QUETEC SoftGate Wireless AP/Router solution

(PCMCIA/PCI/USB interface)

User's Guide

~English version~

~中文繁體使用手冊請參照繁體中文部份~

~中文简体使用手冊请参照简体中文部份~

Version Q3. 0 July2004

http://www.quetec.net

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Document Version: Q3.0
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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.

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.

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.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This device complies with FCC RF Exposure limits set forth for an uncontrolled environment, under 47 CFR 2.1093 paragraph (d)(2).

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

This device was tested for typical by stander conditions that may occur during use. To comply with FCC RF exposure requirements a minimum separation distance of 1.5cm must be maintained between the user’s body and the device, including the antenna.

Remark: Wireless USB Dongle is limited in Ch1~Ch11 by specified fireware controled in U.S.A.

Chapter 1 QUETEC SoftGate *Introduction*

This Chapter provides an overview of the SoftGate AP/Router's features and specifications.

Thank you for purchasing the QUETEC SoftGate wireless solution adapter. QUETEC SoftGate is the first AP less series family product to turn the existing computers into a wireless AP. It includes four features (4- in-1): Router, AP, Bridge, and WLAN Client. Users can share PC resources such as files, internet connection, video streaming and multimedia title, instantly without the requirement of preinstall or pre-configure wireless base station. SoftGate is the first technology that truly removes the limitation from wireless base station.

1.1 QUETEC SoftGate Features

- **4 in 1 Device**— Integrates Router, AP, Bridge, and Client into your PC/Laptop.
- **Easy Installation & Expansion**—Simple, affordable and flexible solution break through your wireless limitation.
- **Complete Mobility**—Small size, portable wireless base station.
- **Security**—64-bit or 128 bit encryption.
- **Intelligent device**— Auto-detect and configure for client or infrastructure AP.

1.2 QUETEC SoftGate Specifications

Standard	IEEE802.11b
Adapter Type	PCMCIA, PCI, MiniPCI, USB
Multi Mode	Router, AP, Bridge, and Client
Modulation Technology	DSSS
Data Encryption	64/128bit WEP encryption; TKIP (Temporal Key Integrity Protocol)
Frequency Band	2.412 ~ 2.462 GHz (US) 2.412 ~ 2.484 GHz (Japan) 2.412 ~ 2.472 GHz (Europe) 2.457 ~ 2.462 GHz (Spain) 2.457 ~ 2.472 GHz (France)
Channels	11 (US, Canada), 13 (Europe), 14 (Japan), 2 (Spain), 4 (France)
Date Rates & Modulation	11Mbps: CCK 5.5Mbps: CCK 2Mbps: DQPSK 1Mbps:DBSK
Media Access Protocol	CSMA/CA (Carrier sense multiple access with collision avoidance)
Supported OS	Windows ME, 2000, XP
LED Indicators	Power, Link, Activity
Receive Sensitivity	11Mbps@-84dBm 5.5Mbps@-86dBm 2Mbps@-91dBm 1Mbps@-93dBm
Transmit Output Power	Up to 17dBm
Operational Voltage	3.3/5V
Temperature	Operating : -0˚C to 55˚C (32˚F to 131˚F) Storage : -5˚C to 70˚C (23˚F to 158˚F)
Humidity	Operating: 0% to 90% Non-Condensing Storage: 0% to 90% Non-Condensing
Certifications	FCC, CE, SAR
Warranty	One year

1.3 QUETEC SoftGate Interface description

The QUETEC SoftGate AP/Router solution provides several kinds of interface:

- **PCMCIA: for PC card type II**
- **PCI: for 32 bit PCI 2.2**
- **USB: for USB 1.0 (2.0)**

Chapter 2 Installation Overview

2.1 QUETEC SoftGate Setup on Laptop/Desktop PC

∗You should estimate around several minutes to complete the installation.

Before you begin the installation process, make sure you have the proper SoftGate Wi-Fi adapter and installation CD and that the Laptop/Desktop PC which you are installing onto has a proper open slot.

2.2 QUETEC SoftGate Requirements

- The machine installing SoftGate needs to have supported OS running.
- Make sure a proper internet connection is available on the installation machine by using the Microsoft Internet Explorer.
- If you have another active Wi-Fi card, disable it before installing SoftGate by going to Start Menu: Control Panel: System: Hardware Tab: Device Manager: Network adapters, select Wi-Fi adapter you are running, right mouse click, disable the device.

2.3 QUETEC SoftGate Quick Installation

Once you are ready to install, follow these steps:

STEP 1.

For PCMCIA and USB: Insert QUETEC SoftGate Software CD into your computer first, and the autorun program will launch the setup wizard, then choice the adapter icon to run the setup program.

For PCI only: Insert the PCI adapter into your PC slot first, and then restart your PC. When the system launch the new device wizard, please cancel it and insert SoftGate Software CD into your computer, the autorun program will launch the setup wizard, and choice the adapter icon to run the setup program

STEP 2.
It will execute and configure all your need automatic. Please follow the direction of setup wizard to insert the adapter into the suitable slot, when it told you to do so.

STEP 3.
Continue to follow the installation wizard to setup SoftGate driver and program. Then SoftGate will turn your Laptop/Desktop PC to wireless Access Point.

3

Chapter 3 What's in the Box

3.1 Package content

The following items should be included

- 1 QUETEC SoftGate Wi-Fi adapter (PCMCIA/PCI/USB)
- 1 Installation Autorun CD: contents in the CD include
  - SETUP.EXE: QUETEC SoftGate installer
  - Userguide: User's Guide
- 1 piece of Quick installation guide card
- 1 USB cable **(for USB package only)**

If any of the above items are damaged or missing, please contact your dealer immediately.

Chapter 4 Check Your System

Please make sure again that the computer you are installing the QUETEC SoftGate meets as following minimum system requirements:

- Computer with CPU PII 366MHz or better
- 128MB RAM or better
- Windows ME, 2000, XP
- An open slot based on the adapter in the package
- CDROM drive

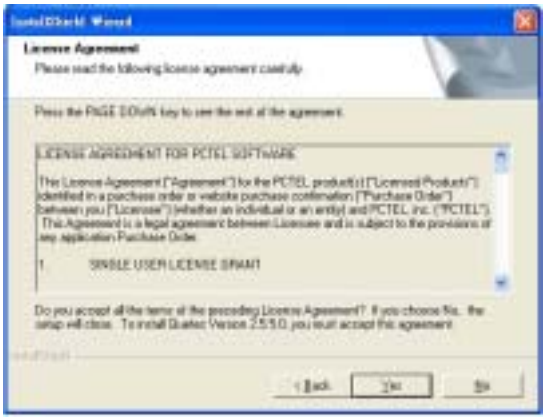
Chapter 5 QUETEC SoftGate Installation Procedures

The procedures described in this section to install and configure the QUETEC SoftGate Wireless LAN device under MS Windows 2000/XP.

Caution:
Please do not insert your PCMCIA card until the Application setup asks you to do so. The setup procedure described below installs both the drivers and the QUETEC SoftGate Manager Utility.
If the SoftGate Manager Utility were installed before, you need uninstall the previous version first.

-Insert the Autorun CD to your CD-ROM and Double Click the device icon that you want to install, and then the welcome screen is displayed.

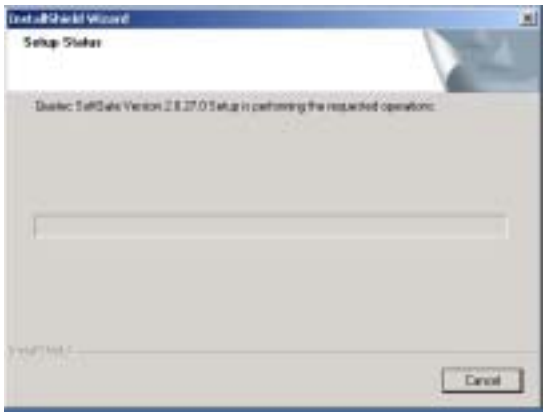
-Click on “Next”, a license agreement will be displayed,
Click on “Yes” if you agree and continue the installation.

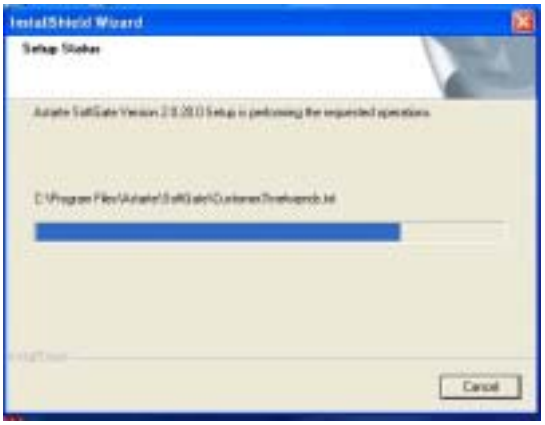


-Click the installation type you prefer, and then click “Next” to continue.
(We recommend that you choice the “Express” at this moment)

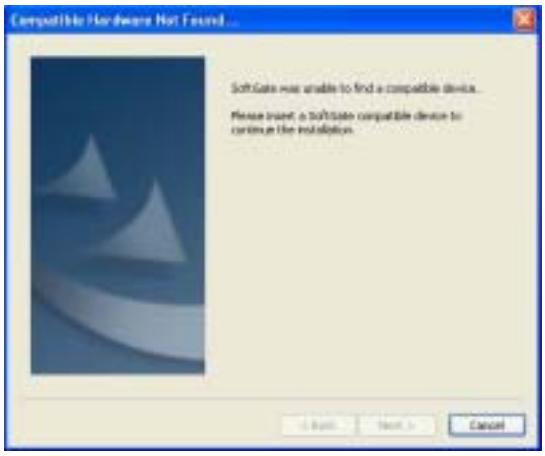
During the set up procedure, if you see the Windows pop-up dialog shows the message about Hardware installation warning, just click “Yes” to next step.

-The setup wizard will execute the installation procedure automatically,

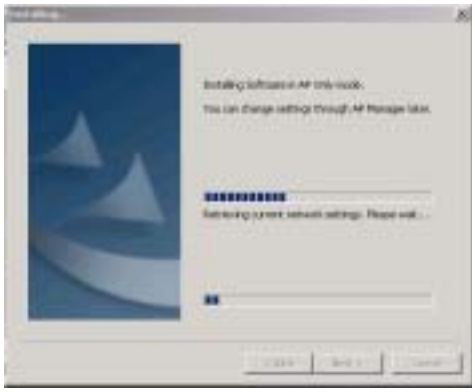




-For the PCMCIA/USB installation, you will see a pop-up screen to ask to insert the QUETEC SoftGate compatible device. Please insert your PCMCIA/USB into your system, then the wizard will continue to install procedure automatically.



-At this moment, QUETEC SoftGate installation wizard will configure your computer as an AP only mode.



-After the setup procedure, you will see as following message,
Click the “Next” button.

-If you see the as following message, it means the set up procedure is completed.

You can use any other computers running Wi-Fi card to check QUETEC SoftGate functionality. It should be listed as one of the available network.

5.1 Windows ME Installation Notes

QUETEC SoftGate Installation Using a PCMCIA/USB Adapter

When installing SoftGate on a PC running Windows ME, you **cannot** have the adapter inserted into the PCMCIA/USB slot during the install process.
Do not insert the PCMCIA/USB until the SoftGate installer requests you to do so.

QUETEC SoftGate Installation Using a PCI Adapter

When installing SoftGate on a PC using a PCI based wireless adapter, you must make certain that the PCI adapter is properly installed before SoftGate installation.

The "Add Hardware" wizard window must be closed, fully completing the installation.

Windows Me ICS Setup

After installation SoftGate will install in client mode, you must manually configure ICS on Windows ME to share the Internet connection. The following is the procedure for Windows ME ICS configuration. Follow these instructions after installing SoftGate.

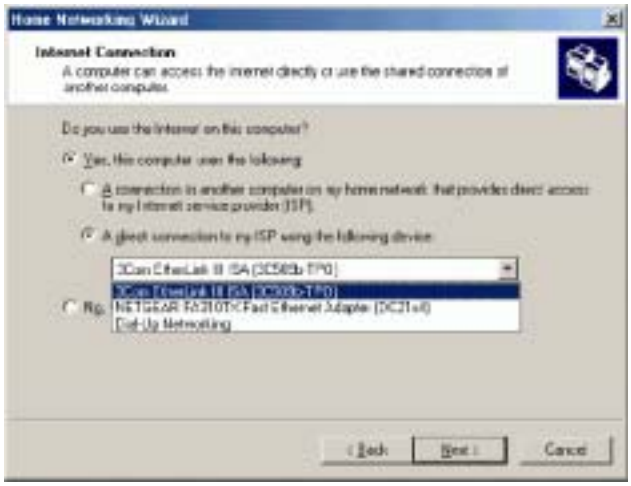
1. The following steps will guide you through Windows Me ICS configuration.

- **Select Start > Settings > Control Panel > Add/Remove Programs.**
- Click on the **Windows Setup tab**, Windows will find the installed components.
- Double click on the **Communications** icon, check the **Internet Connection Sharing** box and click **OK** to close the Communications window and OK to close the Add/Remove Programs window.

2. Microsoft ICS will install, and then launch the Home Networking Wizard. Select **next** to begin.

3. Because the SoftGate enabled PC will share the Internet connection select: "**Yes this computer uses the following", and "A direct connection to an ISP using the following device".**

4. Click the down arrow to see a list of adapters that can be shared. Select the network adapter that is connected to your broadband modem. Press **Next.**



5. Select "Yes" when asked if you would like other users to be able to access this computers Internet connection. The pull down menu gives you the choice of adapters that other users will connect to; in this case, **you must select the SoftGate adapter** from the pull down menu. Press **Next**.

6. The next screen will ask if you would like to create a home networking setup disk. You can select NO, finish the installation, or you may proceed with creating a setup disk for your other PC's. If you choose to create a home networking setup disk, follow the onscreen instructions.

NOTE: Please refer to your Windows Me Help guide or http://support.microsoft.com for the Microsoft support website.

5.2 Windows 2000 ICS Setup

It is highly recommended that you upgrade Windows 2000 to Service Pack 4. If you cannot make this upgrade, you must manually configure ICS on Windows 2000 **after** installing SoftGate.

1. **Verify your cable modem, DSL or other broadband connection is working properly.** Verify you can connect to the Internet over your broadband connection.

2. **Open the Properties for the network adapter** that is connected to your broadband modem and click on the "Sharing" Tab.

   - To do this: Right-click on "My Network Places" on your Desktop, select "Properties", right-click on the "Local Area Connection" icon for the network adapter that is connected to your broadband modem) select "Properties".

3. **Check the "Enable Internet Connection sharing for this connection" box to enable ICS.**

4. Clients that connect to the SoftGate enabled Access Point will now be able to share your Internet connection using Microsoft ICS.

Chapter 6 QUETEC SoftGate Manager

6.1 Overview

After the successful installation, you can find the following items in Start menu: All Programs:Quetec: SoftGate. Also in your system tray.

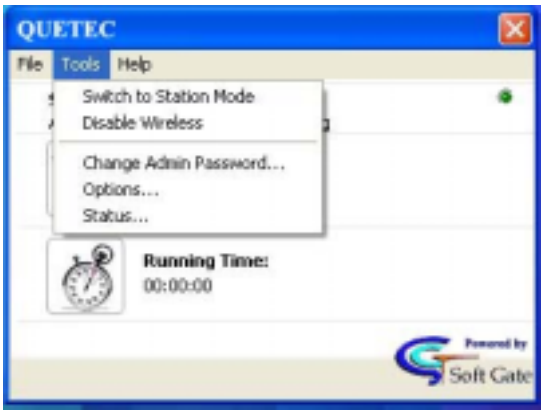
Quetec SoftGate Manager provides detailed control of SoftGate operation. This is the main screen of SoftGate.

- Green light blinks on the top right corner indicates proper SoftGate operation.
- Status: Shows the SoftGate mode and adapter status.
- Number of clients: How many clients connected to SoftGate.
- Running time

6.2 AP/Client mode setup procedures under WinXP

To access the "Options" menu select Tools>Options from the SoftGate menu bar.

- Select "Tools", "Switch to the Station Mode", you can easily switch from AP to station as you want.

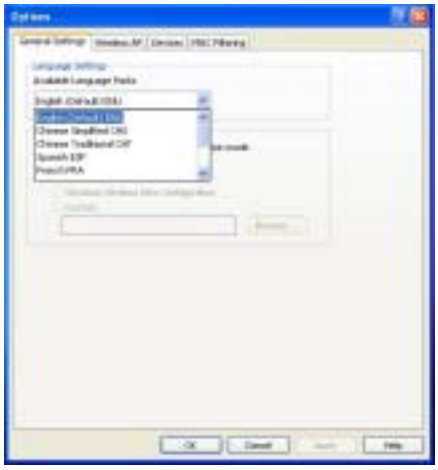


-In “Tools” section, use “Disable the wireless” to disable/enable the wireless connection.

-Select “Tools”, “Options”, to enter the detailed setup for SoftGate Manager.

-In “Options” area, you can change wireless related settings, incl. General Setting, Wireless AP, Devices, and MAC Filtering. To apply any changes you made, please click on “O.K” button.

-The Wireless AP interface provides an interface for general configuration settings for language and station mode client configuration



Language Settings: Use the pull down menu to select the language pack for SoftGate.

Station Mode Software: SoftGate provides the capability to operate in station mode to access wireless access points. If a wireless access / discovery client is installed check "Use the following software when in station mode" and select the appropriate client software to use when in station mode. SoftGate will automatically launch your client utility when switched into station mode.

-In "Wireless AP" area, you can change wireless related settings, incl. SSID, WEP, channel and SSID broadcasting. To apply any changes you made, please click on "O.K". If you need to do advanced setting, click "Advanced >>>" button.

The Wireless AP interface provides configuration options related to SoftGate's wireless AP functionality.

SSID: Service Set Identifier (SSID) is the name that clients will see when attempting to connect to the SoftGate.

Encryption Type: Relates to the security features of SoftGate. Security features are discussed in detail in ***SoftGate Security.***

Region: The geographic region where SoftGate is currently being used. Region is required for SoftGate to operate in accordance to regional regulations and specifications of use. You must select the region you are currently using SoftGate in.

- Americas
- Singapore
- Taiwan
- Japan
- Europe

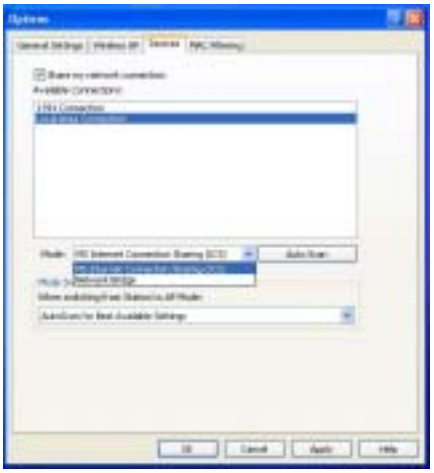
- Israel
- China
- France
- Spain

Channel: The 802.11 wireless channel that SoftGate will use to broadcast traffic.
Advanced Settings (Button): Fine tuning of SoftGate network settings - primarily for network troubleshooting or expert users.

-**In "Devices" setting area**, you can change the network connection mode. e.g. move from office to home, you can use "ICS/Bridge Settings" to redirect the network settings, and also to share the network connection.

Although the installation process will automatically configure SoftGate correctly based on the current network conditions, there will be times when the configuration will require modification.

Note: You will need to manually configure ICS on Windows ME and Pre Service Pack 4 on Windows 2000.



Share My Network Connection (Check Box): To enable Internet Connection Sharing (ICS). Typically, you will use this setting when the network does not support DHCP services, i.e. on your network at home.

Available Connections: The window displays available network connections that can be configured through SoftGate.

Mode: The current network mode that SoftGate is currently set to when sharing an Internet Connection:

MS Internet Connection Sharing: This mode provides Internet Connection Sharing to client connected to SoftGate through Microsoft ICS services. Clients connecting to SoftGate must be configured to obtain IP addresses automatically. This option is set in the TCP/IP interface on the client computer's network configuration for their wireless adapter.

Bridge Mode: This setting will be used to share Internet connectivity by bridging the current LAN adapter connected to the wired network and the wireless adapter SoftGate utilizes to provide wireless Access Point services. Typically, this mode is used on networks that provide DHCP services i.e. your office network.

Auto Scan: SoftGate will configure settings based on a scan of your current network conditions. In most cases, you will choose this option for best results.

Mode Switch Options: This setting allows you to configure SoftGate to automatically scan for the best available settings when you switch from station to Access Point mode. Use the pull down menu to choose the mode switch

- Auto Scan for Best Available Settings
- Prompt for Connection Settings
- Use Previous Settings

-Enter the "**MAC Filtering setting**" area to enable the MAC filtering function, choice the filter method that you want to use.

The MAC filtering interface provides the capability to explicitly allow or deny a client device access to the SoftGate enabled network. MAC filtering is a security feature of SoftGate that is discussed in detail in **SoftGate Security.**

-Choice the "**Status…**"menu to monitor the wireless AP, Devices and Stations (Status of connected clients) status. To access the "**Status**" menu select Tools>Status from the SoftGate menu bar

The SoftGate status menu provides various interfaces that allow the SoftGate administrator quick and easy access to the overall configuration details of SoftGate. The Status menu provides three interfaces:

SoftGate Wireless AP Status

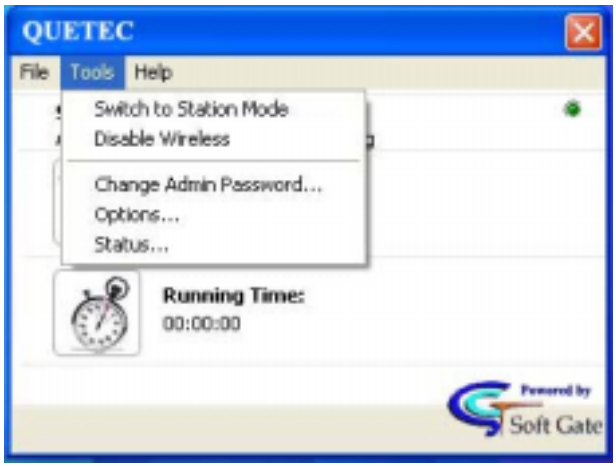
The current configuration of the SoftGate can be viewed in the "Wireless AP" interface. This interface provides a single view of the network status, security settings, number of clients currently associated, and how long SoftGate has been running.

SoftGate Stations Interface

The SoftGate "Stations" interface provides details on each client that is currently associated with the SoftGate AP. The interface provides the following information about connected clients:

- **Alias** – A user-friendly name that is associated with the device. The Alias must be configured using the MAC filtering interface
- **MAC Address** – The MAC (Media Access Control) address of the client device.
- **Idle Time** – The elapsed time since SoftGate has received any active traffic from the client.
- **Card Type** – The manufacturer or vendor name of the clients wireless network adapter.

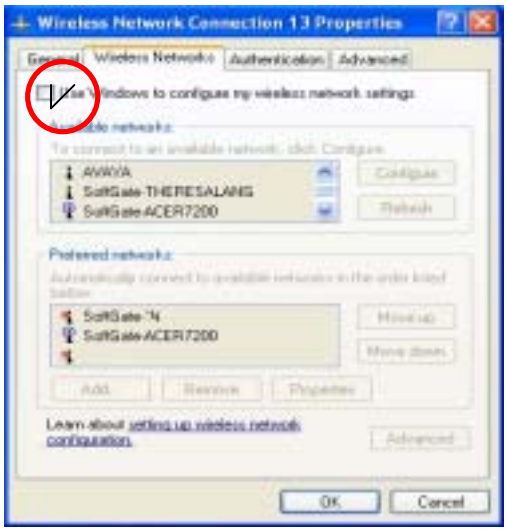
-Choice the “**Change Admin Password…**” to change your SoftGate password.



* Client mode function under WinXP

Under WinXP system, please using default wireless network utility when switching to station mode. You can find it on “Control panel”: “Networking”.

Make sure to choice “Use Windows to configure my wireless network settings” to enable wireless client function.



6.3 AP/Client mode setup procedures under Windows 2000-

The Windows 2000 AP set up procedures is almost the same as WinXP, only for the client function choice must do some changes as following:

- In “General Settings” at “Station Mode Software”, mark the “Use the following software when in station mode”, and make your selection. (We strongly recommend you to use the QUETEC client utility as your station mode software)

● *Client mode function under Windows 2000-*
for PCMCIA and PCI Interface

You can find the QUETEC client utility icon in the system tray when you are in Station mode. Double click utility icon start using the program.

- In "**Profile**" section, can select different configuration modes.
- Push the "**Refresh**" button, it can show all available wireless network/APs.
- Select one network name and push the "**Quick Connect**" button, you can easily connect to the wireless network.

- In "**Profile**" section, you can do configuration by pushing "**Configure**" button.
- Enter "**Configuration**" area to change Network Name, enable Data Encryption.
- Enter "**Advance Configuration**" area to change Transmit Rate, RTS Threshold, Fragment Threshold.

- From “**Country**” section, you can do select your region and push “**Apply**” button to enable the change.

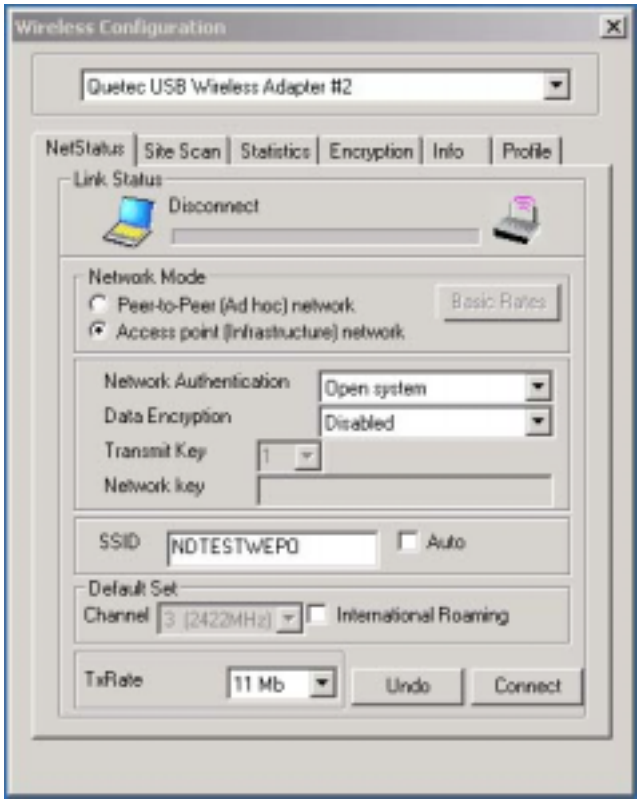
- In “**Site Survey**” section, you can get the updated network information via pushing “**Refresh**” button.

● *Client mode function under Windows 2000-* for USB Interface only

~ This section is only for SoftGate USB solution under station mode. For the PCMCIA and PCI solution, please refer to PCMCIA and PCI section. ~

You can find the wireless client utility icon in the system tray when you are in Station mode. Double-click the crab icon, following dialog box will appear.

The "**NetStatus**" tab shows the Link Status, Network mode, SSID, Channel, Tx. Rate. You also can change your Ad hoc/Infrastructure network, Data Encryption, SSID, Channel, Tx Rate in this tab. Push "**change**" button to choose the items.



***Network Mode:**
Two types for wireless network
-Peer-to-peer (Ad hoc) network
-Access point (infrastructure)

*** Network Security:**
-Support Network Authentication
-Support Data Encryption.

*** SSID:**

-Show the connected AP's SSID.

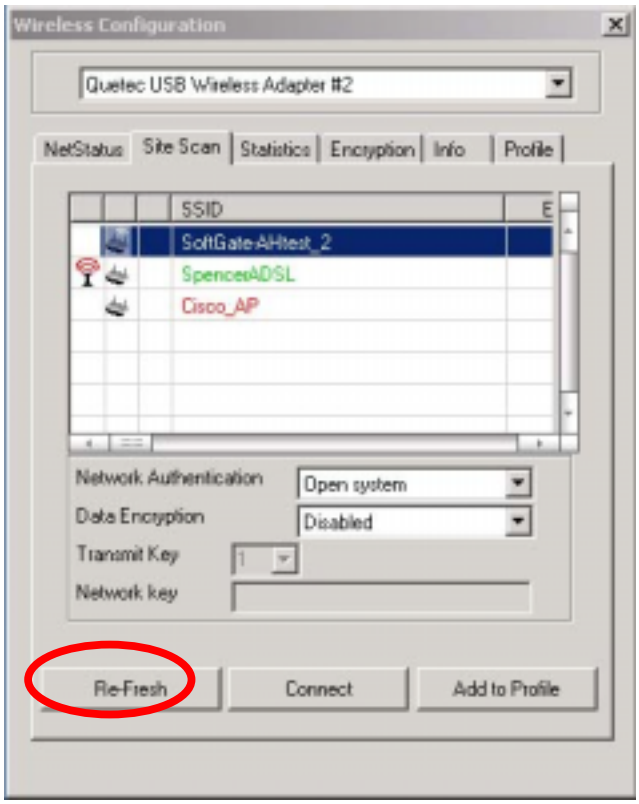
*** Default set Channel:**

-Show currently channel and provide the channel selection function.

*** TX Rate:**

-Show currently data transferring rate and provide the rate selection function.

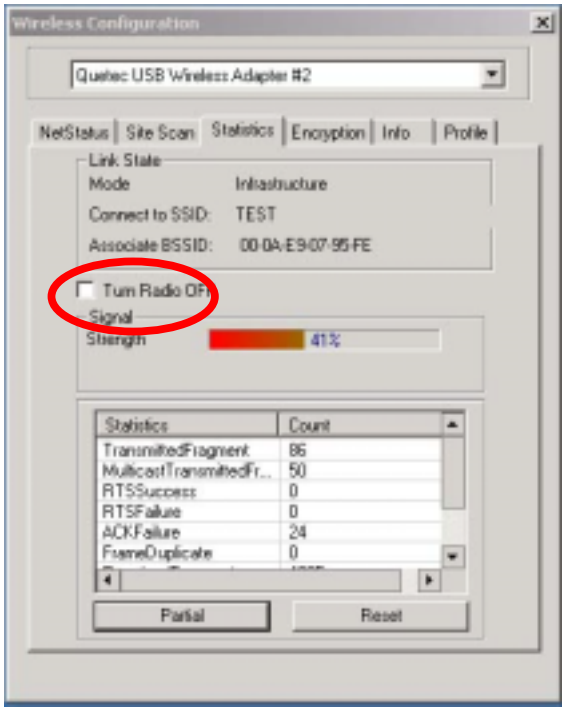
In “**Site Scan**”, Push “**Re-Fresh**” button to survey all available AP sites, You can assign Access Point or Ad-hoc devices which you want to connect. Push the “**Connect**” button to link the AP. It also provides the “**Add to Profile**” function.



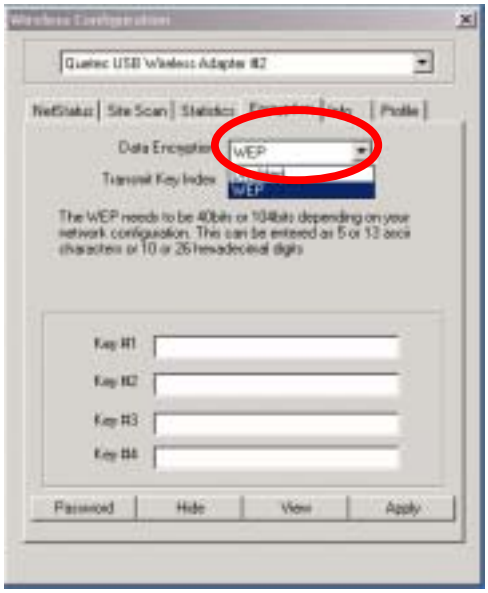
*The “**Add to Profile**” function provide user to save its wireless connection data into Profile database. Just push the“**Add to Profile**” button, and it will pop-up as following dialog windows that showing the detailed data.

Find the "**profile**" data in this tab. You can add new profile or edit pervious one in this session.

Select the "**Statistics**" tab, you will see the Link Status, Signal strength, and transmit/receive statistics. If check the Turn Radio OFF, the radio interface will be turn off.



Select the "**Encryption**" tab. If you want to enable the function, please set the Data Encryption to WEP.



WEP encrypts each frame transmitted from the radio using one of the Keys entered from this panel. To be written to the driver and registry, each key must consist of hex digits, which means that only digit 0-9 and letters A -F are valid entries. If entered incorrectly program will not write keys to a driver.

* For more detailed setting, please refer to QUETEC SoftGate Security section.

The "**Info**" tab shows the detail including Driver version, Configuration Utility, and NIC firmware version. Users must use this version number when reporting their problems for technical support.

6.4 QUETEC SoftGate Security

As mentioned in the SoftGate introduction, securing your SoftGate enabled network is essential in a wireless network environment.

Security for the SoftGate enabled wireless network is maintained through three primary features:

- Support for the Wired Equivalency Protocol (WEP)
- Support for MAC address filtering
- Automatically enables MS ICF on Windows XP (MS Internet Connection Firewall)

WEP Key Configuration

The wired equivalency protocol or *WEP* is an 802.11 encryption standard that provides a moderate level of security for wireless LAN's. Using WEP will provide enhanced security to your SoftGate powered network, providing network authentication and data encryption.

SoftGate allows the user to enter a 40 or 128 bit WEP key when installing SoftGate. The user simply enters the WEP key in either ASCII or Hex format and SoftGate automatically configures the SoftGate host to use WEP with the provided key. Clients that attempt to associate with the SoftGate host will be required to supply the WEP key.

SoftGate allows you to enter and store up to 4 keys, although you may only use one key at any given time. The interface provides the capability to quickly switch keys using the pull down dialog box "Use Key #".

Clients that connect to SoftGate must be configured to use WEP, and they must be configured with the correct WEP key before attempting to connect to SoftGate.

Figure shows details the "Wireless AP" interface where WEP security is configured.

Note: Use the following guidelines for entering WEP keys in ASCII or Hex format:

HEX: 10 characters in HEX notation for 40 bit, or 26 characters for 128 bit

ASCII: 5 characters for 40 bit, 13 characters for 128 bit.

MAC Address Filtering

SoftGate supports MAC address filtering for either allowing or denying access to individual clients. A MAC address (Media Access Control) is a unique hardware address for networking equipment. The MAC address is used by the network for associating an IP addresses to a users networking hardware, in this case their wireless LAN adapter. Because each MAC address is unique, it is suitable to use a MAC address for filtering purposes.

MAC Filtering User Interface

The MAC Filter configuration interface that allows the SoftGate host user the ability to configure SoftGate to explicitly “Deny” or “Allow” access to the SoftGate network based on MAC address of the client adapter.

When “Allow Access” method is chosen, only the listed MAC addresses that are checked will be granted access to the SoftGate enabled network (This is also true even if WEP is enabled and the user enters the correct key).

When “Deny Access” is the method chosen, listed MAC addresses that are checked will be denied access to the SoftGate enabled network.

Adding MAC Addresses

Simply press “Add” from the main MAC filtering interface. A dialog will appear that allows the user to add an explicit MAC address to filter, or the user can “Scan” currently connected users MAC addresses.

Using a MAC Alias

The “Add MAC Address” interface provides the ability to add a user-friendly id to the MAC address, making it easier to identify a user when viewing the connected station list

Chapter 7 QUETEC SoftGate Appendix

7.1 Appendix A: Quetec SoftGate Help Interface

Quetec SoftGate Help Interface

SoftGate features a comprehensive “Help” interface that provides quick answers to common questions concerning SoftGate network modes and configuration. To access the SoftGate “Help” interface, simply select Help from the main toolbar menu.

Chapter 8 Troubleshooting

The following are known issues with the SoftGate:

8.1 Standby/Resume Cycle

During a standby and resume cycle, SoftGate may stop functioning. If this happens, please restart the computer.

8.2 Connect to SoftGate but can't access internet

If a client machine connects to the SoftGate, but cannot access the internet, check that the SoftGate machine has internet access. Run "ipconfig" and make sure that the SoftGate has two connections, one for the internet and one for the SoftGate.

8.3 Quetec SoftGate Three network modes overview

During installation of the SoftGate, the installation process initiates a network configuration and discovery routine and sets SoftGate into a mode that is appropriate for your current network environment. It is important to understand the modes available, and why SoftGate has defaulted to the particular mode during setup. It is also important to understand these modes from the perspective that the SoftGate host can be portable AP device that will be run under varying network conditions.

The following sections describe the basic functionality of SoftGate network modes and provide an essential foundation for ongoing configuration of SoftGate in a "real-world" environment.

The three network modes available are:

- Access Point Only Mode
- Network Bridge Mode
- MS ICS Mode (Microsoft Internet Connection Sharing Mode)

Access Point Only Mode - Overview

Access Point only mode provides basic access point functionality in a closed network environment. Typically, this mode is configured when an external LAN is not available. This mode is the default mode that is configured if the SoftGate host PC is not connected to an external network through a wired LAN adapter.

From a network topology, AP only mode appears as:

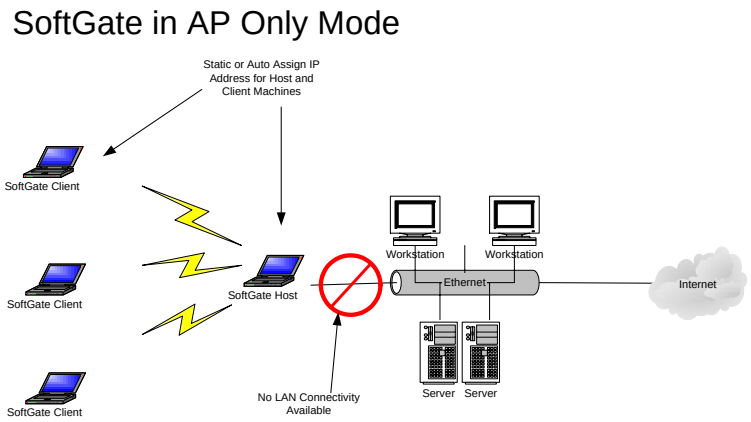


Figure 1: SoftGate in AP Only Mode

NOTE: In AP only mode there is no connectivity to an external LAN; therefore, there are no DHCP services available to clients that are configured to obtain IP addresses from the network. Both clients and SoftGate host must have a valid IP address or communication between clients or clients to host will not occur. An IP address must be assigned to the host and client either by automatic IP address assigning (XP only) or by assigning a static private IP address to each client.

Microsoft ICS Mode Overview

MS ICS (Microsoft Internet Connection Sharing) mode provides wireless AP connectivity to SoftGate clients and Internet Connection Sharing to an existing LAN through the SoftGate hosts LAN adapter. When SoftGate is configured in MS ICS mode, SoftGate clients are leased IP addresses using DHCP services from the SoftGate host. The range of IP addresses assigned to clients in this mode are 192.168.0.0-255.

A typical scenario for configuring SoftGate in ICS mode is when the SoftGate host computer is leased a single IP address from an ISP and multiple computers need to share a single network connection through the ISP. The SoftGate host will provide wireless AP functionality, DHCP service, and NAT services to SoftGate clients in such an environment.

SoftGate in Microsoft ICS Mode

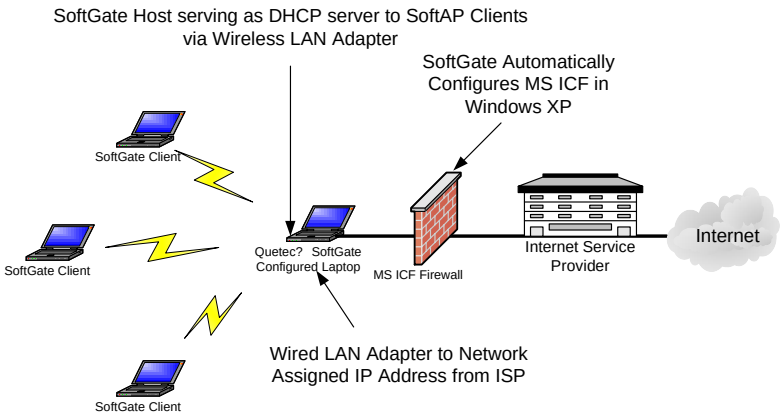


Figure 2: SoftGate in Microsoft ICS Mode

Bridge Mode Overview

Bridge mode provides wireless AP connectivity to SoftGate clients, and bridges the existing wired LAN segment(s) with the SoftGate host's wireless LAN adapter. Typically, a bridge is used to interconnect physical LAN segments on a network that already provides DHCP and routing services.

In a typical use case, SoftGate will run on a PC to provide wireless AP functionality to client devices. When run on a laptop, SoftGate is essentially a portable device that provides wireless AP functionality on virtually any network. Because each network configuration may be different, the SoftGate host will attempt to adapt to varying network configurations. When a network is running a DHCP service you will not want to introduce a node that is also running DHCP, therefore the SoftGate host should be configured in bridge mode if the LAN or any LAN segment uses DHCP.

SoftGate in Bridge Mode

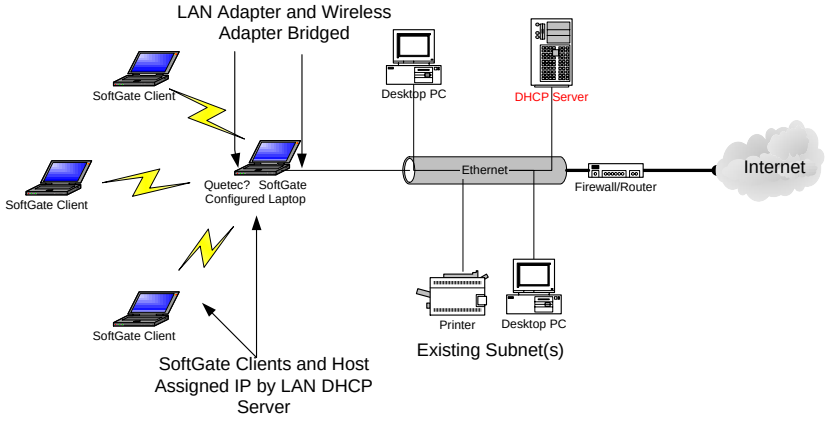


Figure 3: SoftGate in Bridge Mode

8.4 SoftGate more reliable & easier to use than Ad-Hoc networks

Ad-Hoc networks allow users to create a simple wireless network without the use of an access point. However, there are several drawbacks when relying on ad-hoc networks for wireless networking:

1: Ad-Hoc networks do not use the normal packet collision avoidance technique (RTS/CTS) because of the "False Blocking" problem.

802.11 networks deploy a packet collision avoidance mechanism called RTS/CTS (Ready to Send / Clear to Send). Although the mechanism works well in infrastructure mode (or AP mode), the de-centralized nature of ad-hoc networks renders them incompatible with RTS/CTS. When used in conjunction with ad-hoc networks, RTS/CTS dramatically decreases overall throughput due to a "false blocking" problem. Hence, most ad-hoc networks do not use the RTS/CTS mechanism.

Figure (1) illustrates the "false blocking" problem. Node 'B' is attempting to communicate with node 'A' so node 'B' therefore broadcasts an RTS packet, which places node 'C' in a "blocked" mode. This prevents 'C' from attempting to send packets while 'A' and 'B' is communicating, as such attempts to send would interrupt their connection.

At the same time, node 'D' wants to communicate with node 'C' so node 'D' broadcasts an RTS packet. Node 'D' does not receive a CTS message from node 'C' because node 'C' has been blocked from sending packets by the RTS packet that was broadcast by node 'B.' Node 'D' therefore enters a backoff period, and its capacity to communicate has been hindered.

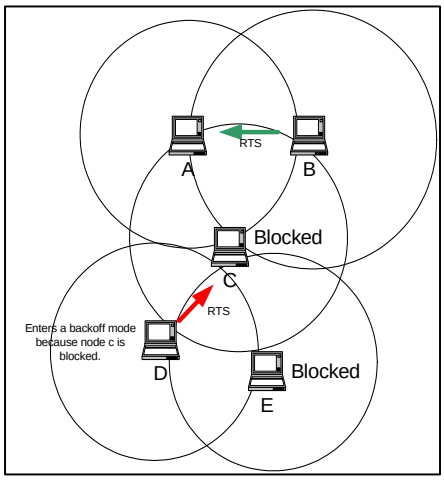


Figure 1: False Blocking Problem

Thus, node 'D' is unnecessarily blocked from communication with node 'C.' There is no real channel contention between nodes 'C' and 'D,' but the problem of "false blocking" thwarts their attempts to communicate. The problem of "false blocking" has further implications. Node 'E' is also blocked from communicating when node 'D' sends its RTS packet, and so on.

2. Because ad-hoc networks do not use RTS/CTS they are susceptible to the "hidden node" problem, which increases the number of collisions in the network.

Figure (2) shows that in an ad-hoc network, node 'A' cannot "hear" node 'C' because node 'B' is positioned between them, and because in order to avoid the "false blocking" problem the RTS/CTS mechanism is not being used. Since nodes 'A' and 'C' are "hidden" from each other and cannot hear each other, nothing prevents 'A' and 'C' from transmitting to node 'B' simultaneously.

This simultaneous transmission results in collision. In fact, the number of packet collisions in ad-hoc networks rises exponentially as nodes (computers) enter the network. Packet collisions force a sender to re-send packets, thus increasing latency (the time that it takes a data packet to move across a network connection), and diminishing overall throughput.

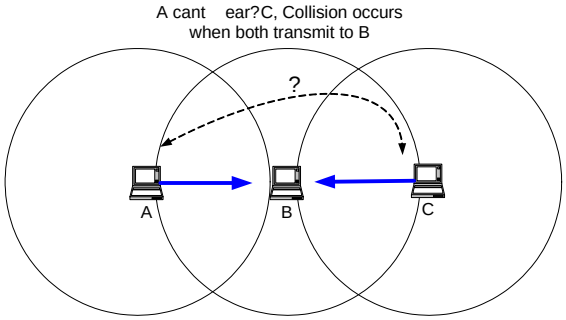


Figure 2: Blocked Nodes in Ad-Hoc Network

3. Ad-hoc networks are also susceptible to network breakdown due to their decentralized nature.

Figure (3) shows the ad-hoc network functioning properly, as all clients are able to communicate with each other. Figure (4) demonstrates how easy it is, though, for an ad-hoc network to break down. Because the client node in the middle is performing all of the routing for the other nodes, as soon as the client in the middle exits the network or changes locations, the entire network breaks down.

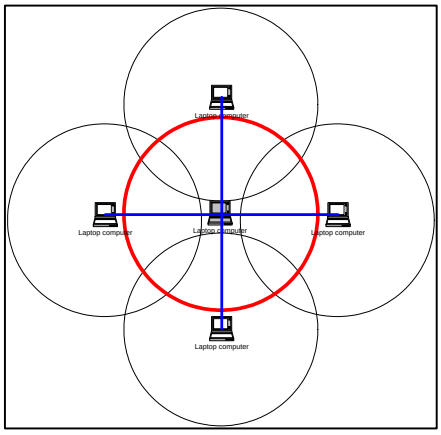


Figure 3: Ad-Hoc network functioning properly

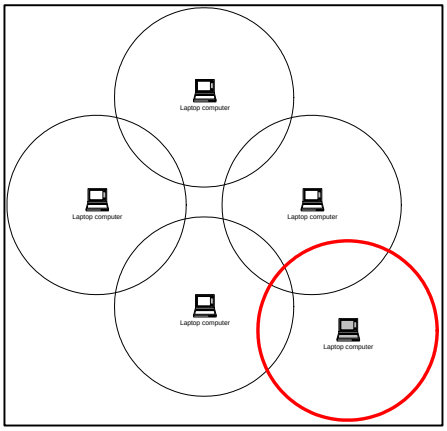


Figure 4: Ad-Hoc network breaks down when central node exits

Conclusion: SoftGate is less susceptible to problems related to ad-hoc networks.

Because SoftGate works as a true 802.11 wireless access point, client nodes do not rely on each other for routing and traffic management. It is the responsibility of the SoftGate host PC to centrally manage the wireless network. As long as client nodes can "hear" the SoftGate host PC, they are virtually guaranteed a solid connection, free from the unexpected drops or diminishing throughput that results from the "hidden node" problem. In addition, it is easy for client nodes to "hear" the SoftGate host PC because SoftGate functions as a true 802.11 access point, and is therefore compatible with the RTS/CTS mechanism. Figure (5) shows SoftGate successfully managing all of the client node traffic in the network.

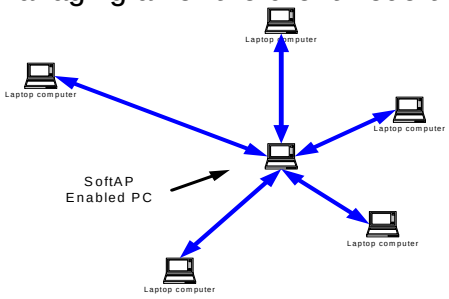


Figure 5: SoftGate host is a true AP, centrally managing client traffic.

QUETEC SoftGate Wireless AP/Router solution

(PCMCIA/PCI/USB interface)

中文繁體使用手冊

版本 **C3.0 July 2004**

www.quetec.net

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FCC安全指示

本產品已經過＜Class B 數位裝置＞測試及嚴格要求。此限制按照F C C規則的1 5個部分。這些限制是為了在居住環境中安裝任何設備，提供合理的保護，和對抗有害干擾而設計。若未按照指示正確的安裝或使用，此設備可能會產生或散發射頻能源，並可能對電訊交通造成有害的干擾。但是，並不保證在特殊的安裝中，不會產生干擾。

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.

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.

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.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This device complies with FCC RF Exposure limits set forth for an uncontrolled environment, under 47 CFR 2.1093 paragraph (d)(2).

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

This device was tested for typical by stander conditions that may occur during use. To comply with FCC RF exposure requirements a minimum separation distance of 1.5cm must be maintained between the user’s body and the device, including the antenna.

Remark: Wireless USB Dongle is limited in Ch1~Ch11 by specified fireware controled in U.S.A.

第一章 產品介紹

*本章節提供對於**Quetec SoftGate**無線基地台/路由器之特性及規格總覽.*

首先感謝您選購由Quetec SoftGate所研發生產的SoftGate無線網路方案，此產品能夠提供您連接您的桌上型/筆記型電腦以及無線的區域網路設備。無需任何傳統纜線佈置或無線存取點/路由器, Quetec SoftGate無線網路方案提供家庭或辦公室使用族群更具彈性且更容易上手的無線資訊環境,您可以輕鬆且安全的進行訊息傳遞,網際網路應用或者是與其他人進行如印表機等資源分享.同時,您不必求助於MIS的協助與維護更可省下一筆龐大的硬體設備費用.無論是在家庭,公園或是辦公室內Quetec SoftGate無線網路解決方案提供您無線空間的移動自由,讓您即刻進行訊息分享傳遞,享受無線寬頻上網的熱趣.同時,您無需額外添購無線路由器或是無線存取點等昂貴的設備,因爲SoftGate已經都幫您準備好了!

Quetec SoftGate非常合適於一般家庭以及中小企業族群使用，可大幅節省硬體投資及網路架設與維護費用，真正實現〝網路無限、無線網路〞的目標。

1.1 QUETEC SoftGate 產品特性

- **超值四合一功能**— 整合路由器、無線接入點、橋接器及無線網路卡等功能
- **符合 802.11b 無線傳輸標準**
- **安裝/使用簡易**— 自動偵測及設定無線接入點或無線使用端
- **安全/具彈性**—支援 64/128-bit 加密設計，確保資料傳輸安全

1.2 QUETEC SoftGate 規格

標準	符合 IEEE802.11b 無線傳輸標準
介面型態	PCMCIA, PCI, MiniPCI, USB
多工模式	路由器, 無線基地台, 橋接器, 及無線網路卡
調制技術	直接序列擴頻技術 DSSS
安全機制	64/128bit WEP 加密; TKIP(Temporal Key Integrity Protocol)
無線頻率	2.412 ~ 2.462 GHz (美國,) 2.412 ~ 2.484 GHz (日本) 2.412 ~ 2.472 GHz (歐洲) 2.457 ~ 2.462 GHz (西班牙) 2.457 ~ 2.472 GHz (法國)
頻道	4 (法國), 2 (西班牙), 14 (日本), 13 (歐洲), 11 (美國,加拿大)
傳輸速率及調制方式	11Mbps: CCK 5.5Mbps: CCK 2Mbps: DQPSK 1Mbps:DBSK
媒體存取協定	CSMA/CA
作業系統支持	Windows ME, 2000, XP
LED 指示燈號	電源, 連結, 運行中
接收靈敏度	11Mbps@-84dBm 5.5Mbps@-86dBm 2Mbps@-91dBm 1Mbps@-93dBm
傳輸輸出	高於 17dBm
工作電壓	3.3/5V
溫度	運行：-0˚C to 55˚C (32˚F to 131˚F) 儲存：-5˚C to 70˚C (23˚F to 158˚F)
溼度	運行: 0% to 90% Non-Condensing 儲存: 0% to 90% Non-Condensing
認證	FCC, CE, SAR
產品保固	一年(硬體)

1.3 QUETEC SoftGate 介面描述

QUETEC SoftGate AP/Router 無線方案提供數種介面型態:

- **PCMCIA: 符合 PC card type II**
- **PCI: 符合 32 bit PCI 2.2**
- **USB: 符合 USB 1.0(2.0)**

2

第二章 硬體安裝總覽

2.1 QUETEC SoftGate PCMCIA/PCI/USB 介面安裝圖示

＊本安裝過程可能需要數分鐘完成.

注意：爲了節省您寶貴的時間，在您開始安裝前,我們建議您先確認手邊有符合安裝所需要的正確設備。包括SoftGate 無線介面裝置, 安裝光碟, 以及可供使用的電腦插槽..

2.2 安裝前確認事項

- 所欲安裝之機器必須配備 SoftGate 所支援之作業系統如視窗 ME/2000 或 XP.
- 預先確認所安裝之機器已可順利藉由微軟 IE 瀏覽器連結到網際網路.
- 假如所欲安裝之機器已先裝有其他無線網路卡,請在安裝 SoftGate 前先到開始: 控制台:系統: 硬體: 裝置管理員: 網路介面卡, 選擇您正在使用的無線網路卡, 按滑鼠右鍵, 關閉此一裝置運作.

2.3 QUETEC SoftGate 快速安裝指南

一旦您已準備好進行安裝後, 請依下列步驟指示:

步驟一.

PCMCIA與USB介面: 先將SoftGate安裝光碟插入欲安裝之電腦光碟機中,自動安裝程式將會啓動安裝精靈,接下來請在視窗中選擇你所要安裝的介面裝置圖形開始進行安裝程式.

使用PCI介面: 首先關閉電源將PCI介面卡插入電腦PCI槽中後重新啓動電腦. 當系統出現安裝新硬體精靈時, 請按取消選項後將SoftGate安裝光碟插入欲安裝之電腦光碟機中,自動安裝程式將會啓動安裝精靈,接下來請在視窗中選擇你所要安裝的介面裝置圖形開始進行安裝程式.

步驟二.

程式將自動執行安裝並設定所有的動作,當安裝精靈出現插入適合的介面卡裝置訊息時,請依照安裝精靈的指示將介面卡插入指定的槽位中,按下一步繼續安裝動作.

步驟三.

繼續依照安裝精靈所要求的動作完成所有驅動程式及應用工具的安裝. 此時softGate將會自動將你的電腦設定爲無線基地台模式.

3

第三章 QUETEC SoftGate 包裝內容

3.1 檢查包裝

在您開始安裝本產品之前，請先將您所購得之產品與以下的配件清單檢查比對，以確定沒有任何配件有損壞或遺漏的清況發生。完整的產品配件應包含下列物件， 物件如有任何短少，請速與原經銷單位聯絡，以確保您的權益：

包裝內容包含:

- 1 片 QUETEC SoftGate 無線網路介面卡(PCMCIA 或 PCI 或 USB)
- 1 片自動安裝光碟: 光碟內容如下
  - SETUP.EXE: SoftGate 安裝程式
  - Userguide: 使用手冊
- 一張快速安裝指南
- **USB 包裝中另附一條 USB 纜線**

第四章 系統需求

請再次確認您欲安裝之電腦系統配備符合 SoftGate 最低之需求
:

- 電腦配備中央處理器需 PII 366MHz 或以上
- 128MB 記憶體或以上
- 微軟視窗 ME, 2000, XP
- 一組可以使用之插槽
- 光碟機

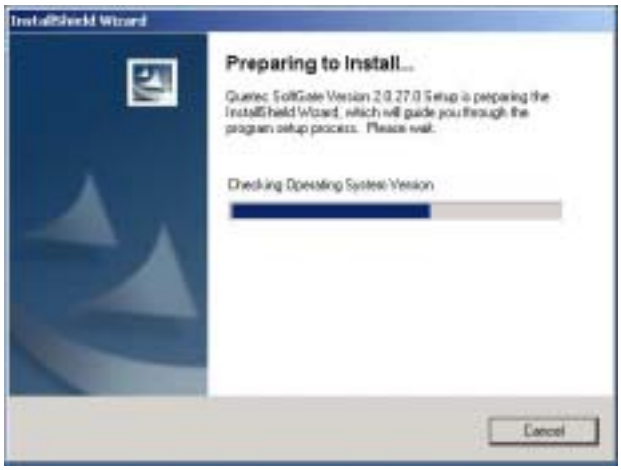
5

第五章 QUETEC SoftGate 安裝程序說明

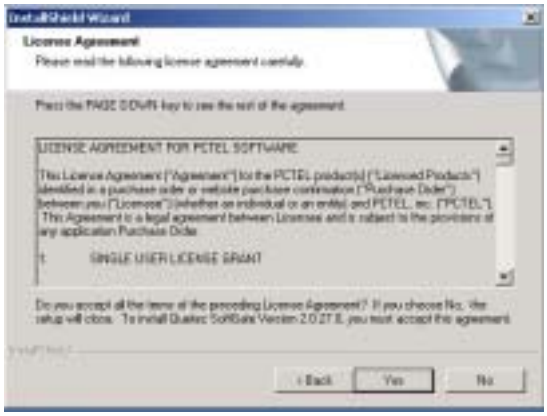
此一章節說明將引領您基於微軟視窗 2000/XP 作業系統下進行 SoftGate 無線網路裝置的安裝與設定.

注意:
請勿先將 PCMCIA 介面卡插入機器,請在接或安裝指示通知你後再將卡片插入.
假如您先前曾安裝過舊版 SoftGate 程式,請先將它移除後再開始進行安裝步驟.

-將自動安裝光碟插入光碟機然後按下你所欲安裝之 SoftGate 裝置圖示, 會自動跳出安裝歡迎畫面.



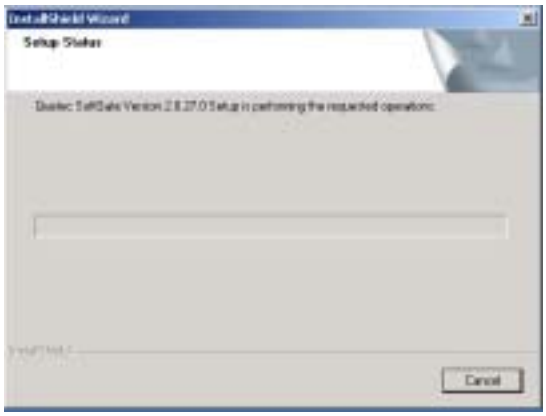
-按下 “Next”鍵後,將會出現版權聲明畫面,
假如您同意版權內容請按下 “Yes”後繼續進行安裝步驟.如您不同意請按下“No”後離開 SoftGate 安裝程式



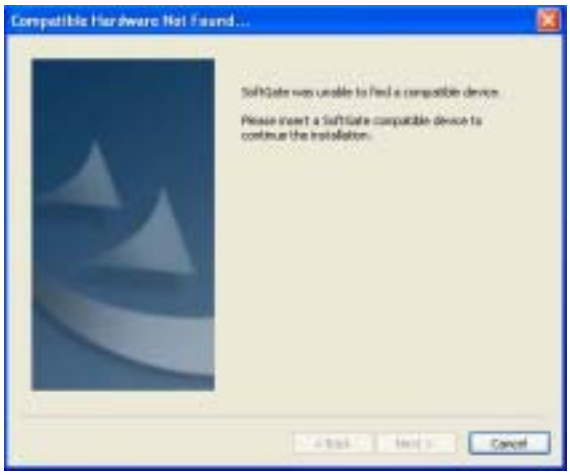
-選擇您所要安裝的模式後按“Next”鍵,進行下一步動作.
(建議您選擇 “Express”模式進行首次安裝)

安裝過程中如您見到作業系統跳出此一硬體安裝警示視窗, 請按 “Yes” 進行下一個安裝步驟

-安裝精靈將會自動執行安裝步驟,



-針對 PCMCIA/USB 介面安裝, 您會看到要求您插入 SoftGate 合適的裝置之對話視窗. 此時請將 PCMCIA/USB 插入您的電腦插槽, 安裝精靈將會自動繼續進行安裝步驟.



-此時, SoftGate 安裝精靈將自動設定爲無線基地台模式.

-在安裝過程後, 您將會看到下列訊息,
請按 “Next”鍵繼續安裝動作.

-請按”Finish”鍵完成安裝步驟.

您可以使用配備有其他無線網路卡的電腦進行連結,並測試 **SoftGate** 所提供的超強功能.
您應該同時也能在可用網路清單中發現 **SoftGate.**

5.1 Windows ME 安裝重點提示

使用 SoftGate PCMCIA/USB 介面安裝

當您要在 Windows ME 作業系統下安裝 SoftGate, 在安裝過程中請勿將 PCMCIA/USB 介面卡插入電腦中.
請勿將 PCMCIA/USB 介面卡插入,直到 SoftGate 安裝程式要求你時再進行此一動作.

使用 SoftGate PCI 介面安裝

先關閉電源將 PCI 介面卡插入電腦 PCI 槽中,並確定卡片安裝妥當.

在看到 "加入新硬體" 精靈視窗時,請關閉此一程式,並開始執行 SoftGate 的安裝光碟.

安裝 Windows Me ICS 功能

在安裝好 SoftGate 之後欲將 SoftGate 設定在站台模式, 在 Windows ME 作業系統下您必須手動設定 ICS 以便分享網際網路連接. 下列步驟將協助您如何進行 ICS 設定. 請在安裝妥 SoftGate 後依循下列指示.

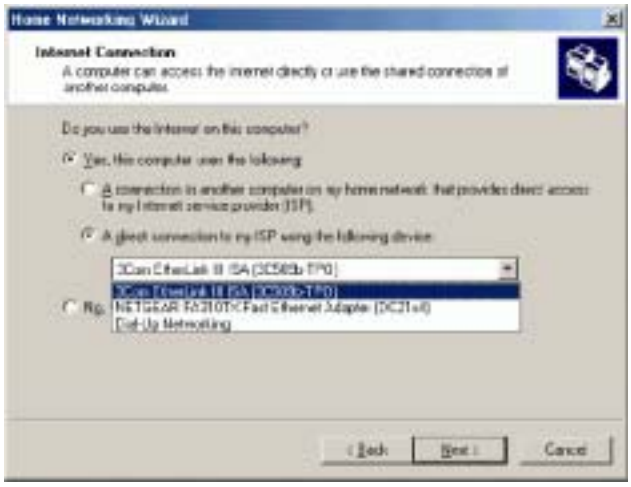
7. 下列步驟將協助您在 Windows Me 下設定 ICS 模式.

- **選擇開始 >設定 > 控制台>新增/移除程式.**
- 按下 **Windows 安裝程式選項**, Windows 將會自動發現所安裝之程式元件.
- 選擇並按下**通訊圖示**, 檢查 **Internet 連線資源分享**後按 **OK** 關閉**通訊**選項視窗,按 OK 關閉**新增/移除程式視窗**.

8. 此時將開始安裝 Microsoft ICS, 同時系統會啓動家用網路精靈. 請選擇下一步開始安裝步驟.

9. 因爲 SoftGate 可以讓允許 PC 啓動網際網路分享之選項:你可以看到下列訊息 **“Yes this computer uses the following”,** 及 **“A direct connection to an ISP using the following device”.**

10. 按下選項箭頭 (如下圖示) 將會出現可供分享之介面卡清單. 選擇您所使用來連接寬頻數據機之網路介面卡後按 **Next** 鍵**.**



11. 當視窗出現” 您是否要讓其他使用者透過您的電腦分享網際網路連線” 訊息時請按“Yes” 鍵. 此時下拉式選幕中出現可供其他使用者連接之介面卡訊息時,請務必自清單中選擇 **SoftGate** 介面卡. 按 **Next** 鍵.

12. 此時將會出現” 是否需要製作家庭網路安裝磁片” 訊息視窗.您可以選擇” NO “結束安裝步驟, 或者您可以進行製作家庭網路安裝磁片動作,讓其他電腦使用此一安裝磁片.假如你選擇製作家庭網路安裝磁片請依照螢幕所指示之步驟進行之.

注意: 請參考您的 Windows Me 使用手冊 或進入 http://support.microsoft.com 微軟技術支援網站獲取更多相關訊息.

5.2 設定 Windows 2000 ICS 模式

在此非常強烈建議您升級您的 Windows 2000 作業系統到 Service Pack 4. 假如你無法升級,那您必須完成安裝 SoftGate 後在 Windows 2000 系統下手動進行設定 ICS 設定.

5. **確認您的纜線數據機, DSL 或其他寬頻連接設備正常運作.** 並確認你可以透過寬頻連接設備聯結到網際網路.

6. **開啓連接寬頻數據機之網路介面卡內容選項後按下 "Sharing" 選項區.**

   - 操作步驟:在 桌面之"My Network Places" 圖示輕壓滑鼠右鍵, 選擇 "Properties",在"Local Area Connection"圖示上按滑鼠右鍵,選擇"Properties"選項.

7. **勾選"Enable Internet Connection sharing for this connection" 選項啓動 ICS 模式.**

8. 此時已設定爲無線基地台的 SoftGate 將可讓連接上之無線網路用戶利用微軟之 ICS 模式進行網際網路連結分享.

第六章 QUETEC SoftGate 操作管理者

6.1 總覽

當成功安裝完 SoftGate 後,您可以在開始:所有程式集與工作列找到 QUETEC SoftGate 圖示.

SoftGate 操作管理者主介面提供詳細操作功能:

- 右上角綠色燈號呈現閃爍狀態:代表 SoftGate 正在運行中
- 狀態: 顯示操作模式與介面卡狀態
- 用戶端數目: 顯示有多少用戶端連接到此一 SoftGate 上
- 執行時間:顯示 SoftGate 執行時間