HP Opal Wireless Printer and PC Adapter

User Guide

Licensed software

Notice

NOTE: Regulatory information can be found in the Technical Information section of this user guide.

Safety information

⚠ **WARNING!**   To prevent fire or shock hazard, do not expose this product to rain or any type of moisture.

Always follow basic safety precautions when using this product to reduce risk of injury from fire or electric shock.

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1 Use your Opal for printing

The Opal wireless printer adapter uses Bluetooth wireless technology to allow you to print without using a cable. In general, Bluetooth wireless technology is a short-range wireless technology that allows connection between devices without requiring a cable. By using your Opal, you can print from your camera phone, PDA, digital camera, or computer to selected HP printers and all in ones.

> **NOTE:** Check the documentation for your printer to verify the devices you can use to print to it.

> **TIP:** Check **www.hp.com/go/Bluetooth** for a current list of supported printers and other valuable information concerning your Bluetooth adapter.

Bluetooth basics

The following concepts will help you use your Opal; with your particular printer.

Generally, the sending device (camera, PDA, computer, etc.) sends a signal and discovers the nearby Bluetooth printing devices and displays their Bluetooth device names. Then, you simply print or send to that printer name.

> **TIP:** For most devices, the default settings will allow you to print without making any changes. However, a Bluetooth device may be set to be visible or invisible and may have security settings established. If you have difficulty printing to your printer, consult Opal access modes.

Bluetooth device name

When a sending device discovers the printer, it displays the printer's Bluetooth device name. The printer's default Bluetooth device name can be found and changed in the printer's Bluetooth control panel menu.

Installation and setup

Follow these instructions to install and set up your Opal. More detailed setup instructions can be found in the user guide for your printer.

Installing the HP Opal

1. Locate the host USB port on your printer or all-in-one. It will usually be located in the front and is shaped like the USB port on your computer. It may be called a camera or Pictbridge port on your printer.

2. Remove the cap from the Opal and insert it into the port.

LED behavior

The LED on the Opal tells you what is going on.

- Blinking—This is the default state and means the device is installed and has power.
- Rapid blinking—A sending device is "Discovering" the Opal.
- On steady—The Opal is receiving data.

Opal access modes

Access modes determine how easily a Bluetooth sending device can print to a printer. The access modes are defined by the following settings:

- Accessibility
- Security level

Accessibility mode

There are two available Accessibility modes for your printer. Follow the instructions in your device user guide to change the Accessibility mode.

- **Visible to all (public/shown to all) (default)**
  When the printer's Accessibility setting is set to "Visible to all", any Bluetooth device within range can discover and use the printer. This is the default setting for your Bluetooth adapter.
- **Not visible (private/hidden)**
  When the Accessibility setting is set to "Not visible", only sending devices that have stored the printer's Bluetooth device address can discover and use the printer.

Opaldevice address

Bluetooth devices have a unique device address that cannot be changed.

The following are general instructions for finding your printer or all-in-one's Bluetooth device address. Consult the documentation for your printer or all-in-one for specific instructions.

1. Access the control panel menu and select the **Opal** option.
2. Select **Device address** and press OK to display the Bluetooth adapter device address.

Security level

- **Low (default)**
  When the printer's security level is set to "Low", the printer does not require a Passkey code. Any Bluetooth device may print to it.
- **High**
  When the printer's security level is set to "High", you must enter the Passkey code in the sending device in order to print.

Passkey/PIN code

When the printer's Bluetooth security level is set to High, the sending device attempting to print is prompted for a Passkey. The Passkey is a 4-digit code that is set on the printer. The default Passkey is 0000.

The following are general instructions for finding your printer or all-in-one's Bluetooth passkey. Consult the documentation for your printer or all-in-one for specific instructions.

1. Access the control panel menu and select the **Bluetooth** option.
2. Select **Passkey** and press OK to display the printer's Passkey.
   You can also change the Passkey from this menu.

Print from your Bluetooth device

This chapter contains sections on printing from different Bluetooth devices.

General printing

1. From your sending device, start the Discovery of available Bluetooth printers.
2. Select the printer and enter the Passkey if prompted.

   > **NOTE:** Secure printing may require you to know the Passkey of your printer. Refer to Passkey/PIN code.

3. Print.

Camera phone

These are general instructions. Refer to the documentation for your camera phone for detailed instructions.

There are two techniques for printing from your camera phone—from the imaging software or from a printing application.

Follow these instructions to print from the imaging or camera software.

1. From the imaging application, select **Send via Bluetooth**.
2. The phone searches for Bluetooth devices. Select the printer you want to use.
3. If you are prompted for a Passkey, enter it.

The following method can be used if your camera phone has a printing application. Check your software CD or phone manufacturer's website for the latest software.

1. Press the **Menu** button.
2. Select the **Print** application.
3. Select the item to print.
4. Either select **Find Printer** or **Accept** the printer selected.

PDA

These are general instructions that apply to both Pocket PCs and Palm OS devices. Refer to the documentation for your PDA for detailed instructions.

1. From the application you want to use, select **Send** or **Print**.
2. A list of Bluetooth devices displays. Select the printing device you want to use.
3. If you are prompted to enter a Passkey, enter the printer's Passkey then tap **OK**.

If you have a Pocket PC with the HP Image Zone, use one of the following methods to print.

1. Tap HP Photosmart software.
2. Select the image you want to print.
3. Tap **File**, then **Print**.
4. Select the printer you want to use and tap **Print**.

or

1. Tap the printer icon in the lower right corner of the screen.
2. Select **Mobile Printing**.
3. Select the printer you want to use and tap **Print**.

   📝 **NOTE:** If the printer you want to use does not display, tap Configure to add a printer. Consult your Pocket PC documentation for directions.

Camera

Cameras vary a great deal. Refer to the documentation for your camera for instructions.

Computer

The method for printing from a computer depends on the Profile that your computer supports and the Bluetooth stack that is installed.

Check your computer documentation to verify supported profiles and for detailed instructions. These instructions are for Windows computers.

You must install the printer software driver on your computer before attempting to print using Bluetooth.

📝 **NOTE:** If your computer does not support either of these methods, consult your computer documentation for help printing with Bluetooth.

This procedure is for the HP or Widcomm stack.

1. Click the **My Bluetooth Places** icon on your desktop or in the Task Bar.
2. Click **Search for devices in range**.
3. Once the available printers are discovered, double-click the printer name.
4. Print to this printer name as you would any printer.

This procedure is for the Microsoft stack.

1. Go to **Start**, **Settings**, then **Printers** or **Start**, then **Printers and Faxes**.
2. Select **Add Printer**.
3. Click **Next**.
4. Select **A Wireless Printer**.
5. Follow the directions on the screen to finish the installation.

   📝 **NOTE:** You may need to select a Bluetooth port.

6. Print to this printer name as you would any printer.

2 Use your Opal with your computer

The Bluetooth® wireless technology provides short-range wireless communications that replace the physical cable connections that traditionally link electronic devices.

- Network access points
- Computers (desktop, notebook, PDA, etc.)
- Imaging devices (printer, camera)
- Audio devices (headset, speakers)

Bluetooth wireless technology also enables communication between the above devices and Bluetooth enabled phones (example: cellular, cordless, smart phones).

The Bluetooth for Windows software consists of the following components:

- **Microsoft® Windows® Explorer Extensions**: Provides access to Bluetooth devices in the immediate vicinity using Windows Explorer.
- **My Bluetooth Places**: Graphical user interface (GUI) that provides access to Bluetooth devices in the immediate vicinity. Also provides access to configure the local devices and access to perform other Bluetooth tasks.
- **BTTray Security Manager**: Controls and manages Bluetooth security levels. Enables user to grant or deny access and to filter what can be accessed on a Bluetooth device.
- **Bluetooth for Windows Configuration Panel**: Configures Bluetooth for Windows (BTW) software using Windows Control Panel.
- **Stack Server**: Provides an interface for the operating system to control Bluetooth devices and to ensure that Bluetooth connections operate together correctly. The stack server has a built-in Security Manager that protects the Bluetooth device from unauthorized access.
- **Bluetooth Setup wizard**: Facilitates the configuration and modification of Bluetooth environment. The wizard can be used to configure or change local services or to establish connections to remote devices based on service type or device type.
- **Quick Connect**: Facilitates fast connections based on service type. Enables user to quickly find devices that support a particular service and establish a connection to that service. During this process, a shortcut to the service is created in My Bluetooth Places, which can be used for subsequent connections.

Install the software

Follow these instructions to install the Bluetooth software and configure Bluetooth on your computer.

1. Insert the CD.
   The Configuration Wizard should start automatically. If it does not, browse to your CD and double-click **setup.exe**.
2. Select where you want the Bluetooth icons to be placed and click **Next**.

3. Type a name for this computer; for example, "`Christoph's laptop`" and select the type of computer, Desktop or Laptop, then click **Next**.
4. Click **Next**.
5. Select the Bluetooth services that you want this computer to offer and click **Next**. As you select each service, a description of it will display. Click the **Configure** button to display the properties panel for that service.
6. If you are only setting up one Bluetooth device, click **Skip**; otherwise click **Next**.
7. Select the Bluetooth device you want to work with.

> ☀ **TIP:** The device must be in Discoverable mode for the computer to find it. Check the user documentation for your Bluetooth device to find out how to make your device Discoverable.

8. Either enter the PIN code and click **Initiate Pairing** or click **Skip Pairing**. The services available for this device will display.
9. Select the services that you want to use and click **Next**.
10. If you have another device to configure click **Next**. If you are finished configuring devices, click **Skip** then click **Finish**.

General Windows Bluetooth information

The section provides a general overview of the Windows Bluetooth environment.

Bluetooth tray

The Bluetooth tray resides in the Notification area of the Windows system tray, which is normally at the lower-right corner of the screen in the taskbar. The Bluetooth tray provides fast access to most Bluetooth operations.

From the Bluetooth tray, you can do the following:

- **Access My Bluetooth Places**: Double-click the Bluetooth icon, or right-click the Bluetooth icon and then select **Explore My Bluetooth Places**.
- **Access the Bluetooth Setup Wizard**: Right-click the Bluetooth icon, and then select **Bluetooth Setup Wizard**This wizard enables you to perform the following actions:
  - Configure how this computer accesses a service on another Bluetooth device.
  - Locate remote Bluetooth devices.
  - Configure the way that this computer provides services to remote Bluetooth devices.
  - Set the name and type of this Bluetooth device, e.g., "John's PC" and "Desktop".
- **Access the Bluetooth Configuration panel**: Right-click the Bluetooth icon, and then select **Advanced Configuration**.
- **Access the Quick Connect option**: Right-click the Bluetooth icon, select **Quick Connect**, and then select the type of service to which you wish to connect.
- **Start/Stop Bluetooth**: Right-click the Bluetooth icon, and then select **Start or Stop Bluetooth device**.

Access My Bluetooth Places

My Bluetooth Places is part of Windows Explorer. There are several ways to access My Bluetooth Places using the Bluetooth icon.

- In the Notification area (Windows system tray), at the far right of the taskbar
    - Right-click the Bluetooth icon and select **Explore My Bluetooth Places**.
    - Double-click the Bluetooth icon.
- On the desktop, double-click the Bluetooth icon.
- From Windows Explorer, select **My Bluetooth Places** in the Folders pane or from the Address shortcut menu.

Bluetooth icons

The Bluetooth software uses a number of icons to convey status.

Notification area icons

The Bluetooth icon in the Notification area (Windows system tray), at the far right of the taskbar provides feedback about Bluetooth current status.

Enabled	Connected	Disabled
Blue with White	Blue with Green	Blue with Red

Device Icons

Devices are physical things, such as computers, cameras, headsets, etc. Devices can be represented by icons in My Bluetooth Places.

Each type of device is represented by a different icon. The device icons have three states as described below:

	Normal: Devices that are present in the vicinity are represented by a plain icon. For example, this icon represents a desktop computer in a normal state.
	Connected: Devices that are connected to this computer are represented by an icon with a green tint and / or a small butting arrows box added to them. For example, this icon represents a cellular telephone that is connected via Bluetooth to this computer.
	Paired: Devices that are paired with this computer are represented by a normal icon with a small check box added to it. For example, this icon represents a Personal Digital Assistant (PDA) that is paired with this computer.

NOTE: There are some differences between the device icons used by Windows 9x, ME, and 2000, and those used by Windows XP.

Service Icons

Services are what a Bluetooth device can do for other Bluetooth devices, such as provide access to a local area network, or the ability to send a fax.

Some devices, such as headsets or network access points, may provide only a single service. Others, such as desktop and laptop computers, can potentially provide all of the Bluetooth services.

Single-service devices often use virtually the same icon for the service as that used for the device. For example, the headset service icon is identical to the headset device icon. Multiservice devices use a different icon for each service that they provide. Service icons have three states as described below:

	Normal: This plain icon indicates that a specific service is potentially available from the selected device. For example, this icon indicates that the Bluetooth serial port service may be available.
	Connected: This type of icon indicates that this computer is connected to this service. The icon has a green tint and / or a small butting arrows box added to it. For example, this icon indicates that this computer is connected to the PIM item transfer service of the remote device.
	Not Available: This icon indicates that the service that it represents is not available. Services that are not available are represented by a normal icon with a small X box added to it . For example, this icon indicates that the Bluetooth faxing service is not currently available.
	NOTE: A service may be unavailable because it (or the required hardware) is in use, or because the required hardware is not installed. Example: if the fax modem is busy, or not installed, then the fax service will be unavailable, even though Bluetooth supports that service.

NOTE: There are some differences between the service icons used by Windows 9x, ME, and 2000, and those used by Windows XP.

Basic operations

This section provides information on using the basic Bluetooth functions.

Start or stop Bluetooth

To start Bluetooth: In the notification area, at the far right of the taskbar, right-click the Bluetooth icon and select **Start the Bluetooth Device**. The Bluetooth icon is blue in color with a white insert when Bluetooth is running.

To stop Bluetooth: In the notification area, at the far right of the taskbar, right-click the Bluetooth icon and select **Stop the Bluetooth Device**. The Bluetooth icon is blue in color with a red insert when Bluetooth is stopped.

Create a connection

You can create a connection in three different ways:

• You can use the Bluetooth icon in the system tray.
• You can use the Bluetooth setup wizard.
• You can use My Bluetooth Places.

Create a connection from the Bluetooth icon in the system tray

▲ In the notification area, at the far right of the taskbar, right-click the Bluetooth icon, select **Quick Connect** and then select the desired Bluetooth service.

   • If this computer has created a connection to the desired type of service in the past, the options on the shortcut menu are as follows:

      • The name(s) of any device(s) with which prior connections to this type of service have been established. Select a name from the list to re-establish the connection.
      • **Other Devices**: Select this option to search for additional devices that potentially provide the desired service, select a device from the list, and then click **Connect**.

   • If this computer has never created a connection to this type of service, the only option on the shortcut menu is **Find Devices**. Select this option to search for devices that potentially provide the desired service, select a device from the list, and then click **Connect**.

Create a connection using the Bluetooth setup wizard

To open the setup wizard do one of the following and follow the on-screen instructions:

• From the Notification area, at the far right of the taskbar, right-click the Bluetooth icon and select **Bluetooth Setup Wizard**.
• From Windows Explorer, select My Bluetooth Places, and then from the **Bluetooth Tasks** menu, select **Bluetooth Setup Wizard**.

📝 **NOTE:** Depending on the installed operating system and how Windows Explorer is configured, there may also be double-click and/or right-click options available to access the Bluetooth Setup Wizard.

Create a connection from My Bluetooth Places

1. From Windows Explorer, in the Folders pane, select **My Bluetooth Places**, and then select **View devices in range**.
2. In the right pane of My Bluetooth Places, right-click a device name, and then select **Discover Available Services**.

If a prior service discovery was performed on the selected device, the services that were found will be listed in the device's shortcut menu.

If the selected device has added or reconfigured a service, or if the desired service is not an option in the shortcut menu, select **Discover Available Services** to update the list of services offered by the device.

Find Bluetooth devices

Search for Devices: Looks for Bluetooth devices in the vicinity and displays the devices that it finds in My Bluetooth Places.

▲ To start a search for devices, in the **Bluetooth Tasks** pane of My Bluetooth Places, select **View devices in range**.

📝 **NOTE:** The Bluetooth menu is only visible when My Bluetooth Places is active.

Periodic Search for Devices: Bluetooth can be configured to search automatically for devices on a regular basis.

1. Click **My Bluetooth Places**.
2. Under Bluetooth Tasks, click **View or modify configuration**.
3. Click the **Discovery** tab.
4. Check **Look for other Bluetooth devices** and click **OK**.

One of the advantages of Bluetooth is the mobility that the wireless connections allow. However, mobility means that devices may move in or out of connection range during the time between the automatic updates performed by Bluetooth. To be certain that the displayed list of devices in the neighborhood is current, or if automatic periodic inquiry is not enabled, force an update of the device list using the technique described in Search for Devices, above.

Some devices within connection range may not show up in the list of devices found because:

• The Bluetooth Configuration Discovery tab is set to **Report only Selected Bluetooth devices**.
• The unlisted device is configured to be nondiscoverable. Refer to the unlisted device's documentation for assistance in making that device discoverable.

📝 **NOTE:** If you enable the periodic search for devices feature you may experience some performance degradation while the search is in process.

Find a Service

The process of determining the services that a device provides is called Service Discovery.

▲ To initiate a Service Discovery, in My Bluetooth Places, select **View devices in range** then right-click a device name and select **Discover Available Services**.

Bluetooth services are those things that this computer can do for remote Bluetooth devices. For example, if this computer allows a remote Bluetooth device to send a fax using a fax modem that is physically attached to this computer, then this computer is providing the Bluetooth fax service.

Some services are hardware dependant; for example, this computer cannot provide the fax service unless it has a physical fax modem.

Some Bluetooth services use virtual hardware. The Bluetooth Serial Port service, for example, does not use a physical port on this computer. Instead, it creates virtual serial ports that Windows applications can see and use as if they were actual physical ports.

Each Bluetooth service that this computer is capable of providing can be started automatically when Bluetooth starts. Each service can be set up to require security measures before allowing a remote Bluetooth device to connect.

Bluetooth services require a Bluetooth application on the remote device; services and applications usually have coinciding names; i.e., there is a Bluetooth Fax Service and a Bluetooth Fax Application.

The services supported by Bluetooth are:

- **Bluetooth Imaging**: Allows a remote device to send and receive images (BMP, GIF, PNG, & JPG) to this computer. Images are stored in the Bluetooth exchange folder.
- **Bluetooth Serial Port**: Allows a wireless connection between two devices. This connection can be used by applications as though a physical serial cable connected the devices.
- **Dial-up Networking**: Allows a device to use a modem that is physically attached to another Bluetooth device.
- **Fax**: Allows a device to send a fax using a remote Bluetooth cell phone, modem, or computer.
- **File Transfer**: Allows a device to perform file system operations on another Bluetooth device such as, browse, open, copy, etc.
- **Headset**: Allows a Bluetooth headset to be used as the audio input/output mechanism for another Bluetooth device, such as a computer or cell phone.
- **PIM Item Transfer**: Allows two Bluetooth devices to exchange Personal Information Manager data such as business cards, calendar items, e-mail messages, and notes.
- **PIM Synchronization**: Allows two Bluetooth devices to synchronize their Personal Information Manager data.
- **Network Access**: Allows a device to access a Local Area Network via a second Bluetooth device that is physically connected to the network or allows a remote device to become part of an ad hoc network provided by the Bluetooth server.
- **Audio Gateway**: Allows the microphone/speakers on a Bluetooth device (typically a computer) to be used as the audio input/output mechanism for a remote Bluetooth device, such as a cell phone.

All Bluetooth servers do not necessarily provide all of these services. For example, network gateways may only provide the Network Access service.

Bluetooth Connection Status

The Bluetooth Connection Status dialog box displays information about the state of a connection and provides a means to disconnect an active connection.

▲ To access the Connection Status dialog box, in My Bluetooth Places, select a device, and then, in the right pane of My Bluetooth Places, right-click a service name and select **Status** from the shortcut menu.

The Information provided is as follows:

• **Status**: Connected or Not Connected.
• **Device Name**: The name of the device to which this computer is connected.
• **Duration**: The length of time that this connection has been established, displayed in hours, minutes and seconds. Depending on the service, the connection may time out (automatically disconnect) after a specific period of inactivity.
• **Activity**: The number of bytes sent and received over the connection.
• **Signal Strength**: A graphic indicator that ranges from Too Weak through Good to Too Strong.

> **NOTE:** To change the power transmission level of this computer: from the Bluetooth Configuration Panel, Hardware tab, click the Advanced button, and then change the setting in the Maximum Power Transmission drop-down list. The Advanced button is not available in all countries.

The controls in the Bluetooth Connection Status dialog box are as follows:

• **Properties** button: Displays the Bluetooth Properties dialog box for this connection.
• **Disconnect** button: Closes this connection.
• **Close** button: Closes the Bluetooth Connection Status dialog box.

Send to Bluetooth

This feature is used to send information to another Bluetooth device. Data types include:

• Files from Windows Explorer
• Documents from Microsoft Office applications, including the following:
  • Word
  • Excel
  • Access
  • PowerPoint
• Microsoft Outlook items, including the following:
  • Contacts
  • Appointments
  • Tasks

- Messages
- Notes
• Microsoft Internet Explorer items, including the following:
  - Entire web pages
  - Individual images

To use Send to Bluetooth (except Internet Explorer)
1. Select the item to transfer as listed below:
   - Windows Explorer: Select one or more files to be transferred. Folders cannot be transferred.
   - Microsoft Office: Only the document in the active window can be transferred.
   - Microsoft Outlook: Select one or more items to be transferred.
2. From the **File** menu, select **Send To**, and then select **Bluetooth**.
3. Select a device from the shortcut menu to send the data or select **Other...**, choose a device from the list, and then click **OK** to send the data.

Send an entire web page with Internet Explorer
1. From the **Tools** menu, select **Send To Bluetooth** (or click the Bluetooth icon on the toolbar)
2. In the Select Device dialog box, choose a device and then click **OK**.

Send a selected image with Internet Explorer
1. Right-click the image to be transferred and select **Send To Bluetooth**.
2. In the Select Device dialog box, choose a device and then click **OK**.

Configure Bluetooth

This section describes all the configuration options available for Bluetooth connections.

Access the Bluetooth configuration panel

The Bluetooth Configuration Panel provides access to settings for Bluetooth services, client applications, hardware, security, discovery, accessibility, default paths, event notification, and other Bluetooth related items.

To Open the Bluetooth Configuration Panel
1. From the Windows Control Panel, select **Bluetooth Configuration**.
2. In the Notification area, at the far right of the taskbar, right-click the Bluetooth icon, and select **Advanced Configuration**.

Bluetooth Services versus Bluetooth Applications

Bluetooth Services are services that this computer provides to remote Bluetooth devices. The Bluetooth services on this computer are referred to collectively in the Bluetooth configuration panel as Local Services.

Bluetooth Applications are software applications on this computer that allow this computer to use the Bluetooth services that are provided by remote devices. The

Bluetooth applications on this computer are referred to collectively in the Bluetooth configuration panel as Client Applications.

Bluetooth Services and Bluetooth Applications usually have coinciding names; e.g., there is a File Transfer service and a File Transfer client application.

How this computer provides a service to remote devices is configured on the Local Services tab of the Bluetooth configuration panel.

How this computer uses a service that is provided by a remote device is configured on the Client Applications tab of the Bluetooth configuration panel.

Bluetooth exchange folder

This is the highest-level directory on this computer to which a remote 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 Bluetooth exchange folder is shared by the PIM Item Transfer and the File Transfer services and can be configured from the Properties page of either of those services. When the Bluetooth exchange folder is reconfigured for either of these services, the other service will be updated to use the new location. This is also shared by the Imaging service.

General configuration settings

The settings on the General tab of the Bluetooth Configuration Panel determine information that is displayed to remote devices.

- **Computer Name**: Enter a unique name to identify this computer to other Bluetooth devices in the vicinity; this field cannot be left blank.
- **Computer type**: Select either Desktop or Laptop from the shortcut menu to set the type of icon remote devices will use to represent this computer.

Bluetooth applications

Some built-in Bluetooth applications provide full functionality for a specific task, such as locating other Bluetooth devices or synchronizing two Personal Information Managers.

Other built-in Bluetooth applications provide a way for standard Windows applications to accomplish their tasks wirelessly. For example, a Bluetooth application may create a wireless serial connection between computers or provide wireless access to the Internet.

The difference between Bluetooth Applications and Bluetooth Services is as follows:

- Bluetooth Applications are software programs on this computer that allow this computer to use the Bluetooth services that are provided by other devices. In the Bluetooth configuration panel, these programs are referred to collectively as Client Applications.
- Bluetooth Services are software programs on this computer that provide a service to other devices. In the Bluetooth configuration panel, these programs are referred to collectively as Local Services.

NOTE: Client Applications and Local Services usually have coinciding names; e.g., there is a Fax service and a Fax application.

Access the application configuration

All of the built-in Bluetooth applications allow you to rename the application and/or require a secure connection when using the application.

1. Open the configuration panel using one of these methods.
   - In the Notification area, at the far right of the taskbar, right-click the Bluetooth icon and select **Advanced Configuration** from the shortcut menu or
   - From Windows Control Panel, select **Bluetooth Configuration**.
2. In the Bluetooth configuration panel, **Client Applications** tab, highlight the application to be configured, and then click **Properties** (or double-click the application).

Bluetooth Imaging

The Bluetooth Imaging application allows this computer to send images to remote devices that provide the Bluetooth imaging service.

Possible uses include the transfer of images to a Bluetooth camera, camera/phone, or any other device that offers the Bluetooth Imaging service.

The supported image formats are:

- BMP
- GIF
- PNG
- JPG

TIP: Some devices, particularly battery-powered devices such as phones and cameras, may only be able to accept images in one format and at a single fixed resolution. In that case, the image is converted to the required format and resolution before it is transferred to the remote device.

Imaging application connections are created automatically on an as-needed basis.

To send an image to the remote imaging device:

NOTE: Battery-powered remote devices, such as a cell phones or cameras, may require that Bluetooth be specifically enabled before they can accept an image; see the battery-powered device's documentation for more information.

▲ Choose one of the following.
   - In Entire Bluetooth Neighborhood, drag and drop the image file onto the destination's device icon.
   - In Windows Explorer, right-click an image file and, from the shortcut menu, select **Copy**. Then, in Entire Bluetooth Neighborhood, right-click the destination device, and select **Paste**.
   - If a shortcut to the remote device's imaging service exists in My Bluetooth Places, drag and drop, or, copy and paste, to that shortcut.

Imaging connections close automatically when the image transfer is complete.

To abort the image transfer, click Cancel in the transfer dialog box.

To configure Bluetooth imaging

▲ On the Client Applications tab, select **Bluetooth Imaging** and click the **Properties** button.

The Properties dialog allows you to configure the following:

- The application name: To change it, highlight the existing name and enter the new name.
- Secure connection: To enable secure connection, select the option box. To disable secure connection, clear the option box.

To install an imaging device (Windows XP only)

Remote operation of the Bluetooth imaging device, such as the ability to trip a camera's shutter or browse the images on a device, may be possible, depending on the functions supported by the remote device.

The remote imaging device must support the action. See the remote imaging device's documentation for information about the remote functions the device supports.

The remote imaging device must be installed on this computer (see below).

1. From My Bluetooth Places, select **View devices in range**.
2. Right-click the imaging device and select **Add Camera**.

   Windows installs the camera and adds it to the Cameras and Scanners section of My Computer.

Human Interface Device

The Human Interface Device (HID) Application allows this computer to use one or more remote Bluetooth HIDs as input/output devices.

For example, the HID Application allows this computer to use a Bluetooth keyboard and a Bluetooth mouse.

To create an HID connection

📝 **NOTE:** Some HIDs have multiple modes. Before establishing a connection, be sure the HID is in the appropriate mode. For example, in the case of a HID that can function as both a mouse and a laser pointer, be sure the mode switch is set to Mouse before attempting to connect.

▲ Open a connection to a Bluetooth Human Interface Device using one of these techniques:
- From My Bluetooth Places
- Using the Bluetooth Setup Wizard
- Once a HID connection is established, that connection will persist. If the computer is shut down, when the computer is turned on again the connection will reestablish automatically.

> **TIP:** HIDs usually have a button, which is sometimes difficult to find, that must be pressed before other Bluetooth devices can locate the HID. Even after the button is pressed, the HID can be discovered only for a limited time, and then the button must be pressed again. The time period can be as short as 30 seconds or as long as 180 seconds. Read the documentation that accompanies the HID before you attempt to connect to the device.

Printer

The Bluetooth Printer application allows this computer to use a Bluetooth printer. Once a Bluetooth printer has been properly installed, it can be used from this computer in the same way as any other printer would be.

To install a printer from My Bluetooth Places

1. Click **View devices in range**.
2. Right-click a Bluetooth printer, select **Add Printer** and follow the on-screen instructions.
3. Select the printer make and model at the prompt. If your printer is not in the list of options, click **Have Disk…**, insert the driver disk for the printer, and then navigate to the drive and directory that contains the driver initiation file (*.inf) for the printer.
4. Follow the on-screen instructions to complete the installation.

To install a printer from the Control Panel

1. From the Start menu, select **Printers and Faxes**.
2. Click **Add A Printer** then click **Next**.
3. Click **Local printer** then click **Next**.
4. Select **Local printer attached to this computer** and click **Next**.
5. When the computer fails to find any plug and play printers, click **Next** to install the printer manually.
6. On the **Select the Printer Port** window of the wizard:
   a. Select **Create a new port**.
   b. In the **Type of port** menu, select **Bluetooth Printer Port**, and then click **Next**.
7. On the next screen, select the printer by name, and then click **Connect**.
8. Install the driver: Select the printer make and model at the prompt. If your printer is not in the list of options, click Have Disk…, insert the driver disk for the printer, and then navigate to the drive and directory that contain the driver initiation file (*.inf) for the printer.
9. Follow the on-screen instructions to complete the installation.

To configure a printer

▲ On the Client Applications tab, select **Printer** and click the **Properties** button.

The Properties dialog allows you to configure the following:

- The application name: To change it, highlight the existing name and enter the new name.
- Secure connection: To enable secure connection, select the option box. To disable secure connection, clear the option box.

Audio Gateway

The Audio Gateway Application allows a remote Bluetooth device to use this computer's microphone and speakers as the remote device's audio input and output devices.

To create an audio gateway connection

▲ Open a connection to the Audio Gateway service that is provided by another Bluetooth device using one of these techniques:

- Bluetooth icon in the notification area
- From My Bluetooth Places
- Using the Bluetooth Setup wizard

To configure a audio gateway

▲ On the Client Applications tab, select **Audio Gateway** and click the **Properties** button.

The Properties dialog allows you to configure the following:

- The application name: To change it, highlight the existing name and enter the new name.
- Secure connection: To enable secure connection, select the option box. To disable secure connection, clear the option box.

Headset

📝 **NOTE:** This topic also applies to high quality audio.

The Headset application allows this computer to use a Bluetooth headset (or any other device that offers the Bluetooth headset service) as the audio input and output device for this computer.

Possible uses include:

- If this computer has on-board telephone hardware, a Bluetooth headset might be used as the audio input/output device to make/receive telephone calls.
- If this computer has voice recognition capabilities, a Bluetooth headset might be used as the audio input device.
- If this computer has high quality audio capabilities, a Bluetooth stereo headset might be used to listen to the output.
- Any other scenario that requires audio input/output can potentially take advantage of a Bluetooth headset to replace a wired microphone and/or speakers.

NOTE: Most Bluetooth headsets ring when a connection is attempted; answer the ring to complete the connection and begin using the headset as the audio input/output device for this computer.

To create a headset connection

▲ Open a connection to the Headset service that is provided by another Bluetooth device using one of these techniques:
   • Bluetooth icon in the notification area
   • From My Bluetooth Places
   • Using the Bluetooth Setup wizard

PIM Synchronization

The PIM Synchronization Application is used to synchronize the Personal Information Manager (PIM) database of this computer with the PIM database of a remote Bluetooth device.

The supported PIMs are:

• Microsoft Outlook
• Microsoft Outlook Express
• Lotus Notes

The supported data types are:

• Business cards
• Calendar items
• E-mail (with or without attachments)
• Notes

To configure PIM synchronization

▲ On the Client Applications tab, select **PIM Synchronization** and click the **Properties** button.
   The Properties dialog allows you to configure the following:
   • The application name: To change it, highlight the existing name and enter the new name.
   • Secure connection: To enable secure connection, select the option box. To disable secure connection, clear the option box.
   • The PIM items to be synchronized and the PIM on this computer with which those items should be synced.

NOTE: If synchronization is enabled for a specific item type, but is not enabled for that item type on the remote device, synchronization will not take place for that item.

The data item types that can be synchronized are:

Business cards

- Calendar items
- E-mail (with or without attachments-see below)
- Notes

Possible synchronization options for each of these data item types include:

- **Do Not Synchronize**: This item type will not be synchronized.
- **Synchronize Microsoft Outlook**: This item type will be synchronized with its matching entry in Microsoft Outlook, regardless of the PIM that contains this entry on the remote device. If a matching Outlook entry does not exist, it will be created.
- **Synchronize Outlook Express**: This item type will be synced with its matching entry in Express, regardless of the PIM that contains this entry on the remote device. If a matching Express entry does not exist, it will be created.
- **Synchronize Lotus Notes**: This item type will be synced with its matching entry in Lotus Notes, regardless of the PIM that contains this entry on the remote device. If a matching Notes entry does not exist, it will be created.
- **E-mail attachments**: The only option is to include or not to include attachments with e-mail that is sent or received on this computer using this service.

📝 **NOTE:** Not all choices are available for all items. For example, Note items can only be synchronized in Microsoft Outlook. Therefore Lotus Notes and Outlook Express are not displayed as options in the "Notes" item shortcut menu. Personal Information Managers that are not installed on this computer are not displayed as options in the shortcut menus.

Fax

The Bluetooth Fax service allows this computer to send a fax using a Fax/Modem that is physically connected to a remote device.

To send a Fax:

1. Open a connection to the Fax service that is provided by another Bluetooth device, using one of these techniques:
   - Notification area, at the far right of the taskbar, Bluetooth icon
   - From My Bluetooth Places
   - Using the Bluetooth Setup Wizard
2. Open or create the document to be faxed, and then select the Print, Send to Fax Recipient or a similar command that is available in most applications.

📝 **NOTE:** The fax application needs to use the Bluetooth Fax Modem.

To configure faxing

▲ On the Client Applications tab, select **Fax** and click the **Properties** button.
The Properties dialog allows you to configure the following:

- The application name: To change it, highlight the existing name and enter the new name.
- Secure connection: To enable secure connection, select the option box. To disable secure connection, clear the option box.

File transfer

The Bluetooth File Transfer application allows this computer to perform file operations on the Bluetooth exchange folder (and the folders and files it contains) of a remote device.

Copy To/From a Remote Device

1. In the Folders pane of Windows Explorer, from the Entire Bluetooth Neighborhood branch, select a device and expand that branch to view the File Transfer folder of the remote device.

   NOTE: If File Transfer is not available, the remote device is not configured to allow remote file operations.

2. Use drag-and-drop to copy any file or folder contained in the file transfer folder of the remote device to the desired folder on this computer.

You can also drag-and-drop files or folders from this computer to the file transfer folder (and its sub-folders) on the remote device.

Other File Operations

Right-click a file or folder in the remote device's file transfer folder for a context sensitive menu. All potential menu options may not be available at all times.

Potential menu options include:

- **Open**: Opens the selected file on this computer, using the default application for this type of file.
- **Print**: Sends the selected file to this computer's default printer.
- **Send To**
  - **3 ½ floppy (A)**: Sends the selected file to the 3 ½ inch diskette drive on this computer
  - **Bluetooth Exchange Folder**: Sends the selected file to the Bluetooth exchange folder on this computer.
- **Rename**: Applies only to empty folders; file names and the names of folders that contain objects cannot be changed using this technique.

To configure file transfer

▲ On the Client Applications tab, select **File Transfer** and click the **Properties** button.
The Properties dialog allows you to configure the following:

   • The application name: To change it, highlight the existing name and enter the new name.

   • Secure connection: To enable secure connection, select the option box. To disable secure connection, clear the option box.

PIM Item Transfer

The Bluetooth PIM Item Transfer application allows this computer to send and receive Personal Information Manager items to and from a remote Bluetooth device.

The supported items are:

• Business cards (*.vcf or *.vcd)

• Notes (*.vnt)

• E-mail (*.vmg)

• Calendar (*.vcs)

• Other Types (refer to "Configure Bluetooth" on page 12. Files can be sent by drag and drop on the OBEX service.)

Item transfer can be accomplished several ways:

• From Windows Explorer, My Bluetooth Places, highlight the PIM Item Transfer service on a remote device, and then, from the Bluetooth menu on the Windows menu bar, select the appropriate action.

• From within a supported Personal Information Manager:

   • Select one or more items and then, from the PIM's File menu, select Send to Bluetooth.

   • Drag-and-drop a supported item directly from your PIM to the PIM Item Transfer service icon of a remote device.

• For business cards:

   • From Windows Explorer, My Bluetooth Places, right-click the PIM Item Transfer service on a remote device and select the appropriate option.

   • In the Notification area, at the far right of the taskbar, right-click the Bluetooth icon, select Quick Connect then Business Card Exchange, select a device from the list, select the appropriate option from the shortcut menu, and then click OK.

Whether sent items are accepted by the remote device is determined by how the remote device's PIM Item Transfer service is configured.

Configure PIM Item Transfer

▲ On the Client Applications tab, select **PIM Item Transfer** and click the **Properties** button.
The Properties dialog allows you to configure the following:

   • The application name: To change it, highlight the existing name and enter the new name.

   • Secure connection: To enable secure connection, select the option box. To disable secure connection, clear the option box.

- How your business card is handled when it is requested by a remote device: The Send My Business Card options are:
  - Choose a business card as needed: Each time a remote device requests your business card you must select a card from your PIM. If you ignore the request the remote device will receive a time-out notice.
  - Always send the same business card: When this option is selected a dialog box is displayed that allows you to set a default business card that will be sent automatically when requests are received.
- Where to store received business cards. The Received Business Cards options are:
  - Microsoft Outlook
  - Outlook Express
  - Lotus Notes

📝 **NOTE:** The selected Received Business Cards option does not influence the settings on other PIM-related property pages. Example: even if the PIM Item Transfer service business card option on this computer is configured to Do Not Accept, the PIM Item Transfer application will still accept business cards that the application has specifically requested from its Receive or Exchange functions.

- E-mail attachments: The only option is to include or not to include attachments with e-mail that is sent or received on the computer using this service.

Dial-up Networking

The Bluetooth Dial-up Networking application allows this computer to use a modem that is physically connected to a remote device to access the Internet or log on to a remote network.

Open a connection to the Dial-up Networking service that is provided by another Bluetooth device using one of these techniques:

- Notification area, at the far right of the taskbar, Bluetooth icon
- From My Bluetooth Places
- Using the Bluetooth Setup Wizard

After the Bluetooth dial-up networking connection is established it can be used the same way as any other networking connection. For example, you can open a browser and explore the World Wide Web, if the remote computer has Internet access.

Configure Dial-up Networking

▲ On the Client Applications tab, select **Dial-up Networking** and click the **Properties** button.

The Properties dialog allows you to configure the following:

• The application name: To change it, highlight the existing name and enter the new name.

• Secure connection: To enable secure connection, select the option box. To disable secure connection, clear the option box.

• The Bluetooth virtual device (modem) to be used.

> 📝 **NOTE:** Unless you have a specific reason to do so, DO NOT CHANGE the default Bluetooth device or alter the device's configuration.

Network Access

The Bluetooth Network Access application makes it possible for this computer:

• To connect to a Local Area Network (LAN) using the physical connection on a remote Bluetooth device.

• To connect to an ad hoc network provided by a remote Bluetooth device. When joining an ad hoc network, it can take up to one minute after the connection is established to obtain an IP address and automatically self-configure.

The type of network connection that is available is determined by the configuration of the remote Bluetooth device.

Create a Network Access Connection

Establish a connection using one of these techniques:

• Notification area, at the far right of the taskbar, Bluetooth icon.

• From My Bluetooth Places.

• Using the Bluetooth Setup Wizard.

Configure

The General tab found under the Network Access tab of the Client Applications tab of the Bluetooth Configuration Panel provides options to configure:

• The application name: To change it, highlight the existing name and enter the new name.

• Secure connection: To enable secure connection, select the option box. To disable secure connection, clear the option box.

Bluetooth Serial Port

The Bluetooth Serial Port application allows this computer to establish a wireless serial connection with a remote Bluetooth device.

The applications on both this computer and the remote device must be configured to send and receive data to and from the respective communications port (COM port) assigned to the Bluetooth serial port. The wireless serial connection may then be used by the applications as though a physical serial cable connected the devices.

Create a Bluetooth Serial Port Connection

Establish a connection using one of these techniques:

- Notification area, at the far right of the taskbar, Bluetooth icon
- From My Bluetooth Places
- Using the Bluetooth Setup Wizard

Close a Bluetooth Serial Port Connection

If the connection was established from the Bluetooth icon in the Notification area, at the far right of the taskbar; click the Bluetooth icon, select Quick Connect, Bluetooth Serial Port and then select the device that is providing the service (active connections have a checkmark in front of them).

or

No matter how the connection was created, In My Bluetooth Places, right-click the service name and select Disconnect.

Configure

The General tab under the Bluetooth Serial Port tab of the Client Applications tab of the Bluetooth Configuration Panel provides options to configure:

- The application name: To change it, highlight the existing name and enter the new name.
- Secure connection: To enable secure connection, select the option box. To disable secure connection, clear the option box.
- The communications port (COM port) to be used.

  📝 **NOTE:** Unless you have a specific reason to do so, DO NOT CHANGE the default COM Port setting.

Bluetooth services

This section describes the Bluetooth services and configuration.

Access the services configuration

All of the built-in Bluetooth services allow you to rename the service and/or require a secure connection when using the application.

1. Open the configuration panel using one of these methods.
   - In the Notification area, at the far right of the taskbar, right-click the Bluetooth icon and select **Advanced Configuration** from the shortcut menu or
   - From Windows Control Panel, select **Bluetooth Configuration**.
2. In the Bluetooth configuration panel, **Local Services** tab, highlight the service to be configured, and then click **Properties** (or double-click the service).

Common Configuration Settings

These properties can be set individually for each Bluetooth service:

- Service Name: The default name of each service can be changed.
- Secure Connection: Requires that remote devices provide proof of identity and that all data be encrypted.
- Startup Automatically: Starts the service automatically when Bluetooth is started.
- Notifications: Provides visual and/or audio notification that a remote device is attempting to connect (or has connected) to a service on this computer.

Notifications

There are three types of notification:

Authentication request, also called a PIN code request: This notification is displayed automatically in a balloon over the Notification area, at the far right of the taskbar if a Personal Identification Code is required before a connection can proceed. An audio file can also be associated with the notification.

- Authorization request, also called a connection request: This type of notification can be visual, audio, or both. It notifies you of attempts to access a Bluetooth service on this computer; the connection will not proceed until you click the balloon that is displayed over the Notification area, at the far right of the taskbar. If the notification balloon is ignored, the connection request will time out and fail.
- Notification only: This type of notification does not affect access in any way; it is solely for information purposes to let you know that a connection has been established.

Example: Both Authentication and Authorization request notifications are controlled by whether Secure Connection is enabled for an individual service. An example of how notifications might work when a remote device attempts to access a service on this computer, if all notifications are enabled:

- Authentication: A balloon notification (audio optional) prompts you for a PIN code. If the PIN code does not match the code entered on the remote device, the connection will not be allowed. After the remote device has been authenticated this notification will not appear again, unless the paired relationship is broken. If the paired relationship is broken, the devices must re-pair.
- Authorization: A balloon notification is displayed and/or a sound file provides audio notification that a remote device is attempting to access a Bluetooth service on this computer. Click the balloon to proceed. A dialog box prompts you to enable the connection only once, or to allow this device to use the service every time.
- After a connection has been authorized, an additional visual and/or audio notification may be displayed (if enabled). This notification is for information only to inform the operator that a connection has been established.

> **NOTE:** After two devices are paired, the authentication notification will no longer be displayed when a connection is attempted. If Always allow… is enabled during the authorization process, the authorization notification will not be displayed on future connection attempts. Connection notification only happens if it has been enabled on the Notifications tab of the individual service being accessed.

Service Access Notification

Notifications lets you associate a sound (Windows *.wav file) and/or a visual indication with access attempts by remote devices.

A different notification sound can be associated with each local Bluetooth service.

Associate a Sound with Service Access

From the Bluetooth Configuration Panel, Local Services tab:

1. Double-click a service name and then select the Notifications tab.
2. Select the options you want; both visual and sound notifications may be selected for a single event.
3. Choose a sound; click the Browse button and navigate to the sound file (*.wav) to be used for notification. To preview the sound file, click the play button.
4. Click OK to close the service's property dialog box.

Audio Gateway

The Bluetooth Audio Gateway service enables the computer to use the microphone and speakers on a remote Bluetooth device as the input and output devices for the computer.

For example, if this computer has voice recognition capabilities, a Bluetooth headset might be used as the audio input device.

Hardware Requirements

• The Bluetooth hardware on this computer and on the remote device must support audio.
• The remote device handles both audio input and output for this computer; therefore, this computer does not require a sound card, microphone, or speakers.

Configure the Audio Gateway Service

From the Notification area, at the far right of the taskbar, right-click the Bluetooth icon, select Advanced Configuration then Local Services, and then double-click the Audio Gateway service.

Set the common configuration properties of the service, and then click OK.

Bluetooth Image Transfer

The Bluetooth image transfer service allows this computer to accept images from remote devices that support Bluetooth image transfer.

The supported image formats are:

• BMP
• GIF
• PNG
• JPG

Received images are stored in the Bluetooth exchange folder.

Configure the Bluetooth Imaging Service

From the Windows system tray, right-click the Bluetooth icon, select Advanced Configuration then Local Services, and then double-click the Bluetooth Imaging service.

Set the common configuration properties of the service, and then click OK.

Bluetooth Serial Port

The Bluetooth Serial Port service enables a remote Bluetooth device to establish a wireless serial connection with this computer. The wireless serial connection may be used by applications as though a physical serial cable connected the devices.

To establish a Bluetooth Serial Port connection:

The connection must be initiated from the remote device by the Bluetooth Serial Port application.

Determine the communications port being used by this computer for the Bluetooth Serial Port:

▲ In the Notification area, at the far right of the taskbar, right-click the Bluetooth icon, select Advanced Configuration, and then select the Local Services tab. The COM port assigned to this service is the last item in the Bluetooth Serial Port service row. Configure the application on this computer that will use this service to send its data to this COM.

Add or delete a Bluetooth serial port

The Bluetooth Serial Port service has one pre-configured Bluetooth Serial Port, but additional Bluetooth Serial Ports can be added as needed.

To add a port:

1. From the Bluetooth Configuration Panel, Local Services tab, click Add Serial Service.
2. In the properties dialog box, modify the properties.
   - Enter a unique name (fewer than 99 alphanumeric characters).
   - Select secure connection.
   - Select Startup Automatically.
   - From the COM Port shortcut menu select a communications port that is not assigned to any other service.
3. Click OK.

To remove a Bluetooth Serial Port:

▲ From the Bluetooth Configuration Panel, Local Services tab, select the port to be removed and then click Delete.

NOTE: The Delete button is only available when a Bluetooth Serial Port is selected.

Dial-up Networking Service

The Bluetooth Dial-up Networking service makes it possible for a remote Bluetooth device to use a modem that is physically connected to this computer. The remote device can then access the Internet or log on to a remote network.

Configure the Dial-up Networking Service

From the Notification area, at the far right of the taskbar, right-click the Bluetooth icon, select Advanced Configuration then Local Services, and then double-click the Dial-up Networking service.

- Select the physical modem to be used from the Modems - shortcut menu.
- Set the common configuration properties of the service, and then click OK.

Fax Service

The Fax service allows a remote Bluetooth device to send a Fax via a modem that is physically attached to this computer.

Configure the Fax Service

1. From the Notification area, at the far right of the taskbar, right-click the Bluetooth icon, select Advanced Configuration then Local Services, and then double-click the Fax service.
2. Select the physical modem to be used from the Modems - shortcut menu.
3. Set the common configuration properties of the service, and then click OK.

File Transfer Service

The File Transfer service allows this computer to perform file operations on the Bluetooth exchange folder (and the folders and files it contains) of a remote device.

To Use the File Transfer Service

1. Right-click the Bluetooth icon and select Explore My Bluetooth Places.
2. Configure Windows Explorer so that the Folders pane is visible (Select View then Explorer Bar then Folders).
3. In the Folders pane, select Entire Bluetooth Neighborhood.
4. On the menu bar, select Bluetooth then Search For Devices.
5. In the Folders pane, expand Entire Bluetooth Neighborhood to show the devices in the vicinity.
6. Select a device and expand that branch to view the Bluetooth exchange folder of the remote device.

NOTE: If Public Folder is not available, the remote device is not configured to allow remote file operations.

Use drag-and-drop to copy any file or folder contained in the Public Folder of the remote device to a folder on this computer.

You can also drag-and-drop files or folders from this computer to the Public Folder (and its sub-folders) of the remote device.

Other file operations - right-click a file or folder in the remote device's Public Folder for a context sensitive menu. All potential menu options may not be available at all times.

Potential menu options include:

- Open: Opens the selected file on this computer, using the default application for this type of file.
- Print: Sends the selected file to this computer's default printer.
- Send To
  - 3 ½ floppy (A) - sends the selected file to the 3 ½ inch floppy drive on this computer
  - Public Folder on My Device: Sends the selected file to the Public Folder on this computer.
- Rename: Applies only to empty folders; file names and the names of folders that contain objects cannot be changed using this technique.
- Cut, Copy, Paste, Delete, Refresh, View & New - standard Windows functions.

Headset Service

The Bluetooth Headset Service allows this computer to provide audio input/output for remote Bluetooth devices.

Example: if the remote device is a Bluetooth telephone, this computer's microphone and speakers can be used as speakerphone input and output for that device.

Hardware Requirements

- This computer must have a sound card, microphone, and speakers installed.
- The Bluetooth hardware on this computer and on the remote device must support audio.

Configure the Headset Service

1. From the Notification area, at the far right of the taskbar, right-click the Bluetooth icon, select Advanced Configuration then Local Services, and then double-click the Headset service.
2. Set the common configuration properties of the service, and then click OK.

Usage Example with a Bluetooth Telephone

1. From the Bluetooth phone, search for devices that offer the Headset Service, select the Headset Service on this computer, and then select Connect.

   ☼ **TIP:** Individual Bluetooth phone manufacturers may use different terminology to describe the Headset Service, but the word audio and/or headset should be in the description - refer to the documentation included with the Bluetooth phone for assistance.

   If the Headset Service has Secure Connection enabled, a PIN code and Authorization will be required to complete the connection.

When the phone successfully connects to the Headset Service:

- In the Notification area, at the far right of the taskbar, the Bluetooth icon will be a blue field with a green insert (if another Bluetooth connection existed before this connection was established, the icon would have already been this color).
- A notification balloon will appear briefly above the Bluetooth icon with a message similar to: Bluetooth Connection Successful Bluetooth device My Bluetooth Cell Phone is connected to the Headset service on this computer

The Headset Service now monitors the phone and displays a notification balloon over the Bluetooth icon in the Notification area, at the far right of the taskbar when an incoming call is detected.

2. Click the balloon to acknowledge the notification, and then, in the Incoming Call dialog box, click the Accept button to accept the call.

The audio signal from the phone is re-routed to the audio output device (speakers or earphones) on the computer, and the microphone on the computer provides the audio input for the phone.

3. To reject the incoming call, when the Incoming Call dialog box is displayed, click the Reject button.

Network Access

The Bluetooth Network Access service enables a remote Bluetooth device to access a Local Area Network that is physically attached to this computer or allows a remote device to become part of an ad hoc network provided by this computer.

After this computer has been configured to provide the Network Access service to other Bluetooth devices, it will not be able to use the Bluetooth Network Access service provided by another Bluetooth device without being re-configured. In other words, this computer cannot be both a Bluetooth Network Access server and a Bluetooth Network Access client at the same time.

Setup for Windows 2000 and Windows XP

TIP: If Internet Connection sharing was previously enabled (before BTW was installed) it must be disabled and then re-enabled before the Bluetooth network adapter can use it.

Before you begin, verify that the:

Bluetooth software is installed and enabled

Bluetooth device is turned on

Server has access to the Local Area Network (LAN). If the LAN provides Internet access, the connection can be verified by using the server's browser to connect to the Internet through the LAN.

1. Configure Bluetooth: Right-click the Bluetooth icon in the notification area, select Advanced Configuration, and then
   a. From the Local Services tab, select Network Access, and then click Properties.
   b. From the General tab, in the Select the type of service drop-down list, select Allow other devices to access the Internet/LAN via this computer, and then in the Connection Sharing section, select Configure Connection Sharing to display
      • Windows XP: The Network Connections window
      • Windows 2000: The Network and Dial-up Connections window
2. Configure Windows
   a. Right-click Local Area Connection, select Properties, and then
      • Windows XP: From the Advanced tab, in the Internet Connection Sharing section, select Allow other network users to connect through this computer's Internet connection. Then select Bluetooth Connection in the Home Networking drop-down list, if available. (The Home Networking drop-down list is not available on all versions of Windows XP.)
      • Windows 2000: From the Sharing tab, in the Internet Connection Sharing section, select Enable Internet Connection Sharing for this connection.
   b. Click OK to close the window.
3. Click OK in the Bluetooth Properties window to complete the configuration process.

> **NOTE:** If a firewall is in use, additional steps may be required before the browser can access the Internet. Contact your information technology department to determine if a firewall is in use or for assistance in configuring the Local Area Network settings for your proxy server.

Verify the Server Setup

> **TIP:** From a different Bluetooth computer:

1. Find the server: From My Bluetooth Places, in Entire Bluetooth Neighborhood, right-click in an empty area, and then select Refresh from the shortcut menu.
2. Display the services: Right-click the server and select Discover Available Services from the shortcut menu.
3. Connect to the server: Double-click the Network Access service and follow the on-screen instructions.
4. Open a browser and connect to the Internet to verify the connection.

PIM Item Transfer

The PIM Item Transfer service allows Personal Information Manager items to be transferred between this computer and a remote Bluetooth device.

Four data types are supported:

• Business Cards
• Calendar Items
• E-mail Messages
• Notes

Each data type can be saved in any of the supported and installed PIMs.

NOTE: PIMs that are not installed on this computer will not appear in the shortcut menus.

When the PIM that is associated with an individual data type is changed on the PIM Item Transfer page, that data type is also changed for the PIM Synchronization service.

Configure

In addition to the configuration options common to all Bluetooth services, this service also has settings that determine:

How business card requests are handled. The options are:

- Never send my business card: Ignore the request
- Choose a business card as needed: When prompted, select a business card to be sent to the requester.
- Always send the same business card: When a request is received, always send the same business card. When this option is selected, a dialog box prompts you to select an installed Personal Information Manager (if more than one is installed on this computer) and an existing business card.
- Previously sent business cards - after a card is selected using the Always send the same business card option, that card will be added to the shortcut menu as an option.

  NOTE: Previously sent business card additions to the menu are limited to ten, after which the oldest contact will be replaced.

- Where to store inbound data items, on an individual basis. Options include (not all options apply to all items):
  - Do Not Accept.
  - Any of the installed PIMs on this computer.
  - Save to Folder.
- The Bluetooth exchange folder location: The directory on this computer where inbound items that are not to be saved in a PIM will be kept.

  TIP: This is also the folder where the File Transfer service stores inbound items. If this folder is reconfigured here, it will also be reconfigured in that service automatically.

- Whether to send/receive attachments with e-mail.

Close a PIM Item Transfer Connection

PIM Item Transfer connections close automatically when the data transfer is complete.

Default Business Card Selection

When the Always send the same business card option is selected, a dialog box prompts you to select a default business card.

The first time the dialog box is displayed it provides a way to choose the Personal Information Manager that stores the default business card. Click the down-arrow in the PIM shortcut menu and select the PIM to be used.

On subsequent appearances of this dialog box, the PIM selection option is not available.

Change the Selected PIM

On the PIM Item Transfer properties page, Received items section, there is a Business Cards shortcut menu. When a PIM was selected during initial setup the selected item in this menu was set to the same PIM. To change the PIM used for the default business card, open this shortcut menu and select a new PIM.

📝 **NOTE:** A new default business card must be selected from the database of the newly selected PIM.

Choose a Default Business Card

1. In the Select a Bluetooth Business Card dialog box that is displayed when Always send the same business card is selected, select the card.

   📝 **NOTE:** Move your mouse over a selected business card to display additional information about that contact.

2. Click OK to choose a selected business card and return to the PIM Item Transfer Properties page. The chosen contact is now displayed and selected in the Business card requests shortcut menu.

   📝 **NOTE:** In addition to the default menu options, the shortcut menu can hold up to ten contact names. If the Always send the same business card option is selected again, and a different contact is chosen, the properties page will display both contacts in the shortcut menu.

PIM Synchronization

The PIM Synchronization service can be used by a remote device to synchronize its Personal Information Manager (PIM) database with the PIM database of this computer.

Four data types are supported:

- Business cards
- Calendar items
- E-mail messages
- Notes

Whether an individual item is accepted and where it is stored, after it is accepted, is configured in the PIM Item Transfer service. If that service is not configured to store a particular data type in Outlook, then that data type cannot be synchronized.

📝 **NOTE:** Data types that will be synchronized must be saved in the PIM database (this is configured in the PIM Item Transfer service); otherwise, that data type will not be available for selection (it will be dimmed) in the PIM Synchronization configuration settings.

Microsoft Outlook permits duplicate entries, so all duplicates may not be exchanged in the synchronization process.

📝 **NOTE:** Only Outlook's default contacts folder is synchronized. Items in sub-folders are not synchronized. Items that are moved from the default folder to a sub-folder will not be displayed the next time synchronization takes place.

Hardware settings

The Hardware tab of the Bluetooth Configuration Panel provides basic information about the Bluetooth hardware installed on this computer and access to the Advanced Settings dialog box, if required:

- Devices:
    - Name: The name of the device, e.g., My Bluetooth Device.
    - Type: The type of device, e.g., USB.
- Device Properties:
    - Device status: Indicates that the device is operating properly or that there is a problem/conflict.
    - Manufacturer: The name of the company that manufactured the device selected in the Devices section of this dialog box.
    - Firmware Revision: The manufacturer's firmware version number.
    - Device Address: The Bluetooth Device Address (BDA or BD_Addr) assigned to this device when it was manufactured.
    - HCI Version: The version number of the Bluetooth Specification that the Host Controller Interface complies with.
    - HCI Revision: The revision number of the Bluetooth Specification that the Host Controller Interface complies with.
    - LMP Version: The version number of the Bluetooth Specification that the Link Manager Protocol complies with.
    - LMP Sub Version: The sub-version number of the Bluetooth Specification that the Link Manager Protocol complies with.
- Retest Button: Queries the hardware device selected in Devices, and updates the data displayed in Device Properties.
- Advanced button: Displays the Advanced Settings dialog box, which allows you to select the country code and transmission power settings. This option is not available on all systems.

Advanced Settings

When available, this dialog box is reached from the Hardware tab of the Bluetooth Configuration Panel.

> **NOTE:** Depending on the country/region in which the hardware is sold and/or in which it will be used, the Advanced button may not be present.

From this dialog box you can set the:

- Country Code
    - North America, Europe (except France), and Japan
    - France and China
- Maximum Transmission Power
    - High
    - Medium
    - Low

Click Apply to implement the changes. A dialog box is displayed with notification that the Bluetooth device attached to this computer must be reset before the change(s) will take effect.

Click Yes to reset the Bluetooth device now. All open Bluetooth connections will be closed.

Click No to save the changes. The changes will be applied the next time the Bluetooth device is reset or restarted.

Accessibility settings

The Accessibility tab of the Bluetooth Configuration Panel lets you specify whether remote devices may access this computer, which remote devices have access, and whether an audio warning is played when a Personal Identification Number (PIN code) is required.

Allow Other Devices to Discover this Computer

Select Let other Bluetooth devices discover this computer to permit remote Bluetooth devices to find and report this computer. If Allow No devices (below) is selected, this option is not available.

Control the Types of Devices that are Allowed to Connect to this Computer

From the Devices allowed to connect to this computer shortcut menu, select:

• No devices: No remote devices are permitted to initiate a connection with this computer. However, this computer can still initiate connections with remote Bluetooth devices.
• All devices: All remote devices are permitted to connect to this computer. Connections are subject to additional security restrictions, such as authentication and authorization, which may be required by the individual services provided by this computer.
• Only devices listed below - only the listed devices are allowed to connect to this computer (see Accessibility, adding and deleting devices).

Choose an Audio Notification File

When Secure Connection is enabled for any of the Bluetooth services on this computer a PIN code is required before that service can be accessed. To chose a notification sound that will play when a remote device attempts to access a service that requires a secure connection, click Select audio file and select the sound (*.wav) file to be played.

Limit Access to this Computer to Specific Remote Devices

From the Bluetooth Configuration Panel, Accessibility tab, in the Allow menu, select Only devices listed below.

To add a device to the list:

1. Click Add Device
2. In the Devices with access dialog box select the desired devices, and then click OK.

📝 **NOTE:** Multiple devices may be selected using SHIFT + click and/or CTRL + click.

To delete a device from the list:

▲ In the list of devices allowed to access this computer, select the device to be removed from the list, and then click Delete.

Discovery settings

The settings on the Discovery tab of the Bluetooth Configuration Panel determine whether this computer looks for other Bluetooth devices automatically, how often it looks for devices, and what type of devices it looks for.

Periodic Search for Devices

When Look for other Bluetooth devices is selected, Bluetooth automatically searches for devices every X minutes. X is a whole number between 1 and 60. To change the time between automatic inquiries, highlight the existing time and enter the new time.

NOTE: When My Bluetooth Places is first opened, it performs an initial automatic search for devices even if Look for other Bluetooth devices is not enabled.

Determine the Devices that Will be Reported

Bluetooth can screen out devices that you do not need access to.

The options are:

- Report all Bluetooth devices
- Report only selected Bluetooth devices (see Discovery, Adding Specific Devices and Discovery, Deleting Specific Devices).

Select the preferred option from the drop-down list.

Discover Specific Devices

The type of devices that this computer looks for and reports when it is searching for other Bluetooth devices can be limited.

Bluetooth can report only specific devices, specific classes of device, or specific types of device within a class.

- Specific devices: An individual computer or Bluetooth cellular telephone are examples of specific devices.
- Specific class of device: Computer is an example of a class of devices.
- Specific type of device within a class: Laptop is an example of a specific type of device within the computer class of devices.

The devices to be discovered can be mixed and matched; you can discover one or more specific devices, classes of devices and types of devices within a class at the same time.

Remove a Device from the List of Devices to be Discovered

In the Bluetooth Configuration Panel, from the Discovery tab, select the device to be removed and click the Delete button.

NOTE: If Report only selected Bluetooth devices is not selected, the Delete button will not be available.

Temporarily Override the Discovery of Specific Devices

In the Bluetooth Configuration Panel, from the Discovery tab, select Report all Bluetooth devices. The specifically selected devices will be discovered along with all other devices.

To re-enable specific device discovery, re-select Report Only Selected Bluetooth Devices.

NOTE: When all devices are deleted, an error message will appear if Report all Bluetooth devices is not selected.

Security

Your Opal provides several ways to secure your wireless transmissions.

Authentication

Authentication is used to verify identity; it requires a passkey or link key from the remote device. When a remote device attempts access, a visual and/or audio warning notifies the local operator.

If the notification is ignored, access is denied after a preset time-out.

When devices are paired, those devices automatically exchange a link key and Authentication is carried out without operator intervention.

Authorization

Authorization is Yes-or-No security that requires operator intervention to avoid having the connection time out and fail. Authorization is enabled automatically when Secure Connection is enabled, but it can be turned off on a service-by-service basis for each remote device.

Authorization is limited to:

• Yes, you may connect (click the balloon to proceed).
• No, you may not connect (ignore the balloon prompt and the connection will fail).

When the connection is Authorized, a window is displayed with three Allow access options. This is only for FTP service.

• For the current task (default) (see note below)
• For the next… (select a time period from the drop-down list box)
    • 5 Minutes
    • 15 Minutes
    • 30 Minutes
    • 1 Hour
• Always allow this device to access my computer's (service name) service.

NOTE: Each file, whether sent as a group or individually, is treated as a separate task. When receiving multiple files, select a For the next...option to avoid having to Authorize each file as it is received.

To set Authorization for multiple local services for a single device:

> 📝 **NOTE:** The devices must be paired.

1. From My Bluetooth Places, right-click a paired device, select Properties, and then the Authorization tab.
2. Select the services in the list box for which Authorization will NOT be required, and then click OK.

Bluetooth device identity

Every Bluetooth device has a unique Bluetooth Device Address (BDA) assigned to it during the manufacturing process. This address cannot be changed.

The BDA is usually displayed in hexadecimal format; 00:D0:B7:03:2E:9F is a valid BDA.

Each Bluetooth device also has a configurable, user-friendly name to help distinguish it from other devices. The user-friendly name may be up to 99 alphanumeric characters in length and may contain spaces. My Personal Computer is a valid user-friendly name.

Encryption

Encrypting data translates it 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.

Link key

A link key is a unique, internally generated access code based on a passkey, the Bluetooth Device Address, and an internally generated random number. Link keys are generated automatically when devices are paired.

After a link key is generated, manual entry of the passkey is not required.

Pairing devices

Pairing allows you to avoid manually entering access information each time a connection is attempted. Paired devices share a unique link key, which they automatically exchange each time they connect.

Paired devices attempt to determine the feasibility of an operation before actually executing that operation.

In the following example of a feasibility check, Authorization, which requires the receiving device to approve the connection (even though the devices are paired), is enabled.

1. A file is selected and sent to a paired remote service.
2. Before actually sending the file, the sending device transparently queries the server.
3. The server transparently replies that it has a file of that name in the folder to which the sender is attempting to write.
4. The sending device displays a Confirm File Replace window, which the user must acknowledge before the connection can proceed.
5. The server displays an Authorization balloon over the notification area, which is located at the far right of the taskbar.

The server user must acknowledge the Authorization balloon or the connection will fail and the file will not be transferred.

If there are no duplicate files, the Authorization balloon is displayed on the server immediately.

To Pair with Another Device

1. If Secure Connection is enabled, the first time two devices attempt to connect, a prompt to pair the devices is displayed. Follow the on-screen instructions to successfully exchange a passkey and complete the pairing process.
2. To pair with a device manually: in the Folders pane of My Bluetooth Places, right-click a device, select Pair Device from the shortcut menu, and then follow the on-screen instruction.

To Enable or Disable Secure Connection

1. From the Bluetooth Configuration panel, select the Local Services or Client Applications tab.
2. Select or clear the Secure Connection option, and then click OK.

NOTE: When Secure Connection is enabled on either device, the connection cannot proceed until the devices are paired.

To Remove Pairing

In the Folders pane of My Bluetooth Places, right-click a paired device and select Unpair Device from the shortcut menu.

Passkey

An alphanumeric string up to 16 characters in length. Passkeys are also called Personal Identification Numbers, or PIN codes.

A passkey may be required if the Secure Connection option is enabled for a Bluetooth service or application.

Secure connection

A passkey or link key is required each time a connection is attempted.

All data exchanged over the Bluetooth connection is encrypted.

Authorization is also enabled by default when Secure Connection is enabled but Authorization can be disabled on a service-by-service basis for each remote device that is permitted to connect to this computer.

Security request dialog box

A Bluetooth passkey request and/or Bluetooth Authorization request balloon may appear over the Notification area, at the far right of the taskbar when a connection is attempted if Secure Connection is enabled.

Click the balloon to proceed.

3 Troubleshooting

> 💡 **TIP:** Many issues you do not find mentioned here may be resolved by unplugging the adapter, turning the printer or computer off, then on, and plugging the adapter back in.

Troubleshooting printing

Table 3-1 Bluetooth sending device cannot find printer

The Opal is not plugged into the printer or the printer is turned off.	1. Turn on the printer. 2. Plug the adapter into the camera/ Pictbridge/ host USB port on the printer. In many cases, this port will be on the front of the printer. 3. Verify that the LED on the Opal is blinking.
Accessibility is set to "Not Visible".	1. Select **Bluetooth** from the printer's menu. 2. Select **Accessibility**. 3. **Select Visible to All**.
Security level is set to "High".	1. Select **Bluetooth** from the printer's menu. 2. Select **Security Level**. 3. Select **Low**.
Printer is too far away.	Move closer to the printer until contact is established.
The Device Name has been changed.	If the printer's device name has changed, you must Discover the printer again to select the new name.

Table 3-2 No page came out or blank page is ejected

File type is not supported by the profile or the printer. For example, some profiles do not support gif, or you may have accidentally tried to send an audio file to your printer.	Verify that you are sending the correct file type to the printer.
Printer is out of range.	Move closer to the printer until contact is established.
Interference from a microwave or other device.	Try printing again after the other device is finished.
Too many active Bluetooth devices.	Only seven Bluetooth devices can be active at one time. You must turn something else off.
File is too large.	The file may be too large for the memory in your device. Modify the file to reduce its size.

Table 3-3 Print quality is poor

Photo was taken in low resolution.	Change the setting in your camera to take pictures with the highest quality. **NOTE:** VGA resolution (640 by 480) cameras may not produce a high-quality photo even at their highest resolution.
Print cartridge needs replacing.	Consult your printer documentation for information on checking and replacing print cartridges.
Plain paper is in the printer.	For the best print quality, use photo paper and a photo print cartridge. Consult your printer documentation for information.

Table 3-4 Photo printed with white borders

Bluetooth sending device does not support borderless printing.	Contact the device vendor or consult their website for the latest updates for the printing application.

Troubleshooting with computers

Table 3-5 Cannot connect to a paired device

Paired devices are always displayed in My Bluetooth Places, even if the remote device is out of range or not powered on.	Verify that the remote member of the pair is within radio range, and powered on, and then attempt the connection again.

Table 3-6 Cannot discover services on an unpaired remote

The remote device may not be powered on or may be out of range.	• Verify that the remote device is turned on. • Verify that the remote device is in Connectable mode (Accessibility tab of the Bluetooth Configuration Panel). • Perform a Search for Devices to verify that the device is within range.

Table 3-7 Dial-up networking service does not start

The Dial-up Networking service will not start unless a properly configured modem is attached to the server.	Verify that the modem is usable as a local device on the computer to which it is attached. • In the Bluetooth Configuration Panel, Local Services tab, double-click the Dial-up Networking service. • Click the down arrow in the Modem field and select the modem that will be used to dial out.

	• Click the OK button.
	• Click the OK button to close the Bluetooth Configuration Panel.

Table 3-8 How do I

Determine the Bluetooth device address (BDA) of my hardware device	In the Bluetooth Configuration Panel, on the Hardware tab, in the Devices section, select the device you want to determine the address of. In the Device Properties section of the dialog box, the fourth entry, Device Address, is the BDA of the selected Bluetooth device.
Determine the version of the host controller interface (HCI)	In the Bluetooth Configuration Panel, on the Hardware tab, in the Device Properties section, the fifth entry provides Bluetooth Specification compliance information for the Host Controller Interface.
	The sixth entry contains the Specification Revision information for the Host Controller Interface, if appropriate.
Determine the version of the link manager protocol (LMP)	In the Bluetooth Configuration Panel, on the Hardware tab, in the Device Properties section, the seventh entry provides Link Manager Protocol version number information.
	The eighth entry contains the Link Manager Protocol sub-version number information, if appropriate.
Find information about the Bluetooth hardware attached to my computer	In the Bluetooth Configuration Panel, select the Hardware tab.
Test a network access connection	• If the client is hardwired to the LAN, unplug the hardwired connection to ensure that the test checks the wireless connection rather than the hardwired connection.
	• If the server has access to the Internet, open a browser on the client and connect to the World Wide Web.
	• You may also Ping the server from the DOS prompt.

Table 3-9 Internet connection sharing does not work

This occurs because Internet Connection Sharing was enabled when Bluetooth was installed (this is a Microsoft Windows behavior and is considered proper operation).	To enable Internet Connection Sharing:
	• Disable Sharing for the Ethernet adapter
	   • Select Control Panel then Network and Dial-up Connections.
	   • Right-click Local Area Connection, select Properties, and then select the Sharing tab.
	   • Clear the check box for Enable Internet Connection Sharing for this connection, and then click OK.
	• Re-enable Sharing for the Ethernet adapter and select (check) the sharing box.
	
	If you are prompted to select an adapter, select Bluetooth network adapter. (This option is not displayed unless more than one adapter is available.)
	
	If prompted, restart the computer.

Table 3-10 Unknown port message when using a Bluetooth serial port

The Unknown Port error message usually means an attempt was made to connect a port that was in use. Additional Bluetooth Serial Ports can be added if they are required.	Either wait until the port is available or add additional ports.

4 Technical information

Technical specifications

General

- Bluetooth Specification 2.0 compliant
- Power Requirement: Provided by the host
- Power Consumption at 5V
  - 1mA at standby
  - 7mA at idle
  - 65mA (typical) at point-point operation
  - 75mA (max) at operation

Radio

- Frequency Range: 2.402 -2.480GHz
- Transmit Power (Tx): 2dBm (typical)
- Receive Sensitivity (Rx): Better than   -80dBm @ 0.1% BER
- Range: Up to 30M

Antenna

- Internal Antenna
- Peak Gain: +2dBi
- VSWR: <2.0 : 1
- Polarization: Linear

Temperature

- Operating temperature: -10° to 85°C
- Storage temperature: -40°C to 150°C

Interface

Standard USB male Type A connector

Profiles supported

- OBEX
- HCRP
- BIP
- SPP
- BPP

Limited warranty statement

HP product	Duration of limited warranty
HP Opal Bluetooth® printer and PC adapter	90 days

A. extent of limited warranty

Hewlett-Packard (HP) warrants to the end-user customer that the HP products specified above will be free from defects in materials and workmanship for the duration specified above, which duration begins on the date of purchase by the customer. Customer is responsible for maintaining proof of date of purchase.

B. limitations of warranty

No other express warranty is given. The replacement of a product is your exclusive remedy. ANY OTHER IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS IS LIMITED TO THE 90 DAYS DURATION OF THIS WRITTEN WARRANTY. Some states, provinces, or countries/regions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. IN NO EVENT SHALL HEWLETT-PACKARD COMPANY BE LIABLE FOR CONSEQUENTIAL DAMAGES. Some states, provinces, or countries/regions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. Products are sold on the basis of specification application at the time of manufacture. Hewlett-Packard shall have no obligation to modify or update products, once sold.

Customer care

For assistance, call 1-800-HP-INVENT (North America only) or go to the Customer Care website at **www.hp.com/support**.

Environmental product stewardship program

This section provides information on protecting the environment; ozone production; energy consumption; paper use; plastics; material safety data sheets; and recycling programs.

Protecting the environment

Hewlett-Packard is committed to providing quality products in an environmentally sound manner. This product has been designed with several attributes to minimize impacts on our environment.

For more information, visit HP's Commitment to the Environment website at:

www.hp.com/hpinfo/globalcitizenship/environment/index.html

Plastics

Plastic parts over 25 grams are marked according to international standards that enhance the ability to identify plastics for recycling purposes at the end of the product's life.

Material safety data sheets

Material safety data sheets (MSDS) can be obtained from the HP website at:

www.hp.com/go/msds

Customers without Internet access should contact their local HP Customer Care Center.

Recycling program

HP offers an increasing number of product return and recycling programs in many countries, as well as partnering with some of the largest electronic recycling centers throughout the world. HP also conserves resources by refurbishing and reselling some of its most popular products. For more

information regarding return and recycling of HP products generally, please visit: http://www.hp.com/hpinfo/globalcitizenship/environment/recycle/index.html.

Disposal of waste equipment by users in private households in the European Union

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Regulatory Information

The HP Opal Bluetooth Adapter meets product requirements from regulatory agencies in your country/region.

FCC Part 15 Radio Frequency Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

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

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

CAUTION: Pursuant to Part 15.21 of the FCC Rules for intentional or unintentional radiators, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Regulatory model identification number

For regulatory identification purposes, your product is assigned a Regulatory Model Number. The Regulatory Model Number for your product is SDCAB-0705. This regulatory number should not be confused with the marketing name (HP Opal Bluetooth Adapter) or product number (BT500).

Industry Canada ICES-003 Emission Compliance Statement

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

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

Canadian Radio Standards

This device meets the requirements of the Canadian Radio Standards Specifications RSS-210.

Cet appareil respecte toutes les exigences du cahier des charges sur les normes radioélectriques CNR-210 du Canada.

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 this device.

L ' utilisation de ce dispositif est autorisée seulement aux conditions suivantes : (1) il ne doit pas produire de brouillage et (2) l' utilisateur du dispositif doit étre prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

Pour réduire les possibles interférences radio pour les autres utilisateurs, le type d'antenne et sa gaine doivent être choisis de sorte que la puissance isotrope rayonnée équivalente (PIRE) n'excède pas ce qui est nécessaire pour une communication réussie.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Pour empecher que cet appareil cause du brouillage au service faisant l'objet d'une licence, il doit etre utilize a l'interieur et devrait etre place loin des fenetres afin de Fournier un ecram de blindage maximal. Si le matriel (ou son antenne d'emission) est installe a l'exterieur, il doit faire l'objet d'une licence.

Exposure to Radio Frequency Radiation

The radiated output power of the Opal Bluetooth wireless radio Class 2 is far below the FCC, Industry Canada and European Union radio frequency exposure limits. Nevertheless, the wireless radio shall be used in such a manner that the potential for human contact during normal operation is minimized. The internal wireless radio operates within guidelines found in radio frequency safety standards and recommendations, which reflect the consensus of the scientific community.

The level of emitted energy emitted is far less than the electromagnetic energy emitted by wireless devices such as mobile phones. However, the use of wireless radios may be restricted in some situations or environments, such as aboard airplanes. If you are unsure of restrictions, you are encouraged to ask for authorization before turning on the wireless radio. The FCC, Industry Canada and European Union have set a general guideline of 20 cm (8 inches) from the body when wireless devices are on.

Canada: The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website www.hc-sc.gc.ca/rpb.

Notice to users in the European Economic Area

Hereby, Hewlett-Packard Co., declares that this equipment complies with the essential requirements and other relevant provisions of Directive 1999/5/EC.

This equipment is marked with the $C\,E$ symbol and can be used throughout the European community.

This indicates compliance with the R&TTE Directive 1999/5/E and meets the relevant parts of following technical specifications.

European Radio Approval Information

The Opal is a low power, wireless communication devices, operating in the 2.4 GHz band, intended for home or office use. The power output of this device is well below the RF exposure limits as set by the European Commission through the R&TTE directive.

The Opal can be operated in the following European Union and European Economic Area countries:

Austria, Belgium Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Notice for France and Italy for use of 2.4 GHz wireless communication:

Italy

E'necessaria una concessione ministeriale anche per l'uso del prodotto. Verifici per favore con il proprio distributore o direttamente presso la Direzione Generale Pianificazione e Gestione Frequenze.

License required for use. Verify with your dealer or directly with General Direction for Frequency Planning and Management (Direzione Generale Pianificazione e Gestione Frequenze).

France

L'utilisation de cet equipement (2.4GHz Wireless LAN) est soumise à certaines restrictions : Cet équipement peut être utilisé à l'intérieur d'un bâtiment en utilisant toutes les fréquences de 2400 à 2483.5MHz. Pour une utilisation en environnement extérieur, vous devez utiliser les fréquences comprises entre 2454-2483.5MHz. Pour les dernières restrictions, voir http://www.art-telecom.fr.
**********English missing*********

> 📝 **NOTE:** Indoor use: maximum power (EIRP*) of 100 mW for the entire 2400-2483.5 MHz frequency band
>
> Outdoor use: maximum power (EIRP*) of 100 mW for the 2400-2454 MHz band and with maximum power (EIRP*) of 10 mW for the 2454-2483 MHz band

Notice to users in Argentina

CNC xxxxxxx

Notice to users in Brazil

Notice to users in Indonesia

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Notice to users in Japan

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取り扱い説明書に従って正しい取り扱いをして下さい。

Notice to users in Korea

당해 무선설비는 운용 중 전파혼선 가능성이 있음

Notice to users in Mexico

SCT xxxxxxxxx–xxx

Notice to users in Pakistan

PTA
Approved
Model

Taiwan DGT warning statement

低功率電波輻性電機管理辦法
第十四條經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
第十七條低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。
前項合法通信，指依電信規定作業之無線電信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。
在5.25G ~5.35G頻帶內操作之無線資訊傳輸設備僅適於室內使用

Notice to users in Taiwan

CCXXxxYYyyyZzW

Notice to users in Russia

CCC
Минсвязи России

Notice to users in South Africa

TA-2005/183
I C A S A
APPROVED
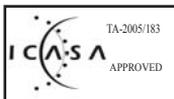
Declaration of conformity (European Economic Area)

DECLARATION OF CONFORMITY
according to ISO/IEC Guide 22 and EN45014

Manufacturer's Name:	Hewlett-Packard Company
Manufacturer's Address:	8000 Foothills Blvd. Roseville, CA 95747-5677 U.S.A.

declares, that the product

Product Name:	HP Bluetooth Wireless Printer Adapter (HP bt450)
Model Number:	Q6398A
Regulatory Model:[2]	RSVLD-0502
Product Options:	All

conforms to the following Product Specifications:

Safety: IEC 60950-1: 2001 / EN 60950-1: 2001
IEC 60825-1: 1993 +A1:1997 +A2:2001 / EN 60825-1: 1994 +A11:1996
+A2:2001 Class 1 (Laser/LED)
GB 4943: 1995

Health: EU:1999/519/EC

EMC: EN 55022: 1998 Class B[1]
FCC Title 47 CFR, Part 15 Class B
ICES-003 Issue 4: 2004
EN 55024: 1998 +A1 2001 + A2: 2003
EN 61000-3-2: 2000
EN 61000-3-3 +A1: 2001
GB 9254: 1998

Radio: EN 301 489-1: 2002 / EN 301 489-17: 2002
EN 300 328-2: 2001

Supplementary Information:
The product herewith complies with the requirements of the R&TTE Directive
1999/5/EC, Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC and
carries the CE marking accordingly.

1) This product was tested in a typical configuration with Hewlett-Packard Co.
products.
2) For regulatory purposes this product is assigned a regulatory model number. This
number should not be confused with the product name or product number(s).

Roseville, April, 6, 2005   Guy Goodlett, Product Regulations
Manager

European contact for regulatory topics only: Hewlett-Packard GmbH, HQ-TRE, Herrenberger Straße 140, 71034 Böblingen,
Germany
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(650)857-1501

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