Chapter 3: BlueTooth Operation

3.1 Start BlueTooth

1. Insert the USB Adapter to your computer.
2. Start BlueSoleil.
3. The plug in and pull out of the USB Adapter can be detected by BlueSoleil. You can start BlueSoleil first and then plug in a USB Adapter.

3.1.1 Establish Bluetooth Connection

A connection is normally initiated from the client.

- On the server side, start the service.
- On the client side, initiate the connection.

Start Service on Server

If BlueSoleil provides service, please start the service:

1. Change to Service Window.
2. Right-click the service icon, select Start Service on the pop-up menu.

Initiate Connection on Client

In Main Window:

1. Single click my device, the center ball, to search the Bluetooth devices in range.
2. Search the selected Bluetooth device service by double-clicking the device icon. Service button on the top of the BlueSoleil Main Window will be highlighted if the service is supported by the device. Enter the same Bluetooth passkey on both devices if necessary to pair the two devices.
3. Connect.
4. Single-click the highlighted service button to establish the connection.

3.1.2 Terminate Bluetooth Connection

After a connection is established between a client and a server, users can terminate it whenever he/she wants to. However, if the connection is terminated by force while data are being transmitted, some useful data may be lost. Please pay attention to this case.

Terminate Connection on the Server

The way of terminating the connection on the server is to stop the service. This may lead to losing data if there is data transmission going on. Accordingly, it is recommended to terminate the connection on the client.

There are two ways to stop the service:

1. Select a started service and right click the service icon on the Service Window. On the popup menu, select Stop Service. The service icon turns white, and the service is stopped.
2. Select a started service. Select menu My Services | Stop Service. The service icon turns white, and the service is stopped.

Note: The status of the active service can also be obtained by selecting the menu item Status... from the context menu of the service icon.

Terminate Connection on the Client

On the Main Window, select the remote device first and right click the service icon. On the popup menu, select Disconnect.

Note: For more details on how to disconnect a connection on the client, please refer to ***Connect/Disconnect***.

3.2 Bluetooth Security

To modify your connection's security settings, click **My Bluetooth | Securit**y.

BlueSoleil offers three security levels:

- Low (Security Mode 1, No security)
  No security procedure is needed for connections.

- Medium (Security Mode 2, Service level enforced security)
  Authentication or Authorization is requested when a specific service is accessed by other Bluetooth enabled devices. If two devices are connecting for the first time, or if two devices do not have a trusted relationship, then the same passkey must be provided on both sides to complete the Authentication. This mode allows you to assign different access rights for each service supported by the server.

- High (Security Mode 3, Link level enforced security)
  If either of two devices is in Security Mode 3, Authentication is requested whenever a connection is initiated between two Bluetooth enabled devices. The passkey must be provided on both sides to complete Authentication.

Note: In Security Mode 2, the user can add each authenticated device into a trusted device list to expedite future connections.

3.3 Personal Area Networking

The Bluetooth Personal Area Networking (PAN) Profile enables PCs, laptops, PDAs, and other Bluetooth enabled devices to form either of two kinds of PAN networks. In a Group ad-hoc Network (GN), which functions as an isolated network, multiple PAN Users (PANUs) are linked together via a GN controller. Alternatively, a PAN can consist of multiple PANUs linked to a Network Access Point (NAP), which provides access to external Local Area Network (LAN) infrastructure. BlueSoleil supports all three of these device roles — GN (controller), PANU, and NAP.

Typical Usage

- Group Ad-hoc Network (Peer-to- peer networking)

One device acts as the GN, and others function as PANU devices. These computers can visit each other or use an application based on TCP/IP.

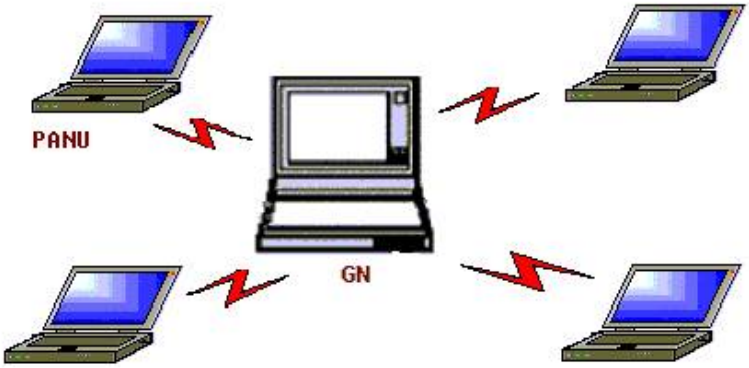

Figure 3-1: Group Ad-hoc Network

- Access a LAN via a Network Access Point (or a Computer Acting as a NAP)

After the computers connect to the NAP, they become members of the LAN and can directly communicate with other computers in the LAN.

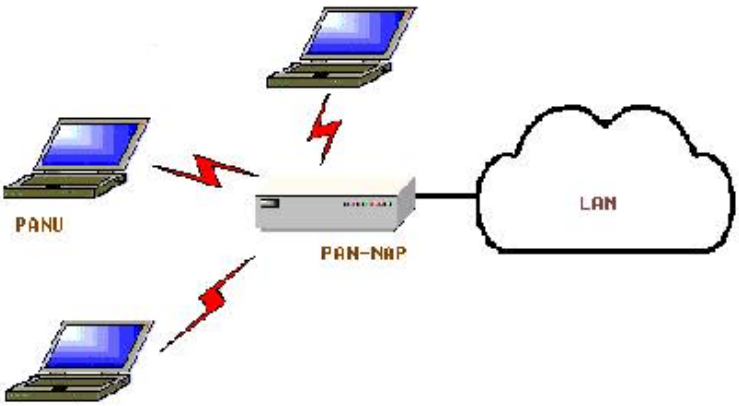

Figure 3-2: Access LAN via PAN-NAP

Connecting the PAN User (PANU)

1. Connect to the server's Personal Area Network service.
2. Wait for a few seconds for BlueSoleil to obtain and display your computer's IP address.

Configuring the NAP/GN

Click **Bluetooth Service | Properties** and click on the **Personal Area Network** tab.

- **Scenario 1: Group Ad-hoc Network**

  Select Set up Bluetooth Personal Area Network and Enable DHCP Server (Figure 3-3).

  A DHCP server will be started on the GN. The PANU can obtain an IP address

automatically from this DHCP server if the PANU does not set static IP address for the BT Network Adapter.

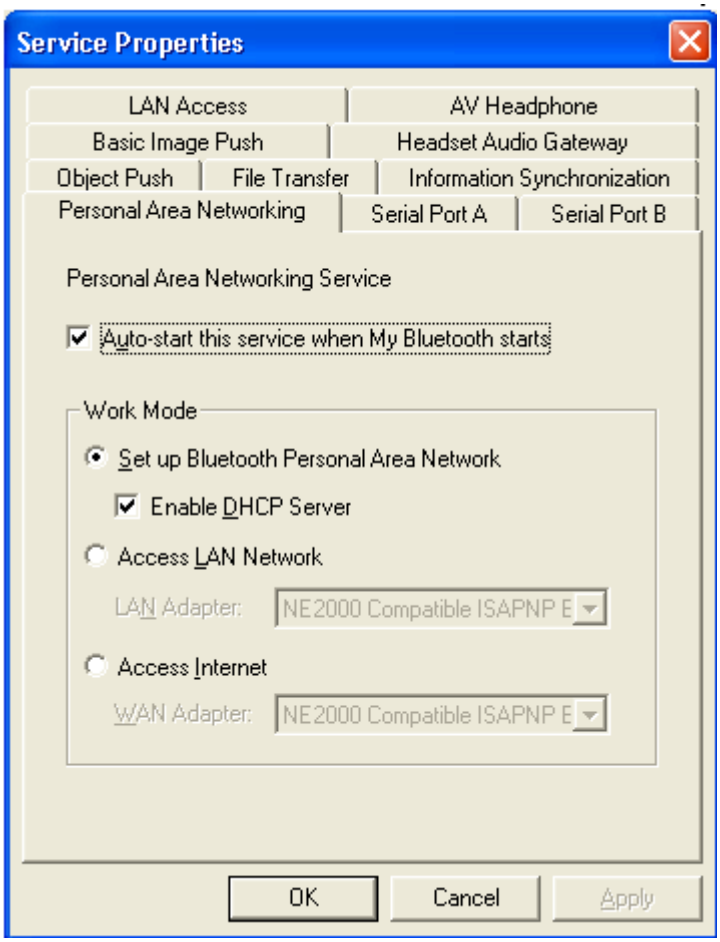

Figure 3-3: Set up Bluetooth Personal Area Network

- **Scenario 2 : Access LAN via PAN-NAP**

  Select Access LAN Network and select a physical network adapter, through which the NAP connects to a LAN, as the LAN Adapter (Figure 3-4).

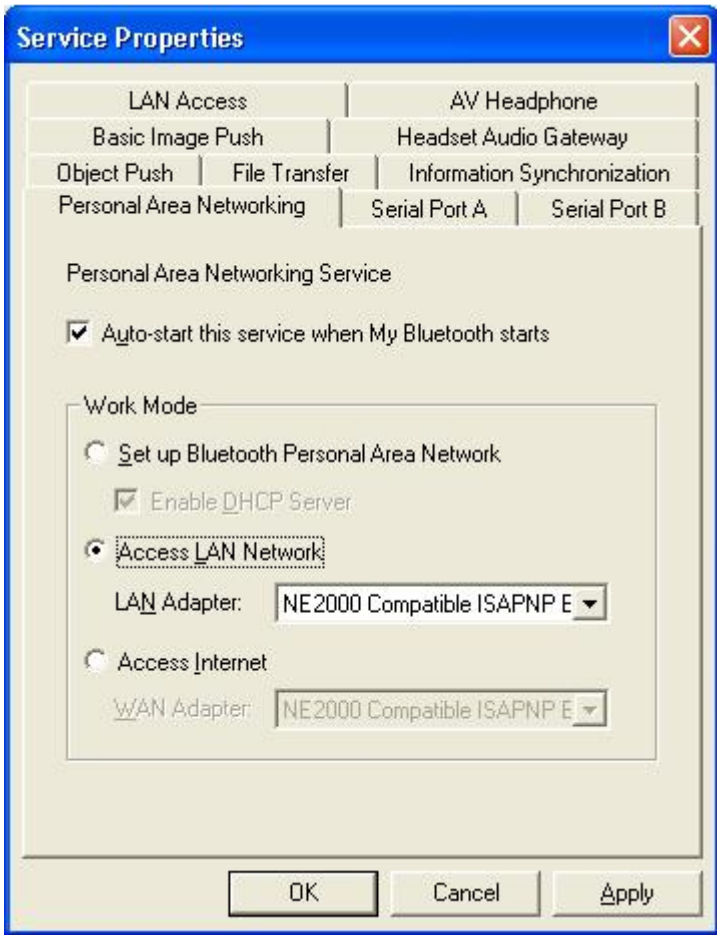

Figure 3-4: Access LAN Network

- **Scenario 3 : Access Internet via NAP**
  Select Access Internet and select a physical network adapter, through which the NAP connects to Internet, as the WAN Adapter (Figure 3-5). It will automatically enables NAT (Network Address Translation, please refer to Windows Help Topic) function and a DHCP server.

Note: The **BT Network Adapter** *on the PANU side must be set to obtain an IP address automatically. The IP address is in the form of 192.168.50.x, such as 192.168.50.1.*

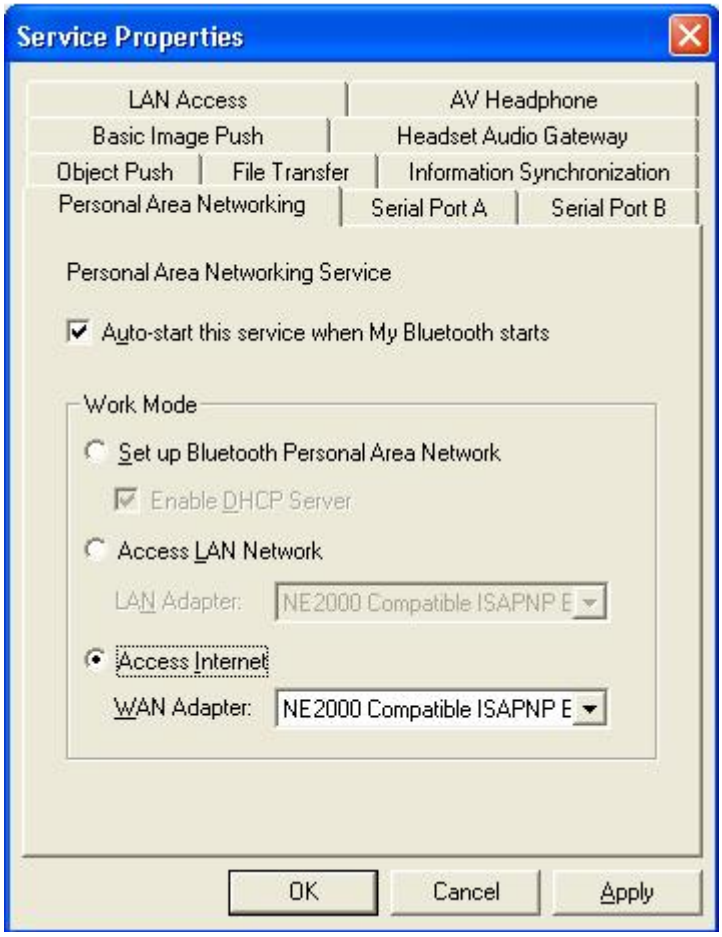

Figure 3-5: Access Internet

3.4 Serial Port

The Bluetooth Serial Port Profile (SPP) provides PCs, laptops, PDAs, GPS receivers, cordless serial adapters, and other Bluetooth enabled devices with a virtual serial port, enabling them to connect with each other wirelessly via Bluetooth instead of a serial cable. BlueSoleil supports four Bluetooth Serial Ports for out-going connections and two Bluetooth Serial Ports for incoming connections.

Typical Usage

- Connect to other Bluetooth enabled devices via the Serial Port.

Connect to a PDA

Steps:

1. Connect the PDA's Serial Port service.
2. Use ActiveSync or any software that uses a serial connection.

Note:

- Serial Port Auto-Connection function
  Once a target device is assigned to a specific serial port, (e.g., COM5), whenever an application opens that serial port, BlueSoleil will automatically connect to the target device. Similarly, whenever an application closes the Bluetooth serial port, BlueSoleil will stop the connection. To check which devices are assigned to which COM ports, click Tools | Configurations | Quick Connect...
- Some applications only allow you to use a limited range of COM port numbers. If the application does not allow you to use a COM port number assigned by BlueSoleil, you will not be able to use BlueSoleil with your application.

3.5 Object Push

The Bluetooth Object Push profile (OPP) enables users to send and receive Personal Information Management (PIM) data objects (Including messages, notes, calendars items, and Business cards) to and from a Bluetooth enabled PDA or mobile phone.

The objects supported:

- Contacts (*.**vcf**)
- Calendars (*.**vcs**)
- Notes (*.**vnt**)
- Messages (*.**vmg**)

Typical Usage

Push objects to a Bluetooth enabled mobile phone or PDA
Receive objects from a Bluetooth enabled mobile phone or PDA

Note: If you would like to push PIM objects to a PDA, make sure that the PDA is ready to receive a PIM object before you start. If necessary, enable Object Push on the PDA. For instructions, refer the PDA's user documentation.

Push Objects to a Bluetooth Mobile Phone

There are two ways to push objects:

1. From BlueSoleil **Main Window**:

Double-click on the mobile phone or PDA icon to browse for service information. The Object Push Service icon should be highlighted at the top of the screen. Right click the Object Push Service icon, and in the pop-up menu click send My Card. (Figure 3-7)

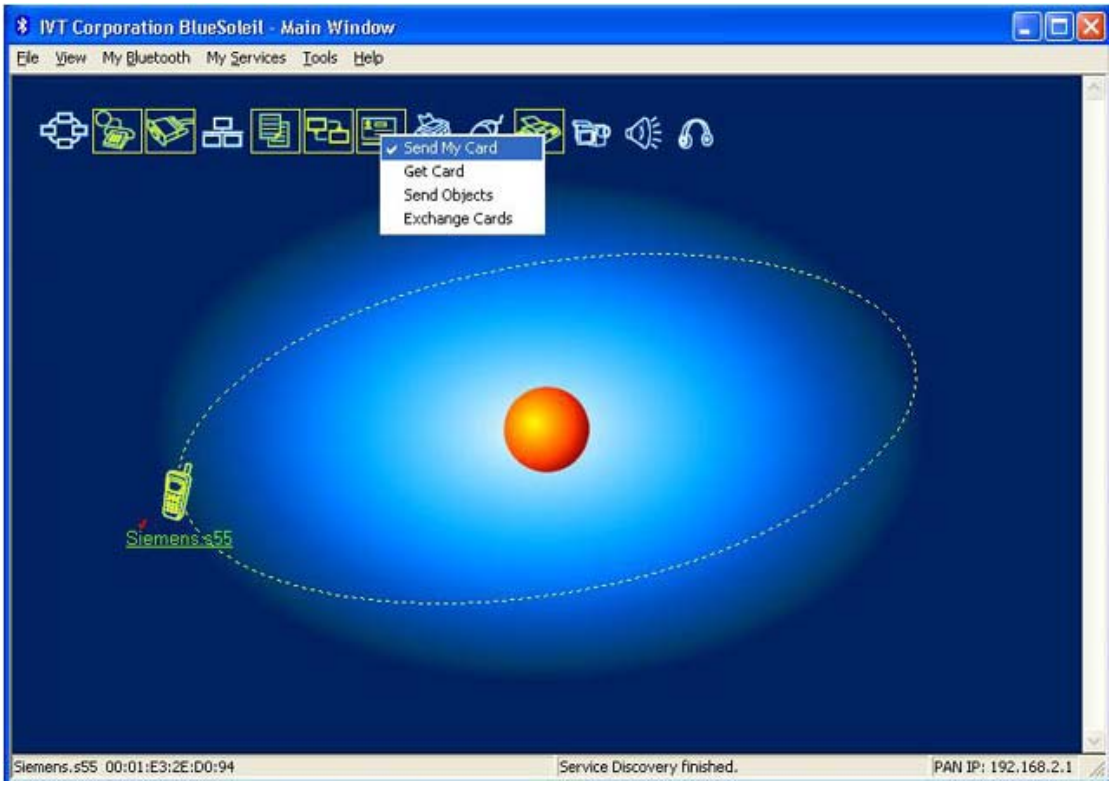

Figure 3-6: Send Object

- **Send My Card:**
  Send your default business card.
- **Get Card:**
  Get the default business card of the phone.
- **Send Objects:**
  Select some objects (PIM files in *.vcf, *.vcs, *.vnt, *.vmg) and send to phone.
- **Exchange cards:**
  Have your computer and the phone to exchange their default business cards.

2. From MS Outlook:

(1) Select the contact that you would like to send.

(2) In Outlook, click on the **Push** button on the toolbar, or click **File | Push**.

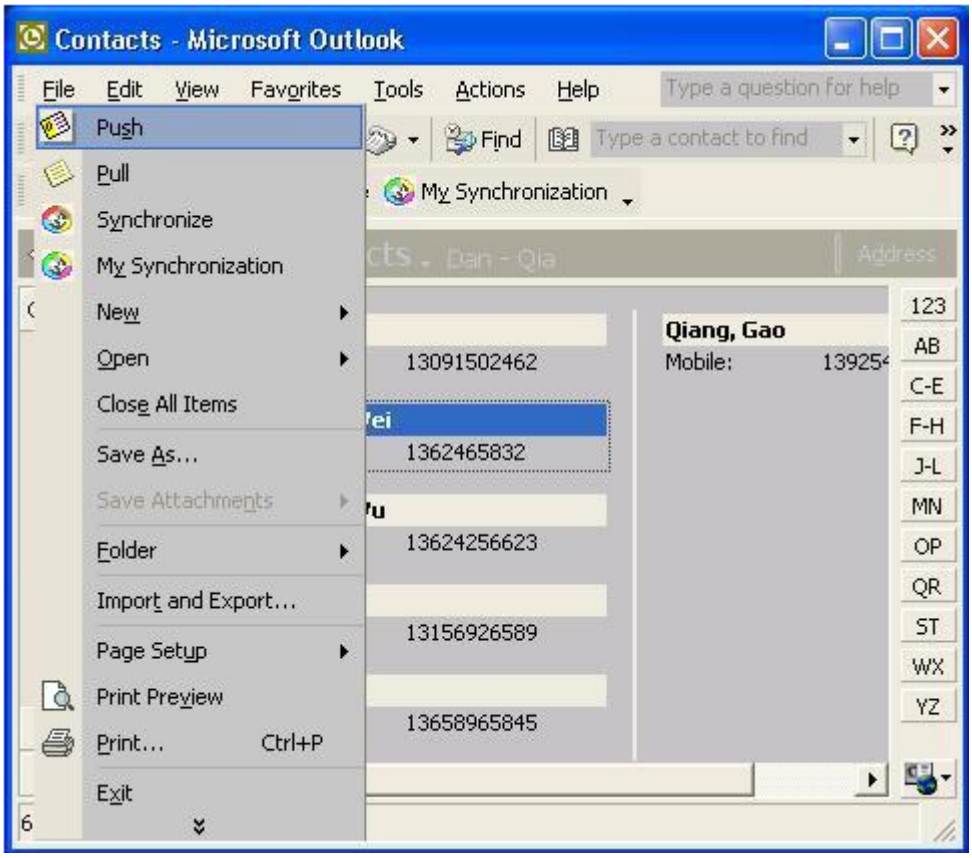

Figure 3-7: Outlook Bluetooth Add-in

(3) The Bluetooth Neighbors screen will appear. In the device list, select the phone or PDA that you wish to push the contact to. Click on the Push button.

Receive Objects from a Bluetooth Phone

Steps:

1. Configure the parameters for the object push. From the Main Window, click **My Service | Properties**. Click on the **Object Push** tab.

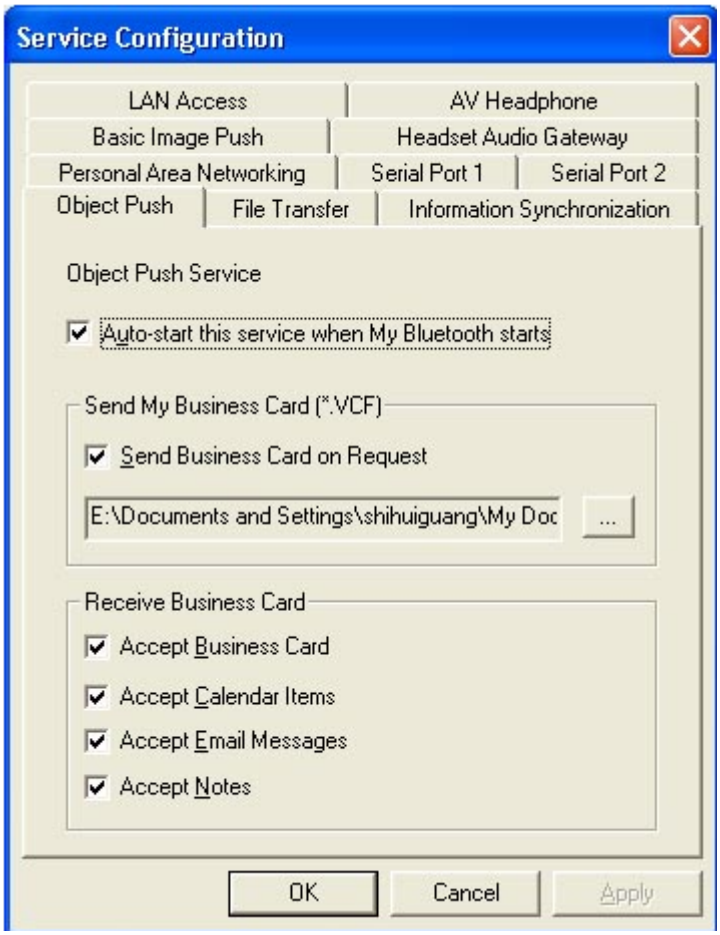

Figure 3-8: Object Push Service Configuration

2. Start Object Push service. Do not initiate a connection, only start the service so that your computer will be ready to receive objects.
3. Send objects from the phone. For instructions, refer to your phone's user documentation.

Notes:

- BlueSoleil creates a Bluetooth folder (with Inbox and Outbox subfolders) in your My Documents folder for use with Object Push. The Inbox is used to save objects received from other devices. The Outbox is used to save objects sent out from your computer.
- Your can set your default business card by clicking My Services | Object Push. In the Send My Business Card field; browse to select a contact as your default business card.

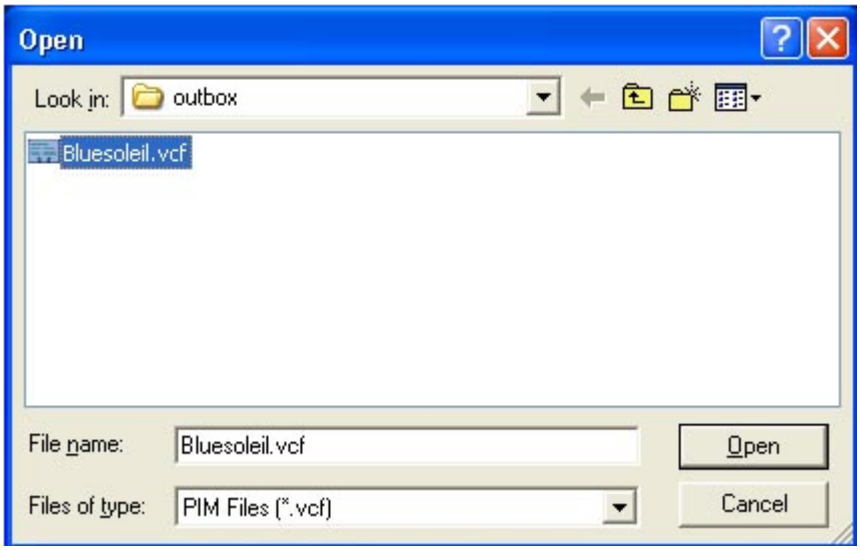

Figure 3-9: Object Push Business card *.vcf file

3.6 File Transfer

The File Transfer Profile (FTP) enables users to transfer files and/or folders between Bluetooth enabled laptops, desktops, PDAs, mobile phones, etc.

Typical Usage

- Connect to a Bluetooth enabled mobile phone and transfer files or folders to/from the phone.
- Share a folder on your computer with other Bluetooth enabled devices.
- Access a shared folder on another Bluetooth enabled device.

Connect to a Phone

Steps:

1. Connect to the phone's FTP service.
2. The phone's folders are shown in a window. Users can copy/paste/delete files or folders.

Share a Folder on Your Computer with other Bluetooth Enabled Devices

Steps:

1. Select the folder you would like to use for file sharing and define the remote user privileges. Click My Services | Properties. Click on the File Transfer tab.

➢ **Share this folder:** Browse to select the folder you would like to share.

➢ **Share Permissions:** Select Read and Write to allow others to copy paste or

delete files/folders in this folder. Select Read only to allow others to only browse and copy files/folders from this folder.

2. Start the FTP service in BlueSoleil. Do not initiate the connection in BlueSoleil.
3. Browse your computer from the remote device. For instructions, refer to the user documentation for the remote device. When the remote device attempts to connect to your computer, the Bluetooth Service Authorization screen may appear. Click Yes.
4. After successfully connecting, the remote device can browse, copy, paste, and/or delete files on your computer, depending on the remote folder privileges you allowed. For instructions, refer to the user documentation for the remote device.

Access a Shared Folder on another Bluetooth Enabled Device

1. On the remote device, designate the folder/files to share. Enable file sharing on the remote device. For instructions, refer to the user documentation for the remote device.

Note: If you do not enable file sharing on the remote device, BlueSoleil will not be able to discover the device's file sharing service.

2. Start the FTP service and initiate the connection in BlueSoleil.

3. A Remote Shared Folder screen will appear, displaying shared files/folders on the remote device, Use the screen to browse, copy, paste, and/or delete files, depending on your folder privileges

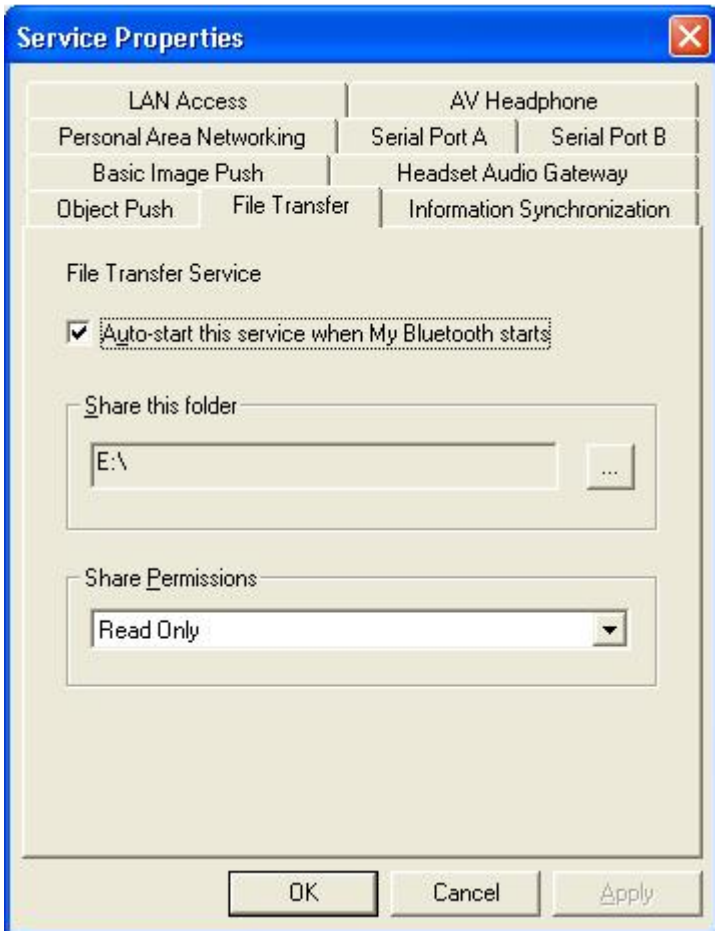

Figure 3-10: Service Configuration

3.7 Bluetooth Synchronization

The Bluetooth Synchronization (SYNC) Profile enables users to synchronize PIM objects on their computer with that of other Bluetooth enabled computers as well as Bluetooth enabled mobile phones, PDAs, and other devices.

Four kinds of objects are supported:

- Contacts (*.**vcf**)
- Calendars (*.**vcs**)
- Notes (*.**vnt**)
- Messages (*.**vmg**)

Supported Outlook versions: MS Outlook 2000, Outlook 2002 (XP), Outlook 2003.

Typical Usage

Synchronize your computer with a Bluetooth enabled mobile phone

Synchronize with a Bluetooth enabled Mobile Phone

Steps:

1. Connect to the mobile phone's Synchronization service.
2. A synchronization dialog will appear (refer to Figure 3-12). Click on the Start button to synchronize. Contacts, calendars, notes and emails in MS Outlook will be synchronized with those on the phone.

Figure 3-11: Start to Synchronize Information

Note:

Users can start synchronization from MS Outlook using the Bluetooth Add-In menus and buttons installed with BlueSoleil.

BlueSoleil can act as synchronization server. Click **My Services | Properties**. Click on the Information Synchronization tab (Figure 3-13), and select the type of PIM objects that you would like to synchronize.

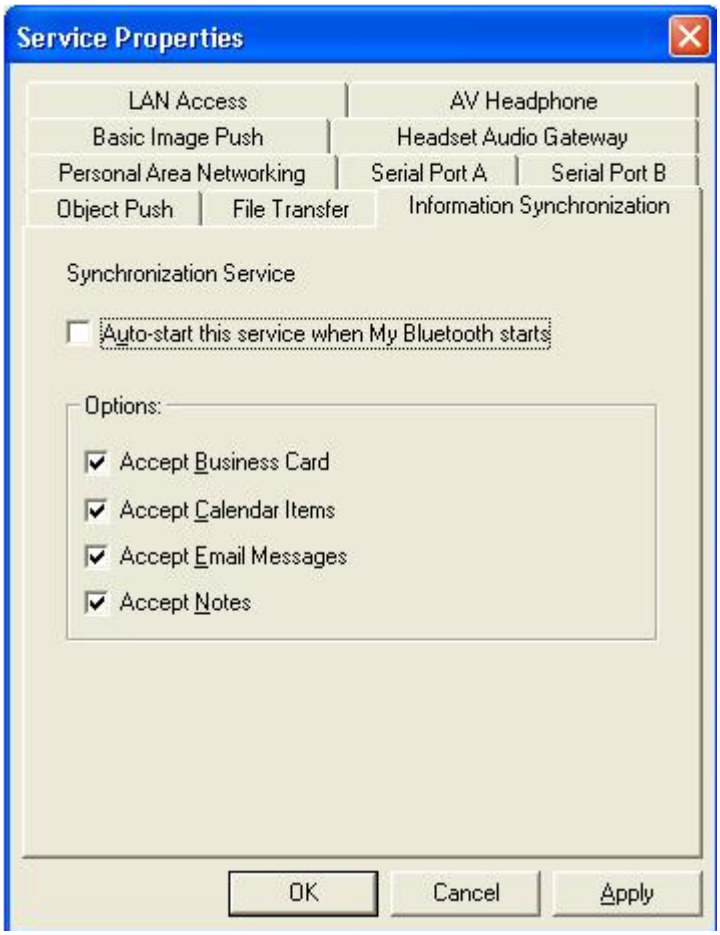

Figure 3-12: Service Configuration

3.8 LAN Access

The Bluetooth LAN Access Profile (LAP) allows users to access a Local Area Network (LAN) via a Bluetooth enabled LAN access point.

Typical Usage

- Accesses a Local Area Networking via a Bluetooth enabled LAN access point.
- Use your computer as a LAN Access Point.

Access a LAN via a Bluetooth enabled Access Point (AP)

1. Connect to the LAN AP's LAP service.
2. In the Connect Bluetooth LAP Connection dialog, enter the user name and password if necessary. Click Connect.

Figure 3-13 Connect Bluetooth LAP Connection

Use your computer as a LAN Access Point (Advanced Users Only)

1. Start the Bluetooth LAP Access service on BlueSoleil.
2. Specify any static IP addresses for LAP clients (Alternatively, you can use DHCP to have the system dynamically assign IP addresses).
   (1) In the Network Connections window, right click Incoming Connection, then select Properties (Figure 3-15).

Figure 3-14: Select Properties on the Pop-up Menu

(2) Select Incoming Connections Properties | Networking -> **Internet Protocol (TCP/IP)**, and click on the **Properties** button. (Figure 3-16)

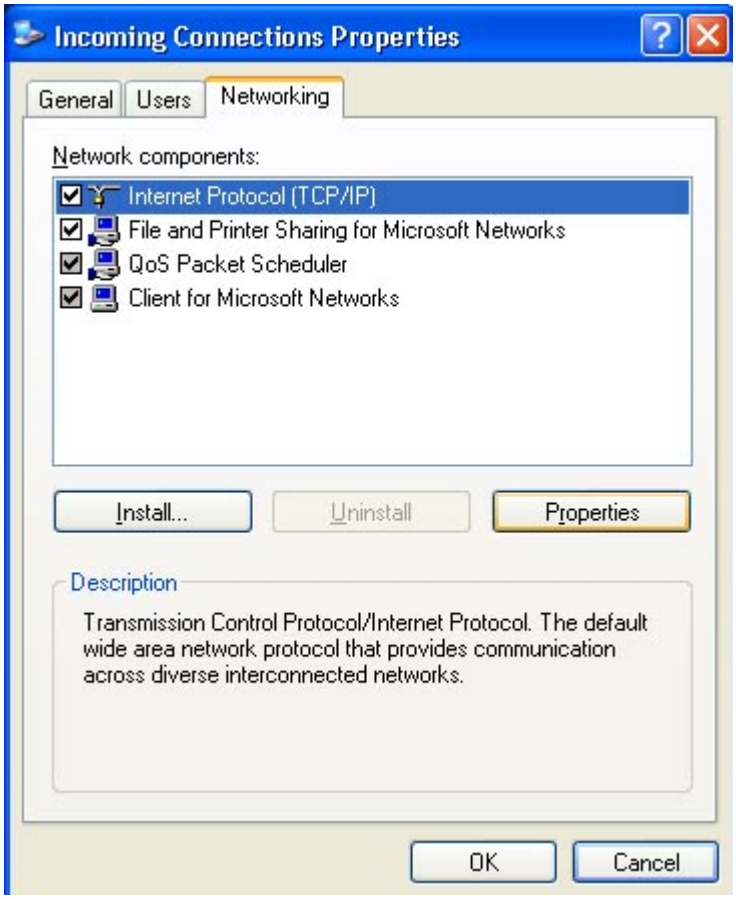

Figure 3-15: Internet Protocol (TCP/IP) Network Component

(3) Select **Specify TCP/IP addresses** and enter the range of IP addresses assigned to LAP clients (Figure 3-17).

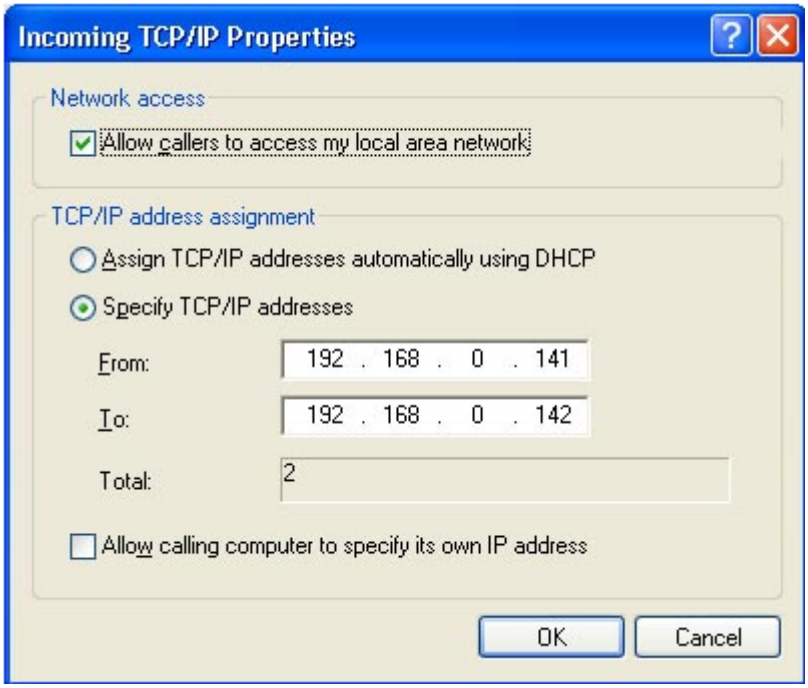

Figure 3-16: Enter the IP Addresses

3.9 AV Headphone

The AV Headphone Profile enables users to use a Bluetooth enabled headphone to listen high-quality stereo music played in a computer.

Typical Usage

- Listen to music using a Bluetooth enabled AV Headphone.

Steps:

1. Connect to AV Headphone.
2. Play music using media player software on your computer. Music will be transmitting wirelessly to the headphone.

3.10 Basic Imaging

The Basic Imaging Profile (BIP) enables users to receive pictures from a Bluetooth device such as digital camera, mobile phone, or other compatible device. It also enables remote control of shooting, display, and other imaging functions.

Typical Usage

- Control Camera to take pictures
- Receive pictures sent from BIP-enabled digital devices

Control Camera to Take Pictures

Steps:

1. Connect to the camera. A Bluetooth Camera Controller will appear, Figure 3-18.
2. Click the button to capture the image. The captured image will be transmitted to your computer and displayed.

Figure 3-17: Bluetooth Camera Controller

Receive Pictures

1. Assign the directory where you would like to save image files pushed from the client device. Click My Services | Properties. Click on the Basic Image Push tab. In the Set the image directory field, browse to select the file location. Click OK.
2. Start the BIP service.
3. Send pictures from the remote device. For instructions, refer to the user documentation for the remote device.

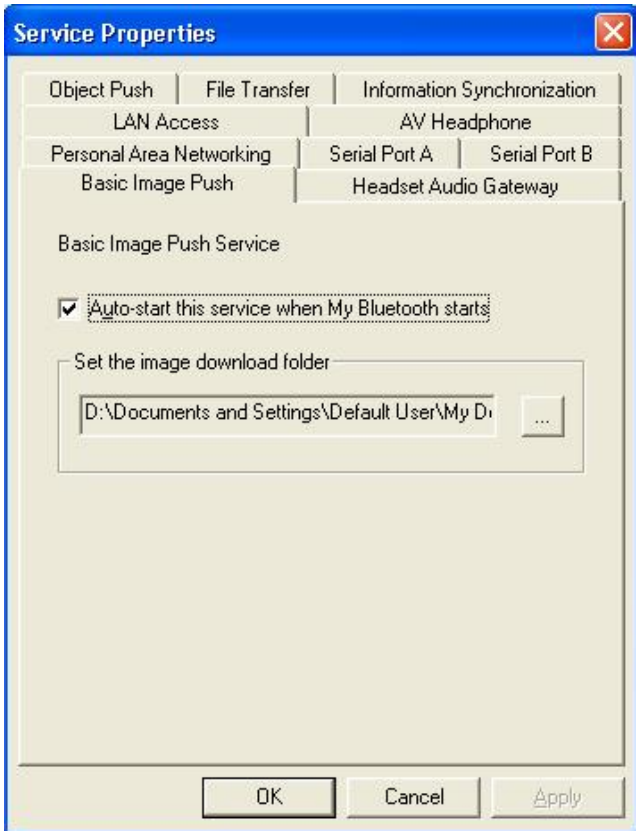

Figure 3-18: Service Configuration

3.11 Headset

The Headset Profile enables users to use a Bluetooth headset as wireless earplug or microphone.

Typical Usage

- Use Headset as a device for audio input/output.

Use Headset as Sound Input/Output Device

Steps:

1. Connect to the Bluetooth enabled headset.
2. Play music on your computer or chat using network meeting tools. You may need to press a multifunction button on your headset to transmit audio between the computer and the headset.

Note: For most Bluetooth enabled headsets, after you have successfully connected for the first time, you can quickly reconnect to BlueSoleil by simply pressing a multifunction button on the headset.

Chapter 4: Bluetooth Connection Management

4.1 Find Remote Devices

To set up a Bluetooth connection, the remote device must be found first. There are 3 ways to find remote devices in BlueSoleil.

Inquire Device

1. Single-click the red ball in the main window to start inquiry.
2. Bluetooth devices within the radio range will be shown around the center ball.
3. Wait for a few seconds until the names of all the devices are obtained.

Add Device from History List

The devices which had been found or connected can be added from the history device list directly.

1. Select menu **Tools | Add Device from History....** The **History** dialog box pops up.
2. Select the device from the list and click button **Add**, the device will be added to the main window.

Add a New Device by Entering Device Address

If the device cannot be found by **Inquiring**, you can enter the device address to add the device.

4 Select menu **Tools | Add New Device....** The **Add New Device** dialog pops up.

5 Enter the Bluetooth device address and click button OK, the device will be added to the main window.

Note: The device type will be unknown if add it by inputting its Bluetooth address.

4.2 Connect and Disconnect

4.2.1 Connect

1. Select a remote device and double click it to browse its services.
   Bluetooth passkey may be asked if security level of either side is set to high and they are not paired devices.
2. After service browsing, the services the remote device supports are highlighted by changing the color of the service buttons on the top of the main window.
   Single click one of the service button to connect.
   After connection is setup, the remote device and the service button will turn green.

Note: Users can right click the remote device icon or the service button to pop up operation menu for connection.

4.2.2 Disconnect

- ✓ Method 1: Select the remote device, right click the service button. On the popup menu, select Disconnect.
- ✓ Method 2: Right click the device icon. On the pop-up menu, select Disconnect | (the connection you want to disconnect).
- ✓ Method 3: For FTP and Synchronization connection, close the operation window, the connection will be disconnected.
- ✓ Method 4: Disconnect from the remote device directly.
- ✓ Method 5: If the local Bluetooth device is removed or the remote device is powered off, all the connections will be disconnected. If the remote device moves out of the radio range, all the connections with the remote device will be disconnected in 1 minute.

4.3 Connect via Shortcuts

After a connection is set up, users can generate a shortcut on Windows desktop. Users can connect later using the shortcut without device inquiry and service browsing steps.
Shortcuts apply to Personal Area Networking, Dial-Up network, HID and AV.

Steps

1 Save shortcut
   After connected, right click the device icon; select the **Save Connection as Shortcut** on the popup menu.
2 Execute the shortcut on desktop.

4.4 Remote Device Status

The remote device status can be viewed from the **Remote Device Status** dialog box.

Right click the remote device icon and select the **Status...** on the popup menu. The **Remote Device Status** dialog box will be displayed.

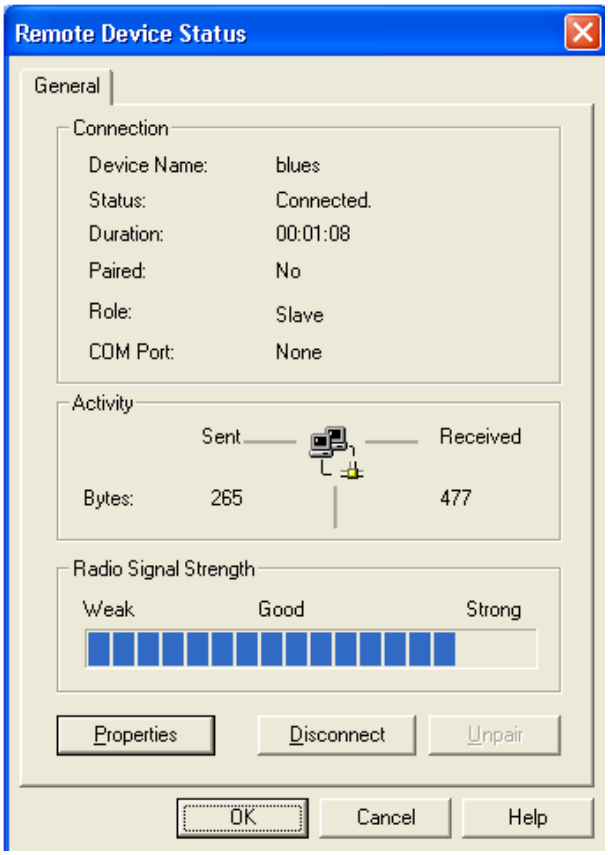

Figure 4-1 Remote Device Status

- Connection:
  Device Name: The remote Bluetooth device's name.
  Status: Whether the remote device is connected to the local device.
  Duration: The time elapsed since the connection was set up.
  Paired: Whether this device is paired with the local device.
  Role: The Bluetooth Master/Slave role of the remote device for this connection.
  COM Port: The virtual Bluetooth COM ports used for the connection(s), especially for DUN, FAX, SPP, and LAP.
- Activity:
  The amount of the data sent and received.
- Radio Signal Strength:
  This is the RSSI of the remote device. This index indicates the radio quality between the remote device and the local device. If the radio signal is too weak, the data transferring speed will be slow.
- Properties Button:
  Display the remote device’s properties.
- Disconnect Button:
  Disconnect one of the connection(s) between the remote device and the local

device.

- Unpair Button:
  Remove the paired relationship between the remote device and the local device.

4.5 Remote Device Properties

The remote device's properties can be viewed from the **Remote Device Properties** dialog box.

Right click the remote device icon and select the **Properties...** on the popup menu. The **Remote Device Properties** dialog will be displayed.

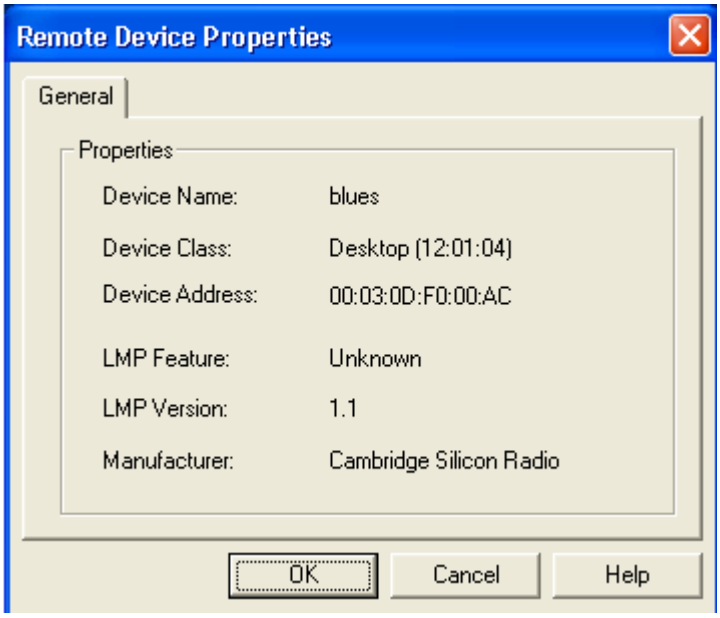

Figure 4-2 Remote Device Property Dialog

- ✧ Device Name: The remote Bluetooth device's name.
- ✧ Device Class: The remote device's device class. Bluetooth devices are classified by device type, such as Desktop, Laptop, Headset, LAN Access Point, and other enabled devices.
- ✧ Device Address: The remote device's Bluetooth device address.
- ✧ LMP Feature: The features that the remote device supports.
- ✧ LMP Version: The version of the LMP firmware of the remote device.
- ✧ Manufacturer: The manufacturer of the remote device.

4.6 Hardware Device Configuration

To access the hardware configuration screens, click Tools | My Bluetooth Device...,

Bluetooth Device
Please Select USB as Device Type

Figure 4-3 Select Bluetooth Device

Advanced Configuration

The **Advanced Configuration** page will be enabled only if you selected CF card in the Bluetooth Device screen. Use the Advanced Configuration screen to configure detailed parameters including COM Port, Baud Rate, Byte Size, Parity, Stop Bits, and Flow Control.

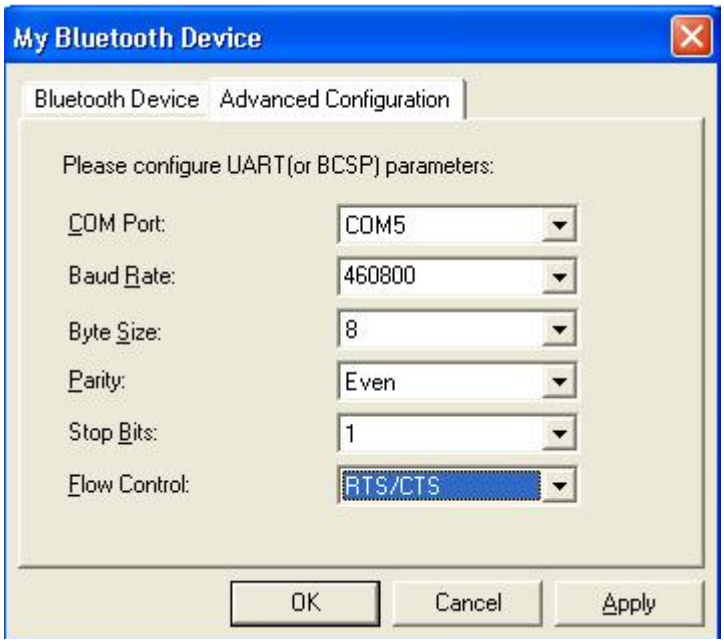

Figure 4-4 Advanced Configurations for UART Hardware Device

4.7 Properties Configuration

To configure the properties of your local device, click **My Bluetooth | Device Properties…**,

General

- Device Name

  The local device's name, which will be shown to other Bluetooth enabled devices.
- Device Type

  This device's type of your local computer (i.e., Desktop, Laptop or Server).
- Device Address

  The address of the local device. Every Bluetooth enabled device has a unique address.

Figure 4-5: General Properties Page

Accessibility

Connecting Mode

- Connectable: Permits other Bluetooth enabled devices to connect with your computer.

- Non-Connectable: Prohibits other Bluetooth enabled devices from connecting with your computer.

Discovery Mode

- General Discoverable: Permits other Bluetooth enabled devices to detect your computer.
- Limited Discoverable: Permits other Bluetooth enabled devices to detect your computer with Limited Inquiry.
- Non-Discoverable: Prohibits other Bluetooth enabled devices from detecting your computer.

Bonding Mode (Pairing Mode)

- Accepts Bonding: Allow other Bluetooth enabled devices to pair with your computer. If the other device initiates a pairing procedure with your computer, each device must enter the same passkey before they will be paired.
- Does Not Accept Bonding: Rejects pairing attempts initiated by other Bluetooth enabled devices.

Figure 4-6: Accessibility Properties Page

Hardware

View information about your Bluetooth hardware.

- Manufacturer: The manufacturer of the local Bluetooth device.
- HCI Version: The HCI version of the local Bluetooth device.
- HCI Revision: The HCI revision of the local Bluetooth device.
- LMP Version: The LMP version of the local Bluetooth device.
- LMP Subversion: The LMP subversion of the local Bluetooth device.

Figure 4-7 Hardware Properties Page

4.8 Pair / Un-pair Devices

Once a remote device has paired with your computer by exchanging passkeys, passkeys will no longer be required for further connections between your computer and the device.

How to pair with another device

- **Automatically**
  If a passkey is required for connection, the devices will be paired automatically the first time they successfully exchange passkeys and connect. After a device has successfully paired with your computer, the remote device icon in the Main Window will have a red checkmark next to it.

- **Manually**
  In the Main Window, right click on the device icon, and in the pop-up menu, select Pair Device. In the Enter Bluetooth Passkey dialog, enter the same passkey that you enter on the remote device. After a device has successfully paired with your computer, the remote device icon will have a red checkmark next to it.

How to un-pair with another device

- **Manually**
  In the Main Window, right-click on the device icon, and in the pop-up menu, selects Unpair. The red checkmark next to the device icon will disappear.

4.9 General Security

To access the security configuration screen, click **My Bluetooth | Security…**

Security Level

- **Low**
  If checked, other devices will be able to access your device freely without entering a passkey.
  However, if the remote device requires a passkey to connect, then both devices need to exchange passkeys.

- **Medium**
  The medium level is service level security; you can assign the appropriate level of access for each specific service. For more detail, see Local Services Security.
- **High**
  If checked, passkeys must be exchanged for every incoming and outgoing connection, unless the two devices have already paired in the past.

Bluetooth Passkey

- **Set Default Passkey**
  Use this setting to set a default passkey for all connections. BlueSoleil will use this passkey whenever one is required.

Data Encryption

- **Enable Data Encryption**
  If checked, the data transmitted will be encrypted.

4.10 Paired Devices Management

To access the device security configuration screen, click **My Bluetooth | Security** and click on the Devices tab.

Paired Devices List Box

This screen lists devices which have already paired with the local device.

Remove Pairing Button

Click to remove the pairing relationship between the selected device and the local device.

Authorize Services Button

Click to select which services you authorize the selected paired device to use. A list of local services will appear. Select the services you wish to allow the remote device to use, and then click OK.

Figure 4-8: Authorize Services

Note:

- The screen will only list the local services that require authentication. The local services that do not require authentication can be accessed freely.
- The Authorization button is enabled only when the Security Level is set to Medium.

4.11 Local Services Security

To access the local services security configuration screen, click **My Bluetooth | Security** and click on the Services tab. You can only configure security for local services when the Security Level is set to Medium. (Set the Security Level in the General Security.)

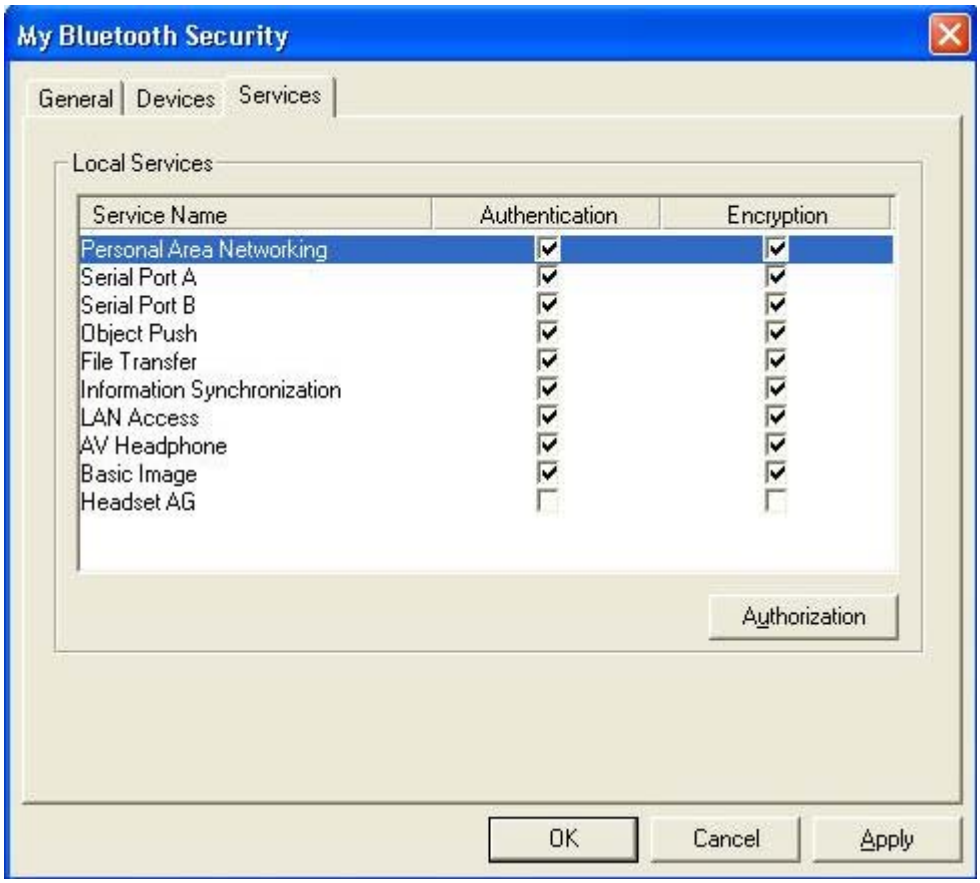

Figure 4-9: Local Services Security

Local Services:

- **Authentication**
  If checked, a passkey is required whenever a remote device attempts to connect with this service.
- **Encryption**
  If checked, data transmitted between devices for this service will be encrypted.

Authorization Button:

Click to select the devices you wish to allow to use the selected service.

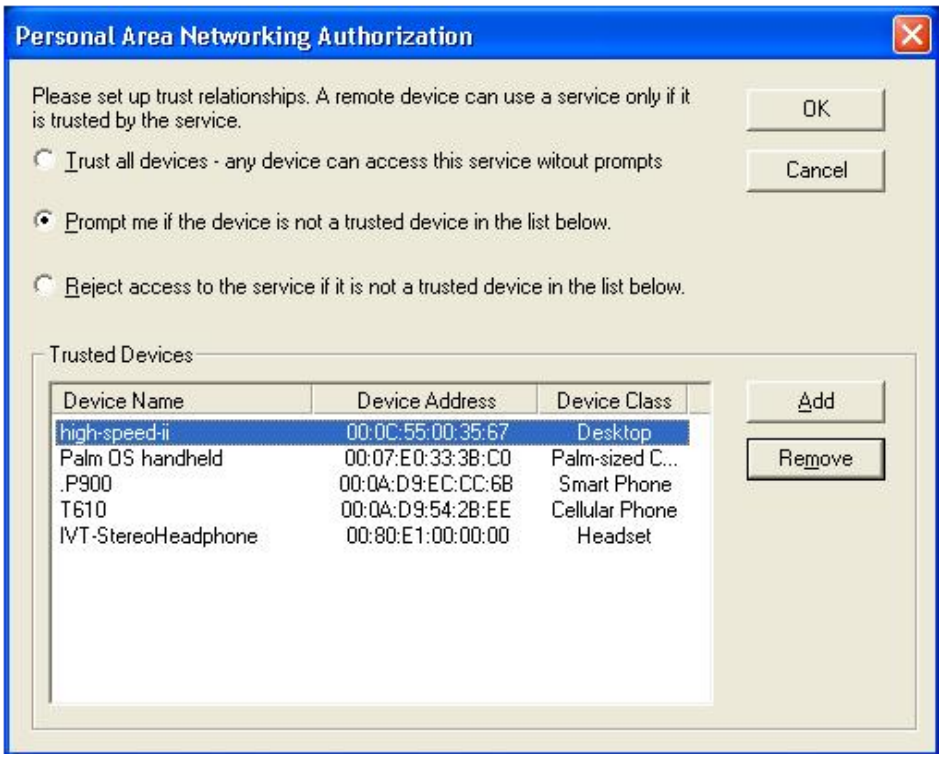

Figure 4-10: Personal Area Networking Authorization

In the **Service Authorization** screen, enter the following settings:

- **Trusted Devices**

Select to trust devices listed in this screen to use the selected service on your device. A device can freely access the service from your local device when trusted. Click Add/Remove to edit the device list.

- **Trust all devices**
  Connection requests will be accepted from every device.
- **Prompt to user if the device is not a trusted device of this service**
  If a non-trusted device attempts to access the service, a dialog will appear to allow you to accept or reject the connection.
- **Reject the device to use the service if it is not a trusted device of this service**
  If a non-trusted device attempts to access the service, the connection will be rejected automatically without informing the user.

Notes: If a device is trusted for a service, it may connect to this service on your local device without informing you.

Appendix A: Glossary

A

Authentication Authentication is the process of verifying "who" is at the other end of the link. Authentication is performed for devices. In Bluetooth this is achieved by the authentication procedure based on the stored link key or by pairing (entering a PIN).

Authorization Authorization is the process of deciding if device X is allowed to access service Y. This is where the concept of "trusted" exists. Trusted devices (authenticated and indicated as "trusted"), are allowed to access services. Mistrusted or unknown devices may require authorization based on user interaction before access to services is granted.

B

Bluetooth Bluetooth is an open specification for a cutting-edge technology that enables short-range wireless connections between desktop and laptop computers, personal digital assistants, cellular phones, printers, scanners, digital cameras and even home appliances on a globally available band (2.4GHz) for worldwide compatibility. In a nutshell, Bluetooth unplugs your digital peripherals and makes cable clutter a thing of the past.

Bluetooth Authentication Bluetooth authentication is the procedure to verify whether another Bluetooth enabled device has the right to access your computer. During this procedure, a Bluetooth passkey is asked for on both connection sides. If the passkeys are the same, the authentication procedure is a success and the connection can be setup. If the passkeys are different, then authentication fails and the connection cannot be set up.

Bluetooth Authorization Bluetooth authorization is the procedure to verify whether you are going to allow (authorize) other Bluetooth enabled devices to use Bluetooth services on your Bluetooth enabled devices. This procedure functions in Bluetooth security Mode 2 and applies only to your Bluetooth services. Every Bluetooth service in your BlueSoleil has the setting of authorization. And there is an

authorization devices list for every service, which records the devices that you have authorized. The user can change the authorization status for each device.

Bluetooth Connection Bluetooth functions are in the model of Client/Server. One Bluetooth device provides services, and another Bluetooth device uses these Bluetooth services. After connection, a Bluetooth link is set up between two devices, and the link is called a Bluetooth connection. Users can disconnect the connection after finishing his job on Bluetooth.

Bluetooth Connection Shortcut Connection shortcut is used for saving time in searching devices and browsing services. After a connection is established, it can be saved as a shortcut. The shortcut can be used later to re-establish the connection, without searching the remote Bluetooth devices and browsing services. After a connection is setup, the connection can be saved as a shortcut, which can be used later without searching Bluetooth devices or browsing services.

Bluetooth Device Bluetooth devices are addressed in two ways: (1) when referring to the local device configuration, a Bluetooth Device is the local Bluetooth hardware which can be a USB Adapters, a UART device, a PCMCIA card or a BCSP device. The user is expected to select the interface of his Bluetooth device in his configuration. (2) When referring to the Bluetooth application, it is the Bluetooth system as a whole, e.g. a Bluetooth modem, Bluetooth mobiles or Bluetooth PDA etc. My PC together with the BlueSoleil and the Bluetooth Adapter would also be addressed as a remote Bluetooth device by other Bluetooth devices.

Bluetooth Device Address A unique 48-bit address that distinguishes between different Bluetooth transceivers. Every Bluetooth device has a unique address so that other devices can find it and communicate with it. The address appears in the form of 00:03:20:00:0D:0A.

Bluetooth Device Class According to the Bluetooth standard, every Bluetooth device is assigned a device type, which is represented in device class. The Bluetooth device class is three bytes in length in the form of 04:01:00. On the computer side, the class may be Server, Desktop or Laptop. Users will be asked to select it during the first time starting.

Bluetooth Device Inquiry To use Bluetooth, the user has to find the remote device first. The searching procedure is called device inquiry. There are two

kinds of inquiry procedure, named General Inquiry and Limited Inquiry. General Inquiry will find all the Bluetooth devices in general discoverable mode and limited discoverable mode. Limited Inquiry will find only the devices in limited discoverable mode.

Bluetooth Adapter A Bluetooth device which can be added onto a PC or a notebook to make it Bluetooth enabled. It's a Typically USB device.

Bluetooth bonding A user initiates the bonding procedure and enters a passkey to create a paired relationship between two devices. This differs from the authentication procedure where the user is requested to enter a passkey during the establishment of a link.

Bluetooth Passkey In the Bluetooth authentication procedure, a Bluetooth passkey is requested on both connection sides. The same Bluetooth passkey should be input on both sides. If the passkeys are the same, the authentication procedure is successful and connections can be setup. If the passkeys are different, the connection and authentication will fail.

Bluetooth Peripheral Device This is the implementation of the Bluetooth Human Interface Device profile (HID). By using HID, A Bluetooth peripheral input device such as Bluetooth mouse or keyboard can interface with the host PC remotely.

Bluetooth Security Bluetooth security is an important part for the wireless communication technology. Illegal access to your computer can be rejected. There are three levels of security: Low, Medium and High. In Low level, there is no security check. In Medium level, remote Bluetooth devices can browse your services. Security is set on every service. The service can be set to request or not request for authentication and authorization. If you request for authentication, the remote device will be asked to enter the same passkey as the one in your PC. Otherwise, the Bluetooth passkey is not asked. If authorization is set, the remote device has to be in the authorized devices list. If not, there will be a dialog to ask the user to confirm whether you are going to allow a remote device to use services of the local device.

Bluetooth Service A Bluetooth device may offer certain functions for other Bluetooth devices to use. These functions are called Bluetooth services. For example, a Bluetooth mobile phone can offer 4 services, which include synchronization, dial-up

networking, file transfer and serial port. In BlueSoleil, some services are started automatically and other services need to be started manually before using. The user can also stop a service.

Bluetooth Service Browse A remote Bluetooth device can provide one or more Bluetooth services. To use the services that the remote device provides, the user has to find the services first. This is called service browse.

C

Connectable Bluetooth devices can be connectable or non-connectable. When the device is connectable, other devices can connect to it.

D

DHCP The Dynamic Host Configuration Protocol (DHCP) is an Internet protocol for automating the configuration of computers that use TCP/IP.

E

Encryption When a Bluetooth link is encrypted, data are encrypted into unreadable data using a secret key or password before they are sent over the air. Data are decrypted after they reach the remote device.

G

General Discoverable Bluetooth devices have 3 modes: General discoverable, limited discoverable and Non-discoverable mode. A Bluetooth device will respond to a General Inquiry if it is in general discoverable or limited discoverable mode.

H

HID A Human Interface device such as keyboard and mouse.

I

ICS Internet Connection Sharing. For more detailed information about ICS,

please refer to the help topic Internet Connection Sharing of Microsoft Windows.

L

Limited Discoverable Bluetooth devices have 3 modes: General discoverable, limited discoverable and Non-discoverable mode. In Limited discoverable mode, a Bluetooth device will respond to a General Inquiry or a Limited Inquiry.

LAN Access Point One of entities defined in the LA profiles, the LAN Access Point acts like a router between a Bluetooth Pico net and an external network.

N

NAP (Networking Access Point) A network access point is a unit that contains one or more Bluetooth radio devices and acts as a bridge, proxy, or router between a Bluetooth network and some other network technology (10baseT, GSM, etc).

NAT Network addresses translation, which is used to re-map IP's from one address range to another range of network addresses.

Non-connectable A Bluetooth devices can be connectable or non-connectable. When it is non-connectable, other devices cannot connect to it. This is used in BlueSoleil only when the user does not want other device to connect to their computer.

Non-discoverable Bluetooth devices have 3 modes: General discoverable, limited discoverable and Non-discoverable mode. In Non-discoverable mode, a Bluetooth device will not respond to any inquiry so no device can find it.

Non-pairable A Bluetooth device can be pairable or non-pairable. When it is non-pairable, it will not accept a bonding request from other devices;

P

Pairing Devices Pairing allows you to avoid entering access information each time a connection is set up. Paired devices share a unique Link Key, which they

exchange each time they connect.

PIM Personal Information Management.

R

Radio Signal Strength Bluetooth works on 2.4G ISM band. The radio signal is stronger when the remote device is closer or the remote device has a higher radio output. The radio signal is weak when the remote device is distant or the remote device has a weak radio output. The strength of the remote device's radio signal affects the quality of the communication of the two Bluetooth devices. When the radio signal is weak, the Bluetooth data transferring speed is slow. However, if the two devices are too close and the radio signal is too strong, the Bluetooth data transferring speed is also slow because the "sound" is too loud to "hear". The radio signal strength is always referred to as RSSI in Bluetooth.

Remote Bluetooth Device All the other Bluetooth enabled devices are called remote Bluetooth devices in the term of my Bluetooth device. They could be a Bluetooth modem, Bluetooth mobiles or Bluetooth PDA etc.

T

Trusted Device Device having unrestricted access to all services on the server.

Appendix B: Troubleshooting

Cannot start My Bluetooth?

When the program starts, the local device address is 00:00:00:00:00:00. Please check whether you have properly plug-in your Bluetooth USB dongle or Bluetooth CF card and whether the device is powered up. Bluetooth USB Adapters can be detected automatically if they are in the IVT known device list (If you are using a device of a new model, please contact IVT so that the model can be added to the list). Some Bluetooth CF card device cannot be detected automatically. Users need to configure the parameters in the menu Tools | Bluetooth Device... to enable the device.

How can I find my Bluetooth device information?

On the center ball, my device, right click and select Properties... on the popup menu. In the My Bluetooth Device dialog box, there are device names, device addresses, device manufacturers, device HCI and LMP (Link Manager Protocol) versions and editions.

Can't find the remote device you want?

First, please check whether the remote device is in discoverable mode. If the remote device is set to non-discoverable, other devices cannot find it. Second, please check whether the remote device is within the radio range. Bluetooth devices have 3 classes. Class 1 devices are high power devices. Their transmission range is 50-100 meters. Class 2 and class 3 devices are low power devices. Their transmission range is 10-20 meters. If you still cannot find the remote device, you can (1) find the device from the history list, so that you can add it directly to the Main Window. Do this via Tools | Add Device from History.... (2) If the device is not in the history list, you can also add a new device directly by inputting the remote device address. Do this via Tools | Add New Device....

Can't find the remote device's services?

1. Please verify that whether the remote device is in connectable mode. If the remote device is set to non-connectable, other devices cannot connect to it.
2. Please verify whether the remote device is within the radio range.
3. Please check whether the remote device has connections already. Currently, some Bluetooth devices do not support scatter net. That is, the device has limitations in supporting connection among multi-devices at the same time. It is recommended that

users try to connect one to one if the connection cannot be set up.

4. Please verify whether both sides have input the right Bluetooth passkey if any side is at security level High. The Bluetooth passkey must be the same at both sides. If both sides have set Fixed Passkey (the default passkey) and the passkeys are different, the connection cannot be set up because of the authentication failure.

Appendix C: Product Specification

General	Information	Value
H/W Interface	USB	Version. 1.1 Compliance
Bluetooth Spec.		**Version. 1.2**
General Ratio	Carrier Frequency	2.4~2.483GHz (2.4GHz ISM Band)
Ratio Performance Receiver	Data Rate	1Mbps
	Rx sensitivity	-80dBm
Ratio Performance Transmitter	Power at Antenna Port	Class 1: 100 meter free space
Antenna	Integrated PCB antenna	
Environmental	Operating Temperature	0 ~ +65
	Storage Temperature	-30 ~ +80
USB Adapter	USB Compliance	Version 1.1
Dimension	65.8x 23.9x 7.8mm, 10g	
Input Power		DC 5V (USB power), Max. 80mA
Support Profiles	File Transfer support	
	Dial-Up Networking support	
	Network Access support	
	Send/Receive Fax support (needs fax software)	
	Information Exchange support	
	Information Synchronization support	
	Serial Port service support	
	Point to multi-Point connection support (1 server, 7 clients)	
System Support	Windows® 2000/ME/98/XP	

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.

15.105 Federal Communications Commission (FCC) Requirements, Part 15

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

---Reorient or relocate the receiving antenna.

---Increase the separation between the equipment and receiver.

---Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

---Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.