current NIC card firmware version and the MAC (Media Access Control) address of your wireless card. It consists of 12-digit hexadecimal numbers (48 bits in length) to identify your computer's physical address on the local area network.



The About Tab

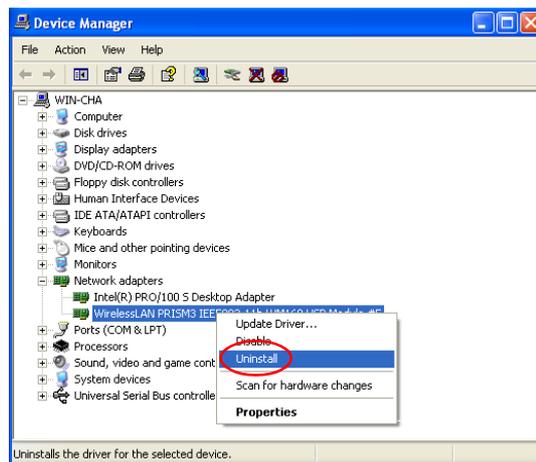
APPENDIX A: TROUBLESHOOTING

This section provides solutions to problems that you might encounter during the installation and operation of your 802.11b WLAN USB Module. Please refer to the desired topics below and read the description to solve your problems.

Uninstall Shuttle Wireless LAN and the Module's Driver

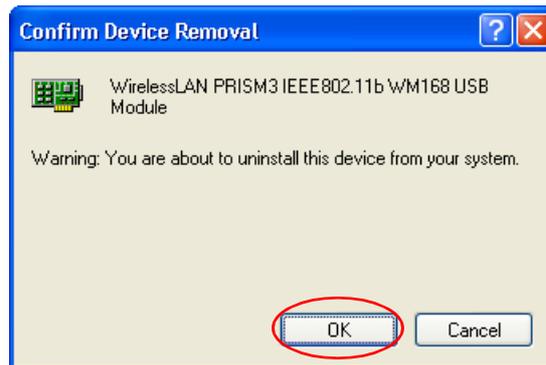
Prior to starting the uninstalling process, please make sure that **Shuttle Wireless LAN** is closed, and then follow the procedures below to entirely uninstall **Shuttle Wireless LAN** and the module driver.

1. Right-click the **My Computer** desktop icon and choose **Properties** from the opened menu.
2. In the **System Properties** dialog box, choose **Device Manager** if you are under Windows 98 or Me. If you are operating Windows 2000 or XP, click the **Hardware** tab, and then choose the **Device Manager** button.
3. In the opened window, expand **Network adapters** to find the USB Module - **WirelessLAN PRISM3 IEEE802.11b WM168 USB Module**. Right-click the item and choose **Uninstall** from the opened menu.



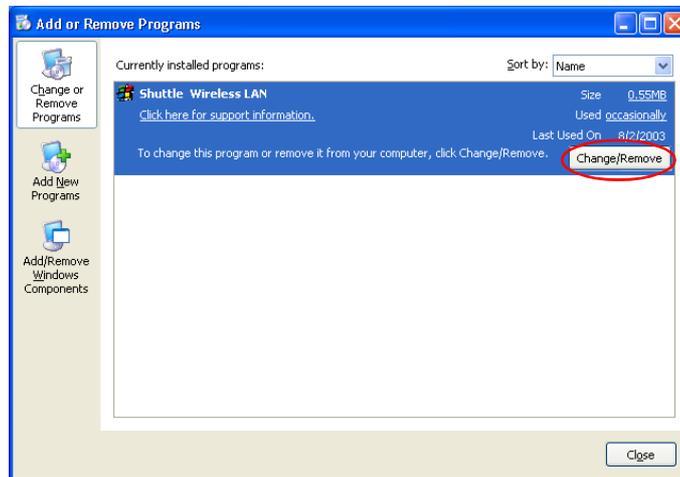
The Device Manager Dialog Box

-
- In the **Confirm Device Removal** message box, click **OK** to proceed with the removal of the hardware.



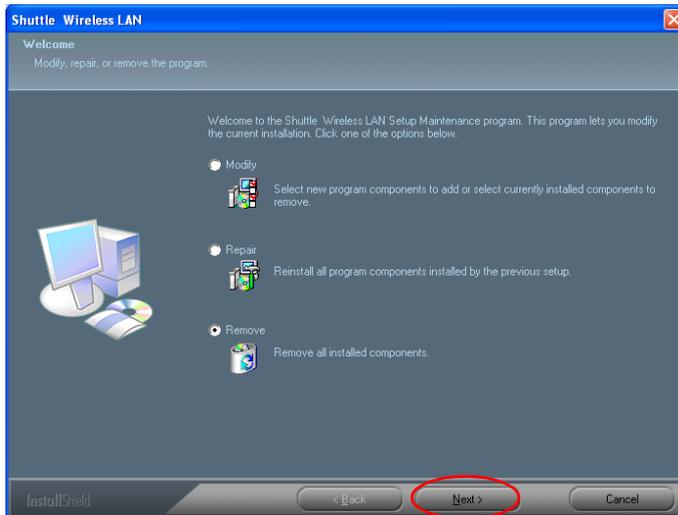
The Confirm Device Removal Message Box

- Click **Start** on the taskbar and choose **Control Panel** from the **Settings** menu.
- Select **Add or Remove Programs** to open the dialog box as shown below.



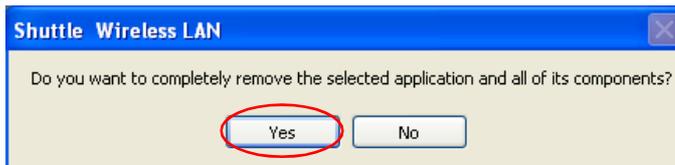
The Add or Remove Programs Dialog Box

-
7. Click the **Change/Remove** button under **Shuttle Wireless LAN**.
 8. In the prompted **Shuttle Wireless LAN** window, choose the **Remove** option to uninstall the program. Then click **Next**.



The Shuttle Wireless LAN Window

9. After choosing **Yes** when the following message box appears, the removal is entirely completed.



The Shuttle Wireless LAN Message Box

The 802.11b WLAN USB Module Does Not Work Properly

If this happens, follow the guidelines below.

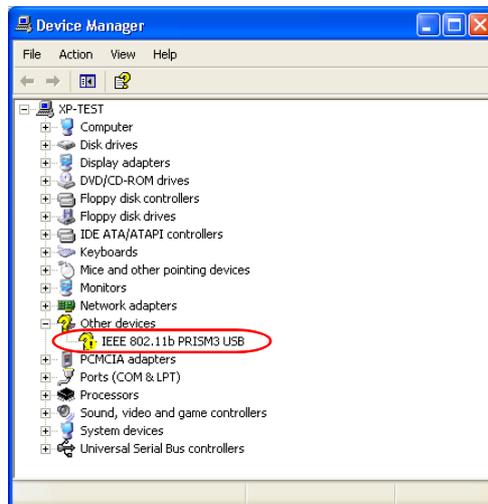
1. Right-click the **My Computer** desktop icon and choose **Properties** to open the System Properties dialog box.
2. If you are under Windows 98SE or Me, choose the **Device Manager** tab, or if your system is Windows 2000 or XP, click the **Hardware** tab and then choose the **Device Manager** button.
3. In the opened window, find your USB module to see if the installation is successful. If you see a yellow exclamation mark beside the item, continue with the steps below to reinstall the drivers.
4. Uninstall the software and hardware drivers from your PC. (Please refer to the previous topic for details)
5. Restart your computer and repeat the installation procedures as indicated in this chapter in this manual: **Installation of the 802.11b Wireless LAN USB Module**.
6. When finished, open the **Device Manager** window again to verify if the installation is approved. The yellow exclamation mark should be removed for this time.

Upgrade Shuttle Wireless LAN and the Module's Driver

To upgrade the drivers for **Shuttle Wireless LAN** and the 802.11b Wireless LAN USB Module, follow the procedures below. Please note that the details might be slightly different according to the Windows system you are using. Here we are taking the example of Windows XP.

1. Click **Start** on the taskbar and choose **Control Panel** from the Settings menu.
2. Select **System** to open the **System Properties** dialog box, and then under the **Hardware** tab, click the **Device Manager** button to open the **Device Manager** dialog box.

3. Double-click the **Other devices** item in the list to show the **IEEE 802.11b PRISM3 USB** icon, which is displayed with a yellow icon beside. Right-click the icon and choose **Update Driver** from the opened menu.



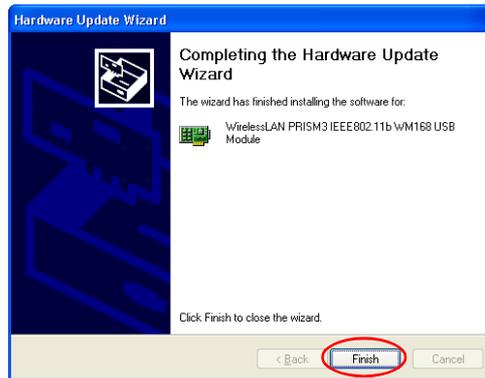
The Device Manager Dialog Box

4. In the **Hardware Update Wizard** dialog box, choose **Install the software automatically [Recommended]** and then click **Next** to continue.



The Upgrade Device Driver Wizard Dialog Box

-
5. In a few seconds, you will see the following dialog box appear. Click **Finish** to end up the upgrade.



*The **Complete** Screen*

Reset the Country Selection

Since every country or region has a regulatory body that governs the use of radio channels, once you go abroad with your XPC, you may have to reset the country channel for the 802.11b WLAN USB Module to retain the Internet connection.

Thus please follow the procedures below to redefine the channel:

1. Click **Start** on the taskbar and choose **Shuttle WirelessLAN Tools** from the **Programs** menu.
2. Select **Country Selector** to open the **Country Selector** dialog box.
3. Choose the country you are currently in from the **Country Name** drop-down list.
4. Click the **APPLY** button to activate the new settings.
5. In the prompted message box, click **OK** to ensure the rearrangement. In a few seconds, the resetting will have been done.



*The **Country Selector** Dialog Box*

APPENDIX B: SPECIFICATIONS

Product Name	802.11b 11 Mbps WLAN USB Module
Model Name	WM168b
Host Interface	Std. USB 1.1 I/F
Dimensions	25 (W) x 60 (L) x 4.3 (H) mm
Weight	7.5g
Frequency Band	2.400 ~ 2.4835GHz (subject to local regulations)
Number of Channel	11 channels (US, Canada); 13 channels (ETSI); 14 channels (Japan)
Operating Voltage	3.3 ± 5%
Current Consumption	Tx: 300mA / Rx: 285mA / Standby: 38mA / Sleep: < 1mA
Spreading	DSSS (Direct Sequence Spread Spectrum)
Data Rate	11Mbps, 5.5Mbps, 2Mbps, 1Mbps
Transmit Power	Typ. 15 dBm @ Nominal Temperature Range
Receive Sensitivity	11 Mbps @ -82 dBm, Typical
Modulation	11Mbps and 5.5Mbps CCK; 2Mbps: DQPSK; 1Mbps: DBPSK;
Security	64/128 bit WEP Encryption
Antenna	Two GSC Type RF Connector
LED Indicator	Defined By I/F Pin No. 5
Supplied Driver	Windows 98SE/2K/Me/XP
Standards	IEEE 802.11b Wi-Fi compliant
Media Access Protocol	CSMA/CA with ACK
Warranty	1 year
Temperature Range	0 ~ 65°C (Operating), -20 ~ 70°C (Storage)
Humidity	Max. 95% Non-condensing
Operating Range	Open Space: 100m - 300m; Indoor: 40m - 100m The transmission speed varies in the surrounding environment.
Roaming	Full mobility and seamless roaming from cell to cell and across access points
Network Protocol	TCP/IP, IPX, NetBEUI
Management Utility	Link Configuration for network join and diagnostics
Software Certification	WHQL
EMC certification	FCC, CE
Packaging	Customer Define
CIS	Customer Define

APPENDIX C: GLOSSARY

802.11b – 802.11b is one of the IEEE standards for wireless LANs and specifies a data transfer rate of 5.5 up to 11 megabit per second in the 2.4 gigahertz radio band. 802.11b is also known by other widespread names such as Wi-Fi or Wireless Fidelity.

➤ **Ad-hoc Network**: Ad-hoc network, also known as peer-to-peer network, means a wireless network which is composed only of stations. This type of network is created with a group of wireless-equipped computers. With each computer functioning as a server and a client at the same time, wireless devices can establish a LAN to directly communicate with other computers without any access points involved. It is easy to set up a peer-to-peer network; however, because all stations must be within a specific distance in order to be capable of communicating with each other, it is also limited. Thus, such a type of network is widely used at small networking requirements, like between a few computers or devices at departmental scales.

➤ **IEEE**: IEEE, the Institute of Electrical and Electronics Engineers, is the world's largest technical professional society and is consisted of more than 366,000 members in approximately 150 countries. As a leading authority on areas ranging from for computer engineering, biomedical technology and telecommunications, IEEE has set more than 800 active consensus standards to date and publishes 30 percent of the world's literature in electrical engineering, computers and control technology.

➤ **Infrastructure Network**: Infrastructure networks allow you to communicate with wired LAN via an access point. Unlike Ad-hoc network where all wireless-equipped stations within the range may directly communicate with each other, clients of Infrastructure network can only transmit and receive data through the use of a central access point. The associated access point also provides communication with the wired network.

➤ **MAC Address**: The MAC (Media Access Control) address is the serial number of your Network Interface card. It has been burnt into the chip and can not be changed. The MAC address is thus unique. While a computer on the network is transferring data, its MAC address is also conveyed and attached to be part of the header of the data packets. The MAC address can be found on exterior of your module.

➤ **Roaming**: Roaming is an ability to allow user to move from one cell (or BSS) to another without losing wireless connection.

➤ **SSID**: SSID, Service Set Identifier, is a 32-character unique identifier for a workgroup of the wireless network. A SSID of one WLAN should be different from that of others, so all access points and other devices intending to communicate with a specific WLAN cannot achieve successful network connectivity unless presenting the identical SSID. From some perspective, an SSID performs as a kind of password to supply a measure of security on the WLAN. However, if an access point is configured to “broadcast” its SSID, this essential security is no longer remained. An SSID is also known as a Network Name.

➤ **WEP**: Wired Equivalent Privacy (WEP) is a security mechanism for wireless local area networks. It is designed for 802.11 standard to offer an equal level of security as that of a wired LAN. Through the configurations of encryption, WEP aims to provide security while the nodes with wireless devices are transferring or receiving data packets over radio waves.

➤ **WLAN**: Wireless local area network (WLAN) receive and transmit data over the air by using radio frequency (RF) technology. The vital significance of WLAN is it minimizes the requirements for wired connections and provides not only data connectivity but also user mobility. Without the constraint of physical location, wireless LAN allows clients to transmit and receive data via high-frequency radio waves rather than wires.

➤ **USB** : USB, standing for Universal Serial Bus, was designed to make a connection between the computer and its peripherals, such as keyboards, scanners, webcams, printers, etc., USB has proved to be a good solution that allows users to quickly and easily connect and add peripherals to computers. Through the USB interface, there's no need to turn the computer off while adding new the peripherals mentioned above. Due to its convenience and simplicity, USB has won worldwide popularity, and most peripherals for computers these days are designed for the USB standard.