APPENDIX J: MANUAL

Please see the following pages.

SAMSUNG ELECTRO-MECHANICS

SAMSUNG

MagicLAN

SWL-2210M/P

User Manual (Rev. 1.4)

Table of Contents

1. MagicLAN Installation ……...……..……...…...9
   1.1 Introduction ..……..……...…….…..9
   1.2 Technical Background ……..…….…..…9
   1.3 MagicLAN Overview….……...…….….…….…..……....11
2. Before the Installation ……..…….....13
   2.1 What is in your Package …….….…..13
   2.2 System Requirement ……..…….…...13
   2.3 Preparations For Installation……..…….…...13
3. MagicLAN Installation for Windows 98/ME/NT4.0/2000/XP/Linux ……14
   3.1 Installation Overview …….…….……...14
   3.2 Installation Procedure of Windows 98 …….…….…14
   3.3 Installation Procedure of Windows ME …….…….…21
   3.4 Installation Procedure of Windows NT4.0 …….…….. 27
   3.5 Installation Procedure of Windows 2000 ……...…….36
   3.6 Installation Procedure of Windows XP …….……..…….42
   3.7 Installation Procedure of Linux …...…….……..……...……..48
   3.8 Update of MagicLAN Wireless LAN Card Driver…….….…….…….....54
   3.9 Removal of MagicLAN Wireless LAN Card Driver…….…54
4. The Program for setting MagicLAN..…….……...……..……..…56
   4.1 The concept of Profile…….……..…..……..56
   4.2 Installation Procedure…….……56
5. The main configuration of Program……...….……...……....61
   5.1 Profile……...……..…….…63
      5.1.1 The ‘New’ button…….……..…….……...63
      5.1.2 The ‘Apply’ button……..……...……...63
      5.1.3 The ‘Edit’ button……..……..…63
      5.1.4 The ‘Delete’ button……..……...…..66
   5.2 Status……...…….…….…..…..…66
      5.2.1 The ‘Current Status’ button…….……...….....67
      5.2.2 The ‘AP Status’ button..…….…….……..……..67

5.2.3 The ‘Site Survey’ button……..……...……..68
5.2.4 Statistics……...……..……...……...……..69
5.3 General Settings…….……..……...….……..…….….……69
5.3.1 The ‘DHCP’ button…….…….…..….69
5.3.2 The ‘Options’ button…….…….…….….70
5.4 Version…….……..…….70
6. Troubleshooting …….....……..…….…….72
Probable Symptoms and their Diagnosis……...…..

Notice 1

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All other brand and product names are trademarks of registered trademarks of their respective holders.
This is a generic manual; references to other products are contained herein.
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Note: 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 or more of the following measures:

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

Notice 2

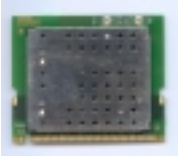
WARNING
The device must not be colocated with any other antenna or transmitters. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. While installing and operating this transmitter and antenna combination the radio frequency exposure limit of 1mW/cm2 may be exceeded at distances close to the antennas installed. Therefore, the user must maintain a minimum distance of 20 cm from the antenna.

Important Safety Information

- Read these simple guidelines. Breaking the rules may be dangerous or illegal. SAMSUNG will not be responsible for any damages caused by breaking the rules.
- WLAN Card described in this document is approved for use in a wireless local area network.
- Remember to make backup copies of important data.
- When you are transferring data, keep your laptop computer stationary. Roaming between access points (APs) may break the connection.
- Only qualified service personnel must repair the equipment.
- All wireless devices may get interference, which could affect performance.
- Use approved accessories only. Do not connect incompatible products.
- Use only accessories approved by the WLAN Card manufacturer for use with this particular WLAN Card. The use of any other types will invalidate any approval or warranty applying to the WLAN Card, and may be dangerous.
- Use only the region settings appropriate for the area where the WLAN Card is used at the present time. Using the card in any other region or with an incorrect region setting is prohibited and may be illegal.
- Operation of any radio transmitting equipment, including a WLAN Card, may cause interference with the functionality of inadequately protected medical devices.
- Do not use the WLAN Card on aircraft.
- Do not use the WLAN Card at a refueling point.
- Do not use the WLAN Card near inflammable materials or chemicals.
- Do not use the WLAN Card where blasting is in progress.
- Do not use the WLAN Card when the use of wireless device may cause interference or danger.
- Do not use the WLAN Card where the use of cellular terminals is prohibited.
- Microwave ovens degrade the performance of a wireless LAN drastically. Do not use the WLAN card in the environment where a microwave oven is being used.

SAMSUNG ELECTRO-MECHANICS

11Mbps High Rate 802.11b Wireless LAN MiniPCI Card



■ Specifications

Model Name	SWL- 2210M
System Interface	MiniPCI Spec 1.0
Frequency Band	2.412 ~ 2.462 GHz (Subject to local regulations)
Operating Voltage	3.3V±5% from PC
Current Consumption	Receive :210mA(Typical)
	Transmit : 390mA(Typical)
Data Rate	1, 2, 5.5 or 11Mbps
Spreading	DSSS(Direct Sequence Spread Spectrum)
Output Power	33.9mW(15.3dBm) for 22MHz Bandwidth, 7mW/MHz
Receive Sensitivity	Typically -85dBm at 11Mbps
Security	40-bit/128-bit WEP Encryption
Antenna Connector	SMT Ultra Miniature Coaxial Connector 2 pieces
Available Drivers	Linux & Microsoft Windows 98/ME/NT/2000/XP/CE
Standards	IEEE 802.11b
Media Access Protocol	CSMA/CA
Temperature Range	Operating : 0~55℃(32~131°F), Storage : -20~70℃(-4~158°F)
Humidity	10% to 90% Non-condensing
Operating Range	Open Space : 150m(500ft) at 11Mbps, 200m(660ft) at 2Mbps
(1024 bytes file transfer)	Closed Office: 30m(100ft) at 11Mbps, 50m(160ft) at 2Mbps
Dimensions	59.75 ㎜×50.95 ㎜×5.00 ㎜
Certifications & Regulatory Approvals	WHQL Certified (Designed For Windows 98/ME/NT/2000/XP). FCC, R&TTE(Europe)

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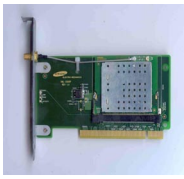

11Mbps High Rate 802.11b Wireless LAN PCI Card

■ Specifications

Model Name	SWL-2210P
System Interface	PCI Spec 2.2
Frequency Band	2.412 ~ 2.462 GHz(Subject to local regulations)
Operating Voltage	5V ±5%
Current Consumption	Receive :210mA (Typical)
	Transmit : 390mA (Typical)
Data Rate	1, 2, 5.5 or 11Mbps
Spreading	DSSS(Direct Sequence Spread Spectrum)
Output Power	33.9mW(15.3 dBm) for 22MHz Bandwidth, 7mW/MHz
Receive Sensitivity	Typically -85dBm at 11Mbps
Security	40-bit/128-bit WEP Encryption
Antenna	External 5dBi Patch Antenna with SMA reverse connector and 1.5m cable
Available Drivers	Linux & Microsoft Windows 98/ME/NT/2000/XP/CE
Standards	IEEE 802.11b
Media Access Protocol	CSMA/CA
Temperature Range	Operating : 0~55℃(32~131˚F), Storage : -20~70℃(-4~158˚F)
Humidity	10% to 90% Non-condensing
Operating Range	Open Space : 150m(500ft) at 11Mbps, 200m(660ft) at 2Mbps
(1024 bytes file transfer)	Closed Office: 30m(100ft) at 11Mbps, 50m(160ft) at 2Mbps
Dimensions	126.88㎜×70.00㎜×18.00㎜
Certifications & Regulatory Approvals	WHQL Certified (Designed For Windows 98/ME/NT/2000/XP). Korea, FCC, R&TTE Approval(CE) and 15EU &4 EFTA Countries Notification completed

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**** Table: The Operating Channels

Channel#	Frequency	FCC	Canada	ETSI	Spain	France	Japan
1	2412MHz	0	0	0	0		0
2	2417MHz	0	0	0	0		0
3	2422MHz	0	0	0	0		0
4	2427MHz	0	0	0	0		0
5	2432MHz	0	0	0	0		0
6	2437MHz	0	0	0	0		0
7	2442MHz	0	0	0	0		0
8	2447MHz	0	0	0	0		0
9	2452MHz	0	0	0	0		0
10	2457MHz	0	0	0	0	0	0
11	2462MHz	0	0	0	0	0	0
				0			
							0

1. MagicLAN Installation

1.1 Introduction

Thank you for your purchase of SAMSUNG MagicLAN. Installing this cards allow the computer to join a wireless network based on the IEEE 802.11b (High Data Rate) WLAN standard. You will be surprised how easy for you are a part of the network with no bother of twisted cables.

1.2 Technical Background

• What is IEEE 802.11?

The IEEE 802.11 specification is a wireless LAN standard developed by the IEEE (Institute of Electrical and Electronic Engineering) committee in order to specify an *over an air* interface between a wireless client and a base station or Access Point (AP), as well as among wireless clients. Like other IEEE 802 families, IEEE 802.11 specification addresses both Physical (PHY) layer and Media Access Control (MAC) layer.

• IEEE 802.11 Physical (PHY) Layer

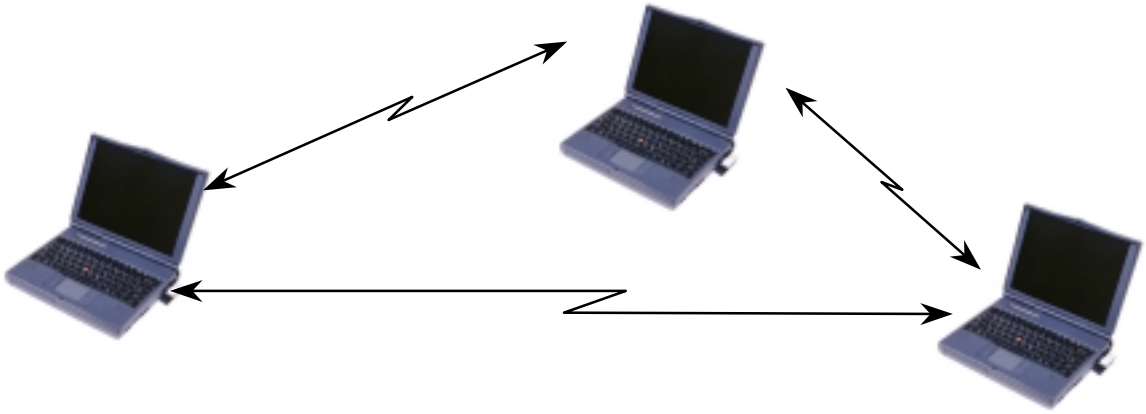
At the PHY layer, IEEE 802.11 defines three physical characteristics for WLAN: diffused infrared, direct sequence spread spectrum (DSSS), and frequency hopping spread spectrum (FHSS). While the infrared PHY operates at the baseband, the other two PHYs operate at the 2.4GHz ISM (Industrial, Scientific, and Medical) band, which can be used for operating wireless LAN devices without the need of end-user licenses. In order for wireless devices to be interoperable, they have to be conforming to the same PHY standard.

• IEEE 802.11 Media Access Control (MAC) Layer

The IEEE 802.11 MAC Layer is mainly concerned with the rules for accessing the wireless medium. There are two network architectures defined: Ad-hoc Network and Infrastructure Network.

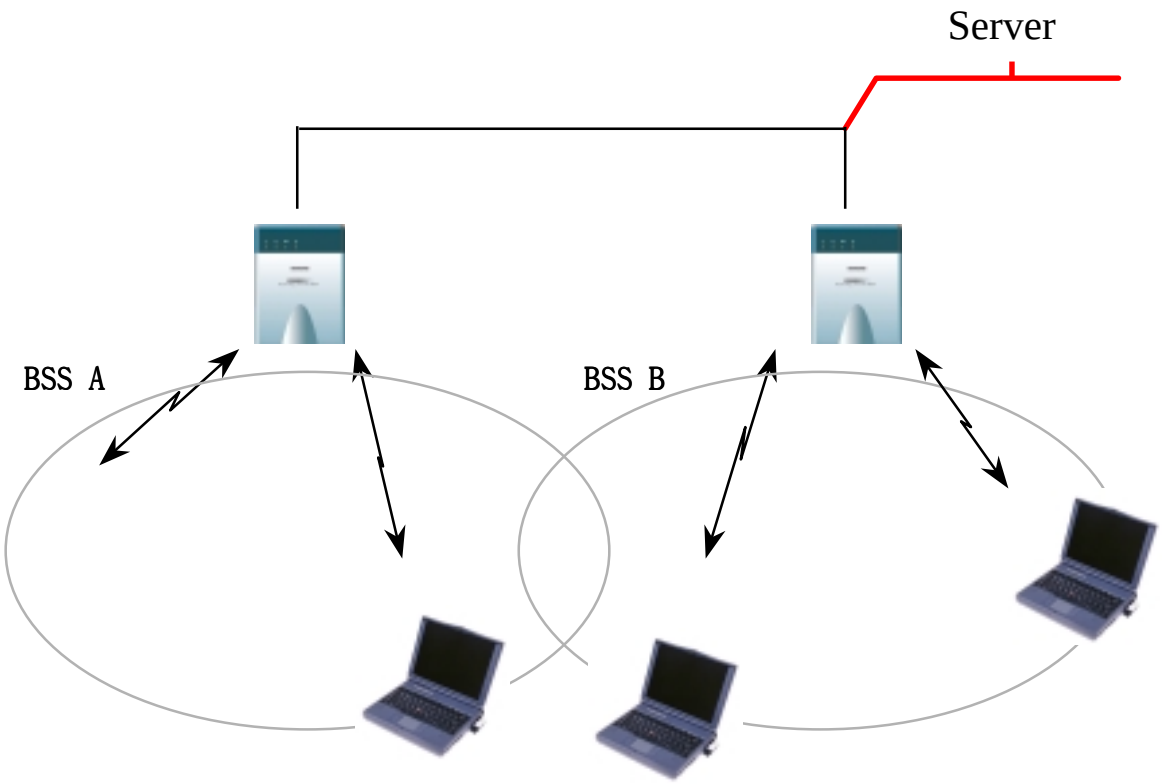
• Ad-hoc Network

Ad-hoc Network is an architecture that supports mutual communication among wireless clients only. Since Ad-hoc Network does not support access to wired networks, it does not need an Access Point to be a part of the network. You can use the network immediately after setting up the operating mode by installing the supplied network driver.



• **Infrastructure Network**

Infrastructure Network is architecture that provides communication between wireless clients and wired network resources. An Access Point (AP) and the associated wireless clients define the transition of data. So a wireless client can access all the services that are available for a regular wired LAN by using an AP.



• **Roaming**

Roaming is a service that allows wireless clients to use the network in motion by

automatically changing the connection from an old Access Point to a new Access Point when the clients enter in a new cell. During roaming the clients may observe the loose connection or delay in accessing the resources of the network.

• **Scanning, Beaconing & ESS ID**

When a wireless client is initialized, it is necessary for it to find and communicate with the correct group of wireless devices, including AP. At this point, it may search for all the frequency channels and this process is called *scanning*.

There may be multiple APs and networks operating at the same time. It may be necessary to ensure that the station joins with the correct network during the scanning process. To achieve this, each AP is assigned to be part of a logical group called the Extended Service Set (ESS). The name of this logical group is the ESS ID. When roaming is operating, there may be several Access Points as part of the same ESS.

After the power on, wireless clients will listen on its default frequency channel. It will be listening for *beacons* sent by another wireless station or AP. Beacon is a short message containing the ESS ID that will be broadcast roughly ten times a second. When the wireless station hears a beacon and the ESS ID in the beacon matches its own, the client knows that it is on the correct channel and can communicate with its group. If no beacons are seen, or if the ESS ID does not match, the wireless client may move to the next frequency channel and repeat this listening procedure.

In case of direct sequence spread spectrum (DSSS) physical layer, this scanning process occurs at start up and may also occur when the client roams between APs.

1.3 MagicLAN Overview

• The MagicLAN SWL-2210M/P(MiniPCI/PCI Card) are wireless LAN adapter cards that provide wireless connection between computers.

• The MagicLAN is designed to operate with IEEE 802.11 (wireless LAN International Standard) wireless compliant radio cards and uses a CSMA/CA (Collision Sense Multiple Access with Collision Avoidance) algorithm as the media access scheme, which makes high speed communication (with minimal collision probability) possible.

• The MagicLAN supports DSSS (Direct Sequence Spread Spectrum) physical layer. This is a radio technique, which scrambles the data prior to transmission and uses a correlation technique on receiver to improve the signal to noise ratio and makes it possible to

communicate in the office having a wall and a compartment.

• The function of the MagicLAN Access Point is to transfer information from a wired LAN to a wireless LAN and vice versa. When operating, the MagicLAN AP is invisible to most users (Normally, unless the user is an administrator, the MagicLAN AP cannot be seen or accessed by users on the network).

• The SWL-2210M/P both for Laptop PC and Desktop PC is small and portable as a roaming function is provided for users who need network services while maintaining mobility.

• The MagicLAN supports various network software. The network driver is provided to support network software such as Windows 95(OSR2), Windows 98/98SE,ME, Windows NT 4.0, Windows 2000, Windows XP, Windows CE and Linux.

• To get further information of Samsung MagicLAN WLAN Card, please visit our website at http://www.magiclan.com to download the respective drivers.

2. Before the Installation

The following section will assist you in installing your WLAN Adapter successfully. You will install the SWL-2210M/P Card and software(driver & utility), and finally set the network properties to accommodate resource sharing and select the type of wireless network that you wish to install. The MagicLAN can easily be installed and used, without bothering to connect cables for keeping your computer to use network resources, as in case of a wired LAN.

2.1 What is in Your Package?

Please check the contents of the box to make sure everything is included and ready for use. Here is the list of what you should have in your package:

- SWL-2210M/P(MiniPCI/PCI Card)
- External Antenna
- Samsung MagicLAN Installation CD

2.2 System Requirement

- Operating System: Windows 95(OSR2)/98/98SE,ME, Windows NT 4.0, Windows 2000, Windows XP, Windows CE, Linux
- Computer System (both Laptop and Desktop) with a CD-ROM drive
- For Desktop PCI Card (SWL-2210P):
  The computer system should have extra IRQs and a Memory address.
- For Laptop MiniPCI Card (SWL-2210M):
  The computer system should have MiniPCI Type IIIA, extra IRQs and Memory address.

2.3 Preparations For Installation

◇ You have to prepare Installation CD which is provided by manufacturer.

◇ You can just install SWL-2210M/P cards to use Ad-hoc network.

◇ You need to install Access Poing(AP) to use Infrastructure network.(Refer to the AP Manual about the installation method of AP)

◇ You may need the original CD of (Windows 95(OSR2), Windows 98SE(98),Windows ME, Windows NT 4.0, Windows 2000, Windows XP) to set network environment.

3. MagicLAN Installation For Windows 98/ME/NT4.0/2000/XP/LINUX

We will explain the installation method for SWL-2210M/P (MiniPCI/PCI Card) .

3.1 Installation Overview

Here are some steps you will perform in establishing your wireless network connection:

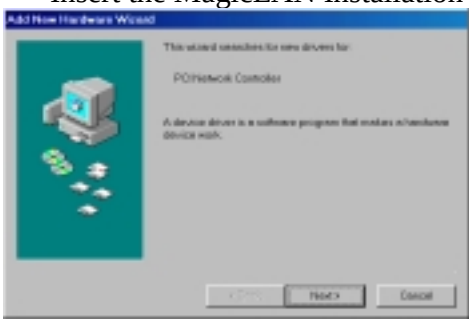
1. Install the Access Point at first. AP is needed in case of Infrastructure network mode.
2. You should install the Wireless LAN Card (SWL-2210M/P).
3. Install the software using the Installation CD.
4. Install the network protocol(s) required to communicate on your network. Most likely you will need the TCP/IP protocol.

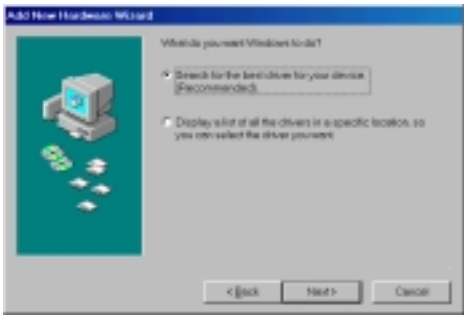
3.2 Installation Procedure of Windows 98

Please follow the following steps one by one to install the MiniPCI/PCI card successfully.

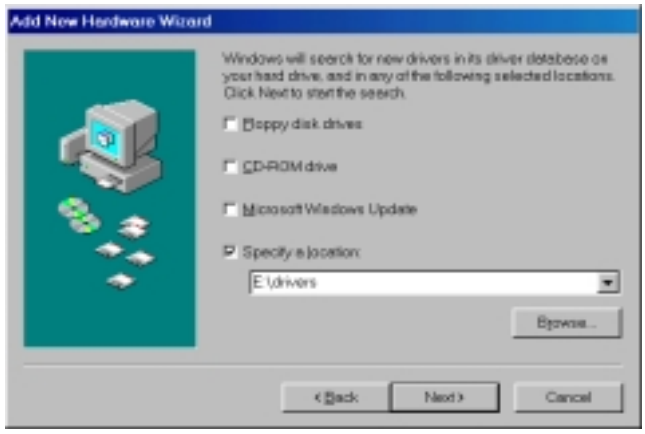
< Method 1 - Inserting card first >

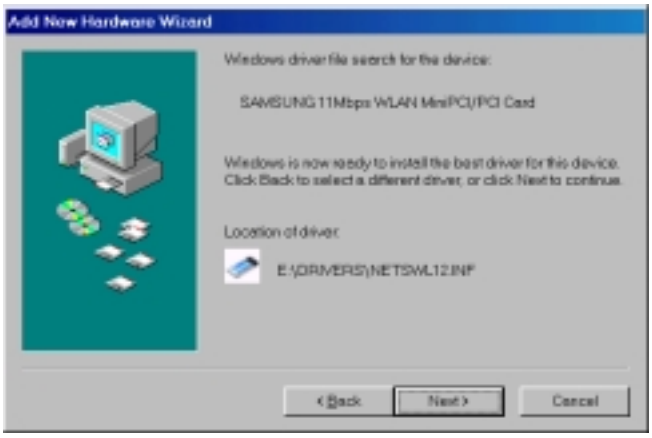
1. Insert the MiniPCI/PCI Card into the slot of your computer.
2. Power on your computer and allow **Windows 98** to load fully.
3. "**Add New Hardware Wizard**" appeared and the system looks for "PCI Network Controller". Press 'NEXT' button and check if "Search for the best driver for your device(recommended)" is slected and then press 'NEXT' button . Insert the MagicLAN Installation CD into the CD-ROM drive.





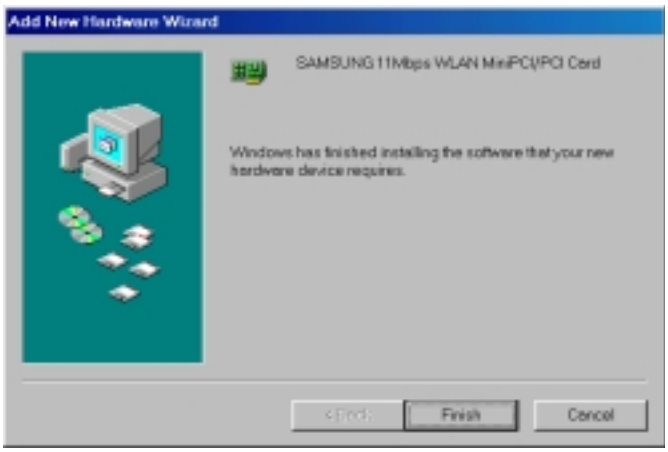
4. Mark the "Specify a location" tap and type "**E:\Drivers**" right below in this tap(Where E is the CD-drive of your PC) and then press 'NEXT'.



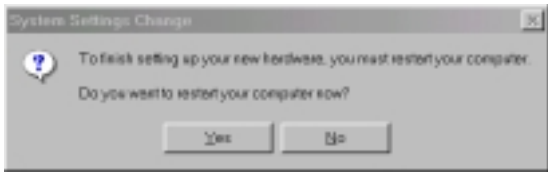


You can find the "SAMSUNG 11Mbps WLAN MiniPCI/PCI Card " and now it is ready to install our software.

5. Press 'NEXT' and system will copy driver files. You may require Windows 98 CD.

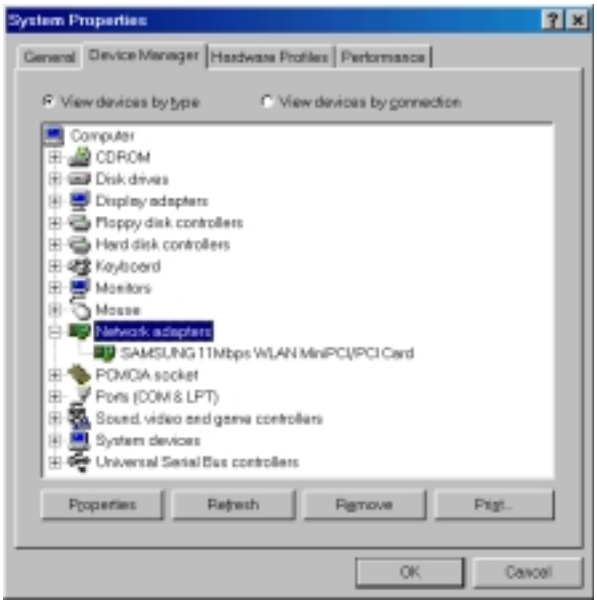


Now driver files are fully installed to start the Wireless LAN Card's operation.

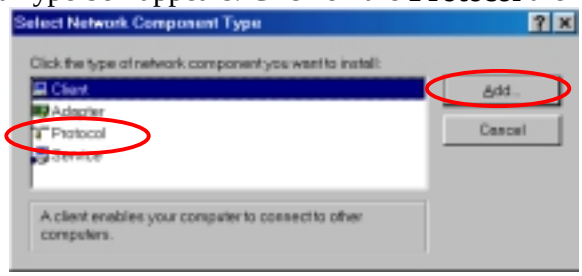


If screen message '**Do you want to restart your Computer now'** will pop up, select **No**.

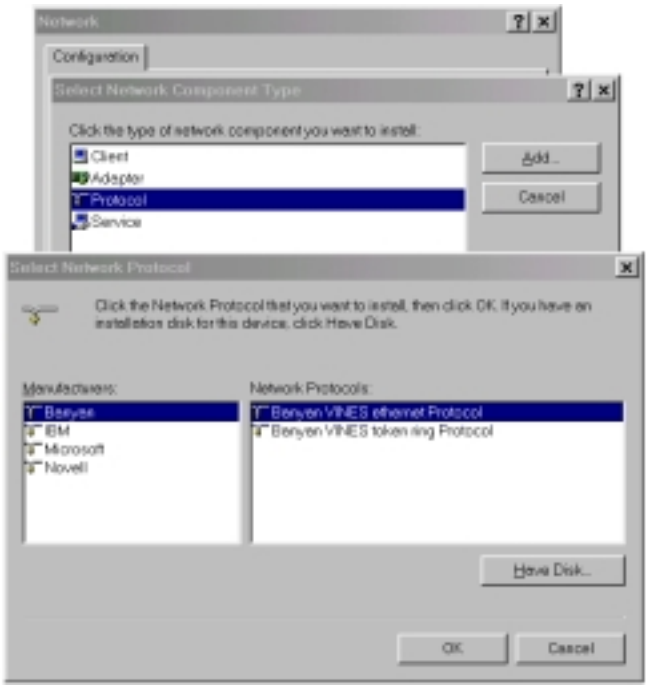
6. After rebooting your computer, right click on the **My Computer** using the mouse and click **Properties**.
7. Check for the **SAMSUNG 11Mbps WLAN MiniPCI/PCI Card** by clicking on the **Device Manager**. If you find the **Yellow** sign on the adapter, it shows the installation is not successful. Select the Adapter and click on **Remove**. Restart your computer after uninstalling the driver. *(See the Adapter Removal in section 3.9)*



8. Right click on the **Network Neighborhood** using the mouse. Select **Properties** from the pop up menu. The network box appears and you see three main tabs: *Configuration*, *Identification* and *Access Control*.
9. Click on the configuration tab and then click on the add button. Select Network Component Type box appears. Click on the **Protocol** then click the **Add** button.

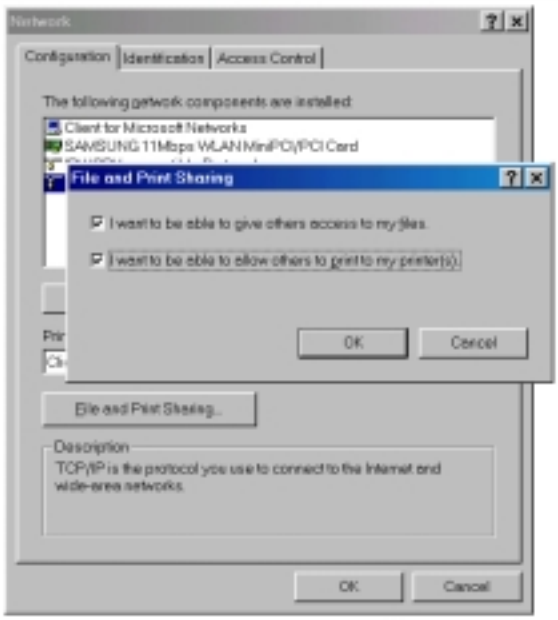


10. Select Network Protocols box appears. From the list of manufactures, click on Microsoft. From the list of network protocols list, select **IPX/SPX** and **TCP/IP**, then click **OK**.(If you want, you can install the **NetBEUI** protocol.)

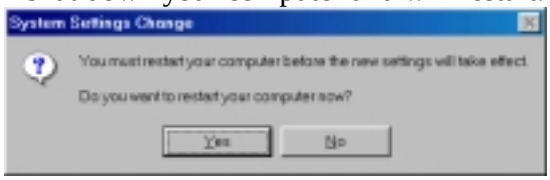


11. Select the **TCP/IP** option for setting the **IP** address value, Gateway value and DNS value of your computer. After setting these parameters appropriately, click **OK** to return to Network Component Type.

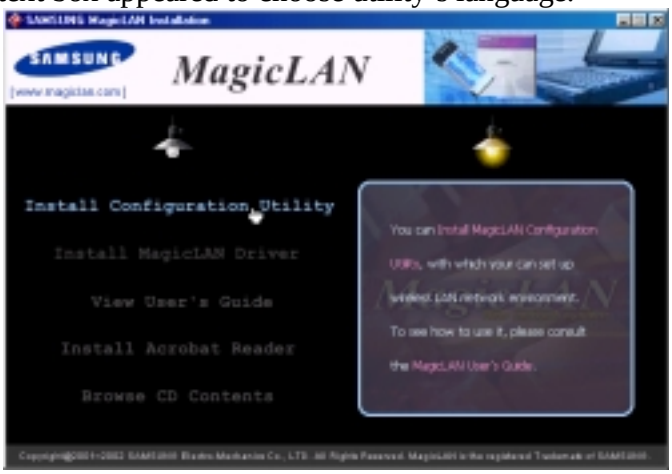
12. you can select the **File and Printer Sharing** options as well as the access to your computer by other users connected to that network by setting the appropriate options.



13. Screen message '**Do you want to restart your computer now?'** will pop up. Select **Yes**. It will shut down your computer and will restart.



14. After booting the computer, you have to draw out and re-insert the MagicLAN Installation CD to be automatically installed. You can click '**Install Configuration Utility'** to install our utility. Choose the appropriate language when a context box appeared to choose utility's language.



15. You can set up Wireless LAN environment by our utility program provided. Refer to '**Chapter 4**' in this manual.

< Method 2 – Installing software first >

1. If you insert the MagicLAN Installation CD into the CD-ROM drive, software will launch automatically. Then, click on the **'Install MagicLAN Driver'**.

2. You can see the pictures of Wireless LAN Cards by model name.(SWL-2210M/P MiniPCI/PCI Card). Click on the model name to install it's driver.

3. Click on Operating System in the right screen in which you want to install driver.

3. After installing driver, shut down your computer and insert card. And power on the computer.

4. The system recognize the Wireless LAN Card.

5. The other procedures are same to 7~15 of < **Method 1 - Inserting card first** >

Cf.) ***The third method*** **:**

You can combine **'Method 1'** with **'Method 2'**. In other words, **after inserting card** into the computer, you can install driver and utility by **using the installshield** instead, not by the inf file. In case of Windows 2000 and Windows XP, system will recognize the card automatically during installation .

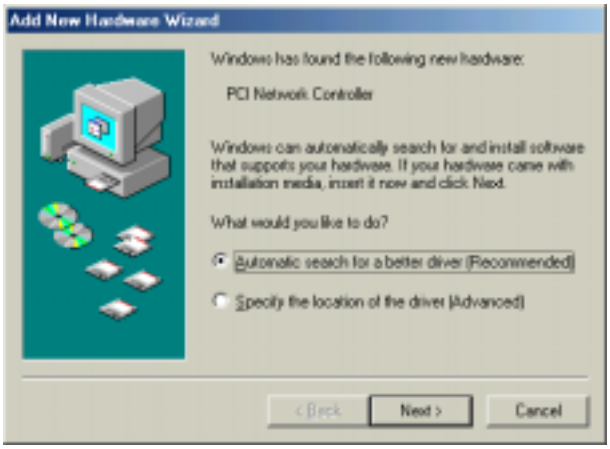
Notice that if you install a card after removing it in a Device Manager, you have to mark the check box("Do you want to scan for hardware changes?"). The function is same to the "Refresh" in ther Device Manager.

3.3 Installation Procedure of Windows ME

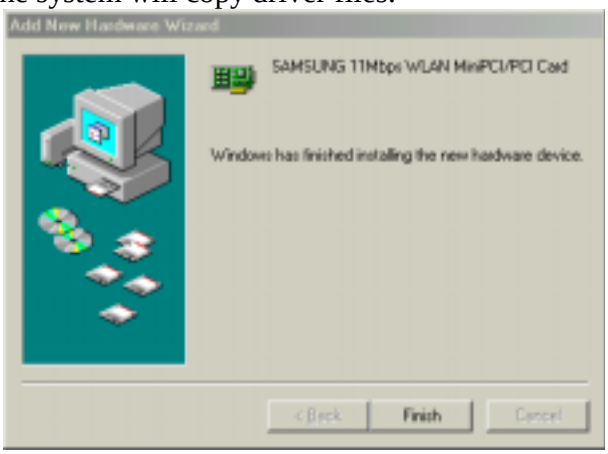
Please follow the following steps one by one to install the MiniPCI/PCI Card successfully.

< Method 1 - Inserting card first >

1. Insert the MiniPCI/PCI Card into the slot of your computer.
2. Power on your computer and allow **Windows ME** to load fully.
3. "**Add New Hardware Wizard**" appeared and the system looks for "PCI Network Controller". Check if "Search for the best driver for your device(recommended)" is slected. Insert the MagicLAN Installation CD into the CD-ROM drive.



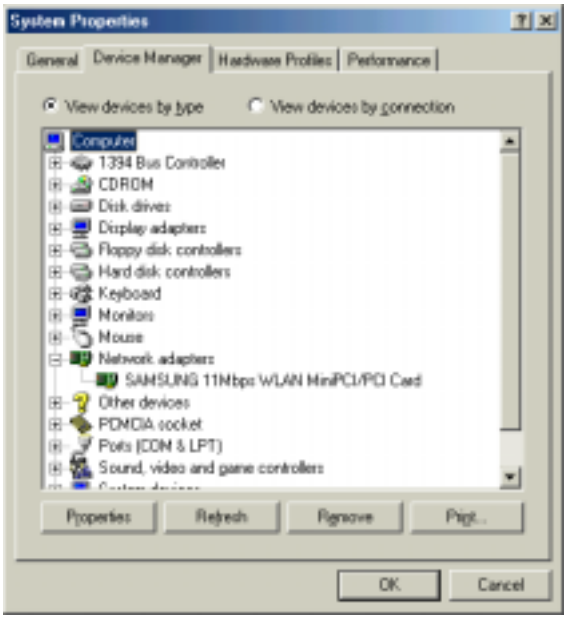
4. Press '**NEXT**' and you can find the "SAMSUNG 11Mbps WLAN MiniPCI/PCI Card " . And the system will copy driver files.



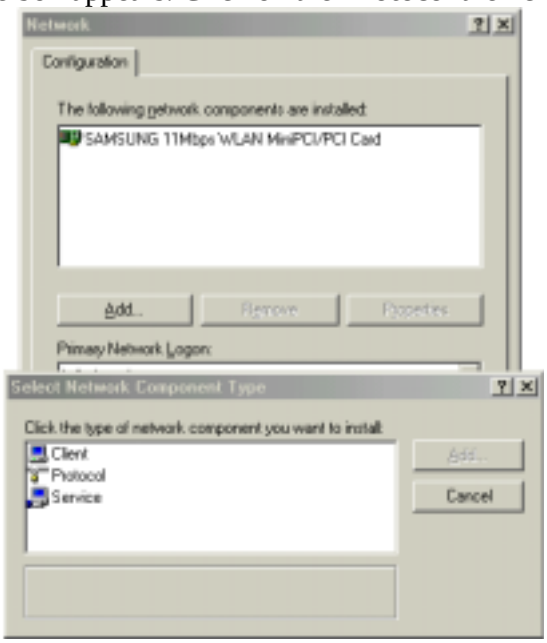
Now driver files are fully installed to start the Wireless LAN Card's operation. If screen message '**Do you want to restart your Computer now?'** will pop up, select **No**.

5. After booting the computer, right click on the **My Computer** using the mouse and click property.
6. Check for the SAMSUNG 11Mbps WLAN MiniPCI/PCI Card by clicking on

the **Device manager**. If you find the **Yellow** sign on the adapter, it shows the installation is not successful. Select the Adapter and click on **Remove**. Restart your computer after uninstalling the driver. *(See the Adapter Removal in section 3.9)*

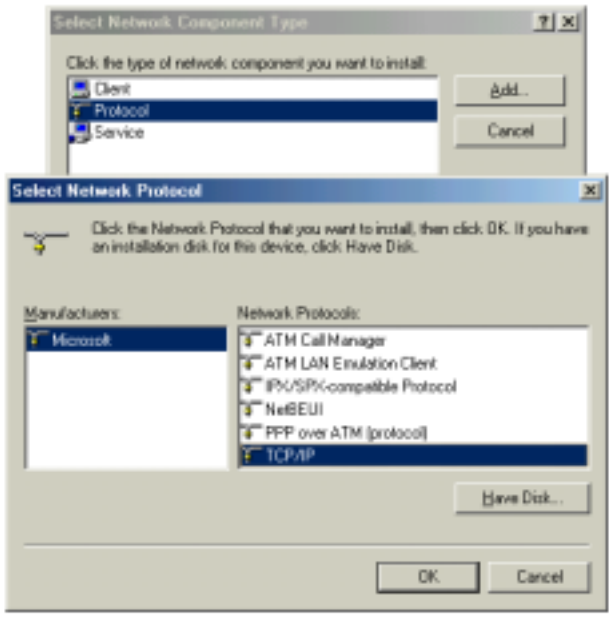


7. Right click on the **Network Neighborhood** using the mouse. Select **Properties** from the pop up menu. The network box appears and you see three main tabs: *Configuration*, *Identification* and *Access Control*.
8. Click on the configuration tab and then click on the add button. Select Network Component Type box appears. Click on the **Protocol** then click the **Add** button.

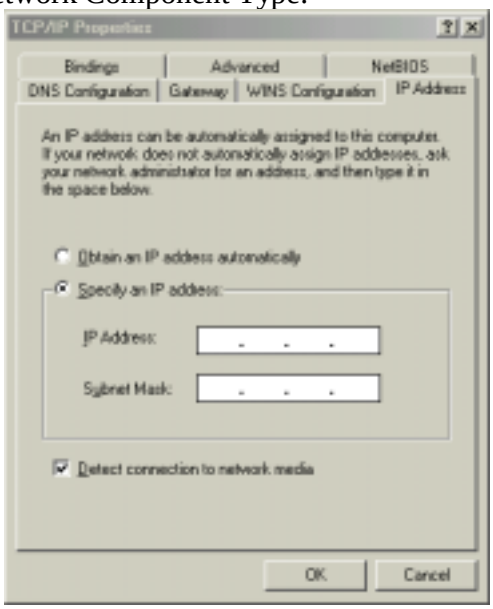


9. Select Network Protocols box appears. From the list of manufactures, click on

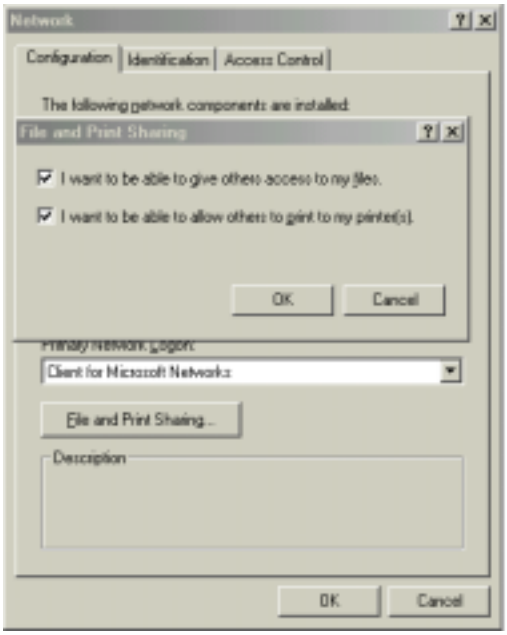
Microsoft. From the list of network protocols list, select **IPX/SPX** and **TCP/IP**, then click **OK**.(If you want, you can install the **NetBEUI** protocol.)



10. Select the **TCP/IP** option for setting the **IP** address value, gateway value and DNS value of your computer. After setting these parameters appropriately, click **OK** to return to Network Component Type.

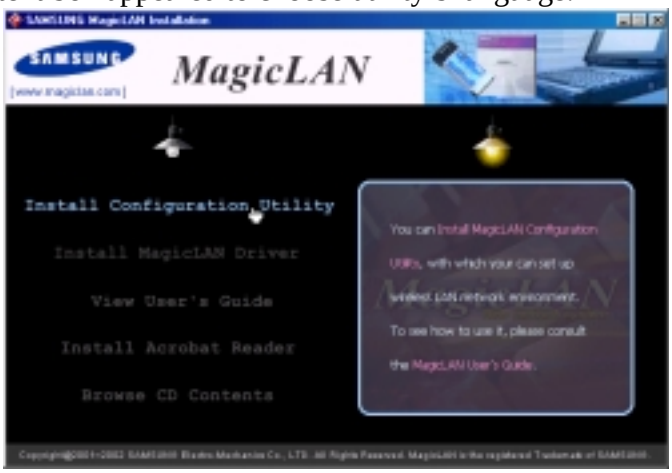


11. you can select the **File and Printer Sharing** options as well as the access to your computer by other users connected to that network by setting the appropriate options.



12. Screen message '**Do you want to restart your Computer now?'** will pop up. Select **Yes**. It will shut down your computer and will restart.

13. After booting the computer, you have to draw out and re-insert the MagicLAN Installation CD to be automatically installed. You can click "**Install Configuration Utility**" to install our utility. Choose the appropriate language when a context box appeared to choose utility's language.



14. You can set up Wireless LAN environment by our utility program provided. Refer to '**Chapter 4**' in this manual.

< Method 2 – Installing software first >

1. If you insert the MagicLAN Installation CD into the CD-ROM drive, software will

launch automatically. Then, click on the ‘**Install MagicLAN Driver**’.

2. You can see the pictures of Wireless LAN Cards by model name.(SWL-2210M/P MiniPCI/PCI Card). Click on the model name to install it’s driver.

3. Click on Operating System in the right screen in which you want to install driver.

4. After installing driver, shut down your computer and insert card. And power on the computer.

5. The system recognize the Wireless LAN Card.
6. The other procedures are same to 5~14 of **< Method 1 - Inserting card first** >

Cf.) ***The third method*** **:**

You can combine **'Method 1'** with **'Method 2'**. In other words, **after inserting card** into the computer, you can install driver and utility by **using the installshield** instead, not by the inf file. In case of Windows 2000 and Windows XP, system will recognize the card automatically during installation .

Notice that if you install a card after removing it in a Device Manager, you have to mark the check box("Do you want to scan for hardware changes?"). The function is same to the "Refresh" in ther Device Manager.

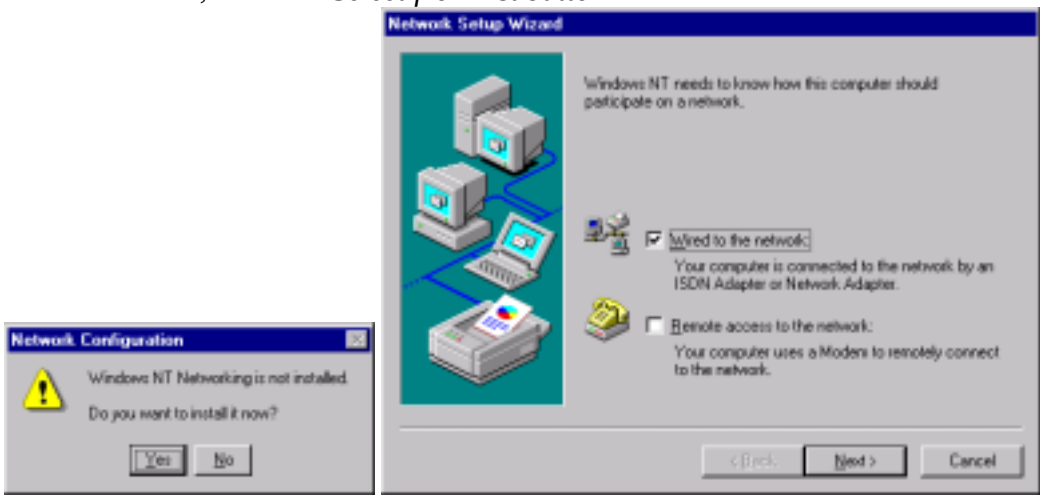
3.4 Installation Procedure of Windows NT4.0

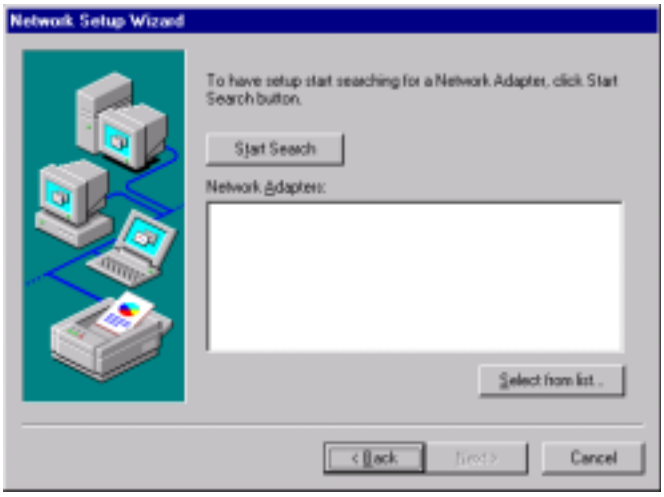
Please follow the following steps one by one to install the MiniPCI/PCI Card successfully.

1. Insert SAMSUNG 11Mbps WLAN MiniPCI/PCI Card into the slot and power on your computer.
2. Windows NT will start in your computer and follow the below procedures.
   Notice that there's some difference between **When Windows NT networking is not installed** and **When Windows NT networking is already installed .**

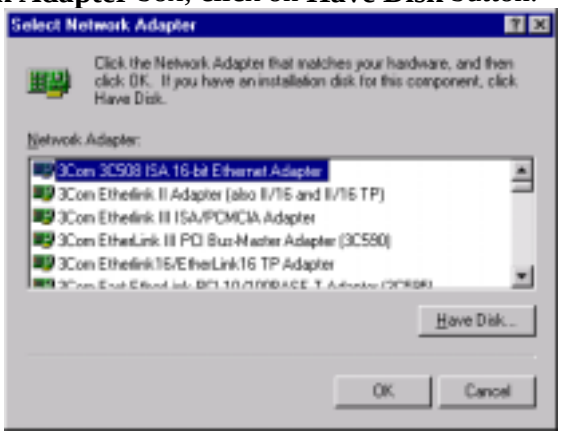
<CASE1> When Windows NT networking is not installed:

1. Since there is no Windows NT networking installed yet, you should install your driver manually. To do so, click on **Start** in task bar, go to **Settings** and then to **Control Panel**.
2. Under **Control Panel**, double click on **Network** icon.
3. Since there is no **Windows NT** networking installed yet, you maybe asked if you want to install NT networking first. Click on **Yes** and then **Network Setup Wizard** will be start. Select '*Wired to the network*' and click on 'Next'. In 'network setup wizard' box, click on '*Select from list button*'.

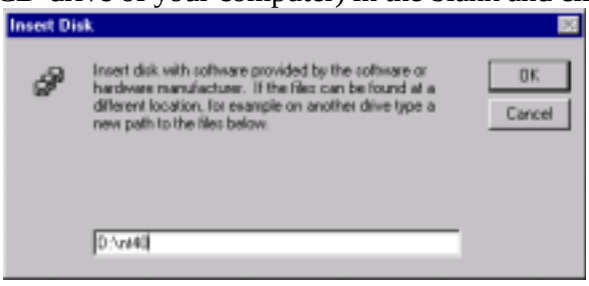




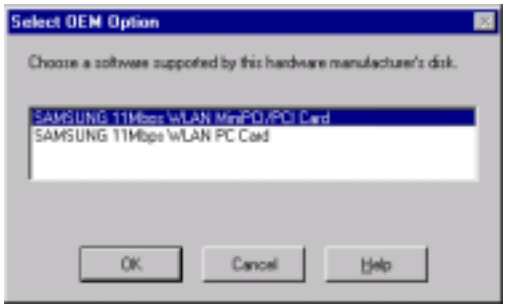
4. In **Select Network Adapter** box, click on **Have Disk** button.



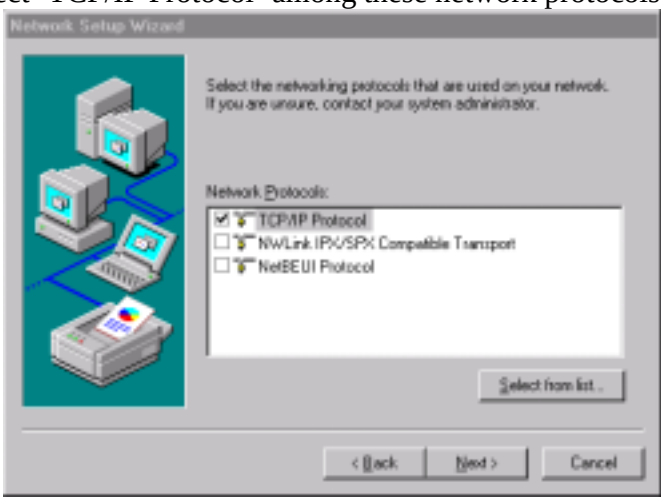
5. In **Insert Disk** box, you may be asked to specify the necessary software directory. Insert the MagicLAN Installation CD into the CD-ROM drive. Type in **D:\nt40** (Where D is the CD-drive of your computer) in the blank and click on **OK**.



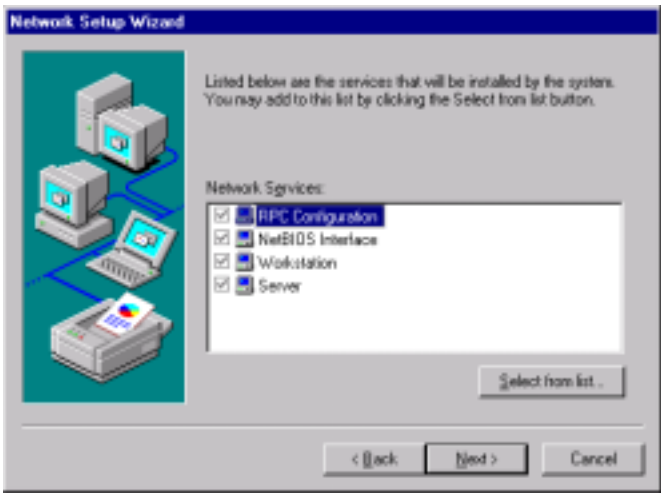
6. In **Select OEM Option** box, you will see SAMSUNG 11Mbps WLAN MiniPCI/PCI Card and select the correct card type and click on **OK**. You confirm the SAMSUNG 11Mbps WLAN MiniPCI/PCI Card on the next message box. Click on **NEXT**.



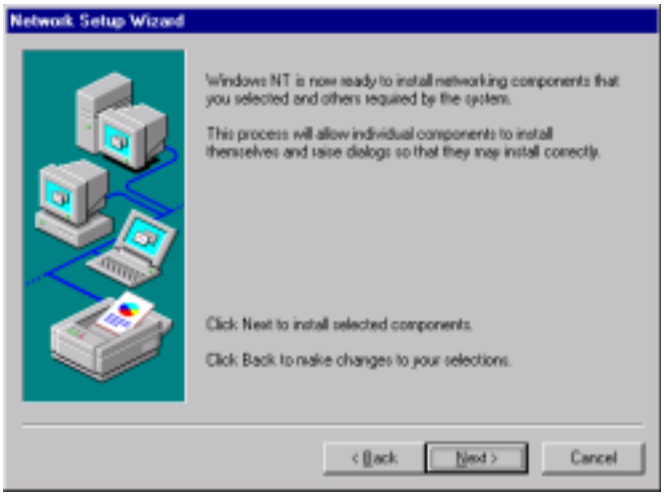
7. Select the network protocols by clicking on the check box. And click on **NEXT.** You must select 'TCP/IP Protocol' among these network protocols at least.



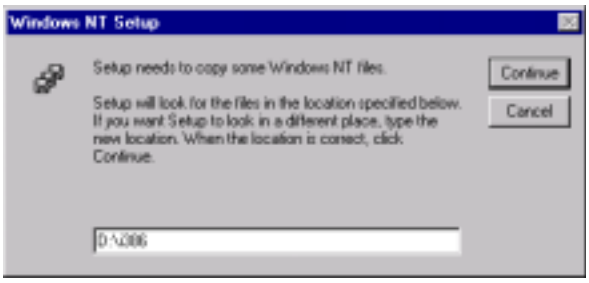
8. In the next box to choose network services to use, make sure that all the services you want to use are checked and click on **Next**.



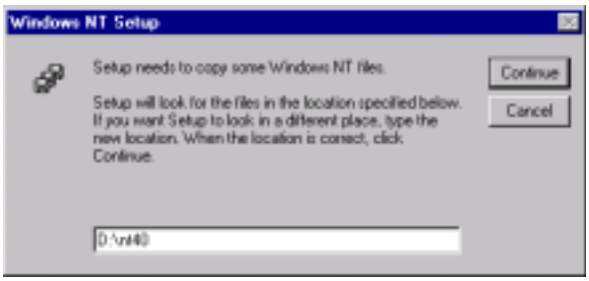
9. In the next box it is confirmed that necessary NT networking components are selected. Click on **Next**.



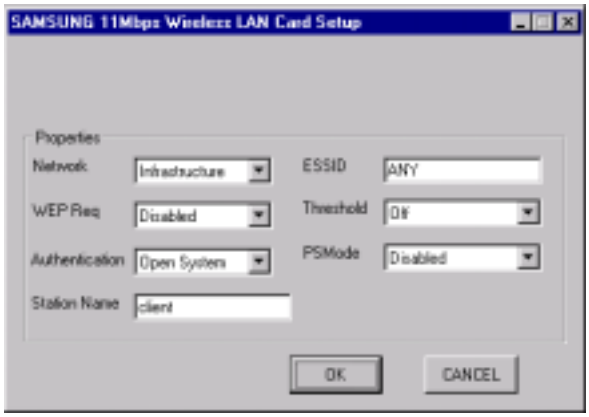
10. When you are asked to specify the directory that the necessary NT files are copied from, insert your Windows NT CD and type in **D:\i386**(Where D is the CD-drive of your computer) in the location blank.



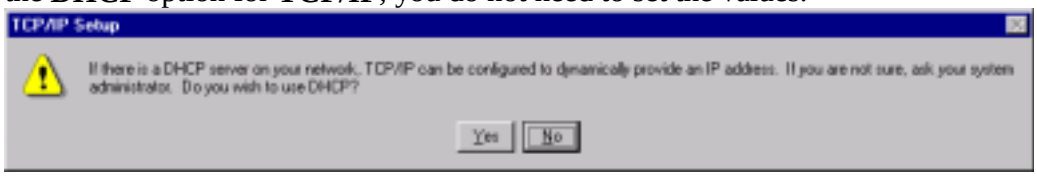
11. Some files from the **D:\i386** directory are copied and you may be prompted the same box to ask you to specify where NT files are once more. Since it is looking for some files form the MagicLAN Installation CD, insert your MagicLAN Installation CD in CD drive and type **D:\nt40** in the blank location and click on continue.



12. **Card Setup** box may appear. Set each parameters (Network mode, ESSID, and Tx rate etc.) for the proper LAN card configuration.

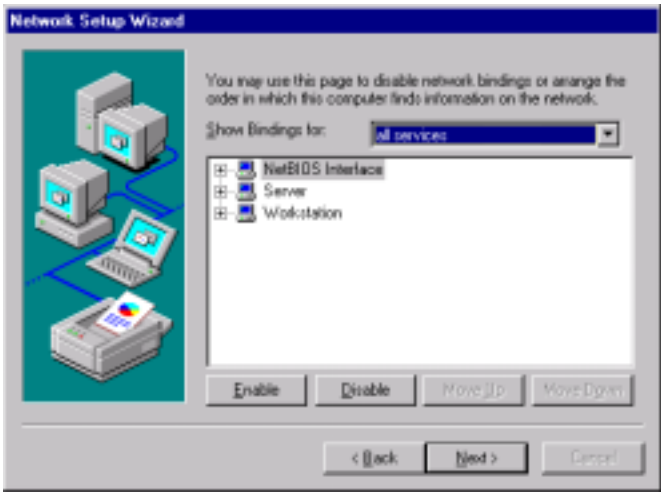


13. **TCP/IP Setup** message will pop up. Select **NO** for not using **DHCP**. If you select the **DHCP** option for **TCP/IP**, you do not need to set the values.

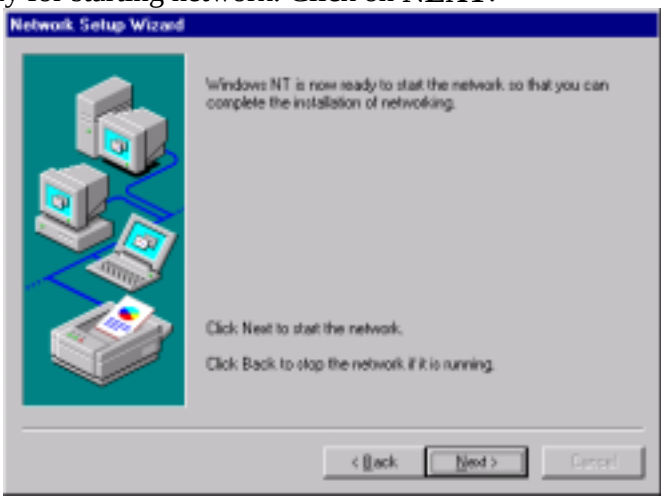


14. If you select the **No**, enter the **IP Address**, **Subnet Mask**, **Gateway**, and **DNS** values respectively and then click on OK.

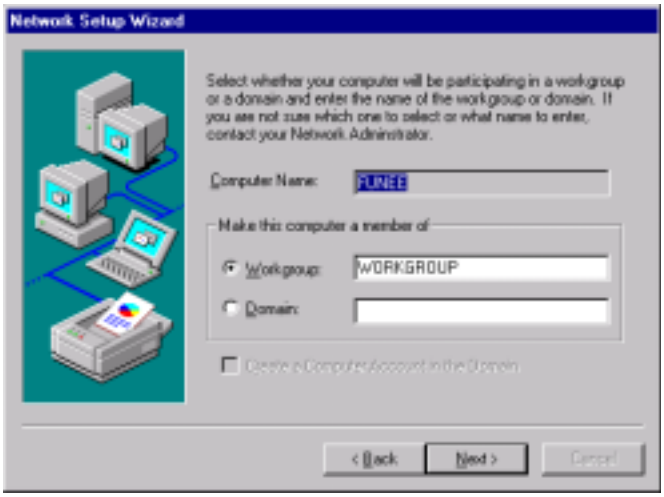
15. Binding properties will pop up. Click on **NEXT**.



16. Now it is ready for starting network. Click on **NEXT**.

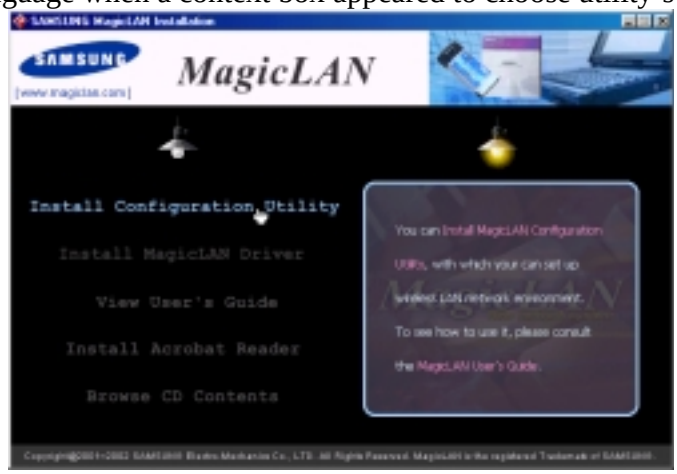


17. You can assign **Workgroup/ Domain** name. And click on **NEXT**.



18. Click on the **Finish** and it will ask you whether you want to restart your computer or not. Click on **NO.**

19. You have to insert the MagicLAN Installation CD to be automatically installed.
20. You can click '**Install Configuration Utility'** to install our utility. Choose the appropriate language when a context box appeared to choose utility's language.



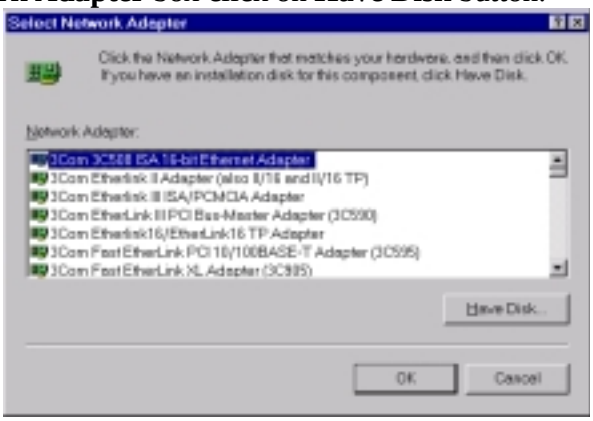
21. You should reboot the computer to use our utility properly in the NT-based OSs(Windows NT4.0, 2000, XP).

22. You can set up Wireless LAN environment by our utility program provided. Refer to '**Chapter 4**' in this manual.

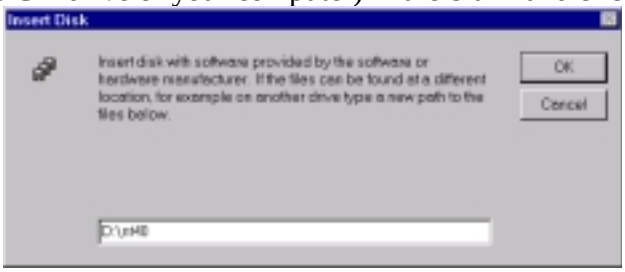
<CASE2> When Windows NT networking is already installed:

1. Since there is no Windows NT networking installed yet, you should install your driver manually. To do so, click on start in task bar, go to Settings and then to **Control Panel**.
2. Under **Control Panel**, double click on **Network** icon.
3. Select the **Adapter**. And click on **Add**.

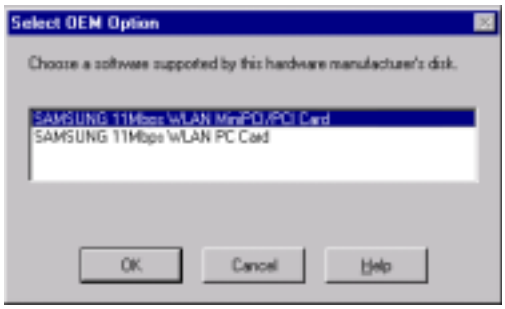
4. In **Select Network Adapter** box click on **Have Disk** button.



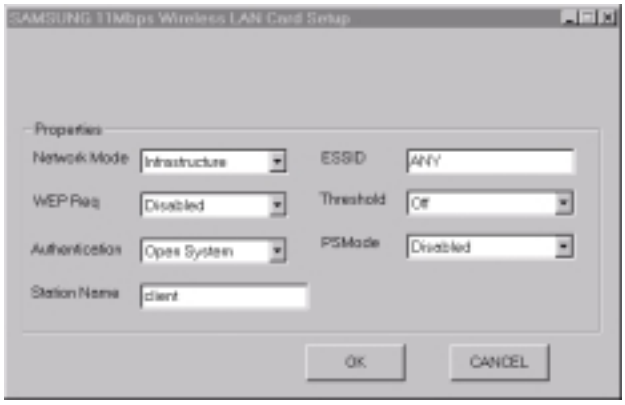
5. In **Insert Disk** box, you may be asked to specify the necessary software directory. Insert the MagicLAN Installation CD into the CD-ROM drive. Type in **D:\nt40** (Where D is the CD-drive of your computer) in the blank and click on **OK.**



6. In **Select OEM Option** box, you will see SAMSUNG 11Mbps WLAN MiniPCI/PCI Card and select the correct card type and click on **OK**. You confirm the SAMSUNG 11Mbps WLAN MiniPCI/PCI Card on the next message box. Click on **Next .**



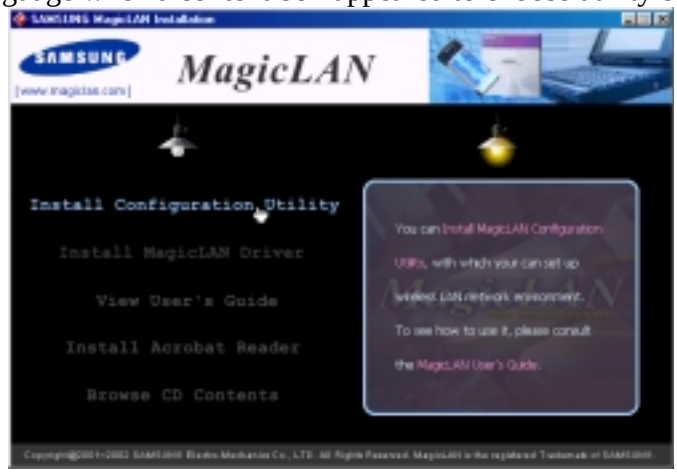
7. **Card Setup** box may appear. Set each parameters (Network mode, ESSID, and Tx rate etc) for the proper LAN card configuration.



8. Confirm that "*SAMSUNG 11Mbps WLAN MiniPCI/PCI Card*" is installed and selected.

9. Click on **Bindings**.
10. Click on the **Protocols**. Select '*TCP/IP Protocol*' and click '*Properties*'
11. You can select either DHCP or Static for the IP address. If you select **DHCP**, you do not need to specify the **IP** address. In case of **Static**, enter **IP Address**, **Subnet Mask** and **Gateway** respectively.

12. Select ‘DNS’ tab and enter the appropriate values. Ask your network administrator about the detailed matter.
13. Select ‘WINS Address’ tab and enter the appropriate values. Ask your network administrator about the detailed matter.
14. Select ‘Routing’ tab and enter the appropriate values. Ask your network administrator about the detailed matter. After you add the **TCP/IP** protocol, click on the **OK** once more. System will ask you whether you want to restart your computer or not. Click on **NO**. Now your network is established successfully.
15. You have to insert the MagicLAN Installation CD to be automatically installed.
16. You can click ‘**Install Configuration Utility’** to install our utility. Choose the appropriate language when a context box appeared to choose utility’s language.



17. You should reboot the computer to use our utility properly in the NT-based OSs(Windows NT4.0, 2000, XP).

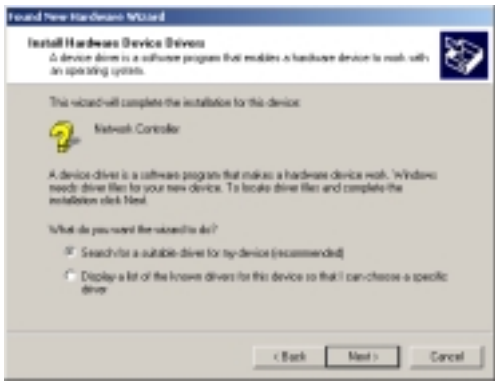
18. You can set up Wireless LAN environment by our utility program provided. Refer to '**Chapter 4**' in this manual.

3.5 Installation Procedure of Windows 2000

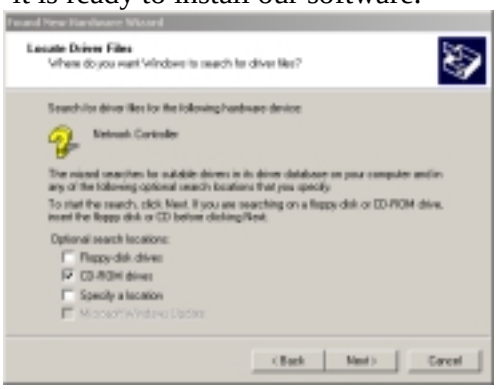
Please follow the following steps one by one to install the MiniPCI/PCI card successfully.

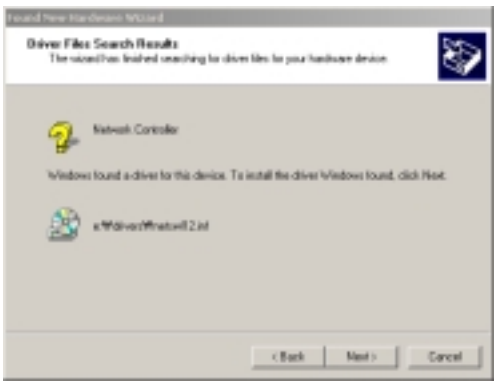
< Method 1 - Inserting card first >

1. Insert the MiniPCI/PCI Card into slot of your computer.
2. Power on your computer and allow **Windows 2000** to load fully.
3. **Found New Hardware Wizard** appeared and the system looks for "Network Controller". Press **NEXT** button and check if "Search for the best driver for your device(recommended)" is slected and then press **NEXT** button. Insert the MagicLAN Installation CD into the CD-ROM drive. You can ignore the MagicLAN Utility's screen of the CD-ROM..

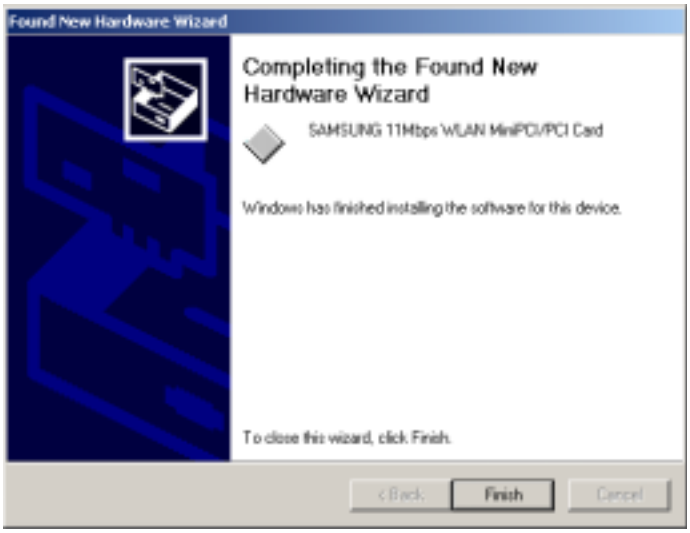


4. Mark the "CD-ROM Drive" tap and then press 'NEXT'. You can find the INF file and now it is ready to install our software.

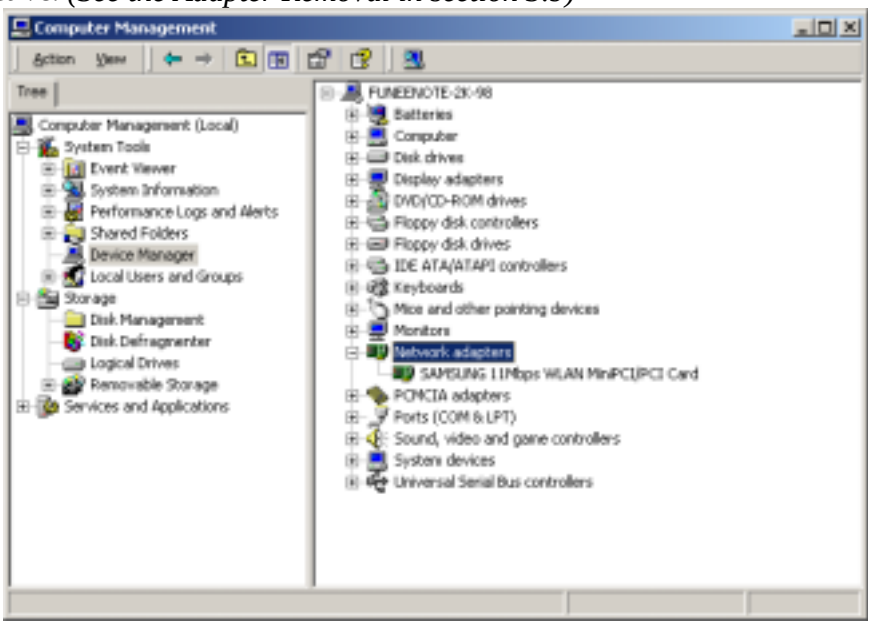




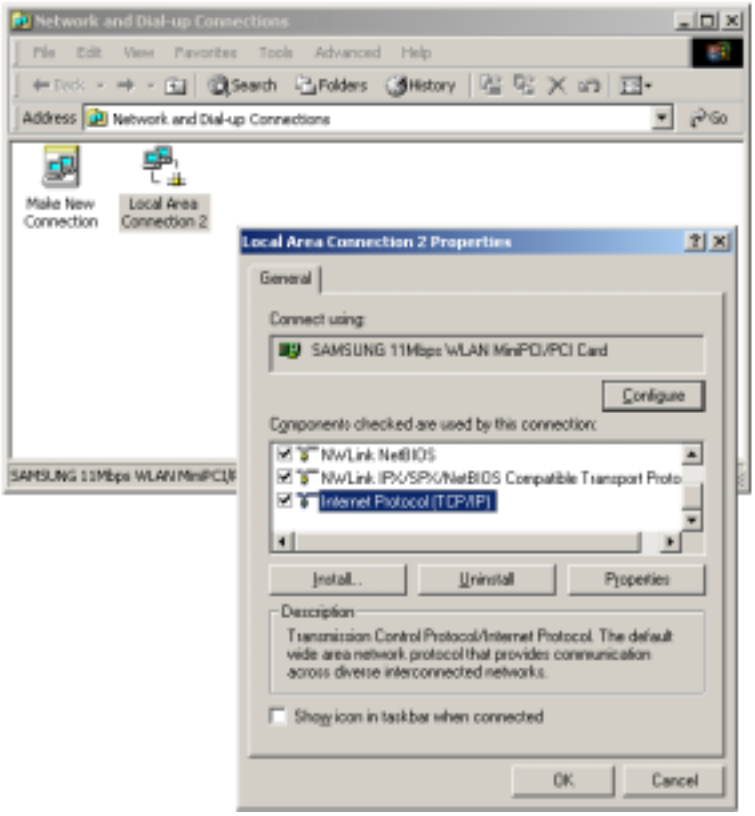
5. Press **NEXT** and system will copy driver files. Now driver files are fully installed to start the Wireless LAN Card's operation.



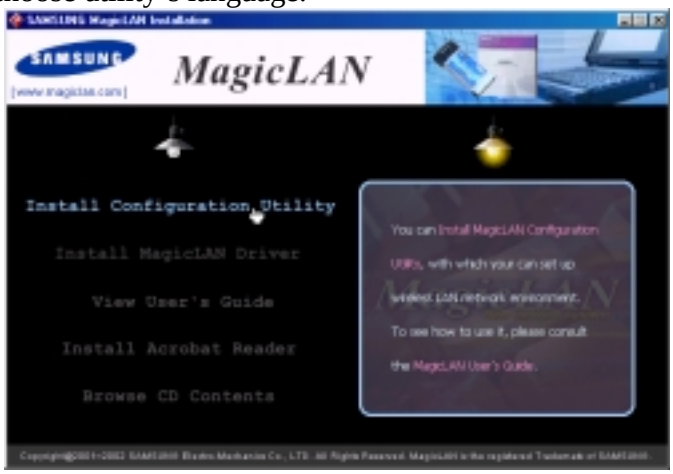
6. Check for the **SAMSUNG 11Mbps WLAN MiniPCI/PCI Card** on the Device Manger of a **Computer Management** in the Adminidtrative Tools . If you find the **Yellow** sign on the adapter, it shows the installation is not successful. In this case, select the adapter and click on **Remove**. Restart your computer after uninstalling the driver to make the changes effective. *(See the Adapter Removal in section 3.9)*



7. Right click on the **Network Places** using the mouse and double-click on the **Local Area Connection** ,and then click on **Properties.**



8. Click on the **TCP/IP** option for setting the **IP** address for your computer. Set the **IP** value, **Gateway** value, **DNS** value. After setting these parameters appropriately, click **OK** to return to Network Component Type.
9. You can select the **File and Printer Sharing for Microsoft Networks** options to allow the **Access** to your computer by other users connected to that network by setting the computer sharing options. Click on OK.
10. After booting the computer, you have to draw out and re-insert the MagicLAN Installation CD to be automatically installed. You can click **Install Configuration Utility** to install our utility. Choose the appropriate language when a context box appeared to choose utility's language.



11. You should reboot the computer to use our utility properly in the NT-based

OSs(Windows NT4.0, 2000, XP).

12. After rebooting your computer, you can set up Wireless LAN environment by our utility program provided. Refer to '**Chapter 4**' in this manual.

< Method 2 – Installing software first >

1. If you insert the MagicLAN Installation CD into the CD-ROM drive, software will launch automatically. Then, click on the '**Install MagicLAN Driver**'.

2. You can see the pictures of Wireless LAN Cards by model name.(SWL-2210M/P MiniPCI/PCI Card). Click on the model name to install it's driver.

3. Click on Operating System in the right screen in which you want to install driver.

4. After installing driver, shut down your computer and insert Wireless LAN card. And power on the computer.
5. The system recognize the Wireless LAN Card.
6. The other procedures are same to 6~12 of **< Method 1 - Inserting card first** >

Cf.) ***The third method*** **:**

You can combine **'Method 1'** with **'Method 2'**. In other words, **after inserting card** into the computer, you can install driver and utility by **using the installshield** instead, not by the inf file. In case of Windows 2000 and Windows XP, system will recognize the card automatically during installation .

Notice that if you install a card after removing it in a Device Manager, you have to mark the check box("Do you want to scan for hardware changes?"). The function is same to the "Refresh" in ther Device Manager.

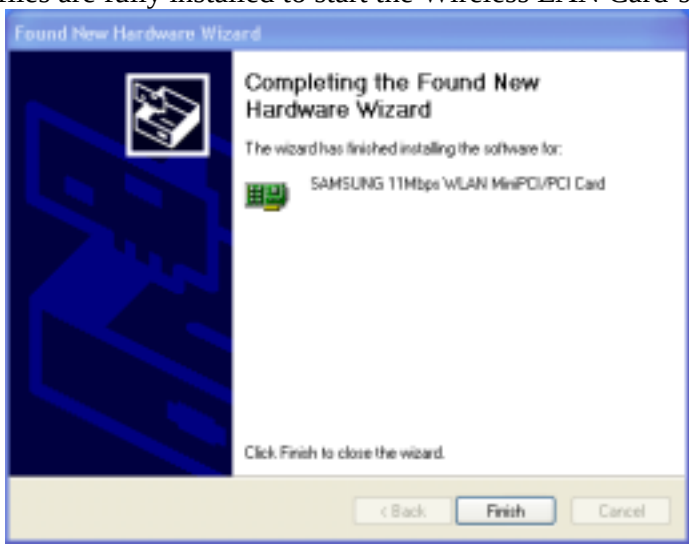
3.6 Installation Procedure of Windows XP

Please follow the following steps one by one in order to install the MiniPCI/PCI Card successfully.

< Method 1 - Inserting card first >

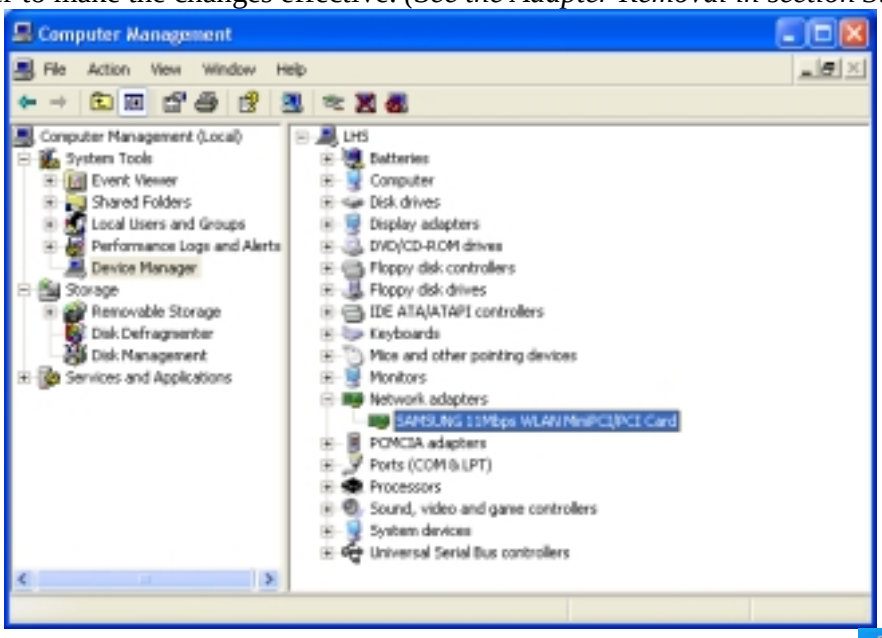
1. Insert the MiniPCI/PCI Card into slot of your computer.
2. Power on your computer and allow **Windows XP** to load fully.
3. **"Found New Hardware Wizard"** appeared and the system looks for "Network Controller". Insert the MagicLAN Installation CD into the CD-ROM Drive.

4. You can find the "SAMSUNG 11Mbps WLAN MiniPCI/PCI Card" and system will copy driver files.
5. Now driver files are fully installed to start the Wireless LAN Card's operation.



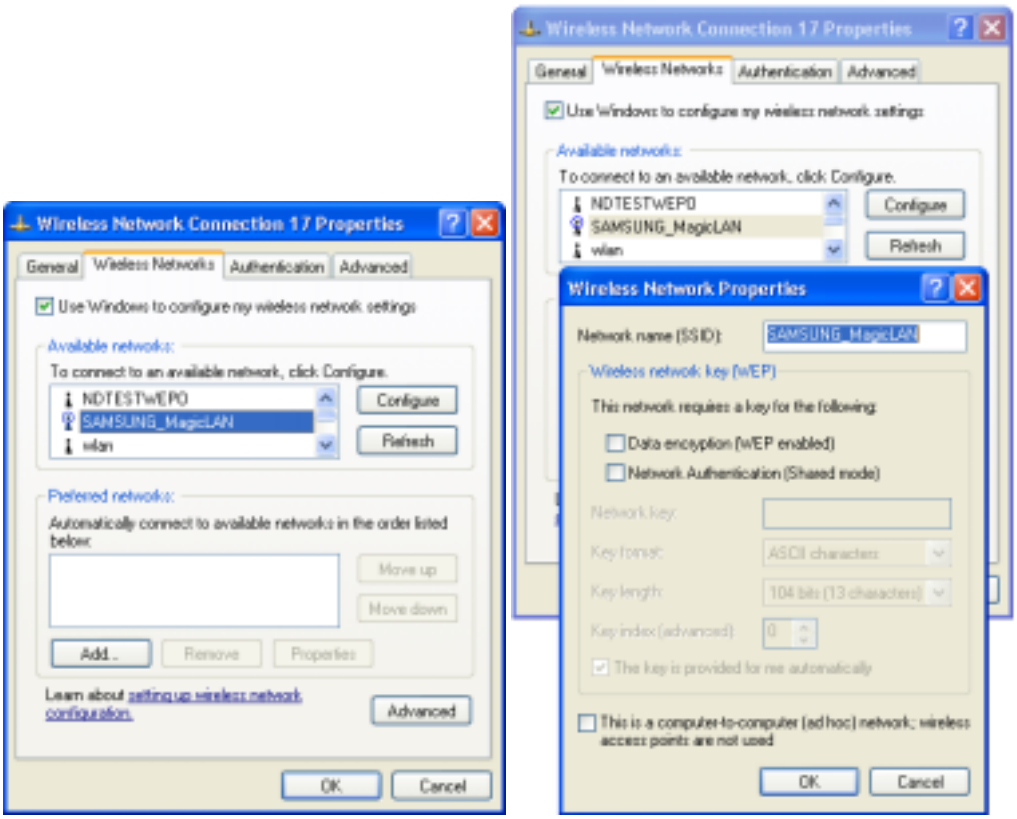
6. Check for the **SAMSUNG 11Mbps WLAN MiniPCI/PCI Card** on **Computer Management** in the **Administrative Tools** of the **Control Panel**. If you find the

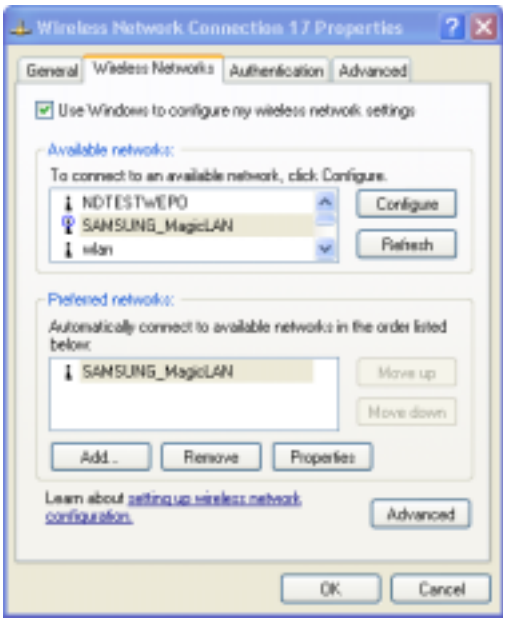
Yellow sign on the adapter, it shows the installation is not successful. In this case, select the adapter and click on **Remove**. Restart your computer after uninstalling the driver to make the changes effective. *(See the Adapter Removal in section 3.9)*



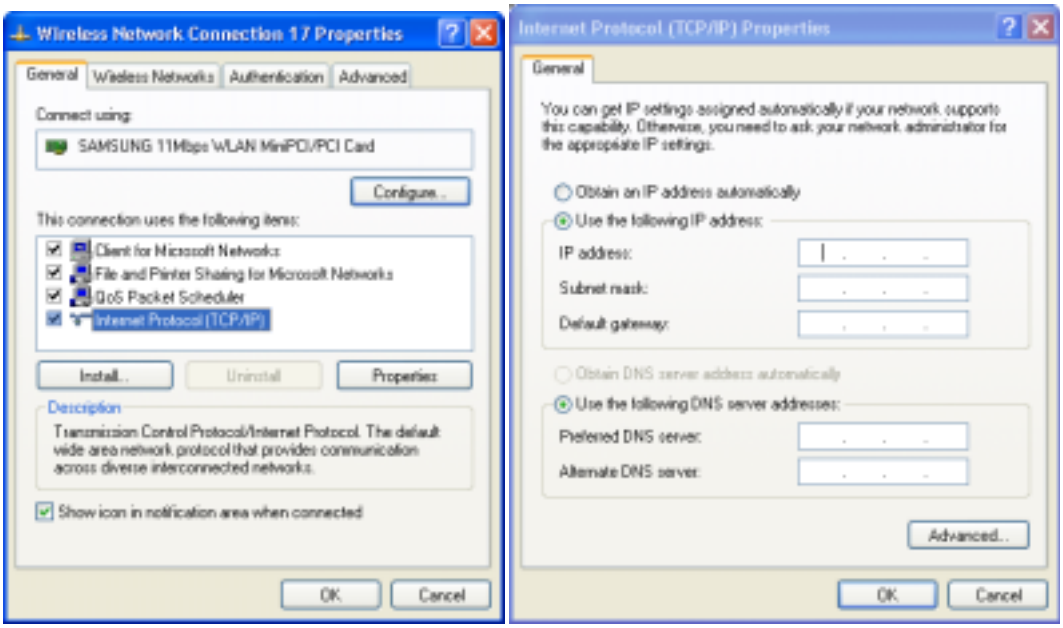
7. Of the icons displayed on the right bottom of desktop, click on icon stated **Wireless Network Connection**.

8. When you are using DHCP, just select the AP that you want to connect in the **Connect to Wireless Network** above.
9. To manually set your IP address, WEP and some other configuration, click on **Advanced** of the above picutre and then click **Configure** Available networks on the **Wireless Networks** Tab . Set the SSID and parameters to be needed to modify and then clicking on **OK.** The AP that you selected will be displayed on the Preferred Networks.





10. Next, move to the **General** Tab. After the double click the "**Internet Protocol(TCP/IP)**", set the IP value, Gateway value and DNS value and click on OK. All will be done by clicking on **OK** once more.



< Method 2 – Installing software first >

1. If you insert the MagicLAN Installation CD into the CD-ROM drive, software will launch automatically. Then, click on the **'Install MagicLAN Driver'**.

2. You can see the pictures of Wireless LAN Cards by model name.(SWL-2210M/P MiniPCI/PCI Card). Click on the model name to install it's driver.

3. Click on Operating System in the right screen in which you want to install driver.

4. After installing driver, shut down your computer and insert Wireless LAN card. And power on the computer.

5. The system recognize the Wireless LAN Card. If **Found New Hardware Wizard** appears, just click **Next .**

6.The other procedures are same to 6~10 of **< Method 1 - Inserting card first** >

Cf.) ***The third method*** **:**

You can combine **'Method 1'** with **'Method 2'**. In other words, after **inserting card** into the computer, you can install driver and utility by **using the installshield** instead, not by the inf file. In case of Windows 2000 and Windows XP, system will recognize the card automatically during installation .

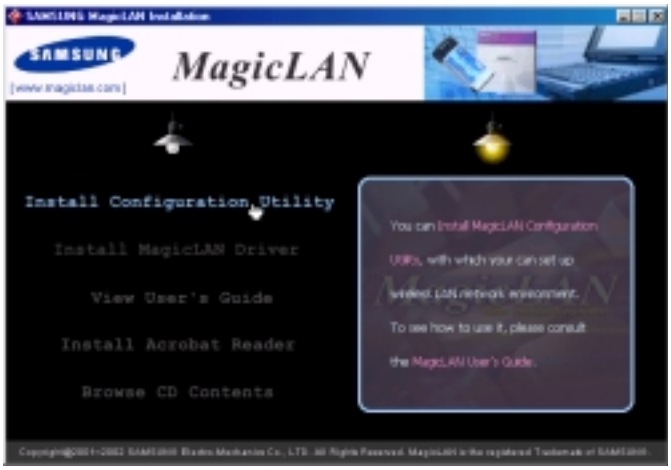
Notice that if you install a card after removing it in a Device Manager, you have to mark the check box("Do you want to scan for hardware changes?"). The function is same to the

“Refresh” in ther Device Manager.

[Use of Our company’s Utility in Windows XP]

You can also set up the Wireless LAN by the our company’s utility program instead of Windows XP’ utility program.

After booting the computer, you have to draw out and re-insert the MagicLAN Installation CD to be automatically installed. You can click “**Install Configuration Utility**” to install our utility. Choose the appropriate language when a context box appeared to choose utility’s language.



You should reboot the computer to use our utility properly in the NT-based OSs(Win NT, Win 2000, Win XP).

- If you click the icon on the right bottom of the desktop, you can see the current state of the Wireless LAN.
- Click on **Option** of the **General settings** on the bottom of the Utility and mark “**Manage the Wireless Control by this utility under WinXP**”. For more details, refer to ‘**Chapter 4’** in this manual.
- If you want to use Wireless LAN Utility in the system of Windows XP , be sure that the mark of “**Manage the Wireless Control by this utility under WinXP**” of the our company’s utility program is removed.

3.7 Installation Procedure of Linux

The below process is the installation of SAMSUNG 11Mbps MiniPCI/PCI Card in Linux.

1. Linux Driver Source code and Library allocation

   Driver(swld12-0.20.tar.gz) is contained in our install CD or WEB site that you can install our WirelessLAN Card in Linux.

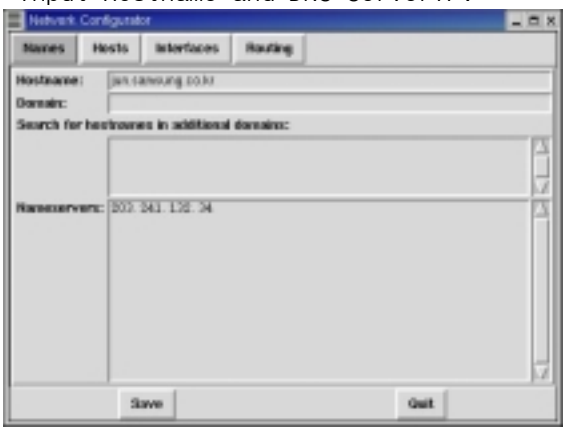
   We currently support Linux Kernel 2.4.

2. Driver Installation

   1) Decompress the driver package under the /usr/local.
   2) Check the current Kernel version.
      % uname - r
   3) Change the Version value In Makefile of driver package to above value that checked in 2).
   4) Compile the driver.
      %make all
   5) Copy the driver to kernel directory.
      %make install
   6) Set the dependency between the modules.
      % depmod - a
   7) Put the below contents in etc/modules.conf to load automatically whenever it boots.
      alias eth0 swld12
      ㄱ. Using with AP
         options swld12 essid=Magiclan
      ㄴ.Using as Ad_hoc mode
         options swld12 essid=Magiclan networkmode=0
      ㄷ.Using with AP and 40bit WEP.
         options swld12 essid=Magiclan wepreq=3 keyid=0 key=1011121314
   8) Load the driver.
      % modprobe swld12 or %insmod ./swld12.o
   9) Refer to man file to get further information.
      %man swld12

3. IP setting using netcfg(below redhat 7.1)

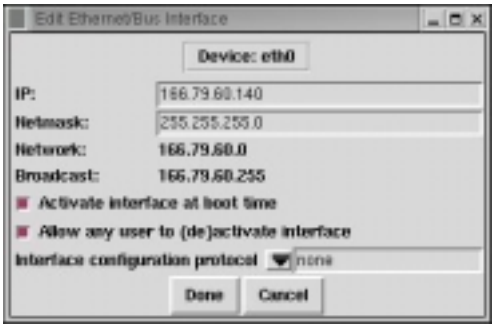
1) Input Hostname and DNS ServerIP.



2) Input HostIP and Name.

3) Add a Interface.

- Input IP and Netmask.



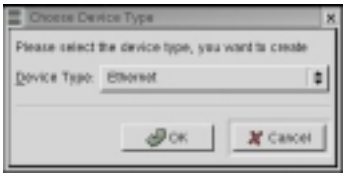
4) Input Default gateway IP and device name.

5)When finished, click on the Save button to save all.

4.IP setting using neat(above redhat 7.2)

1) Add a new interface.

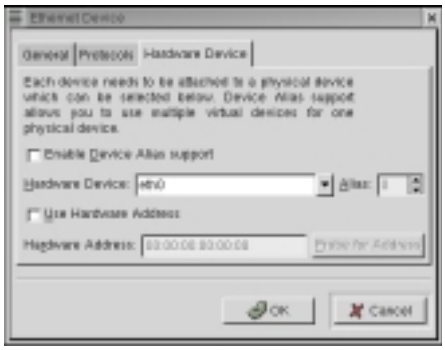
2) Select Ethernet device.



3) Input a Nickname.

4) Input TCP/IP and Hostname in Protocols Menu.

5) Remain Hardware device as default setting.



6)When finished, click Apply button.

5. MODULE PARAMETERS

networkmode 802.11 Network type

0 = 802.11 Ad_hoc Mode

1 = Infrastructure Mode(default)

3 = Ad-hoc Mode

essid Network name (SSID)

- Use the same name to connect AP with other clients.

Default value: ANY

wepreq Provide the high security with encryption of the date through the wireless network.

0 = disabled(default)

3 = 40 bit WEP

7 = 128 bit WEP

keyid The key used to encrypt the transmiting date.

0 .. 3(default=0)

(cf. 128bit WEP just support one key)

key0 40 bit WEP needs 10 hexadecimal and 128bit WEP needs 26 hexadecimal.

(ie.key0=1234567890,or key0=12345abcde, or key0=1234567890abcd12345678a4d3).

key1 Same as key0.

key2 Same as key0.

key3 Same as key0.

channel The channel used in Ad-hoc mode.

4 = default

valid range: 1-14 (depends on local restrictions)

psmode Power Saving Mode

- Make the Power Comsumption lower. But the efficiency will be fallen off by the 802.11 specification.

0 = disabled(default)

1 = enabled

pc_debug Select the debugging level(only when debugging)

0 .. 5

6. WIRELESS EXTENSION

The below things are the parameters used in "iwconfig" program.

essid

- The network name for connection with AP. In Ad-hoc mode, it is the network name for connection with other wireless clients.

mode

-"Ad-Hoc"," Managed"(infrastructure mode).

Using AP, the connection to the outside network is possible in managed moded

channel

Channel(ad-hoc networking)(1~14).

rts

The standard value for transmitting RTS/CTS.

frag

The standard value for fragmentation.

rate

Setting Tx rate.

enc

Setting encryption key.

(40 bit WEP -> XXXX-XXXX-XX. 128 bit WEP -> XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX).

power

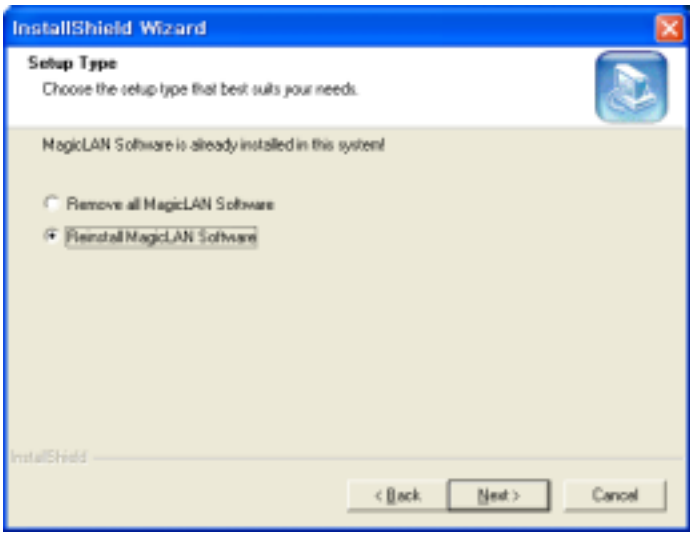
Setting power saving mode(on/off).

(example):

```
# Here are a few examples with a few Wireless LANs supported...
# SAMSUNG 11Mbps Wireless LAN Card
 *,*,*,*)
     INFO="SAMSUNG 11Mbps WLAN"
# ESSID (extended network name) : My Network, any
     ESSID="test3"
 # Operation mode : Ad-Hoc, Managed
     MODE="Managed"
# Frequency or channel : 1, 2, 3 (channel) ; 2.422G, 2.46G (frequency)
     CHANNEL="4"
# Bit rate : auto, 1M, 11M
     RATE="auto"
# Encryption key : 4567-89AB-CD, s:password
   KEY="883e-aa67-21 [1] key 5501-d0da-87 [2] key 91f5-3368-6b [3] key
   2d73-31b7-96 [4]"
# Other iwconfig parameters : power off, ap 01:23:45:67:89:AB
```

3.8 Update of MagicLAN Wireless LAN Card Driver

1. After inserting the MagicLAN Installation CD, click the Install MagicLAN Driver and select the Card and Operating System that you want to update in.
2. If selection box appears, select 'Reinstall MagicLAN Software' between 'Remove' and 'Reinstall'.



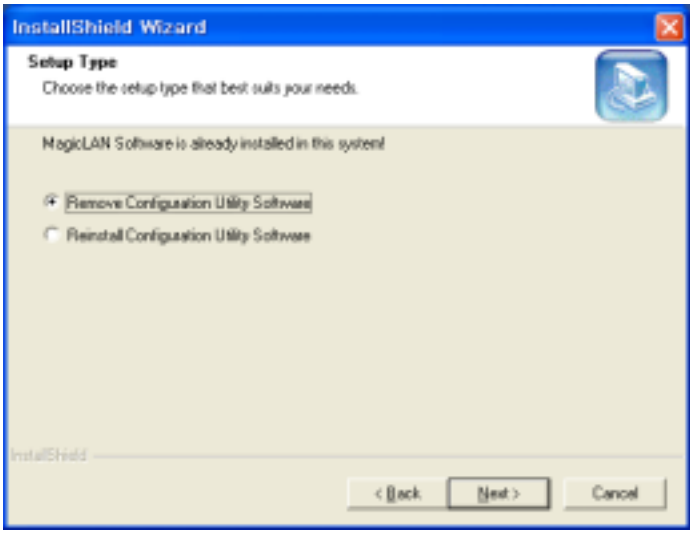
3.9 Removal of MagicLAN Wireless LAN Card Driver

(Adapter Removal)

Click like followings :

-> All Programs -> MagicLAN -> MagicLAN Driver -> Remove MiniPCI Card adapter.

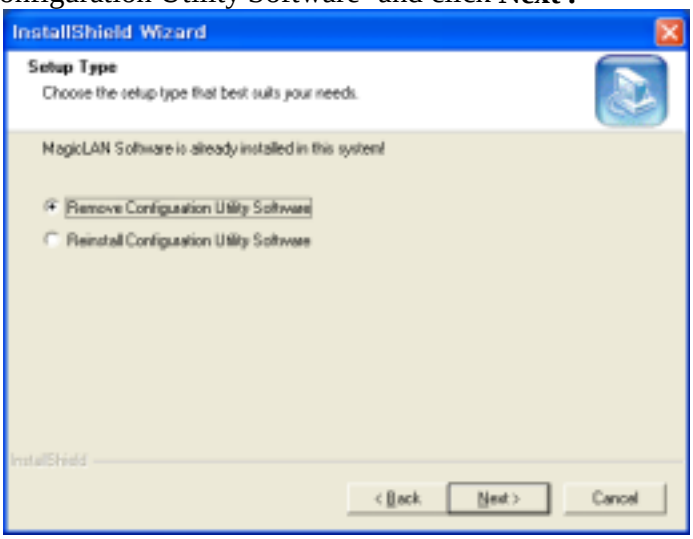
Select 'Remove all MagicLAN Software' and click **Next.**



(Utility Removal)

Click like followings : **-> All Programs -> MagicLAN -> MagicLAN Utility -> Remove Utility Uninstall.**

Select 'Remove Configuration Utility Software' and click **Next .**



(cf) If you want to just remove the WLAN Card from the PC, click and **Stop SAMSUNG 11Mbps WLAN MiniPCI/PCI Card** icon the right bottom of your computer screen. Then you remove the WLAN Card after clicking the OK button on the message, '**SAMSUNG 11Mbps WLAN MiniPCI/PCI Card can now be safely removed from the system'** (Notice that you should power off your computer and remove your card in case of MiniPCI/ PCI card)

** - ' Safely remove hardware' icon (Windows ME , 2000, XP)

In the case of Windows NT4.0, right click on the **Network Neighborhood** using the mouse and eliminate the '**SAMSUNG 11Mbps WLAN MiniPCI/PCI Card**' on the Network Component.

4. The Program For Setting MagicLAN

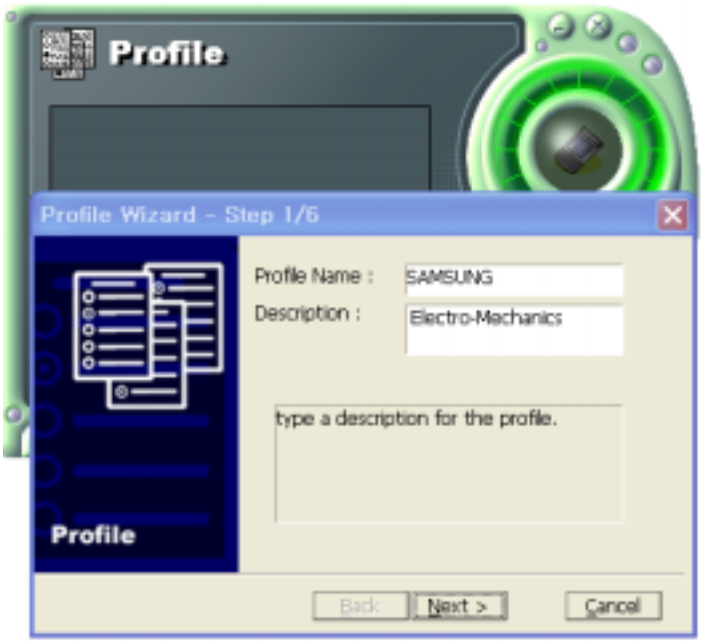
4.1 The concept of Profile

- TCP/IP settings for the fixed networks/Wired LAN have no problems, as they do not deal with the mobility. But in case of mobile equipments such as WLAN card, when WLAN client has moved from home to Office or vice-versa, the difficulty for using the old TCP/IP settings arises.
- The concept of profile makes it easy to use the same TCP/IP settings for WLAN cards regardless of the movement.
- Profile can be selected again with ease if it were saved. Saving the settings for WLAN and TCP/IP as a Profile, it is easy for user to select and use one of the saved profiles, especially it can be used quickly without rebooting your computer while the settings for TCP/IP is updated.

4.2 Installation Procedure

First time use of WLAN on your computer needs the following settings.

1. Insert your WLAN card. After clicking on the icon , which is found at the right bottom your computer screen, “Please create your first network profile now” window will appear. Click ‘Y’ button for yes and the following window will appear. cf) The above message will not be appeared in the Win XP. Make a Profile with clicking ‘New’ button.



2. Input a profile name in Profile Name and description for your profile name in Description and click the NEXT button, the following window will appear.

3. Select the Operating Mode to use and click the NEXT button. Default operating mode is Infrastructure.

- Infrastructure Network is the structure that the communication between Wired LAN and Wireless LAN is feasible. Wireless client is possible to access to the other Network (include Internet) via Access Point.

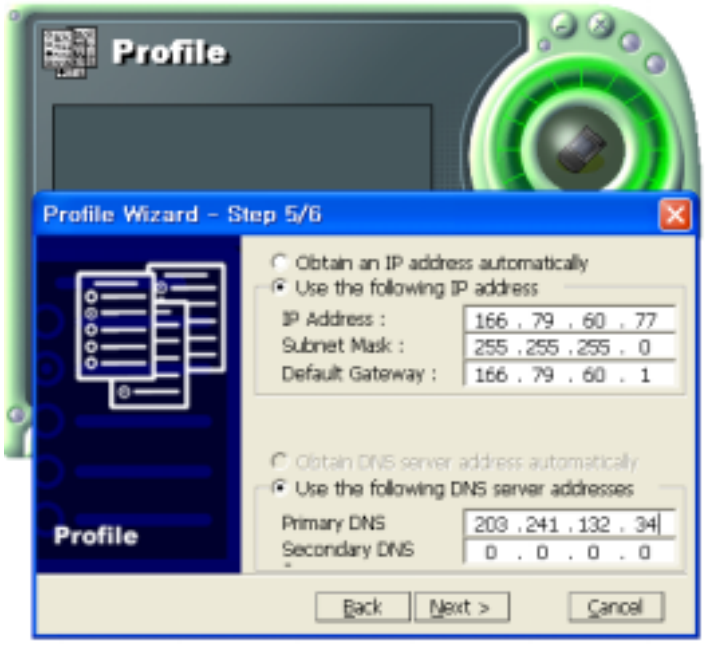
- Ad-hoc/802.11Ad-hoc Network support the communication among Wireless clients. Due to the support of communication among Wireless equipment, Ad-hoc Network doesn't need Access Point. (cf. 802.11 ad-hoc is satisfied with the 802.11 specification)

4. If you clicked on the Survey, the above window will appear showing you Access Points or Stations (Ad hoc) that are able to connect now. Select the AP that has the highest signal to use as an SSID.

5. Select the WEP Mode and Click the Next button.

- WEP Mode

- This is security tool to protect your DATA from unauthorized users.
- To use the function of WEP, The WEP key settings for client must be same to that of AP in the Infrastructure Mode, and the WEP key settings must be same for all clients in the Ad-hoc/802.11Ad-hoc Mode.



6. Enter a valid IP address. IP address can be allocated automatically. (cf. it is limited to users who use the DHCP server or ADSL connection). As only checked in “Manage TCP/IP together with Profile”, IP address can be controlled in the Profile. This menu does not appear under MS Windows NT. Click NEXT to see the following window.

7. Showing you the settings selected so far. Click the Finish button.

Check on this box. It will work on the system after clicking the Finish button.

8. Click the Profile name shown in the above window click the Apply button. The settings will be over. If the IP address entered in the system settings is different than the IP address selected under profile name, system IP settings will be changed without rebooting your system.

5. The main configuration of Program

During the installation of your SAMSUNG WLAN Card, configuration utility is also installed. You can see the icon at the right bottom of your screen. Double clicking that icon will show you the screen as shown below.

The following describes the meanings of variables shown in the WLAN configuration.

- **Profile:** The arbitrary designation by user. It is the profile name to distinguish each

Profile. So when you set the Profile, you would better choose the name that can send the contents it has.

- **Link Status**: you Link Status shows a client connection state with AP (In Infrastructure mode) or with other clients (In 802.11Ad-hoc Mode).
- **SSID**: It represents the name of a group consisting of WLAN users only. It is also called ESSID.
- **Operating Mode:** There are three Modes. Infrastructure Mode (the connection among clients through an AP), 802.11Ad-hoc/Ad-hoc Mode (direct connection among clients)
- **BSSID**: It shows the Physical Address of WLAN card inserted in AP in the Infrastructure Mode and the Random Generation value in the 802.11 Ad-hoc Mode.
- **Channel**: It shows channel number in use for communication between AP and client or among clients. When the Network Mode is set to the Infrastructure or 802.11Ad-hoc/Ad-hoc Modes, it searches a channel automatically.
- **WEP:** Security tool to be used for encryption/decryption of data to be exchanged between clients or between clients and AP. It denies the authorized access to network if WEP is enabled.
- **Power Saving:** The Power Saving Mode that prolongs the life of battery.
- **Physical Address:** It is the Physical address of WLAN card being used by user. This is also the MAC address of the WLAN card.
- **IP Address:** Address used to send data from one computer to another to create the network of several computers. IP address is unique for every network card installed on a computer to identify it from other computers.
- **Subnet Mask:** It is an address that enables along with an IP Address to share a network Address within the LAN of company.
- **Gateway:** The network point playing a role as a gateway to enter the other network.
- **DNS:** It is the system that transforms the name of an Internet domain to the corresponding IP Address. IP Address is actually needed to locate a computer/server on the Internet.
- **Adapter Name:** It shows the kind of WLAN card that the user is using now.

The following description is the fundamental installation of WLAN Card.

5.1Profile

You can modify your wireless environment four buttons on the bottom of Utility.

5.1.1 The 'New' button

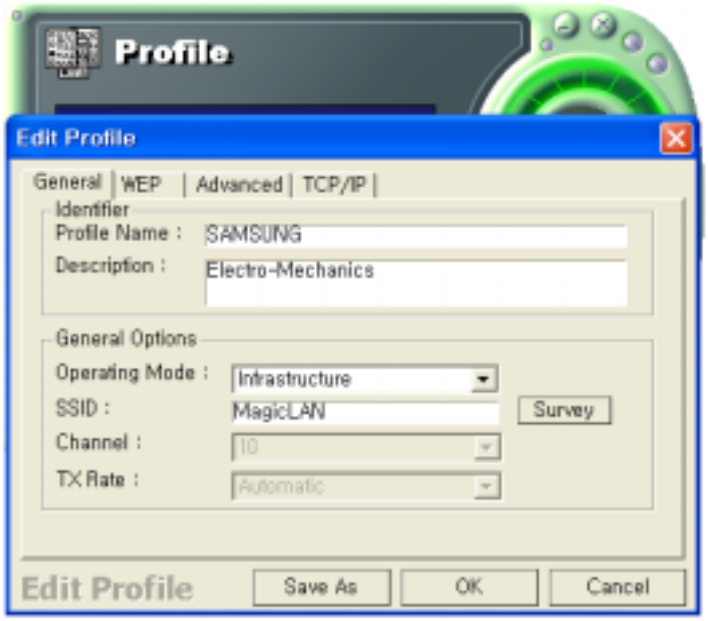
Clicking the New button, you can add or make a new Profile.
(Refer to 'The Program For Setting MagicLAN' in the Chapter 4)

5.1.2 The 'Apply' button

Select and click a Profile to be used, then the saved or modified profile settings will be used for configuring your WLAN card.

5.1.3 The 'Edit' button

Clicking the Edit button or the Profile name that was created previously, you can modify that Profile.



- Click the WEP button to set the security.

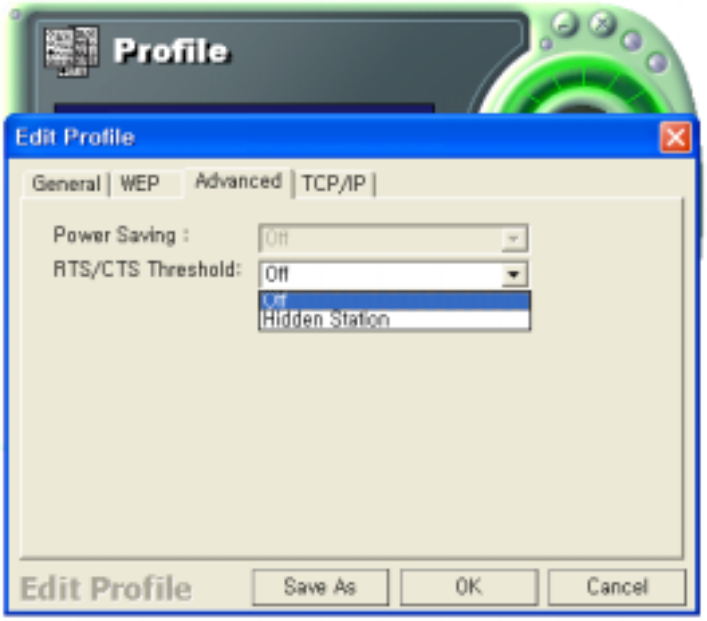
1. First of all, select the ‘64 bit’.

2. Input a certain value (ex. test1 etc) in the ‘Passphrase’ and click the Generate button. Then it will make four values of keys automatically.

3. Then you set the same value to the WEP of AP. (cf. If you use the WLAN made from

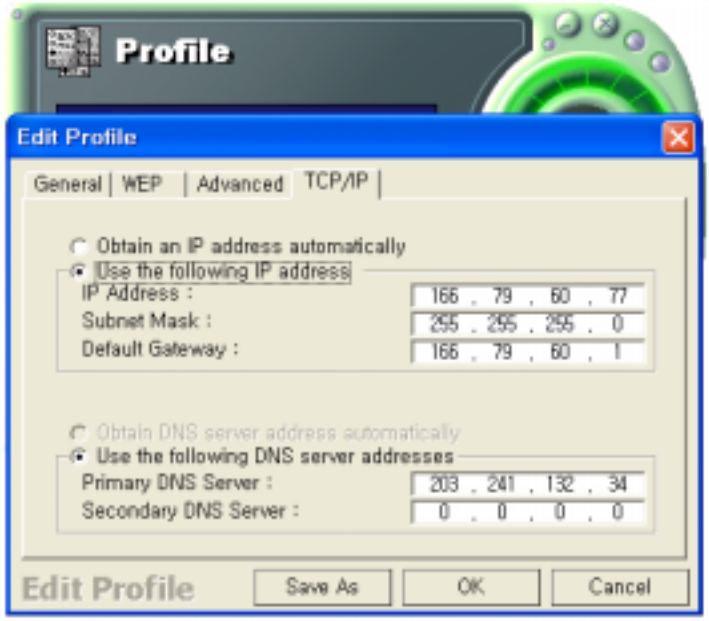
other company, you must set the same values in the four keys)

- You can set the ‘Power Saving’ and ‘Threshold’ with clicking the Advanced button.



1. Power Saving Mode saves the Battery. (cf.. it can give a lowing of efficiency according to 802.11Specification)
2. RTS/CTS Threshold Mode is better used in the place surrounded with much RF interference.

- Click the TCP/IP to input the IP directly or receive IP automatically.



5.1.4 The ‘Delete’ button

Select a profile and click on Delete button to remove that profile.

5.2 Status

5.2.1 The 'Current Status' button

It shows the current state of the WLAN card. (Refer to the ' The main configuration of Program')

5.2.2 The ‘AP Status’ button

It shows the current state of AP. (You can see the IP address changed by the Get Status button)

- **Model:** It shows the name of model.
- **Version**: It shows the version of AP.
- **Description:** It is the name of AP designated by AP manager during AP setup.
- **NAT**: It shows whether the private IP address (NAT server) is enabled or not.
- **DHCP**: It shows whether the DHCP sever is enabled or not.
- **Clients number**: It shows the number of users currently connected with the AP.
- **Internet connection**: It is the connection type with outer network (LAN, ADSL, ISDN etc.).
- **IP Address**: It shows whether the IP address is from DHCP server or NAT server.
- **Connected Status**: In case the connection type with the outside network is of ADSL/CABLE type, it shows the connection state between AP and ASP service.
- **IP**: It is the IP address of the AP.

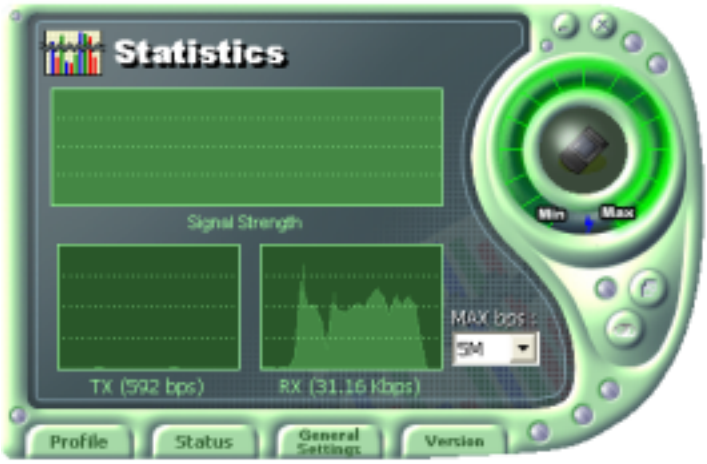
5.2.3 The ‘Site Survey’ button

It finds you the AP/Station that are connected currently. (It takes a few seconds to be done)

- **Signal**: It shows the connection state of Stations with AP or Master Station.
- **Rate**: It shows the Tx Data rates.
- **WEP:** It shows security state with the AP.
- **BSSID**: It represents the Physical Address of AP in the Infrastructure Mode and the Random Generation value in the 802.11 Ad-hoc Mode.
- **Channel**: It shows the currently used channel number.

5.2.4 Statistics

It shows the state of the data transmission. (You can regulate the graph to be see clearly with the settings of the MAX bps on the right side of bottom)



5.3 General Settings

5.3.1 The 'DHCP' button

- It works when it is enabled.
- The Get Status button shows the updated information obtained from the DHCP server.
- The Release DHCP button releases the IP Address that was received from the DHCP server.
- The Renew DHCP button is for receiving the IP Address from the DHCP server.

5.3.2 The 'Options' button

- If you disable the check from the 'Sound Enable', you cannot hear the sound whenever you click.
- If you disable check from the 'Manage TCP/IP together with profiles', you cannot control TCP/IP in the utility. You can just modify TCP/IP in the Network Neighborhood.
- If you check the 'Do not show the Profile Wizard Welcome message', 'Welcome message does not pop up in case of set or add the Profile.

5.4 Version

- You can see the Driver and Firmware version for your WLAN card currently in use.
- Click the Website to get more information about WLAN.

6. Troubleshooting

To make the installation of SAMSUNG WLAN Card more users friendly, we have suggested following the installation steps one by one as listed in the section 3 and section 4. Still you encounter some problems while installing the WLAN Card or you want to confirm whether your card is installed properly or not, we have listed the procedure for checking the various components after you have installed the card. There are solutions of probable problems per each card and O/S during installing cards in section 6.1. There's probable symptoms and their diagnosis in section 6.2.

6.1 Solutions of probable problems per each card and O/S

For MiniPCI/PCI Card under Windows XP:

When installing Wireless LAN Card, you will often use tray icons in the right lowest part of a screen. But you can make a mistake to connect "Bridge Connection" by clicking wrong icon. In this case, you have to disconnect the "Bridge Connection" to use our card properly.

For PC Card under Windows 95 (OSR2)/98 (SWL-2100N)

Please check the followings if you encounter some problem while installing the PC card or your PC card is non-functional.

1. Click on the **Control Panel** and then on **PC Card**. Check whether it has **PC Card** in one of the sockets or not. If you find **SAMSUNG 11Mbps WLAN PC Card** in one of the sockets, it means the card is detected properly. If you see the **Yellow** sign of Question-mark **(?)**, the resources are conflicting.
2. Right click on **My Computer** and the select **Properties**. Select the **Device Manager** and click on the **Network Adapter**. You will find **SAMSUNG 11Mbps WLAN PC Card 3V/5V** if it is installed successfully. If you see the **Yellow** sign the resources are conflicting. Click on PC Card and then on PC Card Service, you can see the status of PC Card. If there are yellow sign either on adapter or PC Card, please check the followings.

   1) Check if your Laptop supports **3.3V** Card.

   2) Check if your Laptop has a free **IRQ or I/O Address**(Length: 40h). If not, make an IRQ free by assigning the same IRQ to some devices, for example COM 1, COM 2 can be assigned same IRQ values.

   Check that you have inserted the right card and have installed the proper driver.

For PCI Card under Windows 95 (OSR2)/98 (SWL-2100P)

Please check the followings if you encounter some problem while installing the PCI card or your PCI card is non-functional.

3. Click on the **Control Panel** and then on **PC Card**. Check whether it has **PC Card** in one of the sockets or not. If you find **SAMSUNG 11Mbps WLAN PCI Card** in one of the sockets, it means the card is detected properly. If you see the **Yellow** sign of Question-mark **(?)**, the resources are conflicting.
4. Right click on **My Computer** and the select **Properties**. Select the **Device Manager** and click on the **Network Adapter**. You will find **SAMSUNG 11Mbps WLAN PCI Card** if it is installed successfully. If you see the **Yellow** sign the resources are conflicting. If there are yellow sign either on adapter, please check the followings.
   1) Check if your computer has a free **IRQ**(Length: 40h).
   2) Check if your computer has a free **IRQ or I/O Address**(Length: 40h). If not, make an IRQ free by assigning the same IRQ to some devices, for example COM 1, COM 2 can be assigned same IRQ values.
   Check that you have inserted the right card and have installed the proper driver.

<u>For PC Card under Windows NT</u> (SWL-2100N)

<u>Important</u>: Some Laptop computers for Win NT 4.0 operating system that do not support 3V cards will not install your PC Card successfully. You are advised to install the driver for PC Card Controller available from set manufactures or install the CardWizard program that will enable the Laptop computers supporting 5V cards to support 3V cards also and will install your PC Card successfully.

Please check the followings if you encounter some problem while installing the PC Card or your PC Card is non-functional.

1. Check the **Windows NT Diagnostics**. You should find out whether there is any conflict in the **resource** allocation or the **I/O address**, **IRQ** allocations. If you find that the **IRQ,I/O** addresses are already assigned to some other devices, you must change that value. I/O address needs 40h byte length.
2. **Event viewer** will show you about the events such as PC Card , swld11 (driver name) and the status. If you find the **Red** or **Yellow** sign, there is some problem. Please refer to the **Troubleshooting** at the end of the manual.
3. Click on the **Control panel**. Double click on the **PC Card**. You will see

SAMSUNG 11Mbps WLAN PC Card. Double clicking on that will show you the **Card Information**, driver name and the driver file. You must confirm the name of the driver and the driver file as "**swld11**" and "**swld11.sys**". If you do not find the names as we listed before, there are some problems and the driver is not installed properly. Reinstall the driver.

Note: Check the PnP BIOS setup menu and select **no** in case of the WLAN Card installation.

For PCI Card under Windows NT (SWL-2100P)

Please check the following if you encounter some problem while installing the PC Card or your PCI card is non-functional.

1. Check the **Windows NT Diagnostics**. You should find out whether there is any conflict in the **Resource** allocation or the **Memory Base** address allocation. If you find that the Memory address is already assigned to some other devices, you must change that.
2. **Event Viewer** will show you about the events such as **PCI Card** type i.e. **PC Card** or **PCI,** driver file **swldpc11** and the **status**. If you find the **Red** or **Yellow** sign, there is some problem.
3. Click on the **Control panel**. Double click on the **PC Card**. You will see **SAMSUNG 11Mbps WLAN MiniPCI/PCI Card**. Double clicking on that will show you the **Card Information**, driver name and the driver file. You must confirm the name of the driver and the **driver file as "swld11"() and** "**swld11?.sys**". If you do not find the names as we listed before, there is some problems and the driver is not installed properly. Reinstall the driver.

6.2 Probable Symptoms and their Diagnosis:

Symptom	Diagnosis

The system tray wireless monitor is always red.	Make sure that all the clients have the same SSID. Set all clients to the same wireless channel in case of Ad-hoc network mode. Make it sure that you are with in the range of an Access Point (AP). If your PC can't be associated with any AP, it cannot communicate with other clients.
If you cannot connect to one of the clients in the network.	Make it sure that all clients are up and are running with a blue taskbar icon. Make it sure that the client that you want to communicate with is within the range of an AP. Make sure that your TCP/IP is set properly and correctly.
The NT event log lists the error: "Server Service terminated. Not enough Server Storage."	Reinstall the Windows NT service pack.
In Windows NT, there is no wireless monitor icon in the taskbar or the Samsung Adapter does not appear in the PC Card Control Panel applet.	Make sure the PC Card device is started as **Automatic** in the device applet of the Control Panel. Double click on the PC Card icon in Control Panel. Click on Samsung Adapter and then on the properties button. It should say the driver started correctly. Make sure the drivers were installed correctly. If all else fails, uninstall drivers and software through Add/Remove Program, remove the WLAN Card and reinstall the drivers following the manual.
You cannot connect to some computers in the Network Neighborhood.	Make sure a resource is shared among all computers connected to the same network. Click on OK on the MS Networking login box and OK on the following domain error. If you cannot share a device in NT, you may need to reinstall the NT service pack. You may wait for several minutes for all of the PCs to appear.

In case of the Windows NT, if there is no sound after you insert the Wireless LAN card.	You must check the resources of the sound card driver. If the resources are conflicting with Samsung Wireless (PCI/PC Card) LAN Card driver, you must change the resources.