USER'S MANUAL

notebook

V12.1.00

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R&TTE Directive

This device is in compliance with the essential requirements and other relevant provisions of the R&TTE Directive 1999/5/EC.

This device will be sold in the following EEA countries: Austria, Italy, Belgium, Liechtenstein, Denmark, Luxembourg, Finland, Netherlands, France, Norway, Germany, Portugal, Greece, Spain, Iceland, Sweden, Ireland, United Kingdom, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Slovakia, Poland, Slovenia.

EuP-Standby and Off Mode Power Consumption Statement:

The figures below note the power consumption of this computer in compliance with European Commission (EC) regulations on power consumption in off mode or standby mode:

- Standby Mode < 2W
- Off Mode < 0.5W

CE Marking

This device has been tested to and conforms to the regulatory requirements of the European Union and has attained CE Marking. The CE Mark is a conformity marking consisting of the letters “CE”. The CE Mark applies to products regulated by certain European health, safety and environmental protection legislation. The CE Mark is obligatory for products it applies to: the manufacturer affixes the marking in order to be allowed to sell his product in the European market.

This product conforms to the essential requirements of the R&TTE directive 1999/5/EC in order to attain CE Marking. A notified body has determined that this device has properly demonstrated that the requirements of the directive have been met and has issued a favorable certificate of expert opinion. As such the device will bear the notified body number 0560 after the CE mark.

The CE Marking is not a quality mark. Foremost, it refers to the safety rather than to the quality of a product. Secondly, CE Marking is mandatory for the product it applies to, whereas most quality markings are voluntary.

FCC Statement
(Federal Communications Commission)

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

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

Operation is subject to the following two conditions:

1. This device may not cause interference.

   And

2. This device must accept any interference, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:

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

2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Warning

Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the manufacturer for compliance with the above standards could void your authority to operate the equipment.

If your purchase option includes both **Wireless LAN** and **3G** modules, then the appropriate antennas will be installed. Note that In order to comply with FCC RF exposure compliance requirements, the antenna must not be co-located or operate in conjunction with any other antenna or transmitter.

Important Notice - 3G & Bluetooth/Wireless LAN Modules

In order to comply with FCC regulations you should NOT operate the 3G module and the Bluetooth/Wireless LAN modules at the same time as this may disrupt radio frequency, and cause interference. When the 3G module is powered on, make sure that the Bluetooth/Wireless LAN modules are powered off.

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock, and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using this equipment with a telephone line (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 3.42A (**65** Watts) minimum AC/DC Adapter.

This Computer's Optical Device is a Laser Class 1 Product

Instructions for Care and Operation

The notebook computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:

1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

Do not expose the computer to any shock or vibration.	*Do not place it on an unstable surface.*	*Do not place anything heavy on the computer.*

2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

Do not expose it to excessive heat or direct sunlight.	*Do not leave it in a place where foreign matter or moisture may affect the system.*	*Don't use or store the computer in a humid environment.*	*Do not place the computer on any surface that will block the Vents/Fan Intakes.*

3. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.

4. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.

Do not turn off the power until you properly shut down all programs.	*Do not turn off any peripheral devices when the computer is on.*	*Do not disassemble the computer by yourself.*	*Perform routine maintenance on your computer.*

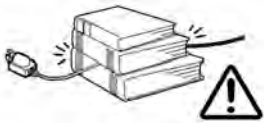
5. **Take care when using peripheral devices**.

Use only approved brands of peripherals.	*Unplug the power cord before attaching peripheral devices.*

Power Safety

The computer has specific power requirements:

- Only use a power adapter approved for use with this computer.
- Your AC/DC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies (i.e. AC/DC adapter or car adapter).

Do not plug in the power cord if you are wet.	*Do not use the power cord if it is broken.*	*Do not place heavy objects on the power cord.*
		

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord).

You must also remove your battery in order to prevent accidentally turning the machine on. **Before removing the battery disconnect the AC/DC adapter from the computer.**

Polymer Battery Precautions

Note the following information which is specific to polymer batteries only, and where applicable, this overrides the general battery precaution information overleaf.

- Polymer batteries may experience a slight expansion or swelling, however this is part of the battery's safety mechanism and is not a cause for concern.
- Use proper handling procedures when using polymer batteries. Do not use polymer batteries in high ambient temperature environments, and do not store unused batteries for extended periods.

See also the general battery precautionary information overleaf for further information.

Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not remove any batteries from the computer while it is powered on.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- If you do not use the battery for an extended period, then remove the battery from the computer for storage.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

Battery Disposal & Caution

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Cleaning

Do not apply cleaner directly to the computer; use a soft clean cloth.
Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

Servicing

Do not attempt to service the computer yourself. Doing so may violate your warranty and expose you and the computer to electric shock. Refer all servicing to authorized service personnel. Unplug the computer from the power supply. Then refer servicing to qualified service personnel under any of the following conditions:

- When the power cord or AC/DC adapter is damaged or frayed.
- If the computer has been exposed to rain or other liquids.
- If the computer does not work normally when you follow the operating instructions.
- If the computer has been dropped or damaged (do not touch the poisonous liquid if the LCD panel breaks).
- If there is an unusual odor, heat or smoke coming from your computer.

Removal Warning

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before restoring power to the system.

Also note the following when the cover is removed:

- Hazardous moving parts.
- Keep away from moving fan blades.

Travel Considerations

Packing

As you get ready for your trip, run through this list to make sure the system is ready to go:

1. Check that the battery pack and any spares are fully charged.
2. Power off the computer and peripherals.
3. Close the display panel and make sure it's latched.
4. Disconnect the AC/DC adapter and cables. Stow them in the carrying bag.
5. The AC/DC adapter uses voltages from 100 to 240 volts so you won't need a second voltage adapter. However, check with your travel agent to see if you need any socket adapters.
6. Put the notebook in its carrying bag and secure it with the bag's straps.
7. If you're taking any peripherals (e.g. a printer, mouse or digital camera), pack them and those devices' adapters and/or cables.
8. Anticipate customs - Some jurisdictions may have import restrictions or require proof of ownership for both hardware and software. Make sure your documents are prepared.

Power Off Before Traveling

Make sure that your notebook is completely powered off before putting it into a travel bag (or any such container). Putting a notebook which is powered on in a travel bag may cause the vent(s)/fan intake(s)/outlet(s) to be blocked. To prevent your computer from overheating make sure nothing blocks the vent(s)/fan intake(s)/outlet(s) while the computer is in use.

On the Road

In addition to the general safety and maintenance suggestions in this preface, and Chapter 8: Troubleshooting, keep these points in mind:

Hand-carry the notebook - For security, don't let it out of your sight. In some areas, computer theft is very common. Don't check it with normal luggage. Baggage handlers may not be sufficiently careful. Avoid knocking the computer against hard objects.

Beware of Electromagnetic fields - Devices such as metal detectors & X-ray machines can damage the computer, hard disk, floppy disks, and other media. They may also destroy any stored data - Pass your computer and disks around the devices. Ask security officials to hand-inspect them (you may be asked to turn it on). **Note**: Some airports also scan luggage with these devices.

Fly safely - Most airlines have regulations about the use of computers and other electronic devices in flight. These restrictions are for your safety, follow them. If you stow the notebook in an overhead compartment, make sure it's secure. Contents may shift and/or fall out when the compartment is opened.

Get power where you can - If an electrical outlet is available, use the AC/DC adapter and keep your battery(ies) charged.

Keep it dry - If you move quickly from a cold to a warm location, water vapor can condense inside the computer. Wait a few minutes before turning it on so that any moisture can evaporate.

Developing Good Work Habits

Developing good work habits is important if you need to work in front of the computer for long periods of time. Improper work habits can result in discomfort or serious injury from repetitive strain to your hands, wrists or other joints. The following are some tips to reduce the strain:

- Adjust the height of the chair and/or desk so that the keyboard is at or slightly below the level of your elbow. Keep your forearms, wrists, and hands in a relaxed position.
- Your knees should be slightly higher than your hips. Place your feet flat on the floor or on a footrest if necessary.
- Use a chair with a back and adjust it to support your lower back comfortably.
- Sit straight so that your knees, hips and elbows form approximately 90-degree angles when you are working.
- Take periodic breaks if you are using the computer for long periods of time.

Remember to:

- Alter your posture frequently.
- Stretch and exercise your body several times a day.
- Take periodic breaks when you work at the computer for long periods of time. Frequent and short breaks are better than fewer and longer breaks.

Lighting

Proper lighting and comfortable display viewing angle can reduce eye strain and muscle fatigue in your neck and shoulders.

- Position the display to avoid glare or reflections from overhead lighting or outside sources of light.
- Keep the display screen clean and set the brightness and contrast to levels that allow you to see the screen clearly.
- Position the display directly in front of you at a comfortable viewing distance.
- Adjust the display-viewing angle to find the best position.

LCD Screen Care

To prevent **image persistence** on LCD monitors (caused by the continuous display of graphics on the screen for an extended period of time) take the following precautions:

- Set the *Windows* **Power Plans** to turn the screen off after a few minutes of screen idle time.
- Use a rotating, moving or blank screen saver (this prevents an image from being displayed too long).
- Rotate desktop background images every few days.
- Turn the monitor off when the system is not in use.

LCD Electro-Plated Logos

Note that in computers featuring a raised LCD electro-plated logo, the logo is covered by a protective adhesive. Due to general wear and tear, this adhesive may deteriorate over time and the exposed logo may develop sharp edges. Be careful when handling the computer in this case, and avoid touching the raised LCD electro-plated logo. Avoid placing any other items in the carrying bag which may rub against the top of the computer during transport. If any such wear and tear develops contact your distributor/supplier.

Contents

Notice I
EuP-Standby and Off Mode Power Consumption Statement: II
FCC Statement IV
FCC RF Radiation Exposure Statement: V
Instructions for Care and Operation VII
Power Safety IX
Polymer Battery Precautions X
Battery Precautions XI
Cleaning XII
Servicing XII
Travel Considerations XIII

Quick Start Guide

Overview 1-1
Advanced Users 1-2
Beginners and Not-So-Advanced Users 1-2
Warning Boxes 1-2
Not Included 1-3
System Startup 1-4
System Software 1-5
Model Differences 1-5

System Map: LCD Panel Open - Model A 1-6
System Map: LCD Panel Open - Model B 1-7
LED Indicators 1-8
Keyboard- Model A 1-9
Keyboard- Model B 1-10
Function/Hot Key Indicators 1-11
Control Center 1-12
System Map: Front & Left Views 1-13
System Map: Right & Rear Views 1-14
System Map: Bottom View - Model A 1-16
System Map: Bottom View - Model B 1-17
Windows 7 Start Menu & Control Panel 1-18
Video Features 1-19
Power Options 1-21

Features & Components

Overview 2-1
Hard Disk Drive 2-2
Optical (CD/DVD) Device 2-3
Loading Discs 2-3
Handling CDs or DVDs 2-4
DVD Regional Codes 2-5

Multi-In-1 Card Reader 2-6
TouchPad and Buttons/Mouse 2-7
Gestures and Device Settings 2-9
Audio Features 2-12

Power Management

Overview 3-1
The Power Sources 3-2
AC/DC Adapter 3-2
Battery 3-2
Turning On the Computer 3-3
Power Plans 3-4
Power-Saving States 3-6
Sleep 3-6
Hibernate 3-7
Shut down 3-7
Configuring the Power Buttons 3-8
Resuming Operation 3-9
Power Conservation Modes 3-10
Battery Information 3-11
Conserving Battery Power 3-12
Battery Life 3-13

New Battery 3-13
Recharging the Battery with the AC/DC Adapter 3-13
Proper handling of the Battery Pack 3-14
Battery FAQ 3-15

Drivers & Utilities

What to Install 4-1
Module Driver Installation 4-1
Driver Installation 4-2
Updating/Reinstalling Individual Drivers 4-4
User Account Control 4-5
Windows Security Message 4-5
New Hardware Found 4-5
Driver Installation Procedure 4-6
Chipset 4-6
Video (VGA) 4-6
LAN 4-6
CardReader 4-6
Touchpad 4-6
Hot Key 4-7
USB 3.0 (Win 7 Only) 4-7
MEI Driver 4-7

Audio 4-7
Windows Experience Index 4-8
Optional Drivers 4-9

BIOS Utilities

Overview 5-1
The Setup Utility 5-2
Failing the POST 5-3
Fatal Errors 5-3
Non-Fatal Errors 5-3
Setup Screens 5-4
Main Menu 5-5
System Time & Date (Main Menu) 5-5
SATA Port # (Main Menu) 5-6
System/Extended Memory: (Main Menu) 5-6
MB Series / BIOS Revision / KBC/EC firmware Revision 5-6
Advanced Menu 5-7
Advanced Chipset Control (Advanced Menu) 5-7
Bluetooth Power Setting (Advanced Menu > Advanced Chipset Control) 5-8
Intel Smart Connect Technology (Advanced Menu) 5-8
Intel(R) Rapid Start Technology (Advanced Menu) 5-8
Intel Anti-Theft Technology (Advanced Menu) 5-8

SATA Mode (Advanced Menu) 5-9
Boot Logo (Advanced Menu) 5-9
Power On Boot Beep (Advanced Menu) 5-9
Battery Low Alarm Beep (Advanced Menu) 5-9
Security Menu 5-10
Set Supervisor Password (Security Menu) 5-10
Set User Password (Security Menu) 5-11
Password on boot: (Security Menu) 5-11
Secure Boot Control (Security Menu) 5-12
TPM Configuration (Security Menu) 5-13
TPM State (Security Menu > TPM Support Enabled) 5-14
Pending TPM operation (Security Menu > TPM Support & TPM State Enabled) 5-15
Boot Menu 5-16
Boot Option Priorities (Boot Menu) 5-17
OS Select (Boot Menu) 5-17
UEFI Boot (Boot Menu) 5-17
Exit Menu 5-18

Upgrading The Computer

Overview 6-1
When Not to Upgrade 6-2
Removing the Battery 6-3

Upgrading the Hard Disk Drive 6-4
Removing the Hard Disk 6-5
Upgrading the Optical (CD/DVD) Device 6-7
Upgrading the Optical (CD/DVD) Device for Model A Computers 6-7
Upgrading the Optical (CD/DVD) Device for Model B Computers 6-10
Upgrading the System Memory (RAM) 6-11

Modules & Options

Overview 7-1
PC Camera Module 7-3
PC Camera Driver Installation 7-4
Wireless LAN Module 7-11
3rd Party 802.11b/g/n Driver Installation (for WLAN Module) 7-12
3rd Party 802.11b/g/n Driver Installation (Combo Modules) 7-13
Intel® WLAN Driver Installation 7-14
Connecting to a Wireless Network in Windows 7 7-17
Connecting to a Wireless Network Using Intel® PROSet Wireless 7-20
Intel® My WiFi Configuration 7-22
Windows Mobility Center 7-31
Intel® Wireless Display Application 7-32
Intel® WiDi Application Installation 7-33
Intel® Wireless Music Driver Installation 7-33

Intel® WiDi Application Configuration 7-34
Bluetooth & WLAN Combo Module 7-37
3rd Party Bluetooth (V4.0) Combo Driver Installation 7-38
Intel Bluetooth Combo Driver Installation 7-39
Standard Bluetooth (V4.0) Configuration in Windows 7 7-40
3G Module 7-44
Wireless Manager 7-47
Wireless Manager Installation 7-47
Wireless Manager Application 7-48
Profiles 7-51
Settings 7-55
Text Messaging Service (SMS) 7-58
SMS Utility 7-58
Sending a Text Message 7-60
Phonebook 7-63
SMS Settings 7-66
Trusted Platform Module 7-69
Enabling & Activating TPM 7-70
Trusted Platform Module (TPM) Driver Installation 7-72
Initializing TPM 7-73
Infineon Security Platform Settings Tool 7-75
Intel® Rapid Storage Technology 7-83

IRST Driver Installation 7-83
Intel® Smart Response Technology 7-84
Enabling Intel Smart Response Technology 7-85
Intel® Rapid Start Technology Driver 7-88
Intel® Rapid Start Technology Configuration 7-89
Intel® Rapid Start Technology Driver Installation 7-95
Intel® Smart Connect Technology 7-96
Intel® Smart Connect Technology Driver Installation 7-96
Intel® Smart Connect Technology Configuration 7-97
Intel Smart Connect & Intel Rapid Start Technology 7-100

Troubleshooting

Overview 8-1
Basic Hints and Tips 8-2
Backup and General Maintenance 8-3
Viruses 8-4
Upgrading and Adding New Hardware/Software 8-5
Problems and Possible Solutions 8-7
Bluetooth Connection Problems 8-12

Interface (Ports & Jacks)

Overview A-1
Notebook Ports and Jacks A-2

Control Center

Overview B-1

Video Driver Controls

Video Driver Installation C-1
Dynamic Video Memory Technology C-1
Intel® Graphics & Media Control Panel C-2
Display Devices & Options C-4
Attaching Other Displays C-5
Configuring an External Display in Windows 7 ..... C-8
HDMI Audio Configuration C-11

Specifications

Processors D-2
Core Logic D-2
Display D-2
Memory D-3
Video Adapter D-3
Storage D-3
Audio D-3
Keyboard & Pointing Device D-3
Interface D-3

Card Reader D-3
Slot D-4
Communication D-4
Power Management D-4
Power D-4
Indicators D-4
BIOS D-4
Security D-4
Features D-5
Operating System D-5
Environmental Spec D-5
Dimensions & Weight D-5

Windows 8

Overview E-1
Windows 8 Start Screen & Desktop E-2
Apps & Tiles E-3
Accessing Pining/Unpinning All Apps E-3
Desktop Application E-4
Windows 8 Charms Bar E-6
Charms Bar Items E-7
Windows 8 Control Panel E-8

Windows 8 Taskbar E-11
LED Indicators E-12
Keyboard - Windows 8 ..... E-13
Keyboard Shortcuts E-14
Function/Hot Key Indicators & Control Center E-15
Video Features E-16
To Configure Displays from Devices (Charms Bar): E-16
Power Options E-17
Shut Down, Restart or Sleep E-17
Ctrl + Alt + Delete Key Combination E-18
Wake On LAN Settings E-19
Running Metro UI Apps E-20
Screen Resolution Settings E-20
User Account Control Settings E-21
Drivers & Utilities E-22
Driver Installation (Windows 8) E-23
Driver Installation Order E-24
Driver Installation Procedure E-26
Chipset E-26
Video (VGA) E-26
LAN E-26
CardReader E-26

Touchpad E-26
Hot Key E-27
MEI Driver E-27
Audio E-27
PC Camera (Windows 8) E-28
Metro UI Camera App E-29
Taking Pictures/Capturing Video E-31
Reducing Video File Size E-33
Wireless LAN Module (Windows 8) E-34
3rd Party 802.11b/g/n Driver Installation E-35
Intel® WLAN Driver Installation E-36
WLAN Configuration in Windows 8 ..... E-37
Charms Bar E-37
Desktop Mode E-40
Control Panel E-41
Bluetooth Module (Windows 8) E-43
3rd Party Bluetooth (V4.0) Combo Driver Installation E-44
Intel Bluetooth Combo Driver Installation E-45
Bluetooth Configuration in Windows 8 ..... E-46
Desktop Mode E-46
Charms Bar E-46
To Make your Computer Discoverable to Bluetooth Devices E-49

3G Settings (Windows 8) E-50
3G Configuration in Windows 8 ..... E-51
Charms Bar E-51
Trusted Platform Module E-54
Enabling & Activating TPM E-55
Trusted Platform Module (TPM) Driver Installation E-57
Initializing TPM E-58
Infineon Security Platform Settings Tool E-60
User Settings E-61
Backup E-62
Migration E-63
Password Reset E-64
BitLocker E-65
Advanced E-67
Intel® Rapid Storage Technology E-68
IRST Driver Installation E-68
Intel® Smart Response Technology E-69
Enabling Intel Smart Response Technology E-70
Intel® Rapid Start Technology Driver E-73
Intel® Rapid Start Technology Configuration E-74
Intel® Rapid Start Technology Driver Installation E-80
Intel® Smart Connect Technology E-81

Intel® Smart Connect Technology Driver Installation E-81
Intel® Smart Connect Technology Configuration E-82
Intel Smart Connect & Intel Rapid Start Technology E-85
Intel® Wireless Display Application E-87
Intel® WiDi Application Installation E-88
Intel® Wireless Music Driver Installation E-88
Intel® WiDi Application Configuration E-89

Chapter 1: Quick Start Guide

Overview

This Quick Start Guide is a brief introduction to the basic features of your computer, to navigating around the computer and to getting your system started. The remainder of the manual covers the following:

- **Chapter 2** A guide to using some of the main features of the computer e.g. the **storage devices** (**hard disk**, **optical device**, **card reader**), **Touchpad**/**Mouse** and **Audio**.
- **Chapter 3** The computer's **power** saving options.
- **Chapter 4** The installation of the **drivers** and utilities essential to the operation or improvement of some of the computer's subsystems.
- **Chapter 5** An outline of the computer's built-in software or **BIOS** (Basic Input Output System).
- **Chapter 6** Instructions for **upgrading** your computer.
- **Chapter 7** A quick guide to the computer's **PC Camera**, **Wireless LAN**, **WiDi**, **Combo Bluetooth & WLAN, 3G** and **TPM** modules (some of which may be **optional** depending on your purchase configuration).
- **Chapter 8** A **troubleshooting** guide.
- **Appendix A** Definitions of the **interface**, **ports**/**jacks** which allow your computer to communicate with external devices.
- **Appendix B** Information on **Control Center**.
- **Appendix C** Information on the **video driver controls**.
- **Appendix D** The computer's **specification**.
- **Appendix E** Information related to the ***Windows 8*** operating system.

Advanced Users

If you are an advanced user you may skip over most of this Quick Start Guide. However you may find it useful to refer to ***"What to Install" on page 4 - 1***, ***"BIOS Utilities" on page 5 - 1*** and ***"Upgrading The Computer" on page 6 - 1*** in the reminder of the User's Manual. You may also find the notes marked with a ✎ of interest to you.

Beginners and Not-So-Advanced Users

Notes

Check the light colored boxes with the mark above to find detailed information about the computer's features.

If you are new to computers (or do not have an advanced knowledge of them) then the information contained in the Quick Start Guide should be enough to get you up and running. Eventually you should try to look through all the documentation (more detailed descriptions of the functions, setup and system controls are covered in the remainder of the User's Manual), but do not worry if you do not understand everything the first time. Keep this manual nearby and refer to it to learn as you go. You may find it useful to refer to the notes marked with a ✎ as indicated in the margin. For a more detailed description of any of the interface ports and jacks see ***"Interface (Ports & Jacks)" on page A - 1***.

Warning Boxes

No matter what your level please pay careful attention to the warning and safety information indicated by the ⚠ symbol. Also please note the safety and handling instructions as indicated in the *Preface*.

Not Included

Operating Systems (e.g. *Windows 7*) and applications (e.g. word processing, spreadsheet and database programs) have their own manuals, so please consult the appropriate manuals.

Drivers

If you are installing new system software, or are re-configuring your computer for a different system, you will need to install the drivers listed in ***"Drivers & Utilities" on page 4 - 1***. Drivers are programs which act as an interface between the computer and a hardware component e.g. a wireless network module. It is very important that you install the drivers in the order listed. You will be unable to use most advanced controls until the necessary drivers and utilities are properly installed. If your system hasn't been properly configured (your service representative may have already done that for you); refer to ***Chapter 4*** for installation instructions.

Ports and Jacks

See ***"Notebook Ports and Jacks" on page A - 2*** for a description of the interface (ports & jacks) which allow your computer to communicate with external devices, connect to the internet etc.

System Startup

1. Remove all packing materials.
2. Place the computer on a stable surface.
3. Securely attach any peripherals you want to use with the notebook (e.g. keyboard and mouse) to their ports.
4. Attach the AC/DC adapter to the DC-In jack on the left of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
5. Use one hand to raise the lid/LCD to a comfortable viewing angle (**do not exceed 130 degrees**); use the other hand (as illustrated in ***Figure 1 - 1*** below) to support the base of the computer (**Note**: **Never** lift the computer by the lid/LCD).

Shutdown

Note that you should always shut your computer down by choosing the **Shut Down** command from the bottom right of the **Start** menu in ***Windows***. This will help prevent hard disk or system problems.

Figure 1 - 1 **- Opening the Lid/LCD & Computer with AC/DC Adapter Plugged-In**

System Software

Your computer may already come with system software pre-installed. Where this is not the case, or where you are re-configuring your computer for a different system, you will find the ***Windows 7 (with Service Pack 1 installed)*** and ***Windows 8*** operating systems are supported.

The majority of this menu covers information covers information related to the ***Windows 7*** operating system, however for specific information on the ***Windows 8*** operating system see ***Appendix E***.

Note: In order to run ***Windows 7 (SP1)*** without limitations or decreased performance, your computer requires a minimum **1GB** of system memory (RAM).

Windows 7/8 OS

In order to run ***Windows 7 or 8 (32 Bit)*** without limitations or decreased performance, your computer requires a minimum **1GB** of system memory (RAM), however if you are running ***Windows 7 or 8 (64 bit)*** your computer requires a minimum **2GB** of system memory (RAM).

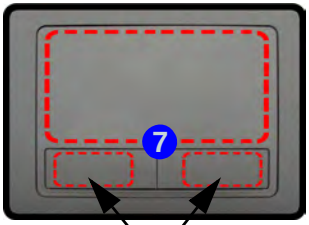
Model Differences

This notebook series includes **two** different models that vary slightly in design style, color, power button style, general appearance and features supported (see ***Appendix A*** for full details). Note that your computer may look slightly different from that pictured throughout this manual.

System Map: LCD Panel Open - Model A

Figure 1 - 2
LCD Panel Open - Model A

1. Built-in PC Camera (**Optional**)
2. PC Camera LED
3. Built-In Microphone
4. LCD
5. Power Button
6. Keyboard
7. Touchpad & Buttons



Touchpad Buttons
(valid operation area)

Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.

Use the key combinations to toggle power to the **3G/WLAN/Bluetooth** modules, and check the LED indicator or on-screen icon to see if the modules are powered on or not (see ***Table 1 - 2, on page 1 - 11***/ ***Table 1 - 1, on page 1 - 8***).

Note that the Touchpad and Buttons valid operational area is that indicated within the red dotted lines indicated on the right.

System Map: LCD Panel Open - Model B

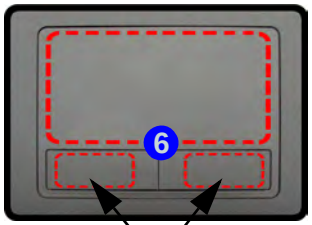
Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.

Use the key combinations to toggle power to the **3G/WLAN/Bluetooth** modules, and check the LED indicator or on-screen icon to see if the modules are powered on or not (see ***Table 1 - 2, on page 1 - 11***/ ***Table 1 - 1, on page 1 - 8***).

Figure 1 - 3
LCD Panel Open - Model B

1. Built-in PC Camera (**Optional**)
2. PC Camera LED
3. Built-In Microphone
4. LCD
5. Power Button
6. Keyboard
7. Touchpad & Buttons



Touchpad Buttons (valid operation area)

Note that the Touchpad and Buttons valid operational area is that indicated within the red dotted lines indicated on the right.

LED Indicators

The LED indicators on the computer display helpful information about the current status of the computer.

Icon	Color	Description
	Orange	DC Power is Plugged In
	Green	The Computer is On
	Blinking Green	The Computer is in Sleep Mode
	Orange	The Battery is Charging
	Green	The Battery is Fully Charged
	Blinking Orange	The Battery Has Reached Critically Low Power Status
	Green	The (**optional**) Wireless LAN Module is Powered On
	Orange	***Win 7*** - The (**optional**) Bluetooth Module is Powered On
		Win 8 - The (**optional**) Bluetooth Module is Installed (*this is not a power on/off indicator in Windows 8*)
	Green	Hard Disk Activity

Table 1 - 1 **- LED Indicators**

Keyboard- Model A

The keyboard has an embedded numerical keypad for easy numeric data input, and function keys to change operational features instantly. See *Table 1 - 2, on page 1 - 11* for function key details and *Appendix E* for ***Windows 8*** keyboard information.

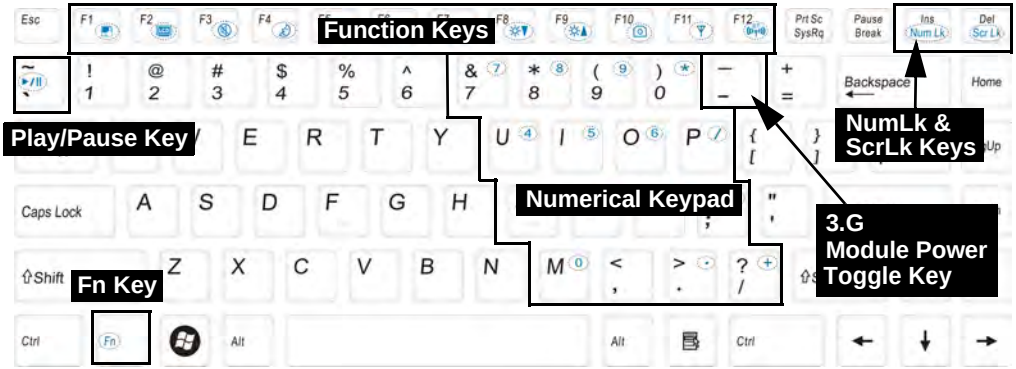


Figure 1 - 4 **- Keyboard - Model A**

Special Characters

Some software applications allow the number-keys to be used with **Alt** to produce special characters. These special characters can only be produced by using the numeric keypad. Regular number keys (in the upper row of the keyboard) will not work. Make sure that **NumLk** is on.

Other Keyboards

If your keyboard is damaged or you just want to make a change, you can use any standard USB keyboard. The system will detect and enable it automatically. However special functions/hot-keys unique to the system's regular keyboard may not work.

NumLk & ScrLk

Hold down the **Fn Key** and either NumLk or ScrLk to enable number or scroll lock, and check the LED indicator for status.

Other Keyboards

If your keyboard is damaged or you just want to make a change, you can use any standard USB keyboard. The system will detect and enable it automatically. However special functions/hot-keys unique to the system's regular keyboard may not work.

NumLk & ScrLk

Hold down the **Fn Key** and either NumLk or ScrLk to enable number or scroll lock, and check the LED indicator for status.

Keyboard- Model B

The keyboard has an embedded numerical keypad for easy numeric data input, and function keys to change operational features instantly. See ***Table 1 - 2, on page 1 - 11*** for function key details and ***Appendix E*** for ***Windows 8*** keyboard information.

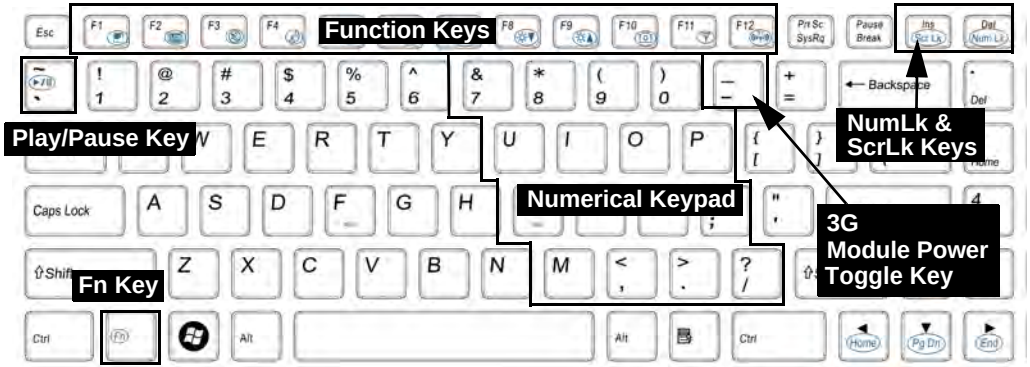


Figure 1 - 5 **- Keyboard - Model B**

Special Characters

Some software applications allow the number-keys to be used with **Alt** to produce special characters. These special characters can only be produced by using the numeric keypad. Regular number keys (in the upper row of the keyboard) will not work. Make sure that **NumLk** is on.

Function/Hot Key Indicators

The **function keys** (F1 - F12 etc.) will act as **hot keys** when pressed while the **Fn** key is held down. In addition to the basic function key combinations; visual indicators are available when the hot key utility is installed.

Keys	Function	Keys	Function
Fn + ~	Play/Pause (in Audio/Video Programs)	Fn + F8/F9	Brightness Decrease/Increase
Fn +	3G Module Power Toggle*	Fn + F10	PC Camera Power Toggle
Fn + F1	TouchPad Toggle	Fn + F11	WLAN Module Power Toggle
Fn + F2	Turn LCD Backlight Off (Press a key to or use TouchPad to turn on)	Fn + F12	Bluetooth Module Power Toggle
Fn + F3	Mute Toggle	Fn + NumLk	Number Lock Toggle
Fn + F4	Sleep Toggle	Fn + ScrLk	Scroll Lock Toggle
Fn + F5/F6	Volume Decrease/ Increase	Caps Lock	Caps Lock Toggle
Fn + F7	Display Toggle		

Table 1 - 2 **- Function & Hot Key Indicators**

Control Center

Press the **Fn + Esc** key combination, or **double-click the icon** in the **notification area of the taskbar** to toggle the **Control Center** on/off. The **Control Center** gives quick access to frequently used controls and enables you to quickly turn modules on/off (see ***Appendix B*** for full details). The **Control Center** in ***Windows 8*** works under the **Desktop** app and not under the Start screen, and does not feature the wireless/Bluetooth buttons and Airplane Mode (see page ***E - 15*** for ***Windows 8*** information).

Control Center

Click on any button to turn any of the modules (e.g. TouchPad, Camera) on/off.

Click on the power conservation modes to switch between Performance, Balanced or Energy Star modes (see page ***3 - 10***). To remove the Power Conservation Modes screen just click in a blank area of the icon or press a key on the keyboard.

Click on the buttons (or just click and hold the mouse button) to adjust the slider for Brightness/Volume.

Click on Display Switch and click to choose a display mode from the menu (see page ***C - 10***).

Table 1 - 3 **- Control Center**

System Map: Front & Left Views

Figure 1 - 6
Front & Left Views

1. LED Indicators
2. Multi-in-1 Card Reader
3. DC-In Jack
4. RJ-45 LAN Jack
5. External Monitor Port
6. Vent/Fan Intake/ Outlet
7. HDMI-Out Port
8. 2 * USB 3.0 Ports

Multi-In-1 Card Reader

The card reader allows you to use the most popular digital storage card formats:

MMC (MultiMedia Card) / RS MMC
SD (Secure Digital) / Mini SD / SDHC / SDXC
MS (Memory Stick) / MS Pro / MS Duo

USB 3.0 Port OR USB 2.0 Port

This model includes 2 * USB 3.0 ports on the left side of the computer. USB 3.0 ports are denoted by their **blue color**; USB 2.0 ports are colored black. Note that the USB 3.0 ports require a driver installation for ***Windows 7*** (***Windows 8 does not require a driver installation***) and do not support wake on USB.

System Map: Right & Rear Views

Figure 1 - 7
Right & Rear Views

1. Microphone-In Jack
2. Headphone-Out Jack
3. 1 *USB 2.0 Port (**Model A**)
   OR
   2 *USB 2.0 Ports (**Model B**)
4. Optical Device Drive Bay (for CD/DVD Device)
5. Security Lock Slot
6. Battery

Battery Information

Always completely discharge, then fully charge, a new battery before using it. Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges.

Disk Eject Warning

Don't try to eject a CD/DVD while the system is accessing it. This may cause the system to "crash". Stop the disk first then eject it, or press the stop button twice.

CD/DVD Emergency Eject

If you need to manually eject a CD/DVD (e.g. due to an unexpected power interruption) you may push the end of a straightened paper clip into the emergency eject hole. Do not use a sharpened pencil or any object that may break and become lodged in the hole. Don't try to remove a floppy disk/CD/DVD while the system is accessing it. This may cause the system to "crash".

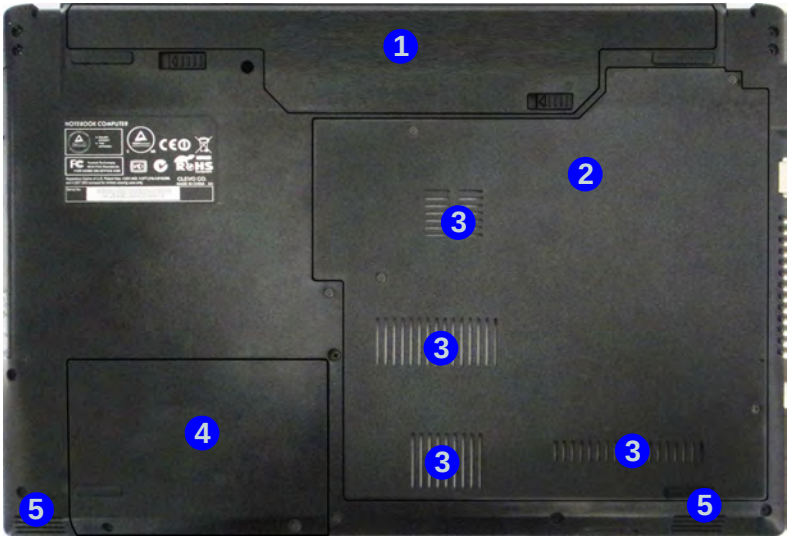
Changing DVD Regional Codes

Go to the **Control Panel** and double-click **Device Manager (Hardware and Sound)**, then click the **+** next to **DVD/CD-ROM drives**. Double-click on the DVD-ROM device to bring up the **Properties** dialog box, and select the **DVD Region** (tab) to bring up the control panel to allow you to adjust the regional code.

DVD region detection is device dependent, not OS-dependent. You can select your module's region code **5** times. The fifth selection is permanent. This cannot be altered even if you change your operating system or you use the module in another computer.

System Map: Bottom View - Model A

Figure 1 - 8
Bottom View
Model A



1. Battery
2. Component Bay Cover
3. Vent/Fan Intake/ Outlet
4. Hard Disk Bay Cover
5. Speakers

CPU

The CPU is not a user serviceable part.

Overheating

To prevent your computer from overheating make sure nothing blocks the Vent/Fan Intake while the computer is in use.

System Map: Bottom View - Model B

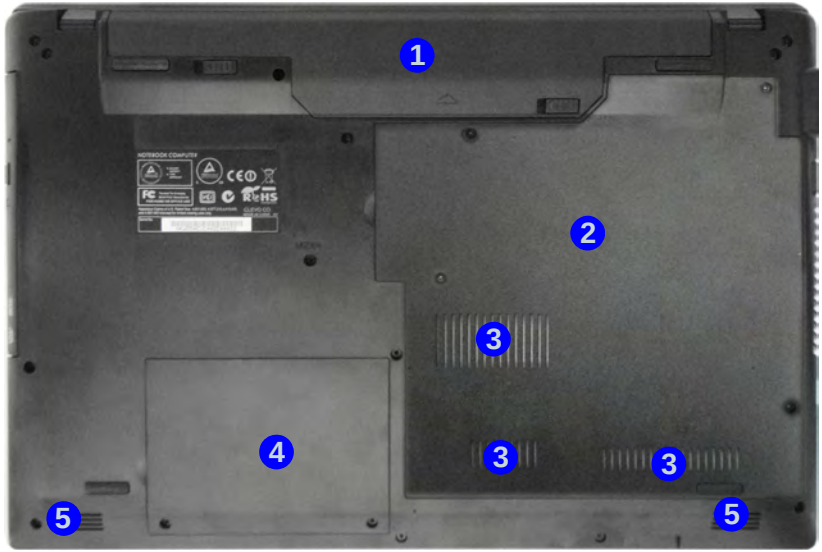


Figure 1 - 9
Bottom View
Model B

1. Battery
2. Component Bay Cover
3. Vent/Fan Intake/ Outlet
4. Hard Disk Bay Cover
5. Speakers

Overheating

To prevent your computer from overheating make sure nothing blocks the Vent/Fan Intake while the computer is in use.

CPU

The CPU is not a user serviceable part.

Windows 7 Start Menu & Control Panel

Most of the control panels, utilities and programs within ***Windows 7*** are accessed from the **Start** menu (see ***Appendix E*** for information on the **Windows 8** OS). When you install programs and utilities they will be installed on your hard disk drive, and a shortcut will usually be placed in the **Start** menu and/or the desktop. Right-click the **Start menu** icon , and then select **Properties** to customize the appearance of the **Start** menu.

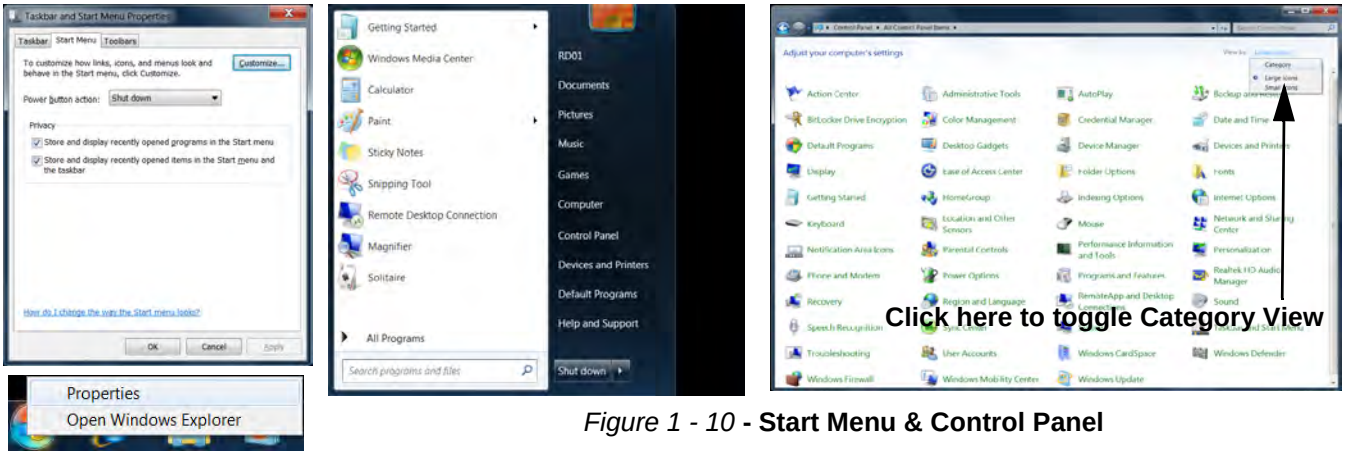


Figure 1 - 10 **- Start Menu & Control Panel**

In many instances throughout this manual you will see an instruction to open the **Control Panel**. The **Control Panel** is accessed from the **Start** menu, and it allows you to configure the settings for most of the key features in ***Windows*** (e.g. power, video, network, audio etc.). ***Windows 7*** provides basic controls for many of the features, however many new controls are added (or existing ones are enhanced) when you install the drivers. To see all controls it may be necessary to toggle off ***Category View*** to view the control panel icons.

Video Features

You can switch display devices, and configure display options, from the **Display** control panel (in **Appearances and Personalization**) in ***Windows 7*** (see over). To access **Display (Control Panel) and Screen Resolution** in ***Windows***:

1. Click **Start** and click **Control Panel**.
2. Click **Display** (icon) - In the **Appearances and Personalization** category.
3. Click **Adjust Screen Resolution/Adjust resolution**.
4. Alternatively you can right-click the desktop and select **Screen resolution**.
5. Use the dropbox to select the screen **Resolution** 1 (***Figure 1 - 11***).
6. Click **Advanced settings** 2 (***Figure 1 - 11***) to bring up the **Advanced** properties tabs.

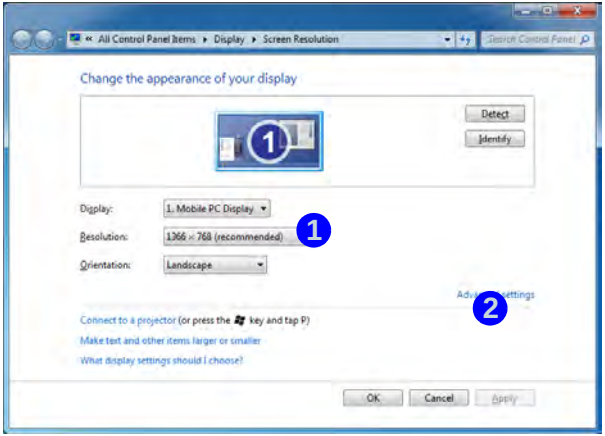


Figure 1 - 11 **- Screen Resolution**

To access the ***Intel(R) Graphics and Media Control Panel***:

1. Click **Advanced settings** 2 (*Figure 1 - 11 on page 1 - 19*) in the **Display Settings** control panel in ***Windows***.
2. Click **Graphics Properties (button)** 3 (*Figure 1 - 12*) in the **Intel Graphics & Media Control Panel** tab.

OR

3. Right-click the desktop and select **Graphics Properties** from the menu.

OR

4. Click the icon 4 (*Figure 1 - 12*) in the taskbar and select **Graphics Properties** from the menu.

OR

5. Access the **Intel(R) Graphics and Media Control Panel** from the ***Windows*** control panel in **Classic View**.

Figure 1 - 12 **- Intel Graphics and Media Control Panel**

Power Options

The **Power Options** (**Hardware and Sound** menu) control panel icon in ***Windows*** (see page ***1 - 18*** or see ***Appendix E*** for information on the **Windows 8** OS) allows you to configure power management features for your computer. You can conserve power by means of **power plans** and configure the options for the **power button**, **sleep button**, **computer lid (when closed)**, **display** and **sleep** mode from the left menu. Note that the **Power saver** plan may have an affect on computer performance.

Click to select one of the existing plans, or click ***Create a power plan*** in the left menu and select the options to create a new plan. Click ***Change plan settings*** and click ***Change advanced power settings*** to access further configuration options.

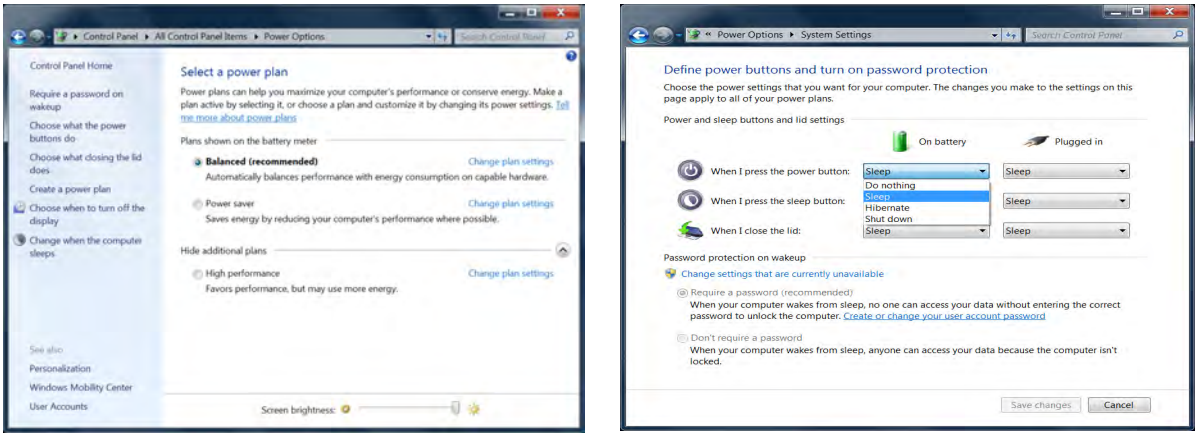


Figure 1 - 13 **- Power Options**

Chapter 2: Features & Components

Overview

Read this chapter to learn more about the following main features and components of the computer:

- Hard Disk Drive
- Optical (CD/DVD) Device
- Multi-In-1 Card Reader
- TouchPad and Buttons/Mouse
- Audio Features

For information on the ***Windows 8*** operating system see ***Appendix E***.

Power Safety

Before attempting to access any of the internal components of your computer please ensure that the machine is not connected to the AC power, and that the machine is turned off. Also ensure that all peripheral cables, including phone lines, are disconnected from the computer.

Hard Disk Drive

The hard disk drive is used to store your data in the computer. The hard disk can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5 mm.

The hard disk is accessible from the bottom of your computer as seen below. For further details see *"Upgrading the Hard Disk Drive" on page 6 - 4*.

Figure 2 - 1
Hard Disk Location

Optical (CD/DVD) Device

There is a bay for a 5.25" optical (CD/DVD) device (12.7mm height). The actual device will depend on the module you purchased (see *"Storage" on page D - 3*). The optical device is usually labeled "**Drive D:**" and may be used as a boot device if properly set in the **BIOS** (see *"Boot Menu" on page 5 - 16*).

Loading Discs

To insert a CD/DVD, press the open button 1 and carefully place a CD/DVD onto the disc tray with label-side facing up (use just enough force for the disc to click onto the tray's spindle). Gently push the CD/DVD tray in until its lock "clicks" and you are ready to start. The busy indicator 2 will light up while data is being accessed, or while an audio/video CD, or DVD, is playing. If power is unexpectedly interrupted, insert an object such as a straightened paper clip into the emergency eject hole 3 to open the tray.

Figure 2 - 2
Optical Device

Sound Volume Adjustment

How high the sound volume can be set depends on the setting of the volume control within ***Windows***. Click the **Volume** icon on the taskbar to check the setting (see *"Audio Features" on page 2 - 12*).

CD Emergency Eject

If you need to manually eject a CD (e.g. due to an unexpected power interruption) you may push the end of a straightened paper clip into the emergency eject hole. However please do NOT use a sharpened pencil or similar object that may break and become lodged in the hole.

Disk Eject Warning

Don't try to remove a CD/DVD while the system is accessing it. This may cause the system to "crash".

Handling CDs or DVDs

Proper handling of your CDs/DVDs will prevent them from being damaged. Please follow the advice below to make sure that the data stored on your CDs/DVDs can be accessed.

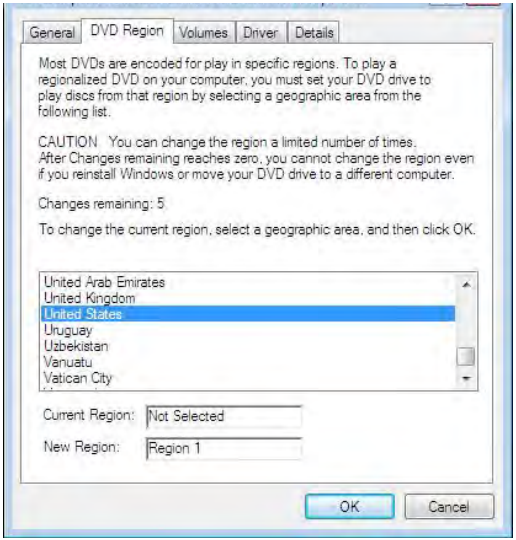
Note the following:

- Hold the CD or DVD by the edges; do not touch the surface of the disc.
- Use a clean, soft, dry cloth to remove dust or fingerprints.
- Do not write on the surface with a pen.
- Do not attach paper or other materials to the surface of the disc.
- Do not store or place the CD or DVD in high-temperature areas.
- Do not use benzene, thinner, or other cleaners to clean the CD or DVD.
- Do not bend the CD or DVD.
- Do not drop or subject the CD or DVD to shock.

DVD Regional Codes

To change the DVD regional codes:

1. Go to the **Control Panel**
2. Double-click **Device Manager (Hardware and Sound)**, then click the **+** next to **DVD/CD-ROM drives**.
3. Double-click on the DVD-ROM device to bring up the **Properties** dialog box, and select the **DVD Region** (tab) to bring up the control panel to allow you to adjust the regional code.



- **Region 1** - USA & Canada
- **Region 2** - Western Europe, Japan, South Africa, Middle East & Egypt
- **Region 3** - South-East Asia, Taiwan, South Korea, The Philippines, Indonesia, Hong Kong
- **Region 4** - South & Central America, Mexico, Australia, New Zealand
- **Region 5** - N Korea, Russia, Eastern Europe, India & Most of Africa
- **Region 6** - China

DVD Region Note

DVD region detection is device dependent, not OS-dependent. You can select your module's region code 5 times. The fifth selection is permanent. This cannot be altered even if you change your operating system or you use the module in another computer.

Figure 2 - 3
DVD Region Codes

Card Reader Cover

Make sure you keep the rubber cover provided in the card reader when not in use. This will help prevent foreign objects and/or dust getting in to the card reader.

Multi-In-1 Card Reader

The card reader allows you to use some of the latest digital storage cards. Push the card into the slot and it will appear as a removable device, and can be accessed in the same way as your hard disk (s). Make sure you install the card reader driver (see *"CardReader" on page 4 - 6*.

- MMC (MultiMedia Card) / RS MMC
- SD (Secure Digital) / Mini SD / SDHC / SDXC
- MS (Memory Stick) / MS Pro / MS Duo

Note: Some of these cards require PC adapters that are usually supplied with the cards.

Figure 2 - 4
Front View

1. Card Reader

TouchPad and Buttons/Mouse

The TouchPad is an alternative to the mouse; however, you can also add a mouse to your computer through one of the USB ports. The TouchPad buttons function in much the same way as a two-button mouse.

Mouse Driver

If you are using an external mouse your operating system may be able to auto-configure your mouse during its installation or only enable its basic functions. Be sure to check the device's user documentation for details.

TouchPad Scrolling

This computer model series may feature different TouchPad versions.

These TouchPads may differ in their vertical scrolling function in most scrollable windows.

Some TouchPads require sliding the finger up and down on the right of the TouchPad to scroll the window. Other versions require tapping/holding down the finger at the top right or bottom right of the TouchPad to scroll the window.

Once you have installed the TouchPad driver (see ***"Touchpad" on page 4 - 6***) you can configure the functions from the Mouse control panel in ***Windows***, or by double-clicking the TouchPad driver icon in the notification area. You may then configure the TouchPad tapping, buttons, scrolling, pointer motion and sensitivity options to your preferences. You will find further information at www.synaptics.com.

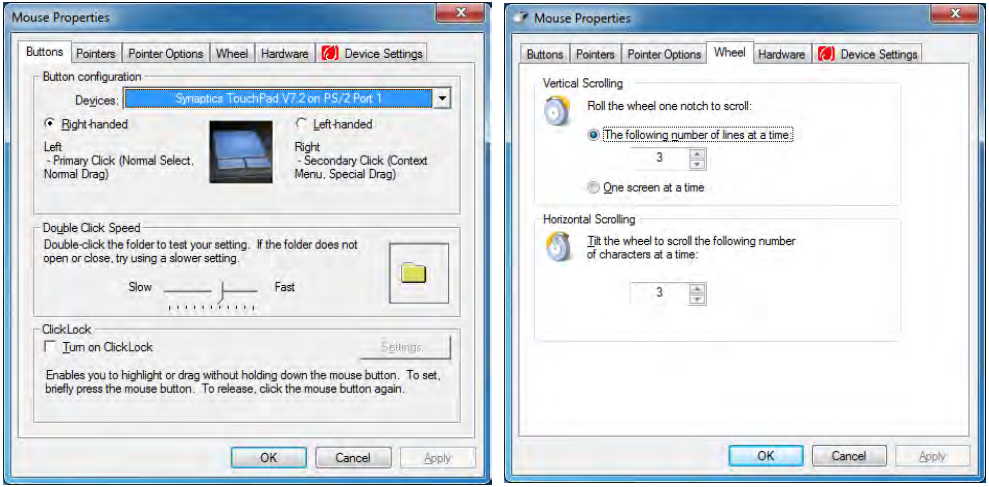


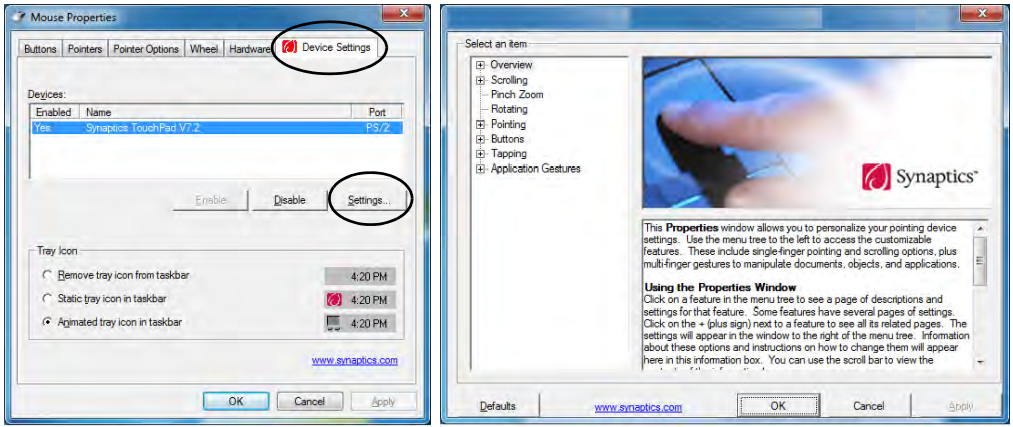
Figure 2 - 5
Mouse Properties

Gestures and Device Settings

The Synaptics Gestures Suite application allows you to use a specific gesture (action) on the surface of the TouchPad to perform specific actions to manipulate documents, objects and applications.

You can configure the settings from the Device Settings tab in **Mouse Properties**:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Mouse** (**Hardware and Sound**).
3. Click **Device Settings** (tab) and click **Settings**.
4. Use the menu tree on the left to access the user configurable settings.



Show Video

You can get a clearer view of the gestures involved by clicking the **Show Video** option for each gesture item.

Select the gesture (**Pinch Zoom, Rotating, Three Fingers Down and Three Finger Flick**) in the **Device Settings > Settings** left tree menu and click the **Show Video** button to see the demonstration video.

For more details on any of the gestures see the **help** in the lower part of the right menu window.

Figure 2 - 6
Mouse Properties - Device Settings

Scrolling

The Two-Finger scrolling feature works in most scrollable windows and allows you to scroll horizontally and vertically. Place two fingers, slightly separated, on the TouchPad surface and slide both fingers in the direction required (in a straight continuous motion).

Figure 2 - 7
Scrolling Gesture

Zooming

The Pinch Zoom gesture can be used to perform the same function as a scroll wheel in ***Windows*** applications that support CTRL + scroll wheel zoom functionality. Place two fingers on the TouchPad (for best results use the tips of the fingers) and slide them apart to zoom in, or closer together to zoom out.

Figure 2 - 8
Zooming Gesture

Rotating

Use the Pivot Rotate gesture to rotate objects (e.g. photos) in 90 degree increments. Place a finger down on the left “target” zone and keep it stationary. Place another finger near the middle of the TouchPad and slide it in a circular motion around the stationary finger (clockwise or counterclockwise) to rotate the object.

Figure 2 - 9
Rotating Gesture

Three Finger-Flick/Three Fingers Down (Press)

The Three Finger-Flick gesture may be used to enhance navigation with a variety of applications such as browsing the Internet or scrolling through a photo viewer. The Three Fingers Down gesture may be used to launch user-selectable applications.

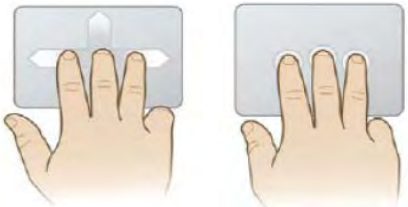
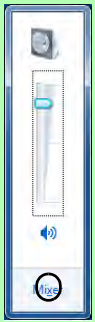


Figure 2 - 10
Flick/Press Gesture

Sound Volume Adjustment

The sound volume level is set using the volume control within ***Windows*** (and the volume function keys on the computer). Click the volume icon in the taskbar to check the setting.



Audio Features

You can configure the audio options on your computer from the **Sound** control panel in ***Windows***, from the **HD VDeck** icon on the desktop or **VIA HD Audio Deck** control panel VIA HD Audio Deck .

The volume may also be adjusted by means of the **Fn** + **F5/F6** key combination.

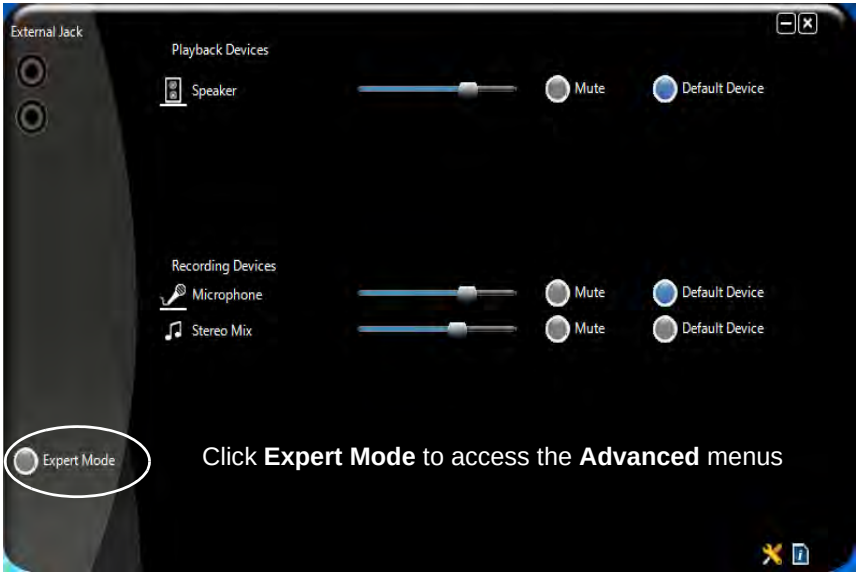
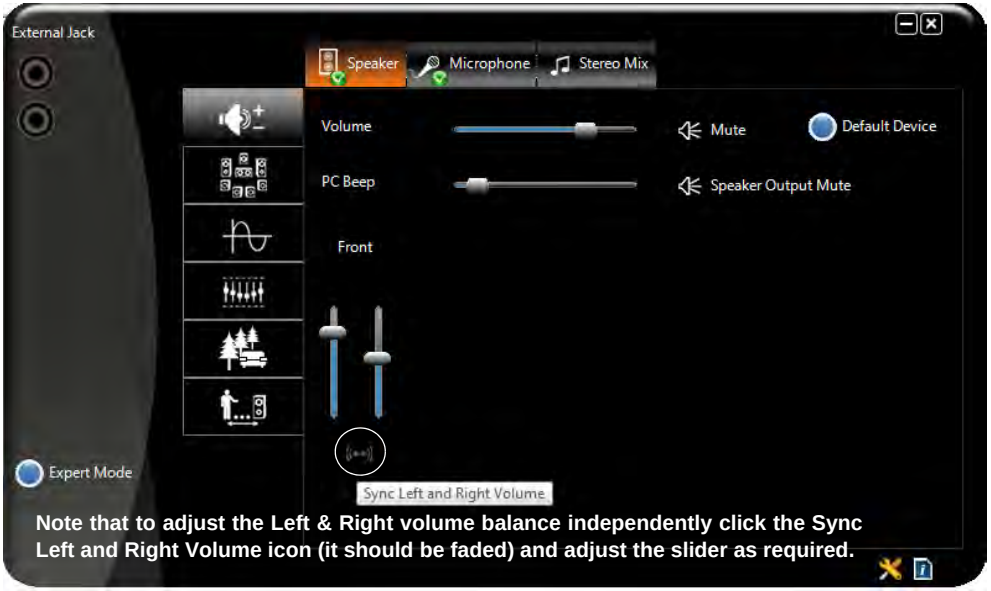


Figure 2 - 11
VIA HD Audio Deck

Expert Mode will allow you to access more advanced configuration menus for **Speaker**, **Microphone** and **Stereo Mix**.



Syncing Left & Right Volume Balance

If you wish to adjust the left and right channel volume levels separately, you will need to adjust this from the **VIA HD Audio Deck in Expert Mode.**

Click **Speaker** in **VIA HD Audio Deck** (in Expert Mode) and click the **Sync Left and Right volume** button (see left). You can then adjust the volume sliders independently (this setting also controls the **Balance** setting in the Windows **Sound** control panel).

Figure 2 - 12
VIA HD Audio Deck (Expert Mode)

Chapter 3: Power Management

Overview

To conserve power, especially when using the battery, your computer power management conserves power by controlling individual components of the computer (the LCD and hard disk drive) or the whole system. This chapter covers:

- The Power Sources
- Turning On the Computer
- Power Plans
- Power-Saving States
- Configuring the Power Buttons
- Power Conservation Modes
- Battery Information

The computer uses enhanced power saving techniques to give the operating system (OS) direct control over the power and thermal states of devices and processors. For example, this enables the OS to set devices into low-power states based on user settings and information from applications.

OS Note

Power management functions will vary slightly depending on your operating system. For more information it is best to refer to the user's manual of your operating system.

(**Note**: All pictures used on the following pages are from the ***Windows 7*** OS.)

The Power Sources

The computer can be powered by either an AC/DC adapter or a battery pack.

AC/DC Adapter

Use only the AC/DC adapter that comes with your computer. The wrong type of AC/DC adapter will damage the computer and its components.

1. Attach the AC/DC adapter to the DC-in jack on the left of the computer.
2. Plug the AC power cord into an outlet, and then connect the AC power cord to the AC/DC adapter.
3. Raise the lid/LCD to a comfortable viewing angle.
4. Press the power button to turn “On”.

Battery

The battery allows you to use your computer while you are on the road or when an electrical outlet is unavailable. Battery life varies depending on the applications and the configuration you're using. **To increase battery life, let the battery discharge completely before recharging** (see ***“How do I completely discharge the battery?” on page 3 - 15***).

We recommend that you do not remove the battery. For more information on the battery, please refer to ***“Battery Information” on page 3 - 11***.

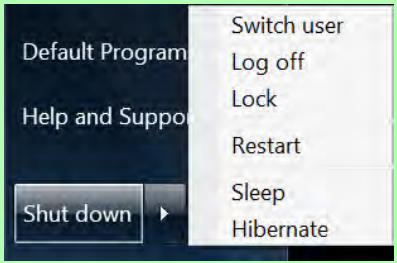
Turning On the Computer

Now you are ready to begin using your computer. To turn it on simply press the power button on the front panel.

When the computer is on, you can use the power button as a Stand by/Hibernate/Shutdown hot-key button when it is pressed for less than **4 seconds** (pressing and holding the power button for longer than this will shut the computer down). Use **Power Options** in the ***Windows*** control panel to configure this feature.

Shut Down

Note that you should always shut your computer down by choosing the **Shut Down** command from the bottom right of the **Start** menu in ***Windows***. This will help prevent hard disk or system problems.



Forced Off

If the system "hangs", and the **Ctrl + Alt + Del** key combination doesn't work, press the power button for **4 seconds**, or longer, to force the system to turn itself off.

Power Button as Stand by or Hibernate Button

You can use the OS's **Power Options** control panel to set the power button to send the system into Stand by or Hibernate mode (see your OS's documentation, or ***"Configuring the Power Buttons" on page 3 - 8*** for details).

Resuming Operation

See *Table 3 - 1, on page 3 - 9* for information on how to resume from a power-saving state.

Password

It is recommended that you enable a password on system resume in order to protect your data.

Power Plans

The computer can be configured to conserve power by means of **power plans**. You can use (or modify) an existing **power plan**, or create a new one.

The settings may be adjusted to set the **display** to turn off after a specified time, and to send the computer into **Sleep** after a period of inactivity.

Click ***Change plan settings*** and then click ***Change advanced power settings*** to access further configuration options in **Advanced Settings**.

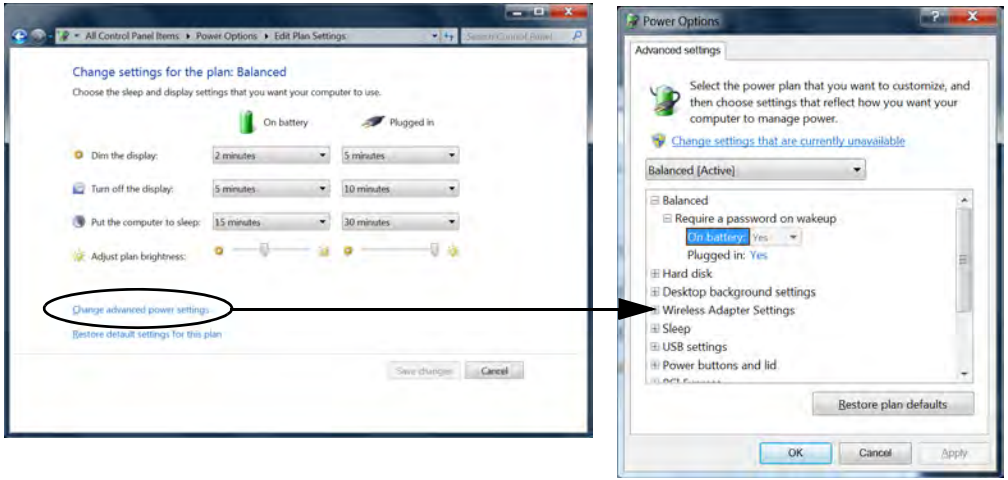


Figure 3 - 1
Power Plan Advanced Settings (Win 7)

Each ***Windows* power plan** will also adjust the processor performance of your machine in order to save power. This is worth bearing in mind if you are experiencing any reduced performance (especially under DC/battery power).

Choose **High performance** (you may need to click **Show additional plans** to view the High performance plan) for maximum performance when the computer is powered from an AC power source. Choose the **Power saver** (bear in mind that this scheme may slow down the overall performance of the computer in order to save power) for maximum power saving when the computer is battery (DC power) powered. The recommended **Balanced** power plan will balance power saving and performance.

Click to Show/Hide additional power plans

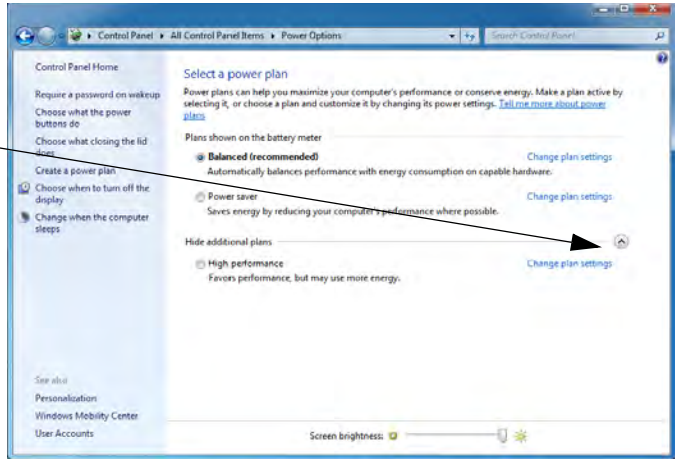


Figure 3 - 2
Power Plans

Power-Saving States

You can use power-saving states to stop the computer's operation and restart where you left off. ***Win 7*** uses the **Sleep, Hibernate** and **Shut Down** power-saving states.

Sleep

In **Sleep** all of your work, settings and preferences are saved to memory before the system sleeps. When you are not using your computer for a certain length of time, which you specify in the operating system, it will enter **Sleep** to save power.

The PC wakes from **Sleep within seconds** and will return you to where you last left off (what was on your desktop) without reopening the application(s) and file(s) you last used.

If your mobile PC in **Sleep** is running on battery power the system will use only a minimum amount of power. After an extended period the system will save all the information to the hard disk and shut the computer down before the battery becomes depleted.

Hibernate

Hibernate uses the least amount of power of all the power-saving states and saves all of your information on a part of the hard disk before it turns the system off. If a power failure occurs the system can restore your work from the hard disk; if a power failure occurs when work is saved only to memory, then the work will be lost. **Hibernate** will also return you to where you last left off within seconds. You should put your mobile PC into **Hibernate** if you will not use the computer for a period of time, and will not have the chance to charge the battery.

Shut down

You should **Shut down** the computer if you plan to install new hardware (don't forget to remove the battery and follow all the safety instructions in **Chapter 6**), plan to be away from the computer for several days, or you do not need it to wake up and run a scheduled task. Returning to full operation from **Shut down** takes longer than from **Sleep** or **Hibernate**.

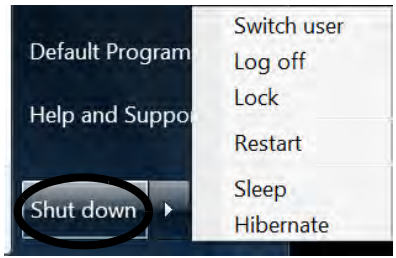


Figure 3 - 3
Lock Button menu

Password Protection

It is recommended that you enable a password on wake up in order to protect your data.

However you can disable this setting from the **Power Options** menu by clicking ***Require a password on wakeup*** in the left menu, and selecting the options (click ***Change settings that are currently unavailable***).

Configuring the Power Buttons

The power/sleep button (**Fn + F4** key combo) and closed lid may be set to send the computer in to a power-saving state. Click **Choose what the power buttons do** on the left menu in **Power Options** to bring up the menu.

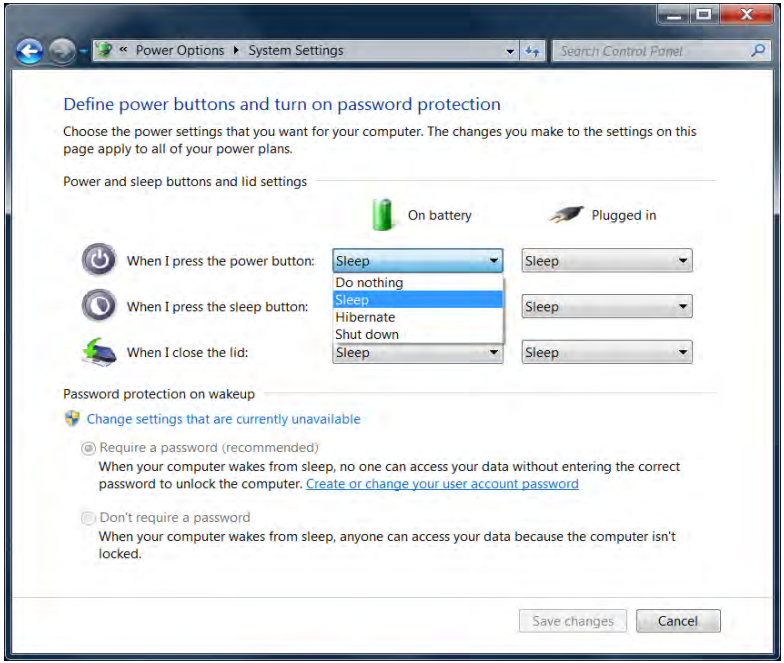


Figure 3 - 4
Power Options Define Power Buttons

Resuming Operation

You can resume operation from power-saving states by pressing the power button, or in some cases pressing the sleep button (**Fn + F4** key combo).

Power Status	Icon Color	To Resume
Power Off	Off	Press the Power Button
Sleep	Blinking Green	Press the Power Button Press the Sleep Button (Fn + F4 Key Combo)
Hibernate	Off (battery) Orange (AC/DC adapter)	Press the Power Button
Display Turned Off	Green	Press a Key or Move the Mouse/Touchpad

Power Button

When the computer is on, you can use the power button as a Sleep/Hibernate/Shut Down hot key button when it is pressed for less than **4 seconds** (pressing and holding the power button for longer than this will force the computer to shut down).

Closing the Lid

If you have chosen to send the computer to **Sleep** when the lid is closed, raising the lid will wake the system up.

Table 3 - 1 **Resuming Operation**

Power Conservation Modes

The **Energy Star** setting will result in maximum power saving, but with the possible loss of some performance.

Setting the mode to **Balance** will give power saving matched with performance.

Performance will give optimum computer performance but with less power conservation.

Power Conservation Modes

This system supports **Energy Star** power management features that place computers (CPU, hard drive, etc.) into a low-power sleep modes after a designated period of inactivity. Adjust **Power Conservation Modes** from the **Control Center**:

1. Press the **Fn + Esc** key combination to toggle the **Control Center** on/off.
2. Click either the **Performance**, **Balanced** or **Energy Star** button.
3. Click in a blank area of the icon or press a key on the keyboard to exit **Power Conservation Mode** without making any changes.

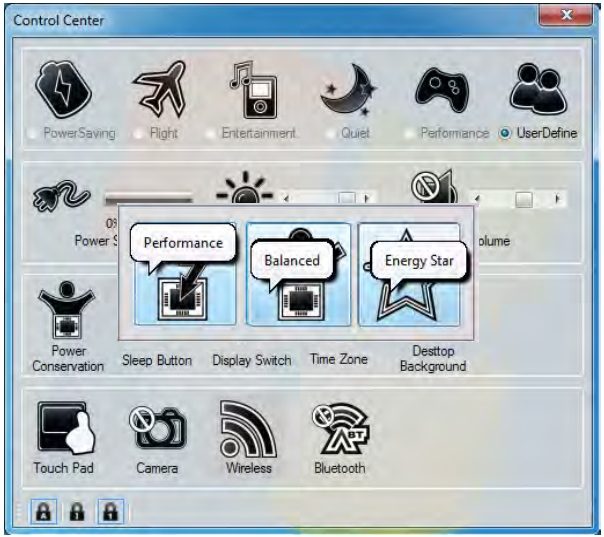


Figure 3 - 5
Control Center

Battery Information

Follow these simple guidelines to get the best use out of your battery.

Battery Power

Your computer's battery power is dependent upon many factors, including the programs you are running, and peripheral devices attached. You can set actions to be taken (e.g. Shut down, Hibernate etc.), and set critical and low battery levels from power plan **Change plan settings > Change advanced power settings** (see *Figure 3 - 1 on page 3 - 4*).

Click the battery icon in the taskbar to see the current battery level and charge status.

Low Battery Warning

When the battery is critically low, immediately connect the AC/DC adapter to the computer or save your work, otherwise, the unsaved data will be lost when the power is depleted.

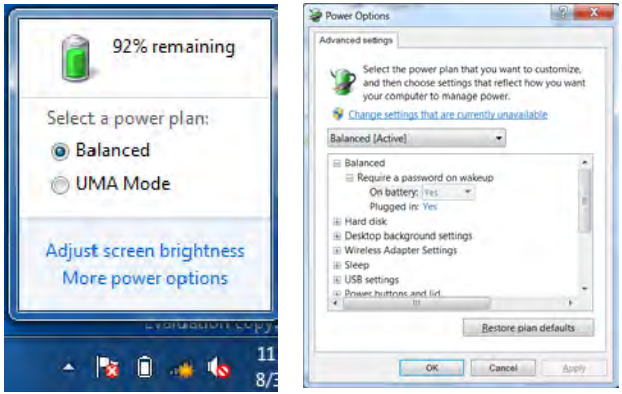


Figure 3 - 6
Battery Icon (Taskbar) & Battery Advanced Settings

Windows Mobility Center

The **Windows Mobility Center** control panel provides an easy point of access for information on battery status, power plans used and wireless device status etc.

Conserving Battery Power

- Use a **power plan** that conserves power (e.g **Power saver**), however note that this may have an affect on computer performance.
- Lower the brightness level of the LCD display. The system will decrease LCD brightness slightly to save power when it is not powered by the AC/DC adapter.
- Reduce the amount of time before the display is turned off.
- Close wireless, Bluetooth, modem or communication applications when they are not being used.
- Disconnect/remove any unnecessary external devices e.g. USB devices, ExpressCards etc.

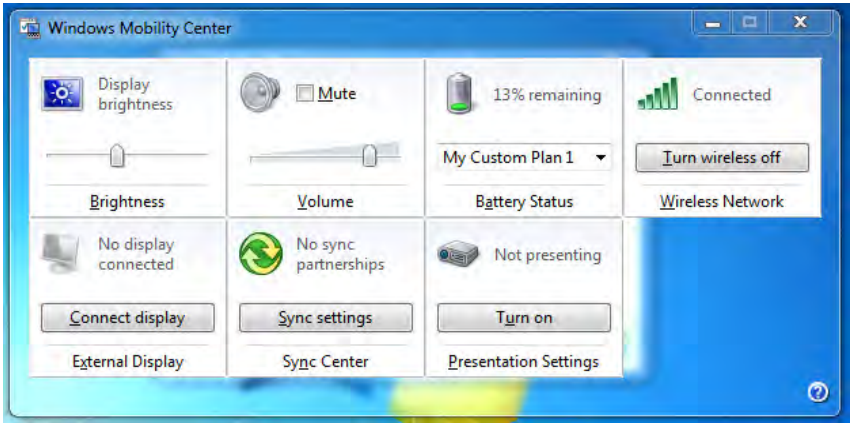


Figure 3 - 7
Windows Mobility Center

Battery Life

Battery life may be shortened through improper maintenance. **To optimize the life and improve its performance, fully discharge and recharge the battery at least once every 30 days**.

We recommend that you do not remove the battery yourself. If you do need to remove the battery for any reason (e.g. long term storage) see ***"Removing the Battery" on page 6 - 3***.

New Battery

Always completely discharge, then fully charge, a new battery (see ***"Battery FAQ" on page 3 - 15*** for instructions on how to do this).

Recharging the Battery with the AC/DC Adapter

The battery pack automatically recharges when the AC/DC adapter is attached and plugged into an electrical outlet. If the computer is powered on, and in use, it will take several hours to fully recharge the battery. When the computer is turned off but plugged into an electrical outlet, battery charge time is less. (Refer to ***"LED Indicators" on page 1 - 8*** for information on the battery charge status, and to ***"Battery Information" on page 3 - 11*** for more information on how to maintain and properly recharge the battery pack.)

Caution

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Proper handling of the Battery Pack

- DO NOT disassemble the battery pack under any circumstances
- DO NOT expose the battery to fire or high temperatures, it may explode
- DO NOT connect the metal terminals (+, -) to each other

Damaged Battery Warning

Should you notice any physical defects (e.g. the battery is bent out of shape after being dropped), or any unusual smells emanating from the notebook battery, shut your computer down immediately and contact your distributor/supplier. If the battery has been dropped we do not recommend using it any further, as even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire. It is recommended that you replace your computer battery every two years.

Battery FAQ

How do I completely discharge the battery?

Use the computer with battery power until it shuts down due to a low battery. Don't turn off the computer even if a message indicates the battery is critically low, just let the computer use up all of the battery power and shut down on its own.

1. Save and close all files and applications.
2. **Create** a **power plan** for discharging the battery and set all the options to **Never**.

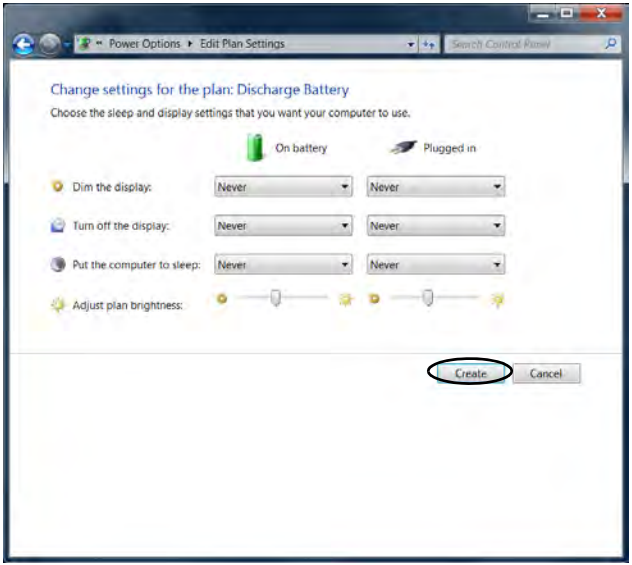
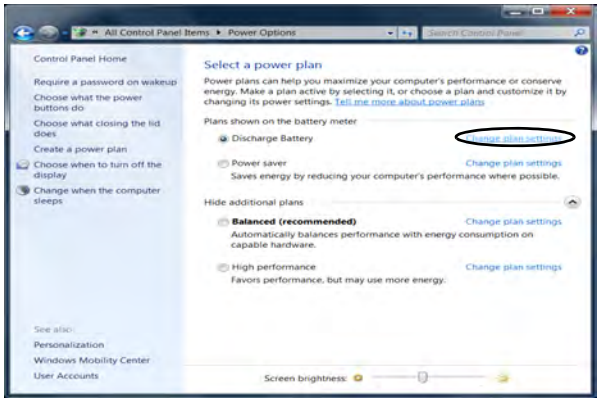


Figure 3 - 8
Power Plan Create

3. Click ***Change plan settings*** (after creating it) and click ***Change plan settings > Change advanced power settings***.



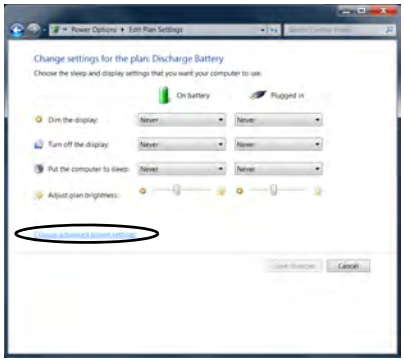


Figure 3 - 9
Change Plan Settings / Change Advanced Power Settings

4. Scroll down to **Battery** and click **+** to expand the battery options.
5. Choose the options below (click **Yes** if a warning appears):

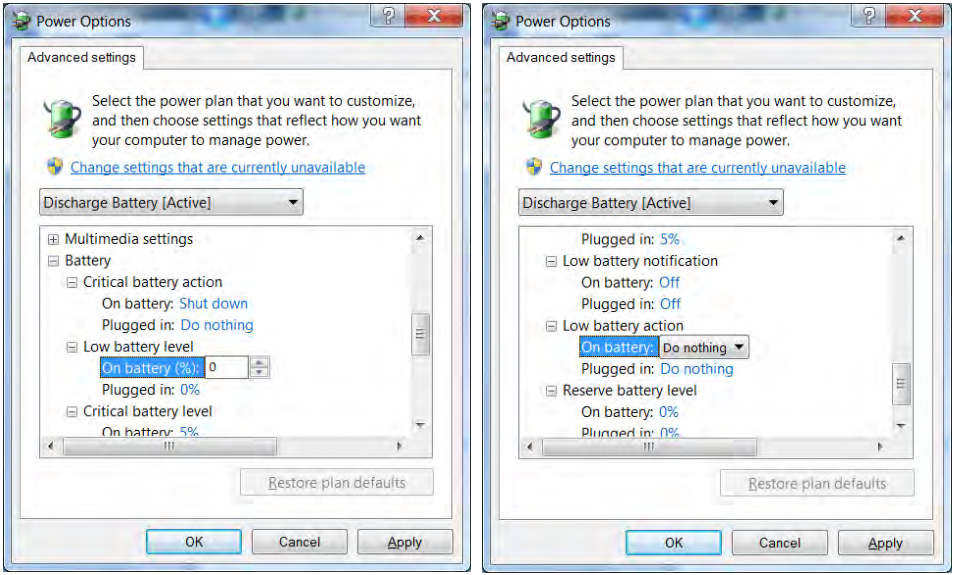


Figure 3 - 10
Power Options Advanced Settings - Battery

- Low battery levels = 0%
- Critical battery Levels = 1%
- Low battery action = Do Nothing
- Critical battery action (On battery) = Shut Down
- Critical battery action (Plugged in) = Do Nothing

How do I fully charge the battery?
When charging the battery, don't stop until the LED charging indicator light changes from orange to green.

How do I maintain the battery?
Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges.

Chapter 4: Drivers & Utilities

This chapter deals with installing the drivers and utilities essential to the operation or improvement of some of the computer's subsystems. The system takes advantage of some newer hardware components for which the latest versions of most available operating systems haven't built in drivers and utilities. Thus, some of the system components won't be auto-configured with an appropriate driver or utility during operating system installation. Instead, you need to manually install some system-required drivers and utilities.

See *Appendix E* for specific information on the **Windows 8** operating system.

Driver Installation & Power

When installing drivers make sure your computer is powered by the AC/DC adapter connected to a working power source. Some drivers draw a significant amount of power during the installation procedure, and if the remaining battery capacity is not adequate this may cause the system to shut down and cause system problems (note that there is no safety issue involved here, and the battery will be rechargeable within 1 minute).

What to Install

The ***Device Drivers & Utilities + User's Manual*** disc contains the drivers and utilities necessary for the proper operation of the computer. *Table 4 - 1, on page 4 - 3* lists what you need to install and **it is very important that the drivers are installed in the order indicated**.

Module Driver Installation

The procedures for installing drivers for the **PC Camera**, **Wireless LAN**, **Bluetooth & WLAN Combo** and **3G** modules are provided in *"Modules & Options" on page 7 - 1*.

Driver Installation

Insert the *Device Drivers & Utilities + User's Manual* disc and click ***Install Drivers*** (button), or ***Option Drivers*** (button) to access the **Optional** driver menu.

Figure 4 - 1 **- Drivers Installer Screen 1**

1. Check the driver installation order from ***Table 4 - 1, on page 4 - 3*** (**the drivers must be installed in this order**) which is the same as that listed in the ***Drivers Installer*** menu below.
2. Click to select the driver you wish to install, (you should note down the drivers as you install them).
3. Follow the instructions for each individual driver installation procedure as listed on the following pages.

Figure 4 - 2 **- Install Drivers**

Win 7 SP1/Win 8 Driver	Page #	Win 7 SP1/Win 8 Driver	Page #
Chipset	*Page 4 - 6*	*PC Camera Module*	*Page 7 - 3*
Video (VGA)	*Page 4 - 6*	*Wireless LAN Module*	*Page 7 - 11*
LAN	*Page 4 - 6*	*Intel® Wireless Display Application*	*Page 7 - 32*
CardReader	*Page 4 - 6*	*Bluetooth & WLAN Combo Module*	*Page 7 - 37*
Touchpad	*Page 4 - 6*	*3G Module* (Application not required for ***Windows 8***)	*Page 7 - 44*
Hot Key	*Page 4 - 7*	*Trusted Platform Module*	*Page 7 - 69*
USB 3.0 (Win 7 Only) (Driver not required for ***Windows 8***)	*Page 4 - 7*	*Intel® Rapid Storage Technology* (required for hard disks in AHCI mode)	*Page 7 - 83*
MEI Driver	*Page 4 - 7*	*Intel® Rapid Start Technology Driver*	*Page 7 - 88*
Audio	*Page 4 - 7*	*Intel® Smart Connect Technology*	*Page 7 - 96*

Table 4 - 1 **- Driver Installation**

All drivers provided are for Windows 7 with Service Pack 1 or Windows 8 (see Appendix E for Win 8 information).

Note that you need to install both the WLAN & Bluetooth drivers for Intel and 3rd party WLAN & Bluetooth Combo modules.

Manual Driver Installation

Click ***Browse CD/DVD*** (button) in the *Drivers Installer* application and browse to the executable file in the appropriate driver folder.

Windows Update

After installing all the drivers make sure you enable **Windows Update** in order to get all the latest security updates etc. (all updates will include the latest **hotfixes** from Microsoft). See ***"Windows Update" on page 4 - 8*** for instructions.

Updating/Reinstalling Individual Drivers

If you wish to update/reinstall individual drivers it may be necessary to uninstall the original driver.To do this go to the **Control Panel** in the ***Windows OS*** and double-click the **Programs and Features** icon (**Programs > Uninstall a program**). Click to select the driver (if it is not listed see below) and click **Uninstall**, and then follow the on screen prompts (it may be necessary to restart the computer). Reinstall the driver as outlined in this chapter.

If the driver is not listed in the **Programs and Features** menu:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Double-click **Device Manager** (**Hardware and Sound > Device Manager**).
3. Double-click the **device** you wish to update/reinstall the driver for (you may need to click "+" to expand the selection).
4. Click **Driver** (tab) and click the **Update Driver** or **Uninstall** button and follow the on screen prompts.

User Account Control

If a **User Account Control** prompt appears as part of the driver installation procedure, click **Continue** or **Allow**, and follow the installation procedure as directed.

Windows Security Message

If you receive a ***Windows*** security message as part of the driver installation process. Just click ***"Install this driver software anyway"*** or ***"Install"*** to continue the installation procedure.

You will receive this message in cases where the driver has been released after the version of ***Windows*** you are currently using. All the drivers provided will have already received certification for ***Windows***.

New Hardware Found

If you see the message "**New Hardware Found**" during the installation procedure (**other than when outlined in the driver install procedure**), click **Cancel** to close the window, and follow the installation procedure.

Driver Installation General Guidelines

The driver installation procedure outlined in this Chapter (and in **Chapter 7 Options & Modules**), are accurate at the time of going to press.

Drivers are always subject to upgrade and revision so the exact procedure for certain drivers may differ slightly. As a general guide follow the default on screen instructions for each driver (e.g. **Next > Next > Finish**) unless you are an advanced user. In many cases a restart is required to install the driver.

Make sure any modules (e.g. PC Camera, WLAN or 3G) are **ON** before installing the appropriate driver.

Driver Installation Procedure

Insert the *Device Drivers & Utilities + User's Manual disc* and click ***Install Drivers*** (button).

Chipset

1. Click **1.Install Chipset Driver > Yes**.
2. Click **Next > Yes > Next > Next**.
3. Click **Finish** to restart the computer.

Video (VGA)

1. Click **2.Install VGA Driver > Yes**.
2. Click **Next > Yes > Next > Next**.
3. Click **Finish** to restart the computer.

Note: After installing the video driver go to the **Display/Display Settings** control panel to adjust the video settings to the highest resolution.

LAN

1. Click **3.Install LAN Driver > Yes**.
2. Click **Next > Install**.
3. Click **Finish**.

CardReader

1. Click **4.Install Cardreader Driver > Yes**.
2. Click **Finish**.

Touchpad

1. Click **5.Install Touchpad Driver > Yes**.
2. Click **Next**.
3. Click the button to accept the license agreement and click **Next**.
4. Click **Finish > Restart Now** to restart the computer.

Hot Key

1. Click **6.Install Hotkey AP > Yes**.
2. Click **Next > Next**.
3. Click **Finish > Finish** to restart the computer.

USB 3.0 (Win 7 Only)

1. Click **7.Install USB 3.0 Driver > Yes**.
2. Click **Next > Yes > Next > Next**.
3. Click **Finish** to restart the computer.

MEI Driver

1. Click **8.Install MEI Driver > Yes**.
2. Click **Next > Yes > Next**.
3. Click **Finish**.

Audio

1. Click **9.Install Audio Driver > Yes**.
2. Click **Next**.
3. Click the button to agree to the license and click **Next**.
4. Click **Next > Next > Next**.
5. Click **Finish** to restart the computer.

Note that after installing the audio driver the system will not return to the ***Drivers Installer*** screen. To install any of the optional drivers listed overleaf, eject the *Device Drivers & Utilities + User's Manual* disc and then reinsert it (or double-click the disc icon in **My Computer**), and click ***Option Drivers*** (button) to access the optional driver menu.

It is recommended you now also install the **Intel Rapid Storage Technology** driver (see ***"IRST Driver Installation" on page 7 - 83*** - required for AHCI mode hard disks).

(see over)

Windows Update

After installing all the drivers make sure you enable **Windows Update** in order to get all the latest security updates etc. (all updates will include the latest **hotfixes** from Microsoft).

To enable **Windows Update make sure you are connected to the internet**:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Windows Update** (System and Security/ Security).
3. Click **Check for updates** (button).
4. The computer will now check for updates (you need to be connected to the internet).
5. Click **Install now** (button) to begin checking for the updates.
6. Click **Install updates** (button) to install the updates.

Windows Experience Index

After the drivers are installed follow this procedure to ensure an accurate rating from the ***Windows Experience Index*** (make sure the AC/DC adapter is plugged in):

1. Click **Start**, and click **Control Panel**.
2. Click **Performance Information and Tools** (**System and Security > System > Check the Windows Experience Index**).
3. Click "**Rate this computer/Refresh Now/Re-run the assessment**".
4. The computer will take a few minutes to assess the system performance.
5. Close the control panel.

Optional Drivers

See the pages indicated in *Table 4 - 1, on page 4 - 3* for the driver installation procedures for any modules included in your purchase option.

Figure 4 - 3 **- Option Drivers**

Note that you need to install both the WLAN & Bluetooth drivers for Intel and 3rd party WLAN & Bluetooth Combo modules.

Chapter 5: BIOS Utilities

Overview

This chapter gives a brief introduction to the computer's built-in software:

If your computer has never been set up, or you are making important changes to the system (e.g. hard disk setup), then you should review this chapter first and note the original settings found in ***Setup***. Even if you are a beginner, keep a record of the settings you find and any changes you make. This information could be useful if your system ever needs servicing.

There is one general rule: *Don't make any changes unless you are sure of what you are doing*. Many of the settings are required by the system, and changing them could cause it to become unstable or worse. If you have any doubts, consult your service representative.

BIOS Screens

Note that the BIOS screens pictured on these pages are intended for guidance in setting up your system's BIOS.

BIOS versions are subject to constant change and revision, therefore your computer's actual screens may appear slightly different from those pictured on these pages.

BIOS Settings Warning

Incorrect settings can cause your system to malfunction. To correct mistakes, return to *Setup* and restore the ***Previous Values*** with **<F2>**, or **Optimized Defaults** with **<F3>**.

UEFI Boot & POST

When UEFI Boot is enabled, then the prompts to **press F2 or F7 will not appear**. However you can still press F2 to enter the setup, or F7 to choose the preferred boot device, if you press the key immediately the system boots up.

The Setup Utility

Each time you turn on the computer the system takes a few seconds to conduct a **POST**, including a quick test of the on-board RAM (memory).

As the **POST** proceeds, the computer will tell you if there is anything wrong. If there is a problem that prevents the system from booting, it will display a system summary and prompt you to run ***Setup***.

If there are no problems, the ***Setup*** prompt will disappear and the system will load the operating system. Once that starts, you can't get into ***Setup*** without rebooting.

The **Aptio Setup Utility** tells the system how to configure itself and manage basic features and subsystems (e.g. port configuration).

To enter ***Setup***, turn on the computer and press **F2** (give the system a few seconds to enter ***Setup***). If the **Boot Logo** is enabled the **F2** on screen will be **highlighted** to illustrate that the system is processing the request during the **POST** (or press **F7** for boot options). If you get a "Keyboard Error", (usually because you pressed **F2** too quickly) just press **F2** again.

If the computer is already on, reboot using the **Ctrl + Alt + Delete** combination and then hold down **F2** when prompted. The ***Setup*** main menu will appear.

To see the boot options press **F7** and choose your preferred boot device.

Failing the POST

Errors can be detected during the **POST**. There are two categories, “fatal” and “non-fatal”.

Fatal Errors

These stop the boot process and usually indicate there is something seriously wrong with your system. Take the computer to your service representative or authorized distributor/supplier as soon as possible.

Non-Fatal Errors

This kind of error still allows you to boot. You will get a message identifying the problem (make a note of this message!) and you can then press **F7** (the **F7** on screen will be **highlighted** to illustrate that the system is processing the request) for boot options.

Press **F2** (give the system a few seconds to enter ***Setup***; the **F2** on screen will be highlighted to illustrate that the system is processing the request) to run the **Setup** program and try to correct the problem. If you still get an error message after you change the setting, or if the “cure” seems even worse, call for help.

Setup Menus

The **Setup** menus shown in this section are for **reference** only. Your computer's menus will indicate the configuration appropriate for your model and options.

Setup Screens

The following pages contain additional advice on portions of the ***Setup***. Along the top of the screen is a menu bar with menu headings. When you select a heading, a new screen appears. Scroll through the features listed on each screen to make changes to ***Setup***.

Instructions on how to navigate each screen are in the box at the bottom right side of the screen.

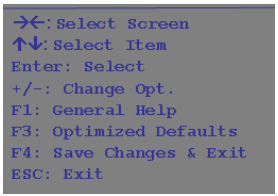


Figure 5 - 1
Navigation Menu

If these tools are confusing, press **F1** to call up a **General Help** screen, and then use the arrow keys to scroll up or down the page.

The **Item Specific Help** on the upper right side of each screen explains the highlighted item and has useful messages about its options.

If you see an arrow ▶ next to an item, press **Enter** to go to a sub-menu on that subject. The sub-menu screen that appears has a similar layout, but the **Enter** key may execute a command.

Main Menu

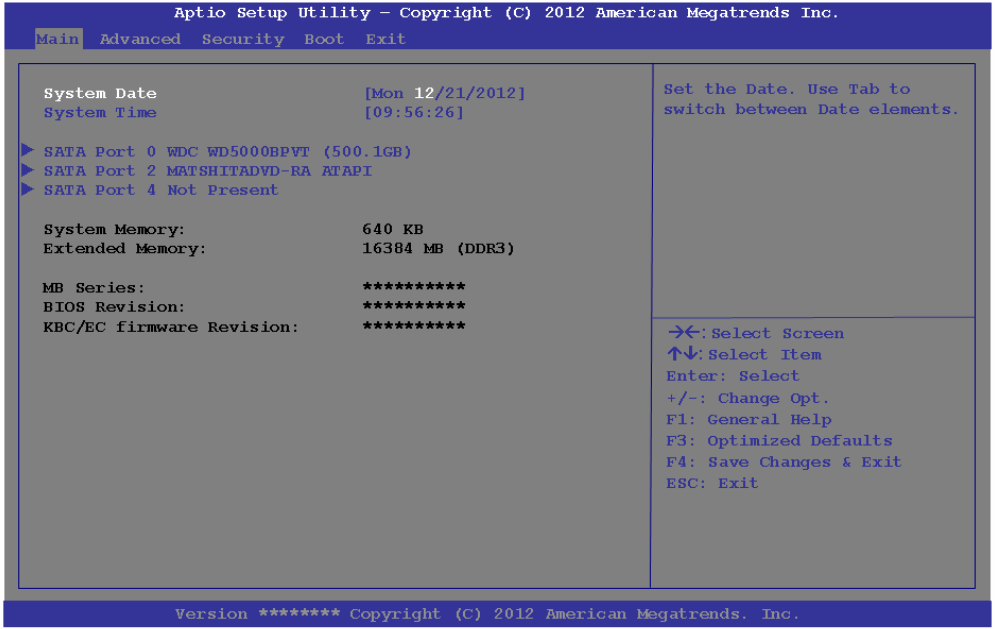


Figure 5 - 2
Main Menu

System Time & Date (Main Menu)

The hour setting uses the 24-hour system (i.e., ØØ = midnight; 13 = 1 pm). If you can change the date and time settings in your operating system, you will also change these settings. Some applications may also alter data files to reflect these changes.

SATA Port # (Main Menu)
Pressing **Enter** opens the sub-menu to show the configuration of a optical Device/ HDD on the computer's SATA Ports.

System/Extended Memory: (Main Menu)
This item contains information on the system memory, and is not user configurable. The system will auto detect the amount of memory installed.

MB Series / BIOS Revision / KBC/EC firmware Revision
This item contains information on the BIOS version etc., and is not user configurable.

Advanced Menu

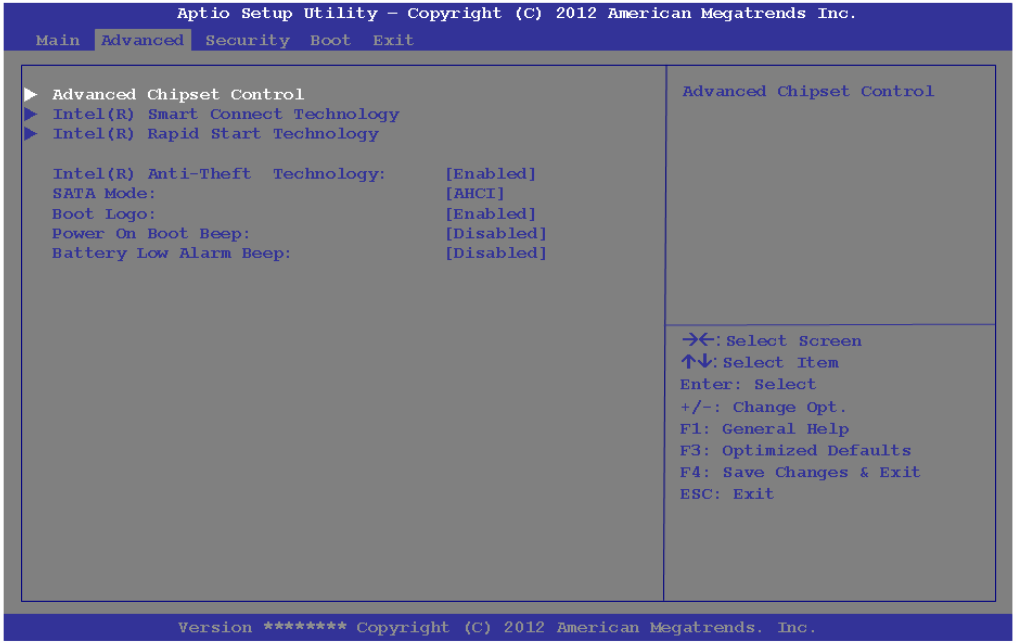


Figure 5 - 3
Advanced Menu

5

Advanced Chipset Control (Advanced Menu)
The sub-menu here allows you to adjust the **Bluetooth Power Setting**.

Bluetooth Power Setting (Advanced Menu > Advanced Chipset Control)
You can adjust the Bluetooth module power setting to your preference. The default setting (**Disabled**) will see the Bluetooth module powered off when the system is started up or restarted. Enabling the power setting will have the module retain the last power status (on or off) before any restart or shut down.

Intel Smart Connect Technology (Advanced Menu)
Smart Connect is a technology that makes checks on web applications that are open even when the computer is in sleep mode, and thus allows updates to be made without the need to turn the computer on. The sub-menus here allow you to enable/disable the technology (***ISCT Configuration***).

Intel(R) Rapid Start Technology (Advanced Menu)
Enable/disable **Intel(R) Rapid Start Technology** from this menu. The rapid start hibernation mode can resume power within 5 to 6 seconds and can remember your computer's state with zero power.

Intel Anti-Theft Technology (Advanced Menu)
Anti-Theft Technology, which is built-in to the processor of the computer, allows system administrators to render your computer useless to thieves by sending a poison pillencrypted SMS message over a 3G network etc. Administrators can also remotely unlock a recovered computer quickly, or direct the system to send location information (GPS coordinates) back to a central server.

SATA Mode (Advanced Menu)
You can configure SATA (Serial ATA) control to operate in **IDE** (native/compatible), **AHCI** (Advanced Host Controller Interface) or **RAID** (Redundant Array of Independent disks) modes from this menu (a RAID setup is used for **Intel® Smart Response Technology** configuration - see ***"Intel® Smart Response Technology" on page 7 - 84***. The **SATA Mode** should be set **BEFORE installing an operating system**, and after you have backed up all necessary files and data (see sidebar). Make sure you install the **Intel Rapid Storage Technology application** if you have set the SATA Mode to **RAID** or **AHCI** ***"IRST Driver Installation" on page 7 - 83***.

SATA Mode Selection

If you have installed the ***Windows 7*** operating system with either **IDE or AHCI** mode enabled, **DO NOT** disable the set mode (if you wish to disable the set mode you will need to reinstall the ***Windows 7*** OS).

Boot Logo (Advanced Menu)
Use this menu item to enable/disable the **Boot Logo** screen at system startup. If you disable the **Boot Logo** you will not see the **F2 Enter Setup** or **F7 Boot Options** prompts on the screen, however you can still press these keys, while the boot screen is displayed, to perform the Enter Setup or Boot Option functions.

Power On Boot Beep (Advanced Menu)
Use this menu item to enable/disable the beep as the computer starts up.

Battery Low Alarm Beep (Advanced Menu)
Use this menu item to enable/disable the battery low alarm beep.

Security Menu

The changes you make here affect the access to the **Setup** utility itself, and also access to your machine as it boots up after you turn it on. These settings do not affect your machine or network passwords which will be set in your software OS.

Security Menu

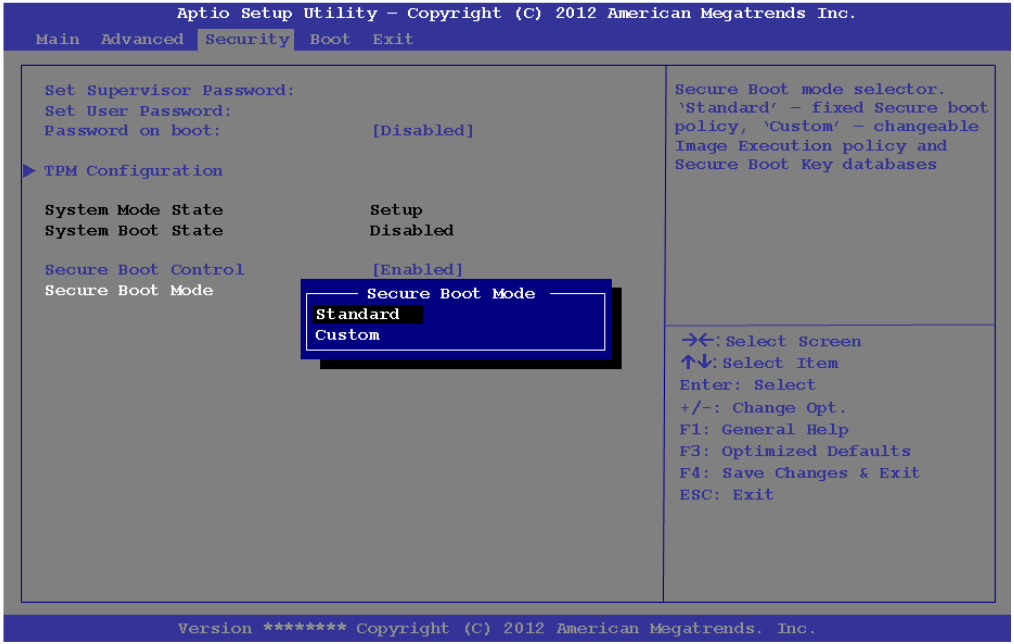


Figure 5 - 4
Security Menu

Set Supervisor Password (Security Menu)
You can set a password for access to the **Aptio Setup Utility**. This will not affect access to the computer OS (only the **Aptio Setup Utility**).

Note: To clear existing passwords press **Enter** and type the existing password, then press **Enter** for the new password (without typing any password entry) and **Enter** again to confirm the password clearance.

Set User Password (Security Menu)
You can set a password for user mode access to the **Aptio Setup Utility**. This will not affect access to the computer OS, (only the ***Setup*** utility) unless you choose to set a ***Password on Boot*** (see below). Many menu items in the **Aptio Setup Utility** cannot be modified in user mode.

Note: *You can only set the user password after you have set the supervisor password.*

Password on boot: (Security Menu)
Specify whether or not a password should be entered to boot the computer (**you may only set a password on boot if a supervisor password is enabled**). If "***Enabled***" is selected, only users who enter a correct password can boot the system (**see the warning in the sidebar**). The default setting is "***Disabled***".

Password Warning

If you set a boot password (Password on boot is "Enabled"), **NEVER** forget your password.

The consequences of this could be serious. If you cannot remember your boot password you must contact your vendor and you may lose all of the information on your hard disk.

Secure Boot Control (Security Menu)

Secure Boot prevents unauthorized operating systems and software from loading during the startup process. **Secure Boot Control** is available as a menu option if you have ***Windows 8*** set as your operating system, and have **enabled UEFI Boot** (see ***"Boot Menu" on page 5 - 16***). Enabling Secure Boot will bring up the **Secure Boot Mode** menu to enable you to configure Secure Boot as **Standard** (with a fixed secure boot policy), or **Custom** (which enables you to make changes to the **Image Execution Policy** and **Key Management** database).

TPM Configuration (Security Menu)

This sub-menu will allow you to enable/disable Trusted Platform Module (TPM) support, and to configure the TPM State. Select **TPM Configuration** and press Enter to access the sub-menu. Press Enter to access the **TPM Support** menu and select **Enable** to display the full TPM configuration menu (see ***"Trusted Platform Module" on page 7 - 69*** for details).

Figure 5 - 5
TPM Support

TPM State (Security Menu > TPM Support Enabled)

Select **TPM State**, press Enter and select **Enable** to change the TPM state to enabled. You will then need to press **F4** to save the changes and restart the computer.

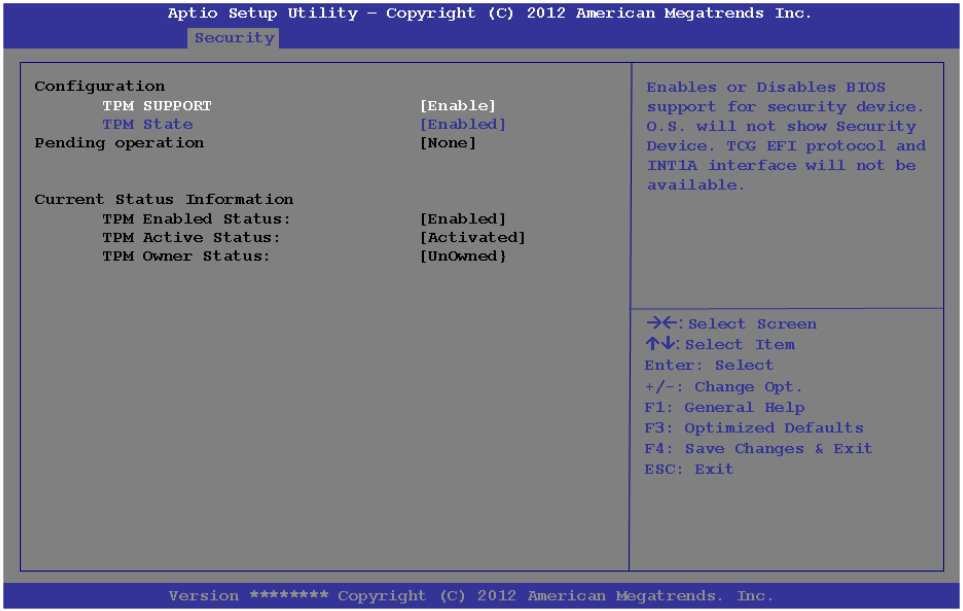


Figure 5 - 6
TPM State (Enabled)

As the computer restarts press **F2** to enter the BIOS again and go to the **TPM Configuration menu**.

Pending TPM operation (Security Menu > TPM Support & TPM State Enabled)
Select **Pending TPM operation**, press Enter and select the option you require (if you are initializing TPM you should select **Enable Take Ownership**). You will then need to press **F4** to save the changes and restart the computer. You can now install the TPM driver (see ***"Trusted Platform Module (TPM) Driver Installation" on page 7 - 72***) and then initialize the TPM.

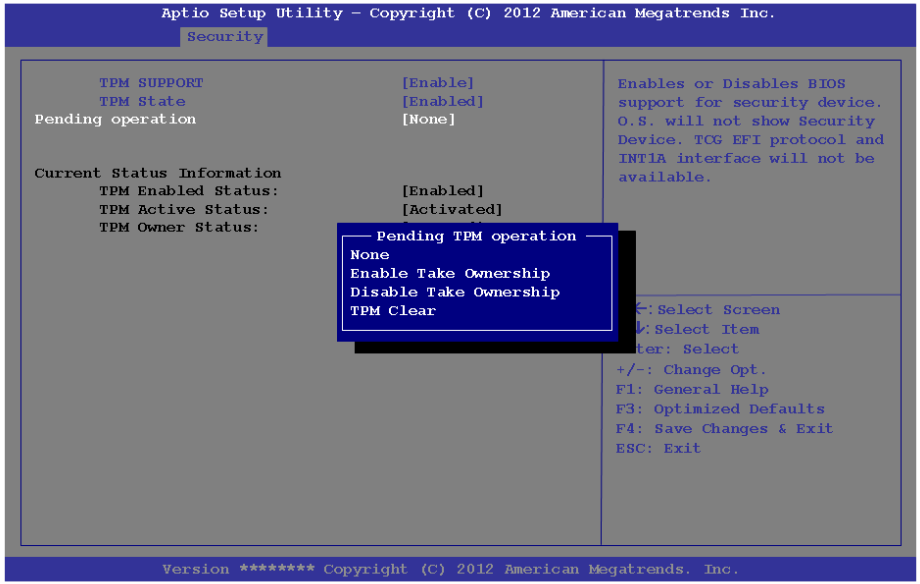
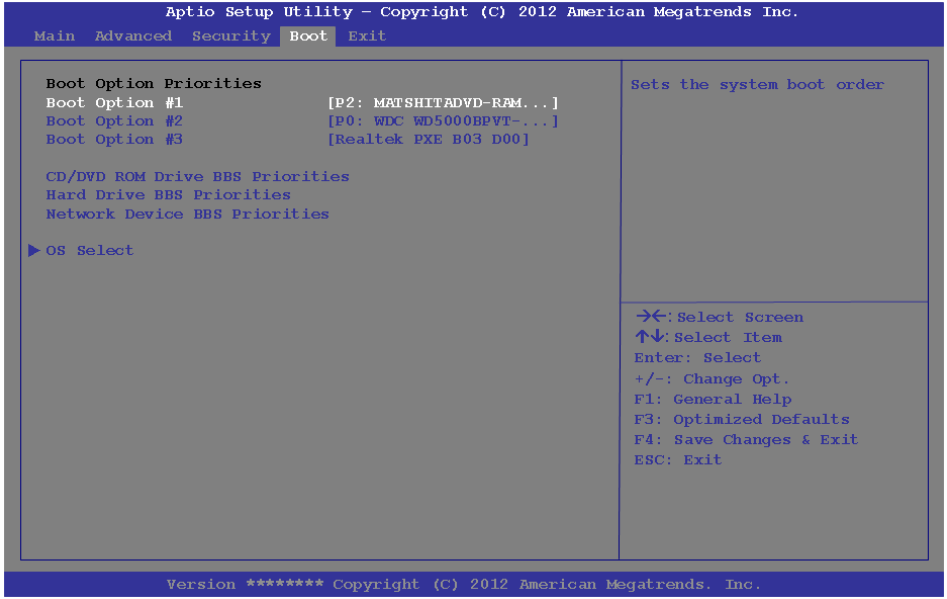


Figure 5 - 7
Pending TPM operation (Enable Take Ownership)

Boot Menu

Figure 5 - 8
Boot Menu



When you turn the computer on it will look for an operating system (e.g. ***Windows 7***) from the devices listed in this menu, and **in this priority order**. If it cannot find the operating system on that device, it will try to load it from the next device in the order specified in the **Boot Option Priorities**. Item specific help on the right is available to help you move devices up and down the order.

5

BIOS Screens

Note that the BIOS screens pictured on these pages are intended for guidance in setting up your system's BIOS.

BIOS versions are subject to constant change and revision, therefore your computer's actual screens may appear slightly different from those pictured on these pages.

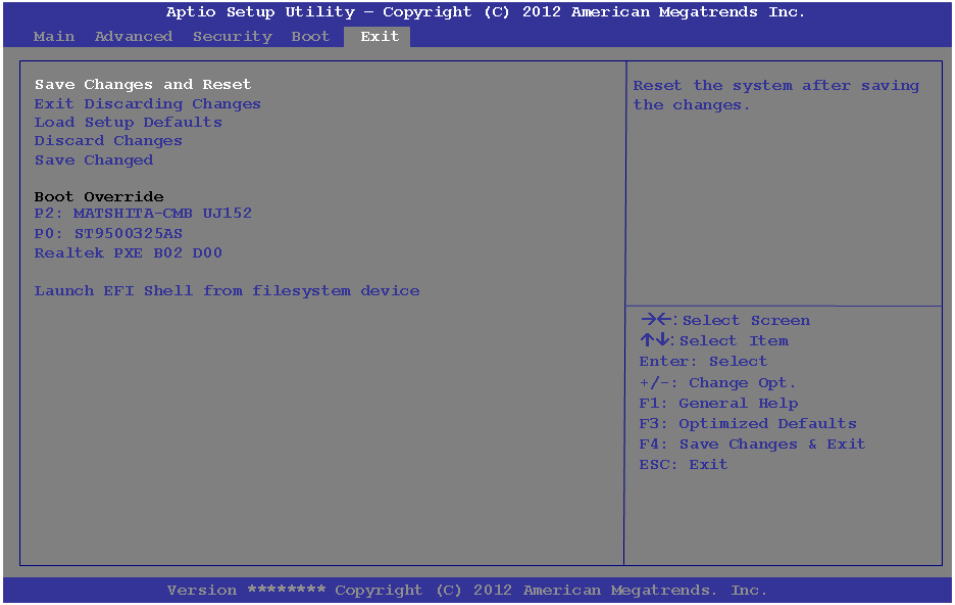
Boot Option Priorities (Boot Menu)
Use the arrow keys to move up and down the menu, and press Enter to select a device from the **Boot Option #** list. You can go to either **Network Device BBS Priorities**, **CD/DVD ROM Drive Priorities** or **Hard Drive BBS Priorities** and use the **+** and **- keys** to move the device's boot priority up and down the list (the selected device will be highlighted in white).

OS Select (Boot Menu)
This item tells allows you to set the operating system you intend to use. This item should be set before you install an operating system.

UEFI Boot (Boot Menu)
Enable/disable UEFI Boot from this menu. The Unified Extensible Firmware Interface (UEFI) specification provides a clean interface between operating systems and platform firmware at boot time. In contrast to BIOS, UEFI defines a set of standard boot and runtime services. The ***Network Stack*** item will be enabled as an option under UEFI Boot.

Exit Menu

Figure 5 - 9
Exit Menu



Click ***Save Changes and Reset*** to save all changes made. Choosing to ***Discard Changes***, or ***Exit Discarding Changes***, will wipe out any changes you have made to the ***Setup***. You can also choose to restore the original ***Setup*** defaults that will return the ***Setup*** to its original state, and erase any previous changes you have made in a previous session.

Chapter 6: Upgrading The Computer

Overview

This chapter contains information on upgrading the computer. Follow the steps outlined to make the desired upgrades. If you have any trouble or problems you can contact your service representative for further help. Before you begin you will need:

- A small crosshead or Phillips screwdriver
- A small regular slotted (flathead) screwdriver
- An antistatic wrist strap

Before working with the internal components you will need to wear an antistatic wrist strap to ground yourself because static electricity may damage the components.

The chapter includes:

- Removing the Battery
- Upgrading the Hard Disk Drive
- Upgrading the Optical (CD/DVD) Device
- Upgrading the System Memory (RAM)

Please make sure that you review each procedure before you perform it.

Warranty Warning

Please check with your service representative before undertaking any upgrade procedures to find out if this will VOID your warranty.

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

When Not to Upgrade

These procedures involve opening the system's case, adding and sometimes replacing parts.

You should **not** perform any of these upgrades if:

- Your system is still under warranty or a service contract
- You don't have all the necessary equipment
- You're not in the correct environment
- You doubt your abilities

Under any of these conditions, contact your service representative to purchase or replace the component(s).

Removal Warning

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before turning the computer on.

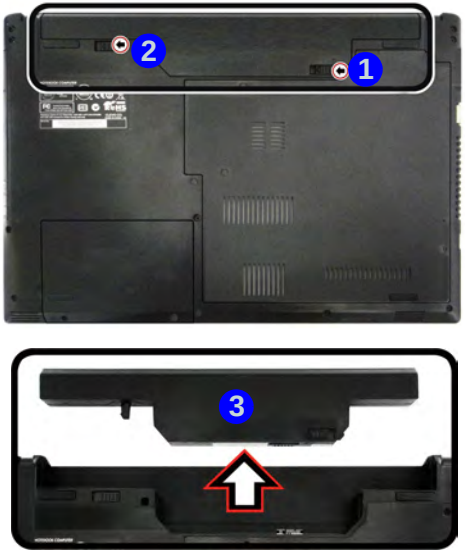
Upgrading the Processor

If you want to upgrade your computer by replacing the existing processor with a faster/new one you will need to contact your customer service representative. We recommend that you do not do this yourself, since if it is done incorrectly you may damage the processor or mainboard.

Removing the Battery

If you are confident in undertaking upgrade procedures yourself, for safety reasons it is best to remove the battery.

1. Turn the computer **off**, and turn it over.
2. Slide the latch 1 in the direction of the arrow.
3. Slide the latch 2 in the direction of the arrow, and hold it in place.
4. Slide the battery out in the direction of the arrow 3.



Warranty Warning

Please check with your service representative before undertaking any upgrade procedures to find out if this will VOID your warranty.

Figure 6 - 1
Battery Removal

Upgrading the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm (h) (see *"Storage" on page D - 3*). Follow your operating system's installation instructions, and install all necessary drivers and utilities (see *"Driver Installation" on page 4 - 2*), when setting up a new hard disk.

HDD System Warning

New HDD's are blank. Before you begin make sure:
You have backed up any data you want to keep from your old HDD.
You have all the discs required to install your operating system and programs.
If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

Removing the Hard Disk

1. Turn **off** the computer, and turn it over and remove the battery (see page *6 - 3*).
2. Remove the screws 1 & 2.
3. Lift the hard disk bay cover up from point 3.
4. Remove hard disk bay cover 4.

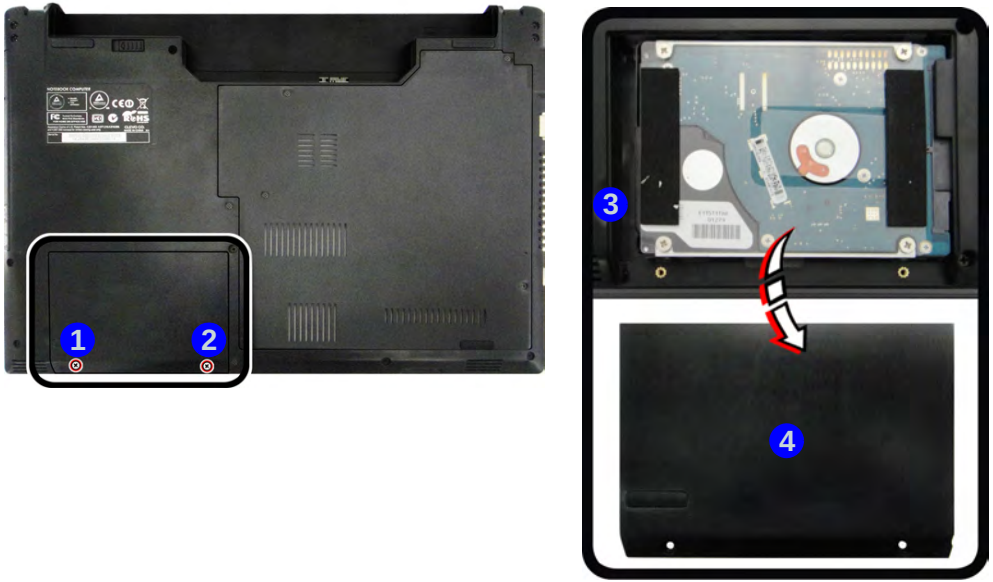
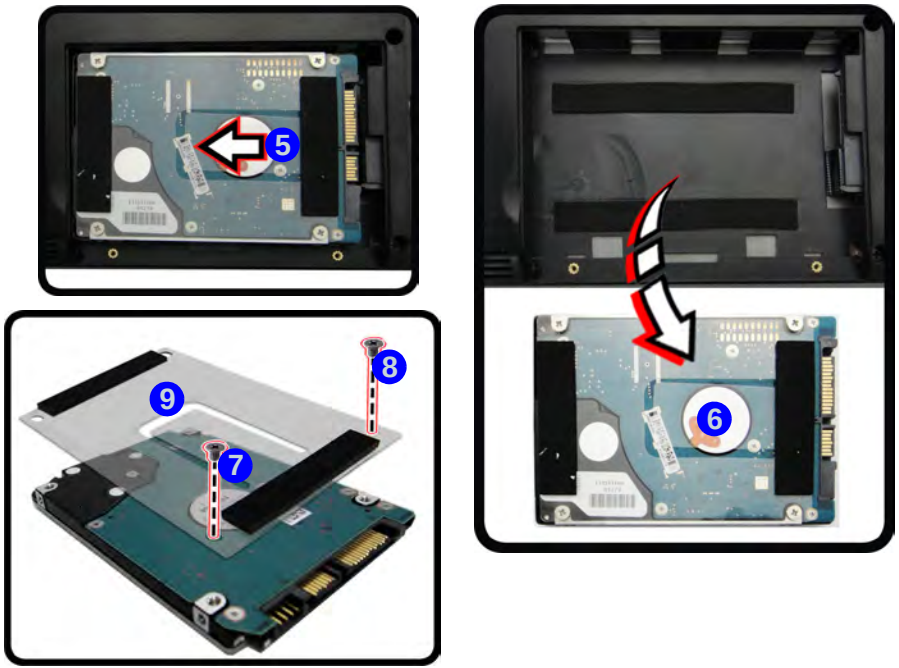


Figure 6 - 2
Hard Disk Bay Cover Removal

5. Slide the HDD assembly in the direction of arrow 5.
6. Remove the HDD assembly 6.
7. Remove the screw(s) 7 - 8 and the adhesive cover 9.

Figure 6 - 3
Hard Disk Assembly Removal



8. Reverse the process to install a new hard disk drive.
9. Replace the hard disk bay cover and screws.

Upgrading the Optical (CD/DVD) Device

The procedure for removing the optical device will depend upon your particular computer model:

- See *“Upgrading the Optical (CD/DVD) Device for Model A Computers” on page 6 - 7*.
- See *“Upgrading the Optical (CD/DVD) Device for Model B Computers” on page 6 - 10*.

Upgrading the Optical (CD/DVD) Device for Model A Computers

1. Turn **off** the computer, and turn it over and remove the battery (see page *6 - 3*).
2. Locate the component bay cover and remove screws 1 - 4.
3. Remove the component bay cover 5.

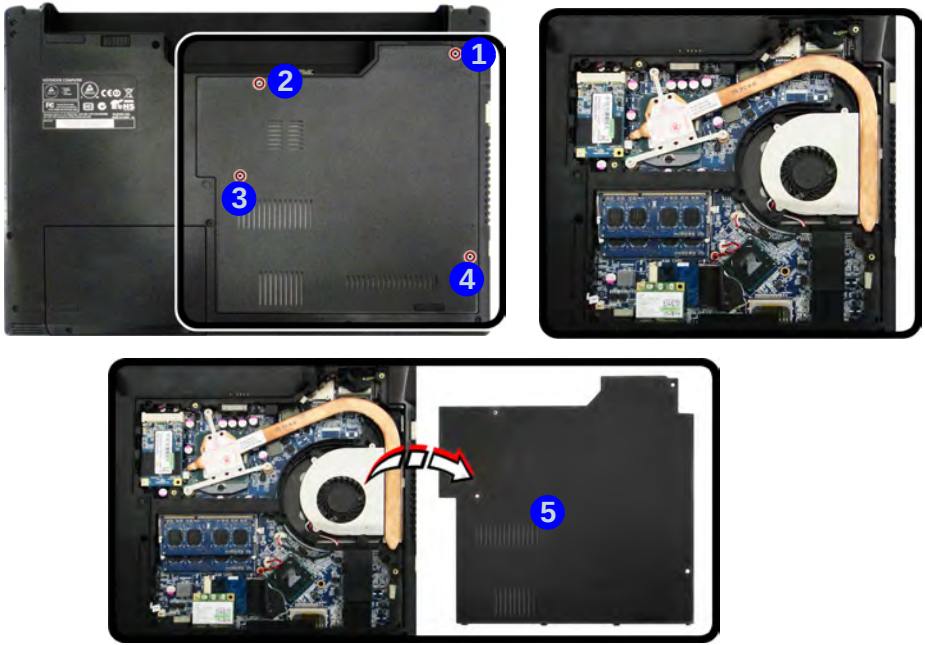


Figure 6 - 4
Removing the Component Bay Cover (Model A)

4. Remove the screw at point 6, and use a screwdriver to carefully push out the optical device at point 7.

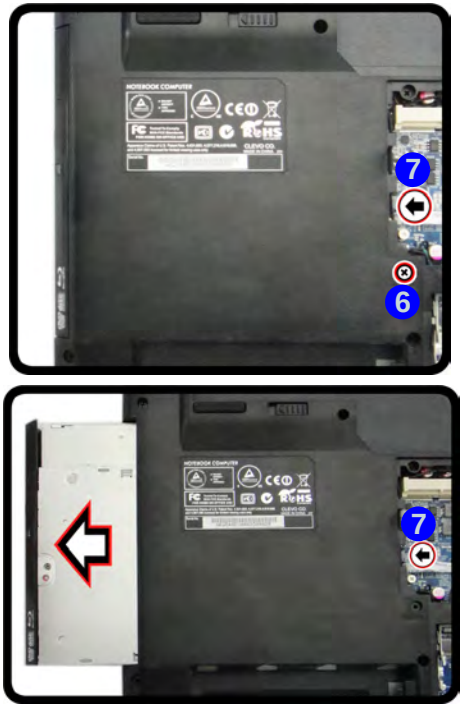


Figure 6 - 5
Removing the Optical Device Drive (Model A)

5. Reverse the process to install the new device.
6. Replace the component bay cover and screws (see page *6 - 7*).

Upgrading the Optical (CD/DVD) Device for Model B Computers

1. Turn **off** the computer, and turn it over and remove the battery (see page *6 - 3*).
2. Remove the screw at point 1, and use a screwdriver to carefully push out the optical device at point 2.
3. Reverse the process to install the new device.

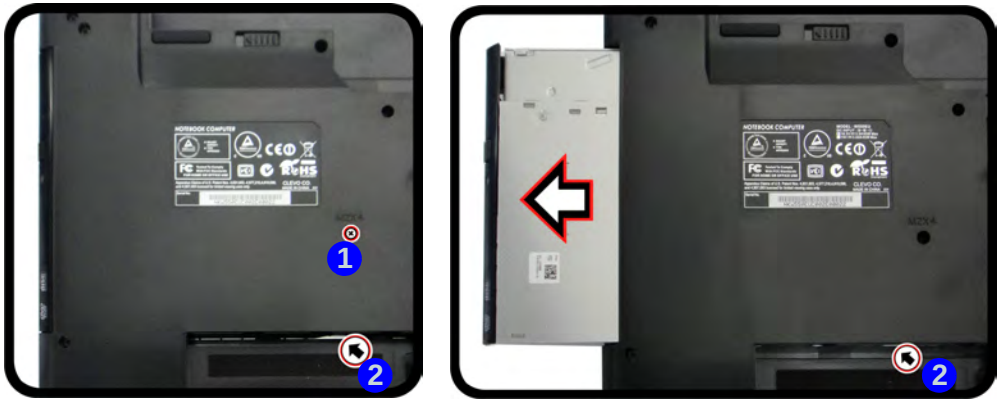


Figure 6 - 6
Removing the Optical Device Drive (Model B)

Upgrading the System Memory (RAM)

The computer has **two** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) **DDRIII (DDR3)** type memory modules (see *"Memory" on page D - 3* for details of supported module types).

1. Turn **off** the computer, and turn it over and remove the battery (see page *6 - 3*).
2. Locate the component bay cover and remove screws 1 - 4.
3. Remove the component bay cover 5.

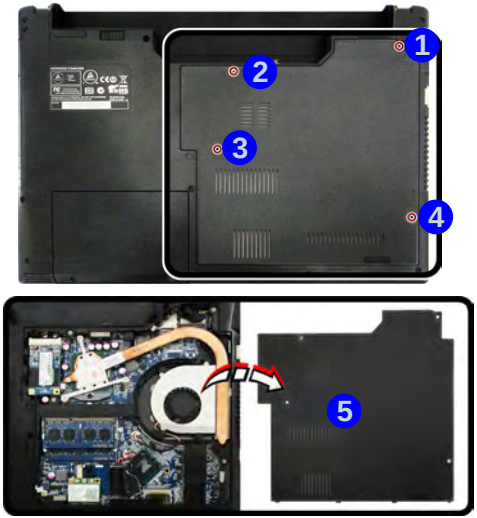


Figure 6 - 7
Removing the Component Bay Cover

4. The memory sockets are visible at point 1.

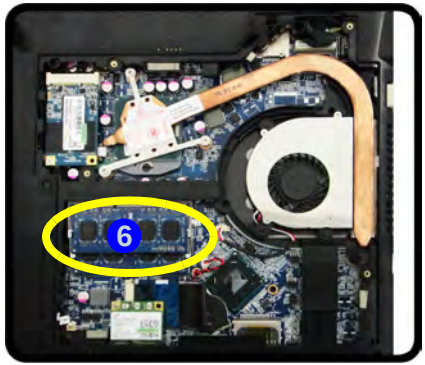


Figure 6 - 8
RAM Module Location

Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

5. Gently pull the two release latches on the sides of the memory socket in the direction indicated by the arrows (7 & 8) in ***Figure 6 - 8***.

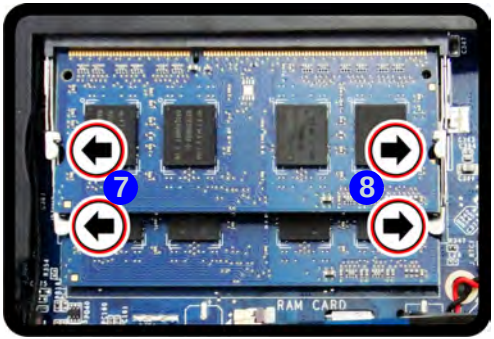


Figure 6 - 9
RAM Module Release Latches

6. The RAM module will 9 pop-up, and you can remove it.

Single Memory Module Installation

If your computer has a single memory module, then insert the module into the **Channel 0 (JDIMM1)** socket. In this case this is the **lower memory socket** (the socket closest to the mainboard).

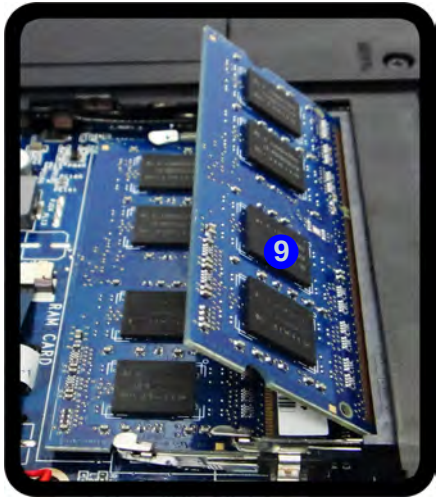


Figure 6 - 10
RAM Module Removal

7. Pull the latches to release the second module if necessary.
8. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
9. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE the module; it should fit without much pressure.
10. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
11. Replace the component bay cover.

Chapter 7: Modules & Options

Overview

This chapter contains information on the following modules, which may come with your computer, depending on the configuration purchased. If you are unsure please contact your service representative.

- PC Camera Module
- Wireless LAN Module
- Intel® Wireless Display Application
- Bluetooth & WLAN Combo Module
- 3G Module
- Trusted Platform Module
- Intel® Rapid Storage Technology
- Intel® Rapid Start Technology Driver
- Intel® Smart Connect Technology

For information on the ***Windows 8*** operating system see ***Appendix E***.

Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are **OFF** if you are using the computer aboard aircraft.

Driver Installation & Module Power

Make sure any modules (e.g. WLAN, PC Camera & Bluetooth modules) are **ON** before installing the appropriate driver.

Important Notice

If your purchase option includes both Wireless LAN and 3G modules, then the appropriate antennas will be installed. Note that In order to comply with FCC RF exposure compliance requirements, the antenna must not be co-located or operate in conjunction with any other antenna or transmitter.

Important Notice - 3G & Bluetooth/Wireless LAN Modules

In order to comply with FCC regulations you should NOT operate the 3G module and the Bluetooth/Wireless LAN modules at the same time as this may disrupt radio frequency, and cause interference. When the 3G module is powered on, make sure that the Bluetooth/ Wireless LAN modules are powered off.

PC Camera Module

Before installing the **PC Camera** driver, make sure that the optional PC Camera is on. **Use the Fn + F10 key combination** (see *"Function/Hot Key Indicators" on page 1 - 11*) **or Control Center button to toggle power to the PC Camera module**. Make sure you install the drivers in the order indicated in *Table 4 - 1, on page 4 - 3*. See *"PC Camera (Windows 8)" on page E - 28* for ***Windows 8*** configuration information.

When the PC Camera is in use the LED indicator to the left of the camera will be illuminated in red (see 2 *Figure 1 - 2 on page 1 - 6*/*Figure 1 - 3 on page 1 - 7*).

There are a number of different camera modules available with this computer model series. You will have the appropriate application installed for your camera. **Make sure you access the application via the desktop shortcut**.

PC Camera Application and Power-Saving States

If the computer enters **Sleep** or **Hibernate** mode while running the camera application, the program will stop running, and will need to be restarted when the system resumes from the power-saving state.

Latest PC Camera Driver Information

Check the ***Device Drivers & Utilities + User's Manual disc***, and any accompanying insert pages, for the latest updated information on the PC Camera driver, which may override the information provided here.

PC Camera Driver Uninstallation

If you need to uninstall the driver, then uninstall the **WebCam Installer** item from the ***Programs and Features*** control panel in ***Windows***.

PC Camera Screen Refresh

The PC Camera module supports a frame rate of 12 fps. If you find that the screen refresh rate is subject to lag or stuttering, then **reduce the window size**, or adjust the **Output Size** and/or **Color Space Compression**.

To reduce **Output Size** and/or **Color Space Compression** run the camera application, click **Options** and select **Video Capture Pin**. Adjust the settings from the appropriate pull-down menu.

PC Camera Driver Installation

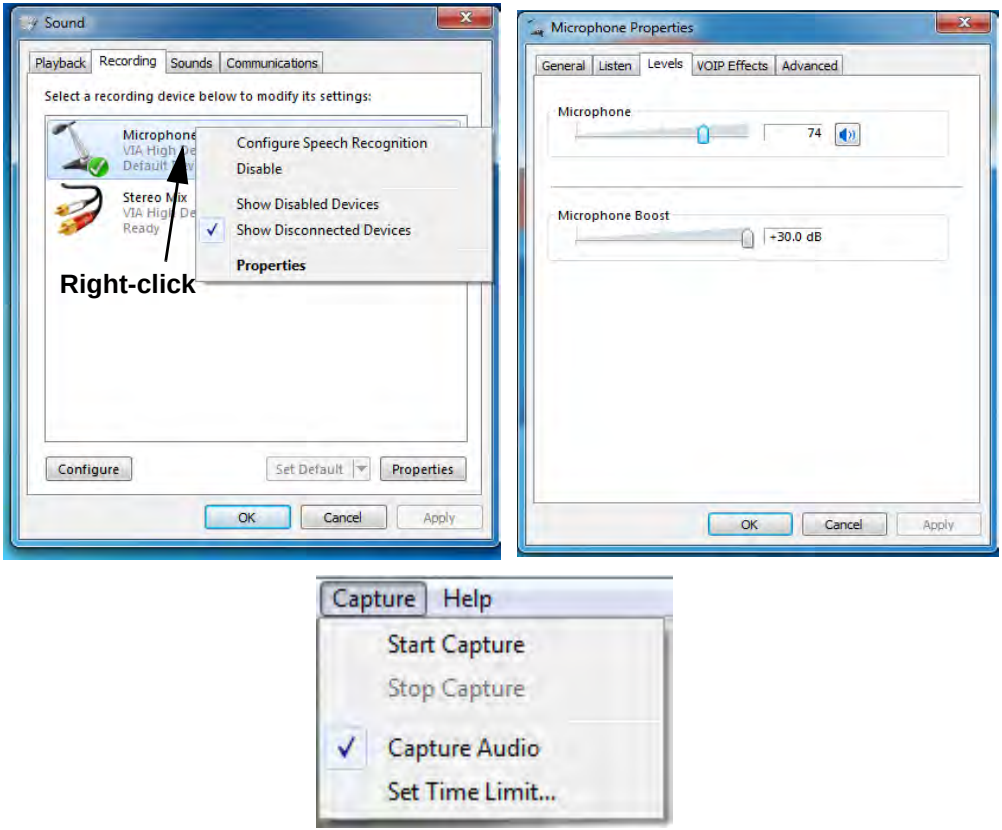
1. Make sure the module is powered on, and then insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
2. Click **Option Drivers** (button).
3. Click **1.Install Webcam Driver > Yes**.
4. Click **Finish** to restart the computer.
   Run the camera application program from the desktop shortcut (if the hardware is turned off use the **Fn + F10** key combination to turn it on again).
   See ***"PC Camera (Windows 8)" on page E - 28*** for information on the camera application used in ***Windows 8***.

PC Camera Audio Setup

If you wish to capture video & **audio** with your camera, it is necessary to setup the audio recording options in ***Windows***.

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Sound** (**Hardware and Sound**).
3. Click **Recording** (tab).
4. Right-click **Microphone** (VIA High Definition Audio) and make sure the item is not disabled.
5. Double-click **Microphone** (or select **Properties** from the right-click menu).
6. Click **Levels** (tab), and adjust the **Microphone** and **Microphone Boost** sliders to the level required.
7. Click **OK** and close the control panels.
8. Run the camera application program from the desktop shortcut.
9. Go to the **Devices** menu heading and select **Microphone** (**VIA....**) (it should have a tick alongside it).
10. Go to the **Capture** menu heading and select **Capture Audio** (it should have a tick alongside it).

Figure 7 - 1
Audio Setup for PC Camera



Camera Application

The camera application is a video viewer for general purpose video viewing and testing, and for capturing video files to .avi format.

1. Run the camera application from the desktop shortcut (it is recommended that you **set the capture file** before the capture process - **see Set Capture File below**).
2. Go to the **Capture** menu heading (if you wish to capture audio check ***"PC Camera Audio Setup" on page 7 - 5***) and select **Start Capture**.
3. Click **OK** (the file location will be displayed in the pop-up box) to start capturing the video, and press **Esc** to stop the capture (you can view the file using the **Windows Media Player**).

Set Capture File

Prior to capturing video files you may select the **Set Capture File...** option in the **File** menu, and set the file name and location before capture (this will help avoid accidentally overwriting files). Set the name and location then click **Open**, then set the **"Capture file size:"** and click **OK**. You can then start the capture process as above.

Note the important information in ***"Reducing Video File Size" on page 7 - 8*** in order to save file space, and help prevent system problems.

Reducing Video File Size

Note that capturing high resolution video files requires a substantial amount of disk space for each file. After recording video, check the video file size (right-click the file and select **Properties**) and the remaining free space on your hard disk (go to **My Computer**, right-click the hard disk, and select **Properties**). If necessary you can remove the recorded video file to a removable medium e.g. CD, DVD or USB Flash drive.

Note that the ***Windows*** system requires a minimum of **15GB** of free space on the **C: drive** system partition. In order to prevent system problems it is recommended that you save the captured video file to a location other than the **C: drive** (see ***"Set Capture File" on page 7 - 7***), limit the file size of the captured video or reduce video resolution (see below).

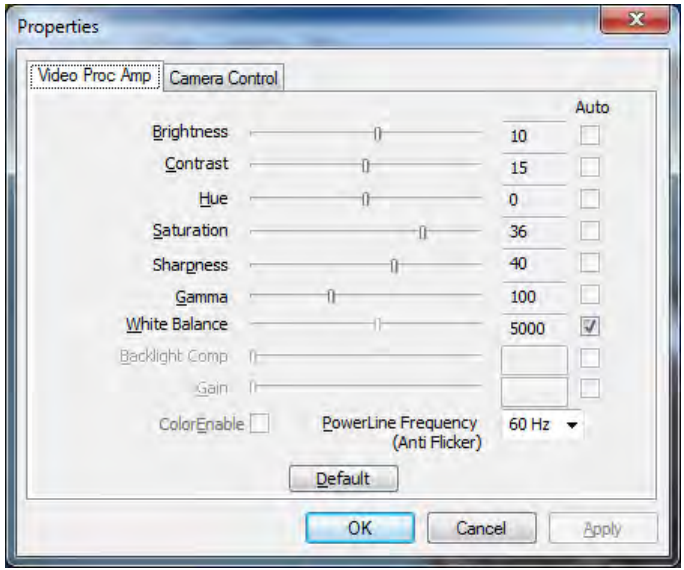
To Reduce Video Resolution Output Size:

1. Run the camera application program from the desktop shortcut.
2. Go to **Options** and scroll down to select **Video Capture Pin...**.
3. Click the **Output Size** drop box and select a lower resolution size in order to reduce the captured file size.
4. Click **OK**.

Eliminating Screen Flicker

If you find that the video screen in the camera program is flickering, you can try to adjust the setting in the **Video Capture Filter** options.

1. Run the camera application from the desktop shortcut.
2. Go to **Options** and scroll down to select **Video Capture Filter...**.
3. Click either **50Hz** or **60Hz** under **PowerLine Frequency**.



Camera Options

The video capture filter figure pictured here may appear slightly different for some camera modules. To adjust the anti flicker properties look under the headings **Anti Flicker/Frequency/PowerLine Frequency**.

Latest PC Camera Driver Information

Check the ***Device Drivers & Utilities + User's Manual disc***, and any accompanying insert pages, for the latest updated information on the PC Camera driver, which may override the information provided here, including the figures pictured.

Figure 7 - 2
Video Capture Filter

Snapshot Folder

The Snapshot folder's default location is on the desktop. Do not move this folder or an error may appear when you try to take a still picture.

If you accidentally delete or move the folder, you can create a new Snapshot folder on the desktop in order to capture the files.

Taking Still Pictures

The camera application allows you to take still pictures.

1. Run the camera application from the desktop shortcut.
2. Go to **Options** and select **Take Picture**.
3. The picture (in JPEG format) will be placed in the **Snapshot** folder

on the desktop.

Wireless LAN Module

If you have included an **Intel® or 3rd Party** Wireless LAN (or WLAN & Bluetooth combo) module in your purchase option, make sure that the WLAN module is on before installing the driver. See ***"Wireless LAN Module (Windows 8)" on page E - 34*** for ***Windows 8*** configuration information.

Use the **Fn + F11 key combination** (see ***"Function/Hot Key Indicators" on page 1 - 11***) **or Control Center button to toggle power to the Wireless LAN module**. Make sure you install the drivers in the order indicated in ***Table 4 - 1, on page 4 - 3***.

Note that for the WLAN & Bluetooth Combo modules you need to install both the WLAN & Bluetooth drivers.

Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.

Use the **Fn + F11** key combination or hot key button to toggle power to the WLAN module, and check the indicator to see if the module is powered on or not (see ***Table 1 - 2, on page 1 - 11***/ ***Table 1 - 1, on page 1 - 8***).

3rd Party 802.11b/g/n Driver Installation (for WLAN Module)

See over for information on installing the drivers for the 3rd party WLAN & Bluetooth combo modules.

If you see the message "**Found New Hardware**" click **Cancel** to close the window.

1. **Make sure the module is powered on**, and then insert the ***Device Drivers & Utilities + User's Manual*** disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **2.Install WLAN Driver > Yes**.
4. Choose the language you prefer and click **Next**.
5. Click **Next**.
6. Click **Finish** to restart the computer.

Note: The operating system is the default setting for Wireless LAN control in ***Windows*** (see page ***7 - 17***). See ***"Wireless LAN Module (Windows 8)" on page E - 34*** for ***Windows 8*** configuration information.

3rd Party 802.11b/g/n Driver Installation (Combo Modules)

If you see the message "**Found New Hardware**" click **Cancel** to close the window.

1. **Make sure the module is powered on**, and then insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
2. Click **Option Drivers** (button).
3. Click **2.Install WLAN Driver** > **Yes**.
4. Click **Next**.
5. Click **Finish** to restart the computer (see sidebar for important information).

Note: The operating system is the default setting for Wireless LAN control in ***Windows*** (see page ***7 - 17***). See ***"Wireless LAN Module (Windows 8)" on page E - 34*** for ***Windows 8*** configuration information.

Intel® WLAN Driver Installation

For a standard Intel® WLAN driver installation and configuration choose the **Typical Installation** below and use the ***Windows OS*** for Wireless LAN control (**see overleaf**). If you want to use **Intel® PROSet/Wireless WiFi Connection Utility** as your WLAN interface, and/or add **Intel® MyWifi Technology** (Personal Area Network) see overleaf.

Typical Installation:

1. If you see the message "**Found New Hardware**" click Cancel to close the window.
2. **Make sure the module is powered on**, and then insert the ***Device Drivers & Utilities + User's Manual*** disc into an attached DVD drive.
3. Click **Option Drivers** (button).
4. Click **2.Install WLAN Driver > Yes**.
5. Click **Next > Next**.
6. Click the button to accept the license and click **Next**.
7. Click **Typical > Install**.
8. Click **Finish**.

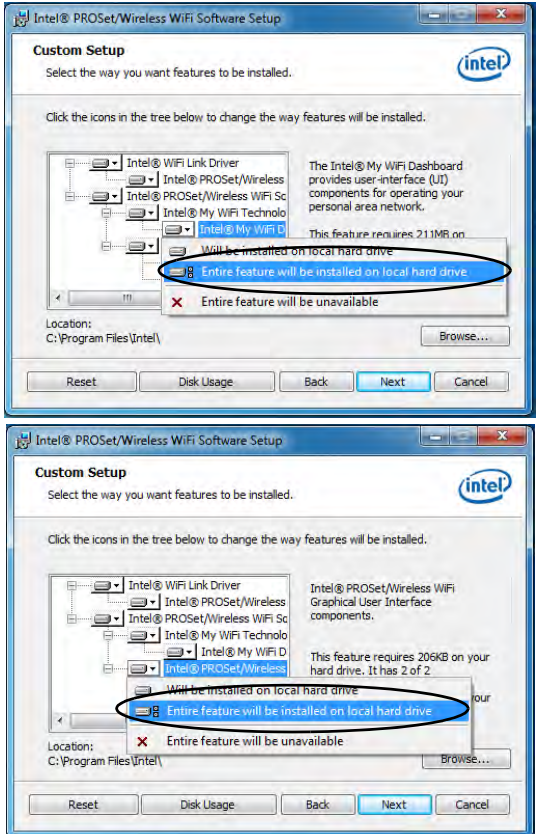
Note: The operating system is the default setting for Wireless LAN control in ***Windows*** (see ***"Connecting to a Wireless Network in Windows 7" on page 7 - 17***). See ***"Wireless LAN Module (Windows 8)" on page E - 34*** for ***Windows 8*** configuration information.

Custom Installation (for Intel® ProSet and/or Intel® MyWiFi Technology):

Note that if you wish to install Intel® MyWiFi you will need to **install Microsoft.net Framework 4.0 (or later version) before installing the driver** as per the procedure below. To get the **Microsoft.net Framework** file go to the ***Microsoft*** website, search for the file, Download it and then install it.

1. If you see the message "**Found New Hardware**" click Cancel to close the window.
2. **Make sure the module is powered on**, and then insert the ***Device Drivers & Utilities + User's Manual*** disc into an attached DVD drive.
3. Click **Option Drivers** (button).
4. Click **2.Install WLAN Driver > Yes**.
5. Click **Next > Next**.
6. Click the button to accept the license and click **Next** > **Custom**.
7. To install **Intel® MyWiFi Technology** click the icon alongside **Intel® MyWiFi Dashboard** and select **"Entire feature will be installed on local hard drive"** (see ***Figure 7 - 3 on page 7 - 16***).
8. To install **Intel® PROSet/Wireless WiFi Connection Utility** click the icon alongside it and select **"Entire feature will be installed on local hard drive"** (see ***Figure 7 - 3 on page 7 - 16***).
9. Click **Next > Install > Finish**.
10. See ***"(For Intel® WLAN Modules Only)" on page 7 - 20*** or ***"Intel® My WiFi Configuration" on page 7 - 22*** for further information.

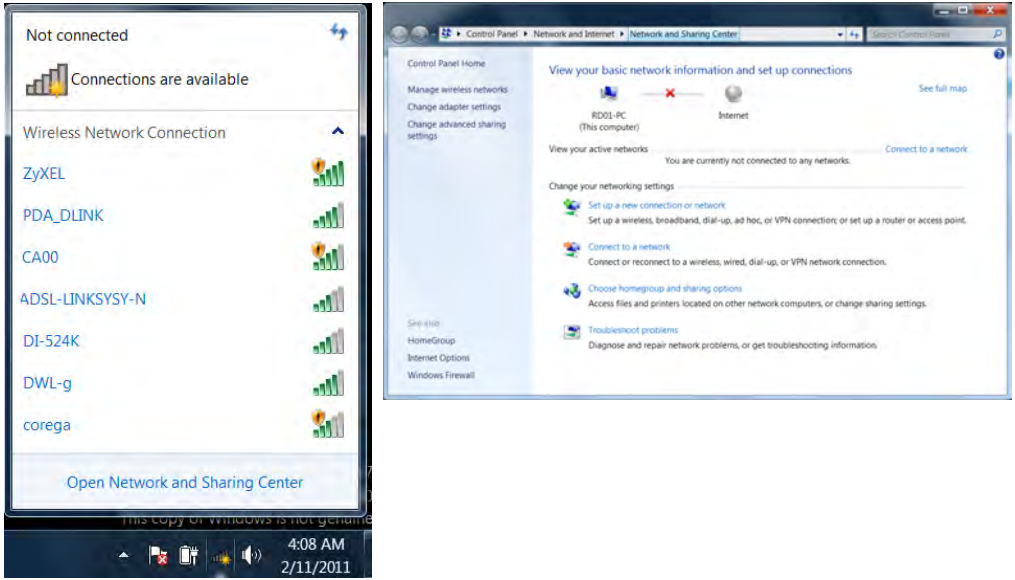
Figure 7 - 3
Install Intel® MyWiFi Technology & Intel® PROSet/Wireless WiFi Connection Utility



Connecting to a Wireless Network in Windows 7

Make sure the Wireless LAN module is turned on.

1. **Click** the taskbar wireless icon , and then double-click an access point to connect to or click to **Open Network and Sharing Center** if you do not see a network you want to connect to in the taskbar menu (a list of options will appear allowing setting changes, and creating a new network).



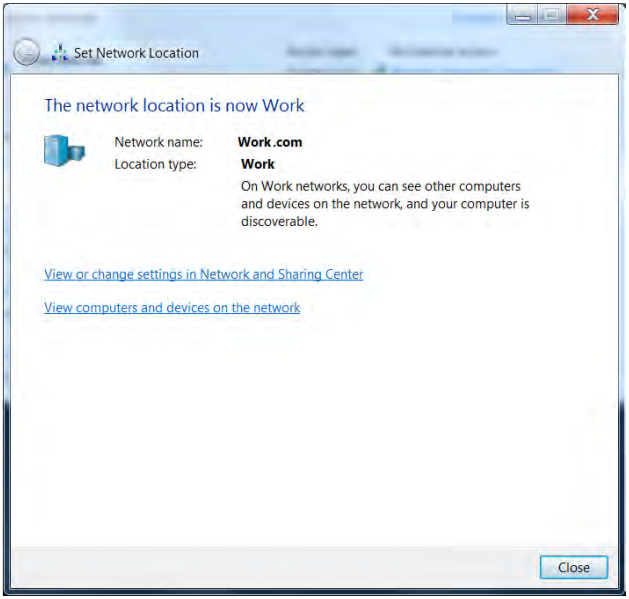
Network and Sharing Center

You can also use the **Network and Sharing Center** control panel in Windows (**Network and Internet**) to connect to any available wireless networks.

Figure 7 - 4
Click Taskbar Icon Menu & Network and Sharing Center

2. You may need to enter a security key for any access point to which you are trying to connect.
3. Click to select a network location (e.g. **Home, Work or Public**).
4. Click "**View or change settings in Network and Sharing Center"** to access further options for the connection.

Figure 7 - 5
Network Location Set



5. Click the taskbar icon to see any currently connected networks.
6. To disconnect from the wireless network you can click the taskbar wireless icon, click the active connection and then click **Disconnect** (button).

Security Enabled Networks

You should try to make sure that any network you are connecting to is a secure network.

Connecting to unsecure networks may allow unauthorized access to your computer, documents, websites and files etc.

Figure 7 - 6
Click Taskbar Icon Menu - Disconnect

Connecting to a Wireless Network Using Intel® PROSet Wireless

(For Intel® WLAN Modules Only)

1. Make sure the Wireless LAN module is on.
2. Access the **Intel® WiFi Connection Utility** from the **Start** menu (**Start** > **All Programs** > **Intel PROSet Wireless > WiFi Connection Utility**).
3. Click to select a network from the found list WiFi network access points, or click **Refresh** to update the list.

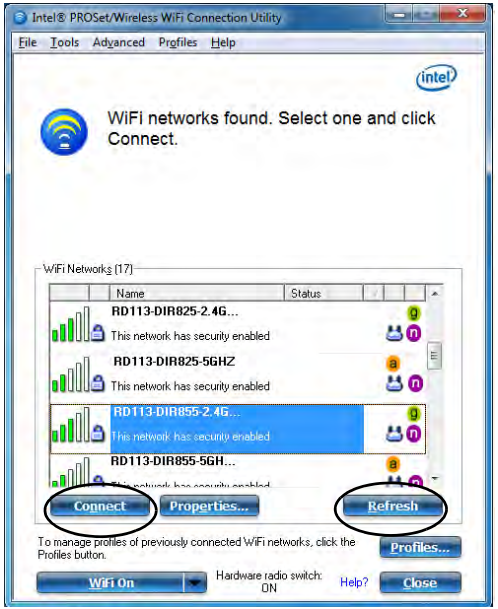


Figure 7 - 7
Intel® PROSet/ Wireless WiFi Connection Utility (Connect)

4. Click **Connect** to connect to the select WiFi network access point.
5. If the access point is encrypted then you will need to enter the password and click **OK**.

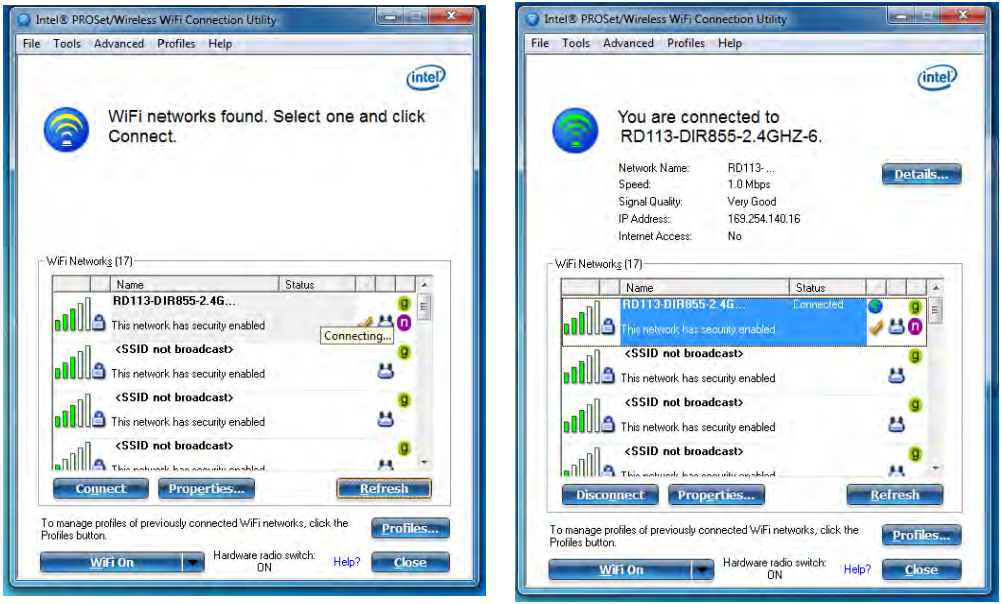


Figure 7 - 8
Intel® PROSet/ Wireless WiFi Connection Utility (Connecting & Connected)

6. You can turn **WiFi On/WiFi Off** from the button at the bottom of the Utility.
7. To disconnect, select the connected access point and click **Disconnect**.
8. Select **Help** from the menu at the top of the utility (or at the bottom right) to bring up the **Help** menu.

Intel® My WiFi Help

To get help on **Intel® My WiFi** configuration and settings, access the **Intel® My WiFi Dashboard** from the **Start** menu (**Start > All Programs > Intel PROSet Wireless > Intel(R) My WiFi Dashboard**), or by clicking the taskbar icon. click the **Help** icon in the dashboard and select a help topic from the **Contents** menu.

Intel® My WiFi Configuration

(For Intel® WLAN Modules Only)

Intel® My WiFi Technology (Intel® MWT) uses your WLAN to transform your system into a WiFi Personal Area Network, and enables you wirelessly share your videos, photos, music with other WiFi enabled devices, while still connecting to the Internet through your WiFi wireless connection.

Intel® MWT also features a chat function, and offers you the option of being able to create a WiFi hotspot from your computer. Intel® MWT offers greater range and speed than other personal area networks, and does not require an access point.

Intel® My WiFi Configuration

You can configure the My WiFi settings as follows.

1. Make sure the Wireless LAN module is on.
2. Access the **Intel® WiFi Connection Utility** from the **Start** menu (**Start** > **All Programs** > **Intel PROSet Wireless > Intel(R) My WiFi Dashboard**), or click the icon in the notification area of the taskbar (or right-click and select Open Dashboard).
3. An initial welcome message will appear on the first run of the program (click "***Don't show this message again***" to turn this off in future).

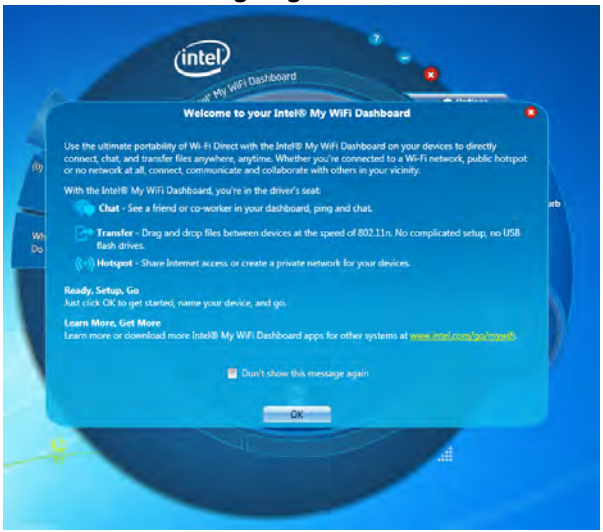


Figure 7 - 9
Intel® My WiFi Utility - Welcome

Intel® My WiFi Interface

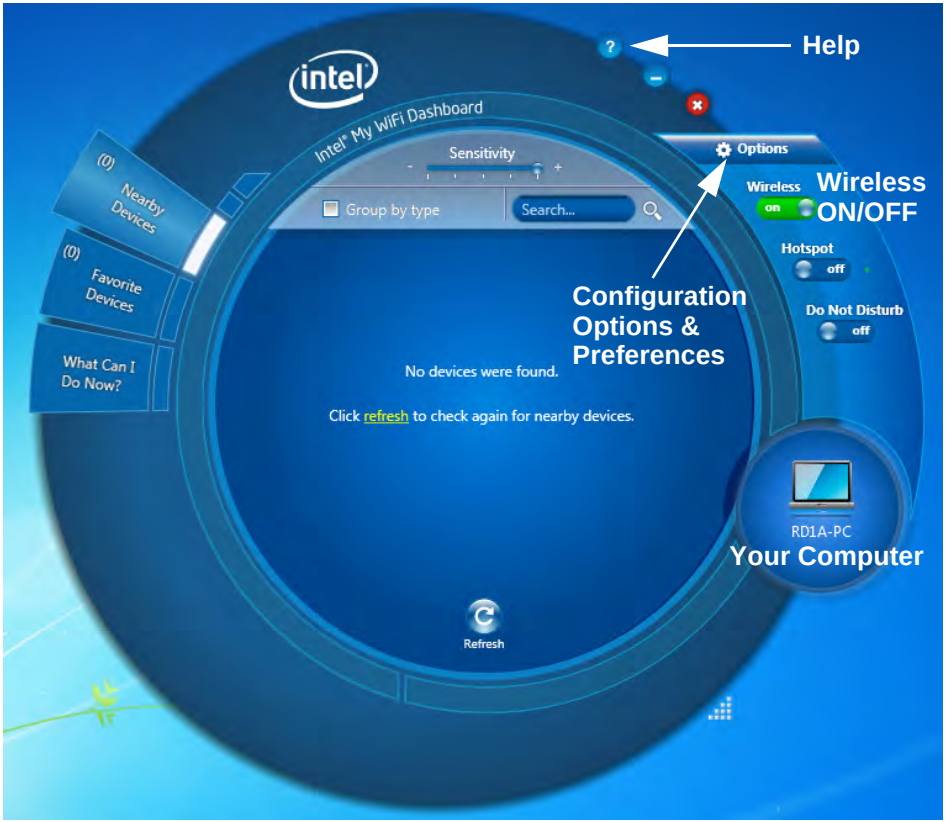


Figure 7 - 10
Intel® My WiFi Utility - Interface

Intel® My WiFi Help

Click the **Help** icon in the dashboard to bring up the Help menu and select and item from the **Contents** menu to obtain the help information.

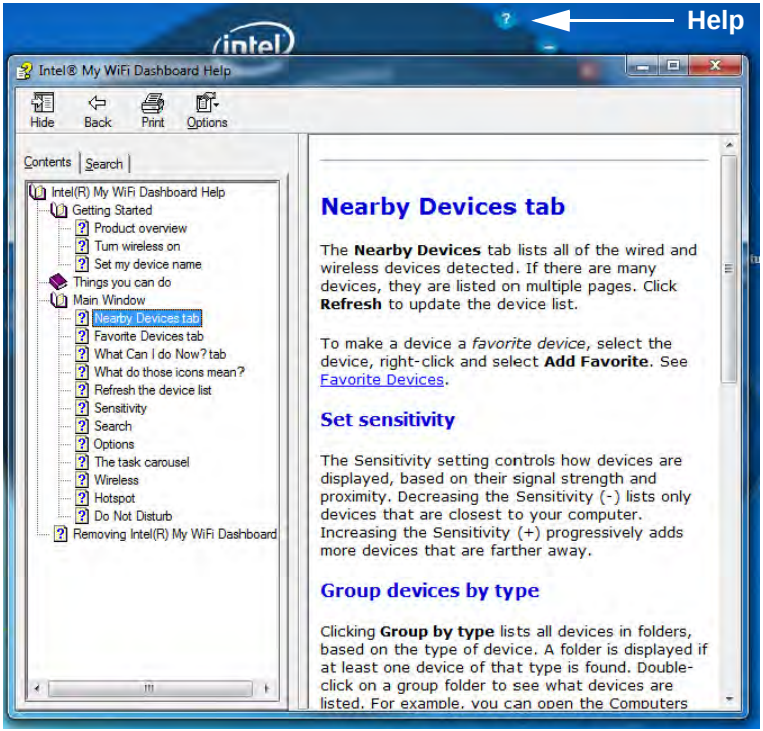


Figure 7 - 11
Intel® My WiFi Utility - Help

Preferences

Click the **Options** icon and select **Preferences** to configure the options.

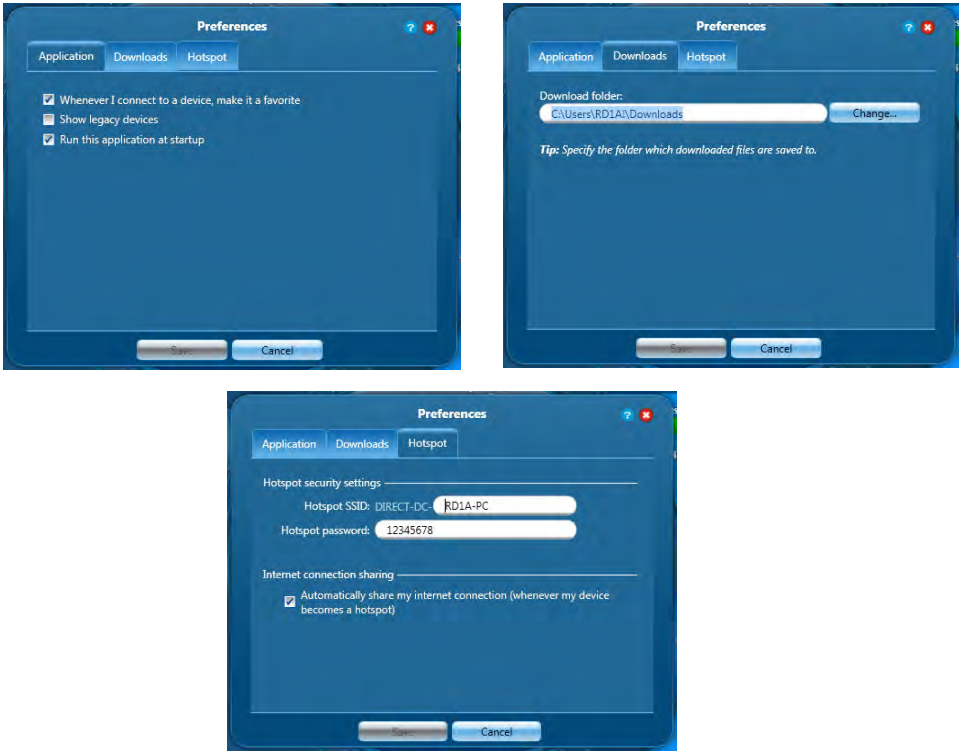


Figure 7 - 12
Intel® My WiFi Utility - Preferences

Hotspot

You can turn the computer into a hotspot to allow other devices to connect to it (and any locally connected devices), and also (if available) the internet.

1. Click the **Hotspot** icon to turn the **Hotspot** on.
2. The **Hotspot** settings tab shows the SSID and password (you will need to enter this information when accessing the hotspot from the client computer/device).
3. Click **OK** to close the **Hotspot** settings.

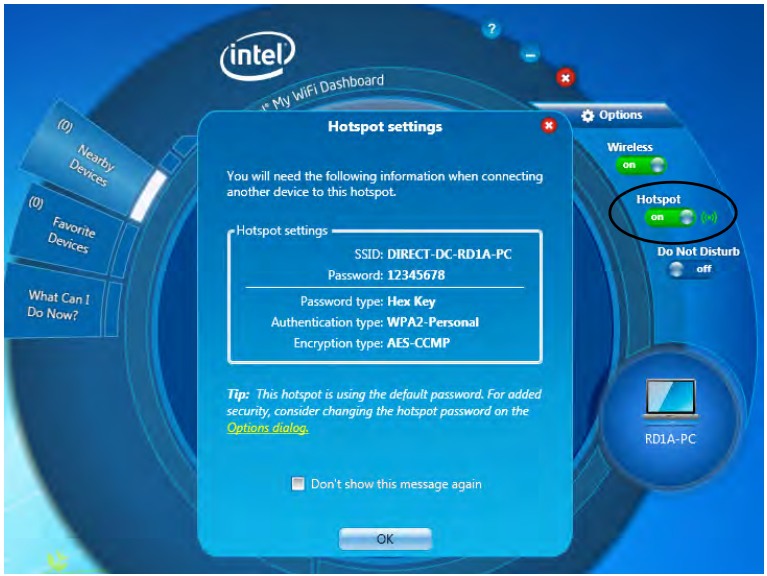


Figure 7 - 13
Intel® My WiFi Utility - Hotspot

Finding Devices

You can find any **Nearby Devices** by clicking the **Refresh** button in the main window. Click again at any time to update the list. If a lot of devices are found they will be listed on multiple pages and you can use the left or right buttons to turn the pages.

Sensitivity

The **Sensitivity** controls displays available devices based on their signal strength and proximity e.g decreasing (-) the sensitivity lists only devices closest to the computer's location.

Group Devices by Type

If you click **Group by type** it will list all devices according to their type in a folder group. Double-click on any group folder to see the devices of that type listed. There are 12 possible device types available.

Search

If you want to search for a particular device by name then enter the device name in the Search field to return results for devices matching the name of the device.

Favorite Devices

The **Favorite Devices** tab is where you keep devices to which you connect most often, and this is particularly useful in environments where many devices are listed nearby. A favorite device will display the icon .

To make any device a favorite just click to select it and select **Add Favorite**.

Figure 7 - 14
Intel® My WiFi Utility - Interface

Connect to a Device

1. Click the device you want to connect to, and click the connect icon .
2. An invitation will be sent to the target device.
3. The user must then accept the invitation.
4. After the invitation is accepted the connection will be made.
5. Use the ***Windows Network and Sharing Center*** to set permissions for viewing and sharing the resources on your computer with another connected computer.

Further Information

For information on how to **block/unblock** devices, setting **Do Not Disturb**, **sharing an internet connection** and **chat** options see ***"Intel® My WiFi Help" on page 7 - 25***.

Windows Mobility Center

The **Windows Mobility Center** control panel provides an easy point of access for information on battery status, power plans used and wireless device status etc.

To access the Windows Mobility Center:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Double-click **Windows Mobility Center** (**Mobile PC**).
3. Click the button to **Turn wireless off/on**, or click the icon to access the network menu.

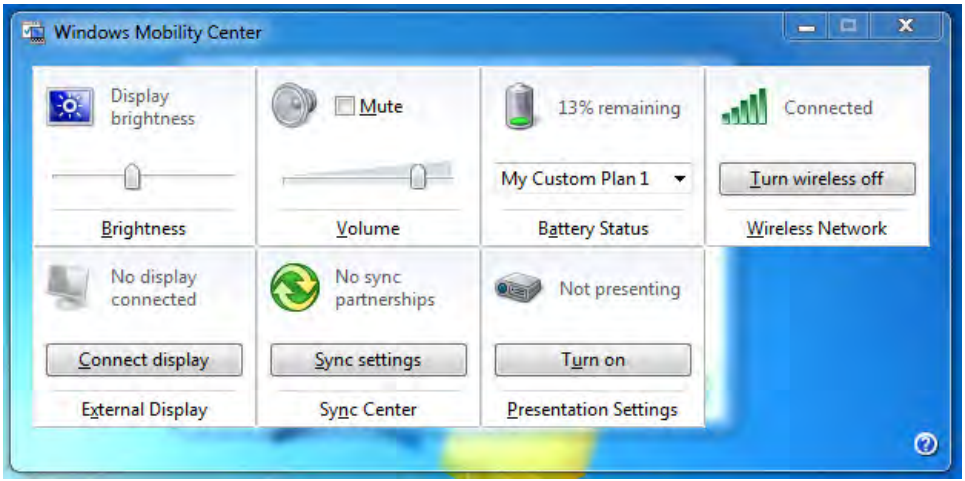


Figure 7 - 15
Windows Mobility Center

Compatible Adapters

For a list of compatible display and audio adapters check the Intel website, or your distributor/supplier.

Intel® Wireless Display Application

The **Intel® Wireless Display Application (requires Intel® Centrino WLAN/ Combo module)**, in conjunction with a **compatible video adapter** (purchased separately), allows you to display the contents of the notebook display on another display (e.g. HDTV) without the need to have cables stretching across a room. You can then play games, browse the internet, display videos or photo slide shows on your TV/external display without using HDMI or A/V cables.

Before configuring the **Intel® WiDi** application you will need to set up your **compatible adapter** with your display/speakers. Connect the adapter using an HDMI or A/V cable and turn on the display (or in the case of speakers connect them to the wireless speaker adapter with the cables provided with the adapter), and then set the display to the appropriate input channel (see the documentation supplied with your **compatible adapter** for full details).

Intel® WiDi also incorporates **Intel® Wireless Music** which allows you to wirelessly stream audio from your computer to speakers connected to a **compatible wireless speaker adapter** (purchased separately).

Intel® WiDi Application Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
2. Click **Option Drivers** (button).
3. Click **3.Install WiDi AP > Yes**.
4. Click **Next**.
5. Click the button to accept the license and click **Next**.
6. Click **Finish**.

Intel® Wireless Music Driver Installation

If you wish to use your system to stream wireless audio to speakers connected to a compatible wireless speaker adapter you will need to install the **Intel(R) Wireless Music Driver**.

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
2. Click **Browse** and browse to the driver location (X: denotes your DVD drive):

- **X:\Options\02_WLAN\INTEL\Intel_WiDi_Music\autorun.exe**

3. Click **Next**.
4. Click the button to accept the license and click **Next**.
5. Click **Finish**.
6. Follow the procedure overleaf to setup WiDi or Wireless Music.

Intel® WiDi Application Configuration

1. Click **Start > All Programs > Intel Corporation > Intel(R) Wireless Display > Intel(R) Wireless Display**, or double click the icon on the desktop.
2. Click **I agree to the terms of this license** (button).
3. The application will scan for any connected compatible adapters (or you can click the **Scan for available adapters** button to enable **Intel My WiFi Technology**).

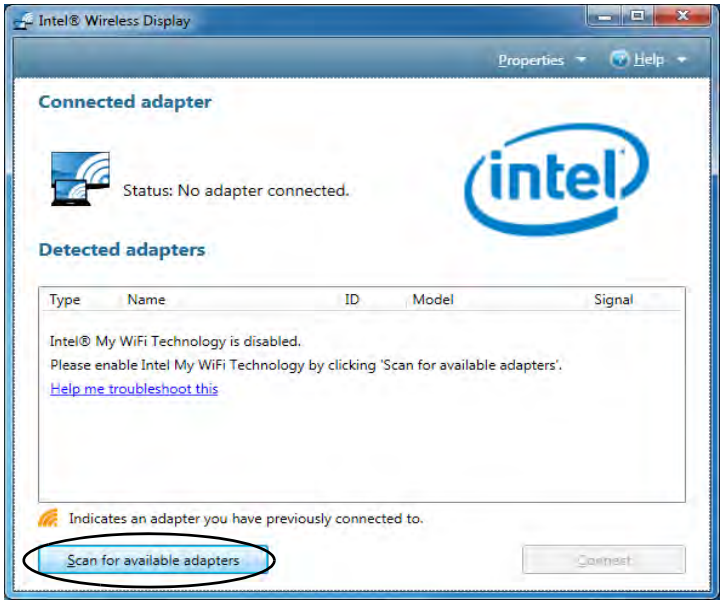


Figure 7 - 16
Intel® WiDi Scan

4. Click to select and detected adapters, and click **Connect**.
5. The system will then prompt you to enter the **4-digit security code** which will be displayed on the external TV Screen (or press the **connect** button on the wireless speaker adapter).
6. Enter the code for the video adapter and click **Continue**.

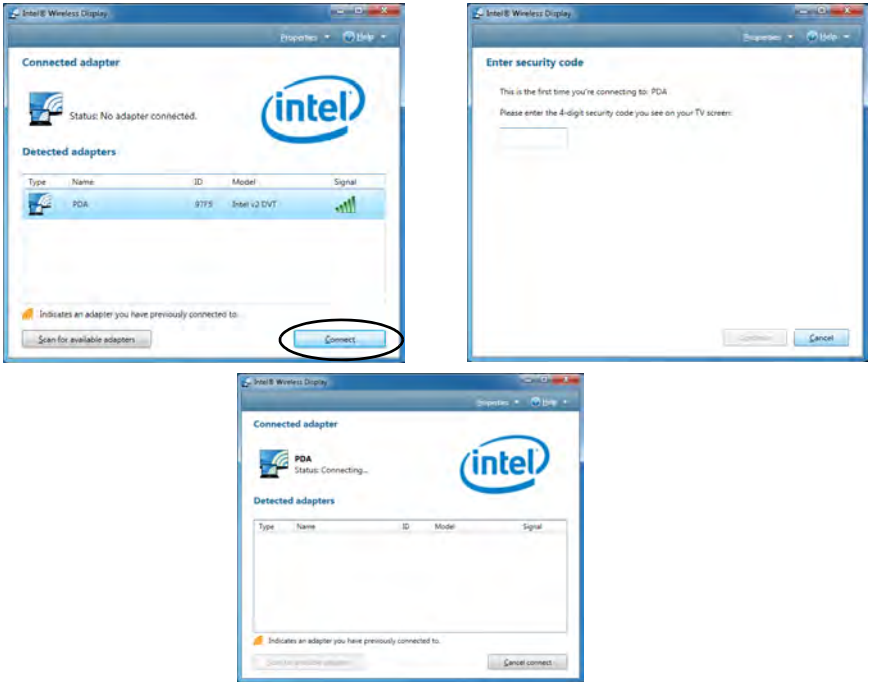


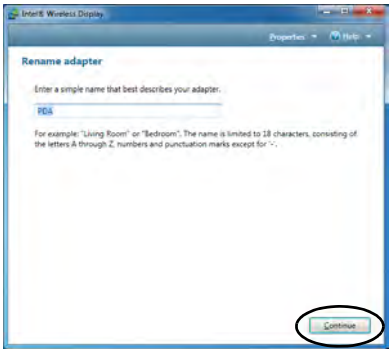
Figure 7 - 17
Intel® WiDi Connect & Enter Security Code

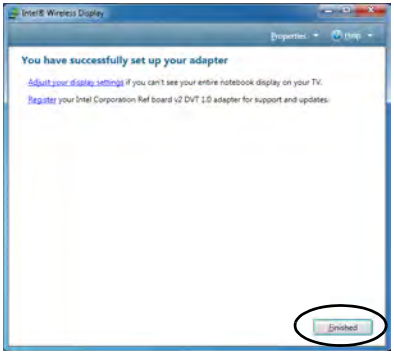
Test Audio Adapter

To verify a successful audio connection (for **Intel® Wireless Music)**, select the "**Test your audio connection**" link or select "**Finished**" to bypass the test.

You can select "**Play Sample**" to play an audio test sample from your adapter to the connected speaker set.

7. You will then be prompted to enter a name for the video adapter and click **Continue**.
8. Click **Finished** to complete the setup.





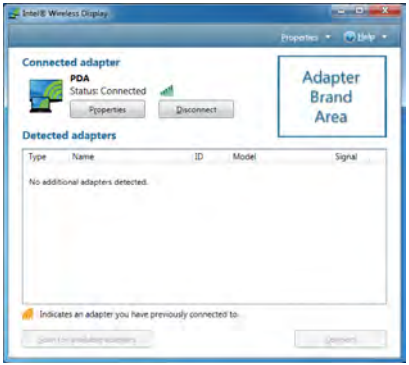


Figure 7 - 18
Intel® WiDi Connected

Bluetooth & WLAN Combo Module

If your purchase option includes the **Combination Wireless LAN & Bluetooth module** (either **Intel®** or **3rd Party**) then install the driver as instructed (see *"Bluetooth Module (Windows 8)" on page E - 43* for instructions on Bluetooth settings for ***Windows 8***).

Use the Fn + F12 key combination or Control Center button to toggle power to the Bluetooth module.

Bluetooth Data Transfer

Note that the transfer of data between the computer and a Bluetooth enabled device is supported **in one direction only (simultaneous data transfer is not supported)**. Therefore if you are copying a file from your computer to a Bluetooth enabled device, you will not be able to copy a file from the Bluetooth enabled device to your computer until the file transfer process from the computer has been completed.

- For **3rd party Bluetooth modules** see *"Intel Bluetooth Combo Driver Installation" on page 7 - 39* and *"Standard Bluetooth (V4.0) Configuration in Windows 7" on page 7 - 40*.
- For **Intel Bluetooth combo modules** see the installation procedure see *"3rd Party Bluetooth (V4.0) Combo Driver Installation" on page 7 - 38* and *"Standard Bluetooth (V4.0) Configuration in Windows 7" on page 7 - 40*.

Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.

Use the **Fn + F12** key combination to toggle power to the Bluetooth module, and check the LED indicator to see if the module is powered on or not (see *Table 1 - 2, on page 1 - 11*/ *Table 1 - 1, on page 1 - 8*).

3rd Party Bluetooth (V4.0) Combo Driver Installation

Note this driver is only required for the 3rd Party combo Bluetooth and WLAN module (Bluetooth V4.0).

1. **Before installing the driver make sure the Bluetooth module is powered on** (use **Fn + F12** key combination), then insert the ***Device Drivers & Utilities + User's Manual*** disc into the CD/DVD drive. If a ***Found New Hardware*** window appears, click **Cancel** in all windows that appear, and then proceed to install the driver as below.
2. Click **Option Drivers** (button).
3. Click **4.Install Combo BT Driver > Yes**.
4. Click **Next** (if a prompt appears to ask you to turn the Bluetooth power on, press the **Fn + F12** key combination to do so, otherwise the driver will not be installed).
5. Click **Finish** to restart the computer.
6. See ***"Standard Bluetooth (V4.0) Configuration in Windows 7" on page 7 - 40*** for configuration instructions. See ***"Bluetooth Module (Windows 8)" on page E - 43*** for instructions on Bluetooth settings for ***Windows 8***.

Intel Bluetooth Combo Driver Installation

Note this driver is required only for the Intel combo Bluetooth and WLAN module only.

1. **Before installing the driver make sure the Bluetooth module is powered on** (use **Fn + F12** key combination), then insert the ***Device Drivers & Utilities + User's Manual*** disc into the CD/DVD drive. If a ***Found New Hardware*** window appears, click **Cancel** in all windows that appear, and then proceed to install the driver as below.
2. Click **Option Drivers** (button).
3. Click **4.Install Combo BT Driver > Yes**.
4. Click **Next > Next**.
5. Click the button to accept the license and click **Next**.
6. Click **Next > Finish**.
7. See over for configuration instructions.
8. Note that WLAN & Bluetooth combo modules use the standard Bluetooth configuration in ***Windows 7*** (see ***"Standard Bluetooth (V4.0) Configuration in Windows 7" on page 7 - 40***). See ***"Bluetooth Module (Windows 8)" on page E - 43*** for instructions on Bluetooth settings for ***Windows 8***.

High Speed Bluetooth Data Transfer

The **Combination Wireless LAN & Bluetooth module** supports high speed data transfer. However to achieve such transfer speeds, **both devices must support high speed data transfer**.

To obtain high speed data transfer make sure that both the WLAN and Bluetooth modules are powered on.

Check your Bluetooth compatible device's documentation to confirm it supports high speed data transfer.

Add a Device

Click **Start**, and click **Control Panel** and then click **Devices and Printers (Hardware and Sound)**. Click **Add a device** to search for any available Bluetooth devices.

Bluetooth Module & Resuming From Sleep Mode

The Bluetooth module's default state will be off after resuming from the **Sleep** power-saving state. Use the key combination (**Fn + F12**) to power on the Bluetooth module after the computer resumes from Sleep.

Standard Bluetooth (V4.0) Configuration in Windows 7

Setup your Bluetooth Device so the Computer Can Find it

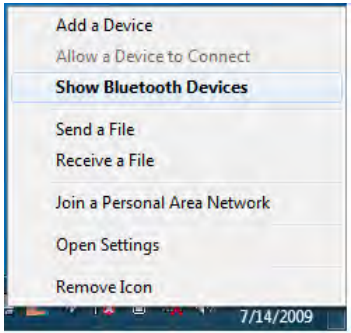
1. Turn your Bluetooth device (e.g. PDA, mobile phone etc.) on.
2. Make the device discoverable (to do this check your device documentation).

To Turn the Bluetooth Module On

1. Press the **Fn + F12** key combination to power on the Bluetooth module.
2. A Bluetooth icon will appear in the notification area.
3. You can then do any of the following to access the **Bluetooth Devices** control panel.

- **Double-click** the notification area icon to access the **Bluetooth Devices** control panel.
- **Click/Right-click** the notification area icon and choose an option from the menu.

Add a device

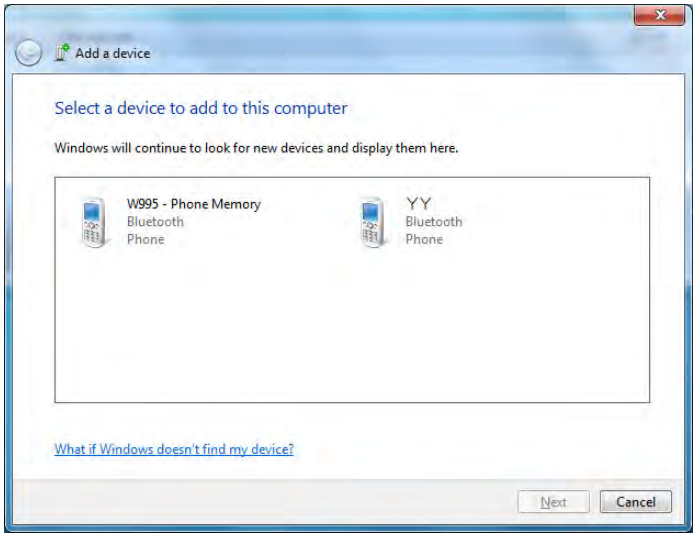


Right-Click Notification Area Icon

Figure 7 - 19
Bluetooth Devices & Click Icon Menu

To Add a Bluetooth Device

1. Access the **Bluetooth Devices** control panel and click **Add a device**.
2. Double-click the device you want to pair with the computer.



3. On first connection the computer will provide you with a pairing code to be entered onto the device.

Pairing Options

If a device has been previously connected then the pairing option menu will appear when you attempt subsequent connections. You can choose to have the computer create a pairing code for you, use the device's existing pairing code or you can pair certain devices without using a code.

Figure 7 - 20
Add a Device

4. Enter the code into your Bluetooth enabled device and follow any on-screen instructions to complete the pairing.

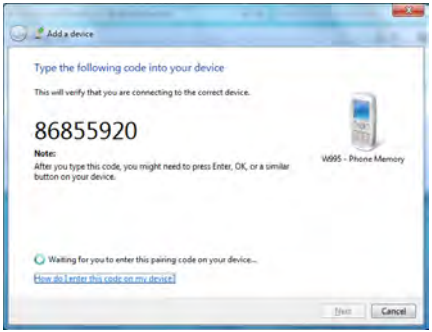


Figure 7 - 21
Pairing Code Example

Pairing Codes

The example outlined here shows a connection to a mobile device. Other devices e.g. computers, may have a slightly different connection procedure, and may require you to confirm a pairing code is correct on both devices. Follow the on-screen instructions to complete the pairing.

5. ***Windows*** will check to see if any drivers are required to complete the pairing.
6. Follow any on-screen instructions on the computer if device drivers are required to be installed.
7. Click **Close**.

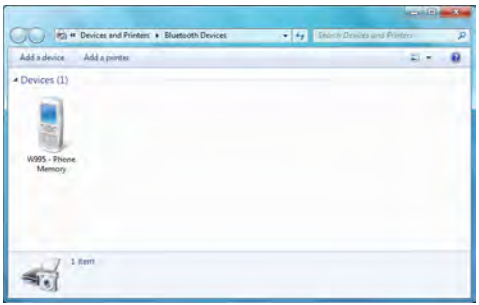


Figure 7 - 22
Pairing Complete & Bluetooth Device Enabled

To Change Settings for the Bluetooth Device

1. Click the notification area icon and select **Show Bluetooth Devices**.
2. Right-click on the device you want to change and click **Properties** to:

- Change the **name** of the device (click **Bluetooth**, type a new name and click **OK**).
- Enable/Disable a **service** (click **Services**, clear/tick the check box next to the service and click **OK**).

To Make your Computer Discoverable to Bluetooth Devices

1. Click the notification area icon and select **Open Settings**.
2. Click **Options**, and make sure that ***Allow Bluetooth devices to find this computer*** check box (**Discovery**) has a tick inside it.
3. Make sure that the ***Alert me when a new Bluetooth device wants to connect*** check box (**Connections**) has a tick inside it, if you want to be notified when a Bluetooth device wants to connect.

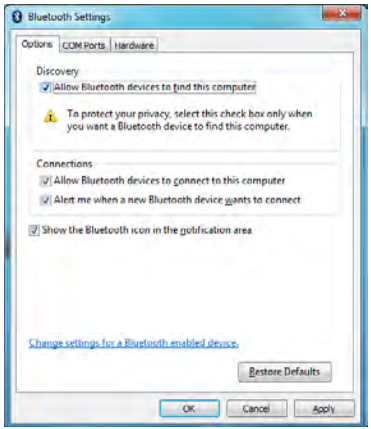


Figure 7 - 23
Bluetooth Settings - Options

Bluetooth Help

To get help on Bluetooth configuration and settings, select **Help and Support** from the **Start** menu. Type Bluetooth in the **Search Help** box, and select an item from the returned search results to get more information.

3G Module

If you have included an **optional UMTS/HSPDA OR UMTS/HSPDA+** based 3G Module (Universal Mobile Telecommunications System or High Speed Packet Access) module (see *"Communication" on page D - 4* for specification details) in your purchase option, you will have the appropriate application (**Wireless Manager**) provided for ***Windows 7*** (see *"3G Settings (Windows 8)" on page E - 50* for information on ***Windows 8*** as no driver/application installation is required). Follow the instructions on page *7 - 45* to install the USIM card (which will be provided by your service provider), and then install the application.

Important Notice - 3G & Bluetooth/Wireless LAN Modules

In order to comply with FCC regulations you should NOT operate the 3G module and the Bluetooth/Wireless LAN modules at the same time as this may disrupt radio frequency, and cause interference. When the 3G module is powered on, make sure that the Bluetooth/Wireless LAN modules are powered off.

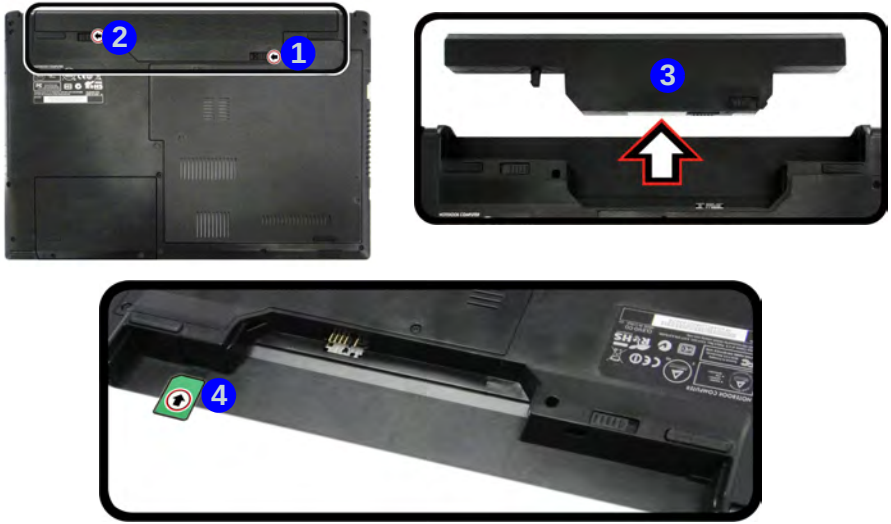
3G Module Power

Note that when the computer resumes from a power saving state, is restarted or starts up after shutdown, the 3G module will be powered off.

3G Module USIM Card Installation

Follow the instructions below to install the USIM card (which will be provided by your service provider).

1. Turn **off** the computer, and turn it over.
2. Slide the latch 1 in the direction of the arrow.
3. Slide the latch 2 in the direction of the arrow, and hold it in place.
4. Remove the battery 3.
5. Insert the USIM card 4 (at the rear of the battery compartment) as illustrated below until it clicks fully into position, and replace the battery.



Power Safety Warning

Before you undertake any installation procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

USIM Card Orientation

Note that the USIM card's readable side (with the gold-colored contacts) should face upwards as illustrated.

Figure 7 - 24
Battery Removal & USIM Card Insertion

3G Modules & System Wake Up

Note that the 3G modules **DO NOT** support system wake up on 3G modem activity.

Before installing the application, make sure that the 3G module is ON (installing the driver with the module off will not allow the software to detect the module hardware correctly). Use the **Fn +** **key combination** (see *Table 1 - 2, on page 1 - 11*) **or Control Center button to toggle power to the 3G module**. Make sure you install the drivers in the order indicated in *Table 4 - 1, on page 4 - 3*. **Note that exiting the application does NOT turn off the 3G module**.

- **Wireless Manager** - See *"Wireless Manager Installation" on page 7 - 47* for driver installation information and *"Wireless Manager Application" on page 7 - 48* for instructions on using **Wireless Manager**.
- See *"3G Settings (Windows 8)" on page E - 50* for ***Windows 8*** configuration information.

Wireless Manager

With the **3G** module and USIM card (supplied by your service provider) installed you may then install the **Wireless Manager** application. The **Wireless Manager** application allows you to directly access your HSPA internet service from the computer.

Wireless Manager Installation

1. Enable power to the module by pressing the **Fn +** key combination or Control Center button (give the module about 10 seconds to power on).
2. If a ***Found New Hardware*** window appears, click **Cancel** (click **Cancel** for all ***Found New Hardware*** windows that appear).
3. Insert the ***Device Drivers & Utilities + User's Manual disc*** into your DVD drive.
4. Click **Option Drivers** (button).
5. Click **5.Install 3G Driver > Yes**.
6. Click **Next > Next > Install**.
7. Click **Finish**.
8. Access the **Wireless Manager** application from the **Start** menu or the desktop shortcut .

Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.

Use the **Fn +** key combination to toggle power to the 3G module, and check the indicator to see if the module is powered on or not (see ***Table 1 - 2, on page 1 - 11*** / ***Table 1 - 1, on page 1 - 8***).

PIN Number

The PIN number for your USIM card will be supplied by your service provider. You usually have a limited number of attempts to enter the correct PIN number.

If you fail to enter the PIN number correctly you will be blocked from accessing the USIM card and you will need a **PUK** (Personal Unblocking Key), supplied by your service provider, to unlock it.

Wireless Manager Application

The connection information is stored on the USIM card supplied by the service provider (where this is not the case you may need to create a profile - see *"Creating a Profile" on page 7 - 54*).

1. Power on the 3G module using the **Fn +** key combination.
2. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut.
3. You may be required to enter you **PIN** number and click **OK**.
4. Click the **Connect** Connect button (a **Profile** needs to be selected, and in most cases this will be pre-configured).

Figure 7 - 25
Wireless Manager (Not connected)

5. The system will connect to your network.
6. **Connected** will appear above the timer icon (the timer will indicate your connected time for the current session) Connected 00:00:33 .
7. You can then access the internet, download e-mail etc. as per any internet connection.

Wireless Manager Help

To get help on **Wireless Manager** configuration and settings, click the **Help** icon or press **F1**.

Help

Figure 7 - 26
Wireless Manager (Connected)

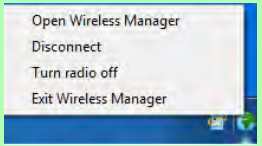
8. Click the Wireless Manager notification area icon to view the connection status, or wireless icon to view the Mobile Broadband Connection status.

Figure 7 - 27
Notification Area Icons (Connected)

9. The indicator UMTS will display the signal strength and radio access technology.
10. To disconnect from the service provider, click the **Disconnect** Disconnect button (note that if you click the close icon at the top right of the screen the application will minimize to the system tray, however the application will still be running; to exit the application right-click the notification area icon and click **Disconnect** or **Exit Wireless Manager**).
11. The program will disconnect from the service provider.
12. The module will still be on, and you will need to press the **Fn +** key combination to turn it off.
13. If you are unsuccessful in connecting this way you may need to add a profile with information provided by your service provider (see the following pages).

Notification Area Icon

Right-click the notification area icon to bring up the menu to **Open/Exit Wireless Manager**, **Disconnect** or **Turn radio off**.



Profiles

1. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click the **Settings > Advanced.**
3. Click the **Profiles** (tab).

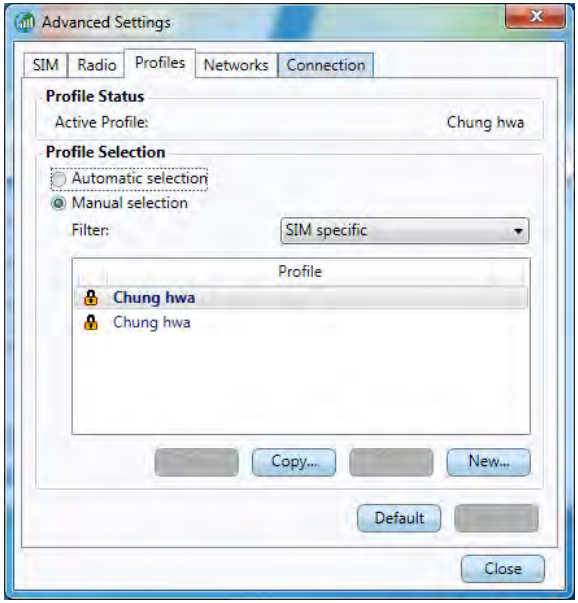


Figure 7 - 28
Advanced Settings - Profiles

4. Multiple profiles may be available from the USIM card and the first time the application starts it may require you to select a profile (**Set Profile**) to use for your connection.

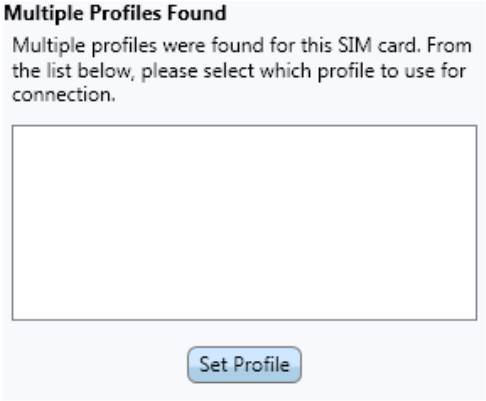


Figure 7 - 29
Multiple Profiles Found

Automatic Profile Selection

If **Automatic selection** is chosen, then the application will search the operator profile database for a profile that matches the details on your USIM card. If a correct profile is found it will be automatically selected as your profile.

Manual Profile Selection

If Manual selection is chosen, then you can select a profile from the applications's operator profile database, or you can create a new profile.

Selecting a Profile

1. Click **Manual selection** (button).
2. Click the **Filter** to view the drop-down list.
3. Select the Profile you wish to use and click **Apply** to confirm the selection.

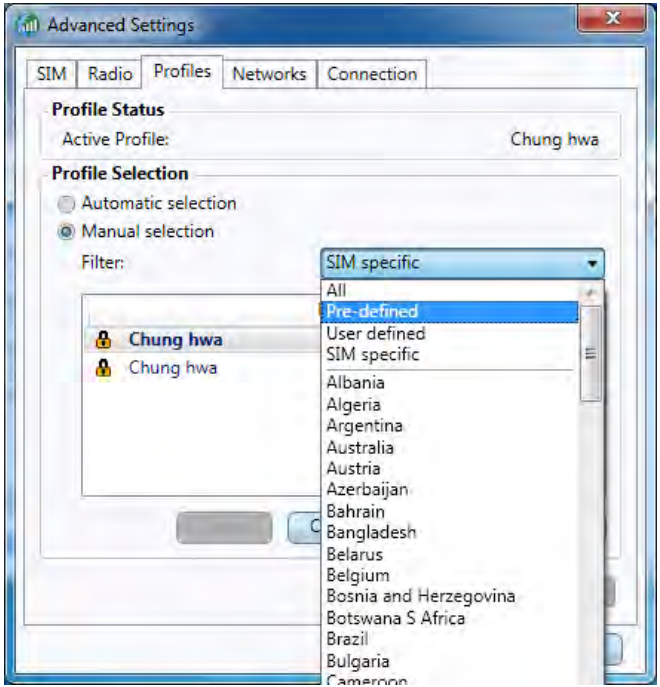


Figure 7 - 30
Profile - Manual Selection (Filter)

Deleting a Profile

To delete a profile click to select **Manual selection** and select the profile and click **Delete**.

Modifying a Profile

To modify a profile click to select **Manual selection** and select the profile and click **Edit**. Change the settings as required and then click **Save** (note that only **user defined** profiles may be edited).

Creating a Profile

1. Click **Manual selection** (button).
2. Click the **New**.
3. Enter a name you prefer for the profile.
4. Enter the **Access Point Name** (APN).
5. Enter the **User Name** and **Password** if required (some service providers may not require this information and the fields may then be left blank).
6. If your service provider requires **IP address**, **DNS** and **Protocols** to be entered, click the appropriate tab and enter the supplied information (otherwise leave blank).
7. Click **Save** to save the profile information.
8. The profile will be stored under **User defined** in the **Filter** drop-down list.

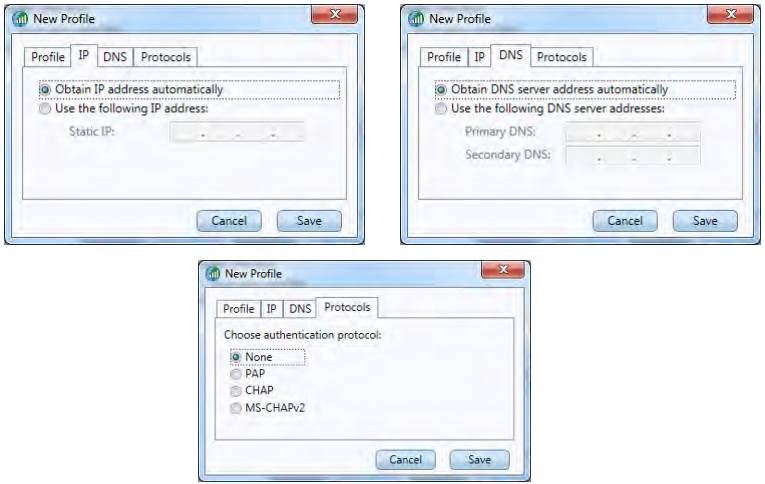


Figure 7 - 31
New Profile IP, DNS & Protocols

Settings

The **Settings** tab allows you at adjust the application features. Click to put a tick in **Launch Wireless Manager at Windows startup** to launch the application at ***Windows*** Startup.

Figure 7 - 32
Settings

The **Advanced** settings allows more detailed configuration. To access the **Advanced** settings:

1. Access the **Wireless Manager** program from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click the **Settings > Advanced.**
3. Click the tab to edit any particular setting.

PIN Notes

You will have to enter your current PIN to change the PIN settings.

Request PIN at startup will apply only after you have shut the computer down and restarted it (not just restarted).

Radio & Power Saving States

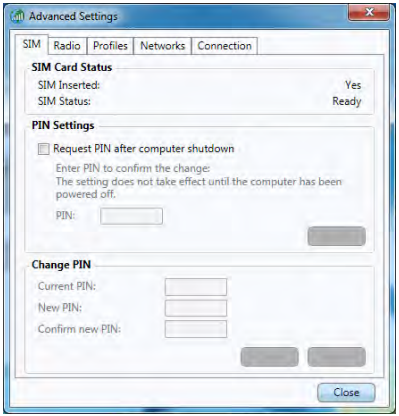
You can choose to have the radio turned on or off during **Hibernate** or **Sleep** power saving states.

SIM

Most USIM cards are protected by a Personal Identity Number (PIN). You may turn on or off the **Request PIN at startup** (click **Apply** to save any changes). You can also **Change PIN** (you will need to enter the new PIN in the two fields provided and click **Apply** to save any changes).

Radio

Radio needs to be turned on before you can make any connection (note this is not the same as powering the module off/on using the **Fn +** key combination), but you may turn it off when required. **Automatic** mode is the recommended setting for most 3G networks as it will use 3G where available. All **Frequency band**s are selected as default (click **Apply** to save any changes).



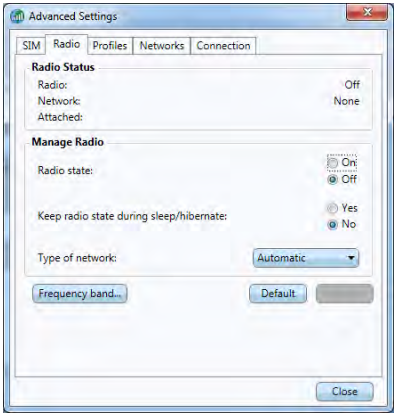


Figure 7 - 33
Advanced Settings SIM & Radio

Networks

The mobile network list lists available networks at your location, and allows you to select a network which to connect. You must disconnect before being able to select a network.

Connection

You can set the **Wireless Manager** to automatically connect at ***Windows*** startup (however the module must be powered on, and radio must be turned on). You can also automatically connect when resuming from a power-saving state (click **Apply** to save any changes). Click **Default** to return to the original default settings.

Warning

Note that some applications automatically transmit data when connected, and you may be charged for the data transfer. Some auto connection/connection settings may lead to expensive roaming charges.

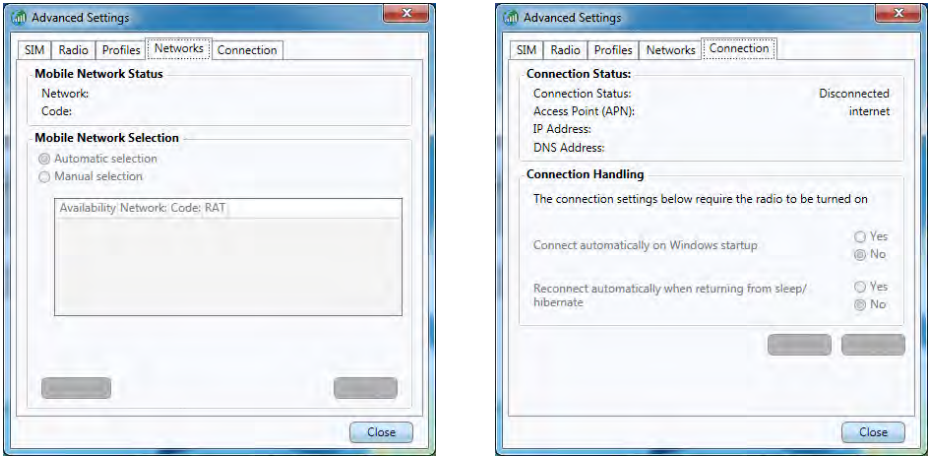


Figure 7 - 34
Advanced Settings Networks & Connection

Text Messaging Service (SMS)

In addition to standard internet services you may also send and receive SMS text messages using the **Wireless Manager**, if your service supports SMS.

SMS Utility

1. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click **SMS** and the **SMS Utility** will then start.
3. The indicator in the upper right corner will display if radio is currently on or off (radio must be on in order to send/receive messages).

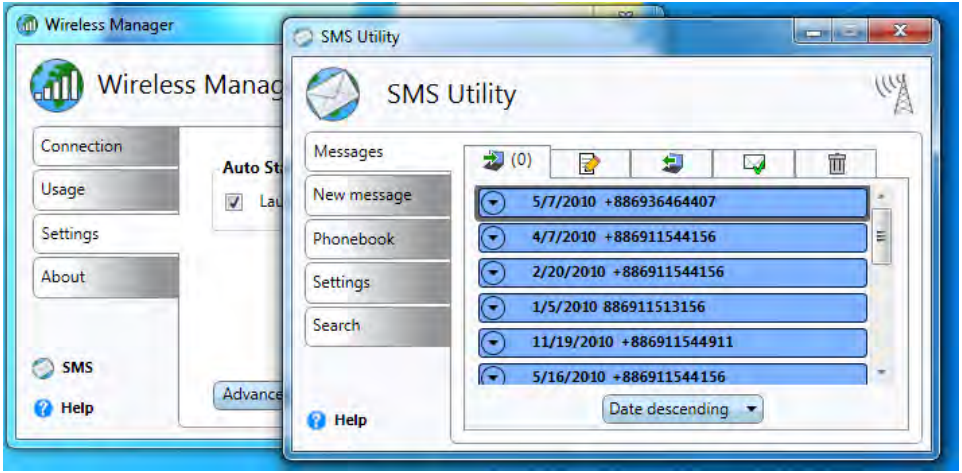


Figure 7 - 35
SMS Utility Open

Messages

Click the **Messages** tab to access the tabs displaying text messages. The tabs at the top of the menu display the **Inbox, Drafts, Outbox, Sent** and **Trash** menus.

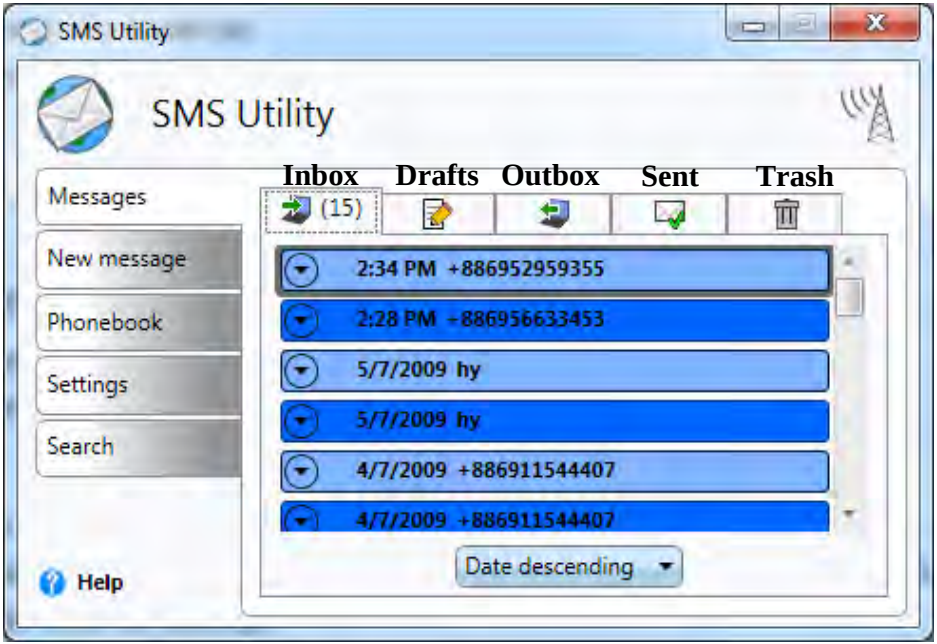


Figure 7 - 36
SMS Utility Messages

Text messages are automatically saved to your computer and may be sorted in ascending or descending order by name or date.

Sending a Text Message

1. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click **SMS** and the **SMS Utility** will then start.
3. Click the **New Message** tab.
4. Enter the phone number in the **To** field (multiple numbers may be entered separated by a semicolon (;), or click the phonebook icon to select a name from the phonebook.
5. Select any contact's phone number and click **OK** (you can click a check box to select multiple contacts or more than one phone number for each contact).
6. Type the message body in the **Message** field (to a **maximum of 160 characters**).

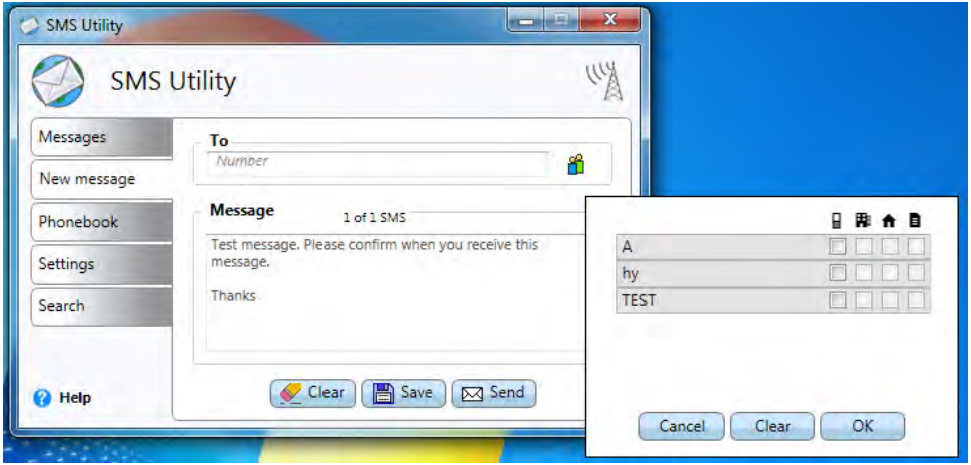
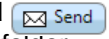
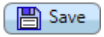


Figure 7 - 37
SMS Utility - New Message

7. Click **Send**  to send the message or **Save**  to save the message in the **Drafts** folder.
8. Clicking the **Clear** icon clears both the **Message** and **To** fields.
9. If **radio is on** then the message will be sent, however if the radio is off the message will be stored in the **Outbox.**

Note that you do not have to connect to the network to Send/Receive SMS messages.

Inbox

Any received text messages will be displayed in the **Inbox**. The number of unread messages will be displayed in parenthesis in the inbox tab. Unread messages will be displayed in a darker color then the read messages, and incoming messages will be displayed briefly in the Notification Area.

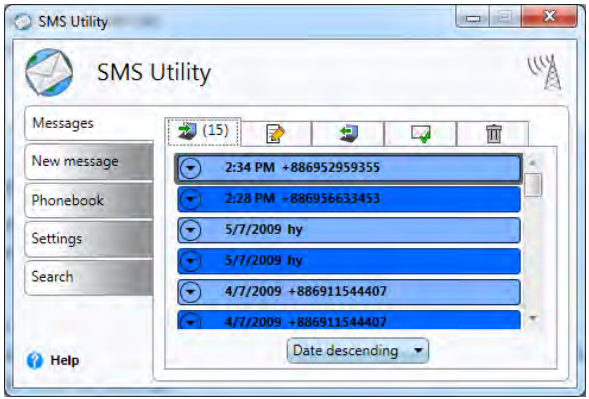


Figure 7 - 38
SMS Utility - Inbox & New Message Received Notification

Messages

- **Opening a text message**: Double-click the message and the message will open in a new window (to close it click the close icon in the top right of the message).

Figure 7 - 39
Close Message

- **Previewing a text message**: Click the preview icon and the message preview will open. Click the icon again to close the preview.
- **Replying to a text message**: Double-click the message and click **Reply**. Type the reply in the message field and click **Send** to send the message (or **Save** to save it in **Drafts**.
- **Forwarding a text message**: Double-click the message and click **Forward**. Type the recipients name in the **To** field or click the icon to select recipients from the **phonebook**.
- **Deleting a text message**: Right-click the message select **Delete selected**. To delete al messages in the folder right-click any message and select **Delete All**. Holding down the **Ctrl key** and selecting messages allows you to multiple select messages for deletion (choose **Delete selected**). Deleted message will be sent to the Trash folder. To permanently delete messages right-click and select **Delete selected** or **Delete All** (or you may choose to **Recover**/**Recover All**) and click **Yes** to confirm.

Phonebook

The **Phonebook** allows you to view and edit all your frequently used contacts, and is divided into **Contacts** and **Groups**. To access the **Phonebook**:

1. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut.
2. Click **SMS** and the **SMS Utility** will then start.
3. Click the **Phonebook** tab.

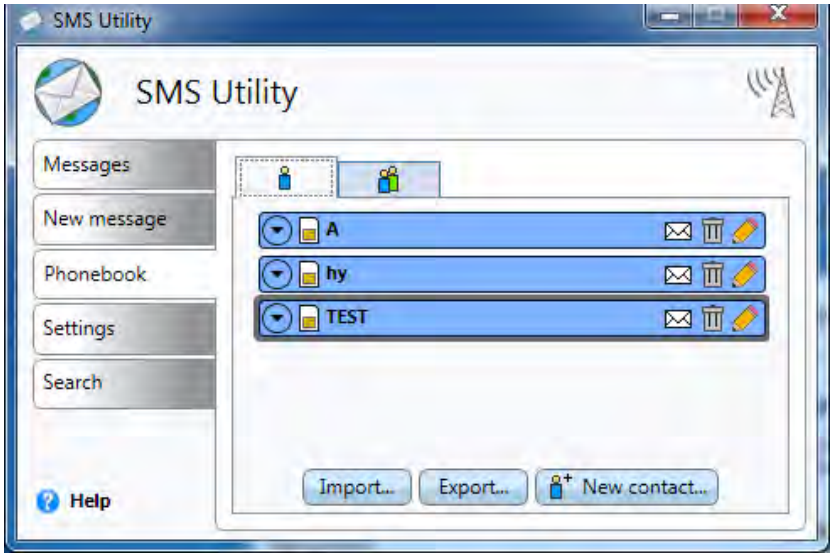


Figure 7 - 40
SMS Utility - Phonebook (Contacts)

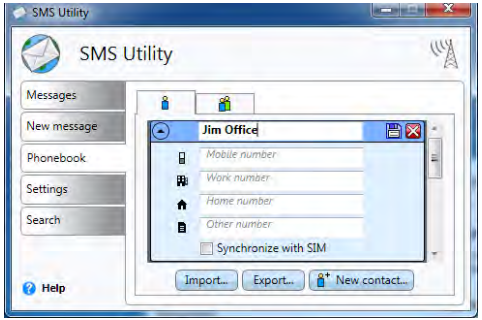
Import/Export Contacts

Import/Export Contacts: Click the **Import/Export** Import... Export... buttons to import or export the list of contacts.

Figure 7 - 41
SMS Utility
New Contact

Contacts

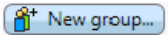
- **New Contact**: Click the **New contact** button New contact... to create a contact. Add the name and at least one phone number (**Mobile**, **Work**, **Home** and **Other** fields are available) for the contact. Click the icon to expand the number details. Select **Synchronize with SIM** to synchronize the contact information with your USIM card. Click the **Save** icon to save the information.



- **Edit Contact**: Click the edit icon to make changes to a contact detail, and click save to confirm the changes.
- **Delete Contact**: Click the delete icon to delete a contact from the phonebook.
- **Send a message to a Contact**: Click the message icon to send a text message to any contact.

Groups

You can organize existing contacts into groups from the **Groups** tab.

- **New Group**: Click the **New group** button 

to create a group. Click the icon to expand the group details, and click a check box to add at least one phone number from the contacts for the group. Click the **Save** icon to save the information.

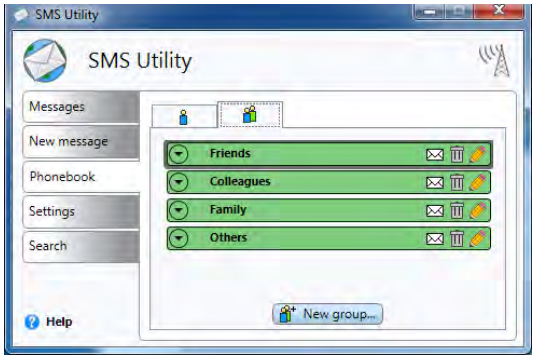


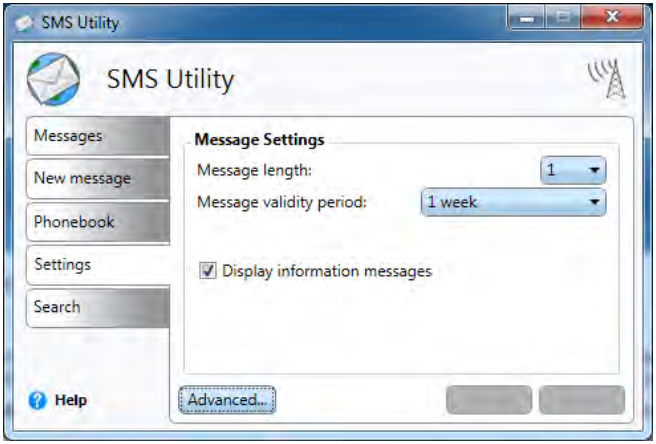
Figure 7 - 42
SMS Utility
Groups

- **Edit Group**: Click the edit icon to make changes to a contact detail, and click save to confirm the changes, or close to exit without making changes.
- **Delete Group**: Click the delete icon to delete a group from the phonebook.
- **Send a message to a Group**: Click the message icon to send a text message to any group.

SMS Settings

The SMS Utility **Settings** tab allows you at adjust the SMS features.

Figure 7 - 43
SMS Utility Settings



SMS Settings

Message Length: You can set the number of blocks that can be sent (up to a length of 10 blocks).

Message validity period: This sets the period after which the message will be deleted from the SMS center and therefore not forwarded to the recipient(s) when they come online.

Display information messages: You can choose whether to allow information messages to automatically appear on screen or not.

The **Advanced** settings allows more detailed configuration. To access the **Advanced** settings:

1. Access the **Wireless Manager** application from the **Start** menu (**Start > All Programs > Wireless Manager > Wireless Manager**) or the desktop shortcut .
2. Click **SMS** and the **SMS Utility** will then start.
3. Click the **Settings > Advanced.**
4. Click the tab to edit any particular setting.

Send

Click **Delivery Report** to automatically request a reply from a recipient. If you click to **Send messages in Outbox automatically upon connection** then messages written when the radio is off, will then be sent automatically the next time radio is turned on. You can also choose to **Include original message in reply**.

Notification

This menu allows you to enable/disable **Show animation on new message** to get an animated notification of newly received messages. Enabling **Play sound on new message** will play an audio notification upon receipt of new messages.

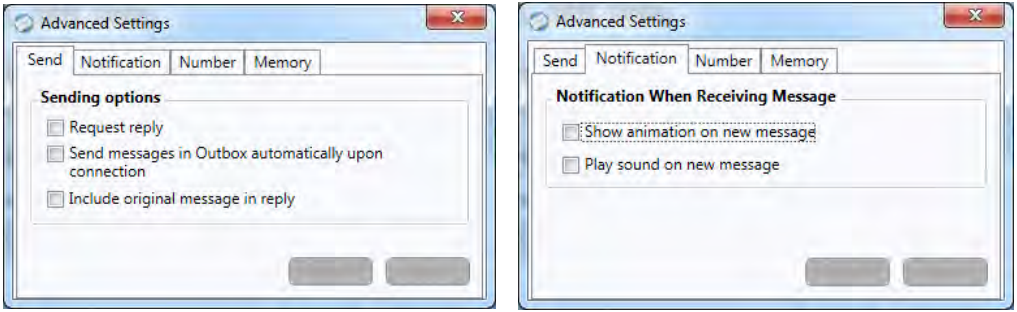


Figure 7 - 44
SMS Utility - Advanced Settings Send & Notification

Number

You can choose to **Use default service center number** or you can uncheck the box and add your number manually if your service provider supplies a different number (click **Apply** to save the change or **Default** to return to the default number).

Memory

Phonebook memory status displays the number of contacts displayed on the USIM card.

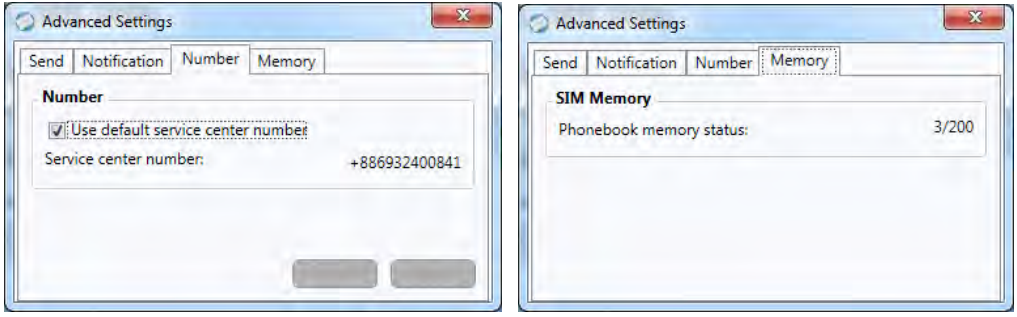


Figure 7 - 45
SMS Utility - Advanced Settings Number & Memory

Trusted Platform Module

The **TPM security chip** allows you to create and manage digital certificates for user and platform authentication. This type of security is usually administered within large enterprises and organizations, and therefore requires implementation by a system administrator before users can access security features.

Individual users can use the TPM as an authentication with the fingerprint reader.

Make sure you have administrator's rights to your computer, and have a ***Windows*** password enabled for full security protection. In addition **Make sure you prepare a removable media (e.g. a USB flash drive) to store passwords etc. before beginning the TPM initialization process**.

Before setting up the TPM functions you must initialize the security platform.

Enabling & Activating TPM

1. Restart the computer.
2. Enter the **Aptio Setup Utility** pressing **F2** during the POST/startup.
3. Use the arrow keys to select the **Security** menu.
4. Select **TPM Configuration** and press Enter to access the sub-menu.
5. Press Enter to access the **TPM Support** menu and select **Enable** to display the full **TPM configuration** menu.
6. Select **TPM State**, press Enter and select **Enabled** to change the TPM state to enabled. You will then need to press **F4** to save the changes and restart the computer.

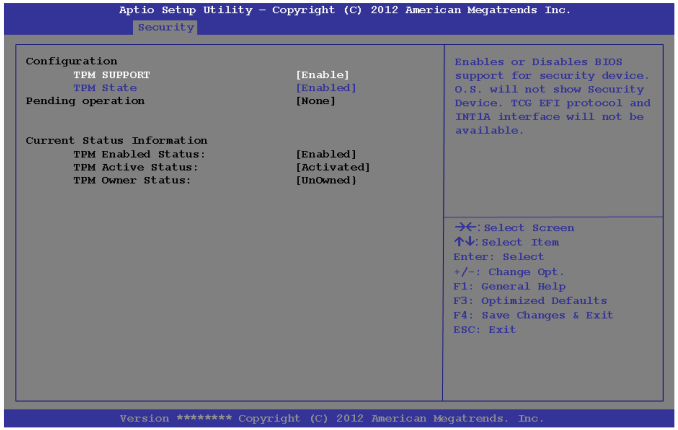


Figure 7 - 46
TPM State (Enabled)

7. As the computer restarts press **F2** to enter the BIOS again and go to the **TPM Configuration** menu.

8. Select **Pending operation**, press Enter and select the option you require (if you are initializing TPM you should select **Enable Take Ownership** and press Enter). You will then need to press **F4** to save the changes and restart the computer.

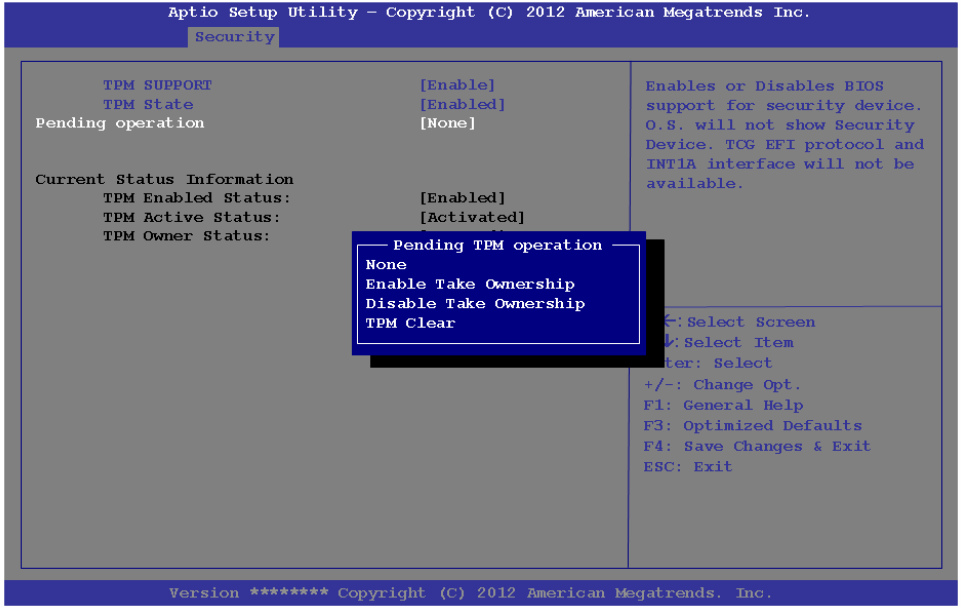


Figure 7 - 47
Pending TPM operation (Enable Take Ownership)

9. You can now **install the TPM driver** (see ***"Trusted Platform Module (TPM) Driver Installation" on page 7 - 72***) and then initialize the TPM.

Trusted Platform Module (TPM) Driver Installation

1. Make sure you have enabled and activated the TPM in the BIOS before installing the driver.
2. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
3. Click **Option Drivers** (button).
4. Click **6.Install TPM Driver > Yes**.
5. Click **Install > Next**.
6. Click the button to accept the license and click **Next**.
7. Click **Next > Next > Install**.
8. Click **Finish > Yes** to restart the computer.

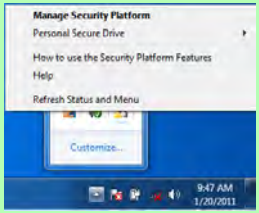
Initializing TPM

1. Run the application from the **Infineon Security Platform Solution > Manage Security Platform** item in the **Start > Programs** menu.
2. Click **User Settings** (tab) and click **Yes,** or right-click the icon in the notification area of the taskbar, and select **Security Platform Initialization** (or click the **Security Platform State** taskbar bubble).
3. The **Quick Initialization** method will automatically be selected for you (if you need to use advanced settings provided by your network administrator then select **Advanced Initialization**).
4. You will need to use a removable media (e.g. a USB Flash Drive) to store passwords and data (keep the media in a safe place until required).
5. Select the drive you want to use from the drop-down menu and click **Next**.

Figure 7 - 48
Security Platform Quick Initialization Wizard

Help

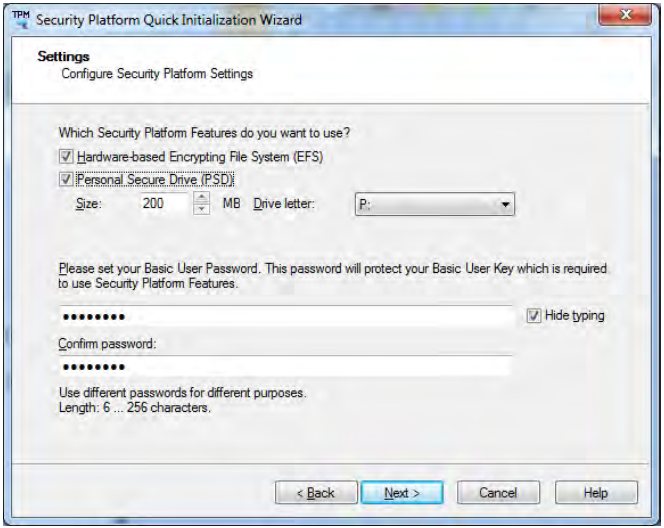
Right-click the icon in the notification area of the taskbar to bring up the menu to select ***Help*** or **How to use the Security Platform Features**.



You can also click the **Help** button in any of the Infineon Security Platform Settings Tool tabs to bring up specific help topics on each tab.

Figure 7 - 49
Settings

6. Choose the **Security Platform Features** you want to use by clicking the appropriate tickbox.
7. Enter a **Basic User Password** (and re-type to confirm it) and click **Next**.



8. Click **Next** to confirm the settings.
9. The computer will then initialize the settings.
10. Click **Finish**.
11. Click the tabs and control panels to adjust the settings.
12. Double-click the icon in the taskbar notification area to access the **Infineon Security Platform Settings Tool**, or right-click the icon and select a menu item.

Infineon Security Platform Settings Tool

The Infineon Security Platform Settings Tool allows you to manage and check the TPM state, manage your password information, and to backup and restore the TPM data. As TPM is usually administered within large enterprises and organizations, your system administrator will need to assist you in managing the information here.

Menus

Note that not all the menus pictured here will be available for access. The menu items that appear will be dependent on your configuration settings etc. (see the **Help** file for full details).

Figure 7 - 50
Infineon Security Platform Settings Tool

User Settings

This page allows the settings to be configured for the currently logged in Infineon Security Platform user including the ability to change the password, configure secure e-mail, file and folder encryption and Enhanced Authentication. You can also import or delete certificates protected by the security platform.

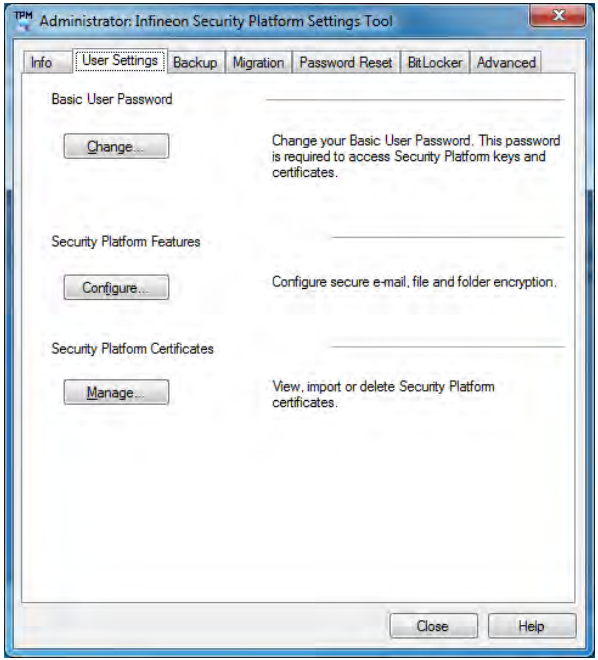


Figure 7 - 51
Infineon Security Platform Settings Tool (User Settings)

Backup

Here you can configure backup and restore operations. Backup files contain the computer identification and user identification information which is used to match the machine name and user name with the current machine and user during restoration.

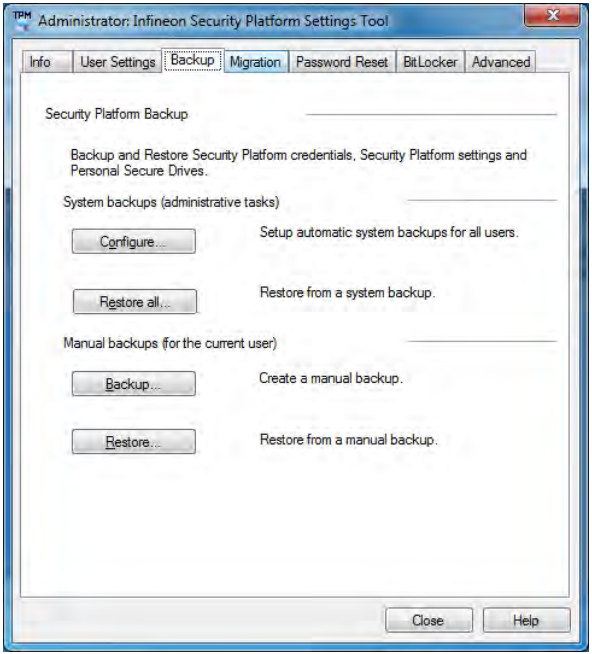


Figure 7 - 52
Infineon Security Platform Settings Tool (Backup)

Migration

The Migration tab is used to help securely transfer keys and certificates from one platform to another.

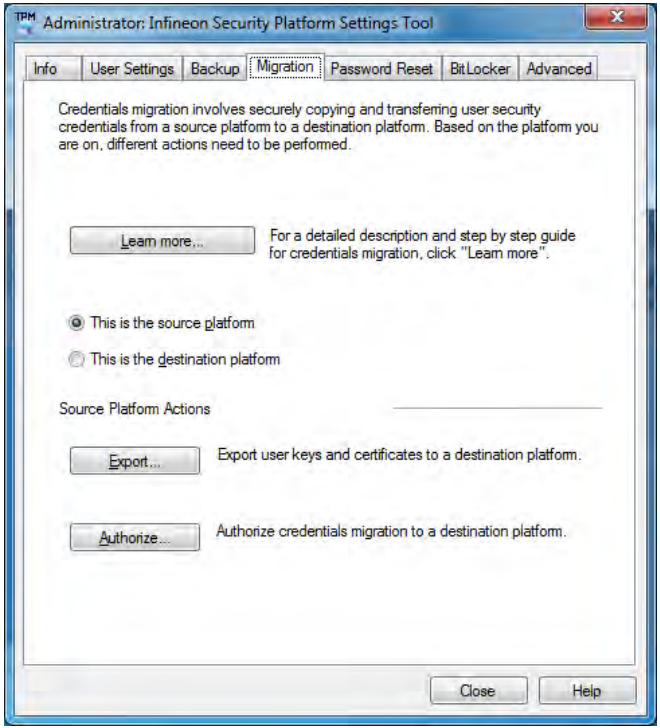


Figure 7 - 53
Infineon Security Platform Settings Tool (Migration)

Password Reset

Use Password Reset to reset basic user passwords when required.

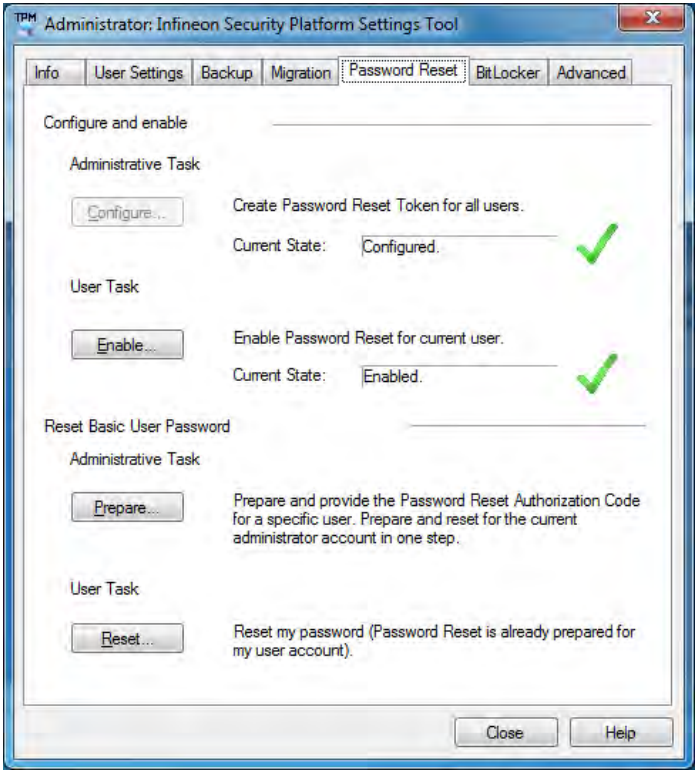


Figure 7 - 54
Infineon Security Platform Settings Tool (Password Reset)

BitLocker

BitLocker Drive Encryption can be used in conjunction with the TPM to encrypt data on the disk and is done via the **Microsoft BitLocker Control Panel Applet**. Click **Configure** and select a drive to be encrypted and then follow the Wizard to begin the encryption process.

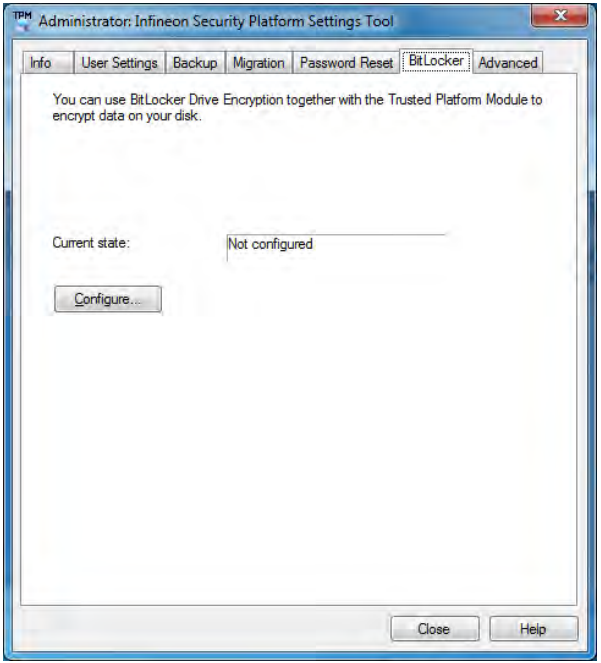


Figure 7 - 55
Infineon Security Platform Settings Tool (BitLocker)

Access the Microsoft **BitLocker Drive Encryption** control panel applet from the ***Windows*** control panel (**System and Security**).

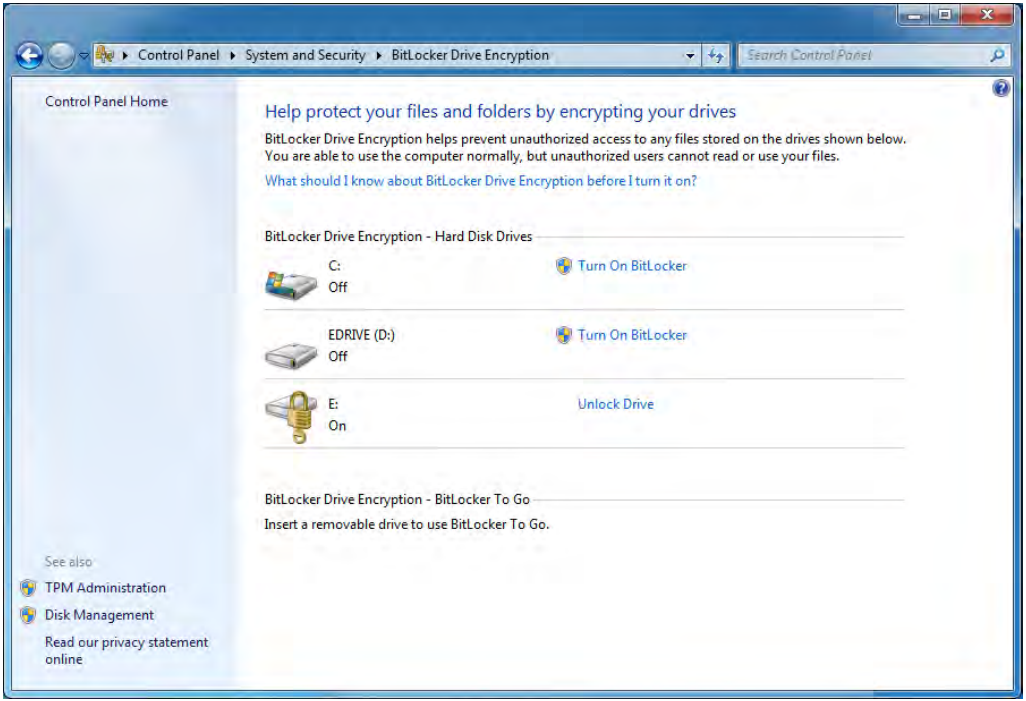


Figure 7 - 56
BitLocker Drive Encryption

Advanced

Configure all the Security Platform owner and policy settings from the Advanced tab. The settings that can be changed are for the local computer only.

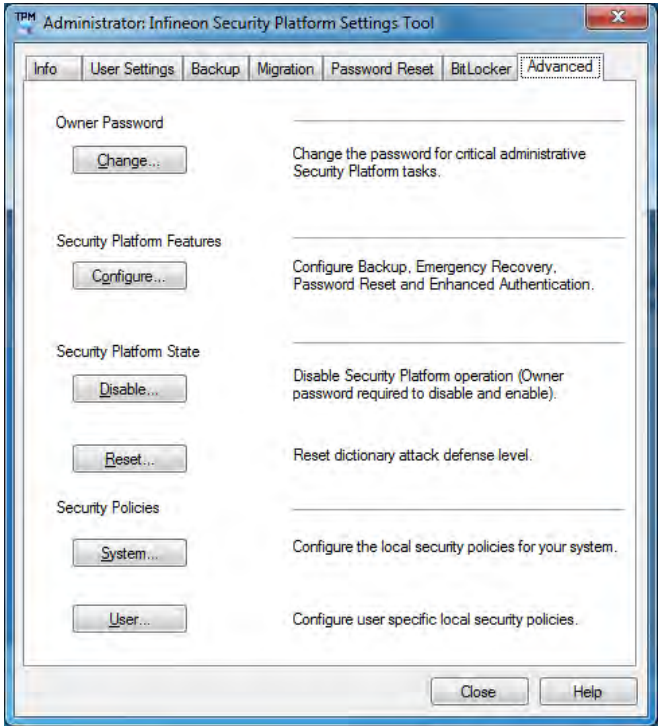


Figure 7 - 57
Infineon Security Platform Settings Tool (Advanced)

Intel® Rapid Storage Technology

Install the Intel Rapid Storage Technology to support your SATA drive if set up in AHCI mode in the BIOS (see *"SATA Mode (Advanced Menu)" on page 5 - 9*), or if you have set up your hard disks in a RAID configuration for **Intel® Smart Response Technology** (see overleaf).

IRST Driver Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
2. Click **Option Drivers** (button).
3. Click **7.Install IRST Driver > Yes**.
4. Click **Next > Yes > Next > Next**.
5. Click **Finish** to restart the computer (you will need to restart the system again after the computer has rebooted).

If you have an **Solid State Drive (SSD) module** included in your purchase option you may configure **Intel® Smart Response Technology** for your system (**see over**).

Intel® Smart Response Technology

Intel® Smart Response Technology is an **Intel® Rapid Storage Technology (RST)** caching feature that accelerates computer system performance by using the SSD as cache memory between the hard disk drive and system memory.

System Requirements to support Intel® Smart Response Technology:

- System BIOS with SATA mode set to RAID (see *"SATA Mode (Advanced Menu)" on page 5 - 9*).
- Intel Rapid Storage Technology software installed.
- A Solid State Drive (SSD) with a minimum capacity of 18.6GB.

See overleaf for instructions on enabling **Intel® Smart Response Technology**.

Enabling Intel Smart Response Technology

1. Run the **Intel® Rapid Storage Technology** application from the **All Programs** menu.
2. Click **Enable acceleration** either under **Status** or **Accelerate**.

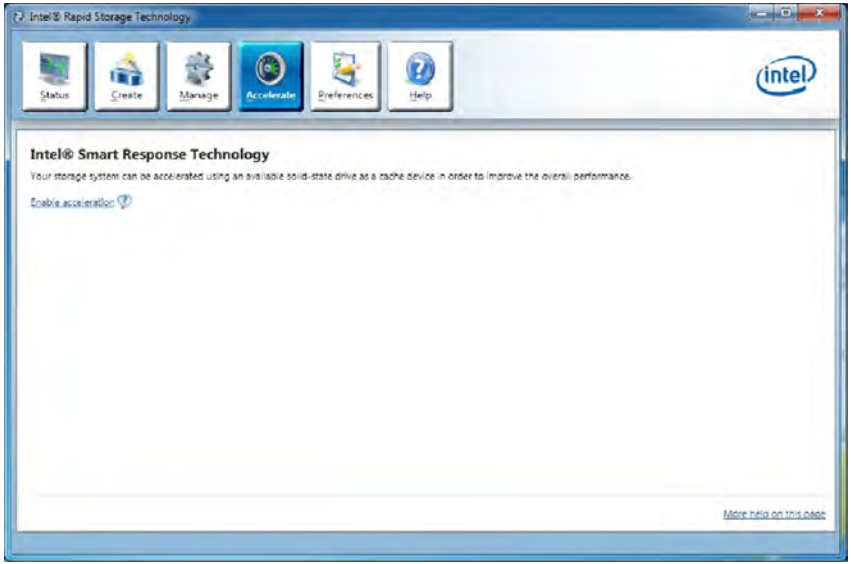


Figure 7 - 58
Enable Acceleration

3. Select the SSD to be used as a cache device.
4. Select the size from the SSD to be allocated for the cache memory (any remaining space on the SSD can be used for data storage using the simple data single-disk RAID 0 volume that is automatically created).

5. Select the HDD (or RAID volume) to be accelerated (it is highly recommended that you accelerate the system volume or system disk for maximum performance).
6. Select the acceleration mode, and then click OK (Enhanced mode is selected by default).

Note: **Enhanced mode** (default): Acceleration optimized for data protection.
Maximized mode: Acceleration optimized for input/output performance.

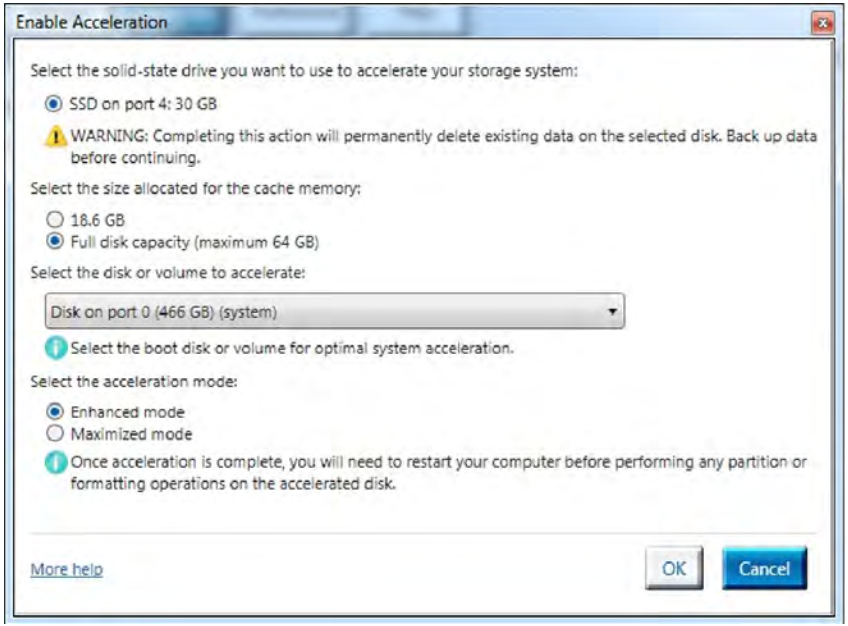


Figure 7 - 59
Enable Acceleration Options

7. The page will refresh and report the new configuration in **Acceleration**.

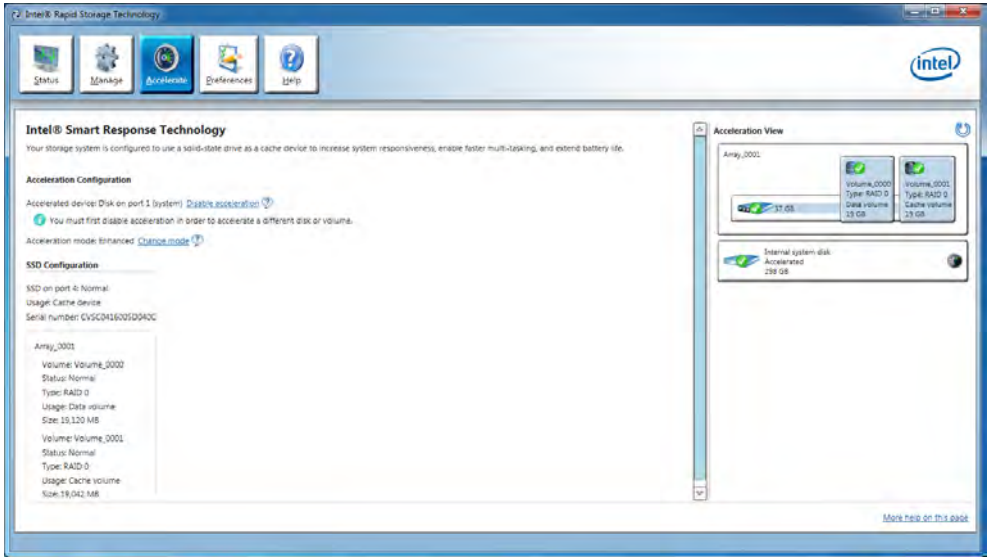


Figure 7 - 60
Intel® Rapid Storage Technology Accelerate

Intel® Rapid Start Technology Driver

Intel(R) Rapid Start Technology can resume power from Hibernation within 5 to 6 seconds and can remember your computer's previous state with zero power.

System Requirements to support Intel® Rapid Start Technology:

- Rapid Start Technology should be enabled in the BIOS (see *"Intel(R) Rapid Start Technology (Advanced Menu)" on page 5 - 8*).
- Intel Rapid Storage Technology software installed.
- A Solid State Drive (SSD) with a minimum capacity of 18.6GB.

See overleaf for instructions on enabling **Intel® Rapid Start Technology and see** *"Intel Smart Connect & Intel Rapid Start Technology" on page 7 - 100* for information on configuring Rapid Start and Smart Connect Technology.

Intel® Rapid Start Technology Configuration

1. Enable/disable **Intel(R) Rapid Start Technology** from the BIOS (see ***"Intel(R) Rapid Start Technology (Advanced Menu)" on page 5 - 8***).
2. Go the ***Windows*** control panel and double-click **Administrative Tools** (**System and Security**)**> Computer Management > Storage > Disk Management**
3. Right-click the SSD and select **Shrink Volume** from the menu.

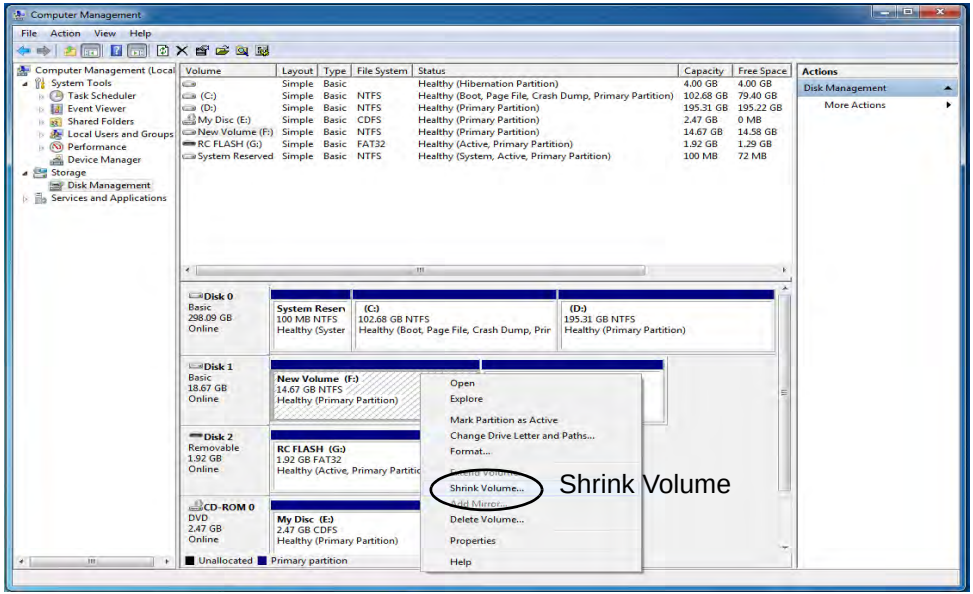
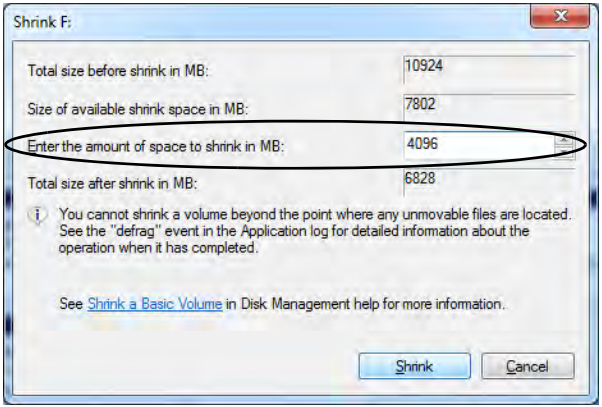


Figure 7 - 61
Computer Management (Shrink SSD Volume)

4. Enter the figure, **which should be equal to amount of system memory (RAM) in your computer,** in "**Enter the amount of space to shrink in MB**".

Figure 7 - 62
Shrink Volume Size



5. Click **Shrink** (any unallocated file space may be formatted for storage use).

Memory Size (Amount of Space to Shrink)

The figure entered in the "**Enter the amount of space to shrink in MB**" field above should be equal to the amount of system memory in your computer. In the example above the system memory is 4GB (**1024MB * 4 = 4096GB**). If you are unsure of your total system memory (RAM) then go to **System** control panel (System and Security) and check **Installed memory (RAM)**. The memory size will be displayed in GB so convert by multiplying the GB figure by 1024 to get the total in MB (e.g. 8GB = 8192MB).

6. Click the **Start** menu and type "**CMD**" in the search box.
7. Click **CMD** from the found list.

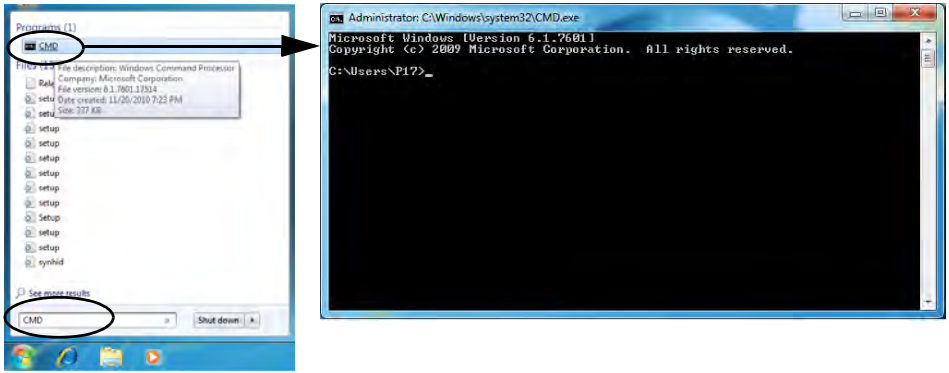


Figure 7 - 63
Search for CMD Prompt

8. Type "**DISKPART**".
9. At the DISKPART command type "**list disk**".

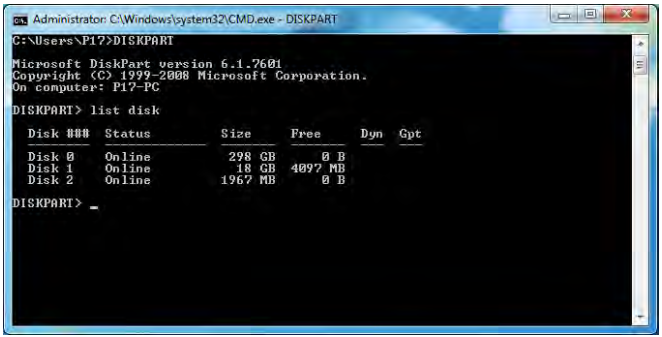
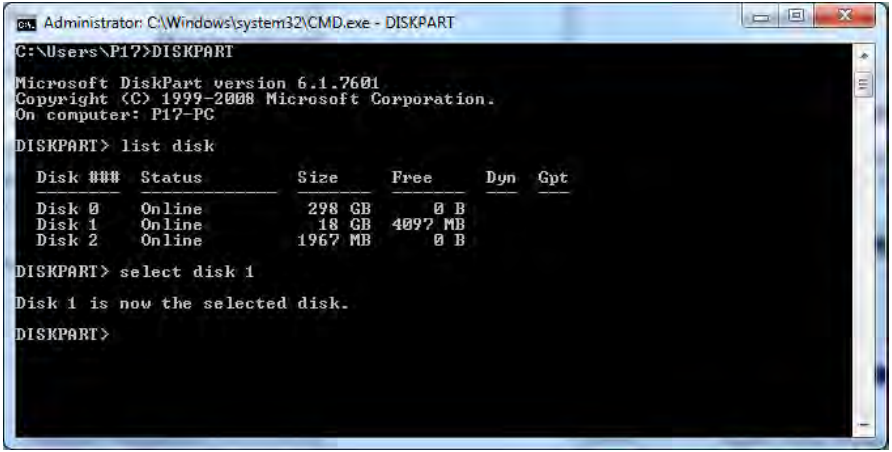


Figure 7 - 64
Diskpart - List Disk

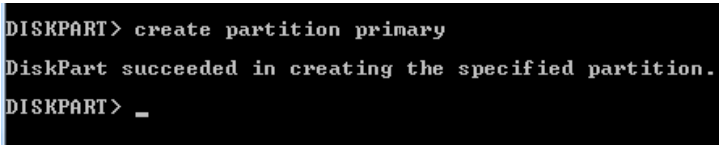
10. Type “**select disk #**” (**#** is disk number where you want to create the store partition, so refer to the results obtained from "**list disk**" for exact disk number).
11. The message “**Disk # is now the selected disk.**” will appear.

Figure 7 - 65
Diskpart - Select Disk #



12. Type “**create partition primary**”.
13. A “**DiskPart succeeded in creating the specified partition**.” message should appear.

Figure 7 - 66
Diskpart - Create Partition



14. Type “**detail disk**”.

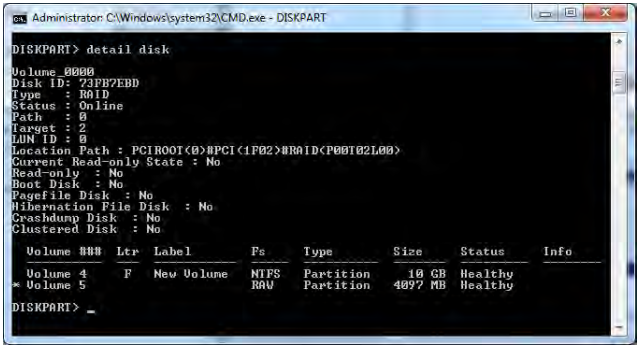


Figure 7 - 67
Diskpart - Detail Disk

15. Type “**select Volume #**” (# is volume of your storage partition so refer to results obtained from "detail disk" for the exact volume number).
16. The message “**Volume # is now the selected volume.**” will appear.

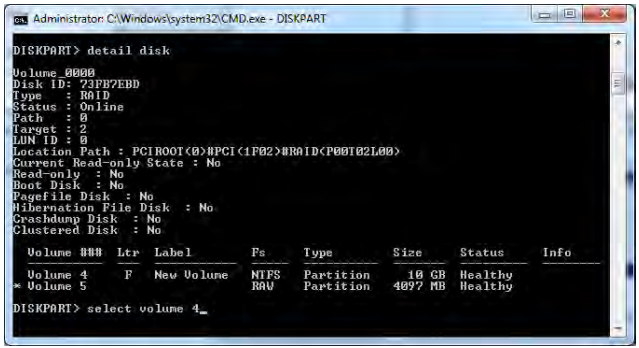


Figure 7 - 68
Diskpart - Select Volume #

17. Type "**set id=84 override**" (the id must be set to 84).

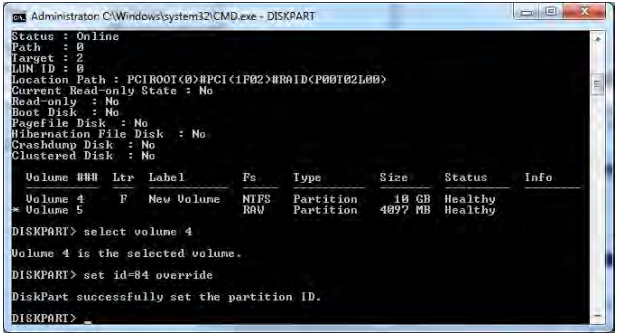


Figure 7 - 69
Diskpart - Set id=84 Override

18. The message "**DiskPart successfully set the partition ID.**" will appear.
19. Close the CMD window.
20. Go the ***Windows*** control panel and double-click **Administrative Tools** (**System and Security**)**> Computer Management > Storage > Disk Management.**
21. The disk partition should read **Healthy Hibernation Partition**.

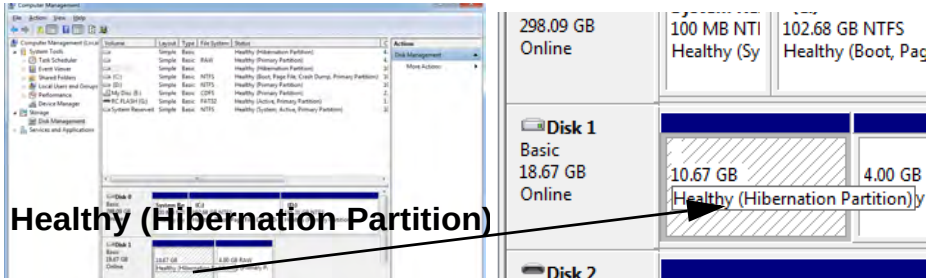


Figure 7 - 70
Computer Management (Healthy Hibernation Partition)

22. **Restart the computer**.

Intel® Rapid Start Technology Driver Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **8.Install Rapid Start Driver > Yes**.
4. Click **Next > Next > Yes > Next > Next**.
5. Click **Finish** to restart the computer.

Intel® Smart Connect Technology System Requirements

Note that in order to support Intel® Smart Connect Technology your system will need to have the item enabled in the BIOS (see page ***5 - 8***).

In addition only the following WLAN modules support this feature:

Intel® Centrino® Wireless-N 2230
Intel® Centrino® Wireless-N 135

Intel® Smart Connect Technology

Intel® Smart Connect Technology periodically, and briefly, wakes the computer from **Sleep** mode in order to update information for certain applications (e.g. to get mail from Microsoft Outlook) as required. These updates can therefore be made without having to turn the computer on, and applications will be up to date when the computer resumes from **Sleep** mode (make sure that ***Intel Smart Connect Technology*** is enabled in the BIOS - see ***"Intel Smart Connect Technology (Advanced Menu)" on page 5 - 8***).

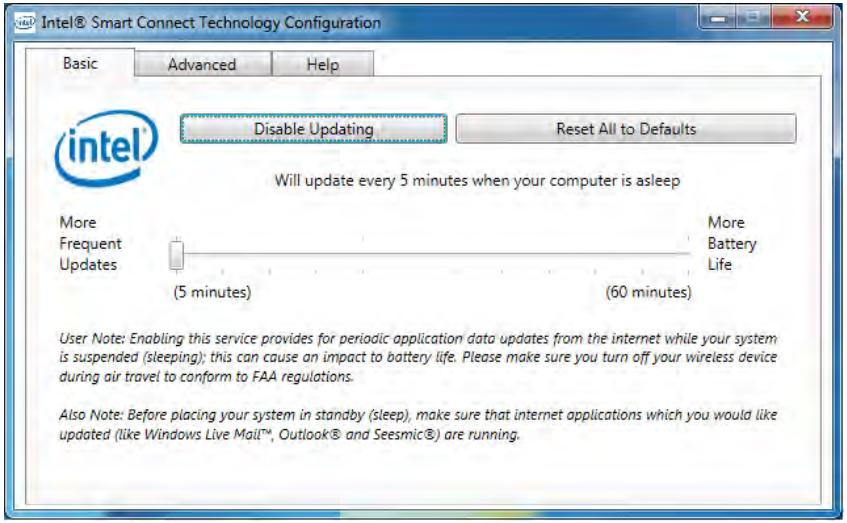
Note that the applications need to be on and running when the computer enters Sleep mode in order to get updates.

Intel® Smart Connect Technology Driver Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
2. Click **Option Drivers** (button).
3. Click **9.Install ISCT Driver > Yes**.
4. Click **Next**.
5. Click the button to accept the license agreement and click **Next**.
6. Click **Next > Install > Finish**.
7. Click **Yes** to restart the computer.

Intel® Smart Connect Technology Configuration

1. Access the **Intel(R) Smart Connect Technology** application from the **Start** menu.
2. Click **Basic** (tab) and adjust the slider to set the update frequency (note that the slider balances between ***"More Frequent Updates"*** and ***"More Battery Life"***).
3. Note the sidebar warning about the use of **Intel(R) Smart Connect Technology** aboard aircraft and make sure your wireless LAN module is off during air travel.
4. In order to update any applications, they will need to be on and running when the computer enters **Sleep** mode.



Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.

Use the **Fn + F11** key combination or hot key button to toggle power to the WLAN module, and check the indicator to see if the module is powered on or not (see ***Table 1 - 2, on page 1 - 11***/ ***Table 1 - 1, on page 1 - 8***).

Figure 7 - 71
iSCT Basic

5. Click **Advanced** (tab) to access the **Extended Power Savings** settings.
6. **Extended Power Savings** allows you to set a time period during which the computer will update less often (e.g. at night while you are asleep or whenever you are at work).

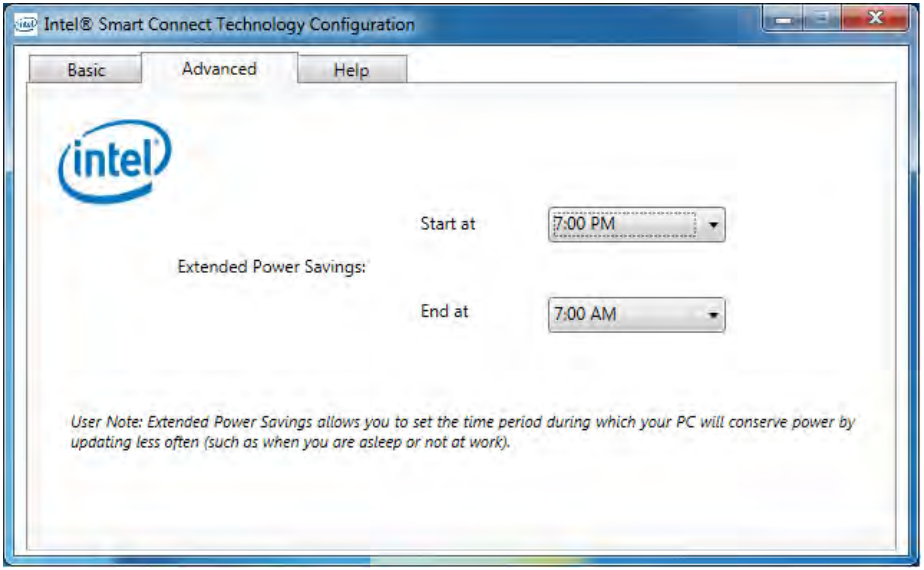
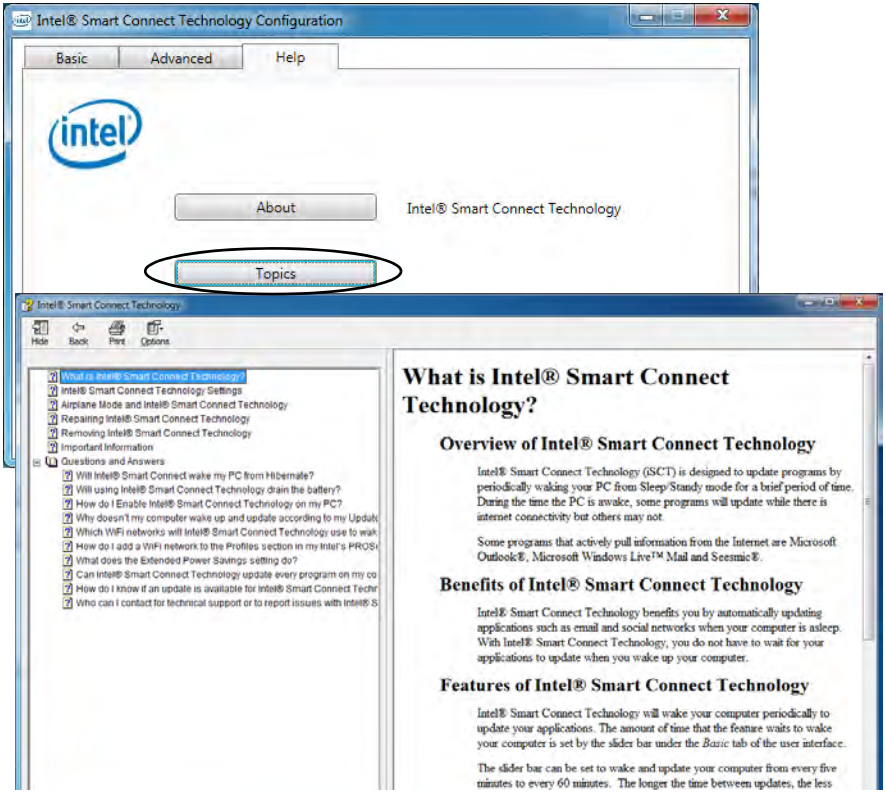


Figure 7 - 72
iSCT Advanced

7. Updates set during this time period will be performed every two hours, and this will override the settings selected in the **Basic** tab in order to conserve power consumption.

8. Click the **Help** tab and click **Topics** to access the main **Help** menu.



Intel WLAN Modules

If your purchase option includes an **Intel WLAN module**, (with ***Intel's PROSet Wireless Connection Utility*** installed), ***Intel® Smart Connect Technology*** will search for WiFi networks around you that you have previously accessed.

If no known WiFi networks are found, your computer will not update again until it recognizes a known WiFi network.

Figure 7 - 73
iSCT Help

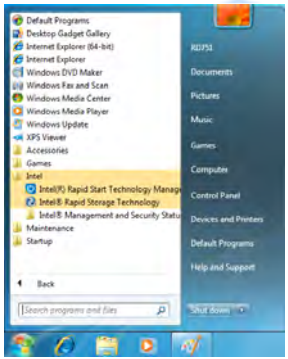
Intel Smart Connect & Intel Rapid Start Technology

Intel® Smart Connect Technology wakes the computer from **Sleep** mode in order to update application information. **Intel(R) Rapid Start Technology** can resume power from **Hibernation** within 5 to 6 seconds and can remember your computer's previous state with zero power. **Intel(R) Rapid Start Technology** sends the computer into **Hibernate** mode and skips the **Sleep** mode. Therefore if Rapid Start is enabled, Smart Connect will be unable to wake the system as Sleep mode has been bypassed. In order to configure your system to run Smart Connect you will either need to disable or delay the system from running Rapid Start.

Figure 7 - 74
Intel® Rapid Start Technology Manager Access

Disabling or Delaying Rapid Start Technology

1. Click **Start > All Programs > Intel > Intel(R) Rapid Start Technology Manager**, or double-click the icon in the notification area of the taskbar.



2. Disable Intel Rapid Start Technology by clicking the **Off** button, and clicking **Save**.
   OR
3. Click **Timer** to make sure it is on, and adjust the slider to select a time to delay entering Rapid Start from running, and click **Save**.

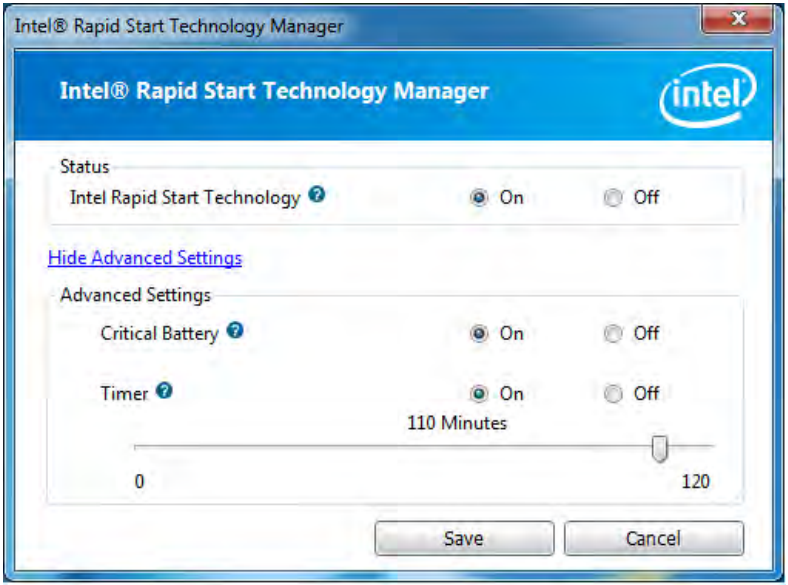


Figure 7 - 75
Intel® Rapid Start Technology Manager Settings

Chapter 8: Troubleshooting

Overview

Should you have any problems with your computer, before consulting your service representative, you may want to try to solve the problem yourself. This chapter lists some common problems and their possible solutions. This can't anticipate every problem, but you should check here before you panic. If you don't find the answer in these pages, make sure you have followed the instructions carefully and observed the safety precautions in the preface. If all else fails, talk to your service representative. You should also make a record of what happened and what remedies you tried.

Of course, if something goes wrong, it will happen at the most inconvenient time possible, so you should preview this section just in case. If, after you've tried everything, and the system still won't cooperate, try turning it off for a few minutes and then rebooting. You will lose any unsaved data, but it may start working again. Then call your service representative.

Basic Hints and Tips

Many of the following may seem obvious but they are often the solution to a problem when your computer appears not to be working.

- **Power** - Is the computer actually plugged into a working electrical outlet? If plugged into a **power strip**, make sure it is actually working. Check the **LED Power & Communication Indicators** (see ***"LED Indicators" on page 1 - 8***) to see the computer's power status.
- **Connections** - Check all the **cables** to make sure that there are no **loose connections** anywhere.
- **Power Savings** - Make sure that the system is not in **Hibernate** or **Sleep** mode by pressing the keys configured in your P*ower Options* (see ***"Power-Saving States" on page 3 - 6***), the **Fn + F4** key combination, or power button to wake-up the system.
- **Brightness** - Check the brightness of the screen by pressing the **Fn** + **F8 and F9** keys to adjust the brightness.
- **Display Choice** - Press **Fn** + **F7** to make sure the system is not set to "external only" display.
- **Boot Drive** - Make sure there are no **optical media and/or USB storage devices** in any connected drive (this is a common cause of the message "***Invalid system disk - Replace the disk, and then press any key***" / "***Remove disks or other media. Press any key to restart***").

Backup and General Maintenance

- Always **backup** your important data, and keep copies of your OS and programs safe, but close to hand. Don't forget to note the **serial numbers** if you are storing them out of their original cases, e.g. in a CD wallet.

- Run **maintenance programs** on your hard disk and OS as often as you can. You may schedule these programs to run at times when you are not using your computer. You can use those that are provided free with your OS, or buy the more powerful dedicated programs to do so.

- Write down your passwords and keep them safe (away from your computer). This is especially important if you choose to use a **Supervisor** password for the BIOS (see *"The Setup Utility" on page 5 - 2*).

- Keep copies of vital **settings files** such as network, dialup settings, mail settings etc.(even if just brief notes).

Warranty

The CPU is not a user serviceable part. Opening this compartment, or accessing the CPU in any way, may violate your warranty.

Viruses

- Install an **Anti-Virus** program and keep the **definitions file** (the file which tells your program which viruses to look for) up to date. New computer viruses are discovered daily, and some of them may seriously harm your computer and cause you to lose data. **Anti-Virus** programs are commercially available and the **definitions file updates** are usually downloadable directly from the internet.

- Be careful when opening e-mail from sources you don't know. **Viruses** are often triggered from within **e-mail attachments** so take care when opening any attached file. You can configure most **Anti-Virus** programs to check all **e-mail attachments**. **Note**: You should also beware of files from people you know as the virus may have infected an **address book** and been automatically forwarded without the person's knowledge.

- Keep a "**Bootable CD-ROM/DVD-ROM/USB storage device**" (this CD/DVD/USB device provides basic information which allows you to startup your computer) handy. You may refer to your OS's documentation for instructions on how to make one, and many **Anti-Virus** programs will also provide such a disk (or at least instructions on how to make one).

Upgrading and Adding New Hardware/Software

- Do not be tempted to make changes to your **Windows Registry** unless you are very sure of what you are doing, otherwise you will risk severely damaging your system.

- Don’t open your computer or undertake any repair or upgrade work if you are not comfortable with what you are doing.

- Read the **documentation**. We can assume, since you are reading this that you are looking at the computer’s manual, but what about any new peripheral devices you have just purchased? Many problems are caused by the installation of new hardware and/or software. Always refer to the documentation of any new hardware and/or software, and pay particular attention to files entitled “**READ ME**” or “**READ ME FIRST**”.

- When installing a new device always make sure the device is powered on, and in many cases you will need to restart the computer. Always check that all the cables are correctly connected.

- Make sure you have installed the **drivers** for any new hardware you have installed (latest **driver files** are usually available to download from vendor’s websites).

Troubleshooting

- Thoroughly check any **recent changes** you made to your system as these changes may affect one or more system components, or software programs. If possible, go back and undo the change you just made and see if the problem still occurs.
- Don’t over complicate things. The less you have to deal with then the easier the source of the problem may be found; **Example** - if your computer has many devices plugged into its ports, and a number of programs running, then it will be difficult to determine the cause of a problem. Try disconnecting all of the devices and restarting the computer with all the peripheral devices unplugged. A process of elimination (adding and removing devices and restarting where necessary) will often find the source of a problem, although this may be time consuming.

Problems and Possible Solutions

Problem	Possible Cause - Solution
You turned on the **power** but it doesn't work.	*Battery missing / incorrectly installed.* Check the battery bay, make sure the battery is present and seated properly (the design of the battery only allows it to go in one way). Make sure there's nothing interfering with the battery contacts.
The battery **LED power** indicator , is blinking orange.	*Low Battery.* Plug in the DC power source. If the computer doesn't start up immediately, turn it off then on again.
You are **losing battery power** too quickly.	*The system is using too much power.* If your *OS* has a *Power Options* scheme (see ***"Power Plans" on page 3 - 4***) check its settings. You may also be using a USB device/external device that is drawing a lot of power.
Actual **battery operating time** is shorter than expected.	*The battery has not been fully discharged before being recharged.* Make sure the battery is fully discharged and recharge it completely before reusing (see ***"Battery Information" on page 3 - 11***). *Power Options have been disabled.* Go to the **Control Panel** in *Windows* and re-enable the options. *A peripheral device/USB device is consuming a lot of power.* Turn off/remove the unused device to save power.

Problem	Possible Cause - Solution
The computer feels **too hot**.	Make sure the computer is properly ventilated and the Vent/Fan intakes are not blocked. If this doesn't cool it down, put the system into **Hibernate** mode or turn it off for an hour. Make sure the computer isn't sitting on a thermal surface (see ***"Overheating" on page 1 - 16***). Make sure you're using the correct adapter. Make sure that your notebook is completely powered off before putting it into a travel bag (or any such container). Putting a notebook which is powered on in a travel bag may cause the Vent/Fan intakes to be blocked.
Nothing appears on screen.	*The system is in a power saving mode*. Toggle the sleep/resume key combination, **Fn + F4** (see ***"Configuring the Power Buttons" on page 3 - 8***). *The screen controls need to be adjusted.* Toggle the screen control key combinations **Fn + F8/F9**. If you're connected to an external monitor, make sure it's plugged in and turned on. You should also check the monitor's own brightness and contrast controls. *The computer is set for a different display.* Toggle the screen display key combination, **Fn + F7**. If an external monitor is connected, turn it on. *The **screen saver** is activated.* Press any key or touch the **Touchpad**.
No image appears on the **external monitor** I have plugged in and powered on.	*You haven't installed the video driver and configured it appropriately from the **Control Panel**.* See ***Appendix C*** for instructions on installing and configuring the video driver.

Problem	Possible Cause - Solution
You forget the **boot password**.	*If you forget the password, you may have to discharge the battery of the CMOS.* Contact your service representative for help.
Password Warning If you choose to set a boot password, **NEVER** forget your password. The consequences of this could be serious. If you cannot remember your boot password you must contact your vendor and you may lose all of the information on your hard disk.	
The sound cannot be heard or the **volume is very low**.	*The volume might be set too low.* Check the volume control in the ***Volume Control Panel*** in the *Windows* taskbar, or use the key combination **Fn + F5** and **F6** (see ***"Function/Hot Key Indicators" on page 1 - 11***) to adjust.
The CD/DVD **cannot be read**.	*The CD/DVD is dirty.* Clean it with a CD/DVD cleaner kit.
The CD/DVD **tray will not open** when there is a disc in the tray.	*The* CD/DVD *is not correctly placed in the tray.* Gently try to remove the disc using the eject hole (see ***"Loading Discs" on page 2 - 3***).
The **DVD regional codes** can no longer be changed.	*The code has been changed the maximum **5** times.* See ***"DVD Regional Codes" on page 2 - 5***.
Unwelcome numbers appear when typing.	*If the LED* 1 *is lit, then Num Lock is turned **ON**.* (see ***"LED Indicators" on page 1 - 8***).

Problem	Possible Cause - Solution
Other Keyboards If your keyboard is damaged or you just want to make a change, you can use any standard USB keyboard. The system will detect and enable it automatically. However special functions/hot keys unique to the system's regular keyboard may not work.	
The **system freezes** or the screen goes dark.	*The system's power saving features have timed-out*. Use the AC/DC adapter, press the sleep (**Fn + F4**) key combination, or press the power button if no LEDs are lit.
The system never goes into a **power saving mode**.	Power Options features are not enabled. Go to the ***Windows*** Power Options menu and enable the features you prefer (see ***"Power-Saving States" on page 3 - 6***). Make sure you have enabled **Hibernate** mode from the control panel.
The **Wireless LAN or Bluetooth** modules cannot be detected.	*The modules are off.* Check the LED indicator and/or function key indicator to see if the WLAN/Bluetooth module is on or off (see ***"LED Indicators" on page 1 - 8***). If the LED indicator is off, then press the **Fn + F11 (WLAN) or Fn + F12 (Bluetooth)** key combination(s) in order to enable the modules (see ***Table 1 - 2, on page 1 - 11***).

Problem	Possible Cause - Solution
The **PC Camera** module cannot be detected.	*The module is off.* Press the **Fn + F10** key combination in order to enable the module (see ***"Function/Hot Key Indicators" on page 1 - 11***). Run the camera application to view the camera picture.
The **Wireless LAN/Bluetooth/ PC Camera** modules cannot be configured.	The driver(s) for the module(s) have not been installed. Make sure you have installed the driver for the appropriate module (see the instructions for the appropriate module in ***"Modules & Options" on page 7 - 1***).
A file cannot be copied to/from a connected **Bluetooth** device.	*The transfer of data between the computer and a Bluetooth enabled device is supported* ***in one direction only (simultaneous data transfer is not supported)***. If you are copying a file from your computer to a Bluetooth enabled device, you will not be able to copy a file from the device to your computer until the file transfer process from the computer has been completed.
The **Bluetooth** module is **off** after resuming from Sleep.	*The Bluetooth module's default state will be off after resuming from the Sleep power-saving state*. Use the key combination (**Fn + F12**) to power on the Bluetooth module after the computer resumes from Sleep.
I am sliding my finger up and down on the right side of the **Touchpad to scroll** a Window and the **Touchpad does not respond**.	*There are different Touchpad versions available on this computer, and this version requires tapping/holding to scroll.* Either tap repeatedly, or hold the finger down, at the top or bottom right of the Touchpad (depending on the scrolling direction required) to scroll the window.

Bluetooth Connection Problems

If you are experiencing problems connecting to some Bluetooth devices (in particular certain mobile phones and headsets) it maybe necessary to download and install the **Windows Mobile Device Center** software (for ***Windows Vista*** and ***Windows 7***). Go to the Microsoft website and search for the **Microsoft Windows Device Center Driver for *Windows Vista* (*64-bit or 32-bit*) and *Windows 7* (*64-bit or 32-bit*)**, and then download the driver.

1. Install the ***Microsoft Windows Device Center Driver*** as appropriate for your operating system.
2. ***Windows Vista*** will automatically configure the driver for you, however ***Windows 7*** requires further configuration.
3. Make sure the Bluetooth device is powered on.
4. Go the ***Windows 7*** control panel and double-click **Device Manager** (**Hardware and Sound > Devices and Printers**).
5. **Bluetooth Peripheral Device(s)** will be listed under **Other Devices** (note this will only be listed if you have connected, or tried to connect to, a Bluetooth device previously).

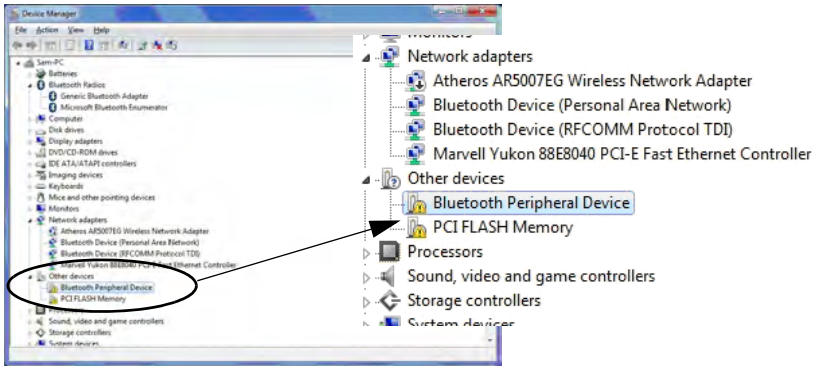


Figure 8 - 1 **- Device Manager**

Bluetooth Peripheral Devices

You will need to repeat the procedure listed here for all **Bluetooth Peripheral Devices** listed under **Other Devices** i.e. until there are no more **Bluetooth Peripheral Devices** listed under this menu heading.

6. Right-click **Bluetooth Peripheral Device** and click on ***Update Driver Software***.
7. Click **Browse my computer for driver software**.
8. Click **Let Me pick from a list of device drivers on my computer**.

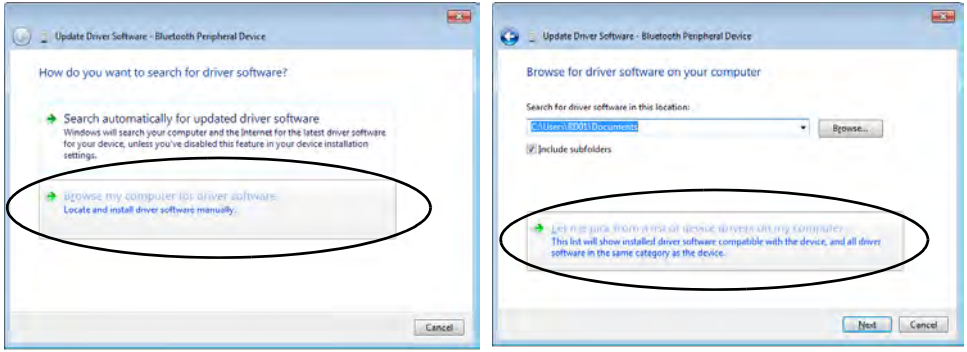


Figure 8 - 2 **- Browse my computer.../Let me pick from...**

9. Select **Bluetooth Radios** from the list.

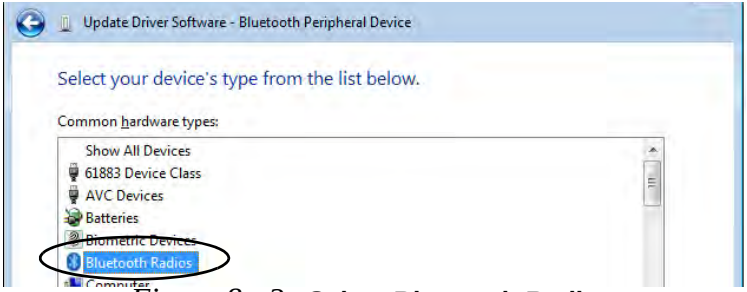


Figure 8 - 3 **- Select Bluetooth Radios**

10. A list of drivers will appear with **Manufacturer** on one side and **Model** in the other.
11. Choose **Microsoft Corporation** (make sure you choose the full name **Microsoft Corporation** and do not choose **Microsoft** - Note that you must have installed the **Microsoft Windows Device Center Driver** for **Microsoft Corporation** to appear in the list).
12. Select **Windows Mobile-based device support** from the **Model** list.

Make sure you select **Microsoft Corporation**

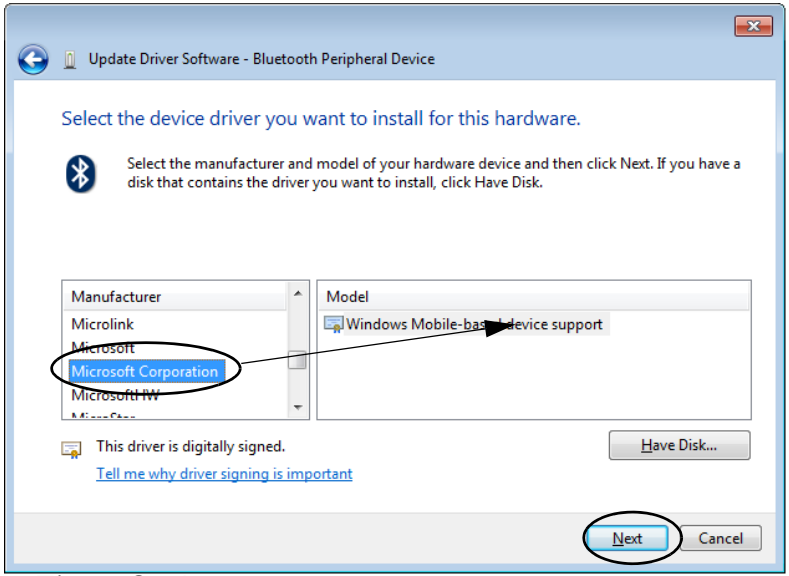


Figure 8 - 4 **- Select Device Driver**

13. Click **Next > Yes** and the driver will install.
14. Click **Close** to complete the installation.

15. The **Device Manager** should now display the **Windows Mobile-based device support** under **Bluetooth Radios**.
16. You will need to repeat the process for any other **Bluetooth Peripheral Devices** listed under **Other Devices**.

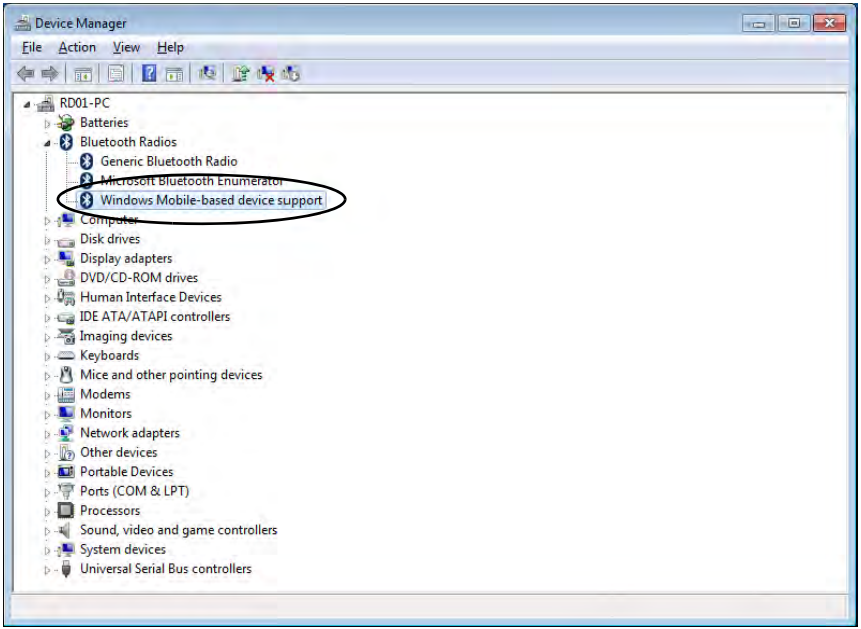


Figure 8 - 5 **- Device Manager - Bluetooth Radio**

Appendix A: Interface (Ports & Jacks)

Overview

The following chapter will give a quick description of the interface (ports & jacks) which allow your computer to communicate with external devices, connect to the internet etc.

Notebook Ports and Jacks

Item	Description
Card Reader Port	The card reader allows you to use some of the latest digital storage cards. Push the card into the slot and it will appear as a removable device.
DC-In Jack	Plug the supplied AC/DC adapter into this jack to power your computer.
External Monitor (VGA) Port	This port allows you to connect an external monitor, or Flat Panel Display, to get dual video or simultaneous display on the LCD and external monitor/FPD.
HDMI-Out Port	The HDMI-Out (**High-Definition Multimedia Interface**) is an audio/video connector interface for transmitting uncompressed digital streams. This allows you to connect an external monitor, TV or Flat Panel Display etc. as a display device by means of a HDMI cable. **Note that HDMI carries both audio and video signals**.
Headphone-Out Jack	Headphones or speakers may be connected through this jack. **Note**: Set your system's volume to a reduced level before connecting to this jack.

Item	Description
Microphone-In Jack	Plug an external microphone in to this jack to record on your computer.
RJ-45 LAN Jack	This port supports LAN (Network) functions. **Note**: Broadband (e.g. ADSL) modems usually connect to the LAN port.
Security Lock Slot	To prevent possible theft, a Kensington-type lock can be attached to this slot. Locks can be purchased at any computer store.
USB 2.0/1.1 Ports USB 3.0 Port	These USB 2.0 compatible ports (USB 2.0 is fully USB 1.1 compliant) are for low-speed peripherals such as keyboards, mice or scanners, and for high-speed peripherals such as external HDDs, digital video cameras or high-speed scanners etc. Devices can be plugged into the computer, and unplugged from the computer, without the need to turn the system off (if the power rating of your USB device is 500mA or above, make sure you use the power supply which comes with the device). **The USB 3.0 ports are denoted by their blue color**; **USB 2.0 ports are colored black**. USB 3.0 will transfer data much faster than USB 2.0, and is backwards-compatible with USB 2.0. Note that the USB 3.0 ports require a driver (see ***"USB 3.0 (Win 7 Only)" on page 4 - 7***) installation (***Windows 8 does not require a driver installation***) and do not support wake on USB.

A

Appendix B: Control Center

Overview

The following chapter will give a quick description of the functions of the **Control Center**. The **Control Center** gives quick access to frequently used controls, power management features and enables you to quickly turn modules on/off. Click the **Control Center** icons to toggle the appropriate function, or hold the mouse button down and move the slider where applicable. Certain functions will automatically be adjusted when a power mode is selected. The **Control Center** in ***Windows 8*** works under the **Desktop** app (see ***"Function/Hot Key Indicators & Control Center" on page E - 15***) and not under the Start screen, and does not feature the wireless/Bluetooth buttons and Airplane Mode etc.

Figure B - 1 **- Control Center**

Power Modes

You can set a **Power Mode** by clicking the appropriate icon at the top of the **Control Center**. Each power mode will affect the power status of modules (e.g. WLAN, Bluetooth, 3G or Camera), screen brightness, TouchPad power and Silent Mode.

You can click a **Control Center** icon to set an overall power mode and then click individual icons in the **Control Center** to power on/off any modules etc.

The **table overleaf** illustrates the basic settings for each power mode. If you choose user defined the settings will correspond to your selected system settings.

Modes		Power Saving	Flight (Win 7 Only)	Entertainment	Quiet	Performance	User Defined
Icon							
Power Plan		Power Saver	Balanced	Power Saving	Power Saving	High Performance	User Defined
Power Conservation Mode		Energy Star	BIOS Default	Energy Star	Energy Star	Performance	
Brightness		14	42	100	42	100	
WLAN (Win 7 Only)		OFF	OFF	ON	ON	ON	
Bluetooth (Win 7 Only)		BIOS Default					
3G (Win 7 Only)		OFF	OFF	OFF	OFF	OFF	
PC Camera		OFF	OFF	OFF	ON	ON	
TouchPad		ON	ON	ON	ON	ON	

Table B - 1 **- Power Modes**

Power Status

The **Power Status** icon will show whether you are currently powered by the battery, or by the AC/DC adapter plugged in to a working power outlet. The power status bar will show the current battery charge state.

Brightness

The **Brightness** icon will show the current screen brightness level. You can use the slider to adjust the screen brightness or the **Fn + F8/F9** key combinations, or use the **Fn+ F2** key combination to turn off the LED backlight (press any key to turn it on again). Note that screen brightness is also effected by the **Power Mode** selected (see *Table B - 1, on page B - 3*).

Volume

The **Volume** icon will show the current volume level. You can use the slider to adjust the Volume or the **Fn + F5/F6** key combinations, or use the **Fn+ F3** key combination to mute the volume.

Power Conservation

This system supports **Energy Star** power management features that place computers (CPU, hard drive, etc.) into a low-power sleep modes after a designated period of inactivity (see *"Power Conservation Modes" on page 3 - 10*). Click either the **Performance**, **Balanced** or **Energy Star** button.

Sleep

Click the **Sleep** button to bring up the **Hibernate** or **Sleep** buttons, and click either button to have the computer enter the appropriate power-saving mode (see *"Power-Saving States" on page 3 - 6*).

Display Switch

Click the **Display Switch** button to access the menu (or use the + **P** key combination) and select the appropriate attached display mode (see page *C - 10*).

Time Zone

Clicking the **Time Zone** button will access the **Date and Time** ***Windows*** control panel.

Desktop Background

Clicking the **Desktop Background** button will allow you to change the desktop background picture.

TouchPad/PC Camera/Wireless LAN Module /Bluetooth/3G Module

Click any of these buttons to toggle the TouchPad or module's power status. A crossed out icon will appear over the top left of the icon when it is off. Note that the power status of a module, and TouchPad power, is also effected by the **Power Mode** selected (see *Table B - 1, on page B - 3*). The WLAN, Bluetooth and 3G buttons are not featured in the ***Windows 8*** system.

Caps Lock/Scroll Lock/ Number Lock

Click the button to toggle the appropriate lock mode.

Appendix C: Video Driver Controls

The basic settings for configuring the LCD are outlined in *"Video Features" on page 1 - 19*.

Video Driver Installation

Make sure you install the drivers in the order indicated in *Table 4 - 1, on page 4 - 3*.

1. Insert the *Device Drivers & Utilities + User's Manual* disc and click ***Install Drivers*** (button).
2. Click **2.Install VGA Driver > Yes.**
3. Click **Next > Yes > Next > Next**.
4. Click **Finish** to restart the computer.

Note: After installing the video driver go to the **Display** control panel to adjust the video settings to the highest resolution.

Dynamic Video Memory Technology

Intel® DVMT automatically and dynamically allocates as much (up to **1748MB**) system memory (RAM) as needed to the integrated video system (**the video driver must be installed**). DVMT returns whatever memory is no longer needed to the operating system.

Video Card Options

Note that card types, specifications and drivers are subject to continual updates and changes. Check with your distributor/supplier for the latest details on video cards supported.

DVMT Notes

DVMT is not local video memory.

DVMT will not function in MS-DOS. DOS uses the legacy memory indicated.

C

Application Mode

Note that all figures pictured, and instructions outlined here are based on the **Advanced Application Mode**.

Intel® Graphics & Media Control Panel

Advanced video configuration options are provided by the **Intel® Graphics and Media Control Panel**. To access the control panel:

1. Click **Advanced settings** in the **Screen Resolution** control panel in ***Windows***.
2. Click the **Intel(R)...** tab and click **Graphics Properties** (button).

OR

3. Right-click the desktop and select **Graphics Properties** from the menu.

OR

4. Double-click the **Intel(R) G&M** control panel in ***Windows***.
5. Choose the application mode (**Basic, Advanced or Wizard**) required (see sidebar).

Figure C - 1
Intel® G&M Control Panel

C

You may make changes to any of the graphics properties by clicking the appropriate menu tab on the left of the menu and adjusting the settings on the right.

Options & Support

Click **Options & Support** and select an item from the sub-menu to bring up the help and support topics.

You will need to be connected to the Internet to access the key resource links.

Multiple Display

At least one other display must be attached in order to view multiple display selection options.

Figure C - 2
Intel® G&M Control Panel Tabs

C

Function Key Combination

You can use the **Fn + F7** key combination to toggle through the display options:

- Notebook Only
- External Display Only
- Notebook + External Display

Make sure you give the displays enough time to refresh.

Note that HDMI supports video and audio signals.

Display Devices & Options

Besides the built-in LCD you can also use an external monitor/flat panel display/TV connected to the external monitor port or to the HDMI-Out port (High-Definition Multimedia Interface) as your display device. The table below outlines the display options.

Attaching Displays

When you first attach an external display you may find that the desktop does not occupy the full screen area. Use either the display's auto adjust/configure controls, or the Intel(R) G&M control panel to configure the full screen display.

Table C - 1
Display Modes

Intel Display Mode	Description
Single Display	One of the connected displays is used as the display device
Clone Displays	Both connected displays output the same view and may be configured independently
Extended Desktop	Both connected displays are treated as separate devices, and act as a virtual desktop

Attaching Other Displays

If you prefer to use a monitor or flat panel display, connect it to the external monitor port or HDMI-Out port on the left of the computer.

To Clone Displays:

1. Attach your external display to the appropriate port, and turn it on.
2. Go to the **Intel(R) G&M** control panel and click **Display > Multiple Displays**.
3. Click **Operating Mode** and select **Clone Displays** from the menu.
4. Click **Apply**, and **OK** to confirm the settings change.
5. You can switch the **Primary/Secondary Display** from the menu.

Figure C - 3
Display > Multiple Displays (Clone)

Multiple Display

At least one other display must be attached in order to view **Multiple Display** selection options.

General Settings

Click **General Settings** to access settings the options for any attached display.

C

Display Settings Extended Desktop

You can have different Colors, Screen Area and Monitor Refresh Rates for each display device **provided your monitor can support them**.

You can drag the monitor icons to match the physical layout of your displays. Icons and programs may also be dragged between the displays.

To Enable Extended Desktop:

1. Attach your external display to the appropriate port, and turn it on.
2. Go to the **Intel(R) G&M** control panel and click **Display > Multiple Displays**.
3. Click **Operating Mode** and select **Extended Desktop** from the menu.
4. Click **Apply**, and **OK** to confirm the settings change.

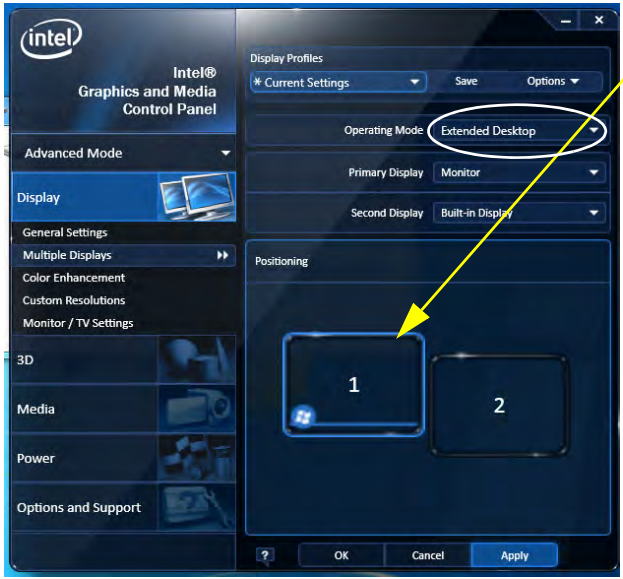


Figure C - 4
Display > Multiple Displays (Extended)

Click the appropriate monitor icon and drag it to match the physical arrangement you wish to use (e.g. the secondary display may be extended left/right/above/below the primary display).

Click General Settings to make any adjustments required.

Display Profiles

You can save display settings to be loaded at any time.

1. Go to the **Intel(R) G&M** control panel and click **Display**.
2. Configure the General Settings, Multiple Displays, Color Enhancement, Custom Resolution & Monitor/TV Settings to your preferences.
3. Click **Apply**, and **OK** to confirm the settings change.
4. Click the **Save** button at the top of the General Settings, Multiple Displays or Color Enhancement menus (under **Display Profiles**).
5. Type a name for the **Profile** and click **OK**.
6. The **Profile** will be listed under **Display Profiles**.
7. Select the profile from the pull-down menu and click **Apply**, and **OK** to confirm the settings change.

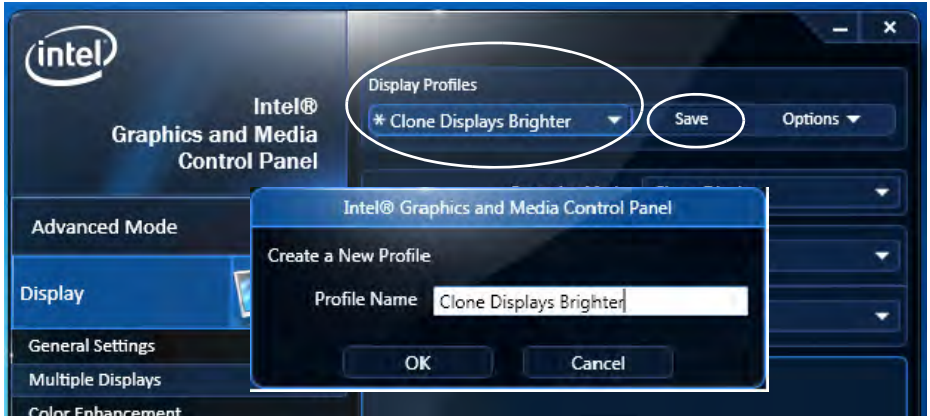


Figure C - 5
Intel® G&M Profiles

C

Function Key Combination

You can use the **Fn + F7** key combination to toggle through the display options:

- Notebook Only
- External Display Only
- Notebook + External Display

Make sure you give the displays enough time to refresh.

Note that HDMI supports video and audio signals.

Configuring an External Display in Windows 7

You can also use the **Screen Resolution** control panel in ***Windows 7*** to configure an external display.

1. Attach your external display to the appropriate port, and turn it on.
2. Go to the **Screen resolution** control panel (see ***"Video Features" on page 1 - 19***).
3. Click the **Detect** button.
4. The computer will then detect any attached displays.

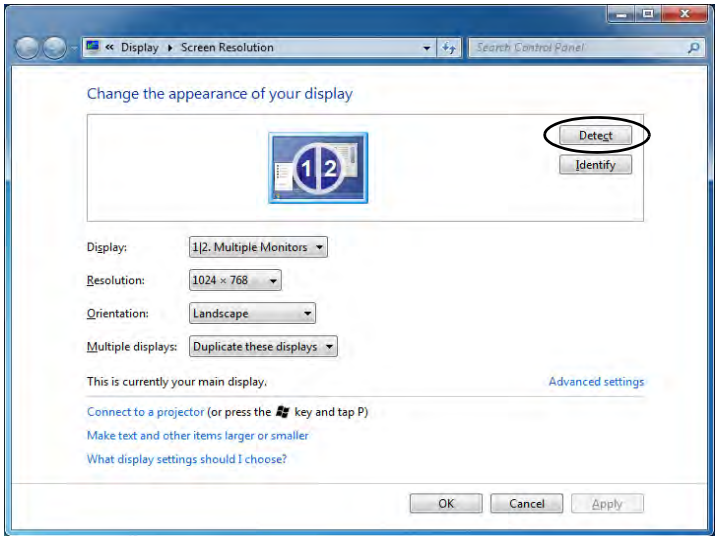


Figure C - 6
Screen Resolution Multiple Displays (Win 7)

5. You can configure the displays from the **Multiple Displays** menu.

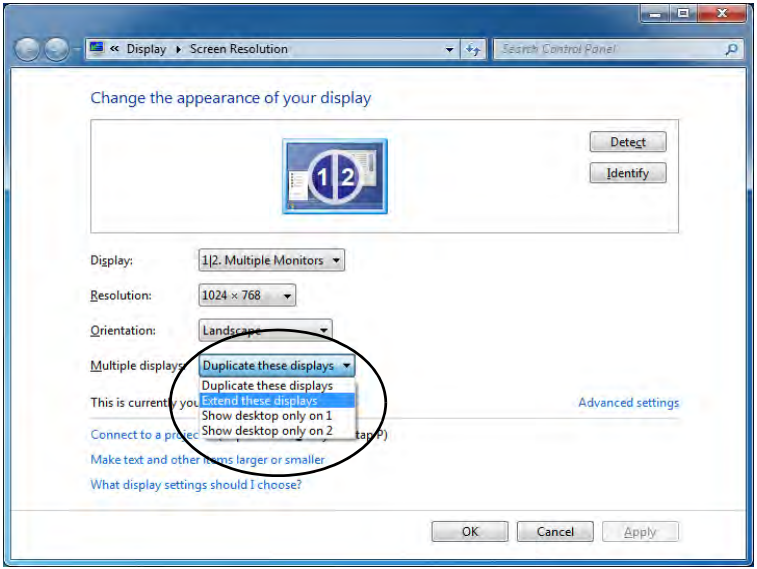


Figure C - 7
Screen Resolution Multiple Display Options (Win 7)

- Duplicate these displays - Shows an exact copy of the main display desktop on the other display(s)
- Extend these displays - Treats both connected displays as **separate** devices
- Show desktop only on 1/2 - Only one of your displays is used.

C

Using the Windows Logo Key + P Key Combination to Switch Displays

You can also use the + **P** key combination to quickly change display configuration and modes (this is particularly useful when attaching a projector) in ***Windows 7***.

1. Attach your external display to the appropriate port, and turn it on.
2. Press the + **P** key combination.
3. An on-screen menu will pop up.
4. Use the cursor keys (or + **P**) to select the appropriate configuration from the menu, and press Enter to confirm the selection.

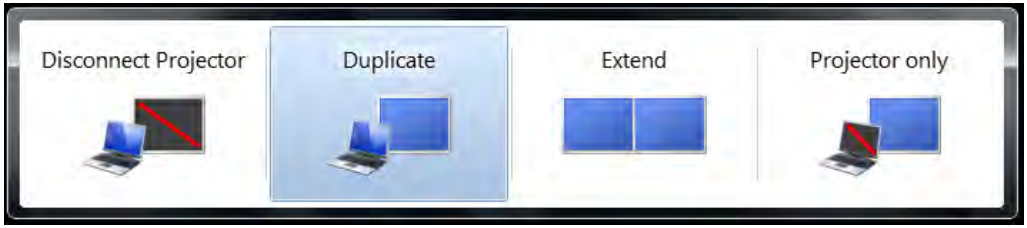


Figure C - 8
+ P Display Configuration Selection (Win 7)

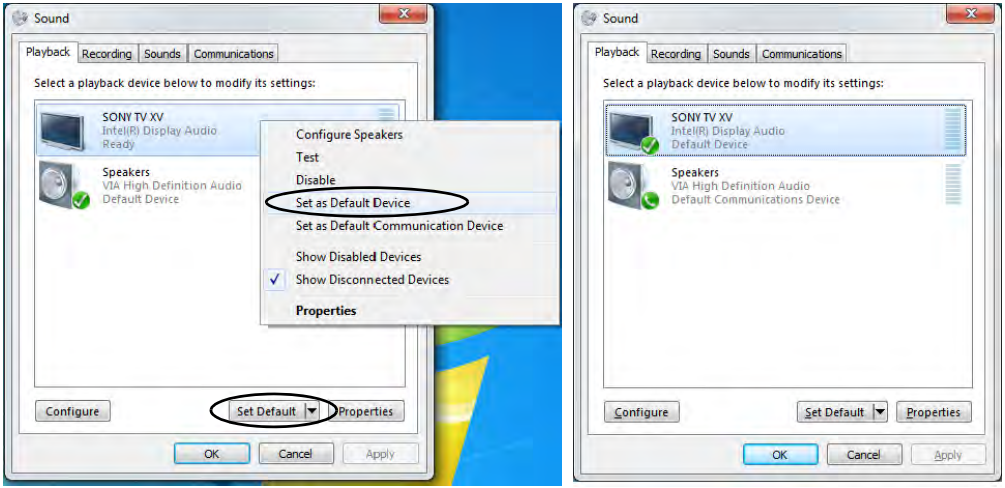
You can also use the **Display Switch** button in the **Control Center** to access the menu and select the appropriate attached display mode.

C

HDMI Audio Configuration

HDMI (High-Definition Multimedia Interface) carries both **audio** and video signals. In some cases it will be necessary to go to the **Sound** control panel and manually configure the HDMI audio output as per the instructions below.

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Sound** (**Hardware and Sound**) and click **Playback** (tab)
3. Depending on your display, the playback device may be selected, however in some cases you may need to select the audio device and click **Set Default** (button).
4. Double-click the device to access the control panel tabs illustrated overleaf.



Volume Indicator

Click the taskbar volume indicator when an HDMI device is selected, and you will note that the icon at the top of the volume level indicator has changed.

Figure C - 9

Sound - HDMI Device (set Default)

C

5. Double-click the connected HDMI device (or right-click and select **Properties**) to adjust the HDMI settings from the control panel tabs.
6. Click **OK** to close the control panel (see notes overleaf).

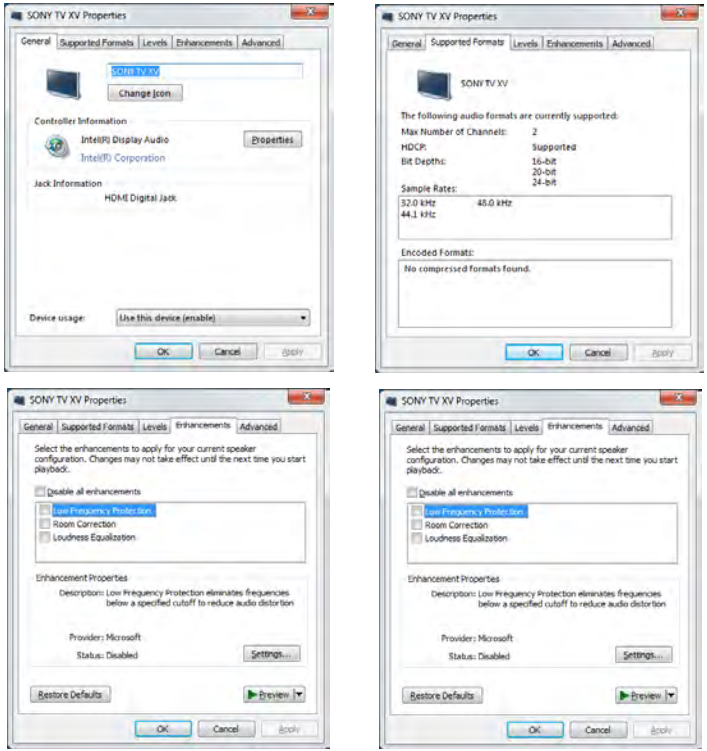


Figure C - 10
HDMI Device Properties

HDMI Notes

- Connect a device with HDMI support to the HDMI-Out port **BEFORE** attempting to play audio/video sources through the device.
- To play audio sources through your external display's (TV or LCD) speakers you will need to go to the audio configuration control panel on the display and configure the audio input accordingly (see your display device manual).

HDMI Video Configuration

1. Connect an HDMI cable from the HDMI-Out port to your external display.
2. Configure your external display as per the instructions in ***"Attaching Other Displays" on page C - 5***.
3. Set up your external display (TV or LCD) for HDMI input (see your display device manual).
4. You can now play video/audio sources through your external display.

Other Applications

If you are using a third party application to play DVDs etc. from any attached DVD device, you will need to consult the application's documentation to see the appropriate audio configuration (the application must support digital to analog translation).

Appendix D: Specifications

Latest Specification Information

The specifications listed in this Appendix are correct at the time of going to press. Certain items (particularly processor types/ speeds and CD/DVD device types) may be changed, updated or delayed due to the manufacturer's release schedule. Check with your distributor/supplier for details.

Processors

Intel® Core i7-3612QM (2.1GHz) Quad-Core Mobile Processor
6M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i7-3540M (3.0GHz) Mobile Processor
4M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i7-3520M (2.9GHz) Mobile Processor
4M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i5-3380M (2.9GHz) Mobile Processor
3M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i5-3360M (2.8GHz) Mobile Processor
3M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i5-3340M (2.7GHz) Mobile Processor
3M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i5-3320M (2.6GHz) Mobile Processor
3M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i5-3230M (2.6GHz) Mobile Processor
3M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i5-3210M (2.5GHz) Mobile Processor
3M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i3-3130M (2.6GHz) Mobile Processor
3M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i3-3120M (2.5GHz) Mobile Processor
3M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Core i3-3110M (2.4GHz) Mobile Processor
3M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Pentium® 2030M (2.5GHz) Mobile Processor
2M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Intel® Pentium® 2020M (2.4GHz) Mobile Processor
2M L3 Cache, 22nm (22 Nanometer), DDR3-1600MHz, TDP 35W

Core Logic

Mobile Intel® HM76 Express Chipset

Display

Modell A:
14.0” / 35.56cm HD (1366 * 768), 16:9 3.6mm thick Backlit Panel

Model B:
15.6” / 39.62cm HD (1366 * 768) / FHD (1920 * 1080), 16:9 3.4mm thick Backlit Panel

Memory

Dual Channel **DDRIII (DDR3)**

Two 204 Pin SO-DIMM sockets supporting DDR3 1333MHz / 1600MHz (real operational frequency depends on the FSB of the processor)

Memory Expandable up to **16GB** (using 1GB/2GB/4GB/8GB SO-DIMM Modules)

Video Adapter

Intel® HD Graphics 4000
(*GPU is Dependent on Processor*):

Dynamic Frequency
Intel Dynamic Video Memory Technology up to 1.7MB
Microsoft DirectX®11 Compatible

Storage

One Changeable 12.7mm(h) Super Multi/ Blu-ray Combo Optical Device Drive with SATA Interface (**Factory Option**)

Dummy Optical Device Drive (**Factory Option**)

One Changeable 2.5" / 9.5 mm (h) HDD with SATA (Serial) Interface

mSATA SSD (Solid State Drive) with SATA (Serial) Interface (**Factory Option**)

Audio

High Definition Audio Interface
Built-In Microphone
2 * Built-In Speakers

Keyboard & Pointing Device

Built-in Touchpad with Multi-Gesture Functionality

Isolated A4 Size Keyboard (**Model A**)

Full Size Isolated Keyboard with Numeric Pad (**Model B**)

Interface

Model A:
One USB 2.0 Port

Model B:
Two USB 2.0 Ports

All Models:
Two USB 3.0 Ports
One External Monitor Port
One HDMI-Out (High-Definition Multimedia Interface) Port (with HDCP)
One Headphone-Out Jack
One Microphone-In Jack
One RJ-45 LAN Jack
One DC-In Jack

Card Reader

Embedded Multi-In-1 Card Reader
- MMC/ RS MMC
- SD/ Mini SD / SDHC/ SDXC
- MS/ MS Pro/ MS Duo

Note: Some of these cards require PC adapters that are usually supplied with the cards.

Slot

Two Mini-Card Slots:
Slot 1 for Half Size Mini-Card WLAN Combo Module with PCIe & USB Interfaces:

Slot 2 for Full Size Mini-Card 3G Module with USB Interface **OR** Full Size Mini-Card mSATA SSD with SATA Interface

Communication

Built-In 10/100/1000Mb Base-TX **Ethernet LAN**

Intel® Centrino® Wireless-N 2230 2*2 (802.11 b/g/n) Half Mini-Card PCIe WLAN + Bluetooth Combo Module (**Factory Option**)

Intel® Centrino® Wireless-N 135 (1*1 802.11 b/g/n+) Half Mini-Card PCIe WLAN & Bluetooth Combo Module (**Factory Option**)

3rd Party WLAN 802.11b/g/n Half Mini-Card Module (**Factory Option**)

3rd Party Combo WLAN (802.11b/g/n) **and Bluetooth v4.0+LE**Half Mini-Card Module with PCIe Interface (**Factory Option**)

2.0M HD **Video Camera Module** with USB interface

UMTS/HSPDA **OR** UMTS/HSPDA+ based **3G Module** with Mini-Card Interface (**Factory Option**)
Quad-band GSM/GPRS (850 MHz, 900 MHz, 1800 MHz, 1900 MHz)
UMTS WCDMA FDD (2100 MHz)
Note that UMTS modes CAN NOT be used in North America

Power Management

Supports Wake on LAN
Supports Wake on USB

Power

Full Range AC/DC Adapter
AC input 100 - 240V, 50 - 60Hz,
DC Output 19V, 3.42A (**65** Watts)

Removable 6 Cell Smart Lithium Ion Battery Pack 48.84WH

Removable 6 Cell Smart Lithium Ion Battery Pack 62.16WH (**Factory Option**)

Indicators

LED Indicators - Power/Suspend, Battery, HDD/ODD, Bluetooth/Wireless LAN

Model B Computers:
Camera LED located on camera module

For **Model AComputers:**
Camera LED located on Power/Suspend LED

BIOS

One 64Mb SPI Flash ROM
AMI BIOS

Security

Security (Kensington® Type) Lock Slot
BIOS Password
Trusted Platform Module V1.2

Features
Painted Style (For **some Model designs** in this series) **Intel®** Rapid Start Technology **Intel®** Smart Connect Technology **Intel®** Anti-Theft Technology

Operating System
Windows® 7 with Service Pack 1 Windows® 8

Environmental Spec	
Temperature	
Operating:	5°C - 35°C
Non-Operating:	-20°C - 60°C
Relative Humidity	
Operating:	20% - 80%
Non-Operating:	10% - 90%

Dimensions & Weight
Model A: 340mm(w) * 241mm(d) * 11 - 25.4mm(h) (*Height excluding battery area*) 2.15 kg with 48.84WH Battery & ODD **Model B:** 374mm(w) * 252mm(d) * 14 - 25.4mm(h) (*Height excluding battery area*) 2.2kg with 48.84WH Battery & ODD

Appendix E: Windows 8

Overview

This Appendix contains information (including control panel information, driver installation etc.) for users of the ***Windows 8 OS***.

You can refer to the main manual for details of drivers required, audio & video information, BIOS, modules etc. However any information specific to ***Windows 8*** will be included in this Appendix, as well as details on how to navigate the ***Windows 8*** **Metro User Interface** to access the applications, control panels, taskbar etc.

Windows 7/8 OS

In order to run ***Windows 7 or 8 (32 Bit)*** without limitations or decreased performance, your computer requires a minimum **1GB** of system memory (RAM), however if you are running ***Windows 7 or 8 (64 bit)*** your computer requires a minimum **2GB** of system memory (RAM).

Windows 8 Start Screen & Desktop

The apps, control panels, utilities and programs within ***Windows 8*** are accessed from the **Metro** user interface's **Start screen** and/or ***Windows*** **Desktop**. The **Desktop** (which runs as an app within the Start screen) can be accessed from the **Desktop** item in the Start screen (or by using the **Windows Logo Key** + **D** key combination).

Figure E - 1 **- Windows Start Screen**

Apps & Tiles

The **Windows 8** Start screen will contain a number of apps, and many more will be installed as you add more applications etc. Not all of these apps can fit on one screen so you will often need use the **slider** at the bottom of the screen in order to view all the necessary apps.

Accessing Pining/Unpinning All Apps

You can add and remove the tiles for apps and control panels in the Start screen. Right-click on a blank area of the Metro UI **Start** screen and you will see the **All Apps** icon. Click the **All Apps** icon to display all the installed applications etc. Right-click any icon to bring up the menu at the bottom of the screen. You can then click the appropriate icon to **pin the app** to (or unpin from) the **Start** screen, or to the **taskbar** in the **Desktop application**.

Figure E - 2 **- All Apps**

Desktop Application

When the **Desktop app** is running (click the app in the Start screen or use the **Windows Logo Key** + **D** key combination) you can use lower left hot corner to switch between the Start screen and the ***Windows*** **Desktop**. To do so move your mouse to hover over the bottom left corner of the screen and click the pop-up.

When you move to the lower left hot corner in the Start screen itself it will take you back to your most recently used app.

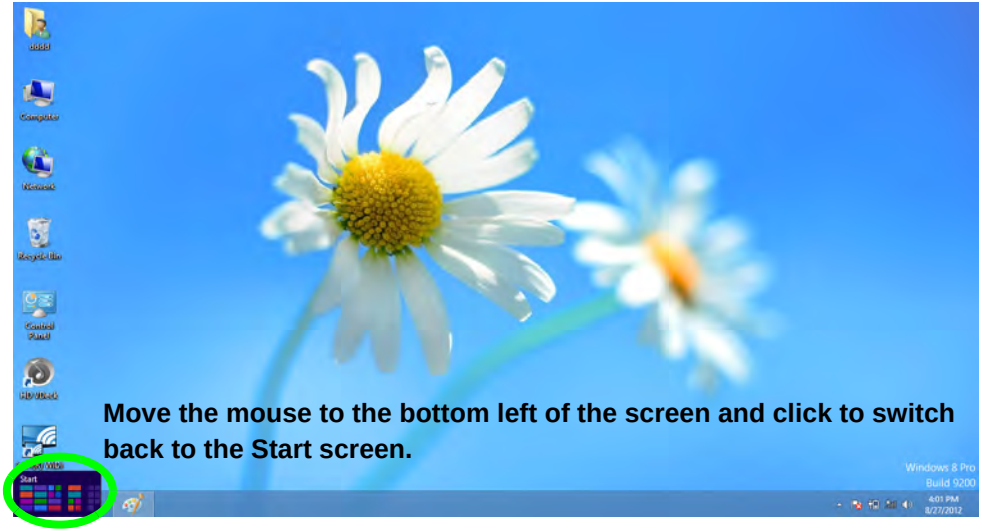


Figure E - 3 **- Desktop**

When the Desktop app is running you can right-click the lower left hot corner (or use the **Windows Logo Key** + **X** key combination) to bring up an advanced context menu of useful features such as Control Panel, Programs and Features, Power Options, Task Manager, Search, Windows Explorer, Command Prompt, Device Manager and Network Connections etc.

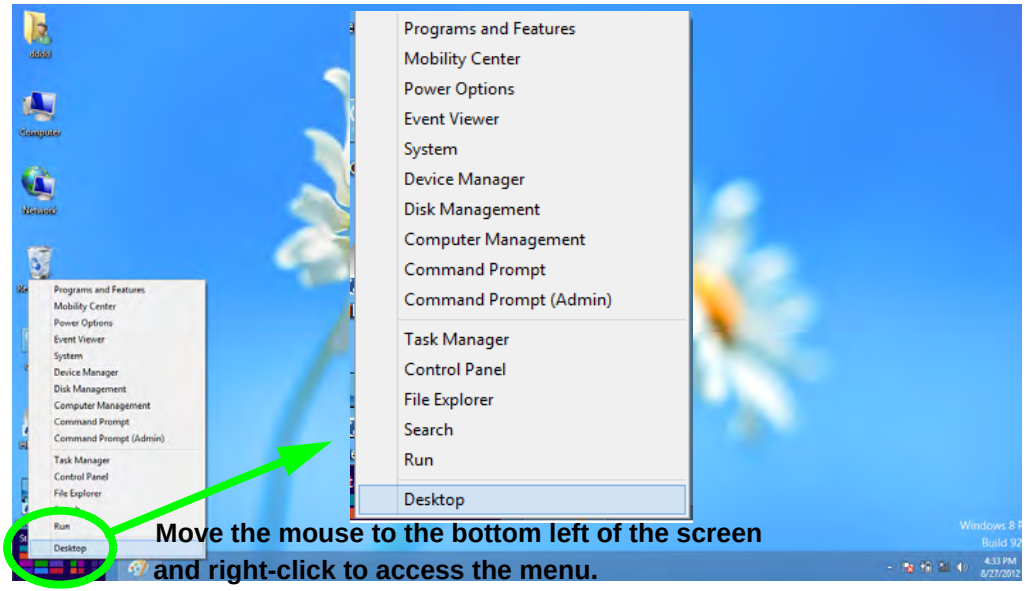


Figure E - 4 **- Advanced Context Menu (Right-Click lower left hot corner)**

Display Most Recently Used Apps

If you are in the **Start** screen, **Desktop** or an app you can move your mouse to the upper left corner of the screen to get back to the most recently used app.

To view all the most recently used apps hover over the top left of the screen and then move the mouse down along the left side of the screen to display the list.

Windows 8 Charms Bar

The right side of the screen displays the ***Windows 8 Charms Bar***. The Charms Bar contains the **Search**, **Share**, **Start**, **Devices** and **Settings** menus. To access up the Charms Bar move the cursor to the upper or lower right corners of the screen, and then hover over one of the items in the Charms Bar to activate it (the bar will be black when it is active), or use the **Windows Logo Key** + **C** key combination.

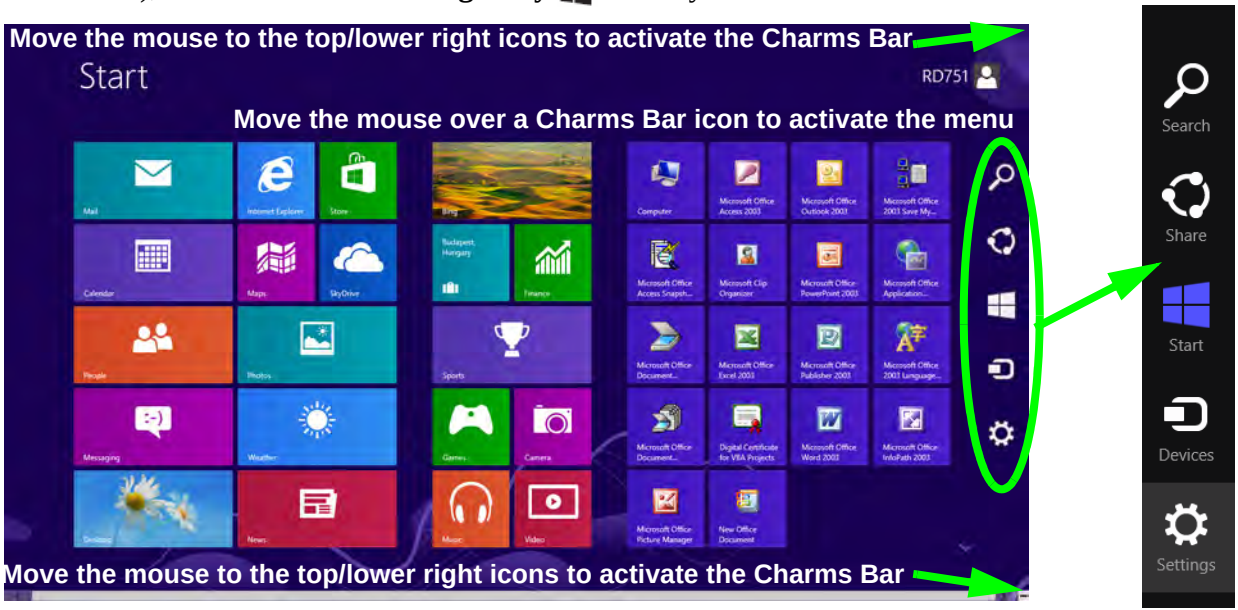
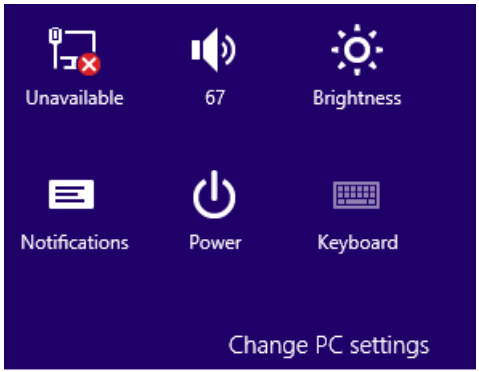


Figure E - 5 **- Start Screen with Charms Bar**

Charms Bar Items

- **Search**: You can search for any file, application, apps and control panel settings with instantaneous results.
- **Share**: This button is used to share information with people via mail or social networks.
- **Start**: Click to bring up the Start Menu (the same function as pressing the Windows Logo Key or clicking the bottom left of the screen).
- **Devices**: Click this button to change connected peripheral device settings e.g. an external display.
- **Settings**: This button gives instant access to the computer settings, such as Network, Audio, Brightness, Notifications, Power and Keyboard (click **Change PC Settings** to activate the PC Settings menu).



Charms Bar - TouchPad Access

To quick access the **Charms Bar** using the TouchPad:

1. Place your finger **off** the TouchPad (slightly to the right of the pad resting on the computer).
2. Move your finger across to the left on to the TouchPad.
3. The Charms Bar will then pop-up.

Figure E - 6 **- Settings Menu**

Windows 8 Control Panel

In many instances throughout this manual you will see an instruction to open the **Control Panel**. The Control Panel is much the same as that in ***Windows 7***, however it can be accessed in a number of ways in ***Windows 8***.

- Click **Search** in the **Windows Charms Bar** (see previous page) and the search pane will pop out. Type *Control Panel* and select it from the results to the left.

Figure E - 7 **- Search (Control Panel)**

- Click on **Computer** in the **Start** screen, click on **Computer** in the top menu and select **Open Control Panel** from the ribbon.

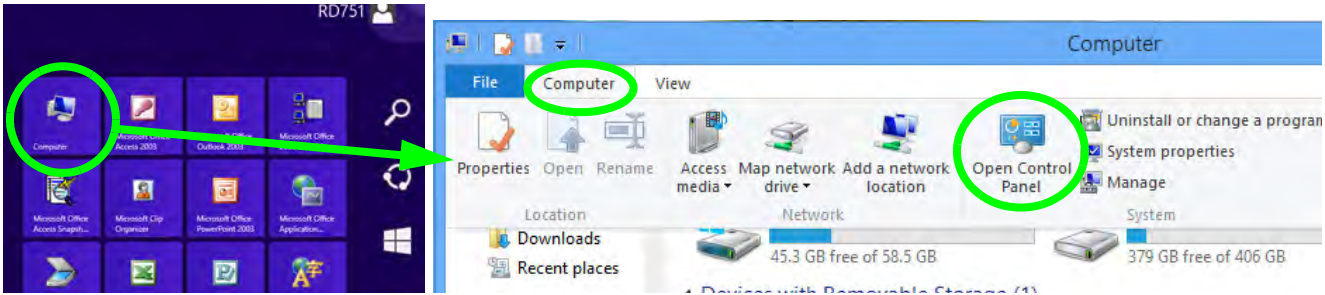


Figure E - 8 **- Open Control Panel (Computer)**

- When in the **Desktop** app (this does not apply to the Start screen) click on **Settings** in the **Windows Charms Bar** and select **Control Panel** from the menu.

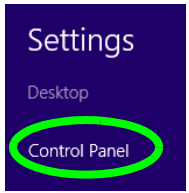


Figure E - 9 **- Settings Charms Bar (Desktop App Only)**

- **Right-click on a blank area of the Metro UI Start screen**, click the **All Apps** icon and click Control Panel.

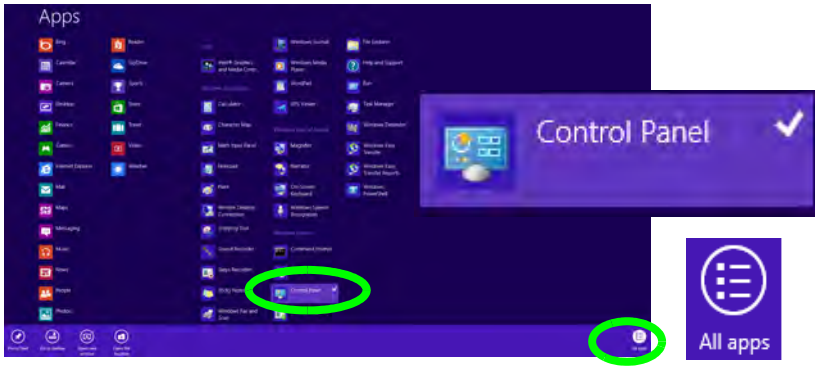


Figure E - 10 **- All Apps - Control Panel**

- Right-click the lower left hot corner to bring up the menu and select Control Panel (see *Figure E - 4 on page E - 5*).

Keyboard Shortcut to Control Panel

You can also use keyboard shortcuts to access the Control Panel. Press the **Windows logo key** **and X** to bring up the context menu, and then press **P** to bring up the Control Panel. Alternatively press the **Windows logo key** **and R** to bring up the **Run** dialog box, and then type "**Control Panel**" and press Enter to access the Control Panel.

Windows 8 Taskbar

In many instances throughout this manual you will see an instruction to access the **notification area of the taskbar**. In ***Windows 8*** the taskbar is accessed from the **Desktop** application. If you are in the Start screen you will need to click the Desktop app to switch to the Desktop.

The taskbar is displayed in much the same way as it was in *Windows 7*, and you can see the notification area of the taskbar in the bottom right of the screen. Some of the Control Panels and applications referred to during the course of this manual can be accessed from here.

Figure E - 11 **- Desktop Taskbar**

You can pin/unpin apps to/from the taskbar in much the same way as you can to the Start screen (see ***"Accessing Pining/Unpinning All Apps" on page E - 3***).

LED Indicators

The LED indicators on the computer display helpful information about the current status of the computer.

Icon	Color	Description
	Orange	DC Power is Plugged In
	Green	The Computer is On
	Blinking Green	The Computer is in Sleep Mode
	Orange	The Battery is Charging
	Green	The Battery is Fully Charged
	Blinking Orange	The Battery Has Reached Critically Low Power Status
	Green	The (**optional**) Wireless LAN Module is Powered On
	Orange	***Win 7*** - The (**optional**) Bluetooth Module is Powered On
		Win 8 - The (**optional**) Bluetooth Module is Installed (*this is not a power on/off indicator in Windows 8*)
	Green	Hard Disk Activity

Table E - 1 **- LED Indicators**

Keyboard - Windows 8

The main difference between the ***Windows 7*** & **Windows 8** keyboards is in the function of the **Windows Logo Key** & **Menu/Application Key** (in the **Start** screen), otherwise the keyboard functions are identical (see ***"Keyboard- Model A" on page 1 - 9***/***"Keyboard- Model B" on page 1 - 10***).

Figure E - 12 **- Keyboard - Model A**

The function/hot key indicators function in the same manner as outlined for *Windows 7* on ***"Function/Hot Key Indicators" on page 1 - 11***. However the indicators work under the **Desktop** app (see ***"Desktop Application" on page E - 4***) and not under the start Screen.

Windows Logo Keyboard Shortcut

Use the Windows logo key **+ D key combination** to switch between the Start screen and Windows Desktop (see ***Table E - 2*** overleaf for further information).

Menu/Application Keyboard Shortcut

When the Desktop app is running you can use the Menu/Application key on the keyboard to display the context menu as per a mouse right-click. In the Start screen this function is useful to quickly display the **All Apps** icon.

Keyboard Shortcuts

The following Windows Logo Key (Winkey) keyboard shortcuts are useful for navigation/operation in ***Windows 8***.

Windows Logo Key +	Description
Tap Winkey	Toggle between the **Start** screen and the foremost running app or the ***Windows* Desktop**
C	Display **Charms** menu
D	Switch to the ***Windows* Desktop** and toggle show Desktop
E	Switch to the Windows desktop and launch **Windows Explorer** with **Computer** displayed
F	Display file **Search**
I	Open the **Settings** charm
K	Open the **Connect** charm
L	Lock the computer and display the **Lock screen**
P	Display the **Second Screen** menu (see ***Figure E - 14 on page E - 16***)
R	Switch to the ***Windows* Desktop** and display the **Run** dialog box
Z	Access the **App Bar** (see ***Figure E - 4 on page E - 5***)

Table E - 2 **- Keyboard Shortcuts**

Function/Hot Key Indicators & Control Center

The function/hot key indicators and Control Center function in the same manner as outlined for ***Windows 7*** (except for the **Mute**, **Volume** and **Brightness** indicators which use the standard ***Windows 8*** indicators) in ***"Function/Hot Key Indicators" on page 1 - 11*** and ***"Control Center" on page 1 - 12***. However both of these functions work under the **Desktop** app (see ***"Desktop Application" on page E - 4***) and not under the Start screen, and the Control Center does not feature the wireless/Bluetooth buttons and Airplane Mode etc.

Control Center

Click on any button to turn any of the modules (e.g. TouchPad, Camera) on/off.

Click on the power conservation modes to switch between Performance, Balanced or Energy Star modes (see page ***3 - 10***). To remove the Power Conservation Modes screen just click in a blank area of the icon or press a key on the keyboard.

Click on the buttons (or just click and hold the mouse button) to adjust the slider for Brightness/Volume.

Click on Display Switch and click to choose a display mode from the menu (see page ***C - 10***).

Figure E - 13 **- Control Center**

Video Features

You can switch display devices, and configure display options, from the **Display** control panel (in **Appearances and Personalization**) in ***Windows 8*** in the same manner as ***Windows 7*** running the **Desktop** app (see ***"Desktop Application" on page E - 4*** and ***Appendix C***). In ***Windows 8*** it is possible to quickly configure external displays from the **Devices** menu item in the **Charms Bar** (see ***"Windows 8 Charms Bar" on page E - 6***).

To Configure Displays from Devices (Charms Bar):

1. Attach your display to the external monitor port or HDMI-Out port, and turn it on.
2. Go to the **Charms Bar** and select **Devices**.
3. Click **Second Screen**.
4. Click on any one of the options from the menu to select Duplicate, Extend or a Single display.

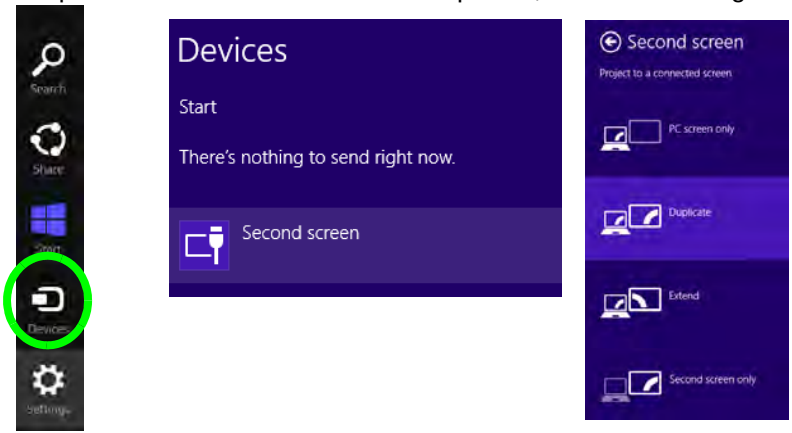


Figure E - 14 **- Second Screen (Devices)**

Power Options

Power Options can be accessed from the Control Panel in the same manner as ***Windows 7*** from the Desktop app. The **Power** item in **Settings** in the **Charms Bar** in ***Windows 8*** may be used to **Shut down**, **Restart** or send the computer to **Sleep**.

Shut Down, Restart or Sleep

1. Go to the **Charms Bar** and click **Settings**.
2. Click **Power** .
3. Select **Sleep**, **Shut Down** or **Restart**.

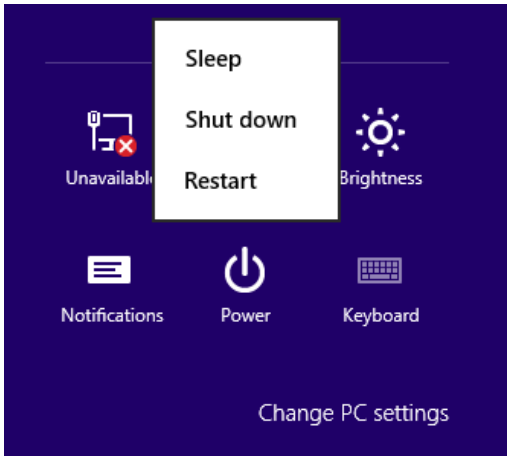


Figure E - 15 **- Power (Settings)**

Ctrl + Alt + Delete Key Combination

You can use the **CTRL + ALT + DEL** key combination from almost any of the ***Windows 8*** interfaces/apps to bring up a full-screen displaying **Lock**, **Switch User**, **Log off**, **Change a password** and **Task Manager** options. If you click the **Power** icon in the lower right corner of the screen a power management option menu appears to display **Sleep**, **Shut down**, and **Restart**.

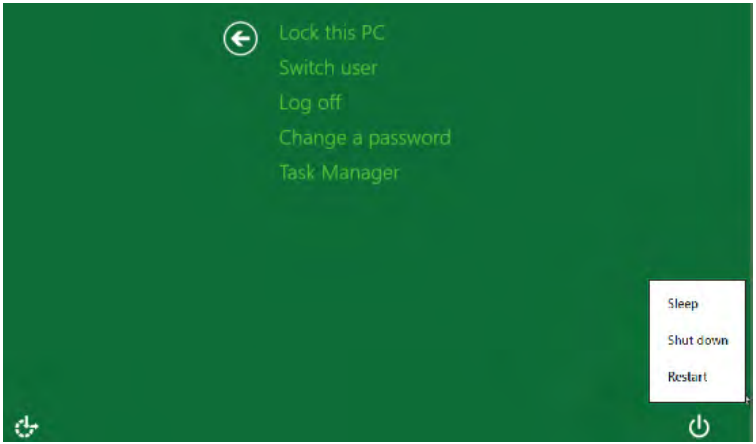


Figure E - 16 **- CTRL + ALT + DEL Menu**

To fully control all the power options (including Hibernate mode) go to the **Power Options** control panel and configure the power button, sleep button and lid (see ***Figure E - 17 on page E - 19***) to perform the function selected.

Wake On LAN Settings

If you require your computer to wake up from network activity in ***Windows 8*** then make sure that the computer is either in **Sleep** or **Hibernate**. The power/sleep button (**Fn + F4** key combo) and closed lid may be set to send the computer in to a power-saving state. Click **Choose what the power buttons do** on the left menu in **Power Options** to bring up the menu.

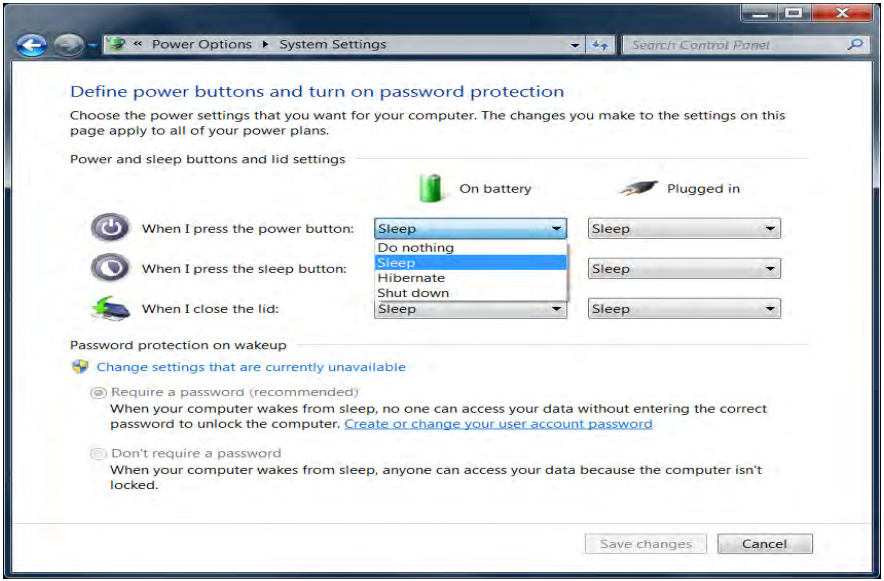


Figure E - 17 **- Power Options Define Power Buttons**

Wake On LAN Support (Windows 8)

Wake-On-LAN is only supported from **Sleep** or **Hibernate** states ***in Windows 8***.

Wake-On-LAN is not supported from Shut-down states in ***Windows 8***.

Screen Resolution for Metro Style Apps (Windows 8)

The minimum resolution in which Metro style apps will run is **1024x768**.

The minimum resolution required to support all the features of Windows 8 (including multitasking with snap) is **1366x768**.

These specs are the minimum screen resolution that supports all the features of Windows 8 on a useful physical size.

Running Metro UI Apps

To run apps in the Metro UI in ***Windows 8*** you will need to check that the **Screen Resolution** and **User Account Control Settings** are compatible with the system requirements:

Screen Resolution Settings

1. Switch to the Windows Desktop (click the app or use the Windows logo key + **D** key combination).
2. Right-click a blank area of the Windows Desktop and select **Screen Resolution**.
3. Adjust the **Resolution** to make sure that it is at least **1024 * 768,** although preferably **1366 * 768** or above (see sidebar).

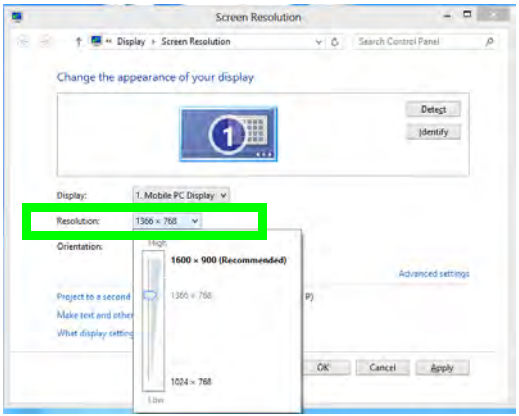


Figure E - 18 **- Screen Resolution**

User Account Control Settings

If your computer meets the minimum screen resolution requirements, and still you can't run Metro apps, then that you have to check the status of **User Account Control** (UAC). Metro apps may fail to open when the UAC is turned off. To check whether the UAC is on or off, follow the instructions below.

1. Open the **Control Panel** (see *"Windows 8 Control Panel" on page E - 8*).
2. Click on **User Accounts** and then click on **Change User Account Control settings** (or click **System and Security** and click **Change User Account Control Settings** under **Action Center**).
3. If the slider is in the **Never notify** position, then the UAC is disabled.
4. To enable or turn on the UAC, move the slider to **Always notify** or **Notify me when apps try to make changes to my computer (default)** position, and then click **OK**.

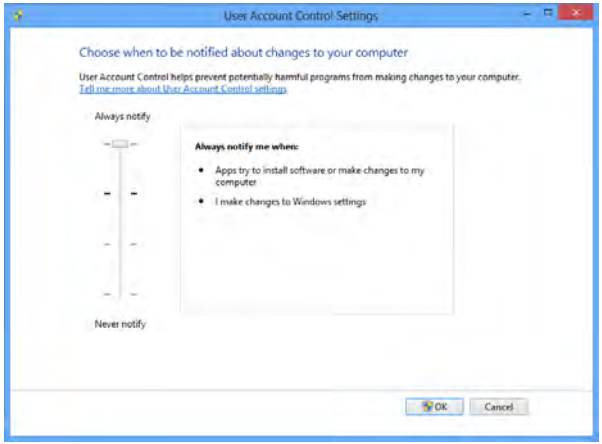


Figure E - 19 **- User Account Control**

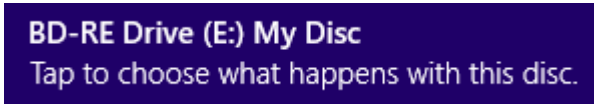
Drivers & Utilities

Make sure you install all the drivers and uti lites for your system. Follow the instructions in ***Chapter 4 "Drivers & Utilities" on page 4 - 1***/***"Modules & Options" on page 7 - 1*** for installing all the basic system drivers and module drivers for *Windows 7 & 8*.

However note that the **USB 3.0, PC Camera and 3G drivers are not required for *Windows 8***.

Driver Installation (Windows 8)

1. Insert the *Device Drivers & Utilities + User's Manual* disc into the computer's DVD drive.
2. Click the message "**Tap to choose what happens with this disc**."
3. Click **Run autorun.exe**.



Driver Installation

If you miss the message above you can eject the *Device Drivers & Utilities + User's Manual disc* and then reinsert it.

Alternatively **double-click the disc icon in Computer** (use the **Windows logo key** **+ E** key combination to go to **Computer** in Windows Explorer).

Figure E - 20 **- Autorun Driver Installation Disc**

4. Click ***Install Drivers*** (button), or ***Option Drivers*** (button) to access the **Optional** driver menu.
5. Check the driver installation order from ***Table E - 3, on page E - 25*** (**the drivers must be installed in this order**) which is the same as that listed in the ***Drivers Installer*** menu below.
6. Click to select the driver you wish to install, (you should note down the drivers as you install them).
7. Follow the instructions for each individual driver installation procedure as listed on the appropriate pages.

Driver Installation Order

Insert the drivers for ***Windows 8*** in the order indicated in the **Install Drivers** and **Option Drivers** menu (and in ***Table E - 3, on page E - 25***). Note that ***Windows 8*** does not require the USB 3.0, PC Camera and 3G drivers. You need only install the optional drivers for modules included in your purchase configuration.

Figure E - 21 **- Drivers Installer Menus (Install Drivers & Option Drivers)**

Win 7 SP1/Win 8	Page #	Win 7 SP1/Win 8 Driver	Page #
Chipset	*Page E - 26*	*The PC Camera driver is not required for Windows 8 (see page E - 28)*	
Video (VGA)	*Page E - 26*	*Wireless LAN Module (see page E - 34)*	*Page E - 34*
LAN	*Page E - 26*	*Bluetooth Module (Windows 8) (see page E - 43)*	*Page E - 43*
CardReader	*Page E - 26*	*The 3G driver is not required for Windows 8 (see page E - 50)*	
Touchpad	*Page E - 26*	*Trusted Platform Module*	*Page E - 54*
Hot Key	*Page 4 - 7*	*Intel® Rapid Storage Technology* (required for hard disks in AHCI mode)	*Page E - 68*
The USB 3.0 driver is not required for Windows 8		*Intel® Rapid Start Technology Driver*	*Page E - 73*
MEI Driver	*Page 4 - 7*	*Intel® Smart Connect Technology*	*Page E - 81*
Audio	*Page 4 - 7*	*Intel® Wireless Display Application*	*Page 7 - 32*

Table E - 3 **- Driver Installation**

All drivers provided are for Windows 7 with Service Pack 1 or Windows 8.

Note that you need to install both the WLAN & Bluetooth drivers for the Intel and 3rd party WLAN & Bluetooth Combo modules.

Driver Installation Procedure

Insert the *Device Drivers & Utilities + User's Manual disc* and click ***Install Drivers*** (button).

Chipset

1. Click **1.Install Chipset Driver > Yes**.
2. Click **Next > Yes > Next > Next**.
3. Click **Finish** to restart the computer.

Video (VGA)

1. Click **2.Install VGA Driver > Yes**.
2. Click **Next > Yes > Next > Next**.
3. Click **Finish** to restart the computer.

Note: After installing the video driver go to the **Display** control panel to adjust the video settings to the highest resolution.

LAN

1. Click **3.Install LAN Driver > Yes**.
2. Click **Next > Install**.
3. Click **Finish**.

CardReader

1. Click **4.Install Cardreader Driver > Yes**.
2. Click **Finish**.

Touchpad

1. Click **5.Install Touchpad Driver > Yes**.
2. Click **Next**.
3. Click the button to accept the license agreement and click **Next**.
4. Click **Finish > Restart Now** to restart the computer.

Hot Key

1. Click **6.Install Hotkey AP > Yes**.
2. Click **Next > Next**.
3. Click **Finish > Finish** to restart the computer.

MEI Driver

1. Click **7.Install MEI Driver > Yes**.
2. Click **Next > Yes > Next**.
3. Click **Finish**.

Audio

1. Click **8.Install Audio Driver > Yes**.
2. Click **Next**.
3. Click the button to agree to the license and click **Next**.
4. Click **Next > Next > Next**.
5. Click **Finish** to restart the computer.

Note that after installing the audio driver the system will not return to the ***Drivers Installer*** screen. To install any of the optional drivers listed overleaf, eject the *Device Drivers & Utilities + User's Manual* disc and then reinsert it (or double-click the disc icon in **My Computer**), and click ***Option Drivers*** (button) to access the optional driver menu.

Windows Update

After installing all the drivers make sure you enable **Windows Update** in order to get all the latest security updates etc., (all updates will include the latest **hotfixes** from Microsoft).

To enable **Windows Update make sure you are connected to the internet**:

1. Go to the **Control Panel**.
2. Click **Windows Update** (System and Security/ Security).
3. Click **Check for updates** (button).
4. The computer will now check for updates (you need to be connected to the internet).
5. Click **Install now** (button) to begin checking for the updates.
6. Click **Install updates** (button) to install the updates.

PC Camera (Windows 8)

Use the **Fn + F10** key combination (see *"Function/Hot Key Indicators" on page 1 - 11*) or **Control Center button** to toggle power to the PC Camera module.

The PC Camera does not require any driver installation.

When the PC Camera is in use the LED indicator to the left of the camera will be illuminated in red (see 2 *Figure 1 - 2 on page 1 - 6*/*Figure 1 - 3 on page 1 - 7*).

Note that you need to use the **Camera** app in ***Windows 8*** to take pictures and capture video (the camera application listed in **Chapter 7** is for ***Windows 7*** only).

Metro UI Camera App

1. Make sure the PC Camera is turned on by using the **Fn + F10** key combination (or **Control Center button**).
2. Run the Camera app from the Metro UI by clicking on the **Camera** app icon .
3. The camera interface is a translucent app bar with three buttons.

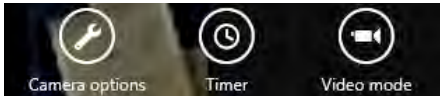


Figure E - 22 **- Camera App Bar**

- **Camera options:**. Click this button to open a window with three main options:

Camera Options

- **Resolution** (determined by the camera spec)
- **Audio device** (select microphone to use)
- **Video Stabilization** (a toggle based on spec of the camera)

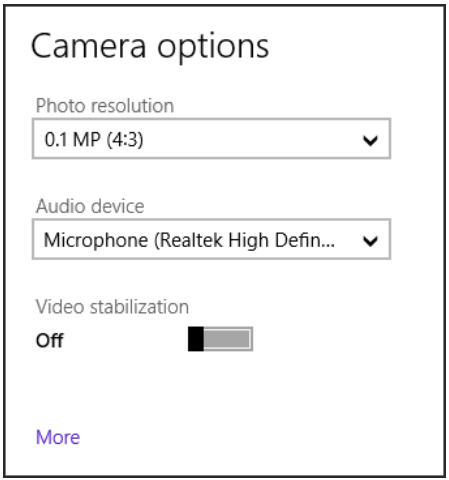


Figure E - 23 **- Camera Options**

You can also click on **More** to adjust **Brightness**, **Contrast** and **Flicker** (if you find that the video screen in the camera program is flickering, you can try to adjust the setting here),

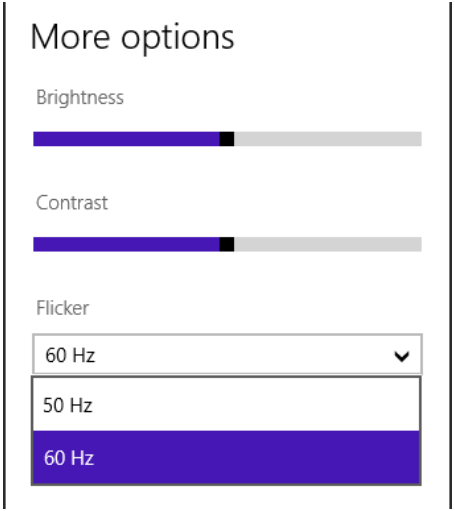


Figure E - 24 **-More Camera Options**

- **Timer**: This button will start a three second countdown before the system takes a still photo or video recording starts.
- **Video Mode**: This button toggles between still photo mode (transparent button) and video recording mode (highlighted white button).

Taking Pictures/Capturing Video

1. Make sure the PC Camera is turned on by using the **Fn + F10** key combination (or **Control Center button**).
2. Run the Camera app from the Metro UI by clicking on the **Camera** app icon .
3. Click to select the timer if you require a countdown before capture.
4. Click to select either photo or video modes.
5. Click in the main window to take a picture or start video capture (if video capture begins a timer will appear in the bottom right corner of the screen).
6. To stop video capture click the main window again.
7. Captured photos and videos will be saved to a **Camera Roll** folder within the **Picture** folder in **Libraries**.

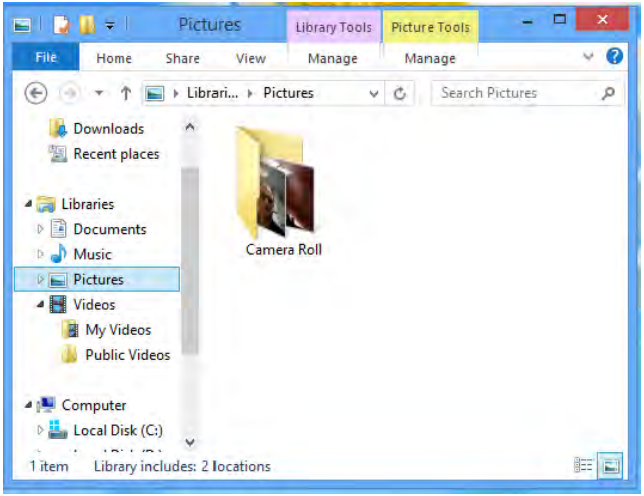


Figure E - 25 **- Libraries - Pictures**

8. A scroll arrow will appear on the left side of the screen after any pictures/videos have been captured.
9. Click the arrows (on either side of the screen) to browse through the captured photos/video, and back to the Camera app.
10. Clicking on a captured photo will bring up an app bar with **Crop** and **Delete** buttons.

Figure E - 26 **- Crop & Delete Buttons (for Still Photos)**

11. Use the handles to **Crop** any captured picture, and click **OK** to save the changes made.
12. Click **Delete** to delete any captured photo (note that no prompt will appear to confirm the delete).
13. Right-click any captured video to bring up app bar with **Trim** and **Delete** buttons.

Figure E - 27 **- Trim & Delete Buttons (for Video Files)**

14. Use the buttons at either end of the slider to adjust the video length and click **OK** to save the changes made.

Reducing Video File Size

Note that capturing high resolution video files requires a substantial amount of disk space for each file. After recording video, check the video file size (right-click the file and select **Properties**) and the remaining free space on your hard disk (go to **My Computer**, right-click the hard disk, and select **Properties**). If necessary you can remove the recorded video file to a removable medium e.g. CD, DVD or USB Flash drive.

Note that the ***Windows 8*** system requires a minimum of **16GB (32-bit)** or **20GB (64-bit)** of free space on the **C: drive** system partition. In order to prevent system problems it is recommended that you move any large sized captured video file to a location other than the **C: drive**, or reduce video resolution (see below).

To Reduce Video Resolution Output Size:

1. Run the **Camera** app.
2. Click the **Video resolution** dropbox and select a lower resolution size in order to reduce the captured file size.
3. Note that reducing video resolution will affect the video quality.

Wireless LAN Module (Windows 8)

If you have included an **Intel® or 3rd Party** Wireless LAN (or WLAN & Bluetooth combo) module in your purchase option, make sure that the WLAN module is on before installing the driver.

Use the **Fn + F11 key combination** (see *"Function/Hot Key Indicators" on page 1 - 11*) **to toggle power to the Wireless LAN module**. Make sure you install the drivers in the order indicated in *Table E - 3, on page E - 25*. See *"3rd Party 802.11b/g/n Driver Installation" on page E - 35* or *"Intel® WLAN Driver Installation" on page E - 36* for driver installation information, and *"WLAN Configuration in Windows 8" on page E - 37* **for WLAN configuration information in** ***Windows 8***.

Note that you need to install both the WLAN & Bluetooth drivers for the Intel and 3rd party WLAN & Bluetooth Combo modules.

3rd Party 802.11b/g/n Driver Installation

If you see the message "**Found New Hardware**" click **Cancel** to close the window.

1. **Make sure the module is powered on**, and then insert the ***Device Drivers & Utilities + User's Manual*** disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **1.Install WLAN Driver** > **Yes**.
4. Choose the language you prefer and click **Next**.
5. Click **Next**.
6. Click **Finish** to restart the computer.

Note: See ***"WLAN Configuration in Windows 8" on page E - 37*** for ***Windows 8*** configuration information.

Intel® WLAN Driver Installation

1. If you see the message "**Found New Hardware**" click Cancel to close the window.
2. **Make sure the module is powered on**, and then insert the ***Device Drivers & Utilities + User's Manual*** disc into an attached DVD drive.
3. Click **Option Drivers** (button).
4. Click **1.Install WLAN Driver > Yes**.
5. Click **Next > Next**.
6. Click the button to accept the license and click **Next**.
7. Click **Typical > Install**.
8. Click **Finish**.

Note: See ***"WLAN Configuration in Windows 8" on page E - 37*** for ***Windows 8*** configuration information.

WLAN Configuration in Windows 8

You can configure a wireless connection using one of the following options, however make sure the Wireless LAN module is turned on (and not in Airplane Mode) before configuration begins.

Charms Bar

1. Go to the **Charms Bar**.
2. Select **Settings** and then click the **WiFi icon** (it should read **Available** under the icon and **Airplane mode** should be **Off**).
3. A list of available access points will appear.

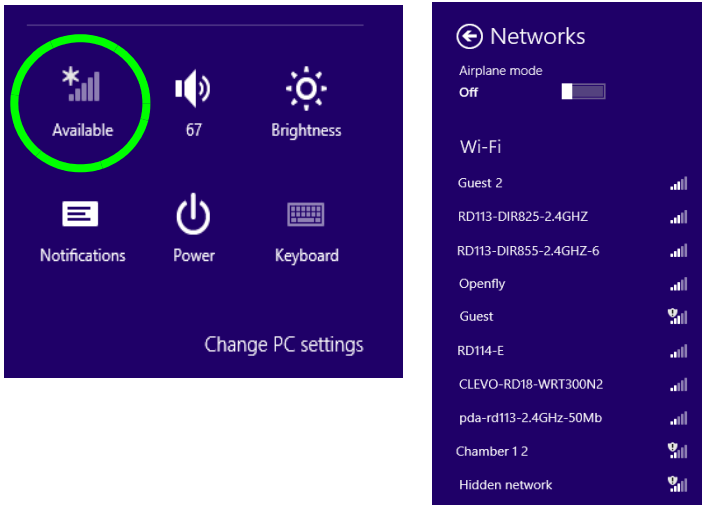


Figure E - 28 **- WiFi Settings (Charms Bar) & Networks**

4. Double-click an access point to connect to it (or click it and click **Connect**).
5. Enter a network security key (password) if required, and click **Next**.
6. You can choose to share or connect to devices or not.
7. When you are connected to the network access point it will display the Connected icon Connected .
8. Select any connected network and click **Disconnect** Disconnect to disconnect from a connected access point.

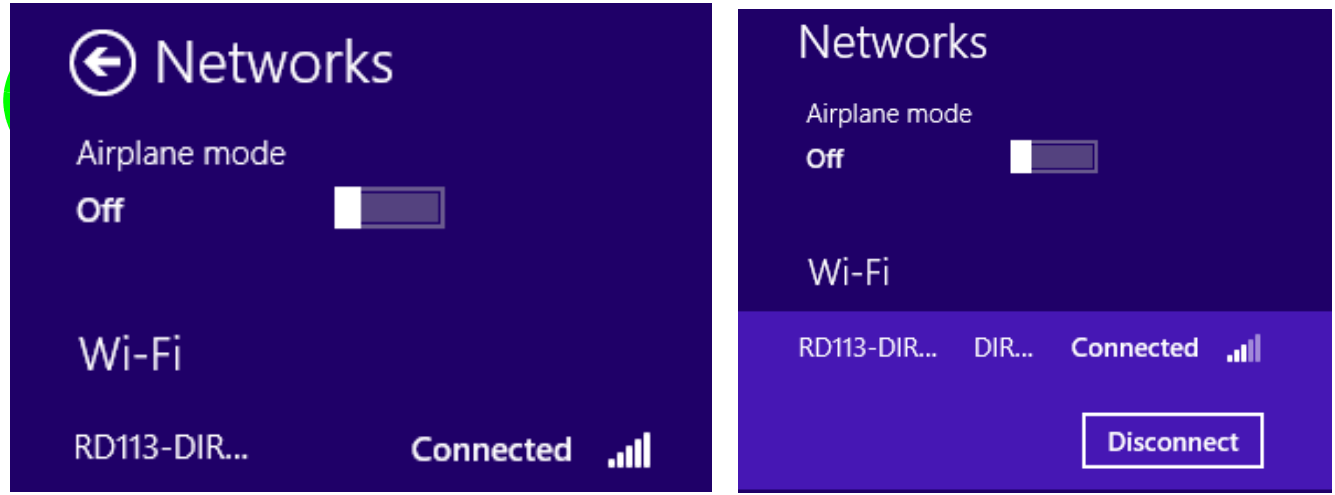
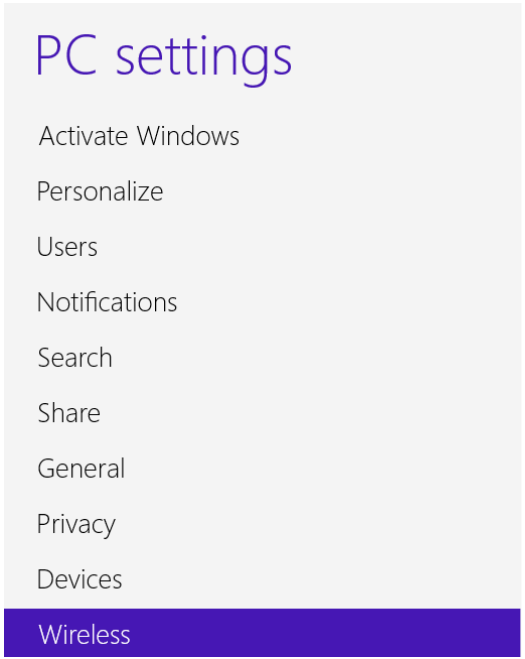
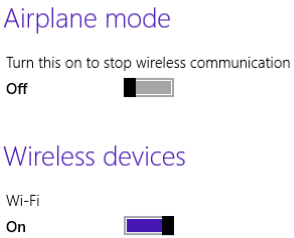


Figure E - 29 **- Networks Connected / Disconnect**

9. You can click the **Airplane Mode** button to turn the mode On or Off.
10. If you click on **Change PC Settings** (at the bottom of **Settings** in the **Charms Bar**) you can turn **Wireless** or **Airplane Mode** On/Off (see over).

11. You need to either use **Airplane Mode**, or to **turn the WLAN module off** aboard aircraft.





Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited.

Make sure the module is either **OFF** or in **Airplane Mode** (for ***Windows 8*** only) if you are using the computer aboard aircraft.

Figure E - 30 **- PC Settings (Wireless)**

Desktop Mode

1. Switch to the Windows Desktop (click the app or use the Windows logo key **+ D** key combination).
2. Click the wireless icon in the notification area of the taskbar.
3. A list of available access points will appear.
4. Double-click an access point to connect to it (or click it and click **Connect**).
5. Enter a network security key (password) if required, and click **Next**.
6. You can choose to share or connect to devices or not.
7. Select any connected network and click **Disconnect** to disconnect from a connected access point.

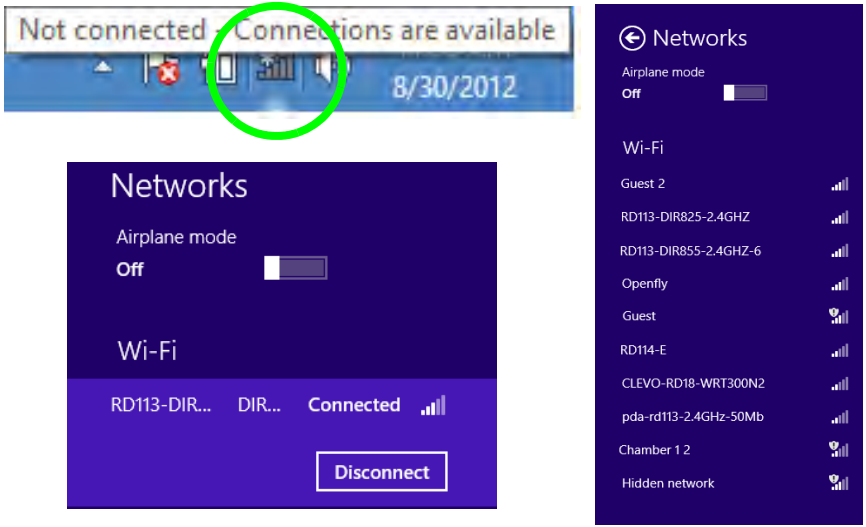


Figure E - 31 **- Windows Desktop Taskbar Notification Area WLAN Connection**

Control Panel

If you are in **Category View do the following** (see over for Icon View):

1. Open the **Control Panel** (see *"Windows 8 Control Panel" on page E - 8*).
2. Click the **Network and Internet** control panel.
3. Click **Connect to a network**.

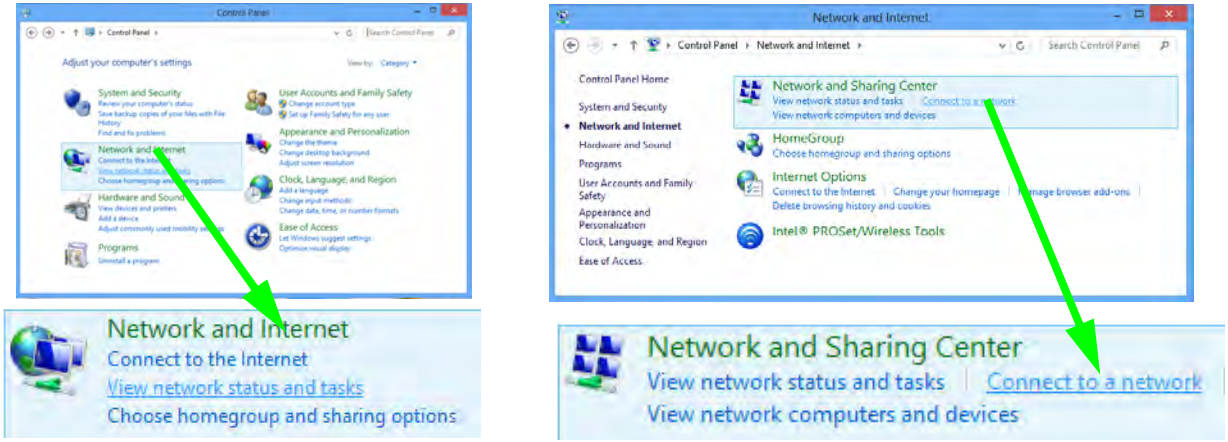


Figure E - 32 **- Network and Internet Control Panel**

4. A list of available access points will appear.
5. Double-click an access point to connect to it (or click it and click **Connect**).
6. Enter a network security key (password) if required, and click **Next**.
7. You can choose to share or connect to devices or not.
8. Select any connected network and click **Disconnect** to disconnect from a connected access point.

If you are in **Icon View do the following:**

1. Open the **Control Panel** (see *"Windows 8 Control Panel" on page E - 8*).
2. Click **Network and Sharing Center**.
3. Click **Change Adapter Settings**.
4. Double-click **Wi-Fi**.

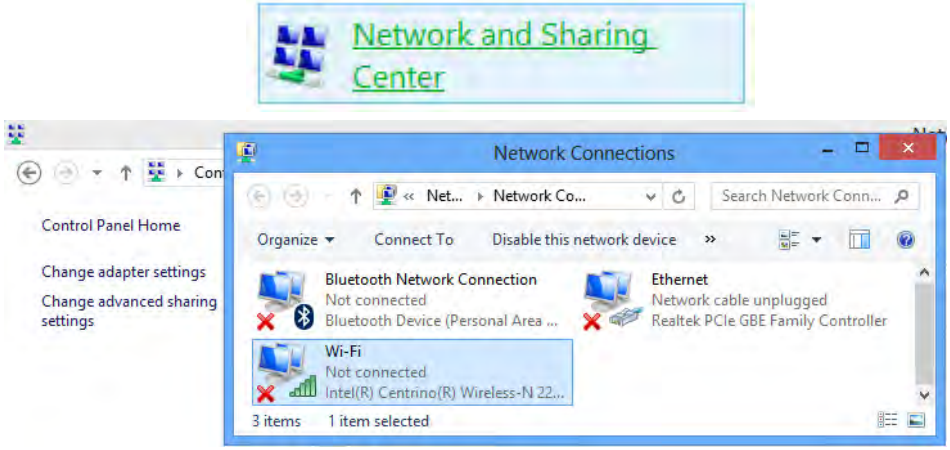


Figure E - 33 **- Network and Sharing Center Control Panel**

5. A list of available access points will appear.
6. Double-click an access point to connect to it (or click it and click **Connect**).
7. Enter a network security key (password) if required, and click **Next**.
8. You can choose to share or connect to devices or not.
9. Select any connected network and click **Disconnect** to disconnect from a connected access point.

Bluetooth Module (Windows 8)

If your purchase option includes the **Combination Wireless LAN & Bluetooth module** (either **Intel®** or **3rd Party**) then install the driver as instructed (see links below).

Use the Fn + F12 key combination or Control Center button to toggle power to the Bluetooth module.

Bluetooth Data Transfer

Note that the transfer of data between the computer and a Bluetooth enabled device is supported **in one direction only (simultaneous data transfer is not supported)**. Therefore if you are copying a file from your computer to a Bluetooth enabled device, you will not be able to copy a file from the Bluetooth enabled device to your computer until the file transfer process from the computer has been completed.

- For **3rd party Bluetooth modules** see *"3rd Party Bluetooth (V4.0) Combo Driver Installation" on page E - 44*.
- For **Intel Bluetooth combo modules** see the installation procedure see *"Intel Bluetooth Combo Driver Installation" on page 7 - 39*.

3rd Party Bluetooth (V4.0) Combo Driver Installation

Note this driver is only required for the 3rd Party combo Bluetooth and WLAN module (Bluetooth V4.0).

1. **Before installing the driver make sure the Bluetooth module is powered on** (use **Fn + F12** key combination), then insert the ***Device Drivers & Utilities + User's Manual*** disc into the CD/DVD drive. If a ***Found New Hardware*** window appears, click **Cancel** in all windows that appear, and then proceed to install the driver as below.
2. Click **Option Drivers** (button).
3. Click **2.Install Combo BT Driver > Yes**.
4. Click **Next** (if a prompt appears to ask you to turn the Bluetooth power on, press the **Fn + F12** key combination to do so, otherwise the driver will not be installed).
5. Click **Finish** to restart the computer.
6. See ***"Intel Bluetooth Combo Driver Installation" on page E - 45*** for instructions on Bluetooth settings for ***Windows 8***.

Intel Bluetooth Combo Driver Installation

Note this driver is required only for the Intel combo Bluetooth and WLAN module only.

1. **Before installing the driver make sure the Bluetooth module is powered on** (use **Fn + F12** key combination), then insert the ***Device Drivers & Utilities + User's Manual*** disc into the CD/DVD drive. If a ***Found New Hardware*** window appears, click **Cancel** in all windows that appear, and then proceed to install the driver as below.
2. Click **Option Drivers** (button).
3. Click **2.Install Combo BT Driver > Yes**.
4. Click **Next > Next**.
5. Click the button to accept the license and click **Next**.
6. Click **Next > Finish**.
7. See ***"Intel Bluetooth Combo Driver Installation" on page E - 45*** for instructions on Bluetooth settings for ***Windows 8***.

High Speed Bluetooth Data Transfer

The **Combination Wireless LAN & Bluetooth module** supports high speed data transfer. However to achieve such transfer speeds, **both devices must support high speed data transfer**.

To obtain high speed data transfer make sure that both the WLAN and Bluetooth modules are powered on.

Check your Bluetooth compatible device's documentation to confirm it supports high speed data transfer.

Bluetooth Configuration in Windows 8

You can configure a Bluetooth connection as below, however make sure the Bluetooth module is turned on (and not in Airplane Mode) before configuration begins.

Desktop Mode

1. Switch to the Windows Desktop (click the app or use the Windows logo key **+ D** key combination).
2. Click the notification area of the taskbar and double-click the Bluetooth icon (or click and select **Show Bluetooth Devices**).
3. The **Devices** item in **PC Settings** will appear.

OR

Charms Bar

1. Go to the **Charms Bar**.
2. Select **Settings** and then click **Change PC Settings**.
3. The **Devices** item in **PC Settings** will appear.

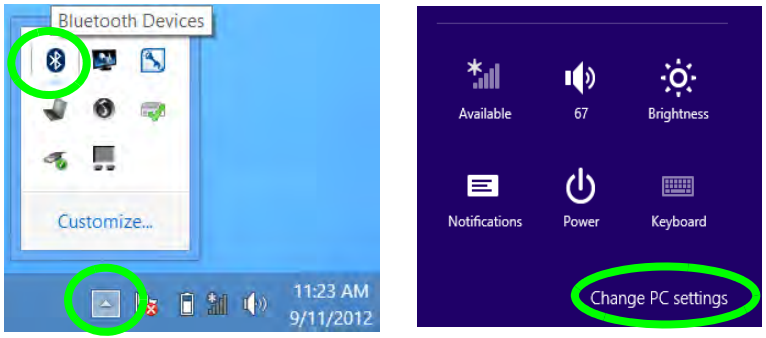


Figure E - 34 **- Bluetooth Taskbar Icon & Change PC Settings (Charms Bar -Settings)**

4. Click **Add a Device**.
5. Double-click the device you want to pair with the computer.

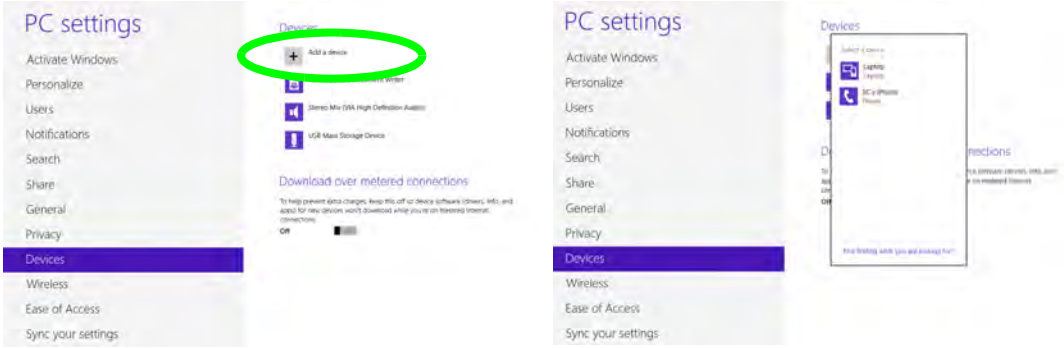


Figure E - 35 **- PC Settings (Devices) - Add A Device**

6. On first connection the computer will provide you with a pairing code to be entered onto the device.

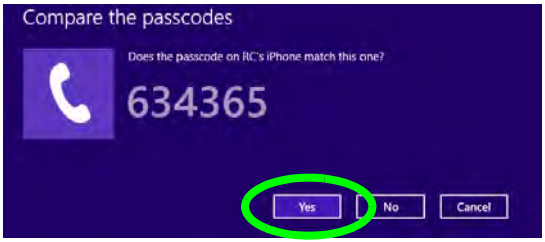


Figure E - 36 **- Enter the Passcode**

7. Enter the code into your Bluetooth enabled device and click **Yes** on the computer to complete the pairing.

8. You need to either use **Airplane Mode**, or to **turn the Bluetooth module off** aboard aircraft.

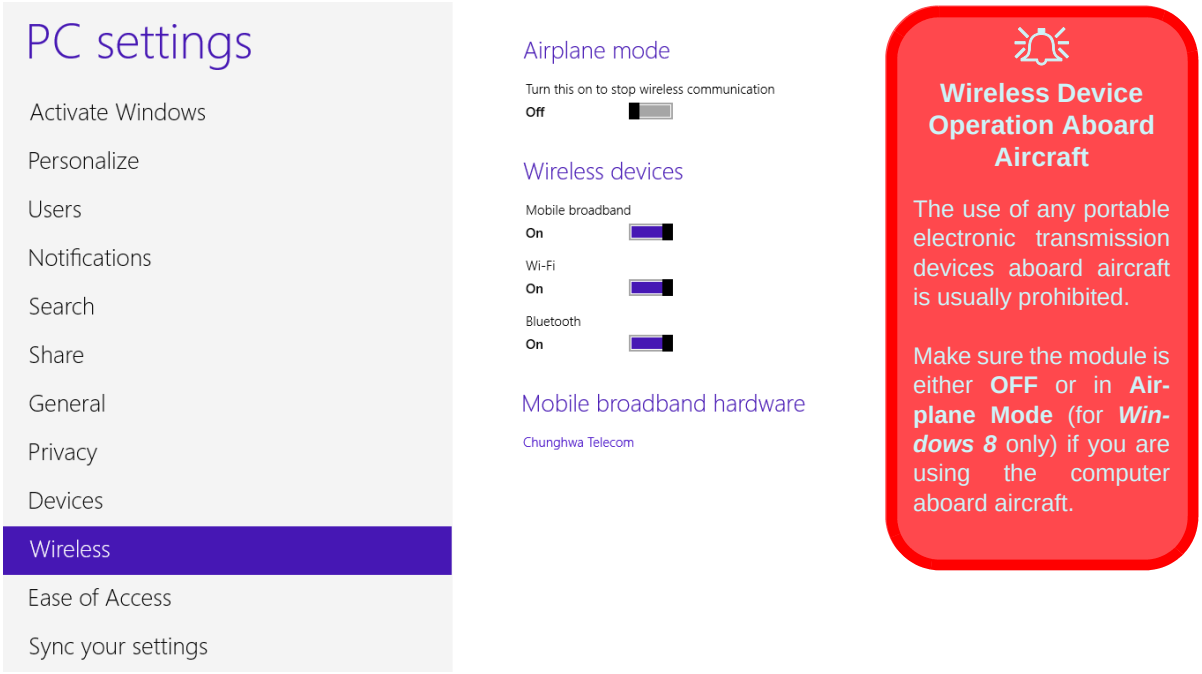


Figure E - 37 **- PC Settings (Wireless)**

To Make your Computer Discoverable to Bluetooth Devices

1. Switch to the Windows Desktop (click the app or use the Windows logo key **+ D** key combination).
2. Click the notification area of the taskbar, click the Bluetooth icon and click **Open Settings**.
3. Click **Options**, and make sure that ***Allow Bluetooth devices to find this computer*** check box (**Discovery**) has a tick inside it.
4. Make sure that the ***Alert me when a new Bluetooth device wants to connect*** check box (**Connections**) has a tick inside it, if you want to be notified when a Bluetooth device wants to connect.

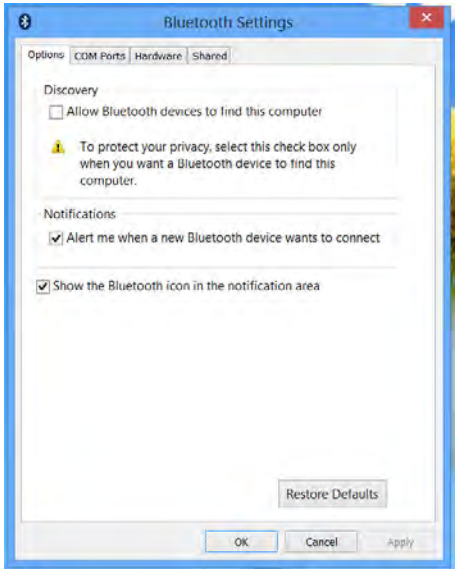


Figure E - 38 **- Bluetooth Settings**

3G Settings (Windows 8)

If you have included an **optional UMTS/HSPDA OR UMTS/HSPDA+** based 3G Module (Universal Mobile Telecommunications System or High Speed Packet Access) module (see ***"Communication" on page D - 4*** for specification details) in your purchase option, ***you do not require a driver/application installation for Windows 8***. Follow the instructions on page *7 - 45* to install the USIM card (which will be provided by your service provider), and then **use the Charms Bar Wireless icon to access the 3G network** in the same manner as the WLAN (see overleaf).

Important Notice - 3.75G/HSPA & Bluetooth/Wireless LAN Modules

In order to comply with FCC regulations you should NOT operate the 3.75G/HSPA module and the Bluetooth/Wireless LAN modules at the same time as this may disrupt radio frequency, and cause interference. When the 3.75G/HSPA module is powered on, make sure that the Bluetooth/Wireless LAN modules are powered off.

Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited.

Make sure the module is either **OFF** or in **Airplane Mode** (for ***Windows 8*** only) if you are using the computer aboard aircraft.

3G Configuration in Windows 8

You can configure a 3G connection as below, however make sure the 3G module is turned on by pressing the **Fn +** key combination (give the module about 10 seconds to power on) or Control Center button (and not in Airplane Mode) before configuration begins.

Charms Bar

1. Go to the **Charms Bar**.
2. Select **Settings** and then click the **WiFi icon** (it should read **Available** under the icon and **Airplane mode** should be **Off**).
3. A list of available access points will appear.

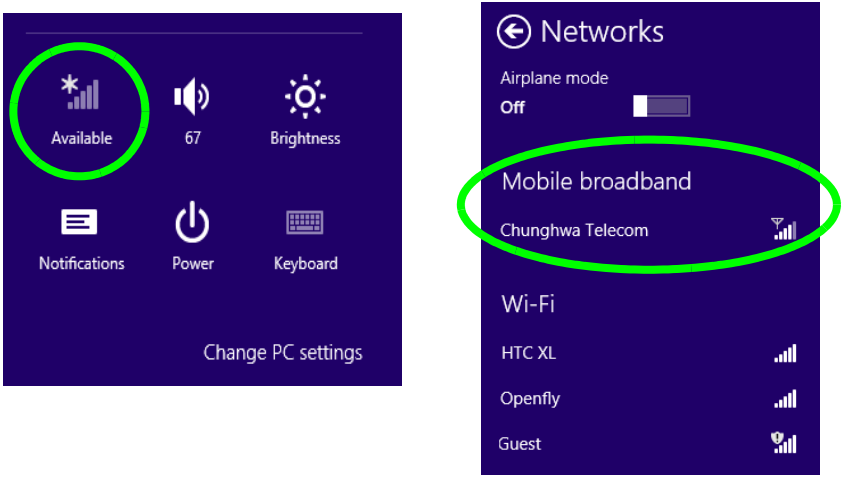


Figure E - 39 **- WiFi Settings (Charms Bar) & Networks (with Mobile Broadband)**

4. Any 3G service provider (connection information is usually stored on the USIM card) will appear under Mobile Broadband.
5. Double-click any connection icon under Mobile Broadband (or click and click **Connect**).

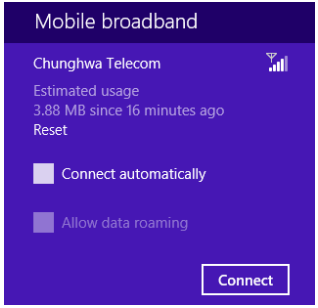


Figure E - 40 **- Mobile Broadband (Connect)**

6. The system will connect to your network.
7. A **Connected** will appear alongside the 3G connection (click the connection to view the timer which indicates your connected time for the current session).

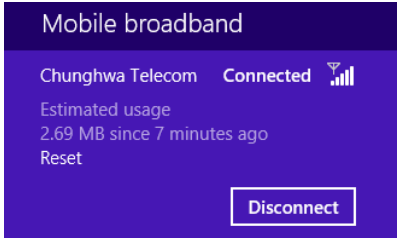


Figure E - 41 **- Mobile Broadband (Disconnect)**

8. You can then access the internet, download e-mail etc. as per any internet connection.
9. To disconnect you can select the connection and click **Disconnect** Disconnect.
10. You need to either use **Airplane Mode**, or to **turn the Mobile Broadband module off** aboard aircraft.

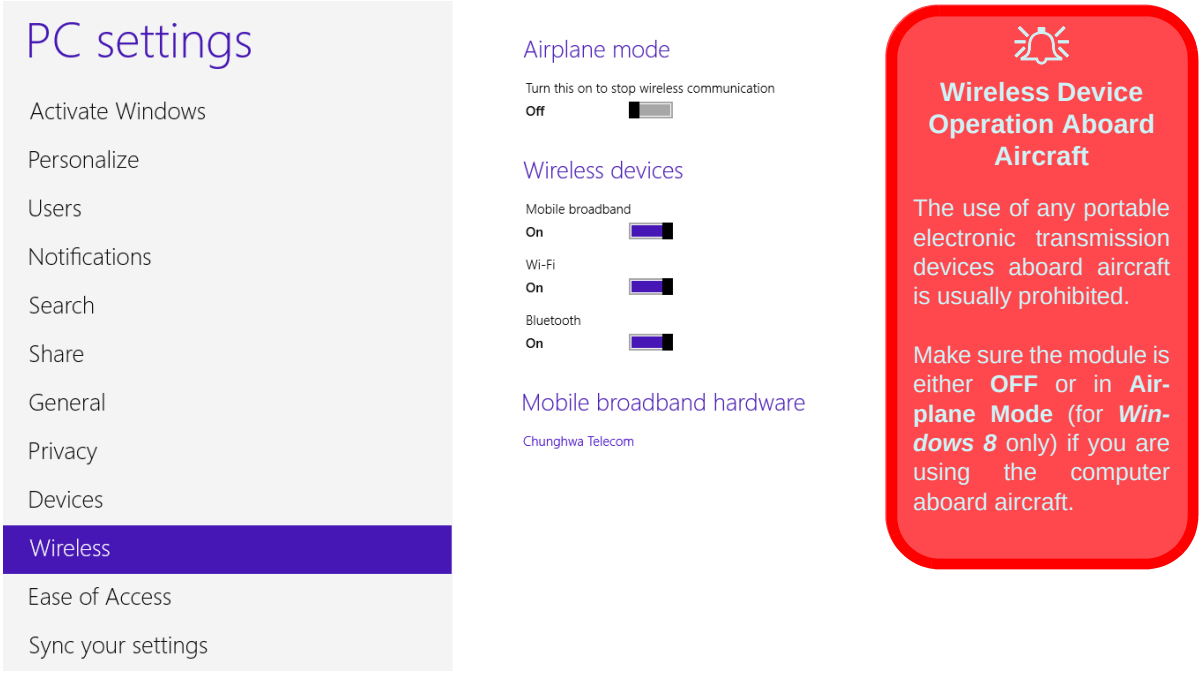


Figure E - 42 **- PC Settings (Wireless)**

Trusted Platform Module

The **TPM security chip** allows you to create and manage digital certificates for user and platform authentication. This type of security is usually administered within large enterprises and organizations, and therefore requires implementation by a system administrator before users can access security features.

Individual users can use the TPM as an authentication with the fingerprint reader.

Make sure you have administrator's rights to your computer, and have a ***Windows*** password enabled for full security protection. In addition **Make sure you prepare a removable media (e.g. a USB flash drive) to store passwords etc. before beginning the TPM initialization process**.

Before setting up the TPM functions you must initialize the security platform.

Enabling & Activating TPM

1. Restart the computer.
2. Enter the **Aptio Setup Utility** pressing **F2** during the POST/startup.
3. Use the arrow keys to select the **Security** menu.
4. Select **TPM Configuration** and press Enter to access the sub-menu.
5. Press Enter to access the **TPM Support** menu and select **Enable** to display the full **TPM configuration** menu.
6. Select **TPM State**, press Enter and select **Enabled** to change the TPM state to enabled. You will then need to press **F4** to save the changes and restart the computer.

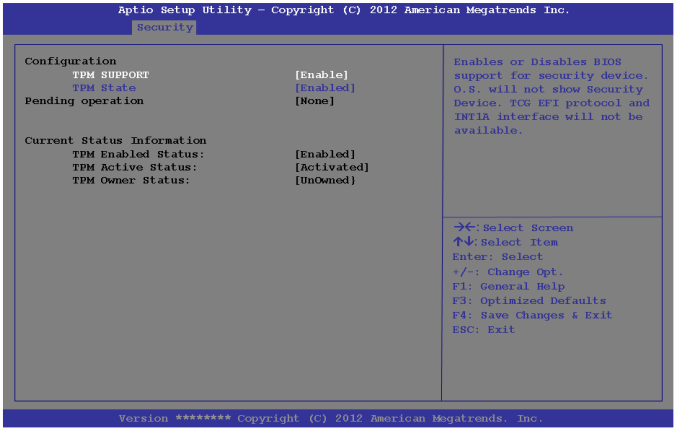


Figure E - 43
TPM State (Enabled)

7. As the computer restarts press **F2** to enter the BIOS again and go to the **TPM Configuration** menu.

8.Select **Pending operation**, press Enter and select the option you require (if you are initializing TPM you should select **Enable Take Ownership** and press Enter). You will then need to press **F4** to save the changes and restart the computer.

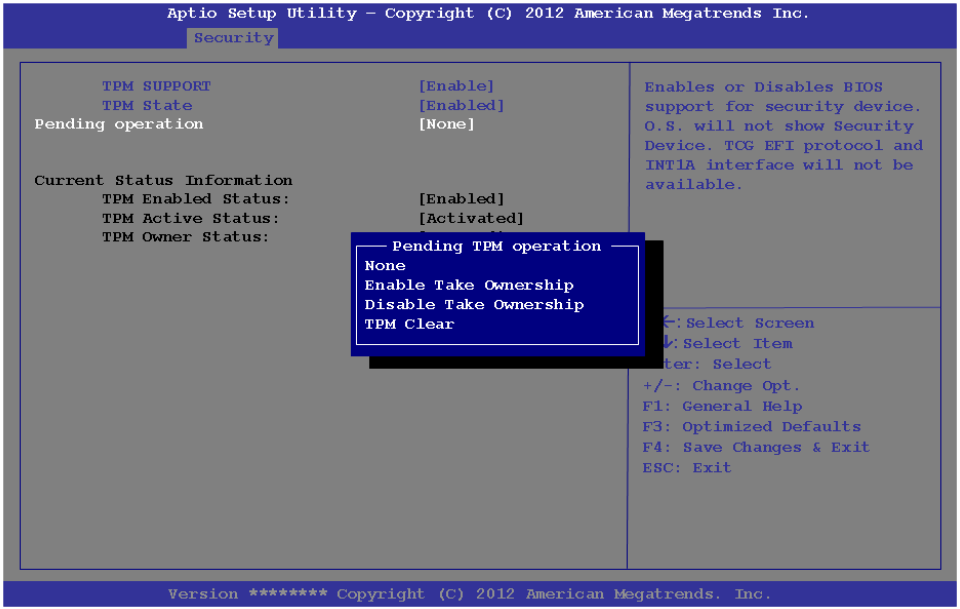


Figure E - 44
Pending TPM operation (Enable Take Ownership)

9.You can now **install the TPM driver** (see ***"Trusted Platform Module (TPM) Driver Installation" on page E - 57***) and then initialize the TPM.

Trusted Platform Module (TPM) Driver Installation

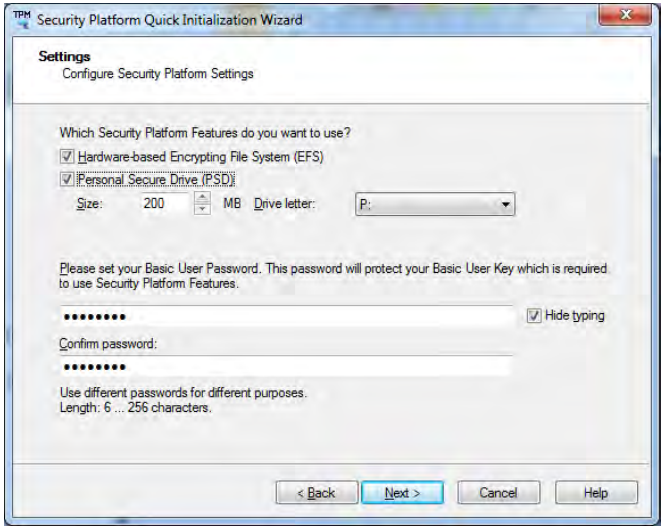
1. Make sure you have enabled and activated the TPM in the BIOS before installing the driver.
2. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
3. Click **Option Drivers** (button).
4. Click **3.Install TPM Driver > Yes**.
5. Click **Install > Next**.
6. Click the button to accept the license and click **Next**.
7. Click **Next > Next > Install**.
8. Click **Finish > Yes** to restart the computer.

Initializing TPM

1. Run the application by double-clicking the **Infineon Security Platform icon** in the notification area of the taskbar (or click the **Security Platform State** taskbar bubble).
2. The **Quick Initialization** method will automatically be selected for you (if you need to use advanced settings provided by your network administrator then select **Advanced Initialization**).
3. You will need to use a removable media (e.g. a USB Flash Drive) to store passwords and data (keep the media in a safe place until required).
4. Select the drive you want to use from the drop-down menu and click **Next**.

Figure E - 45
Security Platform Quick Initialization Wizard

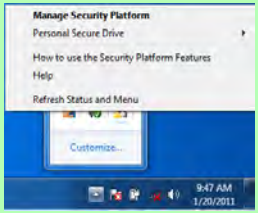
5. Choose the **Security Platform Features** you want to use by clicking the appropriate tickbox.
6. Enter a **Basic User Password** (and re-type to confirm it) and click **Next**.



7. Click **Next** to confirm the settings.
8. The computer will then initialize the settings.
9. Click **Finish**.
10. Click the tabs and control panels to adjust the settings.
11. Double-click the icon in the taskbar notification area to access the **Infineon Security Platform Settings Tool**, or right-click the icon and select a menu item.

Help

Right-click the icon in the notification area of the taskbar to bring up the menu to select ***Help*** or **How to use the Security Platform Features**.



You can also click the **Help** button in any of the Infineon Security Platform Settings Tool tabs to bring up specific help topics on each tab.

Figure E - 46
Settings

Menus

Note that not all the menus pictured here will be available for access. The menu items that appear will be dependent on your configuration settings etc. (see the **Help** file for full details).

Infineon Security Platform Settings Tool

The Infineon Security Platform Settings Tool allows you to manage and check the TPM state, manage your password information, and to backup and restore the TPM data. As TPM is usually administered within large enterprises and organizations, your system administrator will need to assist you in managing the information here.

Figure E - 47
Infineon Security Platform Settings Tool

User Settings

This page allows the settings to be configured for the currently logged in Infineon Security Platform user including the ability to change the password, configure secure e-mail, file and folder encryption and Enhanced Authentication. You can also import or delete certificates protected by the security platform.

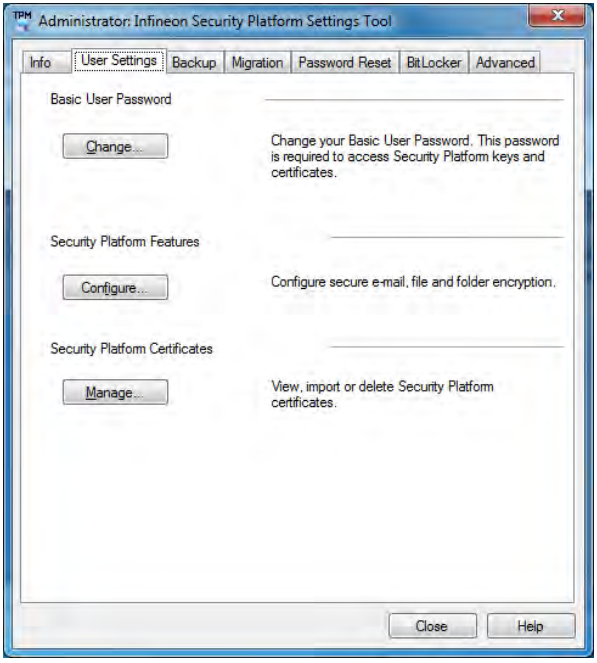


Figure E - 48
Infineon Security Platform Settings Tool (User Settings)

Backup

Here you can configure backup and restore operations. Backup files contain the computer identification and user identification information which is used to match the machine name and user name with the current machine and user during restoration.

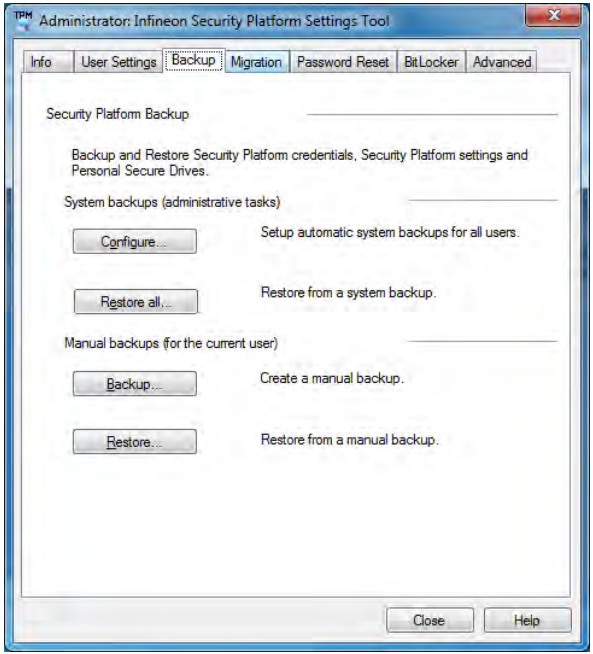


Figure E - 49
Infineon Security Platform Settings Tool (Backup)

Migration

The Migration tab is used to help securely transfer keys and certificates from one platform to another.

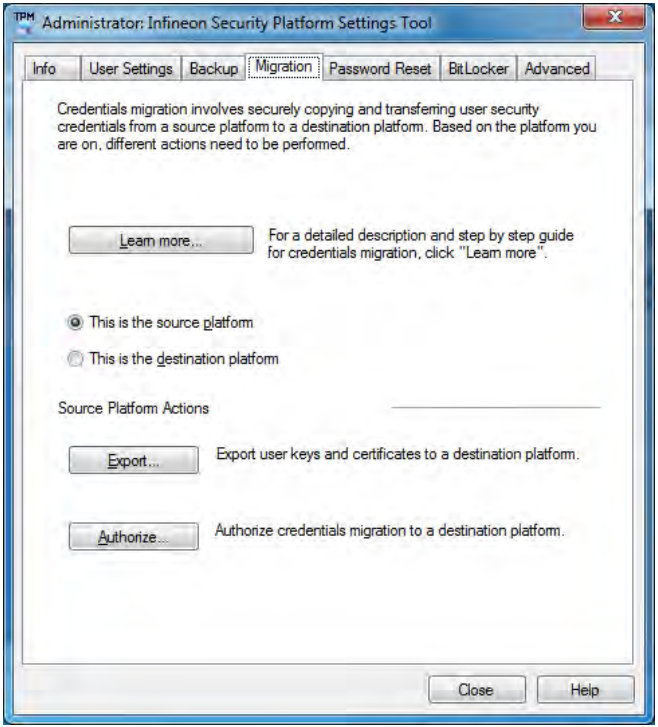


Figure E - 50
Infineon Security Platform Settings Tool (Migration)

Password Reset

Use Password Reset to reset basic user passwords when required.

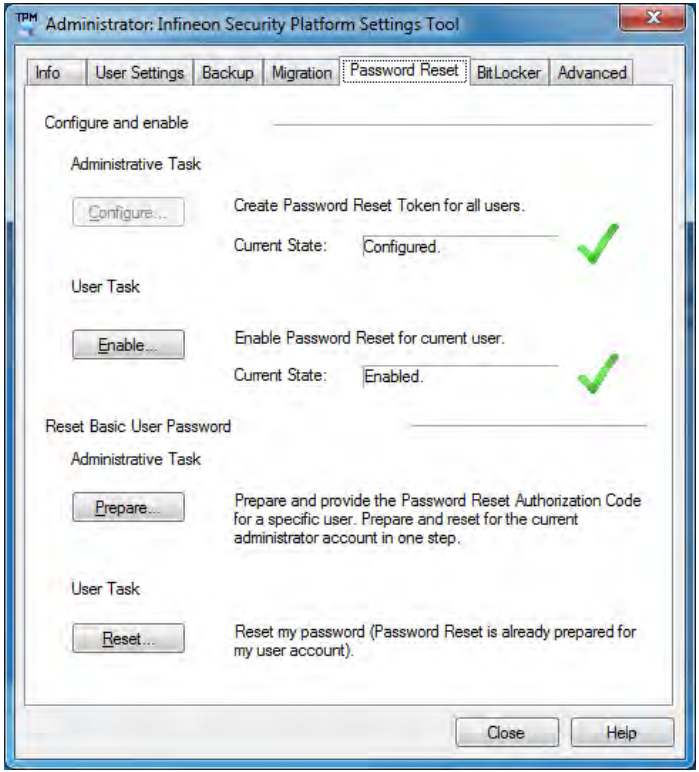


Figure E - 51
Infineon Security Platform Settings Tool (Password Reset)

BitLocker

BitLocker Drive Encryption can be used in conjunction with the TPM to encrypt data on the disk and is done via the **Microsoft BitLocker Control Panel Applet**. Click **Configure** and select a drive to be encrypted and then follow the Wizard to begin the encryption process.

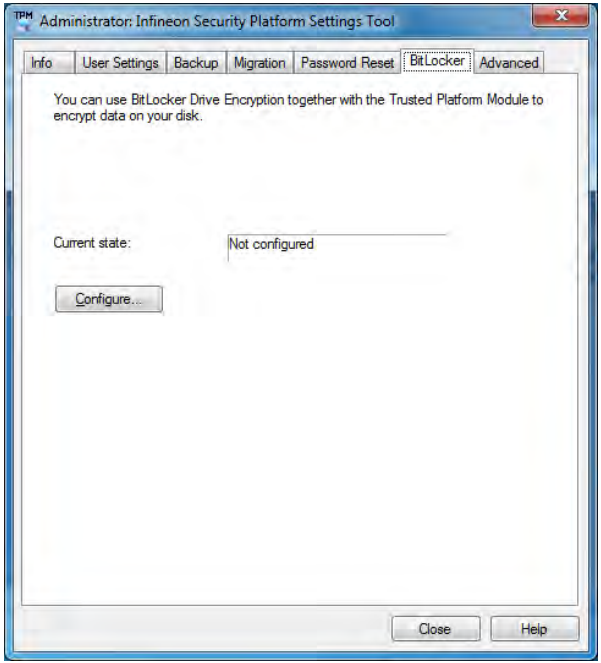


Figure E - 52
Infineon Security Platform Settings Tool (BitLocker)

Access the Microsoft **BitLocker Drive Encryption** control panel applet from the ***Windows*** control panel (**System and Security**).

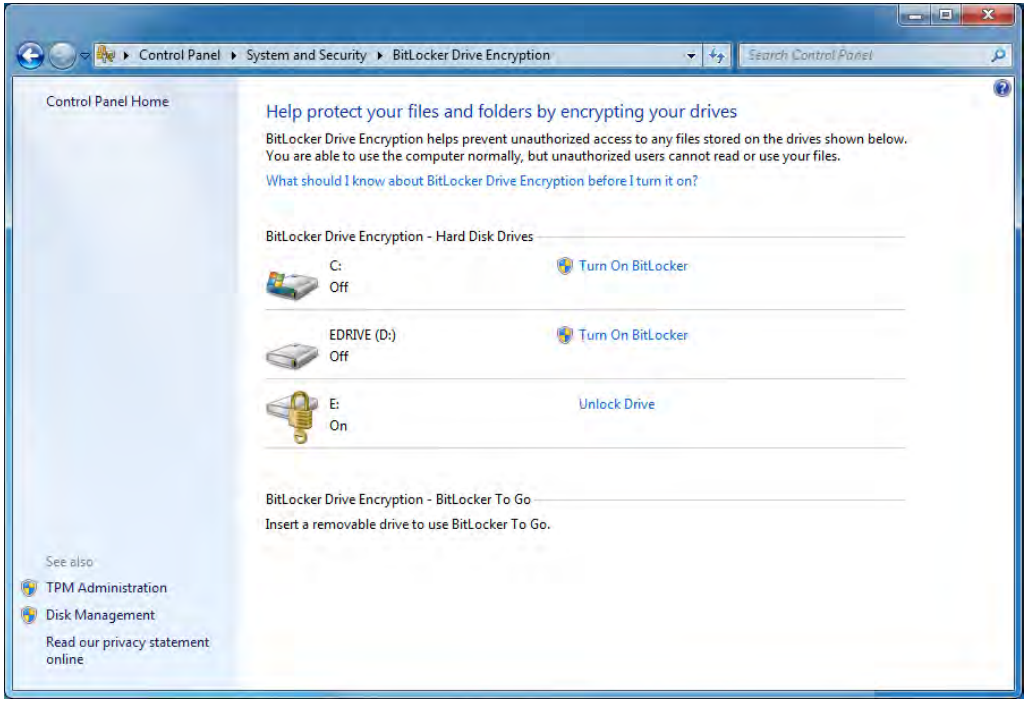


Figure E - 53
BitLocker Drive Encryption

Advanced

Configure all the Security Platform owner and policy settings from the Advanced tab. The settings that can be changed are for the local computer only.

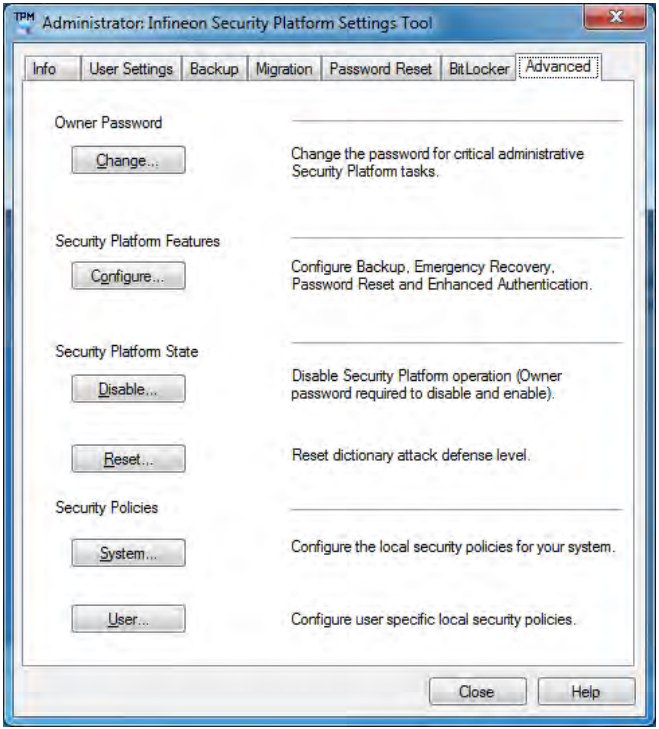


Figure E - 54
Infineon Security Platform Settings Tool (Advanced)

Intel® Rapid Storage Technology

Install the Intel Rapid Storage Technology to support your SATA drive if set up in AHCI mode in the BIOS (see *"SATA Mode (Advanced Menu)" on page 5 - 9*), or if you have set up your hard disks in a RAID configuration for **Intel® Smart Response Technology** (see overleaf).

IRST Driver Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
2. Click **Option Drivers** (button).
3. Click **4.Install IRST Driver > Yes**.
4. Click **Next > Yes > Next > Next**.
5. Click **Finish** to restart the computer (you will need to restart the system again after the computer has rebooted).

If you have an **Solid State Drive (SSD) module** included in your purchase option you may configure **Intel® Smart Response Technology** for your system (**see over**).

Intel® Smart Response Technology

Intel® Smart Response Technology is an **Intel® Rapid Storage Technology (RST)** caching feature that accelerates computer system performance by using the SSD as cache memory between the hard disk drive and system memory.

System Requirements to support Intel® Smart Response Technology:

- System BIOS with SATA mode set to RAID (see *"SATA Mode (Advanced Menu)" on page 5 - 9*).
- Intel Rapid Storage Technology software installed.
- A Solid State Drive (SSD) with a minimum capacity of 18.6GB.

See overleaf for instructions on enabling **Intel® Smart Response Technology**.

Enabling Intel Smart Response Technology

1. Run the **Intel® Rapid Storage Technology** application from the **Start** menu.
2. Click **Enable acceleration** either under **Status** or **Accelerate**.

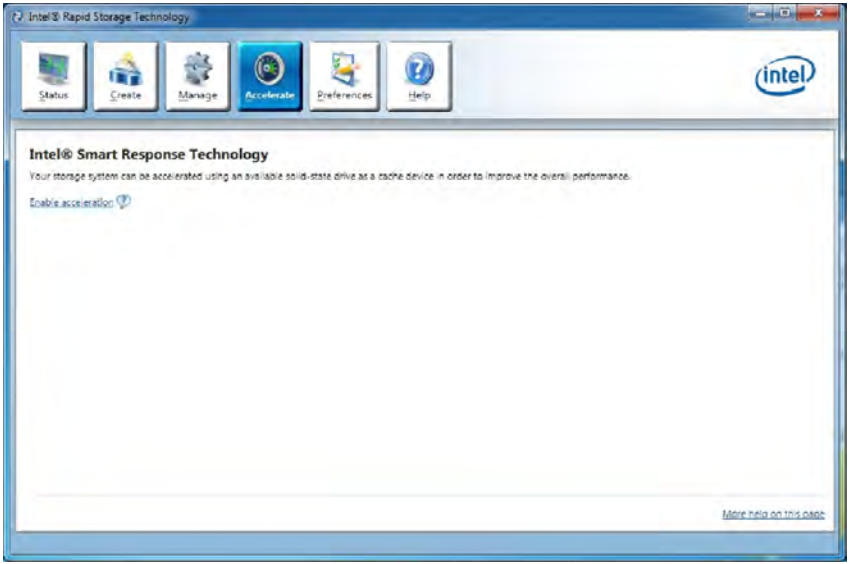


Figure E - 55
Enable Acceleration

3. Select the SSD to be used as a cache device.
4. Select the size from the SSD to be allocated for the cache memory (any remaining space on the SSD can be used for data storage using the simple data single-disk RAID 0 volume that is automatically created).

5. Select the HDD (or RAID volume) to be accelerated (it is highly recommended that you accelerate the system volume or system disk for maximum performance).
6. Select the acceleration mode, and then click OK (Enhanced mode is selected by default).

Note: **Enhanced mode** (default): Acceleration optimized for data protection.
Maximized mode: Acceleration optimized for input/output performance.

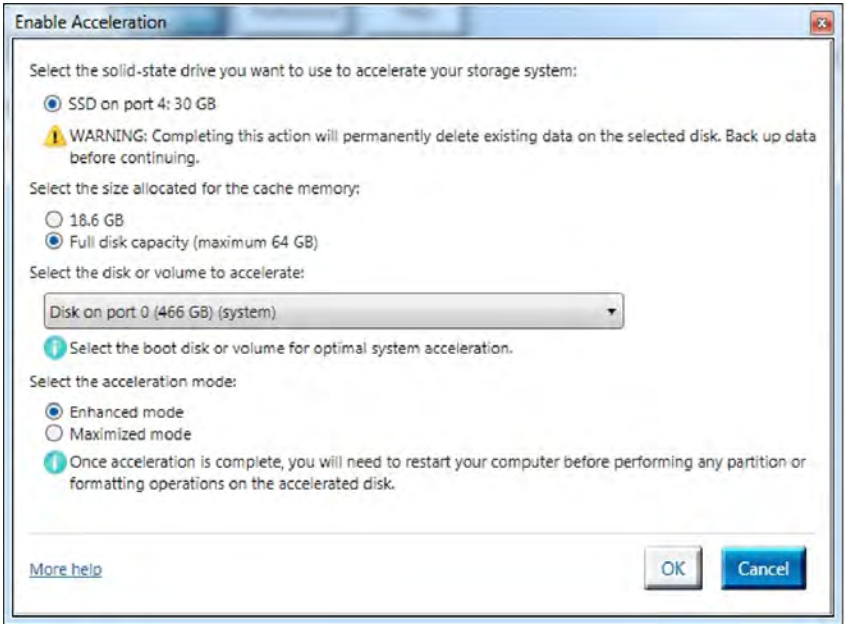


Figure E - 56
Enable Acceleration Options

7.The page will refresh and report the new configuration in **Acceleration**.

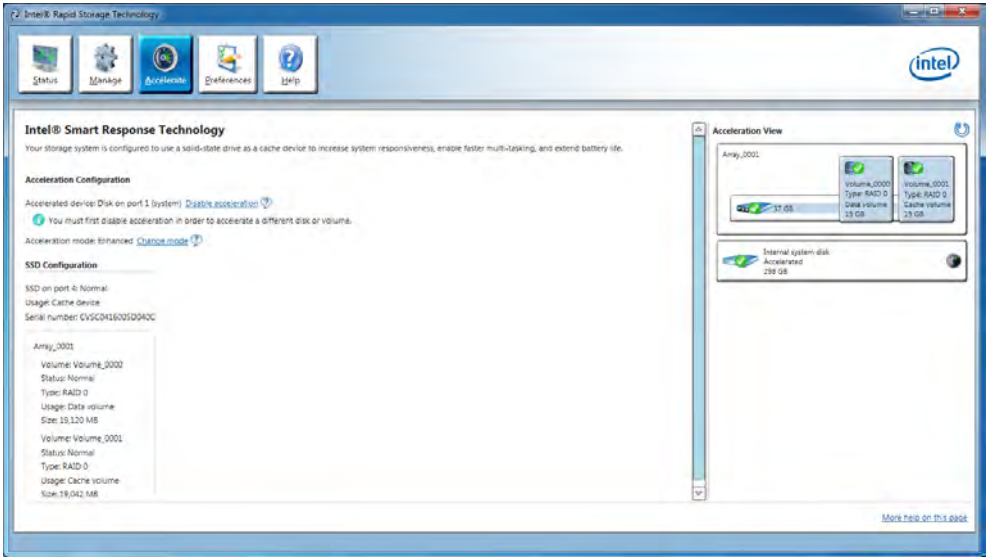


Figure E - 57
Intel® Rapid Storage Technology Accelerate

Intel® Rapid Start Technology Driver

Intel(R) Rapid Start Technology can resume power from Hibernation within 5 to 6 seconds and can remember your computer's previous state with zero power.

System Requirements to support Intel® Rapid Start Technology:

- Rapid Start Technology should be enabled in the BIOS (see *"Intel(R) Rapid Start Technology (Advanced Menu)" on page 5 - 8*).
- Intel Rapid Storage Technology software installed.
- A Solid State Drive (SSD) with a minimum capacity of 18.6GB.

See overleaf for instructions on enabling **Intel® Rapid Start Technology and see** *"Intel Smart Connect & Intel Rapid Start Technology" on page E - 85* for information on configuring Rapid Start and Smart Connect Technology.

Intel® Rapid Start Technology Configuration

1. Enable/disable **Intel(R) Rapid Start Technology** from the BIOS (see ***"Intel(R) Rapid Start Technology (Advanced Menu)" on page 5 - 8***).
2. Go the ***Windows*** control panel and double-click **Administrative Tools** (**System and Security**)**> Computer Management > Storage > Disk Management**
3. Right-click the SSD and select **Shrink Volume** from the menu.

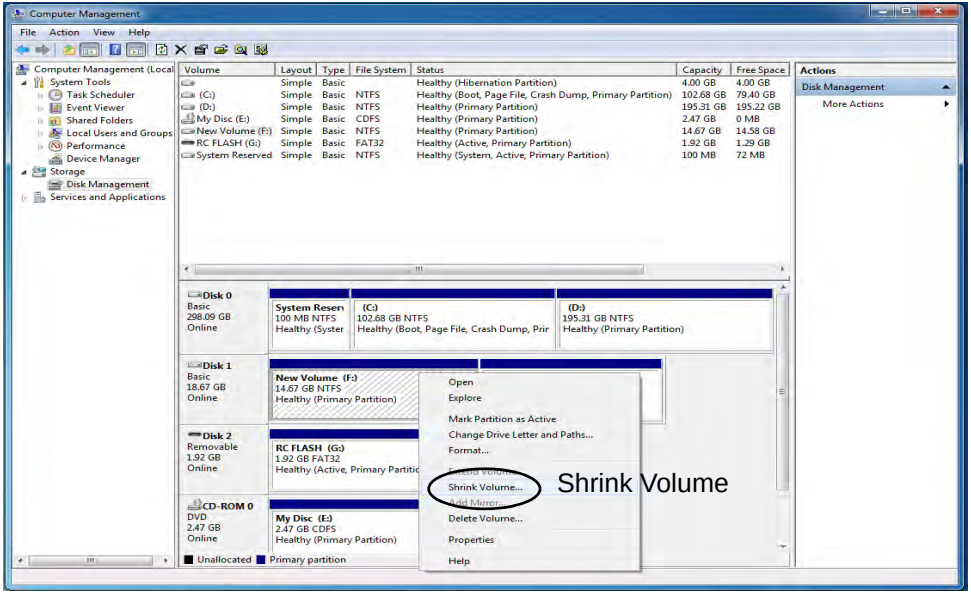


Figure E - 58
Computer Management (Shrink SSD Volume)

4. Enter the figure, **which should be equal to amount of system memory (RAM) in your computer,** in "**Enter the amount of space to shrink in MB**".

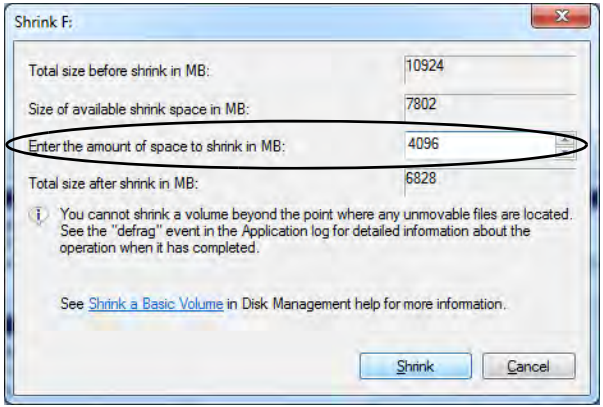


Figure E - 59
Shrink Volume Size

5. Click **Shrink** (any unallocated file space may be formatted for storage use).

Memory Size (Amount of Space to Shrink)

The figure entered in the "**Enter the amount of space to shrink in MB**" field above should be equal to the amount of system memory in your computer. In the example above the system memory is 4GB (**1024MB * 4 = 4096GB**). If you are unsure of your total system memory (RAM) then go to **System** control panel (System and Security) and check **Installed memory (RAM)**. The memory size will be displayed in GB so convert by multiplying the GB figure by 1024 to get the total in MB (e.g. 8GB = 8192MB).

6.Run the Desktop app and right-click the lower left hot corner (or use the ***Windows Logo Key*** + *X* key combination) and select **Command Prompt (Admin)**.

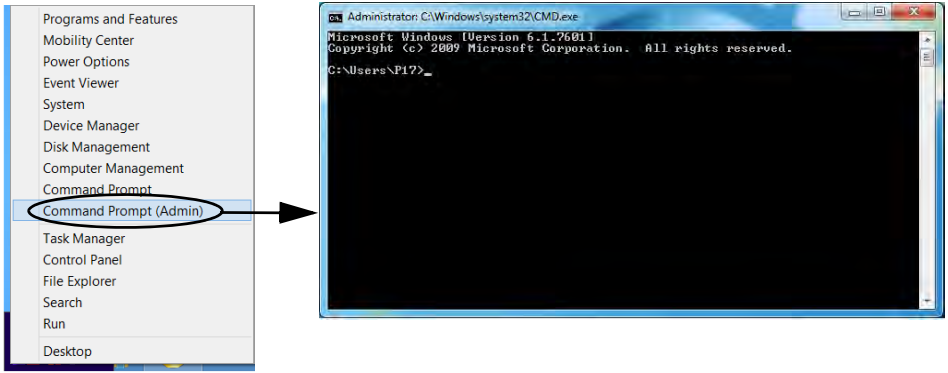


Figure E - 60
Search for CMD Prompt

7.Type "**DISKPART**".

8.At the DISKPART command type "**list disk**".

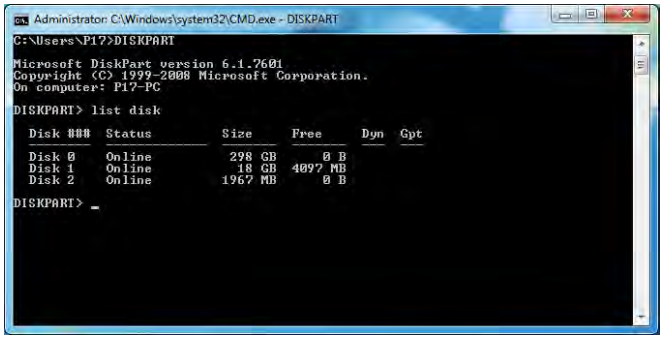


Figure E - 61
Diskpart - List Disk

9. Type “**select disk #**” (# is disk number where you want to create the store partition, so refer to the results obtained from "**list disk**" for exact disk number).
10. The message “**Disk # is now the selected disk.**” will appear.

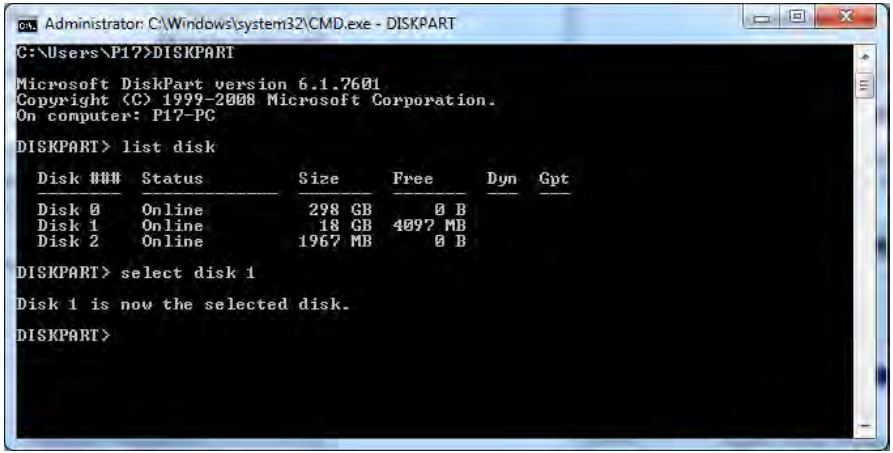


Figure E - 62
Diskpart - Select Disk #

11. Type “**create partition primary**”.
12. A “**DiskPart succeeded in creating the specified partition**.” message should appear.

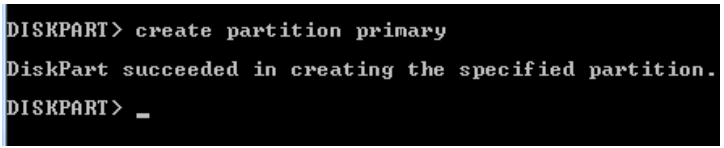


Figure E - 63
Diskpart - Create Partition

13.Type “**detail disk**”.

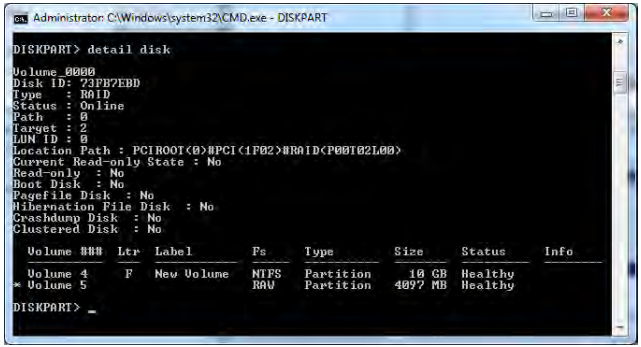


Figure E - 64
Diskpart - Detail Disk

14.Type “**select Volume #**” (# is volume of your storage partition so refer to results obtained from "detail disk" for the exact volume number).
15.The message “**Volume # is now the selected volume.**” will appear.

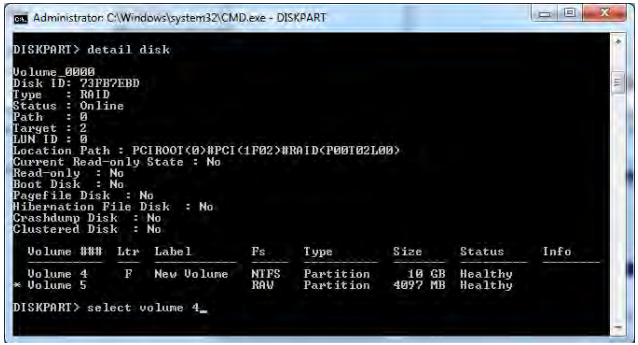


Figure E - 65
Diskpart - Select Volume #

16. Type "**set id=84 override**" (the id must be set to 84).

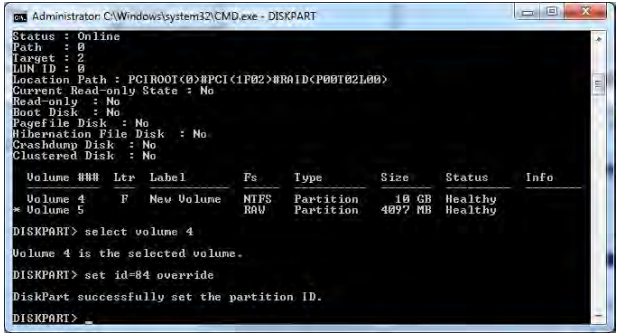


Figure E - 66
Diskpart - Set id=84 Override

17. The message "**DiskPart successfully set the partition ID.**" will appear.
18. Close the CMD window.
19. Go the ***Windows*** control panel and double-click **Administrative Tools** (**System and Security**)**> Computer Management > Storage > Disk Management.**
20. The disk partition should read **Healthy Hibernation Partition**.

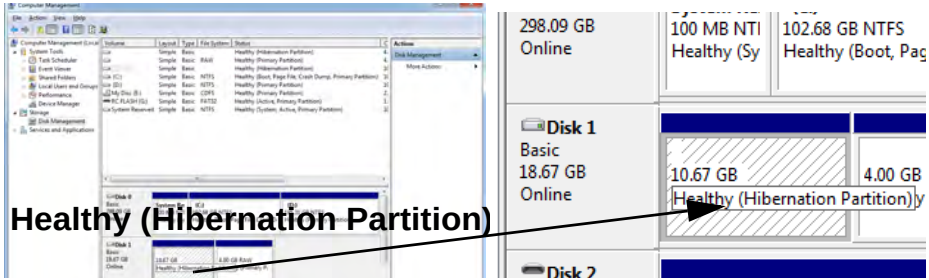


Figure E - 67
Computer Management (Healthy Hibernation Partition)

21. **Restart the computer**.

Intel® Rapid Start Technology Driver Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **5.Install Rapid Start Driver > Yes**.
4. Click **Next > Next > Yes > Next > Next**.
5. Click **Finish** to restart the computer.

Intel® Smart Connect Technology

Intel® Smart Connect Technology periodically, and briefly, wakes the computer from **Sleep** mode in order to update information for certain applications (e.g. to get mail from Microsoft Outlook) as required. These updates can therefore be made without having to turn the computer on, and applications will be up to date when the computer resumes from **Sleep** mode (make sure that ***Intel Smart Connect Technology*** is enabled in the BIOS - see ***"Intel Smart Connect Technology (Advanced Menu)" on page 5 - 8***).

Note that the applications need to be on and running when the computer enters Sleep mode in order to get updates.

Intel® Smart Connect Technology Driver Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
2. Click **Option Drivers** (button).
3. Make sure that ***Intel Smart Connect Technology*** is enabled in the BIOS - see ***"Intel Smart Connect Technology (Advanced Menu)" on page 5 - 8***.
4. Click **6.Install ISCT Driver > Yes**.
5. Click **Next**.
6. Click the button to accept the license agreement and click **Next**.
7. Click **Next > Install > Finish**.
8. Click **Yes** to restart the computer.

Intel® Smart Connect Technology System Requirements

Note that in order to support Intel® Smart Connect Technology your system will need to have the item enabled in the BIOS (see page ***5 - 8***).

In addition only the following WLAN modules support this feature:

Intel® Centrino® Wireless-N 2230
Intel® Centrino® Wireless-N 135

Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.

Use the **Fn + F11** key combination or hot key button to toggle power to the WLAN module, and check the indicator to see if the module is powered on or not (see ***Table 1 - 2, on page 1 - 11***/ ***Table 1 - 1, on page 1 - 8***).

Intel® Smart Connect Technology Configuration

1. Access the **Intel(R) Smart Connect Technology** application from the **Start** menu.
2. Click **Basic** (tab) and adjust the slider to set the update frequency (note that the slider balances between ***"More Frequent Updates"*** and ***"More Battery Life"***).
3. Note the sidebar warning about the use of **Intel(R) Smart Connect Technology** aboard aircraft and make sure your wireless LAN module is off during air travel.
4. In order to update any applications, they will need to be on and running when the computer enters **Sleep** mode.

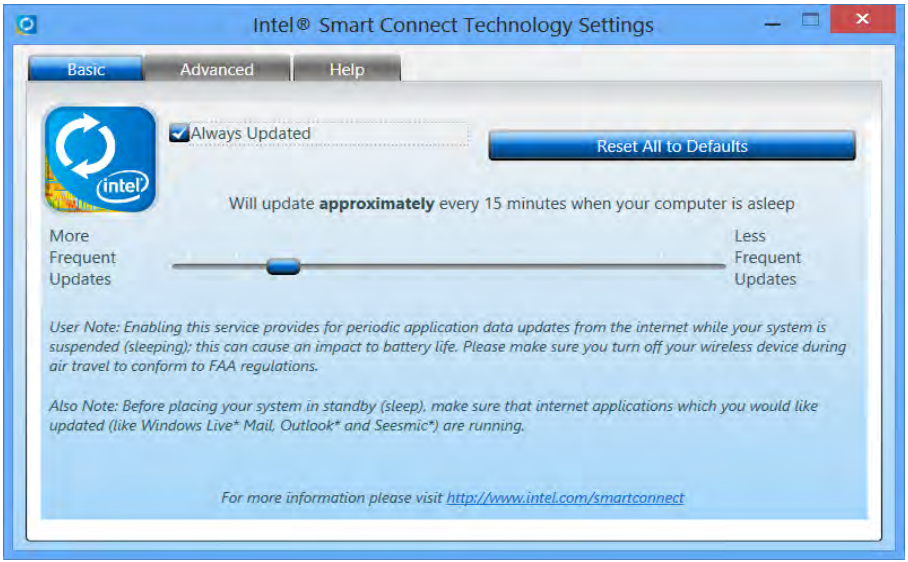


Figure E - 68
iSCT Basic

5. Click **Advanced** (tab) to access the **Extended Power Savings** settings.
6. **Extended Power Savings** allows you to set a time period during which the computer will update less often (e.g. at night while you are asleep or whenever you are at work).

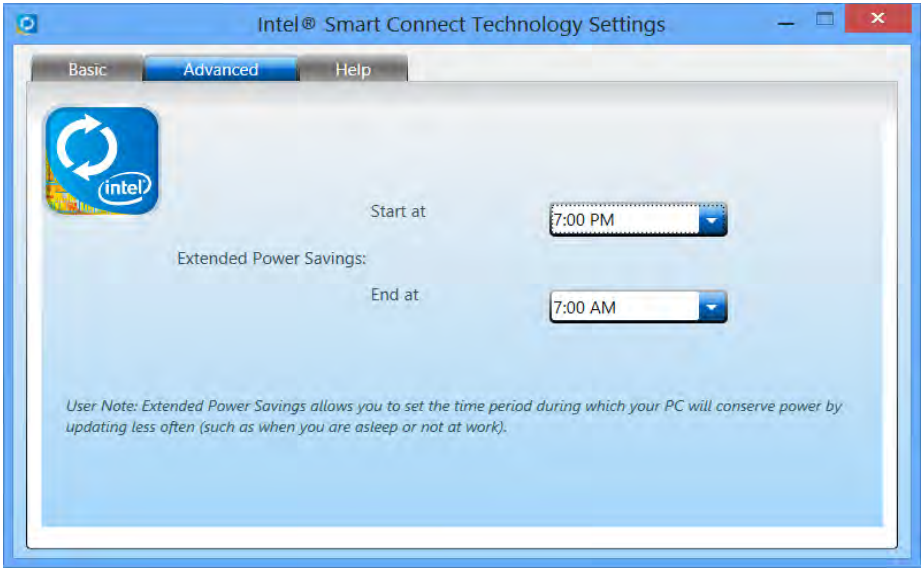


Figure E - 69
iSCT Advanced

7. Updates set during this time period will be performed every two hours, and this will override the settings selected in the **Basic** tab in order to conserve power consumption.

Intel WLAN Modules

If your purchase option includes an **Intel WLAN module**, (with ***Intel's PROSet Wireless Connection Utility*** installed), ***Intel® Smart Connect Technology*** will search for WiFi networks around you that you have previously accessed.

If no known WiFi networks are found, your computer will not update again until it recognizes a known WiFi network.

8.Click the **Help** tab and click **Topics** to access the main **Help** menu.

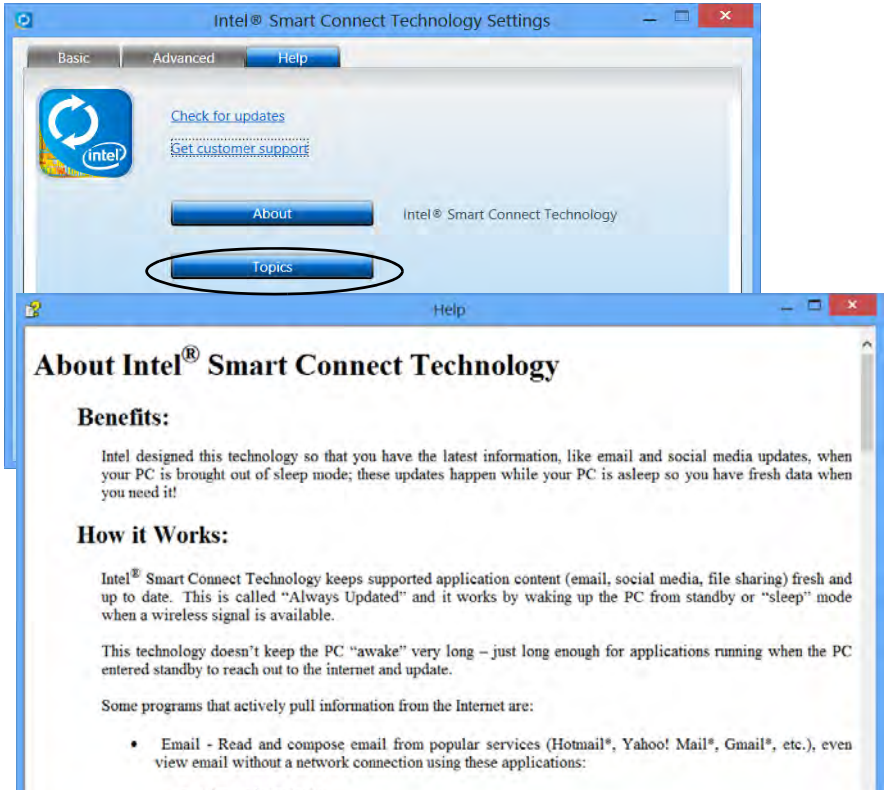


Figure E - 70
iSCT Help

Intel Smart Connect & Intel Rapid Start Technology

Intel® Smart Connect Technology wakes the computer from **Sleep** mode in order to update application information. **Intel(R) Rapid Start Technology** can resume power from **Hibernation** within 5 to 6 seconds and can remember your computer's previous state with zero power. **Intel(R) Rapid Start Technology** sends the computer into **Hibernate** mode and skips the **Sleep** mode. Therefore if Rapid Start is enabled, Smart Connect will be unable to wake the system as Sleep mode has been bypassed. In order to configure your system to run Smart Connect you will either need to disable or delay the system from running Rapid Start.

Disabling or Delaying Rapid Start Technology

1. Run **Intel(R) Rapid Start Technology Manager** from the **Start** menu or double-click the icon in the notification area ot the taskbar.

Figure E - 71
Intel® Rapid Start Technology Manager Access

2.Disable Intel Rapid Start Technology by clicking the **Off** button, and clicking **Save**.
OR
3.Click **Timer** to make sure it is on, and adjust the slider to select a time to delay entering Rapid Start from running, and click **Save**.

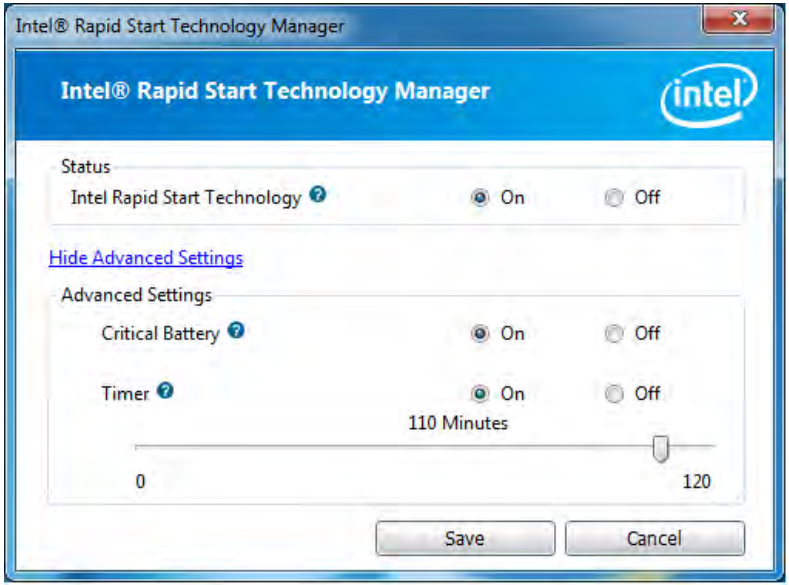


Figure E - 72
Intel® Rapid Start Technology Manager Settings

Intel® Wireless Display Application

The **Intel® Wireless Display Application (requires Intel® Centrino WLAN/ Combo module)**, in conjunction with a **compatible video adapter** (purchased separately), allows you to display the contents of the notebook display on another display (e.g. HDTV) without the need to have cables stretching across a room. You can then play games, browse the internet, display videos or photo slide shows on your TV/external display without using HDMI or A/V cables.

Before configuring the **Intel® WiDi** application you will need to set up your **compatible adapter** with your display/speakers. Connect the adapter using an HDMI or A/V cable and turn on the display (or in the case of speakers connect them to the wireless speaker adapter with the cables provided with the adapter), and then set the display to the appropriate input channel (see the documentation supplied with your **compatible adapter** for full details).

Intel® WiDi also incorporates **Intel® Wireless Music** which allows you to wirelessly stream audio from your computer to speakers connected to a **compatible wireless speaker adapter** (purchased separately).

Compatible Adapters

For a list of compatible display and audio adapters check the Intel website, or your distributor/ supplier.

Intel® WiDi Application Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
2. Click **Option Drivers** (button).
3. Click **7.Install Intel WiDi AP > Yes**.
4. Click **Next**.
5. Click the button to accept the license and click **Next**.
6. Click **Finish**.

Intel® Wireless Music Driver Installation

If you wish to use your system to stream wireless audio to speakers connected to a compatible wireless speaker adapter you will need to install the **Intel(R) Wireless Music Driver**.

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into the DVD drive.
2. Click **Browse** and browse to the driver location (X: denotes your DVD drive):

- **X:\Options\02_WLAN\INTEL\Intel_WiDi_Music\autorun.exe**

3. Click **Next**.
4. Click the button to accept the license and click **Next**.
5. Click **Finish**.
6. Follow the procedure overleaf to setup WiDi or Wireless Music.

Intel® WiDi Application Configuration

1. Run **Intel(R) Wireless Display** from the **Start** menu.
2. Click **I agree to the terms of this license** (button).
3. The application will scan for any connected compatible adapters (or you can click the **Scan for available adapters** button to enable **Intel My WiFi Technology**).

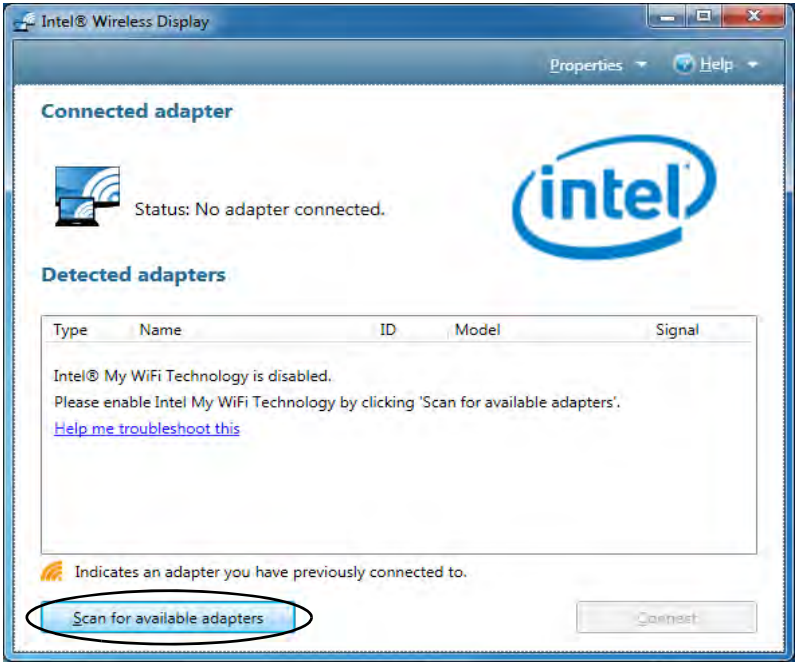


Figure E - 73
Intel® WiDi Scan

4. Click to select and detected adapters, and click **Connect**.
5. The system will then prompt you to enter the **4-digit security code** which will be displayed on the external TV Screen (or press the **connect** button on the wireless speaker adapter).
6. Enter the code for the video adapter and click **Continue**.

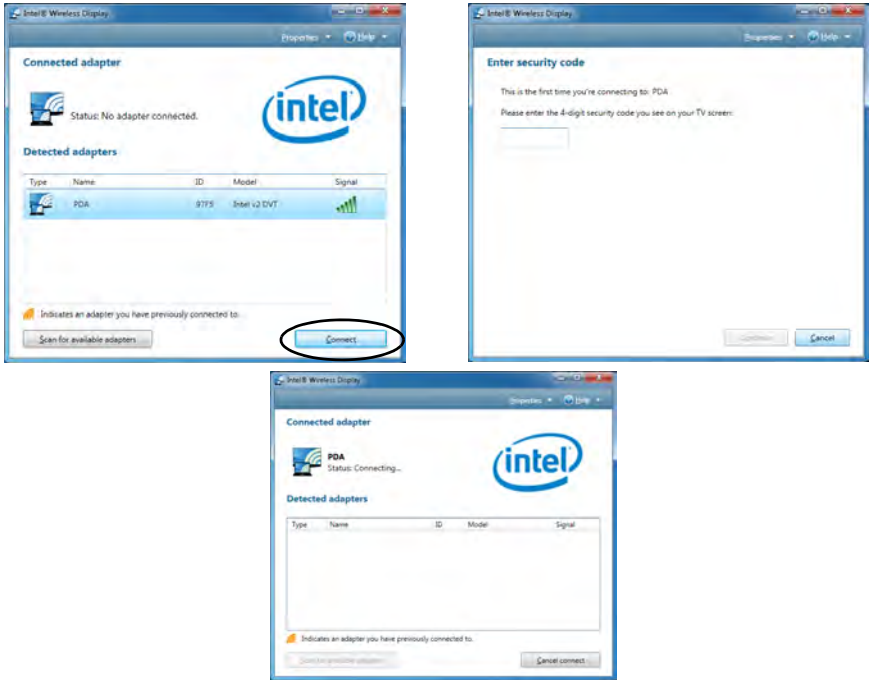
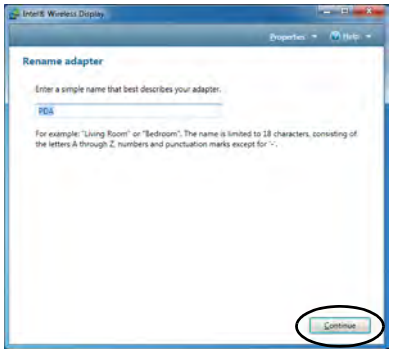
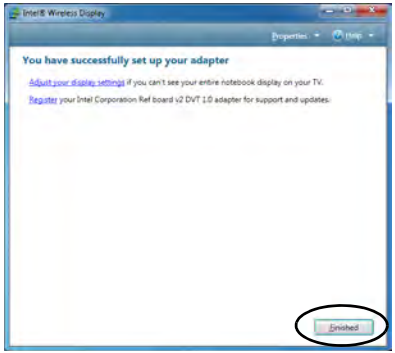
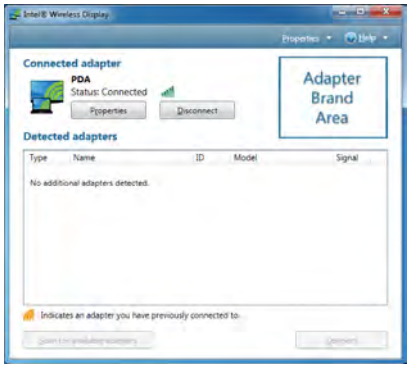


Figure E - 74
Intel® WiDi Connect & Enter Security Code

7. You will then be prompted to enter a name for the video adapter and click **Continue**.
8. Click **Finished** to complete the setup.







Test Audio Adapter

To verify a successful audio connection (for **Intel® Wireless Music)**, select the "**Test your audio connection**" link or select "**Finished**" to bypass the test.

You can select "**Play Sample**" to play an audio test sample from your adapter to the connected speaker set.

Figure E - 75
Intel® WiDi Connected