Dell Wireless Dock

D5000

User Manual

Ver. 1.0

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Table of Contents

1. Introduction

1.1   Package Contents

Your docking station ships with the components shown below. Ensure that you have received all the components and contact Dell (see your invoice for contact information) if something is missing.

	Wireless Dock
	DP-VGA Dongle
	Power Adapter
	Power Cord
	Quick Setup Guide (QSG)

	Safety, Environmental, and Regulatory Information
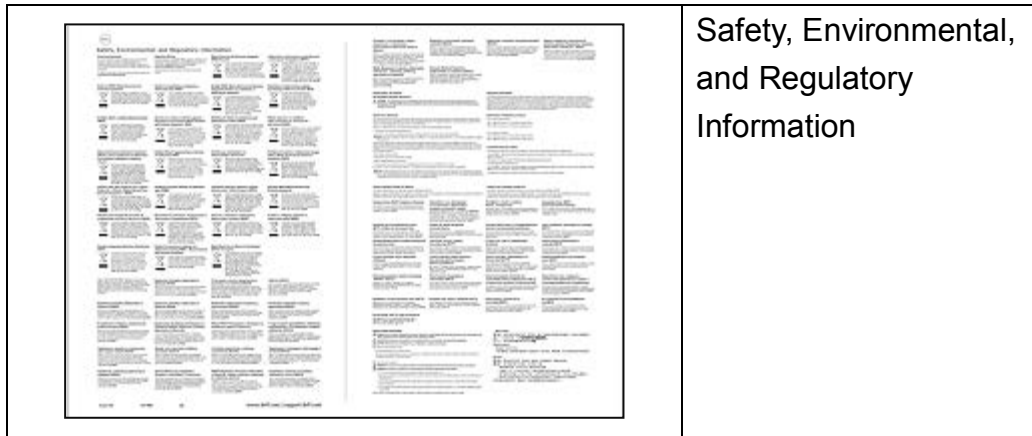
1.2 Identifying Parts and Controls

Front View
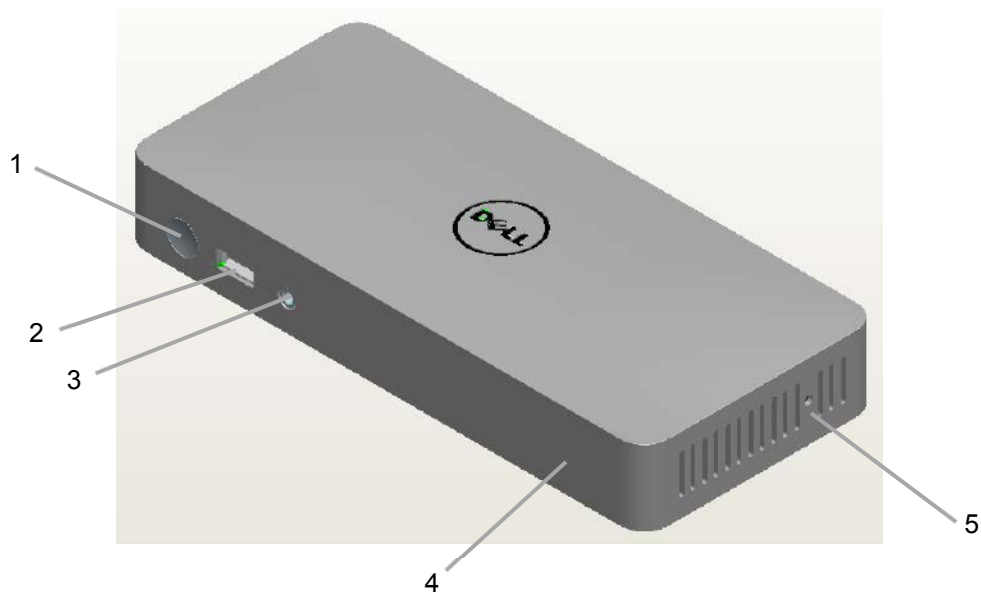
Figure 1. Front View

1. Pairing button
2. USB 3.0 port
3. audio/microphone combo connector
4. docking status indicator
5. reset button

Back View
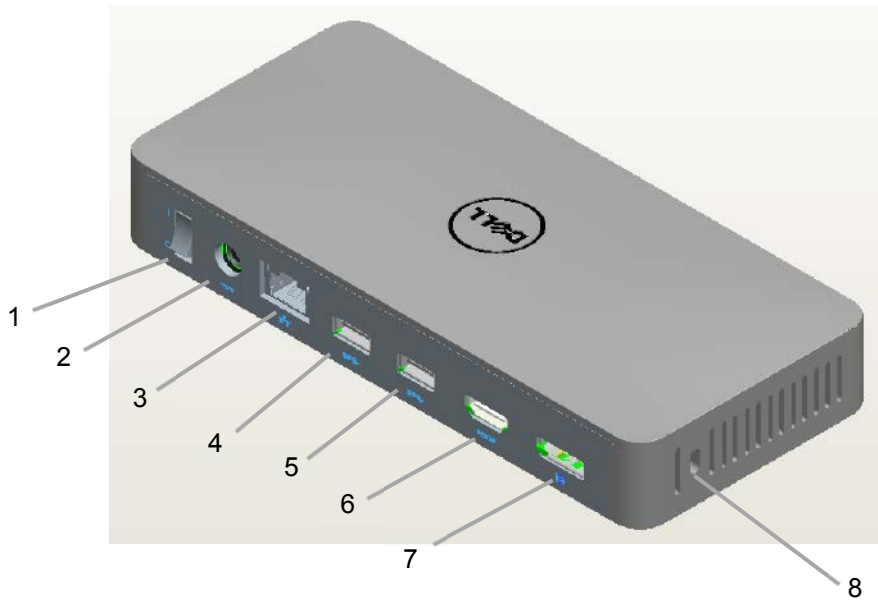
1.3 Product Specifications

Docking Specifications

Standard	• WiGig 1.1
	• IEEE 802.11ad
Video Ports	• DisplayPort x 1 (supports DP 1.1)
	• HDMI x 1 (supports HDMI 1.3)
IO Ports	• USB 3.0 x 3
	• Gigabit Ethernet
	• Audio Jack x 1 (Microphone-in and line-out via combo connector)
Buttons	• Pairing button
	• Reset
LEDs	• Wireless status indicator
	• Pairing status

Environmental Characteristics	Temperature	Operating: 0 °C to 40 °C
		Non-operating:
		■ Storage: -20 °C to 60 °C
		(-4 °F to 140 °F)
		■ Shipping: -20 °C to 60 °C
		(-4 °F to 140 °F)
	Humidity	Operating: 10% to 80%
		(non-condensing)
		Non-operating:
		■ Storage: 5% to 90%
		(non-condensing)
		■ Shipping: 5% to 90%
		(non-condensing)
Power Supply		19.5 V / 3.34 A (65 W)
Dimension		190 mm x 86 mm x 30.7 mm

DP-VGA Dongle Specifications

High Video Resolution	1920 x 1200 @ 60Hz, 1920 x 1080p @ 60Hz
	1600 x 1200 @ 60Hz
Input Voltage	3.3V± 10%
Output Voltage	5V ± 10% (Max 90 mA)
Rated Current	175 mA
Power consumption	575 mW
Standby current	50 mA

Hardware Requirements

Before using the docking station, ensure that your notebook or PC has a WiGig module and antenna to enable one-to-one wireless connection.

2. Quick Setup of Hardware

1. Connect the AC adapter to the AC adapter connector on the Dell Wireless Dock D5000 and to the electrical outlet.
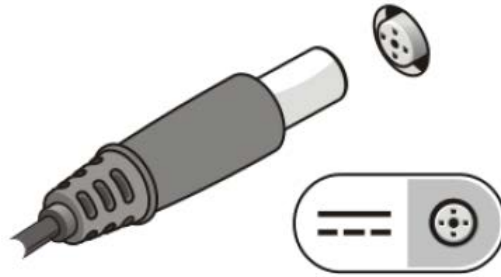
Figure 3. AC Adapter

2. Turn on the power switch to the "I" status.
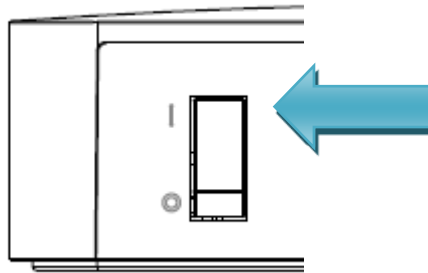
Figure 4. Power switch

3. Working on the Dell Wireless Dock D5000

3.1 LED Status Indicators

The Dell Wireless Dock shall include multiple LED status indicators on the unit.

3.1.1 Docking Status Indicator

The Docking Status Indicator is Amber when the device is powered on but not connected to a host. When a WiGig connection is active, this indicator is ON and turns from Amber to White. When there is a connection error, the indicator will blink Amber for 5 seconds.

3.1.2 Pairing Button

The Pairing Button is an easy way for the user to connect to the docking station. The user just pushes the pairing button on the docking station and the host will automatically connect to this docking station. There is a backlit LED on the button. The Pairing LED will be White for the success state and Amber for the error state.

	Blink	Solid
White	In Progress	Success
		LED should stay solid until pairing is In Progress again.
Amber	Error	No link
	The LED should blink for 120 seconds and then revert back to solid state.	Dock station is powered on.

3.2 I/O Connectors on the Dell Wireless Dock D5000

Once a wireless connection is built, these I/O connectors are virtually built into your computer. You can use them in the same way as you use on your computer.

The Dell Wireless Dock D5000 has the below I/O connectors:

Video Ports	● DisplayPort x 1
	● HDMI x 1
Input/Output Ports	● USB 3.0 x 3
	● Gigabit Ethernet
	● Audio Jack x 1 (Microphone-in and line-out via combo connector)

If the wireless link between the computer and the Dell Wireless Dock becomes weak, move the computer closer to the Dell Wireless Dock or rotate the computer to find a position with a stronger wireless link. For example, if you find that the wireless signal strength is reduced when the notebook lid is closed, you can try to rotate the notebook to find the best reception.

Note: The wireless connection works best if your computer lid (logo side) directly faces the front side of the docking station and there is a line-of-sight between the computer and the docking station.

3.2.1 Using The Network Port
When you want to use Internet via the network port of the docking station, you just plug the network cable into the network port of the docking station. The meanings of the LED indicators on the network port are listed below:

Link Speed Indicator	Ethernet Activity Indicator
Green = 10/100 Mb	Yellow Flashing
Orange = 1 Gb	
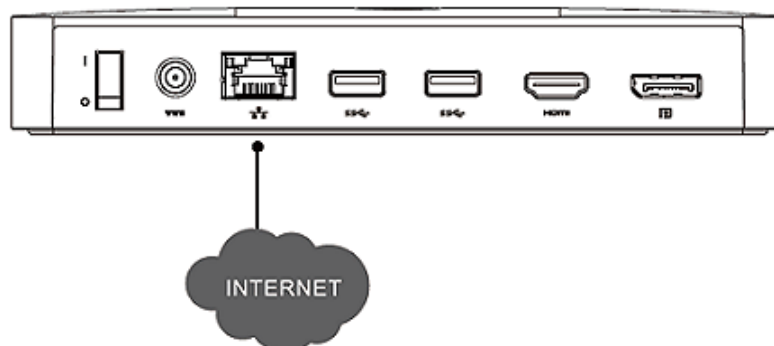
Figure 5. Ethernet

3.2.2 Using the Video/Audio Port

The video quality is similar to that of a notebook/PC connected to a TV/Monitor via a real cable. When you want to use HDMI/DisplayPort on the docking station to make a video output, just use the HDMI/DisplayPort cable to connect the docking station to the monitor/TV. You can enjoy HD video on a big-sized screen. The Dell Wireless Dock D5000 also has an audio jack to output audio and MIC input. The Dell Wireless dock can support simultaneous HDMI and DisplayPort output.
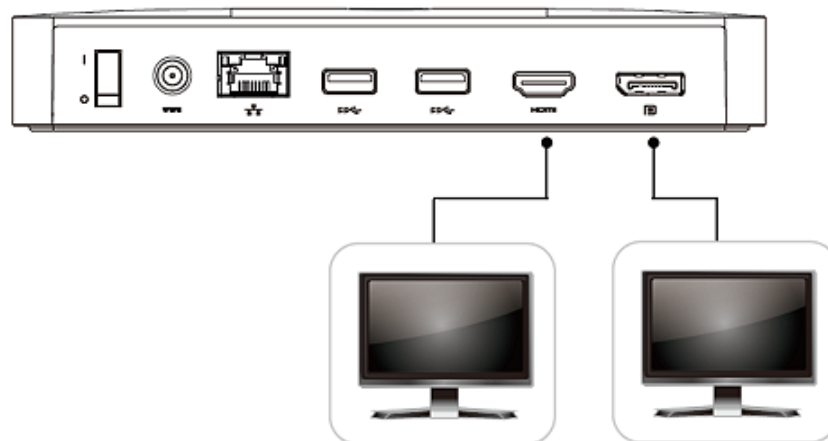
Figure 6. Video/Audio Port

Note: It is recommended that your wireless docking station be placed next to a TV/Monitor. Do not place the wireless dock behind a TV/Monitor or any other object.

Note: The wireless docking station does not support HDCP to play video from a DVD/BD player on the TV/Monitor.

3.2.3 Using the USB 3.0 Port

When you want to access an external Hard Drive or Flash Drive, just plug them into the USB 3.0 ports of the docking station for data transfer.
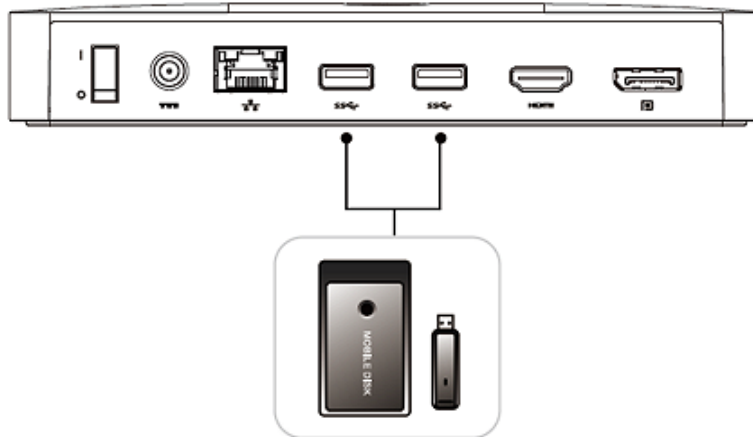
Figure7. USB 3.0 Port

3.3 Resetting the Dell wireless dock D5000

To delete all associated settings stored on your Dell Wireless Dock, press and hold down the reset button for 10 seconds. All dock settings will be deleted and you will have to re-establish a connection. To re-establish a connection to a wireless dock, you must repeat the connection process.

Reset button

Figure 8. Reset Button

4. Connecting to the Dell Wireless Dock D5000

The Dell Wireless Dock or Wireless Bus Extension (WBE) is an easy-to-use software which allows you to connect to the Dell wireless dock D5000 using 60 GHz frequency band in parallel to other Wi-Fi access. The Wireless Docking software uses WiGig's WBE PAL leveraging the latest technology in transmitting the data wirelessly. Using this software you can enjoy wireless high-speed data, audio, and video transfer between your PC/laptop and Dell wireless dock D5000 securely. The software supports WPA2 security.

Once you establish a connection between your PC/laptop and the Dell wireless dock D5000, all the devices like printers, display devices, external hard drives, etc. attached to the dock are available to you. You can access them wirelessly using your PC/laptop. The Device Manager on your PC/laptop shows all the devices attached to the Dell wireless dock D5000, as if they are attached to your PC/laptop.

The following sections explain in detail how to install the software, connect to Dell wireless dock D5000, and use the devices attached to the dock.

4.1   Installing the Software

The software comes pre-installed on your PC/laptop. In case if you need to install the software, contact Dell support or download the software from the following location:
http://www.dell.com/support/home/us/en/19?c=us&s=dhs&cs=19&l=en

In order to install the Wireless Docking software, navigate to the Wireless Docking software folder on the downloaded software and run the setup file (*.exe). The installation wizard starts installing the software. Follow the instructions on the wizard to complete the installation.

You will be prompted to install the Qualcomm Atheros Ethernet driver, Display Link, and Fresco Logic USB 3.0 Host controller driver. Select **Yes** to install these drivers. These drivers are required by the devices attached to the Dell wireless dock D5000 to work properly.

Note: If you select No, you may need to install all the three drivers manually from the location c:/program files/Wilocity/Dock_Drivers. Run *.exe from the respective folders to install the drivers.

Once the Wireless Docking software is installed, an icon is created in the taskbar notification area and the software runs automatically. You can also access the Wireless Docking software through a desktop icon on your PC/laptop.

4.1.1 Uninstalling the Software

You can uninstall the Wireless Docking software using the Windows Control Panel and by selecting **Uninstall** or **change a program** window option.

4.2   Scanning for the Dell Wireless Dock D5000

The Wireless Docking software runs automatically and scans for available docks when your PC/laptop boots. An icon is displayed in the taskbar notification area. For easy identification, the color of the icon changes when a dock is connected.

Note: If the taskbar notification icon is hidden, expand the taskbar by selecting

You can also see the SSID and signal strength of the connected dock when you move the mouse over the icon. The following table describes the color status of the Wireless Docking software's taskbar notification icon:

Icon Color	Description
Green	Connected to a dock
Blue	Disconnected from the dock
Red	Error of any kind
Orange	Airplane Mode is ON or Hardware switch is OFF on your PC/laptop
Grey	Your PC/laptop does not support wireless docking using 60 GHz frequency

Note: If the Wireless Docking software taskbar identification icon does not change from red color to blue color or green color, first restart your PC/laptop. If this still does not resolve the issue, you need to re-install the Wireless Docking software again.

Note: *The symbol in the Wireless Docking software's taskbar notification icon shows that there are docks available for connection.*

Figure 1 Connection Manager - Disconnected
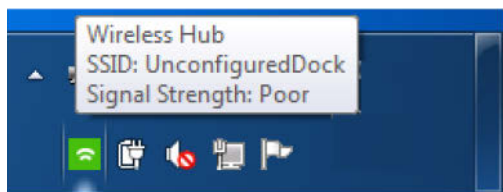
Figure 2 WiGig Connection Manager - Connected

The Wireless Docking software automatically scans for available docks at a pre-set interval of time. You can modify the time interval of this scan using the Wireless Hub Connection Manager. All the available docks are displayed when you click on the Wireless Docking software icon in the taskbar notification area.

You can also manually scan for available docks at any time. First, click on the Wireless Docking software icon in the taskbar notification area and then click on the circular arrows as shown in Figure 3. The following table shows the auto scan behavior:

Auto connect	Auto scan	Automatic Connection possible	Manual Scan Required	Manual Connect Required
Yes	Yes	Yes	No	No
Yes	No	Yes	Yes	No
No	No	No	Yes	Yes

Note: *Manual scan is not available when a dock is connected to your PC/laptop. You need to disconnect the dock to scan manually.*

Note: Only the docks that are available for connecting are displayed. If a dock is already connected to your PC/laptop, the dock is not displayed in the available list. You need to disconnect the dock to view it in the available list.
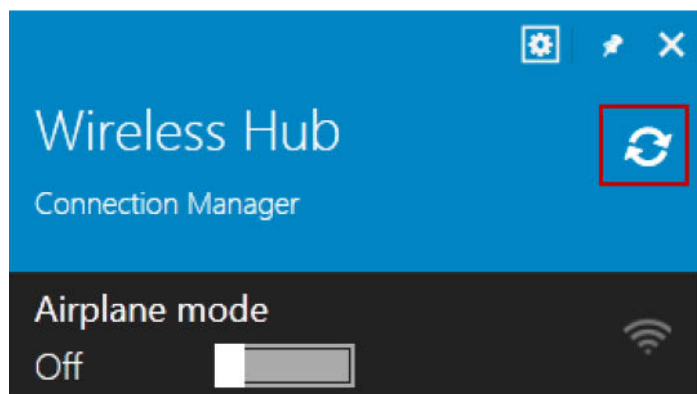
Figure 3 Scanning Manually

4.3 Connecting to a Dell Wireless Dock D5000

The Wireless Docking software allows you to connect to the Dell wireless dock D5000. While connecting to the Dell wireless dock D5000, you can select the checkbox **Connect Automatically**. This allows the Wireless Docking software to remember the connection settings and connects to the Dell wireless dock D5000 automatically if the dock is available. Once the dock is connected, all the devices attached to the dock are available to you.

Note: You can connect to only one dock at a given time. Other users cannot see the connected dock while scanning, until you disconnect the dock.

Depending on the security level and hardware capabilities of the Dell wireless dock D5000, the following are the secured ways you can connect to a Dell wireless dock D5000:

WPS Encryption: When trying to connect to Dell wireless dock D5000, you will be prompted to enter an encryption password. Once the password is entered and verified, the Dell wireless dock D5000 will be connected to your PC/laptop and a profile with all the information will be created.

Note: The Dell wireless dock D5000 comes with the following pre-configured SSID and password. The same is printed on a label behind the Dell wireless dock D5000.

SSID   :   D5000_xxxxxx (xxxxxx represents 6 alpha numeric)

Password   :   12345678

WPS Push Button: This option allows you to connect to the Dell wireless dock D5000 without a password. You need to manually push the WPS Push button present on the Dell wireless dock D5000 to complete the connection between your PC/laptop and the Dell wireless dock D5000. For more information see 3.1.2 **Pairing Button**

4.3.1   How to connect to the Dell wireless dock D5000

To connect to the Dell wireless dock D5000, follow these steps:

1. Click the Wireless Docking software icon in the taskbar notification area. The Dock Station dialog appears and displays all the available docks.
2. Select the Dell wireless dock D5000. The available options for the Dell wireless dock D5000 are displayed.
3. (Optional) Select the check box **Connect Automatically** if you want to connect to the Dell wireless dock D5000 automatically from the next time.
4. Select **Connect**, you will be prompted to enter a password or push the paring button on the Dell wireless dock D5000 and press return key on your PC/laptop.
5. The Dell wireless dock D5000 is now connected to your PC/laptop.
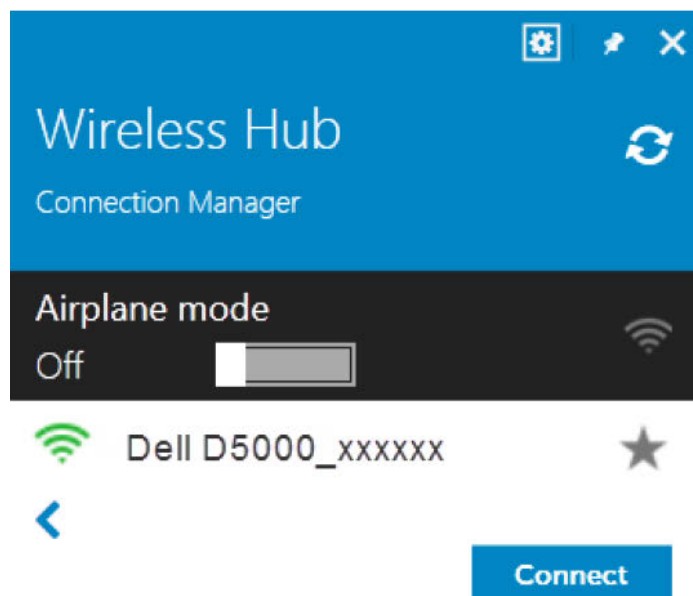
Figure 4 Connecting to a Dock

Once the dock is connected, the Wireless Docking software allows you to view the status of the connected Dell wireless dock D5000 and also update the firmware of the dock. You can also restore the Dell wireless dock D5000 to factory settings.

Select ‹ to expand the Dell wireless dock D5000 Settings dialog. The following options are available to you:

- **Status**: Displays the current status between your PC/laptop and the Dell wireless dock D5000. Also, it displays the duration of the connection, the speed at which the data is transferred between your PC/laptop and dock, the SSID of the Dell wireless dock D5000, the channel through which your PC/laptop and the Dell wireless dock D5000 are communicating, the security mode of the connection, and the firmware version of the Dell wireless dock D5000.
- **Setup**: Allows you to modify the SSID of the Dell wireless dock D5000, channel, the security mode, the connection key, the Dell wireless dock D5000 password, the Dell wireless dock D5000 firmware upgrade, and restore to factory settings. To upgrade the firmware, select "....", browse to the firmware image location on your PC/laptop, select the image file, and select **Start**.

Note: *The configuration is stored individually for respective docks and the dock is managed via a wireless connection from your PC/laptop*.

4.4   Managing the Dell wireless dock D5000

Using the Wireless Hub Connection Manager, the Wireless Docking software allows you to manage the Dell wireless dock D5000. You can modify the profile of the Dell wireless dock D5000, change the auto scan preferences, upgrade the host firmware, change the look and feel of the Connection Manager dialog, and view the version of the Wireless Docking software.

To access the Wireless Hub Connection Manager, click the Wireless Docking software icon in the taskbar notification area and click the settings ⚙ button on the Wireless Hub Connection Manager.
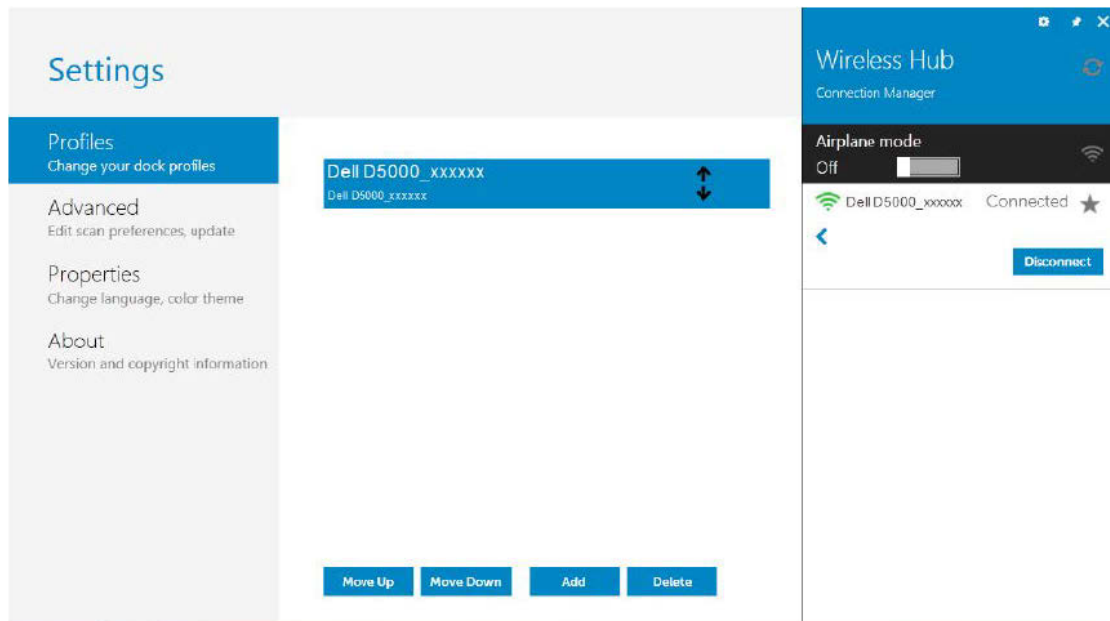
Figure 6 Dell wireless dock D5000 settings

4.4.1 Profile Management

You can access profile management through the Wireless Hub Connection Manger. The profiles of all the connected Dell wireless dock D5000s are stored on your PC/laptop. You can set the priority of the docks that can be connected, if one or more docks are available. You can also add, delete, or edit a profile for a particular dock.

To set Priority, follow these steps:
1. Click the Wireless Docking software icon in the taskbar notification area. The Wireless Hub dialog appears.
2. Click [icon] on the Wireless Hub dialog. The Settings dialog appears.
3. Select **Profiles.** The profiles of all the connected docks are displayed.
4. Select the profile you want to prioritize and select **Move UP** until the desired profile is displayed as the first profile.

To Delete a profile, follow these steps:
1. Follow the steps 1 to 3 from above.
2. Select the profile you want to delete and select **Delete** in the options on the dialog. The profile is deleted.

Note: If you delete a profile for a dock, you will be prompted to enter the setup key before connecting to the dock.

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To Edit a profile, follow these steps:
1. Follow the steps 1 to 3 from above.
2. Double click the Profile you want to edit. All the available options for that profile are displayed.
3. Modify the desired options and select **Save**. The modifications are saved for that profile.

4.4.2 Advanced Configuration

You can set scanning options as well as extended debug information using the Advanced tab in the Settings dialog. You can also update the host module firmware from here.

4.4.3 Properties

You can configure the look and feel of the application like color, language, and other properties using this tab.
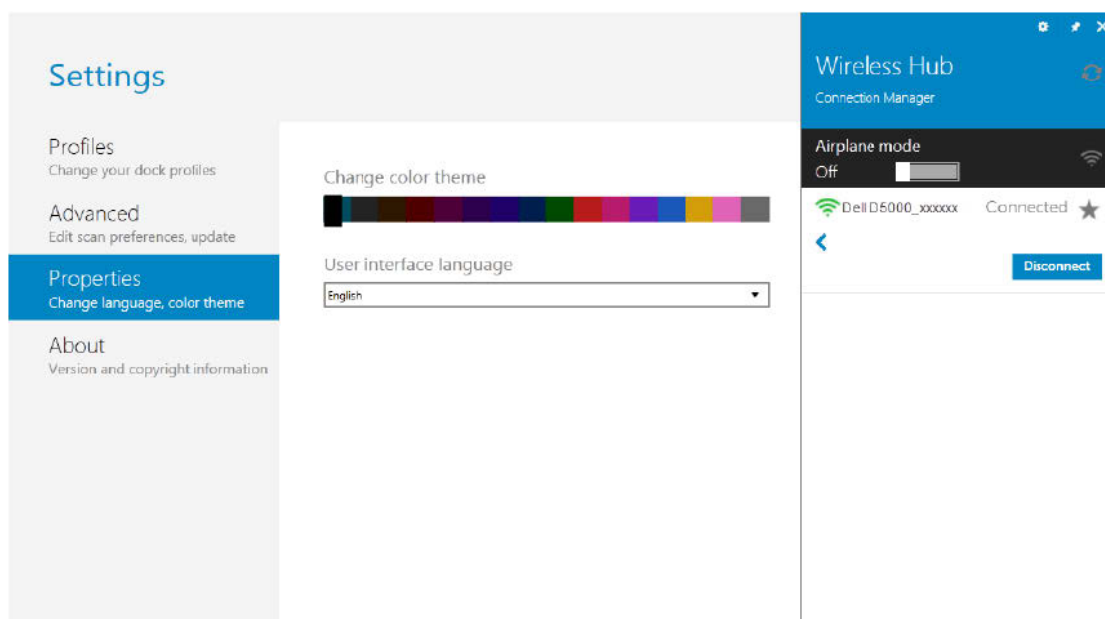
Figure 7 Properties tab

4.4.4 About

You can view the version numbers of the components using this tab.
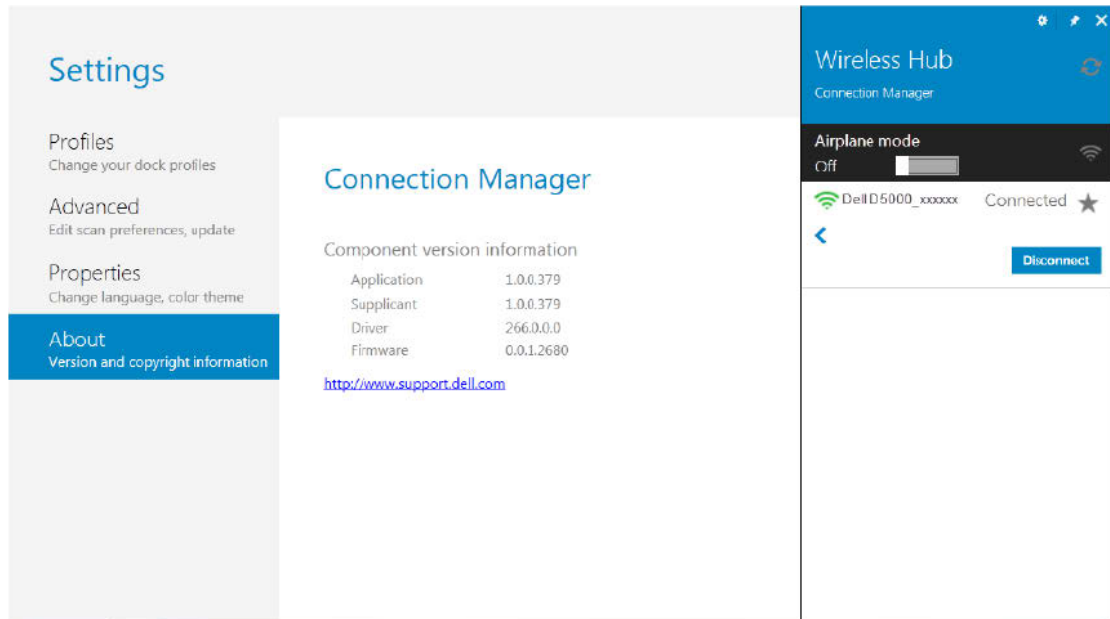
Figure 8 About tab

Note: *The version information shown in Figure 9 may differ from the actual version information displayed by the application on your PC/laptop.*

4.5 Using Devices Connected to the Dell wireless dock D5000

Once a connection is established between your laptop and the Dell wireless dock D5000 using Wireless Docking software, all the devices attached to the Dell wireless dock D5000 are available to you for use. The typical devices that can be attached to a dock are printers, display devices, external hard driver, and any USB device. These devices are shown in your PC/laptop device manager.

4.5.1 Using Display Devices Attached to the Dell wireless dock D5000

If any display device is attached to the connected Dell wireless dock D5000, you can use the display device as an extended monitor. Once a connection is established between your PC/laptop and the Dell wireless dock D5000, the display device attached to the dock is automatically detected by Windows operating system and will be shown as an extended monitor.

Note: By default, the duplicate mode is selected by Windows.

You can use Windows native operations for using the extended monitor. The Wireless Docking software remembers the last-used settings of the display device and uses them from the next connection.

You can also transmit audio and video to the display device attached to the Dell wireless dock D5000 from your PC/laptop. You can play audio and video on your PC/laptop using the DVD tray, from the internal hard disk, from the external memory plugged into an USB port, or from the Internet. Make sure that you have the supported software to play your video and audio on your PC/laptop. If you choose the display device attached to the Dell wireless dock D5000 as **Duplicate** from the native Windows options, the audio and video is transmitted to the display device attached to the Dell wireless dock D5000 wirelessly.

Note: After the connection is established between your PC/laptop and the dock, your PC/laptop volume is muted.

4.6 Exit or Shutdown the Wireless Docking Software

There are two ways to exit Wireless Docking software: software shutdown and hardware shutdown.

Software Shutdown: You can right-click on the Wireless Docking software icon in the taskbar notification area and select **Close** to exit the wireless Docking software. In this case, only the Wireless Docking software is shutdown, i.e. the 60 GHz channel is closed and other Wi-Fi channels like 2.4/5 GHz are available for you to make Wi-Fi connections.

Note: Use the desktop icon to start the Wireless Docking software. Make sure the airplane mode is turned OFF.

Hardware Shutdown: You can switch off the wireless switch on your PC/laptop. In this case, all the Wi-Fi channels are closed, i.e. 2.4/5/60 GHz channels are closed. The Wireless Docking software stops running and all your Wi-Fi connections are disconnected. The Wireless Docking software taskbar notification icon changes to Orange.

Note: Turn ON the hardware switch on your PC/laptop to make Wi-Fi connections.

Note: If airplane mode is turned ON, this automatically triggers the software and hardware shutdown.

5. Appendix A Troubleshooting

Symptoms	Suggested solutions
1. No video on the monitor attached to the HDMI port on dock.	• Make sure the laptop is connected to the Dell wireless dock D5000 station. Try to disconnect and re-connect to the docking station. • Make sure the HDMI cable supplied with the panel is tightly secured to the video port in the Dell wireless dock D5000ing station. • Try a different HDMI cable. • Make sure the DisplayLink Display Adapter driver is installed properly and appears in the device manager.
2. No video on the monitor attached to the DisplayPort port on dock.	• Make sure the laptop is connected with Dell wireless dock D5000ing station. Try to disconnect and reconnect with docking station. • Make sure the DisplayPort cable supplied with the panel is tightly secured to the video port in the Dell wireless dock D5000ing station. • Try a different DisplayPort cable. • Make sure the DisplayLink Display Adapter driver is installed properly and appears in the device manager.
3. Video on the attached monitor is distorted or flickering.	• Make sure the HDMI or DisplayPort cable supplied with the panel is tightly secured to the video port in the Dell wireless dock D5000ing station. • Try a different HDMI or DisplayPort cable. • When the monitor is distorted or flickering, please re-set your monitor to restore it to its original settings.
4. Video on the attached monitor is not displayed as an extended monitor.	• Make sure the DisplayLink Display Adapter driver is installed properly and appears in the device manager. • Re-Install the DisplayLink driver from **c:/program files/Wilocity/Dockingdrivers/DisplayLink**
5. Audio jack is not functioning or is lagging.	• First, try a re-set on the Dell wireless dock D5000 station to make sure it is not a software issue. If that fails to work, try to re-plug in the audio cable to the docking station from the external speaker. • Make sure the laptop is stationed to avoid audio lag.
6. USB ports are not functional	• Make sure the laptop is connected to the Dell wireless

Symptoms	Suggested solutions
on the docking station	dock D5000 station. Try to disconnect and re-connect again with Dell wireless dock D5000 station. ● Check the USB ports. Try plugging the USB device into another port. ● Make sure the Fresco Logic Xhci (USB3) Root Hub is enabled in the device manager. ● Re-install the Fresco USB driver from **c:\program files\Wilocity\Dockingdrivers\Fresco** and check the function again.
7. HDCP content is not able to be displayed on the attached monitor.	● The Dell wireless dock D5000 station does not support HDCP content.
8. LAN port is not functional.	● Make sure the Ethernet cable connections are secure at the firewall and the hub or workstation. ● To resolve a temporary LAN port failure problem, unplug the dock for 20 to 30 seconds and then plug it back in. ● Make sure the Qualcomm Atheros AR815x PCI-E Gigabit Ethernet controllers are installed in the device manager. ● Please re-install the Qualcomm Atheros AR815x Ethernet driver from **c:\program files\Wilocity\Dockingdrivers\QualcommAtheros**
9. Wireless Hub Connection Manager is not loaded.	● Make sure the Wireless Docking software is installed in the laptop. ● Please re-start the Wireless Hub connection Manager from **c:\program files\Wilocity\ D5000WirelessDock** for 32bit windows. ● Please re-start the Wireless Hub connection Manager from **c:\program files(x86)\Wilocity\ D5000WirelessDock** for 64bit windows
10.WiGig connection is not established.	● Make sure the SSID of the Dell wireless dock D5000 can be detected in the list of items of the Wireless Hub Connection Manager. ● Make sure the LED color is white when the WiGig connection is established.

6. Bluetooth Networking Overview

This chapter provides an overview of the Bluetooth Windows Suite. This software tool helps you to discover and link with Bluetooth devices using your PC/laptop. The Bluetooth Windows Suite also facilitates the communication between your PC/laptop with other Bluetooth devices.

The Bluetooth Windows Suite is a Bluetooth communication application that aids in easy management and interaction with wireless personal area networks (WPAN) and remote Bluetooth devices. Among others, these devices include mobile phones, headsets, pointing devices, modems, and access points.

The Bluetooth Windows Suite can do the following:
- Find and connect to remote Bluetooth devices, as well as see the services they can provide.
- Browse folders and files on remote devices, and exchange files with them.
- Use wireless dial-up networking and serial-based functions.

The Bluetooth Windows Suite's main screen provides easy-to-use controls for the application and its user-friendly graphical user interface (GUI) works with various Bluetooth devices such as:
- Palm-sized PCs/PDAs
- Laptops
- Cellular phones
- Human-interface devices such as a mouse and keyboard
- Desktop workstations
- Headsets
- Printers
- Fax machines

6.1 Setup Requirements

- PC running Windows
- Bluetooth mouse
- Bluetooth cellular phone
- Bluetooth headset
- Bluetooth printer
- Fax machine
- Any other Bluetooth device

6.2 Turn the Bluetooth Adapter On and Off

There may be times, such as when you are flying on a commercial aircraft, when you want to leave your computer on but are required to turn the Bluetooth adapter off. If your Bluetooth adapter is plugged into a USB port on your computer, you can turn off the adapter just by physically removing it. Similarly, it you want to turn it back on, just plug it in. If your Bluetooth adapter is embedded in your computer, however, you must turn the adapter switch On or Off.

To turn the Bluetooth adapter **Off**, click the Bluetooth icon 🅱 in the taskbar notification area, and then click **Turn Adapter Off**. By default, the Bluetooth adapter is **On** unless you turn it off.

If the Bluetooth adapter is not detected, it is likely that the adapter has been turned off with a hardware switch. Check the manual that came with your computer for information about the location of the hardware switch and for instructions on how to use it.

6.3 Terminology

Audio Headset
A wearable hands-free audio device that has a speaker and a microphone. Some audio headsets can be used both for telephone calls and for listening to high-quality stereo audio. Other types of audio headsets can be used only for telephone calls and for voice playback and recording.

BDA
Bluetooth Device Address (assigned by the manufacturer).

Bluetooth device
Bluetooth-enabled hardware such as a computer, printer, fax machine, mouse, keyboard, mobile phone, headset, headphones, camera, or PDA.

Bluetooth Exchange Folder
The highest-level folder on a Bluetooth-enabled computer to which another Bluetooth device has access.

Devices that have been granted access to the Bluetooth Exchange Folder also have access to all subfolders contained within that folder and all files in those subfolders.

Note: The default folder for Bluetooth file exchanges is named Bluetooth Exchange Folder and is located in My Documents. You can choose a different folder for exchanging Bluetooth files; however do not select the root directory (for example, C:) or a system folder. Selecting the root directory or a system folder creates the potential for remote devices to harm the operating system on your computer.

The Bluetooth Exchange Folder is used to store received files. The location and name of the folder can be specified on the Share tab of Bluetooth Settings. If you change the location or name of the folder, the path is automatically updated.

Bluetooth security code
A secret key that is exchanged between your Bluetooth-enabled computer and other Bluetooth-enabled devices each time they connect to verify identity and encrypt the data that is exchanged.

Bluetooth wireless technology
Bluetooth wireless technology is a standards-based technology that allows short-range (typically within a distance of 10 meters) wireless communication between Bluetooth-enabled devices.

Bluetooth Window Suite
Refers to Windows 7 and Windows 8 desktop versions.

Dynamic Host Control Protocol
A protocol used by a server to assign an Internet Protocol (IP) address to a connecting device.

Encryption
Encryption translates data into an unreadable format using a secret key or password. Decrypting the data requires the same key or password that was used to encrypt it.

HCI

Host Controller Interface

Human Interface Device (HID)

An input device such as a mouse, keyboard, or game controller that sends user input to a computer.

Internet Telephony

A technology that uses the Internet to place and receive telephone calls.

Link key

An internally generated unique security key that is exchanged by paired devices as proof of identity before a connection is established. Link keys are generated automatically when two devices pair.

Remote Device

Any Bluetooth device which acts as a sink device. This means if you are connecting to a Bluetooth device using your PC/laptop, your PC/laptop becomes the source and the Bluetooth device becomes the sink device.

7. Getting Started

This section describes the information related to both Windows 7 and Windows 8 desktop versions. Reference to the Windows 8 Metro Style is made where ever it is applicable.

This chapter describes how to install, uninstall, and launch the Bluetooth Windows Suite.

Note: It is assumed that Bluetooth Windows Suite is not present on your PC/laptop.

The following major topics are covered in this chapter:
- Installing Bluetooth Windows Suite
- Launching Bluetooth Windows Suite
- Uninstalling the Bluetooth Windows Suite

7.1 Installing the Bluetooth Windows Suite

You can get the Bluetooth Windows Suite either through a password-protected download from the support site or through a product CD. If the Bluetooth Windows Suite already exists on the hardware platform, uninstallation is not necessary before installing the new version as the application supports upgrade features.

If it is necessary to uninstall Bluetooth Windows Suite, refer to "Uninstalling the Bluetooth Windows Suite".

7.1.1 Installing from the CD/DVD
1. Insert the CD/DVD containing the Bluetooth Windows Suite into the CD/DVD drive.
2. Double click on the Bluetooth Suite's executable file and follow the instructions on the InstallShield wizard. The InstallShield wizard starts to prepare the package for installation.
3. Click Finish to complete the installation process and reboot your computer.

Note: A Bluetooth icon *is created and displayed in the taskbar notification area. For Windows 8 Metro Style, you can create the Bluetooth Suite tile and pin it to Start.*

7.2 Launching the Bluetooth Windows Suite

From the Start menu , click **All Programs** > **Bluetooth Suite** > **Bluetooth Devices** which will open a window. From this window, you can add a Bluetooth-enabled device or configure a paired device by double-clicking the paired device icon.

You can also launch the Bluetooth Windows Suite by double-clicking the Bluetooth icon in the taskbar notification area.

For Windows 8, click **Control Panel** > **Hardware and Sound** > **Devices and Printers**.

Note: For Windows 8 Metro style, you can create a tile for the Bluetooth Windows Suite. Once a tile is created, you can tap the tile to launch the application.

Refer to the following chapters for more information on:
■ how to add Bluetooth devices "Adding Bluetooth Devices"
■ sending and receiving files "Bluetooth Settings"

7.3 Uninstalling the Bluetooth Windows Suite

Use the following procedure to uninstall the Bluetooth Windows Suite.

For Windows 7, select **Start** menu > **All Programs** > **Bluetooth Suite** > **Uninstall Bluetooth Suite**. The **Preparing to Remove** screen appears, followed by a confirmation prompt. To confirm Windows Bluetooth Suite uninstallation, click **Yes**. The application is automatically uninstalled.

For Windows 8, select **Control Panel** > **Programs** > **Uninstall or change a program**. Then, select **Bluetooth Suite** and **Uninstall**.

8. Adding Bluetooth Devices

This chapter describes how to add commonly used Bluetooth devices to a PC/laptop using the Bluetooth Windows Suite. Before adding any new Bluetooth device, a communication link known as pairing must be first configured. After a successful pairing, the Bluetooth device is added and is ready for exchanging messages or information between your PC/laptop and the connected Bluetooth device. For pairing information of a particular device, refer to the documentation that came with the device or refer to the manufacturer's web site.

Note: *Paring is required when you are connecting to a Bluetooth device for the first time. For subsequent connections, no paring is required.*

In order to add a Bluetooth device, first you need to discover the device and then pair with the device. Once pairing is done successfully, the Bluetooth device is added automatically.

The following steps describe discovering and pairing with a Bluetooth device which is in range.

8.1   Discovering and Pairing with a Bluetooth Device

Make sure that your wireless adaptor is turned ON in your PC/laptop.

1. Double click on the Bluetooth icon in the taskbar notification area. A window appears, which displays already added Bluetooth devices. If there are no devices displayed, it means there are no previously added devices.

   For Windows 8 Metro style, use the **Charm Bar** and click **Settings** > **Change PC settings** > **Devices**.

2. Select **Add a device**. This starts the process of discovering the Bluetooth devices which are within the range. All the Bluetooth devices are displayed. You can pair with any discovered Bluetooth device.

Note: *If a Bluetooth device is already added, it is not shown in the list. You need to remove the device in order for the device to appear in the list. See* **Removing a Bluetooth Device** *to remove a Bluetooth device.*

8.2   Adding a Bluetooth Device

Follow these steps to add a Bluetooth Device.

1. Follow the step 1 and step 2 from above.
2. Select the desired Bluetooth device you want to add for the list. The pairing process is automatically started.
   A 6 to 8 digit pairing code is generated automatically for the remote device. Ensure that this code matches on your PC/laptop and the Bluetooth device you are trying to add. The Bluetooth device and your PC/laptop must agree to this paring. Once both devices agree, the Bluetooth connection is then established.
3. Select **Yes** on your PC/laptop and the Bluetooth device you are trying to add.

   *Note: For Windows 7 PC/laptop, you may need to select **Next** to complete the connection.*

4. The Bluetooth device is added and displayed in the Devices list.

*Note: For Windows 8 Metro Style, a tile is automatically created for the Bluetooth device you just added on the **Start**. You can double click on the tile to perform Bluetooth operations.*

8.3   Removing a Bluetooth Device

You can remove an added Bluetooth Device using the Bluetooth Windows Suite. Once the device is removed, you need to pair with, and add, the device to perform Bluetooth Operations.

To remove an added Bluetooth Device follow these steps:

1. Click on the Bluetooth icon 🚺 in the taskbar notification area and select **Show Bluetooth Devices**. A window appears which displays all the added Bluetooth devices.
2. Right-click on the desired Bluetooth device you want to remove. The available options are displayed.
3. Select **Remove Device** from the options. A confirmation dialog box appears.
4. Select **Yes** to remove the Bluetooth device.

For Windows 8 Metro style, follow these steps to remove a Bluetooth device:

1. Use the **Charm Bar** and click **Settings** > **Change PC settings** > **Devices**.

2. Select the desired Bluetooth device from the list and click . The Bluetooth device is removed.

9. Bluetooth Settings

The Bluetooth Windows Suite allows you to configure the general and Bluetooth options to control the connected Bluetooth device. You can modify the general settings, add or delete communication ports, modify the hardware settings of the Bluetooth adaptor, set permissions for sharing files, and modify the PIM interface. The following section explains in detail how to modify the Bluetooth Settings.

9.1   General Settings

To change the general settings, follow the below steps:
1. Click the Bluetooth icon ▧ in the taskbar notification area, and then click **Open Settings**. The Bluetooth Settings dialog box appears.
2. Select the **Options** tab in the dialog.
3. Using this tab, you can do any of the following actions:
   - Allow or prevent Bluetooth devices to find this computer.
   - Allow or prevent Bluetooth devices from connecting to this computer.
   - If you later clear this check box, devices that have previously connected to this computer can still do so.
   - Select whether you receive an alert when a new Bluetooth device wants to connect.
   - Display or hide the Bluetooth icon in the notification area.
   - Turn the Bluetooth Adapter off.

   You can also turn off the Adapter by clicking the Bluetooth icon ▧ in the taskbar notification area, and then click **Turn Adapter Off**.
4. When finished configuring Bluetooth options, click **OK**.

9.2   Add or Delete a Communications Port

On the COM Port tab, you can add or delete a serial port.

To view, add, or delete a communications port:
1. Click the Bluetooth icon ▧ in the taskbar notification area, and then select **Open Settings**. The Bluetooth Settings dialog box appears.
2. Select the **COM Ports** tab in the dialog.

To add a communications port:
1. Click **Add**.
2. In Add COM Port, select **Incoming or Outgoing**.

An incoming communications port is used by other Bluetooth-enabled devices to create a communications link to your PC/laptop. An outgoing communications port is used by your PC/laptop to create a communications link with another Bluetooth-enabled device.

3. If you select **Outgoing**, click **Browse**, select the Bluetooth device you want to create a link to, and click **OK**.

To delete a communications port:

In the list, click to select the communications port you want to delete, and then click **Delete**.

9.3   Manage My Local Bluetooth Adapters

You can view the name, type, and status of each Bluetooth adapter that is installed on your PC/laptop. You can also view the properties of each adapter.

To manage local Bluetooth adapters:

1. Click the Bluetooth icon in the taskbar notification area, and then select **Open Settings**. The Bluetooth Settings dialog box appears.
2. Select the **Hardware** tab in the dialog.
3. To view properties of a specific adapter, select it and click **Properties**.
   The tabs in the Properties window display the following information:
   General tab—Displays basic properties of the adapter.
   Advanced tab—Displays properties for the radio, including the Bluetooth Host Controller Interface (HCI) version and the Bluetooth Link Manager Protocol (LMP) version.
   Driver tab—Displays information about the driver and, if these features are available, enables updating, disabling, and uninstalling the driver.
   Details tab—Displays device properties and values.

9.4   Set Rules for Sharing Files and Equipment

You can configure your PC/laptop to enable other Bluetooth devices to use some of the peripheral devices that are physically connected to your PC/laptop. Examples of such peripheral devices include a printer and modem.

Also, you can configure your PC/laptop to allow other Bluetooth devices to access the files and folders in the Bluetooth Exchange Folder on your PC/laptop and to send pictures, music, and other files to the folder.

1. Click the Bluetooth icon ✳ in the taskbar notification area, and then select **Open Settings**. The Bluetooth Settings dialog box appears.
2. Select the **Share** tab in the dialog.
3. Configure any of the following:

   • Allow other Bluetooth devices to access the files and folders in Bluetooth Exchange Folder and send files to Bluetooth Exchange Folder.

   Note: When another Bluetooth device attempts to send you a file, a Bluetooth File Transfer Access Authorization message is displayed. If the item is being sent from a trusted device, click OK to authorize access. If the item is not being sent from a trusted device, or you are not sure, ignore the request or click Cancel to deny access. You can specify whether to allow access only for the current time, for a specific amount time, or to always allow access for that particular device.

   Note: Received files are saved in the Bluetooth Exchange Folder, which, by default, is located in your Documents folder on your PC/laptop.

   *Note: To specify if or how you want to be notified when a remote device attempts to connect to your PC/laptop, click the notification link in the **You will receive a notification when a remote Bluetooth device attempts to connect to this computer** statement.*

   • Open Bluetooth Exchange Folder
   • To designate a different location for the Bluetooth Exchange Folder: Click **Browse**, and then select the folder where the File Transfer service will save files. Be sure to name the folder **Bluetooth Exchange Folder**.
     Caution: The default folder for Bluetooth file exchanges is named Bluetooth Exchange Folder and is located in My Documents. You can choose a different folder for exchanging Bluetooth files; however do not select the root directory (for example, C:) or a system folder. Selecting the root directory or a system folder creates the potential for remote devices to harm the operating system on your computer.
   • Allow remote Bluetooth devices to use the printer connected to your PC/laptop.
   • Allow other Bluetooth devices to use the modem on your PC/laptop to connect to the Internet or to send a fax.
4. When finished configuring sharing properties, click **OK**.

9.5 Set Rules for Sending and Receiving PIM Items

You can specify whether you want to allow other Bluetooth-enabled devices to send you PIM items such as business cards, calendar items, messages, and notes. You can also specify where to store received items, whether to include attachments with mail that you send and receive, and which business card to send.

You can configure default rules for all Bluetooth devices paired with your PC/laptop. You can also configure for each Bluetooth device that overrides the default settings.

To configure default rules for all Bluetooth devices:
1. Click the Bluetooth icon in the taskbar notification area, and then select **Open Settings**. The Bluetooth Settings dialog box appears.
2. Select the PIM Interface tab in the dialog.
3. Select A**llow Bluetooth devices to send you PIM items such as business cards, calendar items, mail, and notes** check box. If you do not want to allow this, clear the check box.
4. Select the application where you want to send and receive items of each PIM type.
   For example, if you have more than one e-mail application on your PC/laptop, select the one you want to synchronize. If you do not want to receive particular types of PIM items, click **Do Not Accept** for those types of items.
5. If desired, select the **Include attachments with mail sent or received by this computer** check box. If you do not want to include attachments, clear the check box.

To configure rules for a particular device:
1. Double click the Bluetooth icon in the taskbar notification area. Double click the icon for the device, or right-click the icon and select **Control**.
2. Under Tasks in the left pane, click **Synchronization settings**.
3. Select the checkboxes next to the PIM items that you want your PC/laptop to accept from your Bluetooth-enabled device.
   When you synchronize devices, these items are selected by default. You may be able to select additional items before synchronizing.

4. Select the application where you want to send and receive items of each PIM type.

For example, if you have more than one e-mail application on your PC/laptop, select the one you want to synchronize. If you do not want to receive particular types of PIM items, click **Do Not Accept** for those types of items.

5. Click **Apply**.

9.6   Display the Device Properties

To display hardware data and other information about a Bluetooth device:

Double-click the Bluetooth icon in the taskbar notification area.

In Bluetooth Devices, right-click the device and select **Properties**.

10.   Managing Bluetooth Devices

This chapter describes how to configure and manage Bluetooth devices using the Bluetooth Windows Suite. The Bluetooth Windows Suite adds and configures Bluetooth devices in order to perform various functions between Bluetooth-enabled devices. These devices can be phones, modems, audio devices, printers, imaging systems, Fax machines, and computers (workstations, servers, PDAs, etc.).

To begin configuration of the Bluetooth devices, from the **Start** menu, click **All Programs** > **Bluetooth Suite** > **Bluetooth Devices** which will display a window. For Windows 8, click **Control Panel** > **Hardware and Sound** > **Devices and Printers**.

Note: *You can also double click the Bluetooth icon in the taskbar notification area to open Bluetooth devices window.*

This window displays the devices that have previously been paired and added to your PC/laptop through the Bluetooth protocol. To manage any added Bluetooth device, double-click the Bluetooth device icon from the displayed list. The Bluetooth Operations window appears.

Note: *If no Bluetooth devices appear in the list, add a Bluetooth device. For information on how to add a Bluetooth device see Adding Bluetooth Devices.*

The available features for that particular Bluetooth device are displayed in the Bluetooth Operations window.

Note: For HID devices like Bluetooth keyboard or mouse, no Bluetooth Operations window is displayed.

10.1 Bluetooth Operations

The Bluetooth Operations window can be considered as a central command point. You can manage the connected Bluetooth device from here.

The left-hand blue pane allows you to perform the following actions:

Add a Bluetooth device: Select this link to add a new Bluetooth device. The **Add a device** dialog appears and allows you to pair and add a Bluetooth device.

Show Bluetooth devices: Select this link to see paired Bluetooth Devices.

Open Bluetooth settings: Select this link to configure Bluetooth settings of your PC/laptop. For more information on how to configure Bluetooth settings, see Bluetooth Settings.

Open Bluetooth folder: Select this link to open the Bluetooth Folder on your PC/laptop. All the files transferred from the connected Bluetooth device are stored here.

Show File Transfer Dialog: The File Task Manager window appears. You can add multiple files to this window that need to be transferred to a Bluetooth device. For more information on file transfer, see File Task Manager window.

The right-hand pan displays the two devices that are connected by Bluetooth.

10.1.1 View Remote Device Information

This section displays details regarding the remote device, including its name on the Bluetooth network, the type of device, the signal strength between devices, and the properties of the remote device.

Properties Window of Remote Device

This dialog lists the general properties and the services of the connected Bluetooth device.

General Tab: Displays the type of device, MAC address of the device, last connected time, and connection type.

Services Tab: Displays the Bluetooth Services that the local computer can use on the remote device. All of the available options are enabled by default. To disable any of these services, simply uncheck its corresponding box and click Apply.

Caution: Unchecking of any of these boxes may make certain functions non-available. You should have a good knowledge of the remote device and its services before performing these actions.

10.1.2 Audio Services

The next section of the Bluetooth Operations window is used to configure the audio settings between your PC/laptop and the Bluetooth device. There are three types of connections available for you.

To use remote device's speaker to listen to Audio from this PC status: Click the Connect button to transmit audio from your PC/laptop to the Bluetooth device.

To use this PC's speakers to listen to Stereo Audio playing on remote device: Click the Connect button to hear stereo audio on your PC/laptop, originating from the Bluetooth device.

To use this PC as a hands-free device: Click Connect allows your PC/laptop to receive an audio stream from the Bluetooth device. This connection is used more for telephone connections than playing music files.

10.1.3 File Operations

The file operations section is used to transmit files between your PC/laptop to the connected Bluetooth device. You can also use the connected Bluetooth device as print server.

Browse and Transfer files with remote device: Click the **Browse** button to open a shared Bluetooth folder that has been previously created on the connected Bluetooth device. Files may be pasted to this folder, deleted, copied, or cut from it. Any actions performed on this folder will be done in the shared Bluetooth folder on the remote device.

Send files into remote device: Click the **Send** button to open a Windows browser. This browser allows you to select files that need to be sent to the remote device. Simply browse the local computer for the file to transfer and then click the Open button, which will automatically send that file to the shared Bluetooth folder of the remote device.

10.1.4 Advanced Phone Operations

The advanced phone operation allows you to connect to a remote phone and use the phone features using Bluetooth protocol. You can sync the phone contacts, make calls, answer calls, and send short messages using your PC/laptop once the connection between your PC/laptop and the Bluetooth-enabled phone is established. You can also view the history of dialed numbers, received calls, and missed calls. To access these features click **Open** under **Advanced Phone Operations**. A new dialog box is displayed. You can also see the network operator name, signal strength, and battery level of the connected remote phone.

You can also use the remote phone modem and connect to the Internet using DUN services.

The Advanced Phone Operations is displayed if the remote phone supports at least one of the four profiles Hands Free (HF), Serial Port Profile (SPP), Phonebook Access Profile (PBAP), and Sim Access Profile (SAP).

Contacts: Allows you to synchronize contacts from the phone and search the contacts. The available options are sync, sync and save to local, sync contacts to phone. You can also send the contacts to other remote devices connected to your PC/laptop. You can call or send a message to the selected contact.

To synchronize the contacts from the phone to your PC/laptop click **Get Phone Book** and the following three options are displayed. You can select any one option:
- **Sync:** Allows you to synchronize the remote phone book contacts to the local computer. If you close the dialog box and open again, the contacts are not displayed.
- **Sync and save to local:** Allows you to synchronize the remote phone book contacts to the local computer and store them in the local cache. If you close the dialog box and open it, all the contacts are displayed from the local cache.
- **Sync contacts to phone:** Allows you to synchronize the remote phone book contacts from your PC/laptop to the remote device.

To delete the contacts from the local cache, click **Delete cached phone book**. Once the contacts are synchronized, you can right click on a selected contact and perform the following actions: You can call, send a message, or send the contact to other devices that are connected to your PC/laptop.

Dial: Allows you to dial the desired phone numbers from your PC/laptop. To dial the numbers click **Dial**: a dialing pad appears. Click the desired numbers and click **Call**. A call is made to the dialed numbers and you can listen and speak using your PC/laptop speakers and microphone.

Short Messages: Allows you to send short messages to the desired numbers. To send a short message click **Short Messages**. Type the message in the provided space and enter the desired phone number or retrieve the phone

number from the book. Click **Send**, the message is sent to the desired phone number. You can see the date, time, phone number, and the contents of the sent message.

Note: To send message to multiple users, enter the phone numbers separated by semicolon ";".

Disconnect: Allows you to break the SPP connection to the remote phone, this button is only available after the SPP connection is established.

You can send a short message of 70 characters in one SMS. However, if the message is more than 70 characters it is automatically broken into short messages of 70 characters and sent.
History Allows you to view the answered, called and missed phone calls.

10.1.5 DUN Services
You can connect to Dial-up Network (DUN) using the remote phone as a modem. To use this feature click **Connect** under **DUN Service on Phone**. A message appears on the remote phone to connect to your PC/laptop for dial-up connection, accept the request.

10.1.6 Video Services
The video services allow you to stream the video. You need a web camera attached to your PC/laptop to activate this feature. To access the video feature click **Connect** under the option **To use remote PC to display the video from this PC camera**. A dialog **Bluetooth Video Source** appears. Select the web camera under the dropdown list and click **Start Capture**. You can see that the web camera activates and starts streaming the video. Click **Send to Remote** to send the streaming video to a remote computer.

10.1.7 Sync Operations
Sync operations allow you to exchange and update important files, like calendars or address books, from your PC/laptop to a remote device, such as a smartphone or PDA. To configure the settings for the Sync function, see Bluetooth Settings.

Synchronize information with remote device: Click the Sync button to sync pre-selected folders and files with the remote device. These files and folders

can be configured in the Bluetooth Settings-Sync folder.

Backup PIM from remote device: Click the Backup button to import PIMs from a remote device.

Restore PIM to remote device: Click the restore button to export PIMs to a remote device.

10.1.8 Authorization Options

This section allows you to modify the authorization settings for the remote device when connecting to your PC/laptop. The following are the available two options:

Require confirmation for all operations from this remote device — Select this option to configure your PC/laptop to prompt for authorization when a remote device requests permission to perform actions on your PC/laptop, such as sending and receiving files.

Always allow this remote device to connect for all operations — Select this option to allow the remote device to perform operations on the shared Bluetooth folder of your PC/laptop.

10.1.9 File Task Manager Window

This window shows the file transfers that are currently being transferred, along with their pertinent information such as name and file size, as well as those that are in the queue to be transferred. You can add files to the queue by selecting the **Add** button, which opens a new list window. Within this new list window, click the **Add** button, which opens a Windows browser where you can find files to be transferred.

You can pause the file transfer and resume again from the same position where the file transfer is paused. To use this feature, click **Pause** while the file is in transfer. The file transfer is paused. To continue transfer, select the file under **Pending list** and click **Continue**. The file transfer resumes from the same position where it is paused. For example, if a file is paused after 20% of file transfer, it will resume from the 20% again when continued.

10.1.10 Right-Click Options

The following options are available when you right click on the Bluetooth Windows Suite taskbar icon .

Add a device: Select this option to add a Bluetooth device to your PC/laptop. For more information on how to add a Bluetooth device, see Adding Bluetooth Devices.

Allow a device to connect: Select this option to allow other Bluetooth devices to connect to your PC/laptop.

Show Bluetooth Devices: Select this option to see all the added Bluetooth devices to your PC/laptop. The Bluetooth Devices window is opened.

Join a Personal Area Network: Select this option to join a PAN with other Bluetooth devices.

Open Settings: Select this option to modify Bluetooth settings of your PC/laptop. For more information on Bluetooth settings, see Bluetooth Settings.

Turn Adapter Off: Select this option to disable the Bluetooth adaptor of your PC/laptop. Once turned off, the option to turn on again will appear in this place.

Remove Icon: Select this option to remove the Bluetooth Icon from the taskbar notification area.

11. Wireless Network Overview

A Wireless Local Area Network (WLAN) connects computers without network cables. Instead, computers use radio communications to send data between each other. In a WLAN, a radio communications device called an access point or wireless router connects network computers and provides Internet or network access. You can communicate directly with other wireless computers, or connect to an existing network through a wireless access point. When you set up your wireless adapter, you select the operating mode for the kind of wireless network you want. You can use the Dell Wireless Network Connection adapter to connect to other similar wireless devices that comply with the 802.11 standard for wireless networking.

11.1 To Setup a Wireless Network

The most common type of wireless network is an infrastructure network. To setup an infrastructure network, you need the following:
- Broadband internet service such as cable or DSL (includes a broadband modem)
- A wireless router
- A wireless network adapter for each computer that you want to connect to the wireless network.

11.2 Wireless Networking Basics

11.2.1 To Connect to a Wireless Network
There are three basic components that must be configured for an 802.11 wireless network to operate properly:
- **Network Name**: Each wireless network uses a unique network name to identify the network. This name is called the Service Set Identifier (SSID). When you set up your wireless adapter, you specify the SSID. If you want to connect to an existing network, you must use the name for that network. If you are setting up your own network you can make up your own name and use it on each computer. The name can be up to 32 characters long and can contain letters and numbers.
- **Profiles**: When you set up your computer to access a wireless network, you will create a profile matching the wireless settings for that network. After you create profiles, your computer will automatically connect when you are in the vicinity of that wireless network.

- **Security**: 802.11 wireless networks can use encryption to help protect your data. To use encryption you will need a key or password. For more information about security and security types, refer to Windows Help and Support.

11.2.2 Identify a Wireless Network

Depending on the size and components of a wireless network, there are many ways to identify a wireless network:

- **Network Name or Service Set Identifier (SSID)**: Identifies a wireless network. All wireless devices on the network must use the same SSID.
- **Broadcast SSID**: An access point that broadcasts its network name. If this feature is enabled on an access point, any wireless user can connect to it using a blank (null) SSID.
- **Basic Service Set (BSS)**: Consists of at least two or more wireless nodes or stations and includes at least one access point or wireless router, which have recognized each other and have established communications.
- **Independent Basic Service Set (IBSS)**: A mode of operation in an 802.11 system that allows direct communication between 802.11 devices without the need to set up a communication session with an access point.

11.2.3 Select a Wireless Network Mode

Wireless networks can operate with or without access points, depending on the number of users in the network. Infrastructure mode uses access points to allow wireless computers to send and receive information. Wireless computers transmit to the access point, the access point receives the information and rebroadcasts it to other computers. The access point can also connect to a wired network or to the Internet. Multiple access points can work together to provide coverage over a wide area.

Device-to-Device mode, also called ad hoc mode, works without access points and allows wireless computers to send information directly to other wireless computers. You can use Device-to-Device mode to network computers in a home or small office or to set up a temporary wireless network for a meeting.

11.3 To Turn Radio ON and OFF

You may want to turn your wireless adapter's radio on and off to:

- Conserve your computer's battery when not connected.
- Meet the requirement to turn off radios on airplanes to prevent interference.

Two methods to turn the radio on and off are:

- The hardware switch
- The Wireless Network button in Windows Mobility Center

A common cause for users not being able to connect to a wireless network is due to the radio being turned off. If you are unable to connect to a wireless network, verify that your radio is turned on by both the hardware switch and the software Enable/Disable button. Verify that you have checked both methods.

12.   Operational Information

NOTE: *EIRP = Effective Isotropic Radiated Power (including antenna gain)*
NOTE: *Your Dell Wireless 1601 WLAN and Bluetooth device transmits less than 100 mW of power, but more than 10 mW.*

12.1 Wireless Interoperability

Dell Wireless 1601 WLAN and Bluetooth products are designed to be interoperable with any wireless LAN and Bluetooth product that is based on Direct Sequence Spread Spectrum (DSSS) radio technology and Orthogonal Frequency Division Multiplexing (OFDM) and to comply with the following standards:

- IEEE 802.11a Standard on 5 GHz Wireless LAN
- IEEE 802.11b-1999 Standard on 2.4 GHz Wireless LAN
- IEEE 802.11g Standard on 2.4 GHz Wireless LAN
- IEEE 802.11n Standard on 2.4 GHz and 5 GHz Wireless LAN
- IEEE 802.11ad D6.0 Standard

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