



# USER GUIDE



EZ Connect™ N  
Draft 11n Wireless USB2.0 Adapter

**SMCWUSBS-N2**



# **EZ Connect™ N Draft 11n Wireless USB 2.0 Adapter User Guide**

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The easy way to make all your network connections

**SMC**®

**Networks**

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Irvine, CA 92618

Phone: (949) 679-8000

September 2007

R01 F1.0

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# COMPLIANCES

## Federal Communication Commission Interference Statement

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

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

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.

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

### IMPORTANT NOTE:

#### FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

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

For product available in the USA market, only channel 1~11 can be operated. Selection of other channels is not possible.

This equipment has been SAR-evaluated for use in laptops (notebooks) with side slot configuration.

## Industry Canada Statement

Operation is subject to the following two conditions:

- 1) this device may not cause interference and

2) this device must accept any interference, including interference that may cause undesired operation of the device

**IMPORTANT NOTE:  
IC Radiation Exposure Statement:**

This equipment complies with Canada radiation exposure limits set forth for uncontrolled environments. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

**Australia/New Zealand AS/NZS 4771**



N11846

Contact SMC at:  
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Irvine, CA 92618  
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**EC Declaration of Conformity (CE 0682 ⓘ)**

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following references have been applied in order to prove presumption of compliance with the R&TTE Directive 1999/5/EC:

- EN 300 328
- EN 301 489-1
- EN 301 489-17
- EN 60950-1

## COMPLIANCES

Council recommendation 1999/519/EC of 12 July 1999, limitations of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)

English	Hereby, SMC Networks, declares that this Radio LAN device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. The official EC-Declaration of Conformity can be found under the corresponding product section on the web <a href="http://www.smc.com">http://www.smc.com</a> .
Dutch	Hierbij verklaart SMC Networks dat het toestel Radio LAN device in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG. Het officiële EC- gelijkvormigheidattest kan men vinden op de internetsite <a href="http://www.smc.com">http://www.smc.com</a> onder de betrokken productcategorie.
French	Par la présente SMC Networks déclare que l'appareil Radio LAN device est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE. La déclaration de conformité officielle peut être trouvée sur notre site internet <a href="http://www.smc.com">http://www.smc.com</a> dans la rubrique Produits.
German	Hiermit erklärt SMC Networks, dass sich dieses Wireless LAN Gerät in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet. Die offizielle EC-Declaration of Conformity finden Sie im Internet unter <a href="http://www.smc.com">http://www.smc.com</a> unter der entsprechenden Produktkategorie.
Spanish	Por medio de la presente SMC Networks declara que el Radio LAN device cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE. The official EC-Declaration of Conformity can be found under the corresponding product section on the web <a href="http://www.smc.com">http://www.smc.com</a> .

Countries of Operation & Conditions of Use in EC/ EFTA member states

English	<p>This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in all notified EC and EFTA member states. In accordance with article 6.4 of the R&amp;TTE Directive 1999/5/EC the following EC/ EFTA member states have been notified: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, Portugal, Greece, Ireland, Iceland</p> <p>Requirements for outdoor operation, like license requirements and allowed channels of operation apply in some countries. Please contact your local regulation authority or SMC Networks for details on current restrictions for outdoor use.</p>
Dutch	<p>Dit toestel is een 2.4 Ghz draadloze Lan transceiver, bestemd voor gebruik binnen huis en kantoor in alle geïnformeerde lidstaten van de EC en de EFTA.</p> <p>In overeenstemming met artikel 6.4 van de R&amp;T TE Directive 1999/5/EC zijn de volgende EC/EFTA lidstaten verwittigd:</p> <p>België, Denemarken, Duitsland, Finland, Frankrijk, Griekenland, Ierland, IJsland, Italië, Luxemburg, Nederland, Noorwegen, Oostenrijk, Portugal, Spanje, Verenigd Koninkrijk, Zweden, Zwitserland.</p> <p>Benodigheden voor gebruik buiten, zoals gebruiksvergunningen en toegelaten werkkanalen zijn van toepassing in sommige landen. Gelieve uw lokale instantie of SMC Networks te contacteren voor details op huidige beperkingen voor gebruik in buitenlucht.</p>
French	<p>Ce produit est un appareil radio LAN transceiver de 2.4 GHz destiné aux PME et à l'utilisation domestique dans tous les pays certifiés conformes aux conditions de l'EU et de l'EFTA. En accord avec l'article 6.4 de la R&amp;TTE directive 1999/5/EC, the membres de la EU et de l'EFTA sont les suivants :</p> <p>Autriche, Belgique, Danemark, finalnde, France, Allemagne, Italie, Luxembourg, Pays-Bas, Norvège, Espagne, Suède, Suisse, Royaume-Uni, Portugal, Grèce, Irlande, Islande.</p> <p>Des conditions sont appliquées à certains pays pour l'utilisation en extérieur, tels que des licences spécifiques et des canaux d'opération. Veuillez contacter votre autorité locale ou SMC Networks pour plus de détails quant aux restrictions actuelles concernant l'utilisation en extérieur.</p>
German	<p>Dieses Wireless LAN Gerät arbeitet im 2.4 GHz Frequenzband und ist für den Einsatz im Innenbereich in den benachrichtigten EC/ EFTA Mitgliedstaaten geeignet. In Übereinstimmung mit Artikel 6.4 der R&amp;TTE Direktive 1999/5/EC wurden folgende Mitgliedstaaten benachrichtigt:</p> <p>Österreich, Belgien, Dänemark, Finland, Frankreich, Deutschland, Italien, Luxemburg, Niederlande, Norwegen, Spanien, Schweden, Schweiz, Großbritannien, Portugal, Griechenland, Irland, Island.</p> <p>Für den Einsatz im Aussenbereich sind in einigen Ländern Lizenzen erforderlich oder die Anzahl der Kanäle ist eingeschränkt. Bitte kontaktieren Sie Ihre Regulierungsbehörde oder SMC Networks für die aktuellen Einschränkungen beim Einsatz im Aussenbereich.</p>
Spanish	<p>Este aparato es un transmisor inalámbrico de 2.4 GHz, previsto para el uso interior en domicilios y Pymes en todos los Estados de la CE y la EFTA notificados. De acuerdo con el artículo 6.4 de la Directiva R&amp;TTE 1999/5/EC los siguientes estados de la CE y de la EFTA han sido notificados:</p> <p>Austria, Bélgica, Dinamarca, Finlandia, Francia, Alemania, Italia, Luxemburgo, Países Bajos, Noruega, España, Suecia, Suiza, Reino Unido, Portugal, Grecia, Irlanda, Islandia.</p> <p>Los requisitos para su uso exterior, como requerimiento de licencia y canales de operación permitidos se aplican en algunos países. Por favor contacte la autoridad reguladora local o SMC Networks para más detalles en relación con las restricciones actuales para uso exterior.</p>

## COMPLIANCES

SMC Contact for this device in Europe is:

SMC Networks Europe,  
Edificio Conata II,  
Calle Fructuos Gelabert 6-8, 2, 4a,  
08970 - Sant Joan Despi,  
Barcelona, Spain

**注意！**

### **依據 低功率電波輻射性電機管理辦法**

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信規定作業之無線電信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。



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# EZ CONNECT™ N DRAFT 11N WIRELESS USB 2.0 ADAPTER

The EZ Connect™ N Draft 11n Wireless USB2.0 Adapter (SMCWUSBS-N2) is another cutting edge introduction in 2.4GHz wireless communication for desktop and notebook computers. Designed for both the home and office, this wireless USB2.0 adapter provides the speed, coverage and security expected by today's wireless users. The SMCWUSBS-N2 is 802.11n draft v2.0 compliant while maintaining full backwards compatibility with the Wireless-G (802.11g) and Wireless-B (802.11b) standards. This next generation standard utilizes advanced MIMO (Multiple-In, Multiple-Out) technology to deliver incredible speed and range. The SMCWUSBS-N2 provides better performance than existing 802.11g technology. Upgrading to Wireless N provides an excellent solution for sharing an Internet connection and files such as video, music, photos, and documents. With security being a key consideration, SMCWUSBS-N2 supports the latest WPA and WPA2 wireless encryption standards, which prevent unauthorized access to wireless networks and ensure data is secure. Wireless security can also be set up easily using Wi-Fi Protected Setup™ (WPS) that enables push button or PIN configuration. The SMCWUSBS-N2 includes an easy installation wizard which guides you step-by-step through the process. Once installed the WLAN utility allows you to scan for available wireless networks and manage multiple network profiles so connecting becomes instantaneous.

## **Features**

- IEEE802.11n draft v2.0 compliant
- Wireless speeds up to 300 Mbps with 40 MHz operating mode
- Increased speed and coverage - up to 15 times the speed of IEEE 802.11g
- Fully backwards compatible with 802.11b/g wireless networks
- Enhances your network security with Wired Equivalent Privacy (WEP), Wi-Fi Protected Access (WPA), and WPA2
- Greater flexibility to locate or move networked PCs
- Easy Plug-n-Play installation and user-friendly configuration
- Integrates with or replaces wired LANs at dramatically lower cost than wired alternatives
- Orthogonal Frequency Division Multiplexing (OFDM) technology provides high speed connection

# Applications

EZ Connect wireless products offer fast, reliable, cost-effective network access for wireless clients in applications such as:

- **Remote access to corporate network information**  
Email, file transfer, and terminal emulation
- **Difficult-to-wire environments**  
Historic or old buildings, asbestos installations, and open areas where wiring is difficult to employ
- **Frequently changing environments**  
Retailers, manufacturers, and banks who frequently rearrange the workplace and change location
- **Temporary LANs for special projects or peak times**  
Trade shows, exhibitions, and construction sites that need to set up for a short time period. Retailers, airline, and shipping companies who need additional workstations for peak times
- **Access to databases for mobile workers**  
Doctors, nurses, retailers, office workers who need access to databases while being mobile in a hospital, retail store, office, campus, etc.
- **SOHO (Small Office Home Office) users**  
SOHO users who need quick and easy installation of a small network

## **System Requirements**

Before you install the Wireless USB Adapter, check your system for the following requirements:

- Available 2.0 USB slot
- A PC running Windows 2000/XP/Vista
- CD-ROM drive
- Minimum of 32 MB RAM and 300 MHz CPU
- Minimum of 6 MB of free hard disk space for driver and utility installation
- Another IEEE 802.11n, 802.11g or 802.11b compliant device installed in your network, such as the SMCWBR14S-N2 Draft 11n Wireless 4-port Broadband Router or the SMC7904WBRA-N Draft 11n Wireless 4-port ADSL2/2+ Modem Router.

## **Package Contents**

The Wireless USB Adapter package includes:

- 1 EZ Connect™ N Draft 11n Wireless USB 2.0 Adapter (SMCWUSBS-N2)
- 1 EZ Installation Wizard and Documentation CD
- 1 Quick Installation Guide
- Warranty Information Card

Please register this product and upgrade the product warranty at <http://www.smc.com>

Please inform your dealer if there are any incorrect, missing or damaged parts. If possible, retain the carton and the original packing materials, in case there is a need to return the product.

# HARDWARE DESCRIPTION

The SMCWUSBS-N2 adapter provides 300 Mbps connections. It is fully compliant with the specification of the IEEE 802.11n Draft standard. It can be installed in any computer running Windows 2000/XP/Vista, with a 2.0 USB slot.

## LED

The Link LED indicator of the SMCWUSBS-N2 is described in the following figure and table.



**Figure 1. LED Indicator**

Status	Description
On (Green)	Indicates a valid connection.
Slow Flashing	Indicates that the adapter is powered on but no wireless connection.
Fast Flashing	Indicates that the adapter is transmitting or receiving data.



# DRIVER AND UTILITY INSTALLATION

The EZ Installation Wizard and Documentation CD that comes with the package contains all the software, including the driver and utility for the SMCWUSBS-N2 adapter. Any new or updated software can be downloaded from the SMC web site at <http://www.smc.com>. Also, check the SMC web site for additional online support.

## For Windows 2000/XP

It is recommended that you install the utility and driver software first, before inserting the adapter into your computer.

You may find that the screen shots here do not exactly match your version of Windows. This is because these screen shots were created from Windows XP. Steps for Windows 2000 are similar, but not identical, to Windows XP.

### EZ Installation Wizard CD

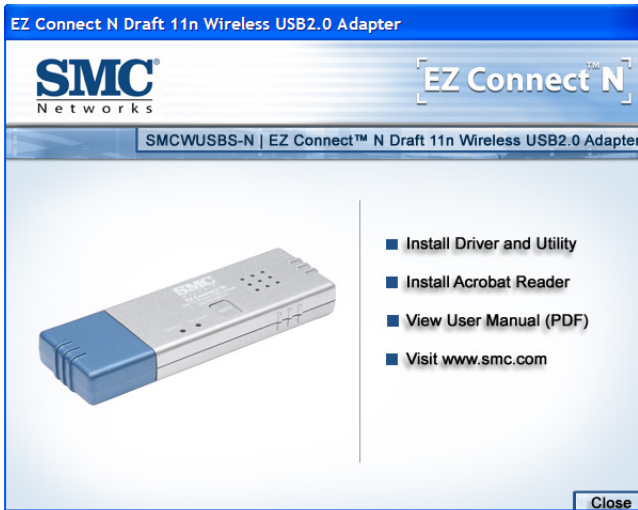
**Note:** Installation processes such as this may require the use of your original licensed copy of Windows. Please have your Windows CD available BEFORE proceeding with the installation.

This installation method makes the process as simple and Plug-and-Play as possible. Simply run the driver/utility program, and insert your EZ Connect N Wireless USB 2.0 Adapter.

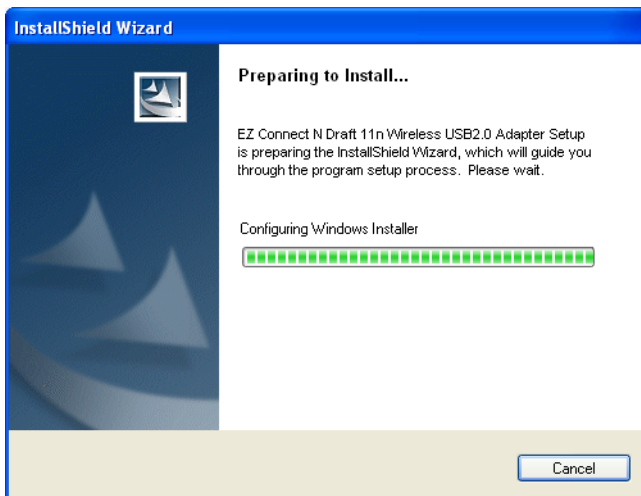
1. Insert the EZ Installation Wizard and Documentation CD.

## Driver and Utility Installation

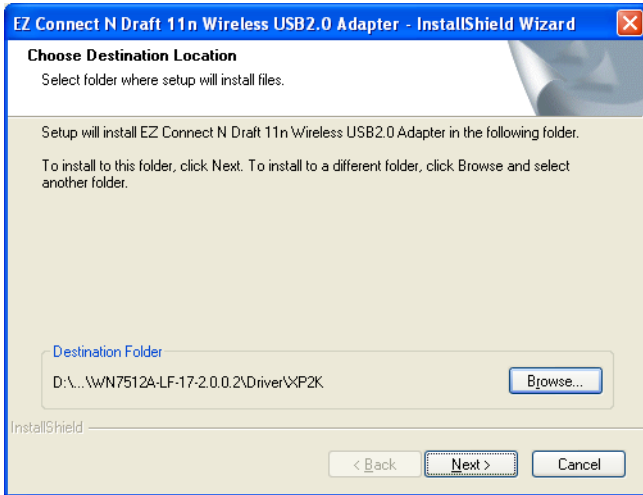
2. Click the **Install Driver and Utility** button to continue.



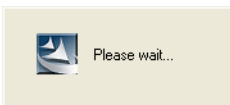
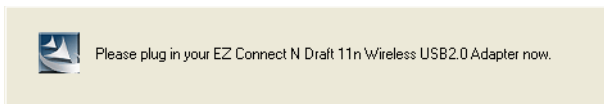
3. Please wait while the Driver and Utility installation wizard begins and copies files.



4. Click **Next** to install the program to your Windows system folder.



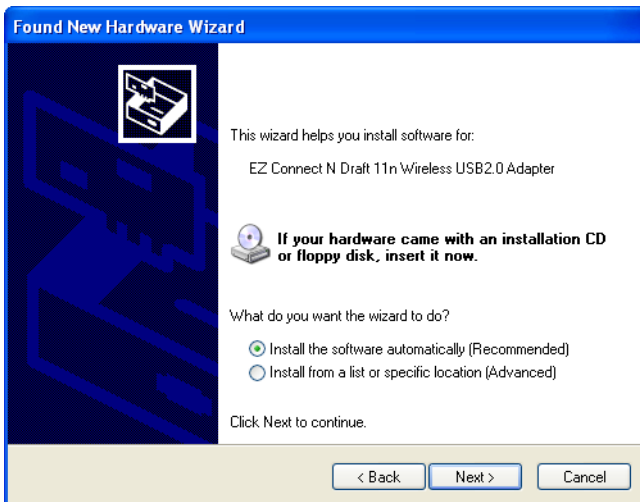
5. Find an available USB slot on your PC ( see "Hardware Installation" on page 13). Remove cap from the SMCWUSBS-N2. Completely slide the SMCWUSBS-N2 USB 2.0 adapter in the USB slot of your PC and make sure that there is a firm connection.



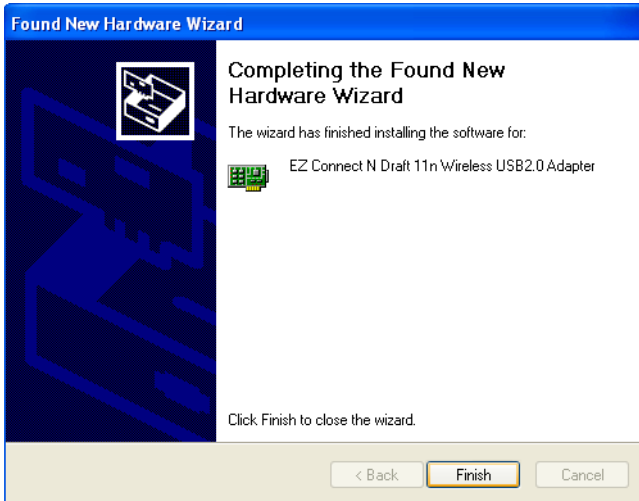
6. You will see the Found New Hardware Wizard. Select **Yes** (recommended), and click **Next**.



7. Select **Install the software automatically (Recommended)**, and click **Next**.

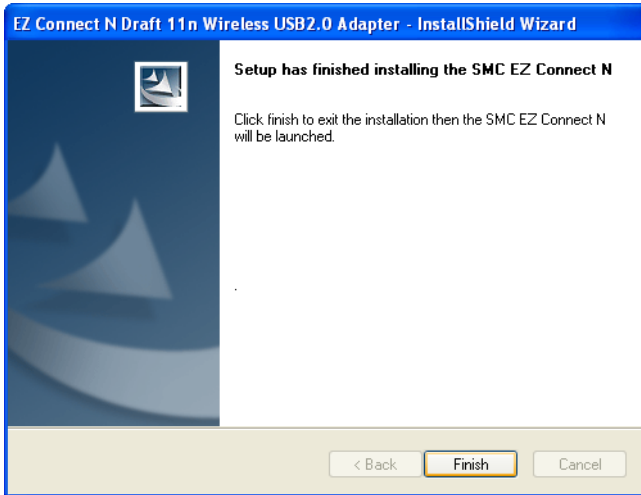


8. The following windows will then appear indicating that the driver has been installed on your system. Click **Finish** to exit the window.



## Driver and Utility Installation

9. Click **Finish** and your Wireless USB Adapter is ready to use.



# HARDWARE INSTALLATION

Network cards are sensitive to static electricity. To protect the card, avoid touching its electrical components, and touch the ground often to equalize the static charges, before handling the card.

To insert the card:

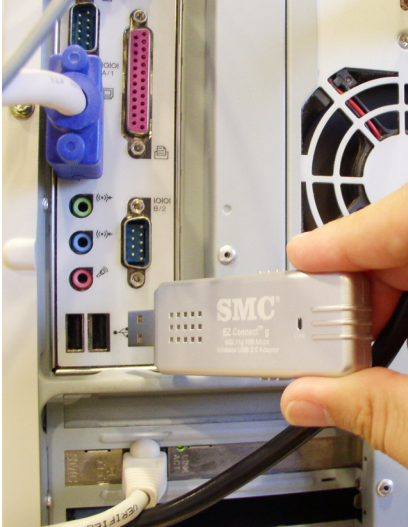
1. Find an available 2.0 USB slot in your desktop PC or a laptop.



**Figure 2. USB Port**

## Hardware Installation

2. With the adapter's connector facing the USB slot, and the "EZ Connect™ N" label facing up, slide the card completely into the slot as shown below.



**Figure 3. Desktop Installation**



**Figure 4. Laptop Installation**



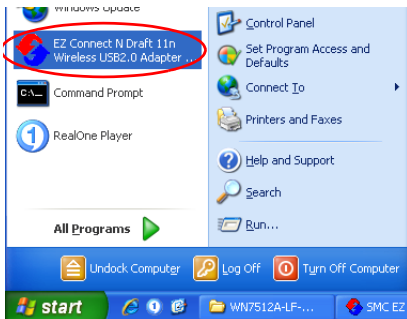
# SMCWUSBS-N2 UTILITY

To communicate with other SMC 802.11n, 802.11g or 802.11b devices, you need to configure the SMCWUSBS-N2 adapter first. Double-click the SMCWUSBS-N2 utility icon on the desktop to launch the configuration utility, or you can access it from the Start menu.

Icon on the desktop:



Icon on the toolbar:



Note that the screen shots were taken from Windows XP and will not look exactly the same in all operating systems.

## *SMCWUSBS-N2 Utility*

The SMCWUSBS-N2 utility program includes the following five tabs:

**Configuration** – Allows you to set parameters for the wireless adapter.

**Link Information** – Allows you to view network status.

**IP Information** – Displays TCP/IP data.

**Site Survey** – Scans/shows all wireless devices within the adapter's signal range.

**Version Information** – Shows the driver and utility version information.

At the bottom of the screen, there are three boxes that can be selected:

- **Radio On/Radio Off** – This allows you to turn on/off the transmission/reception of the adapter.
- **Help** – Click here to display the help file.
- **Close** – This closes the configuration utility dialog box.

# Configuration

Go to the Configuration tab to set parameters for the SMCWUSBS-N2 adapter.

**Select Profile** – You can select a proper profile from the drop-down menu, or specify a profile name for a specific configuration of parameters.

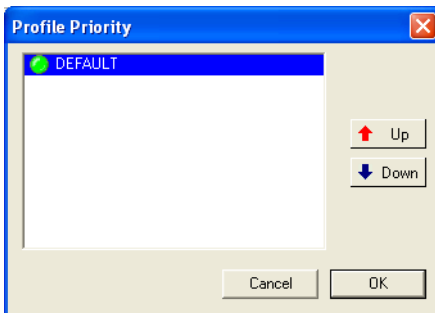
**New** – To set up a new profile, click **New**.

**Save** – To save a new profile after configuring the settings, click **Save**.

**Delete** – To delete a profile, select the profile from the drop-down menu in the Select Profile field, then click **Delete**.

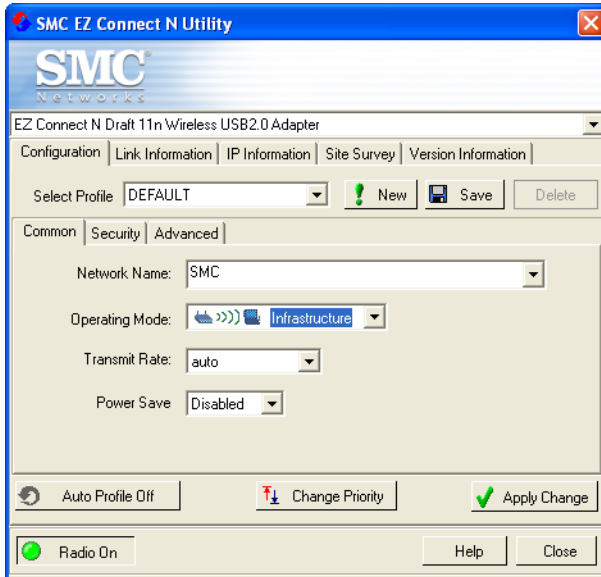
**Auto Profile On/Off** - Click this button to automatically load the profile for easy use.

**Change Priority**- To set the priority list of the profiles that you set up for a quick connection.



**Apply Change** - To enable the new setting.

## Common



**Network Name** – Input an SSID for the wireless network to which you want to connect.

**Operating Mode** – Set the adapter’s operating mode to 802.11 Ad Hoc for a network environment that does not have an access point, or to Infrastructure for connections with an access point. (See “Network Topologies” on page 33 for more information.)

**Transmit Rate** – Indicates the data transmission rate. Select an appropriate transmission speed. Lower speeds will give better range.

The SMCWUSBS-N2 supports 802.11b, 802.11g and 802.11n mode with maximum operation speed of up to 300 Mbps with 40 MHz operating mode. The Wireless USB Adapter is backwards compatible with 802.11b and 802.11g connection speed.

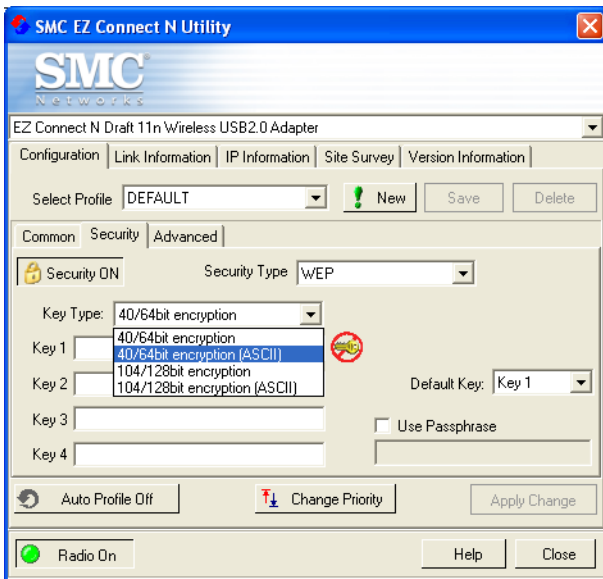
**Power Save** – To use this function, select the Enabled or Disabled in the Power Save Mode drop-down menu, then click the **Apply Change** button.

## Security

The Security ON/Security OFF button indicates whether the security function has been enabled or disabled.

Click the **Security ON/Security OFF** button to enable the security function. (Default: Security OFF)

### WEP



**Security Type** – WEP (Wired Equivalent Privacy) and WPA(2)-PSK (Wi-Fi Protected Access-Pre-Shared Key) are implemented in the SMCWUSBS-N2 adapter to prevent unauthorized access.

**Key Type** – Select 64-bit encryption, 64-bit encryption (ASCII), 128-bit encryption, or 128-bit encryption (ASCII).

**Default Key** – Choose one key, 1~4, for encryption.

**Use Passphrase** – Check this box to auto-generate keys for encryption. First, check this box, then enter a string of characters into the space. Encryption keys will be generated automatically.

When Key Type is set to 128-bit, only one key will be generated. If Key Type is set to 64-bit, four keys will be generated. Note that you must use the same passphrase and default key on all the other clients in your network.

**How to set up WEP:**

If you are transmitting sensitive data across wireless channels, you should enable Wired Equivalent Privacy (WEP) encryption. WEP provides a basic level of security, preventing unauthorized access to the network and encrypting data transmitted between wireless clients and the access point. WEP uses static shared keys (fixed-length hexadecimal or alphanumeric strings) that are manually distributed to all clients that want to use the network. WEP is the security protocol initially specified in the IEEE 802.11 standard for wireless communications. For more robust wireless security, the SMCWUSBS-N2 provides Wi-Fi Protected Access (WPA) for improved data encryption and user authentication.

**Note:** Only one key is needed for WEP to function. However, the IEEE 802.11 standard specifies that there must be four keys for each device. For security purposes, the key should be changed on a regular basis. Multiple keys are supported to allow the user to change keys with minimal disruption of the network.

To set up the WEP function, take the following steps:

1. Select 64-bit encryption, 64-bit encryption (ASCII), 128-bit encryption, or 128-bit encryption (ASCII) in the Key Type field.
2. To automatically generate keys, check the **Use Passphrase** box, and type in a string of characters in this field.
3. In the Default Key field, select one key as the default key that you want to use for encryption.
4. Click **Apply Change** to allow the settings to take effect.

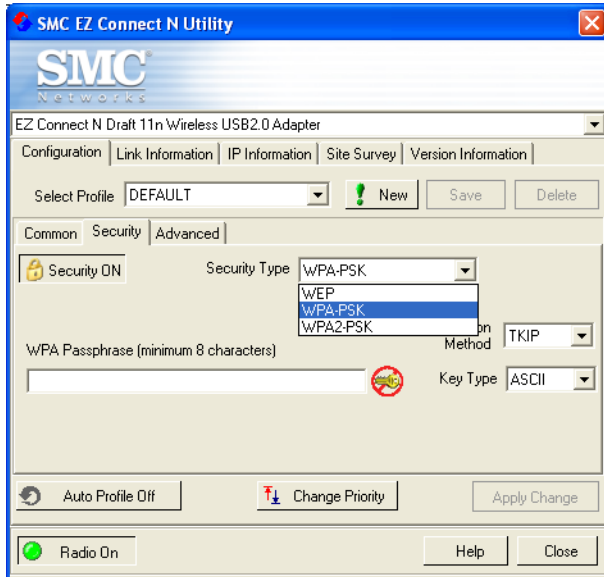
Or

1. Select 64-bit encryption, 64-bit encryption (ASCII), 128-bit encryption, or 128-bit encryption (ASCII) in the Key Type field.
2. In the Default Key field, select one key as the default key that you want to use for encryption.
3. Manually type in a string of characters in the corresponding key number field that you selected in step 2.
4. Click **Apply Change** to allow the settings to take effect.

**Note:** When setting up WEP without using the Use Passphrase function, if the Key Type is set to Hex, only Hexadecimal characters (range: 0~9 and A~F) can be used. When encryption is set to 64-bit, a maximum of 10 Hex characters can be entered in the Key field. When encryption is set to 128-bit, a maximum of 26 Hex characters can be used. If the Key Type is set to ASCII, and encryption is set to 64-bit, then 5 ASCII characters can be used in the Key field. For 128-bit encryption, 13 ASCII characters can be used.

## WPA-PSK/WPA2-PSK

### How to set up WPA/WPA2-PSK:



Wi-Fi Protected Access is a standards-based, interoperable security enhancement that strongly increases the level of data protection and access control for existing and future wireless LAN systems. It will be forward-compatible with the upcoming IEEE 802.11i standard. WPA employs a combination of several technologies to provide an enhanced security solution for 802.11 wireless networks, including TKIP (Temporal Key Integrity Protocol) for data protection and 802.1x for authenticated key management. WPA provides a simple operating mode that uses just a pre-shared password for network access. The Pre-Shared Key mode uses a common password for user authentication that is manually entered on the access point and all wireless clients on the network.



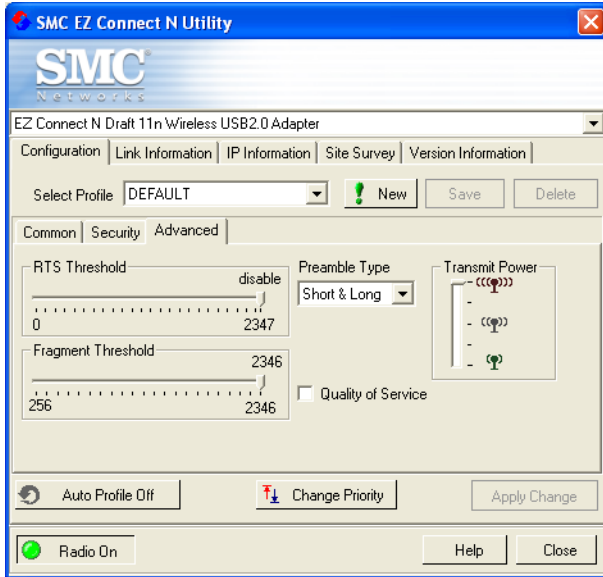
To use the WPA function, take the following steps:

1. Select Security Type, WPA-PSK/WPA2-PSK from the drop-down menu.
2. Type in the WPA Passphrase (Pre-Shared Key: PSK).
3. Select **ASCII** or **Hex** in the Key Type field
4. Click **Apply Change** to allow the settings to take effect.

**Note:** The WPA Passphrase character limit needs to be between 8-63 characters.

Manual Pre-Shared Key supports up to 64-Hex characters. If there is no authentication server on your SOHO network, you can issue the Pre-Shared Key to the adapter that is connected to the access point. Be sure to use the same key for the wireless access point and the connected adapter.

## Advanced



**RTS Threshold** – This sets the packet size threshold at which a Request to Send (RTS) signal must be sent to the receiving station prior to the sending station starting communications. Devices contending for the wireless medium may not be aware of each other. The RTS/CTS mechanism can solve this problem. The larger the threshold, the faster the speed.

**Fragment Threshold** – Sets the minimum packet size that can be transmitted from the adapter without being fragmented. Fragmentation can increase the reliability of transmissions because it increases the probability of a successful transmission due to smaller frame size. The larger the threshold, the faster the speed.

**Preamble Type** – The preamble is used to acquire the incoming signal and synchronize the receiver. If all the clients in your service area support the short preamble or can automatically set the preamble type, then setting the preamble on the access point to short can boost your throughput. (Options: Short & Long, Long only; Default: Short & Long)

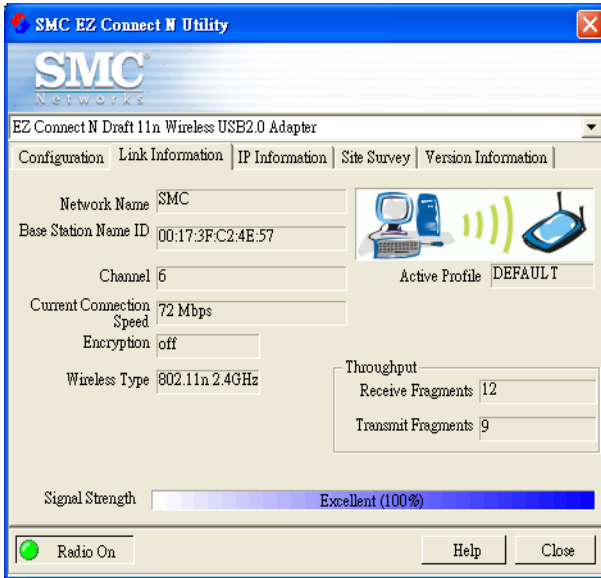
**Transmit Power** – Move the slider bar up and down to select an appropriate transmission power. Lower power reduces interference, higher power gives more range.

**Quality of Service (QoS)** – The QoS function allows you to differentiate traffic types and provide high-priority forwarding service for applications such as VoIP or gaming.

Check the **Quality of Service** checkbox to enable or disable this function.

## Link Information

The Link Information screen displays information of the current wireless access point to which you are connected.



**Network Name** – The name of the network to which the adapter is currently connected with other clients on the network.

**Base Station Name ID** – The MAC address of the access point to which this adapter is connected in an infrastructure network. In an ad hoc network, the Network Name is a random number generated by the first station that communicates with other clients on the network.

**Channel** – The channel used to connect with the wireless device.

**Current Connection Speed** – Shows the speed of the current wireless connection. The Wireless USB Adapter supports up to 300 Mbps connections to your WLAN networks. This adapter is fully compliant with specifications defined in IEEE 802.11b, IEEE 802.11g and IEEE 802.11n draft v2.0 standards.

**Encryption** – This shows the encryption type of your wireless network.

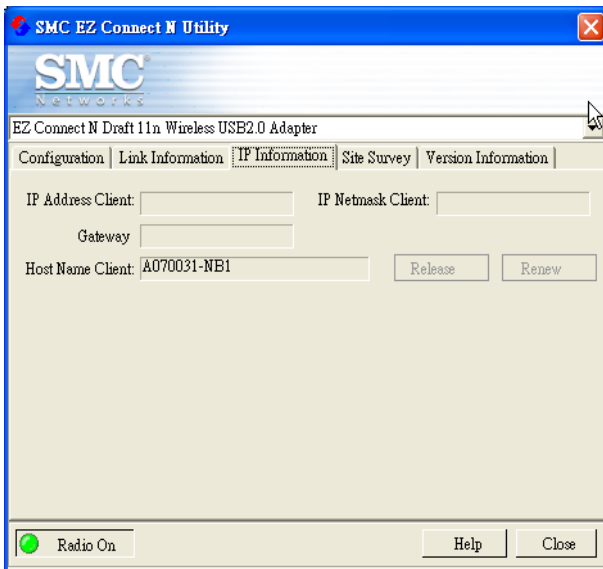
**Wireless Type** – This adapter supports 802.11b, 802.11g and 802.11n modes.

**Throughput** – Shows the total number of data packets transmitted and received.

**Signal Strength** – Shows the strength of the connection between the adapter and the access point.

## IP Information

This screen displays IP Information for your computer. Now that you have configured your adapter to connect to a wireless network, your adapter needs to obtain new network settings. By releasing old IP settings and renewing them with settings from the access point, you will also verify that you have configured your adapter correctly. To release network settings click on **Release**, then click on **Renew** to get new IP settings.



**IP Address Client** – Internet address of the computer.

**IP Netmask Client** – A mask used to determine the subnet for an IP address.

**Gateway** – The IP address of the network gateway.

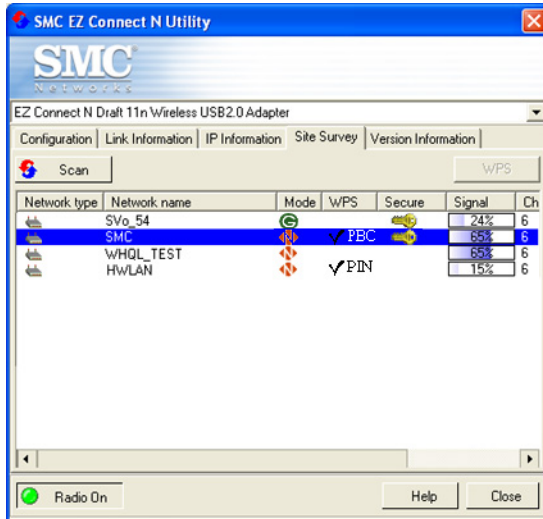
**Host Name Client** – Your computer name on the network.

**Release** – Click on this button to release the IP address.

**Renew** – Click on this button to get a new IP address.

## Site Survey

Site Survey scans and displays all wireless devices within range. You can choose one of them to connect to by double-clicking on an entry.



**Scan** – Click this button to scan for available network connections.

**WPS (Wi-Fi Protected Setup)** – Click this button to start using the WPS connection with the selected AP.

The Wireless USB Adapter was implemented with the ease-of-use Wi-Fi Protected Setup (WPS). WPS makes a secure wireless network much easier to achieve by using an eight-digit PIN number and the Push Button Control (PBC). The PIN number is shown on the Version Information (see "Version Information" on page 32).



Take the following steps for easy network security settings.

1. Press the WPS button of the access point to which you want to connect.

or

Click the PBC configuration button on the management screen of the access point.

2. Select the desired access point from the list.
3. Click the WPS button on the screen, or double-clicking on the selected access point.

**Notes:** 1. This connection procedure must be done within 2 minutes after pressing the WPS button on the access point.

2. For detailed instructions, refer to the user manual of the access point device.

**Network type** - Shows the network type. See “Configuration” on page 17.

**Network name** – Service Set ID. (See “Configuration” on page 17 for details.)

**Mode** - Shows the wireless connection mode. “B” means the network is operating in 802.11b mode. “G” means the network is operating in 802.11g mode. “N” means the network is operating in 802.11n mode.

**WPS** - Shows WPS status of the access point. A check mark indicates the WPS function is enabled. If the PIN method is in use a “PIN” will be displayed. If PBC is enabled, a “PBC” will be shown on the screen.

**Secure** - This shows security mechanism has been enabled. A key icon indicates the encryption function is enabled.

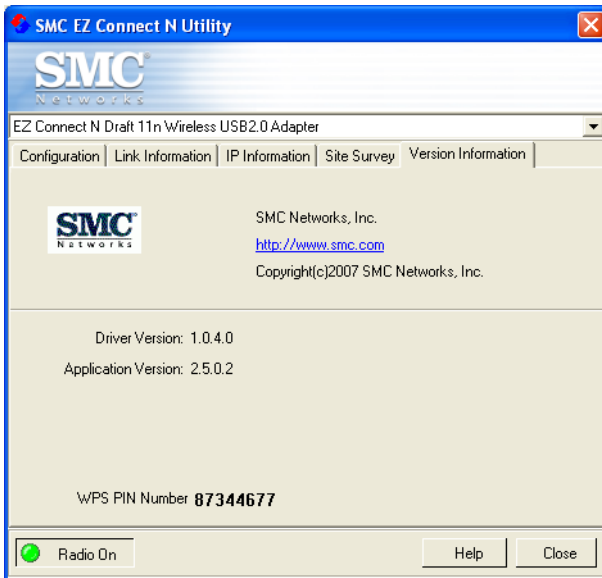
**Signal** - This shows the signal strength of the listed wireless devices.

**Channel** - This is the channel used for the wireless connection.

**MAC address** - This is the MAC address of the listed wireless devices.

## Version Information

This screen shows information on the WPS PIN number, current version of the driver and the configuration utility program. You can download the latest firmware from the SMC web site at <http://www.smc.com>.



# NETWORK CONFIGURATION AND PLANNING

SMC's EZ Connect N Wireless Solution supports a stand-alone wireless network configuration, as well as an integrated configuration with 10/100 Mbps Ethernet LANs.

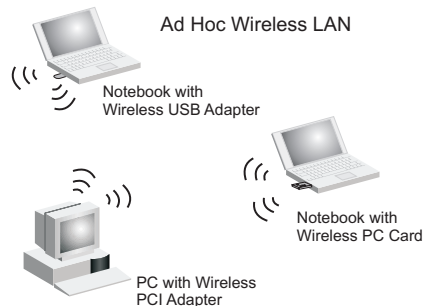
The SMCWUSBS-N2 can be configured as:

- Ad hoc - for small groups that only communicate with each other, without access points
- Infrastructure - for wireless LANs

## Network Topologies

### Ad Hoc Wireless LAN

An ad hoc wireless LAN consists of a group of computers, each equipped with one wireless adapter, connected via radio signals as an independent wireless LAN. Computers in a specific ad hoc wireless LAN must therefore be configured to the same radio channel. An ad hoc wireless LAN can be used in a SOHO or temporary environment.

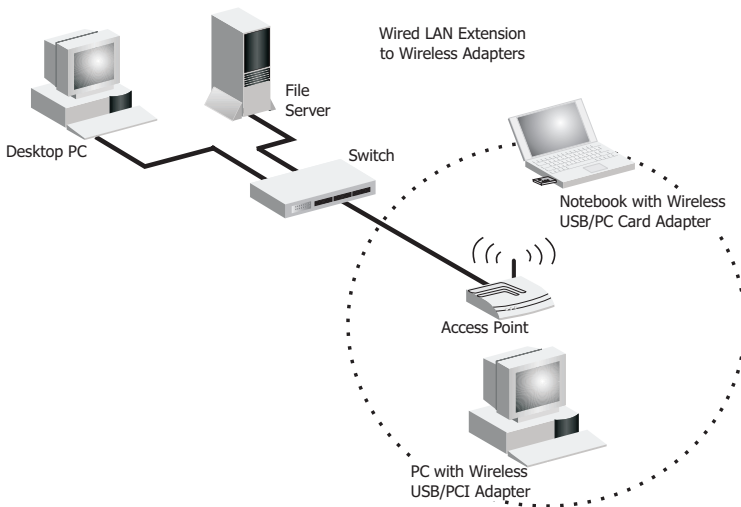


## Infrastructure Wireless LANs

The SMC 802.11 N access point (SMCWBR14S-N) can also provide wireless workstations with access to a wired LAN. An integrated wired and wireless LAN is called an infrastructure configuration. A Basic Service Set (BSS) consists of a group of wireless PC users, and an access point that is directly connected to the wired LAN. Each wireless PC in this BSS can talk to any computer in its wireless group via a radio link, or access other computers or network resources in the wired LAN infrastructure via the access point.

The infrastructure configuration not only extends the accessibility of wireless PCs to the wired LAN, but also extends the effective wireless transmission range for wireless PCs by passing their signal through one or more access points.

A wireless infrastructure can be used for access to a central database, or for connection between mobile workers, as shown in the following figure.



# Setting the Communication Domain

## Stationary Wireless PCs

The Basic Service Set (BSS) is the communication domain for each access point. For wireless PCs that do not need to support roaming, set the domain identifier (SSID) for the wireless card to the SSID of the access point to which you want to connect. Check with your administrator for the SSID of the access point to which you are connecting.

## Roaming Wireless PCs

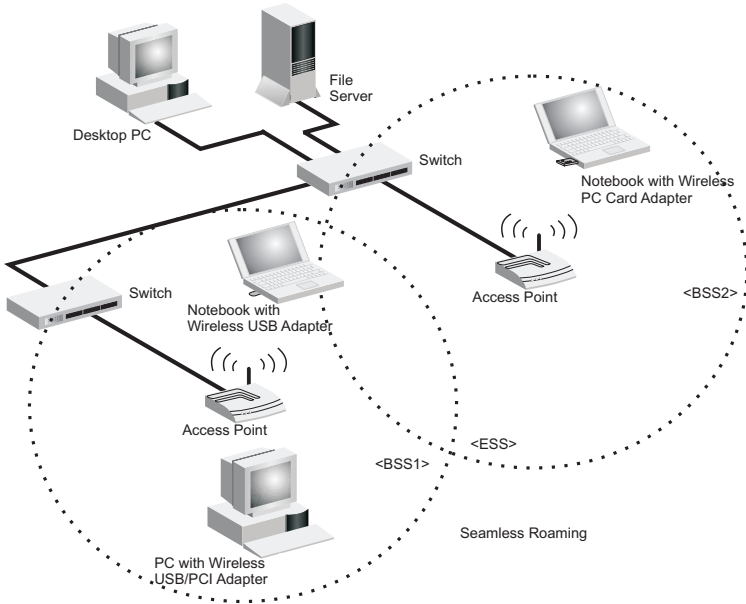
A wireless infrastructure can also support roaming for mobile workers. More than one access point can be configured to create an Extended Service Set (ESS). By placing the access points so that a continuous coverage area is created, wireless users within this ESS can roam freely. All wireless adapters and access points within a specific ESS must be configured with the same SSID and to the same radio channel.

You can configure the wireless client to connect to a specific wireless network or to the first available wireless network.

- If you configure the client to connect to a specific wireless network, the client establishes a radio connection to the AP in the specified wireless network that provides the best communications quality. APs in a different wireless network are ignored.
- If you configure the client to connect to the first available wireless network (the SSID = ANY), the client establishes a radio connection to the AP that provides the best communications quality. Be aware that if there are multiple wireless networks, the client could connect to an AP that is not in the network you want to join.

## Network Configuration and Planning

- In either configuration, the client automatically matches the radio channel used by the AP.



# TROUBLESHOOTING

Check the following troubleshooting items before contacting SMC technical support.

## Adapter Installation Problems

If your computer cannot find the SMCWUSBS-N2 adapter or the driver software does not install correctly, check the following:

- Make sure the adapter is securely seated in the 2.0 USB slot. Check for any hardware problems, such as physical damage to the card's connector.
- Try the card in another USB slot. If this also fails, test your PC with another wireless adapter that is known to operate correctly.
- Make sure your PC is using the latest BIOS.
- If there are other network adapters in the PC, they may be causing conflicts. Remove all other adapters from the PC and test the wireless adapter separately.
- If it still does not work, go to "Control Panel" and delete the adapter from your system. Remove the wireless adapter from your computer. Restart your computer and reinstall the card and the driver and utility.

## **Network Connection Problems**

If the Link LED on the SMCWUSBS-N2 adapter does not light, or if you cannot access any network resources from your computer, check the following:

- Make sure the correct software driver is installed for your operating system. If necessary, try reinstalling the driver.
- Make sure the computer and other network devices are receiving power.
- The access point you want to connect to may be defective. Try using another access point.
- Make sure the SSID and security settings of the adapter are set to the same as the access point to which you are connecting.

If your wireless station cannot communicate with a computer in the Ethernet LAN when configured for Infrastructure mode, check the following:

- Make sure the access point that the station is associated with is powered on.
- If the connection still fails, change the access point and all the clients within the BSS to another radio channel.
- For a station with roaming disabled, make sure the SSID is the same as that used by the access point, or the same as that used by the access points in the extended service set (ESS).



# SPECIFICATIONS

## General Specifications

### *Functional Criteria*

#### **Wireless Network**

- IEEE802.11b: up to 11 Mbps
- IEEE 802.11g: up to 54 Mbps
- IEEE802.11n draft v2.0: up to 300 Mbps (in 40 MHz)
- Operating Range Outdoor: Up to 300 m (984 ft)
- Indoor: Up to 100 m (328 ft)

#### **Radio Signal**

##### **Signal Type**

- Direct Sequence Spread-Spectrum (DSSS)
- Modulation CCK, OFDM

##### **Operating Frequency**

- USA (FCC) and Canada (IC): 2.412 ~ 2.462 GHz
- Europe (ETSI): 2.412 ~ 2.472 GHz
- Spain: 2.457 ~ 2.462 GHz
- France: 2.457 ~ 2.472 GHz
- Japan (STD-T66/STD-33): 2.412 ~ 2.484 GHz

##### **Operating Channels**

- USA (FCC) and Canada (IC): 11 channels
- Europe (ETSI): 13 channels
- Spain: 2 channels
- France: 4 channels
- Japan (STD-T66/STD-33): 14 channels

##### **Sensitivity**

- 68 dBm (typical)

## *Specifications*

### **RF Output Power**

11b/g : 17 dBm

Draft 11n

20MHz: 17 dBm

40MHz: 17 dBm

### ***Physical Characteristics***

#### **Dimensions**

84.10 \* 27.08 \* 12.30 mm (3.31 \* 1.07 \* 0.48 inch) (L\*W\*H)

#### **Weight**

27.5 g (0.06 lb)

#### **Antenna**

Built-in antenna

#### **LED Indicators**

Network Link

#### **Host Interface**

USB 2.0 interface

#### **Power Voltage**

DC5V +/- 5%

#### **Power Consumption**

Tx mode: 460 mA, Rx mode: 250 mA

### ***Standards Conformance***

#### **Wireless Standard**

IEEE 802.11b, IEEE 802.11g, IEEE 802.11n draft v2.0

**Environmental**

Temperature

Operating: 0 to 40 °C (32 to 104 °F)

Storage: -10 to 70 °C (14 to 158 °F)

Humidity: 5 to 90% (non-condensing)

Vibration/Shock/Drop

IEC 68-2-34, IEC 68-2-27, IEC68-2-32

**Certification**

CE Mark

EN 50081-1, EN 55022 Class B

EN 50082-1, EN 61000-4-2

Emissions

FCC Part 15(B), ETS 300-328, VCCI

**Software Drivers**

Windows 2000

Windows XP

Windows Vista

## *Specifications*

## TECHNICAL SUPPORT

From U.S.A. and Canada (24 hours a day, 7 days a week)  
Phn: (800) SMC-4-YOU / (949) 679-8000  
Fax: (949) 679-1481

## ENGLISH

Technical Support information available at [www.smc.com](http://www.smc.com)

## FRENCH

Informations Support Technique sur [www.smc.com](http://www.smc.com)

## DEUTSCH

Technischer Support und weitere Information unter [www.smc.com](http://www.smc.com)

## SPANISH

En [www.smc.com](http://www.smc.com) Ud. podrá encontrar la información relativa a servicios de soporte técnico

## DUTCH

Technische ondersteuningsinformatie beschikbaar op [www.smc.com](http://www.smc.com)

## PORTUGUES

Informações sobre Suporte Técnico em [www.smc.com](http://www.smc.com)

## SWEDISH

Information om Teknisk Support finns tillgängligt på [www.smc.com](http://www.smc.com)

## INTERNET

E-mail address: [techsupport@smc.com](mailto:techsupport@smc.com)

## Driver updates

[http://www.smc.com/index.cfm?action=tech\\_support\\_drivers\\_downloads](http://www.smc.com/index.cfm?action=tech_support_drivers_downloads)

## World Wide Web

<http://www.smc.com/>

