

IEEE 1394 port

The computer's IEEE 1394 port allows you to connect to an IEEE 1394 supported devices like a video camera or digital camera.



See your video or digital camera's documentation for details.

PC Card slot

The type II CardBus PC Card slot found on the left side of the computer accepts credit-card-sized cards that enhance the usability and expandability of the computer. These cards should have a PC Card logo on them.

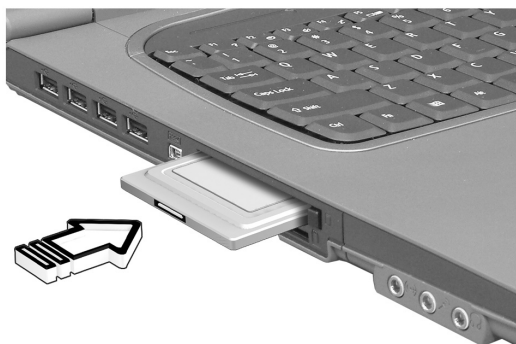
PC Cards (formerly PCMCIA) are add-on cards for portable computers, giving you expansion possibilities long afforded by desktop PCs. Popular PC cards include flash, fax/data modem, LAN, wireless LAN and SCSI cards. CardBus improves on the 16-bit PC card technology by expanding the bandwidth to 32 bits.



Note: Refer to your card's manual for details on how to install and use the card and its functions.

Inserting a PC Card

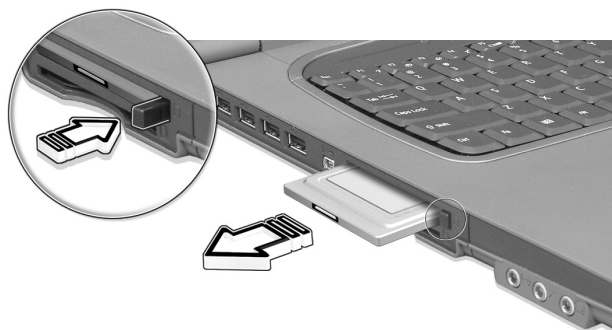
Insert the card into the slot and make the proper connections (e.g., network cable), if necessary. See your card manual for details.



Ejecting a PC Card

Before ejecting a PC Card:

- 1 Exit the application using the card.
- 2 Left-click on the PC Card icon on the taskbar and stop the card operation.
- 3 Press the slot eject button to pop out the eject button (a); then press it again to eject the card (b).



Port expansion devices

Two types of expansion devices are available for your computer:

- I/O replicator - adds serial port and parallel port connections to your computer.
- EasyPort - adds a host of ports for your computer, and allows you to connect and disconnect peripherals from your computer in one quick step.

See your dealer for more information.

Upgrade options

Your computer delivers superior power and performance. However, some users and the applications they use may demand more. This computer allows you to upgrade key components when you need increased performance.



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Note: Contact your authorized dealer if you decide to perform a key component upgrade.

Memory upgrade

Memory is expandable to 2 GB, employing 256/512/1024-MB industry standard soDIMMs (Small Outline Dual Inline Memory Modules). The computer supports DDR (Double Data Rate) RAM.

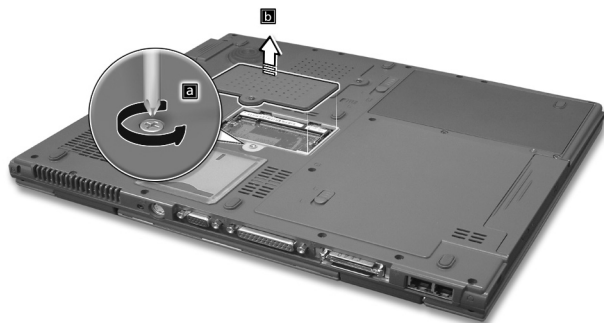
There are two memory slots on your computer, one of which is occupied by standard memory. You can upgrade memory by installing a memory module into the one available slot, or replacing the standard memory with a higher-capacity memory module.

Installing memory

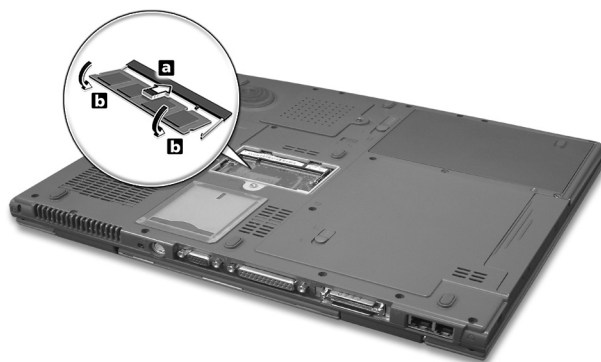
Follow these steps to install memory:

- 1 Turn off the computer, unplug the AC adapter (if connected) and remove the battery pack. Then turn the computer over to access its base.

- 2 Remove the screws from the memory cover (a); then lift up and remove the memory cover (b).



- 3 Insert the memory module diagonally into the slot (a), then gently press it down (b) until it clicks into place.



- 4 Replace the memory cover and secure it with the screw.
- 5 Reinstall the battery pack, and reconnect the AC adapter.
- 6 Turn on the computer.

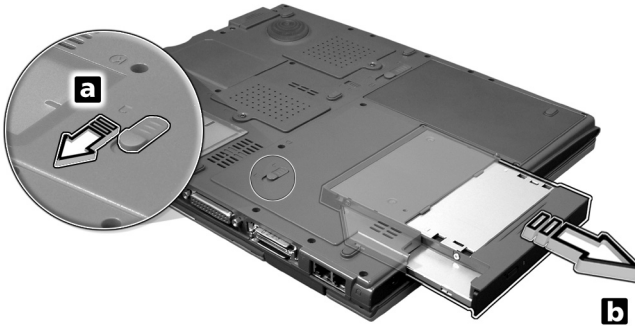
The computer automatically detects and reconfigures the total memory size.

Swapping AcerMedia drive modules

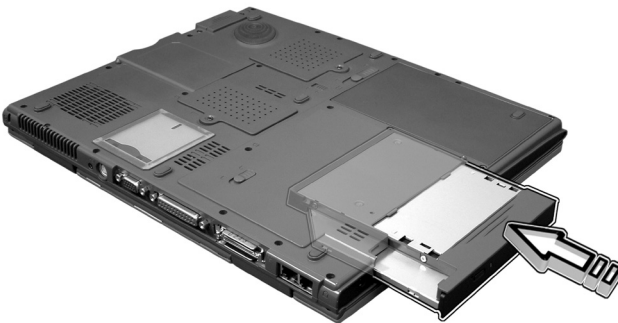


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Note: The hard disk drive module is not hot-swappable. You have to turn off your computer before you can swap the module.

You can swap the AcerMedia drive with any optional AcerMedia modules. First slide the AcerMedia release latch as shown in the illustration (a). Then remove the optical drive from the AcerMedia bay (b).



Then insert the optional AcerMedia module into the AcerMedia bay until it clicks into place.



Using system utilities

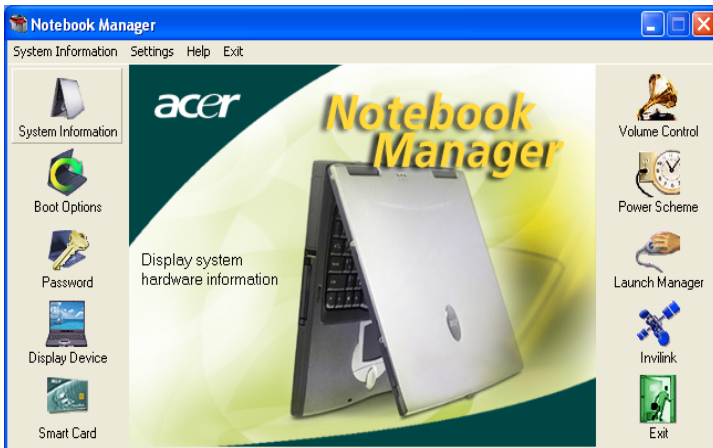
Notebook Manager

The computer has a built-in system setup program called Notebook Manager. The Windows-based Notebook Manager allows you to set passwords, the startup sequence of the drives, and power management settings. It also shows current hardware configurations.

To start the Notebook Manager, press **Fn-F2** or follow these steps:

- 1 Click on **Start, Programs**, then **Notebook Manager**.
- 2 Select the **Notebook Manager** application to run the program.

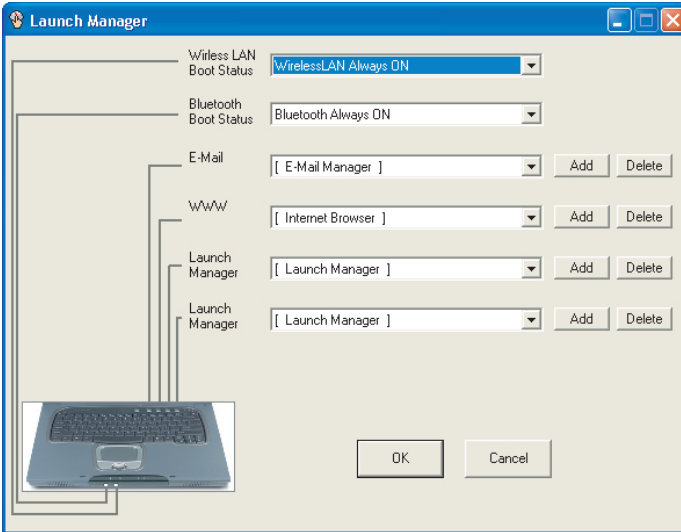
Click on **Help** for more information.



Launch Manager

Launch Manager allows you to set the five launch keys located above the keyboard. See “Touchpad” on page 22 for the location of the launch key.

You can access the Launch Manager by clicking on **Start, Programs**, and then **Launch Manager** to start the application.



BIOS Utility

The BIOS Utility is a hardware configuration program built into your computer’s BIOS (basic input/output system).

Your computer is already properly configured and optimized, and you do not need to run this utility. However, if you encounter configuration problems, you may need to run it.

To activate the BIOS Utility, press **F2** during the POST (power-on self-test) while the TravelMate logo is being displayed.

3 Troubleshooting my computer

This chapter instructs you on how to deal with common system problems. Read it before calling a technician if a problem occurs. Solutions to more serious problems require opening up the computer. Do not attempt to open the computer by yourself. Contact your dealer or an authorized service center for assistance.

key link: www.acersupport.com

Frequently-asked questions

The following is a list of possible situations that may arise during the use of your computer. Easy answers and solutions are provided for each one.

I slid the power switch and opened the display, but the computer does not start or boot-up.

Look at the Power indicator:

- If it is not lit, no power is being applied to the computer. Check the following:
 - If you are running on battery power, it may be low and unable to power the computer. Connect the AC adapter to recharge the battery pack.
 - Make sure that the AC adapter is plugged in properly to the computer and to the power outlet.
- If it is lit, check the following:
 - Is a non-bootable (non-system) CD in the optical drive? Remove or replace it with a system diskette and press **Ctrl-Alt-Del** to restart the system.
 - The operating system files may be damaged or missing. Insert the startup disk you created during Windows setup into the optical drive and press **Ctrl-Alt-Del** to restart the system. This will diagnose your system and make necessary fixes.

Nothing appears on the screen.

The computer's power management system automatically blanks the screen to save power. Press any key to turn the display back on.

If pressing a key does not turn the display back on, two things might be the cause:

- The brightness level might be too low. Press **Fn**→ (increase) and **Fn**← (decrease) to adjust the brightness level.
- The display device might be set to an external monitor. Press the display toggle hot key **Fn-F5** to toggle the display back to the computer.
- If the Sleep indicator is lit, the computer is in Sleep mode. Slide and release the power switch to resume.

Image is not full-screen.

The computer display has a native resolution of 1024 x 768 (XGA) for the 14.1" and 1400 x 1050 (SXGA+) for the 15.0". If you set the resolution lower than this, the screen expands to fill the computer display. Right-click on your Windows desktop and select Properties to bring up the **Display Properties** dialog box. Then click on the Settings tab to make sure that the resolution is set to the appropriate resolution. Resolutions lower than the specified resolution are not full-screen on the computer or on an external monitor.

No audio is heard from the computer.

Check the following:

- The volume may be muted. In Windows, look at the volume control (speaker) icon on the taskbar. If it is crossed-out, click on the icon and deselect the Mute option.
- The speakers may be turned off. Press **Fn-F8** to turn the speakers on (this hot key also turns the speakers off).
- The volume level may be too low. In Windows, look at the volume control icon on the taskbar. You can also use the volume control buttons to adjust the volume. See "Hot keys" on page 17 for more detail.
- If headphones, earphones or external speakers are connected to the line-out port on the computer's rear panel, the internal speakers automatically turn off.

I want to eject the optical drive tray without turning on the power. I cannot eject the optical drive tray.

There is a mechanical eject button on the optical drive. Simply insert the tip of a pen or paperclip and push to eject the tray.



The keyboard does not respond.

Try attaching an external keyboard to the USB 2.0 connector on the left of the computer. If it works, contact your dealer or an authorized service center as the internal keyboard cable may be loose.

The infrared port does not work.

Check the following:

- Make sure that the infrared ports of the two devices are facing each other (+/- 15 degrees) a maximum of 1 meter apart.
- Make sure there is a clear path between the two infrared ports. Nothing should be blocking the ports.
- Make sure you have the appropriate software running on both devices (for file transfers) or you have the appropriate drivers (for printing to an infrared printer).
- During the POST, press **F2** to access the BIOS Utility and verify that the infrared port is enabled.
- Make sure both devices are IrDA-compliant.

The printer does not work.

Check the following:

- Make sure that the printer is connected to a power outlet and that it is turned on.
- Make sure that the printer cable is connected securely to the computer's parallel port and the corresponding port on the printer.
- During POST, press **F2** to access the BIOS Utility and verify that the parallel port is enabled.

I want to set up my location to use the internal modem.

To properly use your communications software (e.g., HyperTerminal), you need to set up your location:

- 1 Click on **Start, Settings, Control Panel**.
- 2 Double-click on **Modems**.
- 3 Click on **Dialing Properties** and begin setting up your location.

Refer to the Windows manual.

Troubleshooting tips

This notebook computer incorporates an advanced design that delivers onscreen error message reports to help you solve problems.

If the system reports an error message or an error symptom occurs, see “Error messages” on page 61. If the problem cannot be resolved, contact your dealer. See “Requesting service” on page 62.

Error messages

If you receive an error message, note the message and take the corrective action. The following table lists the error messages in alphabetical order together with the recommended course of action.

Error Messages	Corrective Action
CMOS Battery Bad	Contact your dealer or an authorized service center.
CMOS Checksum Error	Contact your dealer or an authorized service center.
Disk Boot Failure	Insert a system (bootable) diskette into the floppy drive (A:), then press Enter to reboot.
Equipment Configuration Error	Press F2 (during POST) to enter the BIOS Utility; then press Esc to exit and reconfigure the computer.
Hard Disk 0 Error	Contact your dealer or an authorized service center.
Hard Disk 0 Extended Type Error	Contact your dealer or an authorized service center.
I/O Parity Error	Contact your dealer or an authorized service center.
Keyboard Error or No Keyboard Connected	Contact your dealer or an authorized service center.
Keyboard Interface Error	Contact your dealer or an authorized service center.
Memory Size Mismatch	Press F2 (during POST) to enter the BIOS Utility; then press Esc to exit and reconfigure the computer.

If you still encounter problems after going through the corrective measures, please contact your dealer or an authorized service center for assistance. Some problems may be solved using the BIOS Utility.

Requesting service

International Traveler's Warranty (ITW)

Your computer is backed by an International Traveler's Warranty (ITW) that gives you security and peace of mind when traveling. Our worldwide network of service centers are there to give you a helping hand.

An ITW passport comes with your computer. This passport contains all you need to know about the ITW program. A list of available, authorized service centers is in this handy booklet. Read this passport thoroughly.

Always have your ITW passport on hand, especially when you travel to receive the benefits from our support centers. Place your proof-of-purchase in the flap located inside the front cover of the ITW passport.

If the country you are traveling in does not have an Acer-authorized ITW service site, you can still get in contact with our offices worldwide.

There are two ways to access Acer for technical support and information:

- Internet service worldwide (www.acersupport.com)
- Technical support numbers in various countries

You can view a list of technical support numbers by following these steps:

- 1 Click on **Start, Settings, Control Panel**.
- 2 Double-click on **System**.
- 3 Click on the **Support Information** button.

Before you call

Please have the following information available when you call Acer for online service, and please be at your computer when you call. With your support, we can reduce the amount of time a call takes and help solve your problems efficiently.

If there are error messages or beeps reported by your computer, write them down as they appear on the screen (or the number and sequence in the case of beeps).

You are required to provide the following information:

Name: _____

Address: _____

Telephone number: _____

Machine and model type: _____

Serial number: _____

Date of purchase: _____

Appendix A
Specifications

This appendix lists the general specifications of your computer.

Microprocessor

- Intel® Pentium® M Processor with 1024 KB level 2 cache featuring the new Enhanced Intel® SpeedStep™ technology

Memory

- Main memory expandable to 2 GB
- Dual 200-pin soDIMM sockets
- PC2100 DDR-SDRAM (Double Data Rate-Synchronous Dynamic Random Access Memory) support
- 512 KB Flash ROM BIOS

Data storage

- One high-capacity, Enhanced-IDE hard disk
- One 5.25-inch internal removable optical drive (AcerMedia bay)

Display and video

- Thin-Film Transistor (TFT) liquid crystal display (LCD) displaying 16-bit high color up to 1024 x 768 eXtended Graphics Array (XGA) resolution for 14.1" and 1600 x 1200 Ultra eXtended Graphics Array (UXGA) resolution for 15"
- 4X AGP bus with 3D acceleration
- Simultaneous LCD and CRT display support
- Dual display capability
- S-video for output to a television or display device that supports S-video input
- "Automatic LCD dim" feature that automatically decides the best settings for your display and conserves power

Audio

- 16-bit AC'97 stereo audio with built-in wavetable synthesizer
- Dual speakers and microphone
- Separate audio ports for headphone-out, line-in and microphone-in devices

Keyboard and pointing device

- 84-/85-/88-key Windows keyboard

- Ergonomically-centered touchpad pointing device with 4-way scroll button

I/O ports

- One type II CardBus PC Card slot
- One RJ-45 jack (Ethernet 10/100)
- One RJ-11 phone jack (V.90/V.92)
- One DC-in jack
- One parallel port (ECP/EPP)
- One external monitor port
- One speaker/headphone-out jack (3.5mm mini jack)
- One audio line-in jack (3.5mm mini jack)
- Four (4) USB 2.0 ports
- One FIR port (IrDA)
- One expansion connector
- One Smart Card slot

Weight and dimensions

- 2.56 kg (5.6 lbs) with battery and optical drive for 14"
330 (W) x 272 (D) x 25.4~28.5 (H) mm
- 2.69 kg (5.91 lbs) with battery and optical drive for 15"
330 (W) x 272 (D) x 27.9~29.5 (H) mm

Environment

- Temperature
 - Operating: 5°C ~ 35°C
 - Non-operating: -20°C ~ 65°C
- Humidity (non-condensing)
 - Operating: 20% ~ 80% RH
 - Non-operating: 20% ~ 80% RH

System

- ACPI support
- DMI 2.0-compliant

- Microsoft® Windows® operating system

Power

- Battery pack
 - 65 wh Li-Ion battery pack
 - 1.5-hour rapid charge / 3.5-hour charge-in-use
- AC adapter
 - 75-Watt
 - Auto sensing 100~240Vac, 50~60Hz

Options

- 256/512/1024-MB memory upgrade modules
- Additional Li-Ion battery pack
- Additional AC adapter
- DVD/CD-RW module (includes DVD playback software; DVD-RW available in the future)
- EasyPort port replicator
- External battery charger
- Secondary hard drive
- USB floppy drive
- 802.11b wireless communication

Appendix B

Notices

This appendix lists the general notices of your computer.

FCC notice

This device 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 device 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 device does cause harmful interference to radio or television reception, which can be determined by turning the device 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 device and receiver
- Connect the device into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for help

Notice: Shielded cables

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

Notice: Peripheral devices

Only peripherals (input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this equipment. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

Caution

Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by the Federal Communications Commission, to operate this computer.

Use conditions

This part 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.

Notice: Canadian users

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Remarque à l'intention des utilisateurs canadiens

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Modem notices

FCC

This equipment complies with Part 68 of the FCC rules. Located on the bottom side of the modem is a label that contains, among other information, the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. Upon request, you must provide this information to your telephone company.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But, if advance notice is not practical, you will be notified as soon as possible. You will also be informed of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If this equipment should fail to operate properly, disconnect the equipment from the phone line to determine if it is causing the problem. If the problem is with the equipment, discontinue use and contact your dealer or vendor.

TBR 21

This equipment has been approved [Council Decision 98/482/EC - "TBR-21"] for pan-European single terminal connection to the Public Switched Telephone Network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN termination point. In the event of problems, you should contact your equipment supplier in the first instance.

Important safety instructions

Read these instructions carefully. Save these instructions for future reference.

- 1 Follow all warnings and instructions marked on the product.
- 2 Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 3 Do not use this product near water.
- 4 Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- 5 Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
- 6 This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- 7 Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
- 8 If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.
- 9 Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
- 10 Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
- 11 Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a When the power cord or plug is damaged or frayed
 - b If liquid has been spilled into the product
 - c If the product has been exposed to rain or water
 - d If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other

controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.

- e If the product has been dropped or the cabinet has been damaged
 - f If the product exhibits a distinct change in performance, indicating a need for service.
- 12 Replace the battery with the same type as the product's battery we recommend. Use of another battery may present a risk of fire or explosion.
 - 13 **Warning!** Batteries may explode if not handled properly. Do not disassemble or dispose of them in fire. Keep them away from children and dispose of used batteries promptly.
 - 14 Use only the proper type of power supply cord set (provided in your accessories box) for this unit. It should be a detachable type: UL listed/CSA certified, type SPT-2, rated 7A 125V minimum, VDE approved or its equivalent. Maximum length is 15 feet (4.6 meters).

Laser compliance statement

The CD or DVD drive used with this computer is a laser product. The CD or DVD drive's classification label (shown below) is located on the drive.

CLASS 1 LASER PRODUCT

CAUTION: INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

APPAREIL A LASER DE CLASSE 1 PRODUIT

LASERATTENTION: RADIATION DU FAISCEAU LASER INVISIBLE EN CAS D'OUVERTURE. EVITER TOUTE EXPOSITION AUX RAYONS.

LUOKAN 1 LASERLAITE LASER KLASSE 1

VORSICHT: UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN

PRODUCTO LÁSER DE LA CLASE I

ADVERTENCIA: RADIACIÓN LÁSER INVISIBLE AL SER ABIERTO. EVITE EXPONERSE A LOS RAYOS.

ADVARSEL: LASERSTRÅLING VEDÅBNING SE IKKE IND I STRÅLEN.

VARO! LAVATTAESSA OLET ALTTINA LASERSÄTEILYLLE.

VARNING: LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD ÄLÅ TUIJOTA SÄATEESEENSTIRRA EJ IN I STRÅLEN

VARNING: LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNADSTIRRA EJ IN I STRÅLEN

ADVARSEL: LASERSTRÅLING NÄR DEKSEL ÅPNESSTIRR IKKE INN I STRÅLEN

Lithium battery statement

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to local regulations. Recycle if at all possible.

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Léver det brugte batteri tilbage til leverandøren.

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

VAROITUS

Päristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

VORSICHT!

Explosionsgefahr bei unsachgemäßen Austausch der Batterie Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

LCD pixel statement

The LCD unit is produced with high-precision manufacturing techniques. Nevertheless, some pixels may occasionally misfire or appear as black or colored dots. This has no effect on the recorded image and does not constitute a malfunction.

Macrovision copyright protection notice

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Apparatus Claims of U.S. Patent Nos. 4,631,603, 4,577,216, 4,819,098, and 4,907,093 licensed for limited viewing uses only.

A-Tick notice

For safety reasons, only connect headsets with a telecommunications compliance label. This includes customer equipment previously labeled permitted or certified.

FCC RF EXPOSURE INFORMATION (802.11b Wireless LAN)

In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies.

The design of this notebook computer complies with the FCC guidelines and these international standards. Use only the supplied or an approved antenna. Unauthorized antennas, modifications, or attachments could result in violation of FCC regulations.

This device was tested for typical lap held operations with the device directly contacted to the human body to the back side of the notebook computer. To maintain compliance with FCC RF exposure compliance requirements, avoid direct contact to the transmitting antenna during transmitting. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

Appendix C
802.11b Guide

[Back to Contents](#)

Installation under Windows XP

Preliminary Notes



The installation instructions in this section are based on the following assumptions:

- The Intel(R) PRO/Wireless LAN Mini PCI Adapter hardware has already been installed in the computer in accordance with the computer manufacturer's instructions.
- The computer has not been powered on since the hardware installation was completed.
- No other wireless LAN card is installed in this computer.



To install the driver before installing hardware, use **Start > Run** and browse to the file **SetupWLD.exe** in the path **PROW7100\WINXP** on the Intel CD. After running SetupWLD.exe, shut down the computer and install the hardware. When the computer restarts, the driver will be automatically installed.



Before proceeding, make sure that you are operating Windows XP with administrative rights. If you log in to Windows XP without administrative rights, you may run into problems during the installation.



The Intel(R) PROSet utility or the Windows XP wireless configuration feature can be used to configure wireless network settings. The instructions below include steps for installing the PROSet utility and for turning off the Windows XP configuration feature. If you do not turn off the Windows XP feature, you will not be able to use PROSet to configure wireless network settings. For information on how to use the Windows XP feature, see your Windows XP documentation.

Driver Installation

To install drivers under Windows* XP, follow these steps:

1. Power up the computer in which the Intel(R) PRO/Wireless Mini PCI Adapter hardware has just been installed.
2. Log in with administrative rights if prompted by Windows XP.
3. Wait for Windows to detect the newly installed hardware and display the **Found New Hardware Wizard** dialog. Verify that **Install the software automatically (Recommended)** is selected. If Windows does not detect the new hardware, see Troubleshooting.
4. Insert the Intel CD into your CD drive. The **New Hardware Found Wizard** searches for the correct driver files and copies them to your hard drive.
5. On the **Network Name** screen, click **Next** to accept the default Network Name (SSID) **101**, or enter a specific SSID for your network, then click **Next**.

6. On the **Data Encryption** screen, click **Next** to accept the default encryption setting **None**, or enter specific encryption settings for your network, then click **Next**.
7. On the **Found New Hardware Wizard** screen, click **Finish**. Proceed to disable the Windows XP wireless configuration feature.

Disable Windows XP Wireless Configuration (Required)

To disable the Windows XP wireless configuration feature so that you can use Intel(R) PROSet for wireless configuration, continue as follows:



Instructions are written for use with the Windows XP Start Menu and Control Panel Category View, not with "Classic" Start Menu or Control Panel views.

8. Click **Start** and **Control Panel**.
9. On the **Pick a category** screen, click **Network and Internet Connections**, then under the heading **or pick a Control Panel icon** click **Network Connections**.
10. In the **Network Connections** window, right-click your **Wireless Network Connection** and select **Properties**.
11. Select the **Wireless Networks** tab.
12. Click to clear ("deselect") the check box **Use Windows to configure my wireless network settings**, then click **OK** on the **Wireless Network** tab. Do not click any other tabs. Continue with the installation of PROSet.

Intel(R) PROSet Installation (Required)

Continue with the following steps to install the Intel PROSet wireless configuration utility (required):



Some versions of this product do not support the **Intel(R) PRO Network Connections** menu screen for installation of utility software. If the Intel(R) PRO Network Connections menu screen does not appear, or if it does not have a menu item for Wireless LAN Adapters, you can start the PROSet installer manually using **Start > Run** and browsing to the file **PROSet.msi** in the path **APPS/PROSet/2K-NET32** on the Intel CD supplied with the product. Skip Steps 13 and 14 below and continue with **Step 15**.

13. Display the **Intel(R) PRO Network Connections** screen by removing and re-inserting the Intel CD, or by running autorun.exe from the CD. Click **Wireless LAN Adapters**.
14. On the **Intel PRO/Wireless LAN Adapters** menu screen, click **Install Software**.
15. On the **Welcome to the InstallShield Wizard for Intel(R) PROSet** screen, click **Next**.
16. On the **License Agreement** screen, after reading the license agreement, select **I accept the terms in the license agreement** and click **Next**.
17. On the **Setup Type** screen, select **Typical** and then click **Next**. This is the recommended setting for a first-time installation.
18. On the **Ready to Install the Program** screen click **Install**.
19. After the software is installed on your computer, click **Finish**. Click **Exit** to close the **Intel(R) PRO Network Connections** screen or leave it open if you wish to install Wireless Administration Tools.
20. To launch Intel PROSet, double-click the PROSet icon in the system tray or follow the path **Start > Programs > Intel Network Adapters > Intel(R) PROSet**. For additional information on the program, press **F1** or click **Help** while the program is running.

Administration Tools Installation (Optional)

Continue with the following steps to install the Intel(R) Wireless Administration Tools Site Survey and AP Discovery (optional):



Some versions of this product do not support the **Intel(R) PRO Network Connections** menu screen for installation of the Administration Tools. If the Intel(R) PRO Network Connections menu screen does not appear, or if it does not have a menu item for Wireless LAN Adapters, you can start the Administration Tools installer manually using **Start > Run** and browsing to the file **APAdmin.msi** in the path **APPS/PROSet/2K-NET32** on the Intel CD supplied with the product. Skip Steps 21 and 22 below and continue with **Step 23**.

21. On the **Intel(R) PRO Network Connections** screen, click **Wireless LAN Adapters**.



You can display this screen by removing and re-inserting the Intel CD, or by running **autorun.exe** from the CD.

22. On the **Intel PRO/Wireless LAN Adapters** menu screen, click **Install AP Admin Tools**.
23. On the **Welcome to the InstallShield Wizard for Intel(R) Wireless Administration Tools** screen, click **Next**.
24. On the **License Agreement** screen, after reading the license agreement, select **I accept the terms in the license agreement** and click **Next**.
25. On the **Setup Type** screen, verify that **Typical** is selected, then click **Next**.
26. On the **Ready to Install the Program** screen click **Install**.
27. After the software is installed on your computer, click **Finish**. Click Exit to close the **Intel(R) PRO Network Connections** screen.
28. To launch the Wireless Administration Tools, follow the path **Start > Programs > Intel(R) PRO Wireless > Access Point Administration Tools** and select **AP Discovery** or **Site Survey**. For additional information on either program, press **F1** or click **Help** while the program is running.

[Back to Contents](#)

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[Back to Contents](#)

Installation under Windows 2000

Preliminary Notes



The installation instructions in this section are based on the following assumptions:

- The Intel(R) PRO/Wireless LAN Mini PCI Adapter hardware has already been installed in the computer in accordance with the computer manufacturer's instructions.
- The computer has not been powered on since the hardware installation was completed.
- No other wireless LAN card is installed in this computer.



To install the driver before installing hardware, use **Start > Run** and browse to the file **SetupWLD.exe** in the path **PROW7100\WIN2K** on the Intel CD. After running **SetupWLD.exe**, shut down the computer and install the hardware. When the computer restarts, the driver will be automatically installed.



After loading the Windows 2000 operating system, be sure to log in with administrative rights. If you log in to Windows 2000 without administrative rights, you may run into problems during the installation.



During initial adapter installation and configuration, it may take up to two minutes for adapter settings to be confirmed.

Driver Installation

To install driver software in Windows* 2000, follow these steps:

1. Power up the computer in which the Intel(R) PRO/Wireless LAN Mini PCI Adapter hardware has just been installed.
2. Log in with administrative rights when prompted by Windows 2000.
3. Wait for Windows to detect the newly installed hardware and display the **Found New Hardware Wizard** dialog. If Windows does not detect the new hardware, see Troubleshooting.
4. Insert the Intel CD-ROM into your CD-ROM drive. If the **Intel(R) PRO Network Connections** menu screen appears, leave it open and click the **Found New Hardware Wizard** dialog to make that the active window.
5. On the **Install Hardware Device Drivers** screen verify that **Search for a suitable driver for my device (recommended)** is selected, then click **Next**.
6. When the **Locate Driver Files** dialog appears, verify that the item **CD-ROM drives** is checked and click **Next**.
7. When the **Driver Files Search Results** dialog appears, indicating that a driver was found, click **Next**.
8. On the **Network Name** screen, click **Next** to accept the default Network Name (SSID) **101**, or enter a specific SSID for your network, then click **Next**.
9. On the **Data Encryption** screen, click **Next** to accept the default encryption setting **None**, or enter specific encryption settings for your network, then click **Next**.
10. On the **Found New Hardware Wizard** screen, click **Finish**. Proceed to install Intel PROSet.

Intel(R) PROSet Installation (Required)

Continue with the following steps to install the Intel PROSet wireless configuration utility (required):



Some versions of this product do not support the **Intel(R) PRO Network Connections** menu screen for installation of utility software. If the Intel(R) PRO Network Connections menu screen does not appear, or if it does not have a menu item for Wireless LAN Adapters, you can start the PROSet installer manually using **Start > Run** and browsing to the file **PROSet.msi** in the path **APPS/PROSet/2K-NET32** on the Intel CD supplied with the product. Skip Steps 11 and 12 below and continue with **Step 13**.

11. On the **Intel(R) PRO Network Connections** screen, click **Wireless LAN Adapters**.



- This screen may have been launched in step 4 above. If the screen is not visible when you close the **Found New Hardware Wizard** dialog, display it by removing and re-inserting the Intel CD, or by running autorun.exe from the CD.
12. On the **Intel PRO/Wireless LAN Adapters** menu screen, click **Install Software**.
13. On the **Welcome to the InstallShield Wizard for Intel(R) PROSet** screen, click **Next**.

14. On the **License Agreement** screen, after reading the license agreement, select **I accept the terms in the license agreement** and click **Next**.
15. On the **Setup Type** screen, verify that **Typical** is selected, then click **Next**. This is the recommended setting for a first-time installation.
16. On the **Ready to Install the Program** screen click **Install**.
17. After the software is installed on your computer, click **Finish**. Click Exit to close the **Intel(R) PRO Network Connections** screen or leave it open if you wish to install Wireless Administration Tools.
18. To launch Intel PROSet, double-click the PROSet icon in the system tray or follow the path **Start > Programs > Intel Network Adapters > Intel(R) PROSet**. For additional information on the program, press **F1** or click **Help** while the program is running.




During initial adapter installation and configuration, it may take up to two minutes for adapter settings to be confirmed.

Administration Tools Installation (Optional)

Continue with the following steps to install the Intel(R) Wireless Administration Tools Site Survey and AP Discovery (optional):



Some versions of this product do not support the **Intel(R) PRO Network Connections** menu screen for installation of the Administration Tools. If the Intel(R) PRO Network Connections menu screen does not appear, or if it does not have a menu item for Wireless LAN Adapters, you can start the Administration Tools installer manually using **Start > Run** and browsing to the file **APAdmin.msi** in the path **APPS/PROSet/2K-NET32** on the Intel CD supplied with the product. Skip Steps 19 and 20 below and continue with **Step 21**.

19. On the **Intel(R) PRO Network Connections** screen, click **Wireless LAN Adapters**.
 This screen may have been launched in step 4 above. If the screen is not visible when you close the **Found New Hardware Wizard** dialog, display it by removing and re-inserting the Intel CD, or by running autorun.exe from the CD.
20. On the **Intel PRO/Wireless LAN Adapters** menu screen, click **Install AP Admin Tools**.
21. On the **Welcome to the InstallShield Wizard for Intel(R) Wireless Administration Tools** screen, click **Next**.
22. On the **License Agreement** screen, after reading the license agreement, select **I accept the terms in the license agreement** and click **Next**.
23. On the **Setup Type** screen, verify that **Typical** is selected, then click **Next**.
24. On the **Ready to Install the Program** screen click **Install**.
25. After the software is installed on your computer, click **Finish**. Click Exit to close the **Intel(R) PRO Network Connections** screen.
26. To launch the Wireless Administration Tools, follow the path **Start > Programs > Intel(R) PRO Wireless > Access Point Administration Tools** and select **AP Discovery** or **Site Survey**. For additional information on either program, press **F1** or click **Help** while the program is running.

[Back to Contents](#)

[Back to Contents](#)

Installation under Windows Me

Preliminary Notes



The installation instructions in this section are based on the following assumptions:

- The Intel(R) PRO/Wireless LAN Mini PCI Adapter hardware has already been installed in the computer in accordance with the computer manufacturer's instructions.
- The computer has not been powered on since the hardware installation was completed.
- No other wireless LAN card is installed in this computer.



To install the driver before installing hardware, use **Start > Run** and browse to the file **SetupWLD.exe** in the path **PROW7100\WINSE-ME** on the Intel CD. After running SetupWLD.exe, shut down the computer and install the hardware. When the computer restarts, the driver will be automatically installed.

Driver Installation

To install the software in Windows* Me (Millennium Edition), follow these steps:

1. Power up the computer in which the Intel(R) PRO/Wireless LAN Mini PCI Adapter hardware has just been installed.
2. Wait for Windows to detect the newly installed hardware and display the **Add New Hardware Wizard** dialog. DO NOT click **Next**. Verify that **Automatic search for a better driver (Recommended)** is selected. If Windows does not detect the new hardware, see Troubleshooting.
3. Insert the Intel CD into your CD drive. Windows installs the driver from the CD. If the installation does not start automatically, click **Next** on the **Add New Hardware Wizard** screen.
4. On the **Network Name** screen, click **Next** to accept the default Network Name (SSID) **101**, or enter a specific SSID for your network, then click **Next**.
5. On the **Data Encryption** screen, click **Next** to accept the default encryption setting **None**, or enter specific encryption settings for your network, then click **Next**.
6. Click **Finish** on the **Add New Hardware Wizard** screen when the driver installation is complete.
7. When prompted to restart the computer, click **No**. You will restart it manually later. Proceed to install PROSet.

Intel(R) PROSet Installation (Required)

To install the Intel PROSet utility, continue with the following steps:



Some versions of this product do not support the **Intel(R) PRO Network Connections** menu screen for installation of utility software. If the Intel(R) PRO Network Connections menu screen does not appear, or if it does not have a menu item for Wireless LAN Adapters, you can start the PROSet installer manually using **Start > Run** and browsing to the file **PROSet.msi** in the path **APPS/PROSet/WN98SEME** on the Intel CD supplied with the product. Skip Steps 8 and 9 below and continue with **Step 10**.


8. Display the **Intel(R) PRO Network Connections** screen by removing and re-inserting the Intel CD, or by running autorun.exe from the CD. Click **Wireless Adapters**.
9. On the **Intel PRO/Wireless LAN Adapters** menu screen, click **Install Software**.
10. On the **Welcome to the InstallShield Wizard for Intel(R) PROSet II** screen, click **Next**.
11. On the **License Agreement** screen, after reading the license agreement, select **I accept the terms in the license agreement** and click **Next**.
12. On the **Setup Type** screen, select **Typical** and then click **Next**. This is the recommended setting for a first-time installation.
13. On the **Ready to Install the Program** screen click **Install**.
14. After the software is installed on your computer, click **Finish**.
15. When prompted to restart the computer, click **Yes**.
16. To launch Intel PROSet, double-click the PROSet icon in the system tray or follow the path **Start > Programs > Intel Network Adapters > Intel(R) PROSet**. For additional information on the program, press **F1** or click **Help** while the program is running.

Administration Tools Installation (Optional)

After restarting the computer, continue with the following steps to install the Intel(R) Wireless Administration Tools Site Survey and AP Discovery (optional):



Some versions of this product do not support the **Intel(R) PRO Network Connections** menu screen for installation of the Administration Tools. If the Intel(R) PRO Network Connections menu screen does not appear, or if it does not have a menu item for Wireless LAN Adapters, you can start the Administration Tools installer manually using **Start > Run** and browsing to the file **APAdmin.msi** in the path **APPS/PROSet/WN98SEME** on the Intel CD supplied with the product. Skip Steps 17 and 18 below and continue with **Step 19**.

17. On the **Intel(R) PRO Network Connections** screen, click **Wireless LAN Adapters**.
 -  You can display this screen by removing and re-inserting the Intel CD, or by running autorun.exe from the CD.
18. On the **Intel PRO/Wireless LAN Adapters** menu screen, click **Install AP Admin Tools**.
19. On the **Welcome to the InstallShield Wizard for Intel(R) Wireless Administration Tools** screen, click **Next**.
20. On the **License Agreement** screen, after reading the license agreement, select **I accept the terms in the license agreement** and click **Next**.
21. On the **Setup Type** screen, verify that **Typical** is selected, then click **Next**.
22. On the **Ready to Install the Program** screen click **Install**.
23. After the software is installed on your computer, click **Finish**.
24. To launch the Wireless Administration Tools, follow the path **Start > Programs > Intel(R) PRO Wireless > Access Point Administration Tools** and select **AP Discovery** or **Site Survey**. For additional information on either program, press **F1** or click **Help** while the program is running.

[Back to Contents](#)

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[Back to Contents](#)

Installation under Windows 98SE

Preliminary Notes



The installation instructions in this section are based on the following assumptions:

- The Intel(R) PRO/Wireless LAN Mini PCI Adapter hardware has already been installed in the computer in accordance with the computer manufacturer's instructions.
- The computer has not been powered on since the hardware installation was completed.
- No other wireless LAN card is installed in the computer.



To install the driver before installing hardware, use **Start > Run** and browse to the file **SetupWLD.exe** in the path **PROW7100\WINSE-ME** on the Intel CD. After running SetupWLD.exe, shut down the computer and install the hardware. When the computer restarts, the driver will be automatically installed.

Driver Installation

To install the software in Windows* 98SE, follow these steps:

1. Power up the computer in which the Intel(R) PRO/Wireless LAN Mini PCI Adapter hardware has just been installed.
2. Wait for Windows to detect the newly installed hardware and display the **Add New Hardware Wizard** dialog. Click **Next**. If Windows does not detect the new hardware, see Troubleshooting.
3. Insert the Intel CD into your CD drive.
4. On the **New Hardware Wizard** screen, select **Search for the best driver for you device (Recommended)**, and click **Next**, then select **CD drive** and click **Next**.
5. On the **Network Name** screen, click **Next** to accept the default Network Name (SSID) **101**, or enter a specific SSID for your network, then click **Next**.
6. On the **Data Encryption** screen, click **Next** to accept the default encryption setting **None**, or enter specific encryption settings for your network, then click **Next**.
7. On the **Add New Hardware Wizard** screen, click **Finish**.
8. When prompted to restart the computer, click **No**. You will restart it manually later. Proceed to the installation of PROSet.

Intel(R) PROSet Installation (Required)

To install the Intel PROSet utility, continue with the following steps:



Some versions of this product do not support the **Intel(R) PRO Network Connections** menu screen for installation of utility software. If the Intel(R) PRO Network Connections menu screen does not appear, or if it does not have a menu item for Wireless LAN Adapters, you can start the PROSet installer manually using **Start > Run** and browsing to the file **PROSet.msi** in the path **APPS/PROSet/WN98SEME** on the Intel CD supplied with the product. Skip Steps 9 and 10 below and continue with **Step 11**.

9. Display the **Intel(R) PRO Network Connections** screen by removing and re-inserting the Intel CD, or by running autorun.exe from the CD. Click **Wireless Adapters**.
10. On the **Intel PRO/Wireless LAN Adapters** menu screen, click **Install Software**.
11. On the **Welcome to the InstallShield Wizard for Intel(R) PROSet II** screen, click **Next**.
12. On the **License Agreement** screen, after reading the license agreement, select **I accept the terms in the license agreement** and click **Next**.

13. On the **Setup Type** screen, select **Typical** and then click **Next**. This is the recommended setting for a first-time installation.
14. On the **Ready to Install the Program** screen click **Install**.
15. After the software is installed on your computer, click **Finish**.
16. When prompted to restart the computer, click **Yes**.
17. To launch Intel PROSet, double-click the PROSet icon in the system tray or follow the path **Start > Programs > Intel Network Adapters > Intel(R) PROSet**. For additional information on the program, press **F1** or click **Help** while the program is running.

Administration Tools Installation (Optional)

After restarting the computer, continue with the following steps to install the Intel(R) Wireless Administration Tools Site Survey and AP Discovery (optional):



Some versions of this product do not support the **Intel(R) PRO Network Connections** menu screen for installation of the Administration Tools. If the Intel(R) PRO Network Connections menu screen does not appear, or if it does not have a menu item for Wireless LAN Adapters, you can start the Administration Tools installer manually using **Start > Run** and browsing to the file **APAdmin.msi** in the path **APPS/PROSet/WN98SEME** on the Intel CD supplied with the product. Skip Steps 18 and 19 below and continue with **Step 20**.

18. On the **Intel(R) PRO Network Connections** screen, click **Wireless LAN Adapters**.



You can display this screen by removing and re-inserting the Intel CD, or by running **autorun.exe** from the CD.

19. On the **Intel PRO/Wireless LAN Adapters** menu screen, click **Install AP Admin Tools**.
20. On the **Welcome to the InstallShield Wizard for Intel(R) Wireless Administration Tools** screen, click **Next**.
21. On the **License Agreement** screen, after reading the license agreement, select **I accept the terms in the license agreement** and click **Next**.
22. On the **Setup Type** screen, verify that **Typical** is selected, then click **Next**.
23. On the **Ready to Install the Program** screen click **Install**.
24. After the software is installed on your computer, click **Finish**.
25. To launch the Wireless Administration Tools, follow the path **Start > Programs > Intel(R) PRO Wireless > Access Point Administration Tools** and select **AP Discovery** or **Site Survey**. For additional information on either program, press **F1** or click **Help** while the program is running.

[Back to Contents](#)

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[Back to Contents Page](#)

Using Wireless Profiles in PROSet

- Creating a New Profile
- Creating a VPN Profile
- Importing and Exporting Profiles
- Automatic Profile Distribution
- Editing an Existing Profile

- Deleting a Profile
- Connecting to a Network without a Profile
- Profile Connection Preferences
- Loading a Profile from the Task Tray

A profile is a saved group of network settings. Profiles are displayed in the Profile List in the PROSet General page. Profiles can be arranged in order of network connection priority. You can connect to one network using the first profile in the Profile List, then automatically connect to another network using the next profile. This allows you to stay connected while roaming freely from one wireless network to another. Although you can assign multiple profiles to a single network, you can only use one profile per connection.

Profile general settings include, the network name (SSID), channel, security settings, and TCP/IP settings. The Networks tab allows you to add, edit and delete profiles.

Creating a New Profile

To add a new profile, use the Profile Wizard sequence of dialogs to configure the profile contents. The following example uses all of the Profile Wizard dialogs. Some settings may not be required for all profiles.

To create a new profile and connect to a network:

1. Select the wireless adapter in the left-side pane.
2. From the General page, click the **Networks** tab.
3. Click the **Add** button. The General Settings dialog displays.



NOTE: *If this is the first time you have created a profile, click the profile named **Default** in the Profile List, click the **Edit** button and rename the default profile in the Profile Name field on the General page.*

Step 1 of 4: General Settings

4. Enter a profile name in the Profile Name field.
5. Enter the network SSID, in the **Network Name (SSID)** field.
6. Click the operating mode to use, **Infrastructure** or **Ad hoc**.
7. The Mandatory AP option is not required unless the adapter has to connect to a specific access point or computer. Click the **Mandatory AP** button to force the adapter to connect to a specific access point. Enter the Ethernet address for the access point or computer (Ad-hoc). Click **OK** to save the setting and return to the General Settings page.
8. The **Mandatory AP** option is not required unless the adapter has to connect to a specific access point or computer. Click the **Mandatory AP** button to force the adapter to connect to a specific access point. Enter the Ethernet address for the access point or computer (Ad-hoc). Click **OK** to save the setting and return to the General Settings page. Click the **Configure TCP/IP and VPN settings** checkbox to access the TCP/IP and VPN settings. If these settings are not required, leave the box unchecked, proceed to step 9.
9. Check the **Enable Auto-Import** check box to allow this profile to be imported. Refer to Automatic Profile Distribution for more information.
10. Click **Next**.

Step 2 of 4: TCP/IP and VPN Client Settings

11. Use these options to configure TCP/IP and VPN settings for a VPN profile. Click **Next** when finished.

Step 3 of 4: Security Settings

12. Select **Open** or **Shared** in the Network Authentication drop-down menu. Open, does not use any authentication method. Shared uses the WEP key as the authentication method.
13. Click the **Enable data encryption (WEP)** checkbox to configure WEP encryption settings.
14. Click the **Password protect this profile** checkbox to assign a password to the profile.
15. Click **Next**.

Step 4 of 4: Password Protection Settings

16. Click the **Password protect this profile** checkbox.
17. Enter a password in the Password field.
18. Reenter the same password in the Confirm New Password field.
19. Click the **Back** button to change or verify the settings or click **Finish** when you have completed the profile settings and return to the Networks page.
20. Click the new profile name shown in the Profile List. Use the up and down arrows to position the priority of the new profile in the priority list.
21. Click the **Advanced** button to set the network connection preferences.
22. Click the **Connect** button to connect to the network.
23. Click **OK** to close the PROSet dialog.

Creating a VPN Profile

To create a VPN profile:

1. Select the wireless adapter in the left-side pane.
2. From the General page, click the **Networks** tab.
3. Select the profile to add VPN settings to from the Profile List.
4. Click the **Edit** button and the General page appears.
5. Click the **Network** tab.
6. Click the **Configure** button for the TCP/IP Settings. Make sure that **Obtain an IP address automatically** and **Obtain DNS address automatically** is selected.
7. Click the **Close** button to close the dialog.
8. Click the **Configure** button for the VPN Client Settings.
9. Click **Enable VPN for this profile** checkbox.
10. Select the VPN client software from the **Available VPN Clients** drop-down menu.
11. Select the VPN profile if your VPN client software displays the VPN tunnel name.
12. Click the **Close** button to close the dialog.
13. Click **OK** on any of the pages to save all the settings and return to the Networks page.
14. Click the VPN profile name shown in the Profile List. Use the up and down arrows to position the priority of new profile in the priority list.
15. Click the **Connect** button to connect to the network. The VPN profile name displays a connect icon. **Note:** There must be an IP address assigned before the VPN client software can be launched. Click the **Details** button to verify that an IP address has been assigned.
16. Follow the on-screen instructions and enter your credentials before connecting.
17. Click **OK** to close the PROSet dialog.

Importing and Exporting Profiles

Important: Only password protected profiles can be imported and exported. Refer to Setting a Profile Password for more information.

To import profiles:

1. From the General page, click the **Networks** tab.
2. Click the **Advanced** button.
3. Click the **Import/Export** button.
4. Click the **Import** button.
5. Locate the profile to import on your hard disk or enter the profile name in the File name field. The profile extension is .profile.
6. Click the **Import** to import the profile into the Profile List.
7. Click **OK** twice to return to the General page.
8. Click **OK** to close the PROSet dialog.

To export profiles:

1. From the General page, click the **Networks** tab.
2. Click the **Advanced** button.
3. Click the profiles to export from the export profile list.
4. Click the **Browse** button and select a directory to save the profiles in. Click **OK** to return to the previous dialog.
5. Click the **Export** button to start exporting the profiles.
6. Click **OK** twice to return to the General dialog.
7. Click **OK** to close the PROSet dialog.

Automatic Profile Distribution

The Enable Auto-Import feature allow a network administrator to distribute a profile automatically to computers connected to a network. The Enable Auto-Import box is located on the Profile Wizard dialogs. When the checkbox is checked the profile must be copied to a specific directory on the host computer, from there it can be distributed to multiple computers. Once the profile is received by the remote computer it will automatically be available for use from the Scan profile list. If an attempt is made to edit a distributed profile that is password protected, a password prompt will appear.

Automatically importing WLAN profiles is accomplished by monitoring the *import* folder on your hard disk for new profile files. Only profile that have the **Enable Auto-Import** checked on the Profile Wizard dialog can be automatically imported. If a profile of the same name already exists in the Profile List, a dialog is displayed from which you can either reject the import, or accept in which case the existing profile will be replaced. All imported profiles will be placed at the bottom of the Profile List, and the profile file will be immediately deleted after the import whether the import was successful or not.

To distribute a profile to other computers on a network:

1. Select a profile to be edited from the Profile List in the Networks page, and click the **Edit** button or click the **Add** button to create a new profile using the Profile Wizard.
2. Check the **Enable Auto-Import** checkbox on the General page.
3. Click **OK** (Edit a profile) or **Finish** (Add a profile) to save the setting.
4. Copy the profile to the Programs Files/Intel/PROSet/Import directory. The profile is now ready to distribute to other computers.

Editing an Existing Profile

To edit an existing profile:

1. Select the wireless adapter in the left-side pane.
2. From the General page, click the **Networks** tab.
3. Click the **Edit** button. The General page displays.
4. Click on the **General**, **Security**, **Network** and **Password** tabs to make the necessary changes for the network profile settings:
5. Click **OK** on any of the pages to save all the settings and return to the Networks page.
6. Click the new profile name shown in the Profile List. Use the up and down arrows to position the priority of new profile in the priority list.
7. Click the **Advanced** button to set the network connection preferences.
8. Click the **Connect** button to connect to the network.
9. Click **OK** to close the PROSet dialog.

Deleting a Profile

To delete a profile:

1. Select the wireless adapter in the left-side pane.
2. From the General page, click the **Networks** tab.
3. Click the profile to be deleted from the Profile List.
4. Click the **Delete** button.
5. Click **Yes** to permanently delete the profile.

Connecting to a Network Without a Profile

To connect to an available network without a profile:

1. Select the wireless adapter in the left-side pane.
2. From the General page, click the **Networks** tab.
3. Click the **Scan** button.
4. Select the network profile name with **<no profile>** shown, and click the **Connect** button.
5. Click the **No, connect me directly without creating a profile** option. Note, you can click **Yes, create a profile for this network now** to create a profile to be used later.
6. Click **OK** to connect.

Profile Connection Preferences

To access the profile connection preference option:

1. From the General page, click the **Networks** tab.
2. Click the **Advanced** button.
3. Under the **Auto-connection** heading, click the one of the following options:
 - *Connect to available networks using profiles only (Default setting):* Use the profiles in the Profile List to connect to any available network.
 - *Connect to any available network if no matching profile is found:* Connect to any available network without using a profile from the Profile List.

4. Click **OK** to save the setting and return to the previous dialog.

Loading a Profile from the Task Tray

To load a profile from the Task Tray:

1. Right-click **PROSet** icon in the task tray.
2. Select the **Intel PRO/Wireless LAN 7100 3B Mini PCI Adapter**.
3. Click **Select Profile** and select the profile to be launched.

[Back to Contents Page](#)

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[Back to Contents Page](#)

Connecting to a Network using PROSet

- Connecting to a Network Automatically
- Scanning for Available Networks
- Connecting to a Network Using an Access Point
- Connecting to a Peer-to-Peer (Ad Hoc) Network
- Disconnecting from a Network
- Switching the Adapter Off and On
- Switching Between Wired and Wireless Adapters

Connecting to a Network Automatically

The Configuration Service feature operates in background to automatically display available networks not listed in the Profile List. This method provides automatic connection in a 2.4 environment to available networks in the range of your wireless adapter. The Configuration Service constantly monitors your wireless adapter's connection status. If no matching profiles are found in the Profile List for a network, a dialog automatically displays the available network access points and computers (ad hoc mode) within range of the wireless adapter. The Configuration Service can also be used if there is more than one wireless adapter installed using 802.11b bands.

The Configuration Service features are as follows:

- The Configuration Service is launched when you log on to your computer.
- No *active* profile switching will be performed. Once the adapter is associated with the access point, if a higher priority profile becomes available, no switching will occur.
- The Configuration Service is only be available if the PROSet is installed.
- If a connection to an access point cannot be made using any of the profiles in the Profile List, a dialog will display the available networks.
- If there are multiple profiles listed for an available network, a dialog box will list the profiles for you to choose from.

The Configuration Service can be used in two ways:

- To connect using preferred profiles only. In this mode the Configuration Service will attempt to connect to a network access point using the Profile List only. If a matching profile is not found, a dialog appears that lists available networks. From this dialog you can connect to any available network. You can also close this dialog without connecting by clicking the **Cancel** button. The adapter will remain unassociated, and the list of available networks will NOT be displayed again unless a new available network is detected.
- To connect to any available network (if no matching profile found). In this mode, the Configuration Service attempts to connect to a network access point using the Profile List. If no matching profile is found, the Configuration Service attempts to automatically connect to any available network. This mode is set in the Advanced Setting.

Enabling Automatic Connection

The Configuration Service also monitors for the "resume status" after a laptop computer suspend event. When this occurs, the Configuration Service will re-enable the automatic connection service.

These features can be enabled again after rebooting your computer or after a suspend and resume cycle.

Disabling Automatic Connection

The Configuration Service watches for another profile management service, such as Windows* XP Zero Config and AAA clients, to be detected. When another service is found, the Configuration Service stops processing connection information and a dialog box gives you the option of disabling the Configuration Service or continuing your wireless connection without interruption.

To re-enable the Configuration Service:

1. Reboot your computer.
2. Resume after a computer suspend.
3. Use the Advanced Settings options to manually re-enable the Configuration Service.



NOTE: *The Configuration Service displays a list of available networks within the range of your wireless adapter when no matching profiles are found in the Profile List and the **Connect** button is not used to connect to a network.*

When the Configuration Service is disabled, the current connection will continue with the following PROSet features disabled:

- The **Connect** button on the Profile page is disabled.
- The **Scan** button can be used to scan for available networks, but the **Connect** button is disabled when used to connect to a network.
- Ad hoc mode is disabled and the **Connect** button in the Ad Hoc Connect dialog box is disabled.
- From the Task Tray menu, launching an ad hoc profile and applying a profile is disabled.

- The buttons described above will not be disabled if you click the message: *Another wireless LAN utility is communicating with the Intel PRO/Wireless LAN Adapter. To avoid conflicts, PROSet has temporarily disabled its Profile Management features.*

Scanning for Available Networks

A fast way to connect to a network is to use the **Scan** button to search for a network access point in range of your wireless adapter. When a network is found, you can instantly connect without a profile or create a new profile.



NOTE: Profiles with the Enable Auto-Import feature enabled will also be displayed in the profile list of available networks. Refer to Automatic Profile Distribution for more information.

To scan for available networks:

1. From the General page, select the wireless adapter on the left side pane.
2. Select the Networks tab.
3. Click the **Scan** button.
4. The Available Networks dialog displays the names of the available networks.
5. Select the network from the list, and click the **Connect** button. Click the **Refresh** button to refresh the list of available networks.
6. To connect without creating a profile, click **No, connect me directly without creating a profile.**

Click **Yes, create a profile for this network now** to create a new profile using the Profile Wizard.

7. Click **OK** to connect to a network.

Connecting to a Network Using an Access Point

An infrastructure network consists of one or more access points and one or more computers with wireless adapters installed. Each access point must have a wired connection to the Local Area Network (LAN).

The following describes how to create a new profile using the Profile Wizard and connect to an access point using the Connect button. You can also connect to a network, by using the Scan button.

1. From the General page, select the wireless adapter on the left side pane.
2. Click the Networks tab.
3. Click the **Add** button.
4. Enter the *profile name* in the text box.
5. Enter a *network name (SSID)* in the text box.
6. Select **Infrastructure** for the operating mode.
7. The Mandatory AP option is not required unless the adapter has to connect to a specific access point or computer. Click the **Mandatory AP** button to force the adapter to connect to a specific access point. Enter the Ethernet address for the access point or computer (Ad-hoc). Click **OK** to save the setting and return to the General Settings page.

8. Click the **Configure TCP/IP and VPN settings** check box and click the Next button to access the TCP/IP and VPN settings. If these settings are not required, leave the box unchecked and proceed to step 11.
9. Click the **Next** button to select the WEP security settings.
10. Click the **Password protect this profile** checkbox and click **Next** button to access the Password Protection settings. Click **Finish** after the password information has been entered. If this option is not required, leave the box unchecked and proceed to step 11.
11. Click **OK** to save the profile settings and return to the Networks page.
12. Under **Transmit channel**, Channel 7 is the default transmit channel. Unless the other computers in the ad hoc network use a different channel, there is no need to change the default channel. To change the channel, click the Adapter tab and click the **Configure** button under Adapter **Settings**. Select a channel from the **802.11b Channel List** pull-down menu. Click **OK** to save the setting.
13. Click **OK** to save the settings and return to the Networks page.
14. After creating the new profile, click the profile in the Profile List. Profiles using infrastructure mode are indicated by a computer icon next to the profile name.
15. Click the **Connect** button to connect to the ad hoc network.

Connecting to a Peer-to-Peer (Ad Hoc) Network

In peer-to-peer (ad hoc) mode, you can send and receive information to other computers without using an access point. Each computer in a peer-to-peer network is called a peer.

To create or join an ad hoc network, enter a personal password. Network related settings (SSID), operating mode, WEP 128-bit encryption, and IP addresses are automatically created. Once a network connection is established, after permission rights are given by other computers in the ad hoc network, you can freely share files. All wireless clients in the ad hoc network must use the same network name (SSID) and channel number. For a list of allowed 802.11b ad hoc channels, refer to the Adapter Settings for more information.



NOTE: *While scanning with an ad hoc profile set to a specific transmit channel, if an ad hoc network is found on another channel, you will be connected using the new channel. The new channel number is displayed in the Adapter Settings.*

There are two ways to connect to an ad hoc network:

- Connect using an ad hoc profile. Refer to *Creating a New Profile* for details. Select an ad hoc profile from the Profile List and click the **Connect** button. This method uses a pre-defined ad hoc profile created by the Profile Wizard. The ad hoc profile is displayed in the Profile List.
- One-time ad hoc session. Refer to *Starting an Ad Hoc (peer-to-peer) Connection* below for details. This method does not use a pre-defined profile. To connect to any ad hoc network, use the **Scan** button to scan for any ad hoc networks, enter the password (SSID), then click the **Connect** button to connect. To end the session, click the **Close** button to end the session.

Ending an Ad Hoc Session

To end an ad hoc session, click the **Close** button. After the session is ended, an attempt is made to re-connect to the last profile used from the Profile List.

Creating an Ad Hoc Profile Using the Profile Wizard

The following describes how to create a new ad hoc profile using the Profile Wizard and connect to an ad hoc network. You can also connect to a network, by using the Scan button.

1. From the General page, select the wireless adapter on the left side pane.
2. Click the Networks tab.
3. Click the **Add** button.
4. Enter the *profile name* in the text box.
5. Enter a *network name (SSID)* in the text box.
6. Select **Ad Hoc** for the operating mode.
7. The Mandatory AP option is not required unless the adapter has to connect to a specific access point or computer. Click the **Mandatory AP** button to force the adapter to connect to a specific access point. Enter the Ethernet address for the access point or computer (Ad-hoc). Click **OK** to save the setting and return to the General Settings page.
8. Click the **Configure TCP/IP and VPN settings** check box and click the Next button to access the TCP/IP and VPN settings. If these settings are not required, leave the box unchecked and proceed to step 11.
9. Click the **Next** button to select the WEP security settings.
10. Click the **Password protect this profile** checkbox and click **Next** button to access the Password Protection settings. Click **Finish** after the password information has been entered. If this option is not required, leave the box unchecked and proceed to step 11.
11. Click **OK** to save the profile settings and return to the Networks page.
12. Under **Transmit channel**, Channel 7 is the default transmit channel. Unless the other computers in the ad hoc network use a different channel, there is no need to change the default channel. To change the channel, click the Adapter tab and click the **Configure** button under Adapter **Settings**. Select a channel from the **802.11b Channel List** pull-down menu. Click **OK** to save the setting.
13. Click **OK** to save the settings and return to the Networks page.
14. After creating the new profile, click the profile in the Profile List. Profiles using infrastructure mode are indicated by a computer icon next to the profile name.
15. Click the **Connect** button to connect to the ad hoc network.

Starting an Ad Hoc (peer-to-peer) Connection

To communicate properly, all computers/peers on an ad hoc network must have Intel wireless adapters installed. To connect to an ad hoc network for a one-time session:

1. From the General page, select the wireless adapter on the left side pane.
2. Click the Networks tab.
3. Click the **Start** button.
4. Enter the password (SSID) in the text box.
5. Under **Transmit channel**, Channel 7 is the default transmit channel. Unless the other computers in the ad hoc network use a different channel, there is no need to change the default channel. To change the channel, click the **Advanced** button. Select a channel from the pull-down channel menu under Adapter Configuration. Click **OK** to save the setting and return to the Ad Hoc dialog.
6. Under **IP Address**, the IP address is automatically assigned for your laptop wireless adapter. However, this DHCP assigned IP address can be changed. To change the IP address, click the **Advanced** button. Select *Manual* under Network Configuration, and enter the IP address and subnet mask for your laptop wireless adapter. Click **OK** to save the setting and return to the Ad Hoc dialog.
7. Select the peer name from the displayed list of computers in the ad hoc network.
8. Click the **Connect** button to connect to the ad hoc network.

9. Under **Send Files**, files can be sent to another computer in the ad hoc network. To send a file, click the **Send File** button. Locate the file you want to send, and click **Send**.
10. Click the **Close** button to end the ad hoc session.

Disconnecting from a Network

To disconnect from a network, turn the radio to OFF from the General page in PROSet.

Switching the Adapter Off and On

When your laptop is switched on, the adapter radio is constantly transmitting signals. In certain situations, such as in a plane, signals from the radio may cause interference. This software function allows you to use your laptop with the radio switched off.

To switch off the adapter radio from the General page (next to Wireless Device) click the **Off** button for the following results:

- The wireless adapter is not associated with the network.
- PROSet can be used to edit or add profile contents.

To switch on the adapter radio on from the General page (next to Wireless Device), click the **On** button for the following results:

- With PROSet active, the wireless adapter will try to associate with the network access point using the last profile. If the adapter cannot connect to the access point, the Configuration Service will attempt to find an available network. Refer to Configuration Service above for more information.

Appendix D

Bluetooth Modem Guide

Section One: Introduction

The Bluetooth/Modem Combo Module is a cost-effective wireless access. The Bluetooth circuit of this module is compliant to Bluetooth 1.1 standard. With V.92 technology, the modem part can achieve internet connection rates up to 56 kbits/s with backward compatibility. The V.92 Feature include PCM Upstream, Modem On Hold, Quick Connection and V.44 Data compression. The Audio CODEC will be placed on the notebook and contact with Modem Codec by AC-Link Interface. The combo card complies with MDC Domestic form factor.

1.1 Features

1.1.1 Bluetooth Function

- Bluetooth radio firmware is upgradeable for bug fixes, initial version compatible with Bluetooth specification version 1.1.
- Fully compliant to Bluetooth SIG (BQB) compatibility testing.
- USB Pin assignment is to use MDC reserve pin to communicate with Host.interface
- Bluetooth Profile Support
 - General Access Profile
 - Service Discovery Application Profile
 - Serial Port Profile
 - Dial-up Networking Profile
 - LAN Access Profile
 - Generic Object Exchange Profile
 - File Transfer Profile
 - Object Push Profile
 - Synchronization Profile
- Drivers support Windows 98, 98SE, ME, 2000, XP.
- Supports Power Management ACPI 1.94 (or later)
- Bluetooth performance must exceed 500 kbps, using OBEX.

1.1.2 Modem Function

- AC'97/MC'97 2.2 compliant
- Support Modem Digital Line Guard: The product shall incorporate circuitry to sense whenever the current on the line exceeds approximately 130mA, and should immediately go back on hook.

- The call progress signal shall be scaled digitally according to the speaker level setting (ATL1, L2, L3)
- ITU-T V.92 PCM Upstream and V.90 data rates with auto-fallback to V.34, V.32terbo, V.32bis and fallbacks
- TIA/EIA 602 standard for AT Command set
- Supports V.42 error correction and V.44, V.42bis/MNP5 data compression
- FAX capabilities: ITU-T V.17, V.29, V.27ter, V.21 Ch2 and TIA/EIA 578 Class1 FAX
- Support Wake up on Ring and meet WHQL test requirement..

1.2 Hardware Requirements

Supply Voltage	3.3V & 1.8V
Frequency Range	2.400-2.4835 GHz
Antenna Load	50 Ohm
Receive Sensitivity	-80 dBm@0.1% BER
Maximum Receiver Signal	-20 dBm
TX Power	4 dBm maximum (class 2)
RF Power Control Step Size	2 dB
Range	10 meters at 0 dBm TX power (class 2)
Radio	Compliant with Bluetooth standard version 1.1
Pico Net	1 master to 7 slaves
Operating Channels	79 channels of 1 MHz BW
Security	Full support of Bluetooth security provisions including hardware support for full length 128 bit encryption keys.
Host Interface (USB)	USB specification 1.1 compliant and using MDC reserve pin to communicate with Host
Software Requirements	Windows 98SE, ME, 2000, XP.
Mechanical Requirements	27mm x 45mm x 4.7mm(1.2/0.8/2.7mm)

Section Two: Bluetooth Installation

The following steps provide instructions for installing Bluetooth.

1. Make sure your MDC BT/Modem Combo card already insert into your notebook.
2. Make sure your notebook operating system support Windows 98SE or ME or 2000 or XP.

2.1 Bluetooth Installation

Proceed to the following section.

1. Execute the program 'Setup.exe' in the CD. Windows displays the dialog as below. Click 'Next' to begin the process.



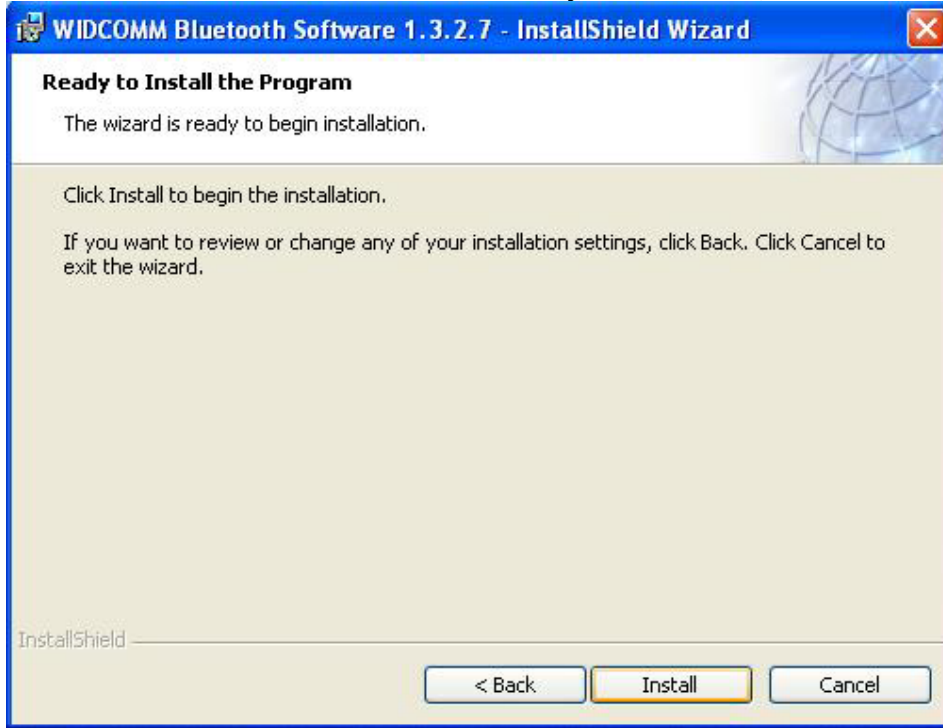
2. The “License Agreement” windows will pop up, please read it carefully. If you agree it, and choose ‘**I agree the terms in the license agreement**’ and click on ‘**Next**’.



3. “Destination Folder” appears, specify the location of the driver and software to be installed then press ‘**Next**’ bottom.



4. When all the above process are done, it will show ‘Ready to Install the Program’ window. Make sure the driver software is ready to be installed, click ‘Install’.



5. Choose ‘Install the software automatically [Recommended]’, then Click ‘Next’ to continue.



6. Congratulations! Bluetooth has been installed successfully.
Please click '**Finish**' to confirm the completion of installation.



7. Then click '**Finish**' to exit the InstallShield Wizard.



Section Three: Modem Installation

The following steps provide instructions for installing your 56K Internal modem.

1. Check the BT/modem Module already inserted into the slot.
2. Insert the connector of RJ-11 cable into the female connector of modem. The connector is keyed and will no allow incorrect insertion. Plug the other end of the RJ-11 cable into an available phone jack.

3.1 Driver Installation

Your modem is using the Plug and Play (PnP) capabilities of you computer. PnP is a set of specifications that define the ability for the computer hardware and operating system to automatically configure all compliant devices that are installed, relieving the user of the need to determine which addresses and interrupts to user for each device.

Proceed to the following section.

1. Start Windows 98, an “PCI Card” dialog with drive selected will appear. Click “**Next**”



2. Search for the best driver for Modem card and click **Next** to continue.

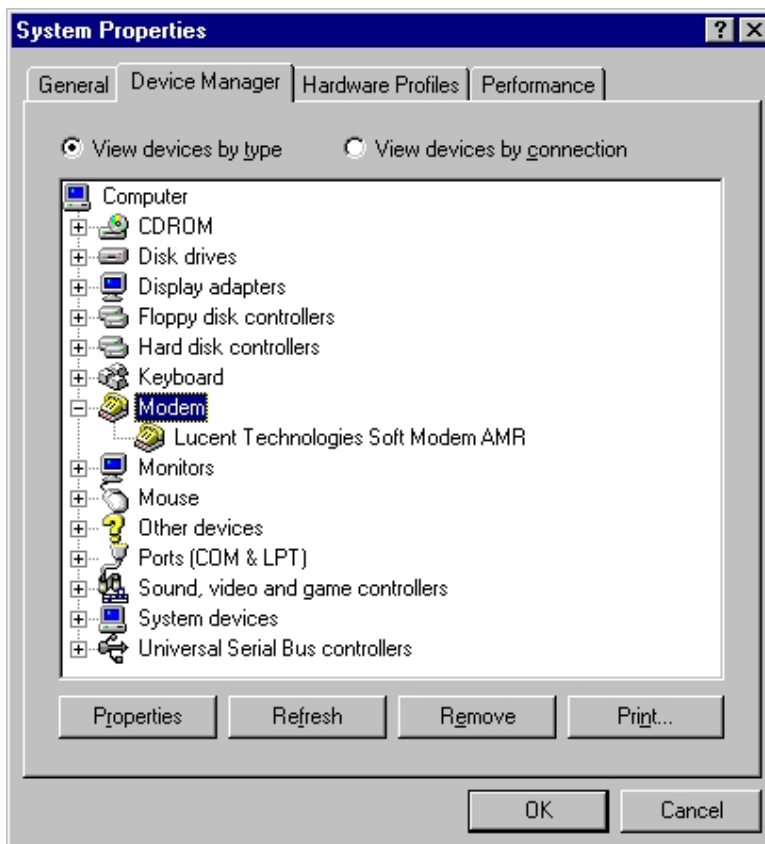


3 Please release your driver to “c:\driver” or any specific location you want.





4. After Windows finishes loading, select My Computer\Control Panel\System\Device Manager. If you can see the modem device on this Device Manager, then you already complete the Modem Driver installation.



3.2 AT Commands

Basic AT Commands

A summary of the commands implemented by the modem are shown in Table 1. Commands may be executed when the modem is in COMMAND mode. COMMAND mode is entered upon one of the following conditions:

After power up.

At the termination of a connection.

After the execution of a command other than dial or answer commands (ATO or AT&T).

Upon the receipt of the ESCAPE SEQUENCE (three consecutive characters matching the contents of S register 2) while online mode.

Upon the on-to-off transition of DTR if D1, &D2, or &D3 has been set.

AT Commands

Basic AT Commands

Command	Function	Command	Function
A/	Re-execute command	A	Go off-hook and attempt to answer a call
B0	Select V.22 connect @1200 bps	B1	Select Bell 212A connect @1200 bps
C1	Return OK message	Dn	Dial modifier
E0	Turn off command echo	E1	Turn on command echo
H0	Initiate a hang-up sequence	H1	If on-hook, go off-hook and enter command mode
I0	Report product code	I2	Report "OK" if the calculated checksum equals the prestored checksum or if the prestored checksum value is FFh
I1	Report pre-computed checksum	I5	Report the country code parameter
I3	Report firmware revision, model, and interface type	I7	Report the DAA code
I4	Report response programmed by OEM	L0	Set low speaker volume
I6	Report modem data pump model and code revision	L2	Set medium speaker volume
L1	Set low speaker volume	M0	Turn speaker off
L3	Set high speaker volume	M2	Turn speaker on during handshaking and while receiving carrier
M1	Turn speaker on during handshaking and turn speaker off while receiving carrier	M3	Turn speaker off during dialing and receiving carrier and turn speaker on during answering
N0	Turn off auto mode detection	Q0	Allow result codes to DTE
N1	Turn on auto mode detection	Sn	Select S-Register n as default
P	Force pulse dialing	Sn=v	Set default S-Register n to value v
Q1	Inhibit result codes to DTE	V1	Report long form result codes
Sn?	Return the value of S-Register n	W1	Report line speed, EC protocol and DTE speed
T	Force DTMF dialing	X1	Report basic call progress result codes and connections speeds (Ok, Connect, Ring, No Carrier (also, for busy, if enabled, and dial tone not detected), No Answer and Error
V0	Report short form result codes	X2	Report basic call progress result codes and connections speeds, i.e., Ok, Connect, Ring, No Carrier (also, for busy, if enabled, and dial tone not detected), No Answer, Connect XXXX, and Error
W0	Report DTE speed only	X3	Report basic call progress result codes and connections rate, i.e., Ok, Connect, Ring, No Carrier, No Answer, Connect XXXX, Busy, and Error
W2	Report DCE speed only	Y0	Disable long space disconnect before on-hook
X0	Report basic call progress result codes, i.e., Ok, Connect, Ring, No Carrier (also, for busy, if enabled, and dial tone not detected), No Answer and Error	Z0	Restore stored profile 0 after warm reset
X2	Report basic call progress result codes and connections speeds, i.e., Ok, Connect, Ring, No Carrier (also, for busy, if enabled, and dial tone not detected), No Answer, Connect XXXX, and Error	&C0	Soft reset and force RLSD active
X4	Report all call progress result codes and connections rate, i.e., Ok, Connect, Ring, No Carrier, No Answer, Connect XXXX, Busy, No Dial Tone and Error		
Z1	Soft reset and restore stored profile 1		

	after warm reset		regardless of the carrier state
&C1	Allow RLSD to follow the carrier state		
&D0	Interpret DTR On-to-OFF transition per &Qn &Q0, &Q5, &Q6 The modem ignores DTR	&D1	Interpret DTR On-to-OFF transition per &Qn &Q0, &Q1, &Q4, &Q5, &Q6 Asynchronous escape
	&Q1, &Q4 The modem hangs up		&Q2, &Q3 The modem hangs up
	&Q2, &Q3 The modem hangs up		
&D2	Interpret DTR On-to-OFF transition per &Qn &Q0 through &Q6 The modem hangs up	&D1	Interpret DTR On-to-OFF transition per &Qn &Q0, &Q1, &Q4, &Q5, &Q6 Soft reset &Q2, &Q3 The modem hangs up
&F0	Restore factory configuration 0		
&G0	Disable guard tone	&G1	Disable guard tone
&G2	Enable 1800 Hz guard tone	&J0	Set S-Register response only for compatibility
&K0	Disable DTE/DCE flow control		
&K3	Enable RTS/CTS DTE/DCE flow control	&K4	Enable XON/XOFF DTE/DCE flow control
&K6	Enable both RTS/CTS and XON/XOFF flow control	&M0	Select direct asynchronous mode
		&P0	Set 10 pps pulse dial with 39%/61% make/break
&P1	Set 10 pps pulse dial with 33%/67% make/break	&P2	Set 20 pps pulse dial with 39%/61% make/break
&Q0	Select direct asynchronous mode		
&Q5	Modem negotiates an error corrected link	&Q6	Select asynchronous operation in normal mode
&R0	CTS tracks RTS (sync) or CTS is normally ON and will turn OFF only if required by flow control (async)	&R1	CTS is always active (sync) or CTS is normally ON and will turn OFF only if required by flow control (async)
&S0	DSR is always active	&S1	DSR will become active after answer tone has been detected and inactive after the carrier has been lost
&T0	Terminate any test in progress		
&T1	Initiate local analog loop back		
&T2	Returns ERROR result code	&T3	Initiate local digital loop back
&V	Display current configuration and stored profiles	&W0	Store the current configuration as profile 0
&Y0	Recall stored profile 0 upon power up		
&Zn=x	Store dial string x (up to 34 digits) to location n (0 to 3)	%E0	Disable line quality monitor and auto retrain
%E1	Enable line quality monitor and auto retrain	%E2	Enable line quality monitor and fallback/fall forward
When modem receives a break from the DTE:			
\K0,2,4	Enter on-line command mode, no break sent to the remote modem	\K1	Clear buffers and send break to remote modem
\K3	Send break to remote modem immediately	\K5	Send break to remote modem in sequence with transmitted data
When modem receives \B in on-line command state:			
\K0,1	Clear buffers and send break to remote modem	\K2,3	Send break to remote modem immediately
\K4,5	Send break to remote modem in sequence with transmitted data		
When modem receives break from the remote modem:			
\K0,1	Clear data buffers and send break to DTE	\K2,3	Send a break immediately to DTE
		\K4,5	Send a break with received data to the DTE
\N0	Select normal speed buffered mode	\N1	Select direct mode
\N2	Select reliable link mode	\N3	Select auto reliable mode

\N4	Force LAPM mode	\N5	Force MNP mode
\V0	Connect messages are controlled by the command settings X, W, and S95	\V1	Connect messages are displayed in the single line format
+MS	Select modulation	+H0	Disable Rockwell Protocol Interface (RPI) /Video ready mode
+H1	Enable RPI and set DTE speed to 19200 bps	+H2	Enable RPI and set DTE speed to 38400 bps
+H3	Enable RPI and set DTE speed to 57600 bps	+H11	Enable RPI+ mode
**0	Download to flash memory at last sensed speed	+H16	Enable Video Ready mode
-SDR=0	Disable distinctive ring	**1	Download to flash memory at 38.4 kbps
-SDR=2	Enable distinctive ring type 2	**2	Download to flash memory at 57.6 kbps
-SDR=4	Enable distinctive ring type 3	-SDR=1	Enable distinctive ring type 1
-SDR=6	Enable distinctive ring type 2 and 3	-SDR=3	Enable distinctive ring type 1 and 2
		-SDR=5	Enable distinctive ring type 1 and 3
		-SDR=7	Enable distinctive ring type 1, 2 and 3

ECC Commands

%C0	Disable data compression	%C1	Enable MNP 5 data compression
\A0	Set maximum block size in MNP to 64	\A1	Set maximum block size in MNP to 128
\A2	Set maximum block size in MNP to 192	\A3	Set maximum block size in MNP to 256
\Bn	Send break of n x 100 ms		

MNP 10 Commands

-K0	Disable MNP 10 extended services	-K1	Enable MNP 10 extended services
-K2	Disable MNP 10 extended services detection only	-SEC=0	Disable MNP 10-EC
-SEC=1, [<tx level>] Enable MNP 10-EC and set transmit level<tx level> 0 to 30 (0 dBm to -30 dBm)			

FAX Class 1

+fclass=1	Service class	+FAE=0	Disable data/fax auto answer
+FAE=1	Enable data/fax auto answer	+FRH=n	Receive data with HDLC framing
+FRM=n	Receive data	+FRS=n	Receive silence, nx10 ms
+FTH=n	Transmit data with HDLC framing	+FTM=n	Transmit data
+FTS=n	Stop transmission and wait, nx10 ms		

V.92 Command set

- 1.AT%TT61 V.92 generate V.92 PCM upstream signal for PTT testing.
- 2.AT+PQC=255 to clear all stored fast connect profiles.

AT Commands for Homologation Testing and Debugging

Table 1. Homologation Testing and Debugging Commands

Command	Description	Comments
ATSxxx	Modify homologation parameter.	xxx represents the S-register that controls the associated homologation parameter.
ATSxxx?	Read homologation parameter.	xxx represents the S-register to be read.
AT%TT00—AT%TT09	Generate DTMF 0—9.	—
AT%TT0A	Generate DTMF *.	—
AT%TT0B	Generate DTMF #.	—
AT%TT0C—AT%TT0F	Generate DTMF A—D.	—
AT%TT10	V.21 channel 1 mark signal.	—
AT%TT11	V.21 channel 2 mark signal.	—
AT%TT12	V.23 backward channel mark signal.	—
AT%TT13	V.23 forward channel mark signal.	—
AT%TT15	V.22 originate signaling at 1200 bits/s.	—
AT%TT16	V.22bis originate signaling at 2400 bits/s.	—
AT%TT17	V.22 answer signaling at 1200 bits/s.	—
AT%TT18	V.22bis answer signaling at 2400 bits/s.	—
AT%TT19	V.21 channel 1 space signal.	—
AT%TT1A	V.21 channel 2 space signal.	—
AT%TT1B	V.23 backward channel space signal.	—
AT%TT1C	V.23 forward channel space signal.	—
AT%TT20	V.32 9600 bits/s.	—
AT%TT21	V.32bis 14400 bits/s.	—
AT%TT22	V.32ter 19200 bits/s.	—
AT%TT30	Off-hook.	Puts the modem in the off-hook state.
AT%TT31	V.25 answer tone (2100 Hz).	—
AT%TT32	1800 Hz guard tone.	—
AT%TT33	V.25 data calling tone (1300 Hz).	—
AT%TT34	FAX calling tone (1100 Hz).	—
AT%TT35	Send tones of variable levels and frequencies.	Ln—level for the n-th tone (in dBm). Fn—frequency for the n-th tone (in Hz).
AT%TT40	V.21 channel 2.	—
AT%TT41	V.27 2400 bits/s.	—
AT%TT42	V.27 4800 bits/s.	—
AT%TT43	V.29 7200 bits/s.	—
AT%TT44	V.29 9600 bits/s.	—
AT%TT45	V.17 7200 bits/s (long train).	—
AT%TT46	V.17 7200 bits/s (short train).	—
AT%TT47	V.17 9600 bits/s (long train).	—

S-Registers

Register	Function	Range/units	Default
S0	Rings to auto-answer	0-255/rings	0
S1	Ring counter	0-255/rings	0
S2	Escape character	0-255/ASCII	43
S3	Carriage return character	0-127/ASCII	13
S4	Line feed character	0-127/ASCII	10
S5	Backspace character	0-255/ASCII	8
S6	Wait time for dial tone	2-255/s	2
S7	Wait time for carrier	1-255/s	50
S8	Pause time for dial delay modifier	0-255/s	2
S9	Carrier detect response time	1-255/.1 s	0
S10	Carrier loss disconnect time	1-255/.1 s	20
S11	DTMF tone duration	50-255/.001 s	95
S12	Escape prompt delay	0-255/.02 s	50
S14	General bit mapped options status		8 (8h)
S16	Test mode bit mapped options status (&T)		7
S18	Test timer	0-255/s	0
S19	Auto Sync options		0
S20	Auto Sync HDLC address or BSC Sync character	0-255	0
S21	V.24/general bit mapped options status		48 (30h)
S22	Speaker/results bit mapped options status		112 (70h)
S23	General bit mapped options status		0
S24	Sleep inactivity timer	0-255/s	10
S25	Delay to DTR off	0-255/s or .01s	0
S26	RTS-to-CTS delay	0-255/.01 s	0
S27	General bit mapped options status		0
S28	General bit mapped options status		0
S29	Flash dial modifier time	0-255/10 ms	0
S30	Disconnect inactivity timer	0-255/10 s	0
S31	General bit mapped options status		0
S32	XON character	0-255/ASCII	10 (Ah)
S33	XOFF character	0-255/ASCII	0
S36	LAPM failure control		7
S37	Line connection speed		0
S38	Delay before forced hang-up	0-255/s	0
S39	Flow control bit mapped options status		0
S40	General bit mapped options status		0
S41	General bit mapped options status		0
S46	Data compression control		0
S48	V.42 negotiation control		7
S82	LAPM break control		0
S86	Call failure reason code	0-255	0
S91	PSTN transmit attenuation level	0-15/dBm	10 (country dependent)
S92	Fax transmit attenuation level	0-15/dBm	10 (country dependent)
S95	Result code messages control		150

Result Code Summary

OK	0	CONNECT	1
RING	2	NO CARRIER	3
ERROR	4	CONNECT 1200	5
NO DIAL TONE	6	BUSY	7
NO ANSWER	8	CONNECT 0600	9
CONNECT 2400	10	CONNECT 4800	11
CONNECT 9600	12	CONNECT 7200	13
CONNECT 12000	14	CONNECT 14400	15
CONNECT 19200	16	CONNECT 38400	17
CONNECT 57600	18	CONNECT 115200	19
CONNECT 230400	20	CONNECT 75TX/1200RX	22
CONNECT 1200TX/75RX	23	DELAYED	24
BLACKLISTED	32	FAX	33
DATA	35	CARRIER 300	40
CARRIER 1200/75	44	CARRIER 75/1200	45
CARRIER 1200	46	CARRIER 2400	47
CARRIER 4800	48	CARRIER 7200	49
CARRIER 9600	50	CARRIER 12000	51
CARRIER 14400	52	CARRIER 16800	53
CARRIER 19200	54	CARRIER 21600	55
CARRIER 24000	56	CARRIER 26400	57
CARRIER 28800	58	CONNECT 16800	59
CONNECT 21600	61	CONNECT 24000	62
CONNECT 26400	63	CONNECT 28800	64
COMPRESSION: CLASS 5	66	COMPRESSION: V.42 bis	67
COMPRESSION: NONE	69	PROTOCOL: NONE	70
PROTOCOL: LAPM	77	CARRIER 31200	78
CARRIER 33600	79	CONNECT 33600	84
CONNECT 31200	91	CARRIER 32000	150
CARRIER 34000	151	CARRIER 36000	152
CARRIER 38000	153	CARRIER 40000	154
CARRIER 42000	155	CARRIER 44000	156
CARRIER 46000	157	CARRIER 48000	158
CARRIER 50000	159	CARRIER 52000	160
CARRIER 54000	161	CARRIER 56000	162
CONNECT 32000	165	CONNECT 34000	166
CONNECT 36000	167	CONNECT 38000	168
CONNECT 40000	169	CONNECT 42000	170
CONNECT 44000	171	CONNECT 46000	172
CONNECT 48000	173	CONNECT 50000	174
CONNECT 52000	175	CONNECT 54000	176
CONNECT 56000	177	+FCERROR	+F4

Section Four: FCC Notice

4.1 FCC Compliance

This Equipment complies with Part 68 of the FCC Rules. On this equipment is a label that contains, among other information, the FCC registration number and Ringer Equivalence Number (REN) for this equipment. You must, upon request, provide this information to your telephone company.

If your telephone equipment causes harm to the telephone network, the Telephone Company may discontinue your service temporarily. If possible, they will be notify in advience. But if advance notice isn't practical, you will notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations or procedures that could affect proper operation of your equipment. If they do, you will be notified in advance to give you an opportunity you maintain uninterrupted telephone service.

The FCC prohibits this equipment's should fail to operate properly, disconnect the equipment from the phone line to determine if it is causing the problem. If the problem is with the equipment, discontinue use and contact your dealer or vendor.

4.2 FCC Class B 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 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 the 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

Notice: (1)Shielded cables, if any, must be used in order to comply with the emission limits. (2) Any change or modification not expressly approved by the grantee of the equipment authorized could void the user authority to operate the equipment.

Caution: Please make sure you already disconnect the phone cable before you want to touch or remove modem module.

4.3 Exposure to Radio Frequency Radiation

The radiated output power of the this internal wireless radio is far below the FCC radio frequency exposure limits.

The internal wireless radio operates within guidelines found in radio frequency safety standards and recommendations, which reflect the consensus of the scientific community. The level of energy emitted is far less than the electromagnetic energy emitted by wireless devices such as mobile phones. However, the use of wireless radios may be restricted in some situations or environments, such as aboard airplanes. If you are unsure of restrictions, you are encouraged to ask for authorization before turning on the wireless radio.

Frequency Range of a Bluetooth Device

Hereby we declare that the maximum frequency range of this device is : 2402 – 2480 MHz. This is according to the Bluetooth Core Specification V 1.1 for devices which will be operated in the USA. Other frequency ranges (e.g. for Spain, France, Japan) which are allowed according to the Core Specification are **not** supported by this device.

Co-ordination of the Hopping Sequence in Data Mode to Avoid Simultaneous Occupancy by Multiple Transmitters

Bluetooth units which want to communicate with other units must be organized in a structure called piconet. This piconet consists of maximum of 8 Bluetooth units. One unit is the master the other seven are the slaves. The master co-ordinates frequency occupation in this piconet for all units. As the master hop sequence is derived from it's BD address which is unique for every Bluetooth device, additional masters intending to establish new piconets will always use different hop sequences.

Example of a hopping sequence in data mode

Example of a 79 hopping sequence in data mode:

40, 21, 44, 23, 42, 53, 46, 55, 48, 33, 52, 35, 50, 65, 54, 67,
56, 37, 60, 39, 58, 69, 62, 71, 64, 25, 68, 27, 66, 57, 70, 59,
72, 29, 76, 31, 74, 61, 78, 63, 01, 41, 05, 43, 03, 73, 07, 75,
09, 45, 13, 47, 11, 77, 15, 00, 64, 49, 66, 53, 68, 02, 70, 06,
01, 51, 03, 55, 05, 04.

Equally Average Use of Frequencies in Data Mode and Behaviour for Short Transmissions

The generation of the hopping sequence in connection mode depends essentially on two input values :

1. LAP/UAP of the master of the connection
2. Internal master clock

The LAP (lower address part) are the 24 LSB's of the 48 bit BD_ADDRESS. The BD_ADDRESS is an unambiguous number of every Bluetooth unit. The UAP (upper address part) are the 24 MSB's of the 48 bit BD_ADDRESS. The internal clock of a Bluetooth unit is derived from a free running clock which is never adjusted and is never turned off. For synchronization with other units, only offset values are added to this clock. It has no relation to the time of day. Its resolution is at least half RX/TX slot length of 312.5 μ s. The clock has a cycle of a bout one day (23h30). For the deriving of the hopping sequence the entire LAP (24bits), 4 LSB's (4 bits) (Input 1) and the 27 MSB's of the clock (Input 2) are used. With this input values different mathematical procedures (permutations, additions, XOR-operations) are performed to generate the sequence. This will be done at the beginning of every new transmission.

Regarding shorts transmissions the Bluetooth system has the following behaviours: The first connection between the two devices is established, a hopping sequence was generated. For transmitting the wanted data the complete hopping sequence was not used. The connection ended. The second connection will be established. A new hopping sequence is generated. Due to the fact that the Bluetooth clock has a different value, because the period between the two transmission is longer (and it cannot be shorter) than the minimum resolution of the clock (312.5 μ s). The hopping sequence will always differ from the first one.

Receiver Input Bandwidth and Behaviour for Repeated Single or Multiple Packets

The input bandwidth of the receiver is 1 MHz.

In every connection one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master. Additionally the type of connection (e.g. single or multislot packet) is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also the slave of the connection will use these settings. Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means, a repeated packet will not be sent on the same frequency, it is sent on the next frequency of the hopping sequence.

Channel Separation in Hybrid Mode

As mentioned before, the nominal channel spacing of the Bluetooth system is 1 MHz independent of the operating mode. In other words, the channel spacing in hybrid mode (inquiry and page mode) is still 1 MHz without any change.

Derivation and Examples for a Hopping Sequence in Hybrid Mode

For the generation of the inquiry and page hop sequences the same procedures as described for the data mode are used, but this time with different input vectors:

For the inquiry hop sequence, a predefined fixed address is always used. This results in the same 32 frequencies used by all devices doing an inquiry but every time with a different start frequency and phase in this sequence.

For the page hop sequence, the device address of the paged unit is used as input vector. This results in the use of a subset of 32 frequencies which is specific for that initial state of the connection establishment between the two units. A page to different devices would result in a different subset of 32 frequencies. So it is also ensured that in hybrid mode the frequency use equally averaged.

Example of a hopping sequence in inquiry mode :

48, 50, 09, 13, 52, 54, 41, 45, 56, 58, 11, 15, 60, 62, 43, 47, 00, 02, 64, 68, 04, 06, 17, 21, 08, 10, 66, 70, 12, 14, 19, 23

Example of a hopping sequence in paging mode :

08, 57, 68, 70, 51, 02, 42, 40, 04, 61, 44, 46, 63, 14, 50, 48, 16, 65, 52, 54, 67, 18, 58, 56, 20, 53, 60, 62, 55, 06, 66, 64

transmission, a similar procedure takes place. The only difference is, instead of the inquiry access code, a special access code, derived from the BD_ADDRESS of the paged device will be sent by the master in this connection. Due to the fact that both units have been connected before (in the inquiry procedure) the paging unit has timing and frequency information about the page scan of the paged unit. For this reason the time to establish the connection is reduced considerably.

Receiver Input Bandwidth and Synchronization in Hybrid Mode :

The receiver input bandwidth is the same as in the data mode (1 MHz). When two Bluetooth devices establish contact for the first time, one device sends an inquiry access code, the other device is scanning for this inquiry access code. If two devices have been connected previously and want to start a new