2.1

Bluetooth™

Manual and

Application note

Index

Introduction 1

C H A P T E R 1
Features 2

C H A P T E R 2
IVT - BlueSoleil software 3

C H A P T E R 3
Getting Started 6

C H A P T E R 4
BlueSoleil User Guides 38
Troubleshooting 70
FCC Caution 78

Introduction

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. Now you can connect your PDA or PC to Bluetooth™ enabled mobile phone with this Bluetooth™ adapter.

You can access e-mail & Internet no matter where you are with just a little help from your Bluetooth™ mobile phone.
Plus, when you are back in the office, you can hook yourself up to your office network as well as communicate with other Bluetooth™-enabled devices.

The device is designed to provide Bluetooth wireless functions on a Notebook internal form Factor card. The Bluetooth function is based on CSR BlueCore04-External Single Chip, This Bluetooth device is Cardbus interface or USB compliant with USB V2.0 standard interface. It is fully support Bluetooth V1.1, V1.2 , especially V2.0 Enhanced Data Rate. The Bluetooth application program could be used in IVT software.

1

Features

Features

- Bluetooth v2.0+EDR compliant
- USB v1.1 or Cardbus Interface
- Wireless access up to radius of 328 feet (100 Meters) for Class1
- Wireless access up to a radius of 32.8 feet (10 Meters) for Class2
- Connect up to 7 different enabled Bluetooth devices
- Encryption and authentication ensure safe, secure communications
- Low power consumption

Supported Profiles

- A2DP (Adv. Audio Dist. Profile)
- BIP (Basic Imaging Profile),
- FAX (Fax Profile),
- FTP (File Transfer Profile),
- GOEP (Generic Object Exchange Profile),
- HCRP (Hard Copy Replacement Profile),
- HID (Human Interface Device Profile),
- HSP (Headset Profile),
- OPP (Object Push Profile),
- PAN (Personal Area Network Profile),
- SDAP (Service Discovery Application Profile),
- SPP (Serial Port Profile)
- SYNCH (Synchronization Profile),

Software & OS support

Microsoft Windows 98SE, Windows ME/2000 /XP, Mac OS 10.2.8 and above

2

Welcome to BlueSoleil

Getting Started with IVT BlueSoleil™

The following topics will help you learn more about BlueSoleil:

- Introduction
- Getting Started
- User Guides

Visit us at www.bluesoleil.com

Support: support@bluesoleil.com

About BlueSoleil

BlueSoleil is Windows-based software from IVT that allows your *Bluetooth*® enabled desktop or notebook computer to wirelessly connect to other *Bluetooth* enabled devices. BlueSoleil allows MS Windows users to wirelessly access a wide variety of *Bluetooth* enabled digital devices, such as cameras, mobile phones, headsets, printers, and GPS receivers. You can also form networks and exchange data with other *Bluetooth* enabled computers or PDAs.

In order to connect and share services via *Bluetooth* wireless technology, two devices must support the same *Bluetooth* Profile(s) as well as opposite device roles (i.e., one must be the server, and the other must be the client). *Bluetooth* enabled devices often support multiple profiles, and if involved in multiple connections, can perform different device roles simultaneously.
BlueSoleil supports the following *Bluetooth* functions (Profiles) in the following device roles:

Bluetooth Functions (Profiles)	***Client***	***Server***
AV Headphone*	V	V
Basic Image Profile	V	V
Dial-Up Networking	V	
Fax	V	
File Transfer	V	V
Headset*	V	V
Human Interface Device	V	
LAN access	V	V
Object Push	V	V
Personal Area Networking	V	V
Printer	V	
Serial Port	V	V
Synchronization	V	V

Notes:

• *Only one Headset or AV Headphone connection can exist at a time, since*

there is only one virtual Bluetooth audio device.
• The Headset and AV Headphone Profiles do not work on Windows 98SE or Windows Me.

Platforms supported by BlueSoleil include:

- Windows 98SE/ME
- Windows 2000/XP

Copyright

The information in this document is subject to change without notice. No part of this document may be reproduced or transmitted in any form or by any means, electronically or mechanically, for any purpose, without the express written permission of IVT Corporation. Some parts of the content in this document come from the *Bluetooth* Specification under the license.

IVT may have patents, patent applications, trademarks, copyrights, or other intellectual property rights covering the subject matter in this document. Except as expressly provided in any written license agreement from IVT, the furnishing of this document does not provide any license to these patents, trademarks, copyrights, or other intellectual property.

Copyright 2002, IVT Corporation. All rights reserved.

BlueSoleil™, is a trademark of IVT Corporation.

Bluetooth is a trademark owned by *Bluetooth* SIG, Inc. and licensed to IVT. Other product and company names mentioned herein may be the trademarks of their respective owners.

3

Getting Started

Basic operations for *Bluetooth*:

- Start *Bluetooth*
- Establish *Bluetooth* connection

BlueSoleil supported *Bluetooth* functions:

- AV Headphone
- Basic Imaging
- *Bluetooth* Synchronization
- Dial-Up Networking
- FAX
- File Transfer
- Headset
- Human Interface Device
- LAN Access
- Object Push
- Personal Area Network
- Printer
- Serial Port

For *Bluetooth* securities, please see:

- *Bluetooth* Security

Start *Bluetooth*

BlueSoleil supports the following kinds of *Bluetooth* radio adapters: USB, CompactFlash card (UART or BCSP).

With *Bluetooth* USB Dongle:

1. Insert the USB dongle to your computer.
2. Start BlueSoleil.

The plug in and pull out of the USB dongle can be detected by BlueSoleil. You can start BlueSoleil first and then plug in a USB dongle.

Cardbus *Bluetooth* just work on Windows 2000 and Windows XP

With *Cardbus Bluetooth* PC card:

1. Insert the PC card to your computer and make sure the driver for the PC card is installed correctly.
2. Start BlueSoleil.

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.
   Single-click the highlighted service button to establish the connection.

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***.*

Bluetooth Security

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

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.*

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 transmit wirelessly to the headphone.

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 1.
2. Click the button to capture the image. The captured image will be transmitted to your computer and displayed.

Figure 1 *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.

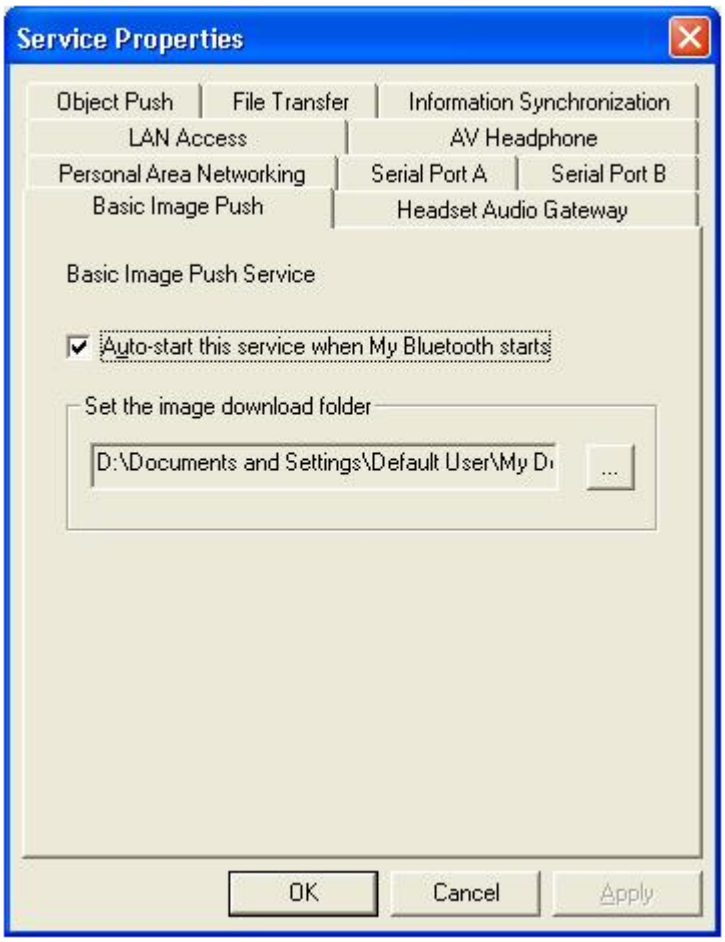


Figure 2 Service Configuration

Dial-up Networking

The *Bluetooth* Dial-up Networking (DUN) Profile enables users to wirelessly dial-up to Internet through a *Bluetooth* modem or a mobile phone that supported the DUN Profile.

Typical Usage

- Dial-up to Internet via a *Bluetooth* enabled mobile phone.
- Dial-up to Internet via a *Bluetooth* enabled modem.

Dial-up to Internet via a *Bluetooth* mobile phone

1. Connect to the phone's Dial-Up Networking Service.
2. The **Dial-Up Dialog** will appear. Enter the dial-up number, User name, and Password. Make sure the correct dial-up number is entered, then click on the Dial button.

Note: *The default dial-up number *99***1# only works with certain GPRS phones and service providers. If necessary, enter the correct dial-up number for your Internet Service Provider (ISP).*

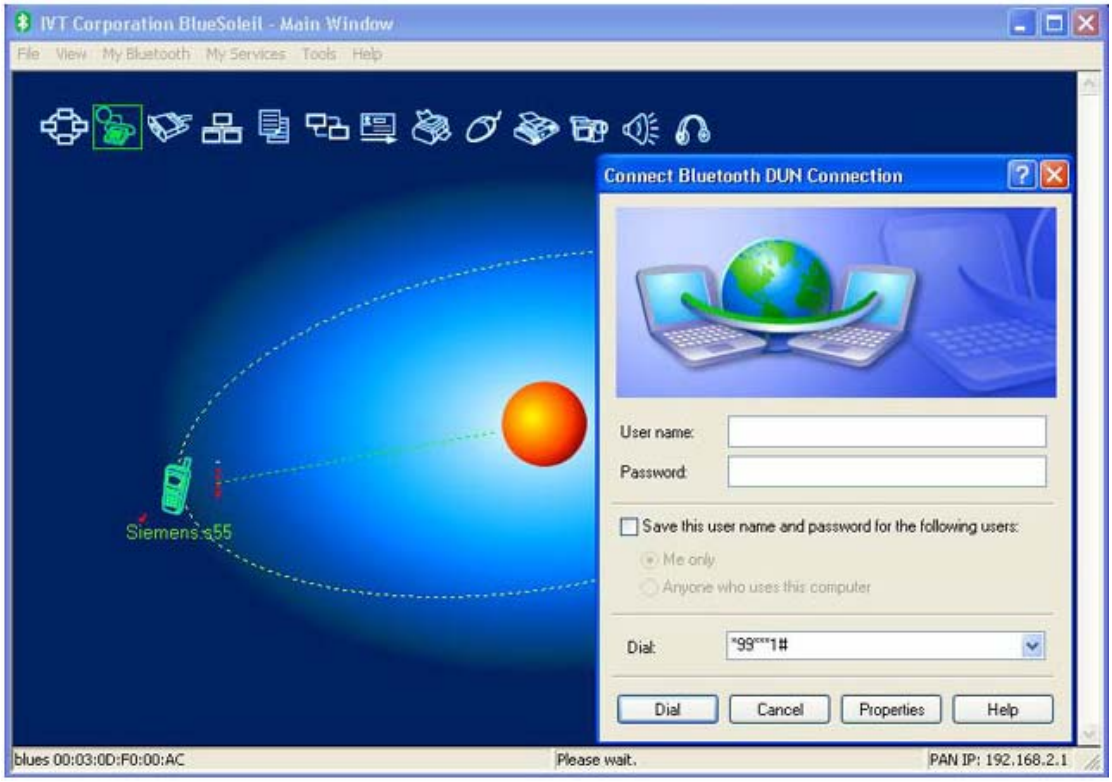


Figure 1 Dial-Up Dialog

Note: *After you successfully connect, a screen will ask if you would like to create a dial-up shortcut on your desktop. This would allow you to conveniently dial up and connect by simply clicking on the shortcut, without having to manually start BlueSoleil.*

FAX

The *Bluetooth* FAX profile enables users to send fax from a computer via a *Bluetooth* enabled mobile phone or modem.

Typical Usage

- Send fax via a *Bluetooth* enabled mobile phone.
- Send fax via a *Bluetooth* enabled modem.

Send Fax via *Bluetooth* enabled mobile phone

1. Connect to the mobile phone's FAX service.
2. Use your fax software to send the message.

Send Fax via *Bluetooth* enabled modem

1. Connect to the modem's fax service.
2. Start your fax software. Configure your fax software for the Bluelet Fax Modem (NOT the Bluelet Modem). Refer to your fax software's user documentation for instructions.
3. Use your fax software to send the message.

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 your 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.

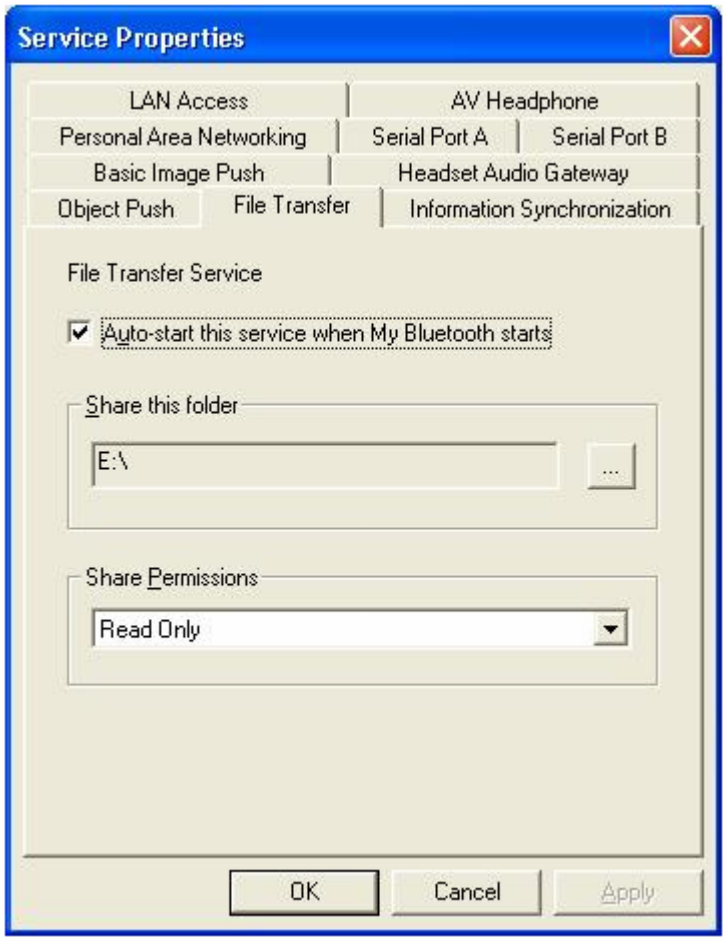


Figure 1: Service Configuration

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.*

Human Interface Device

The *Bluetooth* Human Interface Device (HID) profile enables users to use *Bluetooth* enabled HID Device such as keyboard, mice or joystick to control your computer.

Typical usage

- Connect a *Bluetooth* enabled Mouse and a Keyboard to Your Computer.

Connect a *Bluetooth* Mouse and a Keyboard to Your Computer

1. Connect the *Bluetooth* enabled mouse to your computer.
2. Connect the *Bluetooth* enabled keyboard to your computer. Before you can use BlueSoleil to connect, you may need to press a button on the keyboard to make it discoverable.

Note:

- The first time you connect the mouse or keyboard to your computer, the Found New Hardware Wizard will automatically launch. In the first screen of the wizard, DO NOT INSERT ANY CD and click Next. Follow the next screens until you complete the wizard. If the wizard reappears, cancel the wizard. You should be able to use the mouse or keyboard with your computer.
- The *Bluetooth* enabled mouse/keyboard can automatically re-connect to your computer after you successfully establish the initial connection.

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 1 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 2).

Figure 2 : 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)

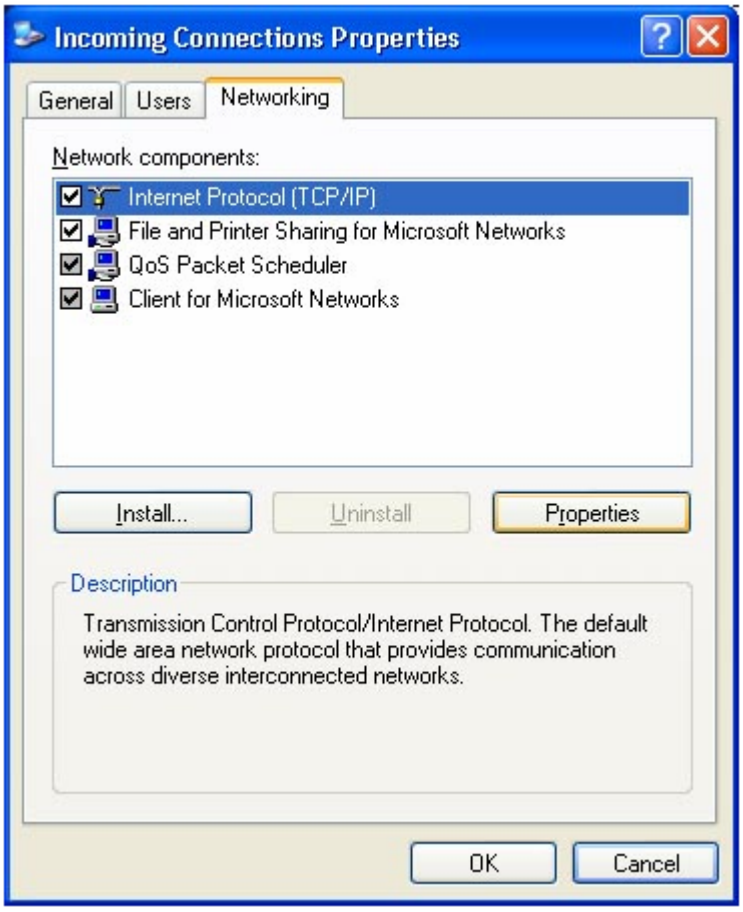


Figure 3 : Internet Protocol (TCP/IP) Network Component

(3) Select **Specify TCP/IP addresses** and enter the range of IP addresses assigned to LAP clients (Figure 4).

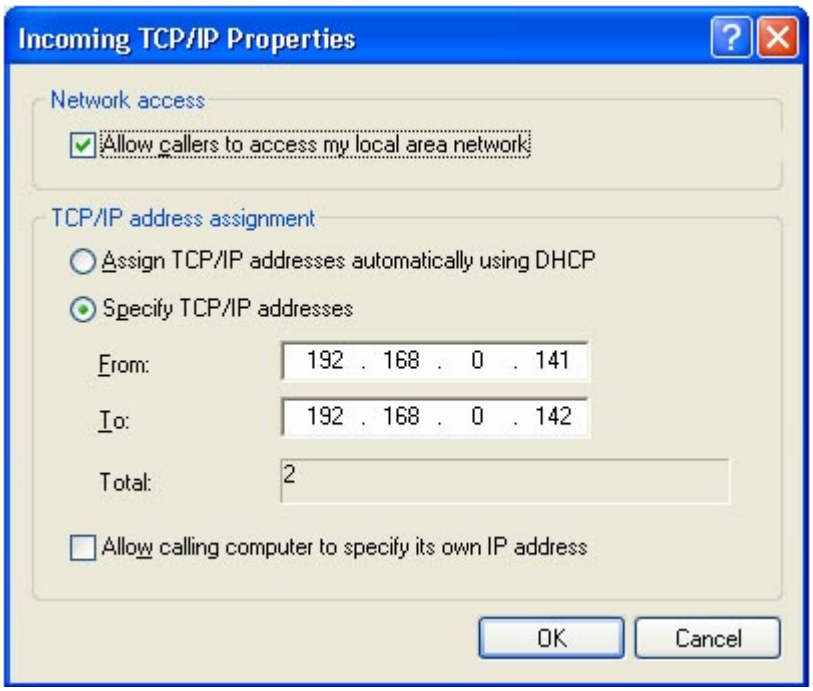


Figure 4 : Enter the IP Addresses

Note: *In order to use a Windows 98SE/Me system as an access point, you must have already installed a Dial-up Adapter and the Windows Direct Cable Connection component on the system.*

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 1)

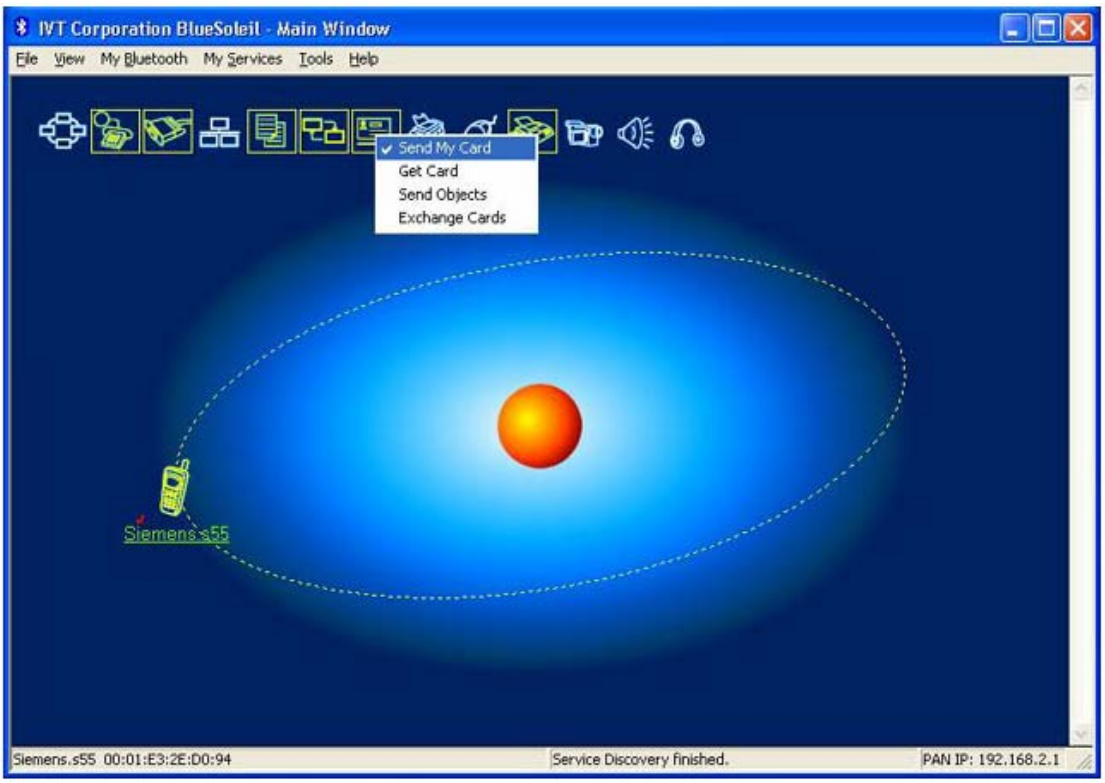


Figure 1: Send Object

- **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**.

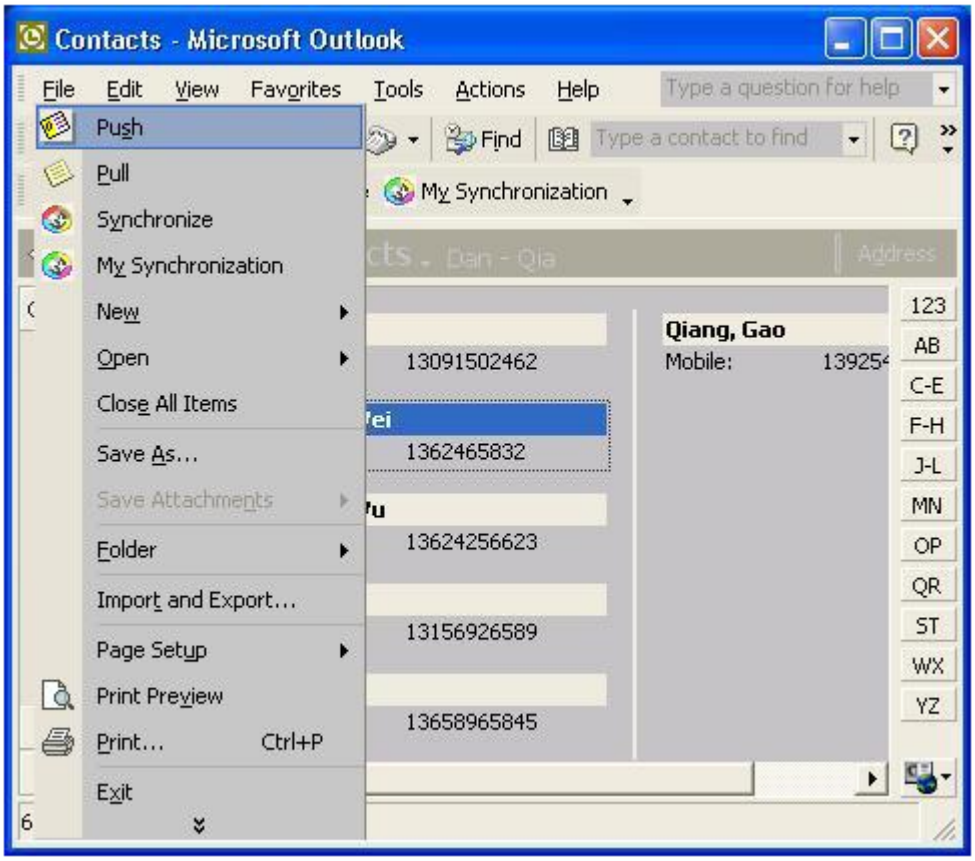


Figure 2 Outlook *Bluetooth* Add-in

(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.

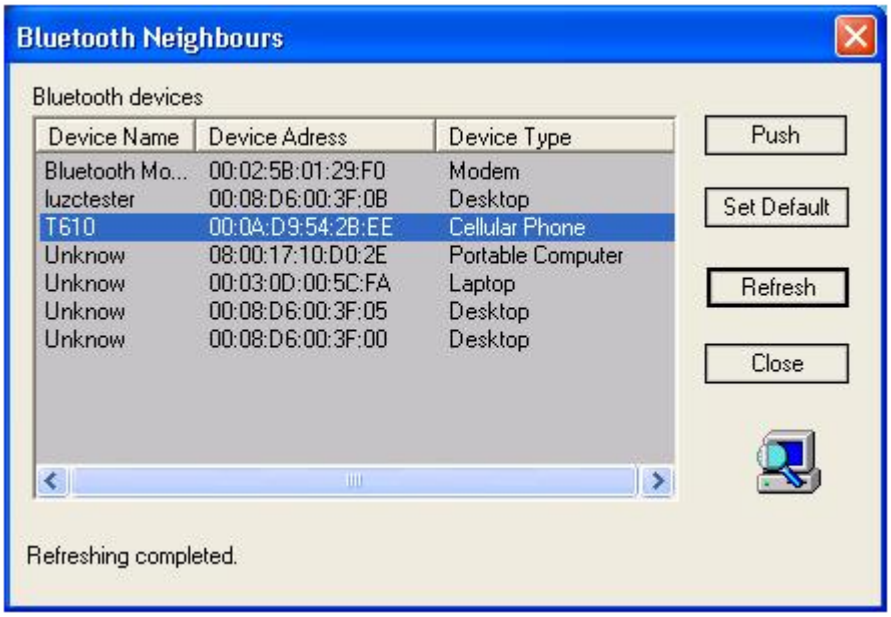


Figure 3 Select the Remote Device

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.

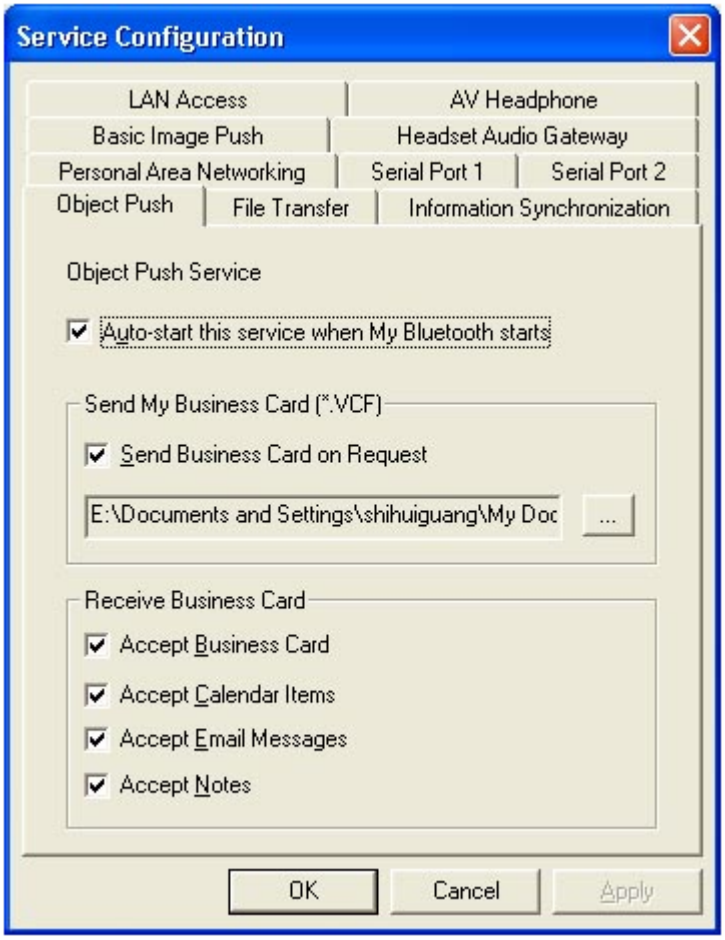
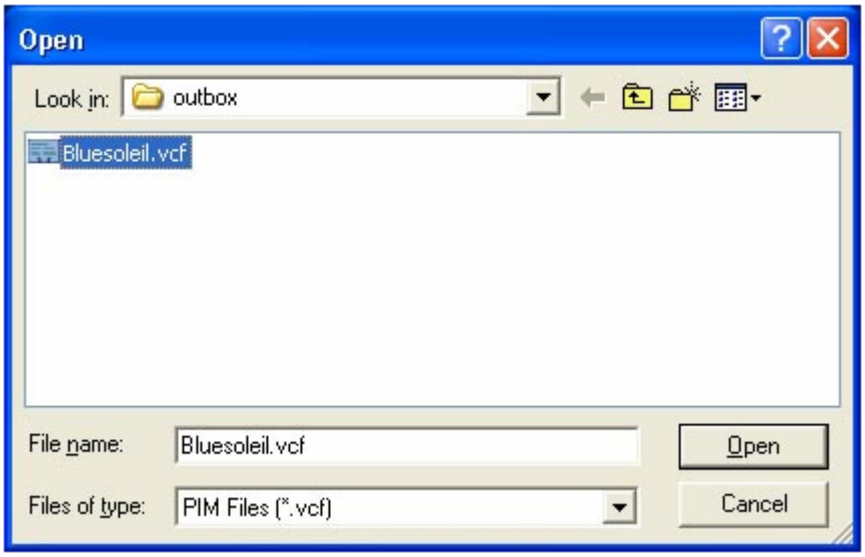


Figure 1: Object Push Service Configuration

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.*



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.

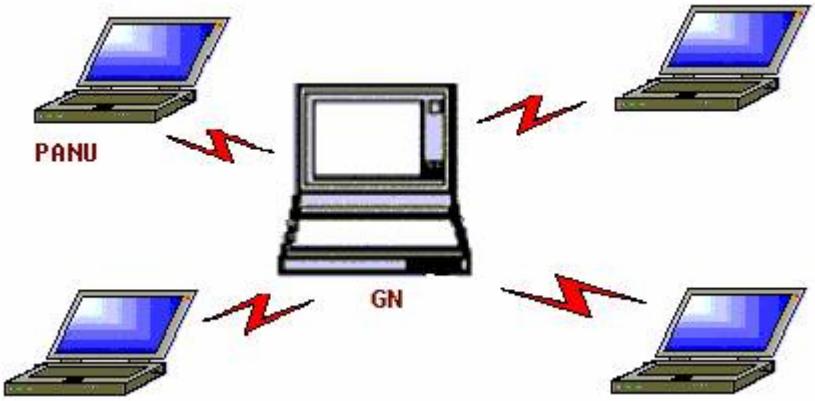


Figure 1: Group Ad-hoc Network

- 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.

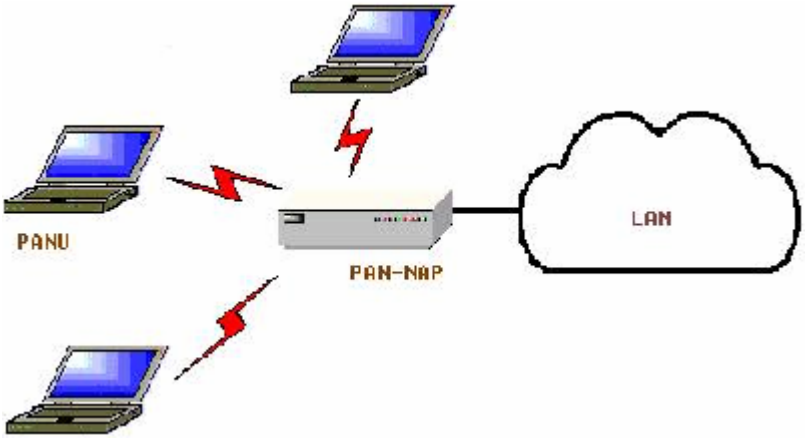


Figure 2: Access LAN Via PAN-NAP

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).
  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**.

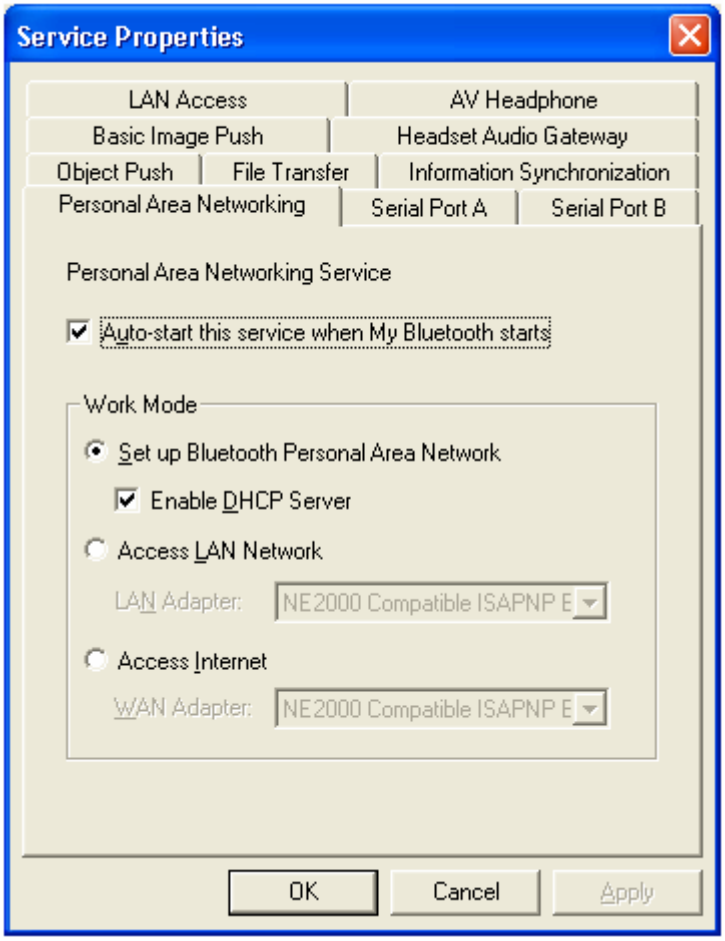


Figure 3: Set Up *Bluetooth* Personal Area Network

- 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 4).

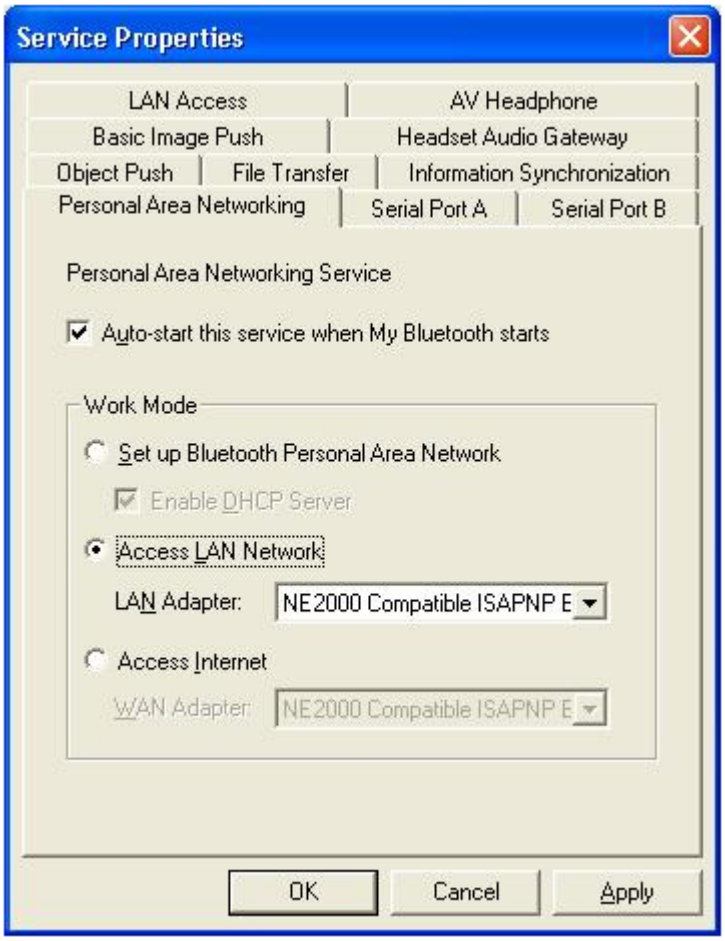


Figure 4: Access LAN Network

- **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 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.*

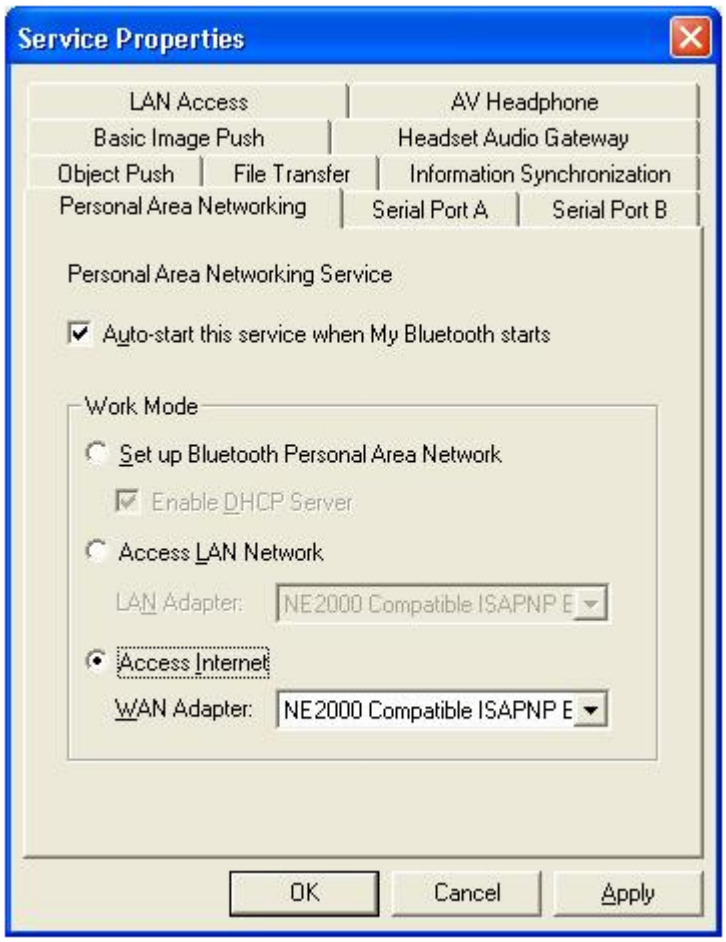


Figure 5: Access Internet

Printer

The *Bluetooth* Printer Profile (HCRP) enables your compter to connect to a *Bluetooth* enabled printer.

Typical Usage

- Print documents to a *Bluetooth* enabled Printer.

Print Documents to a Bluetooth Printer

1. Connect to the printer's printer service.
2. (a) If your computer does not have the correct printer drivers installed, BlueSoleil will prompt you to do so (Figure 1).

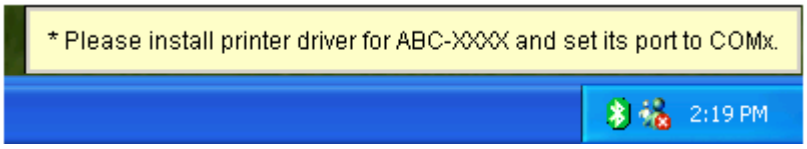


Figure 1 *Bluetooth* Printer Driver Is Not Installed

Install the driver for the printer, and remember to set the printer port to the correct COM port number. To determine the correct COM port number, in the Main Window, right-click on the device icon. In the pop-up menu, select Status.

(b) If the printer driver has been installed, a message indicates the *Bluetooth* printer is ready (Figure 2).

Figure 2 Printer Driver Is Ready

3. Print documents using the *Bluetooth* enabled printer. In the application, be sure to select the correct printer and printer port.

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.*

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 1). Click on the Start button to synchronize. Contacts, calendars, notes and emails in MS Outlook will be synchronized with those on the phone.

Figure 1: 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 2), and select the type of PIM objects that you would like to synchronize.*

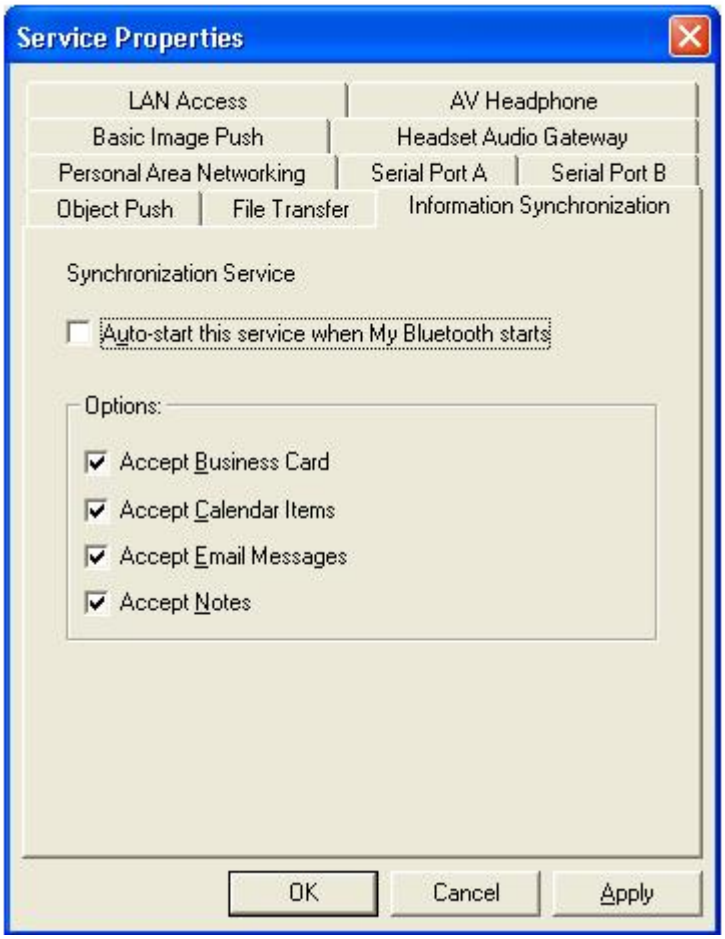


Figure 2: Service Configuration

4

BlueSoleil User Guides

This chapter describes BlueSoleil User Iterface and how to do various configurations and operations. It includes:

- BlueSoleil Environment
- *Bluetooth* Connection Management
- Configurations
- *Bluetooth* Security

For details on how to use *Bluetooth* profiles in BlueSoleil , please refer to **Getting Started with BlueSoleil**.

BlueSoleil Environment

The BlueSoleil Graphic User Interface includes:

- Main Window
- Service Window
- Menus

Main Window

Main Window displays the local device (red ball) and the remote devices detected in range. Connecting and disconnecting operations are conducted here. Connections are indicated in lines between the local device and connected remote devices.

By default BlueSoleil starts with the Main Window open. To return to the Main Windows after switching views, click **View | Main Window**.

The following elements are included:

- Local *Bluetooth* Device
- Remote *Bluetooth* Devices
- *Bluetooth* Service Buttons of Remote Device

Local *Bluetooth* Device

The Local *Bluetooth* enabled device, known as "**My Device**", represents the user's computer that is running BlueSoleil.

Icon:

Operations:

- Hover mouse to display the local *Bluetooth* device's name or address (if without name).
- Click on the red ball to start or stop searching for *Bluetooth* devices in range.
- Right-click on the red ball to display a pop-up menu of related operations (e.g., General Inquiry, My Services, Security, etc.).

Remote *Bluetooth* Devices

Remote devices are other *Bluetooth* enabled devices that are in the *Bluetooth* radio range of your local device. BlueSoleil uses different icons to indicated different types of remtoe devices..

Icons

Devices	Icon	Devices	Icon
Personal Computer		Laptop	
Modem		Mobile	
PDA		LAN Access Point	
Keyboard		Mouse	
Microphone		HiFi Audio	
Loud Speaker		Headset	
Printer		Scanner	
FAX		Camera	
Game bar		Server	
Unknown device			

Icon Meanings

Remote devices can be in any of three states, which BlueSoleil indicates with different colors.

- White- Idle. The normal state of the device.
- Yellow- Selected. you have selected the device.
- Green- Connected. The device is connected to your computer.

Operations

- Single-click on the icon to select.
- Double-click on the icon to search for the services supports by the remote Bluetooth device .
- Right-click on the icon to display a pop-up menu of related operations (e.g. Refresh Services, Pair Devices, Connect, etc.).

Bluetooth Service Buttons of Remote Device

Service buttons at the top of the Main Window represent a range of *Bluetooth* services potentially supported by Remote Devices .

Services	Button Image	Services	Button Image
PAN		DUN	
SPP		LAP	
FTP		SYNC	
OPP		HCRP	
HID		FAX	
BIP		AV	
Headset			

Icon Meanings

There are 3 states for the service icons, indicated by different colors.

- White- Idle. The normal state.
- Yellow- Available. The *Bluetooth* service is available on the selected remote device.
- Green- Connected. The *Bluetooth* service is active in a connection with the remote device.

Operations

- Hover your mouse over the service icon to display the name of the service.
- Single-click on the service icon to connect.
- Right-click on the service icon to display a pop-up menu of related operations.

Service Window

The service Window displays the local *Bluetooth* services, (i.e., the *Bluetooth* services supported by BlueSoleil). Use the Service Window to start and stop services, as well as to configure service properties. To access the Service Window, click **View | Service Window**.

The following elements are included:

- Local Service List
- Service Status

Local Service Status

The local service status can be viewed from the **Local Service Status** dialog box.

Right click whichever local service icon in service window and select the **Status**... on the pop-up menu.

The **Local Service Status** dialog will be displayed.

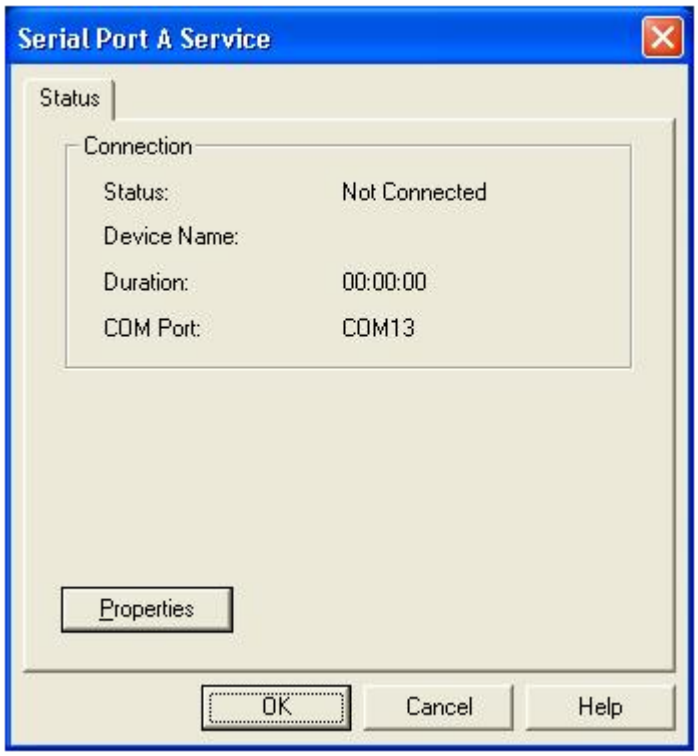


Figure1: Local Service Status (e.g. Serial Port A service)

Connection:

Status: Whether the local service is connected.

Device Address: Display the *Bluetooth* address of remote device which connect to the service.

Duration: The time elapsed since the connection was set up.

COM Port: The virtual *Bluetooth* COM ports connected by remote device.

PAN Service Status dialog is different from others.

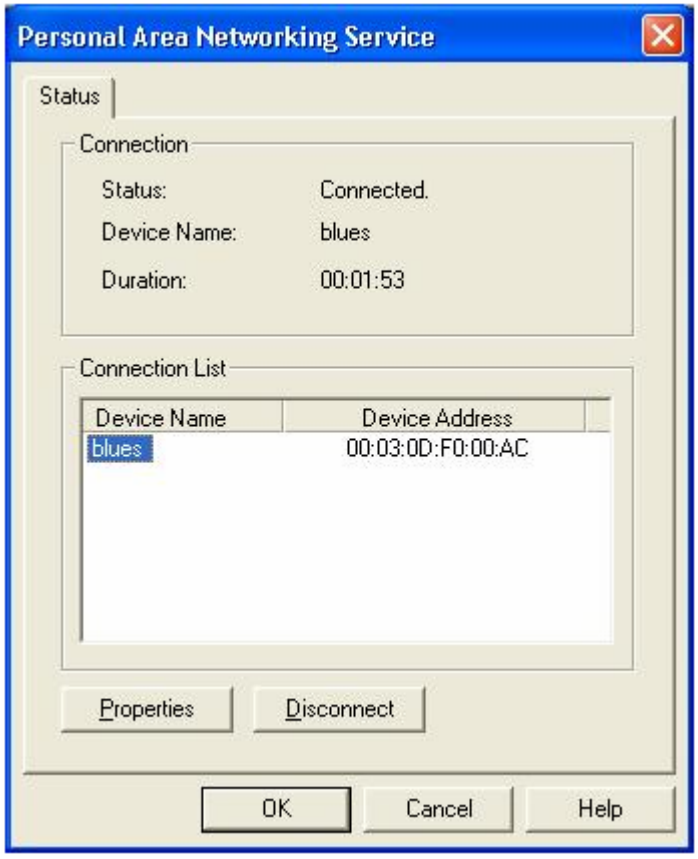


Figure2: Local Service Status (PAN)

Connection:

Status: Whether the local service is connected.

Device Name: Display the name of remote device which connects to the service.

Duration: The time elapsed since the connection was set up.

Connection List:

Display the names and addresses of remote devices which connect to the PAN service.

Local Service List

The Local Service List displays all the *Bluetooth* services supported by the local computer. Use this screen to start/stop services.

Services	Icons	Services	Icons
PAN		SPP	
OPP		FTP	
SYNC		LAP	
A2DP		BIP	
Headset AG			

Icon Meanings

There are 3 states for the local *Bluetooth* services, indicated by different icon colors.

- White- Idle. The service has not been started.
- Yellow- Started. The local *Bluetooth* service has been started.
- Green- Connected. Some remote device has connected to the service.

Operations

- Single-click on the icon to select the service.
- Double-click on the icon to Start/Stop a service.
- Right-click to display a pop-up menu of related operations.

Menus

BlueSoleil contains the following six menus:

- File Menu
- View Menu
- My *Bluetooth* Menu
- My Services Menu
- Tools Menu
- Help Menu

File Menu

- **Hide** --- Hide the BlueSoleil window. Connections can still run when the window is hidden.
- **Always on Top** --- Keep BlueSoleil window always on top.
- **Exit** --- Exit BlueSoleil.

Note: You can also exit BlueSoleil by right-clicking on the task tray icon at the bottom of your screen. In the pop-up menu, click Exit.

View Menu

- **Main Window** --- Show the BlueSoleil Main Window .
- **Service Window** --- Show the BlueSoleil Service Window.
- **Arrange Devices** --- Arrange all remote devices by Device Name, Device Address or Device Type.
- **Refresh Devices** --- Refresh the list of remote devices detected by BlueSoleil.

Note: *If you select Refresh Devices, the list of previously detected devices will not be cleared. To initiate a new device search that will first clear the list, press F5.*

My *Bluetooth* Menu

- ***Bluetooth* Device Discovery** --- Search for other *Bluetooth* enabled devices in range.
- ***Bluetooth* Service Discovery** --- Browse for the services of the selected remote device.
- **Security** --- Configure the security setting of the local device (e.g. passkey requirement, data encryption, etc.).
- **Properties** --- Configure the properties of the local device (e.g. device name, accessibility, etc.).

My Services Menu

- **Start Service** --- Start the selected local *Bluetooth* service.
- **Stop Service** --- Stop the selected local *Bluetooth* service.
- **Status** --- View the status of the selected local *Bluetooth* service.

- **Properties** --- Configure the properties of the local *Bluetooth* services (e.g., automatic connections, shared file locations, etc.).

Tools Menu

- **My Bluetooth Shortcuts** --- Display dialog **My *Bluetooth Shortcuts***. (Figure 1)
  (1) **Connect:** Connect the selected shortcut.
  (2) **Delete:** Delete the selected shortcut.

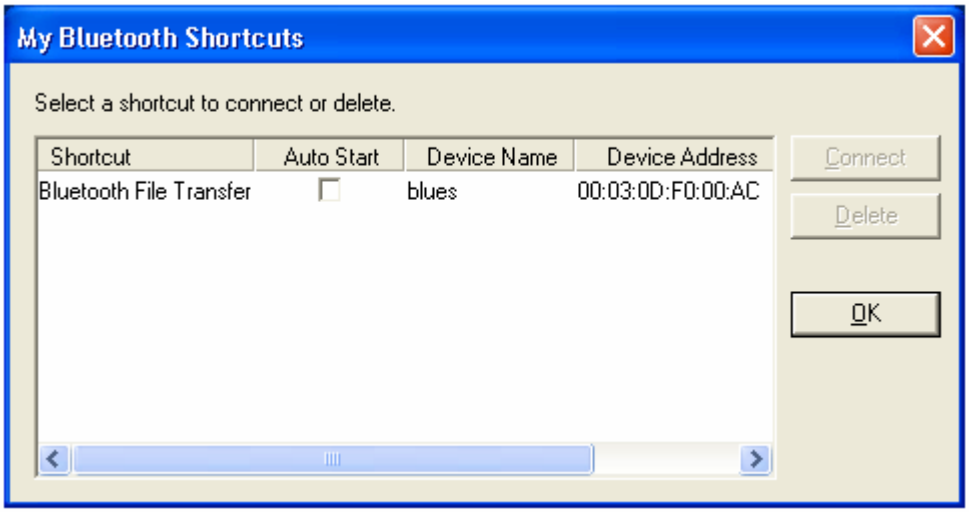


Figure 1 My *Bluetooth* Shortcuts

- **Find Device** --- Click to find a device, by either of two search criteria. (Figure 2)
  - By *Bluetooth* Device Address:
    Enter a *Bluetooth* device address, in standard format: (xx:xx:xx:xx:xx:xx), and click on the **Find** button. The device with the specified address will appear highlighted in the **Main Window**.
  - By Name:
    Check the By Name checkbox, enter the Name of the device, and click on the Find button. The device with the specified name will appear highlighted in the Main Window.

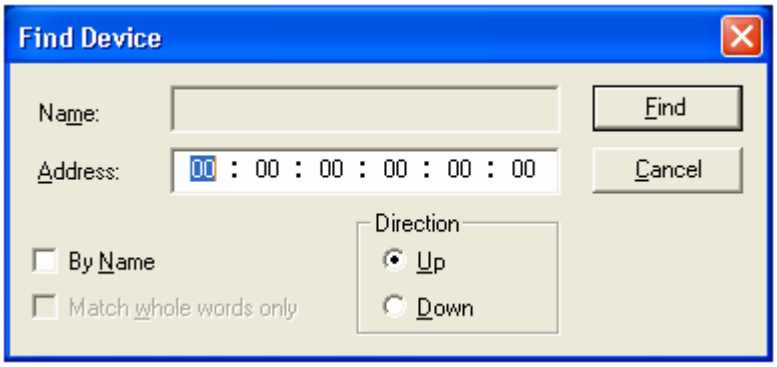


Figure 2 Find Device

- **Add New Device** --- Add a remote device by entering its *Bluetooth* device address. (Figure 3)

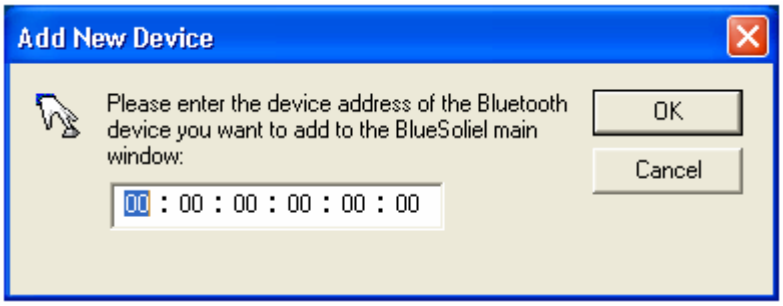


Figure 3 Add New *Bluetooth* Device

- **Add Device From History** --- Add a remote device from history list. (Figure 4)
  (1) **Add:** Add the selected device to the **Main Window**.
  (2) **Delete:** Delete the selected device from the history list.

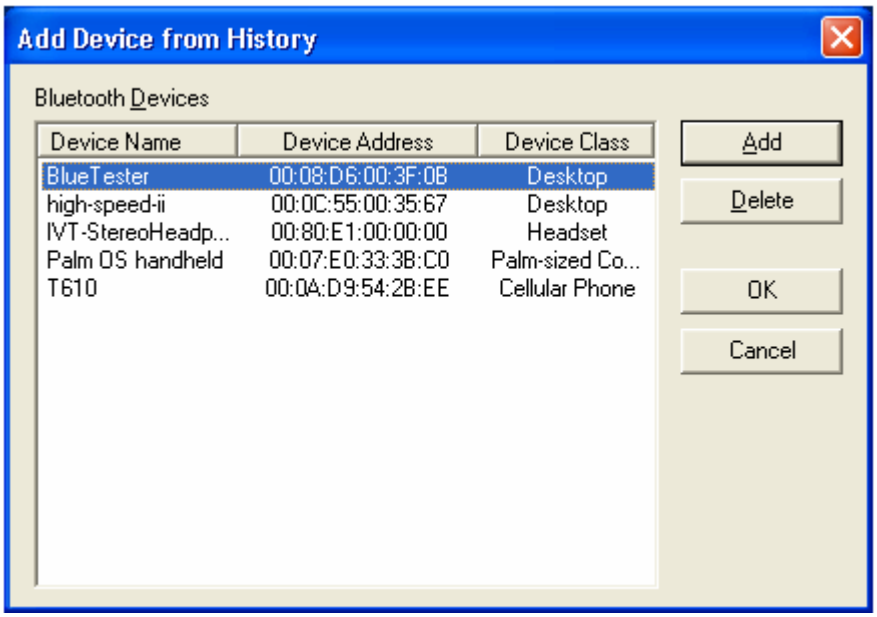


Figure 4 Add Device From History

- **Configurations-> Quick Connect** --- If desired, assign a remote device to automatically connect with whenever an application opens a specified *Bluetooth* serial port.

(1) **Assign:** Assign a device to the selected port.
(2) **Remove:** Remove the Auto-Connection device assignment for the selected port.

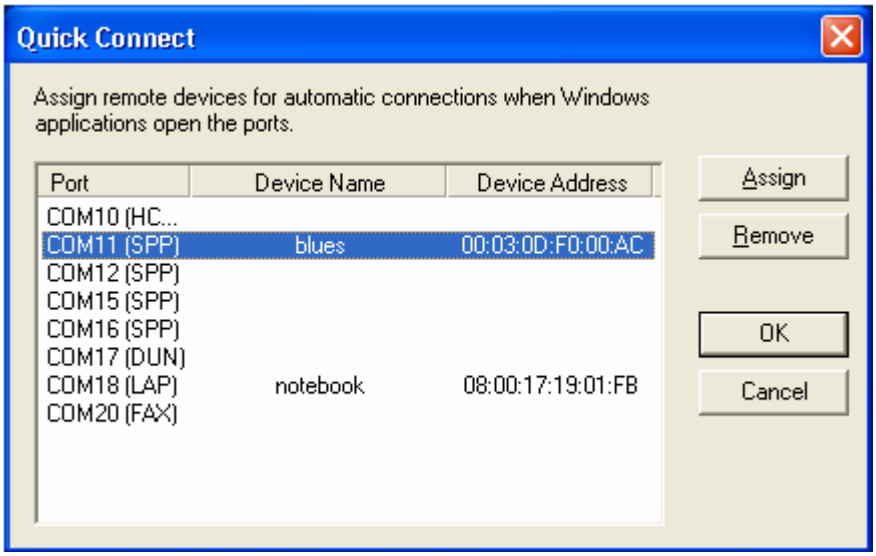


Figure 5 Quick Connect

- **Configurations->Unplug HID** --- Remove Human Interface Devices from BlueSoleil. (Figure 6)
  Unplug: Unplug the selected HID device.

  When you first connect the HID device to your computer, BlueSoleil sets up the devices so that they will automatically reconnect in case the connection is ever broken. After you unplug an HID device, it will no longer automatically reconnect to your computer.

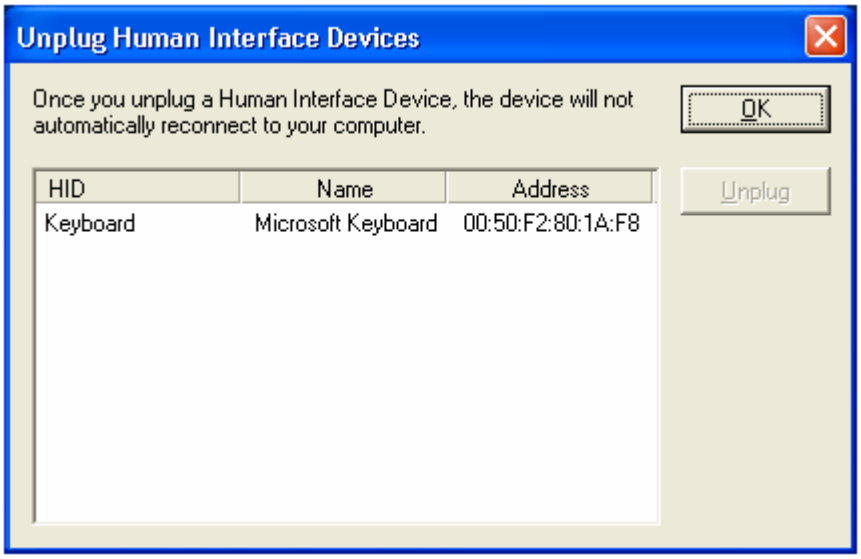


Figure 6 Unplug HID Device

- **My *Bluetooth* Device** --- Advanced hardware configuration, recommended for advanced users only. Please refer to **Hardware Configuration** for more details.

Help Menu

- **Contents and Index** --- Access BlueSoleil Online Help.
- **About BlueSoleil** --- Information about your version of BlueSoleil.

Bluetooth Connection Management

Bluetooth Connection Management includes:

- Find Remote Devices
- Connect and Disconnect
- Connect via Shortcuts
- Remote Device Status
- Remote Device Properties

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.

1. Select menu **Tools | Add New Device...**. The **Add New Device** dialog pops up.
2. 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.*

Connect and Disconnect

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.
   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.
2. 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.*

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.

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 applies 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.

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.

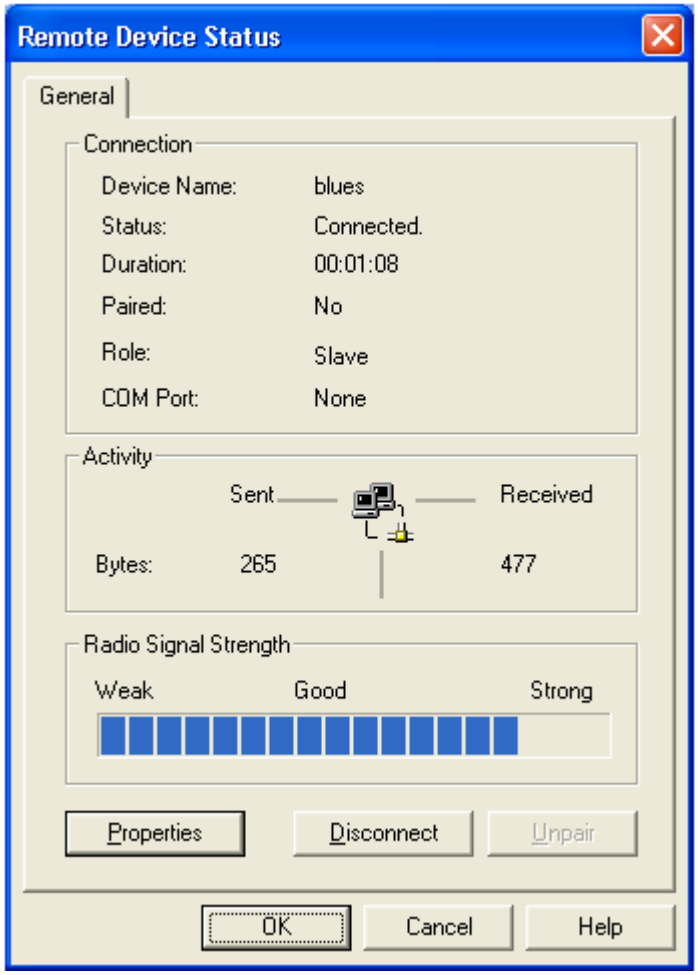


Figure 1 Remote Device Status

- 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.

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.

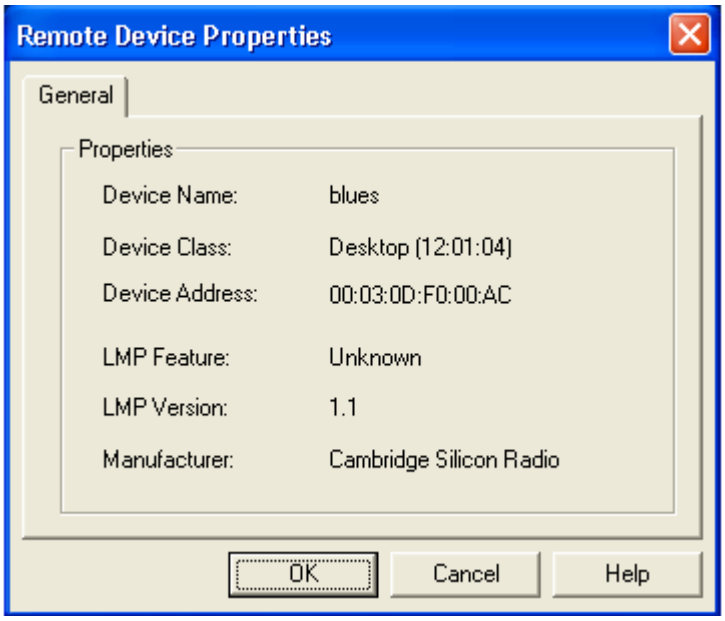


Figure 1 Remote Device Property Dialog

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.

Device Configurations

The local device configurations include:

- Local Device Hardware Configuration
- Local Device Properties Configuration

Hardware Configuration

BlueSoleil supports the following kinds of *Bluetooth* radio adapters: USB, CompactFlash card (UART or BCSP).

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

- ***Bluetooth* Device**
  Select the type of *Bluetooth* enabled device that you plan to use, either a USB adapter or a CompactFlash (CF) card. (Figure 1).

Figure 1 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 A*dvanced Configuration* screen to configure detailed parameters including COM Port, Baud Rate, Byte Size, Parity, Stop Bits, and Flow Control.

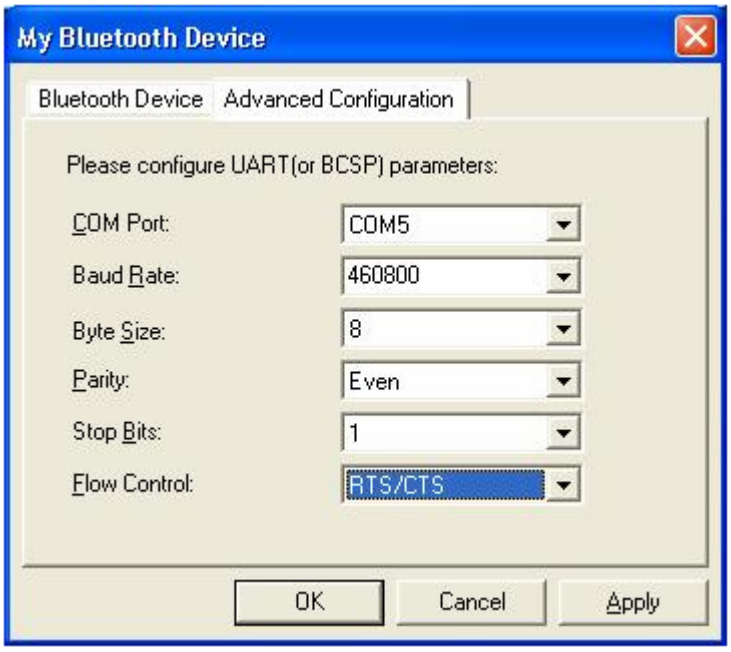


Figure 2 Advanced Configurations For UART Hardware Device

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
  The 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 1 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 2 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 3 Hardware Properties Page

Security Configuration

Use the Security Configuration screens to specify the security settings of your local device, it includes:

- General Security
- Paired Devices Management
- Local Services Security

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, select Unpair. The red checkmark next to the device icon will disappear.

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.

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, then click OK.

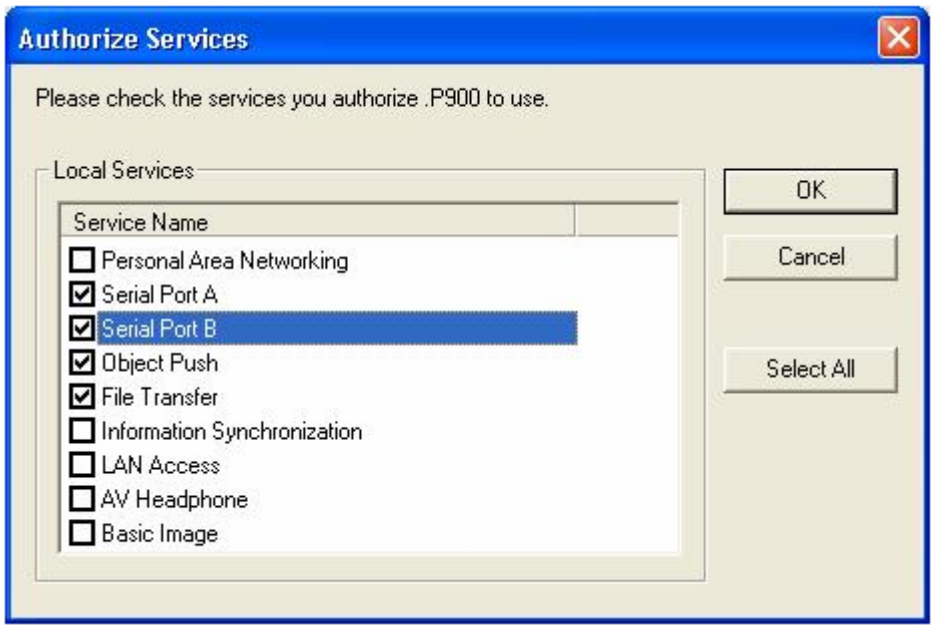


Figure 1 Authorize Services

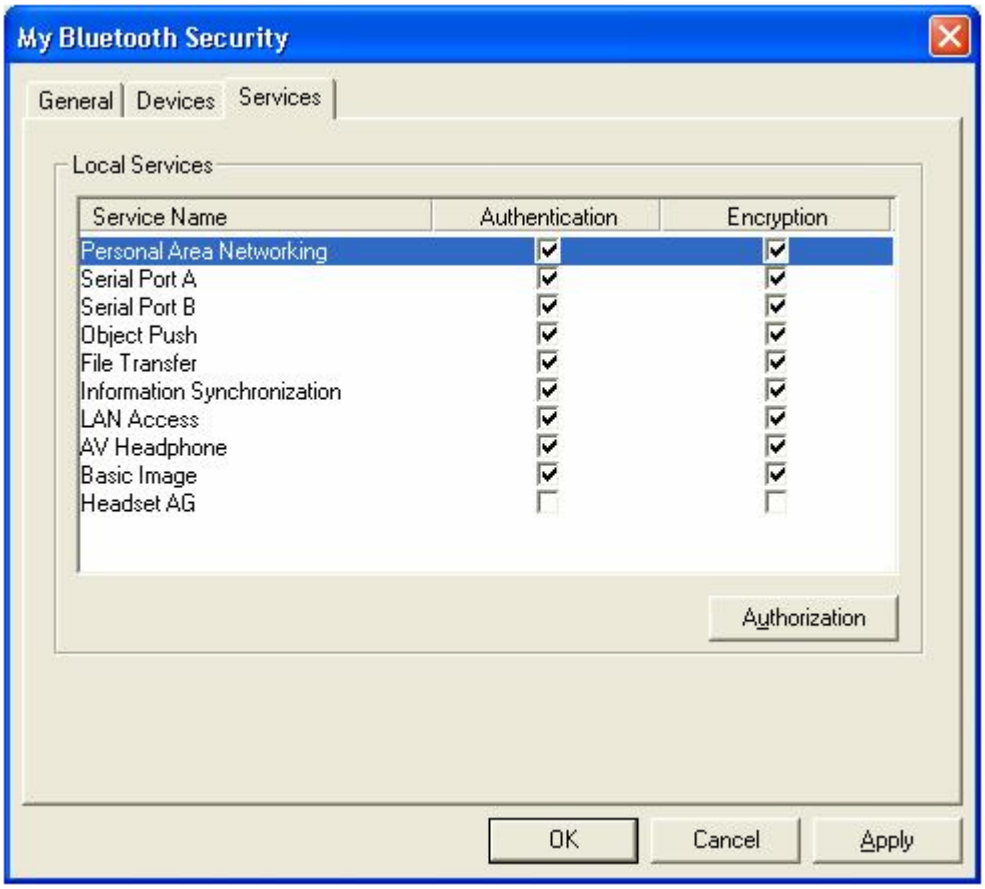
Note:

- *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.*

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

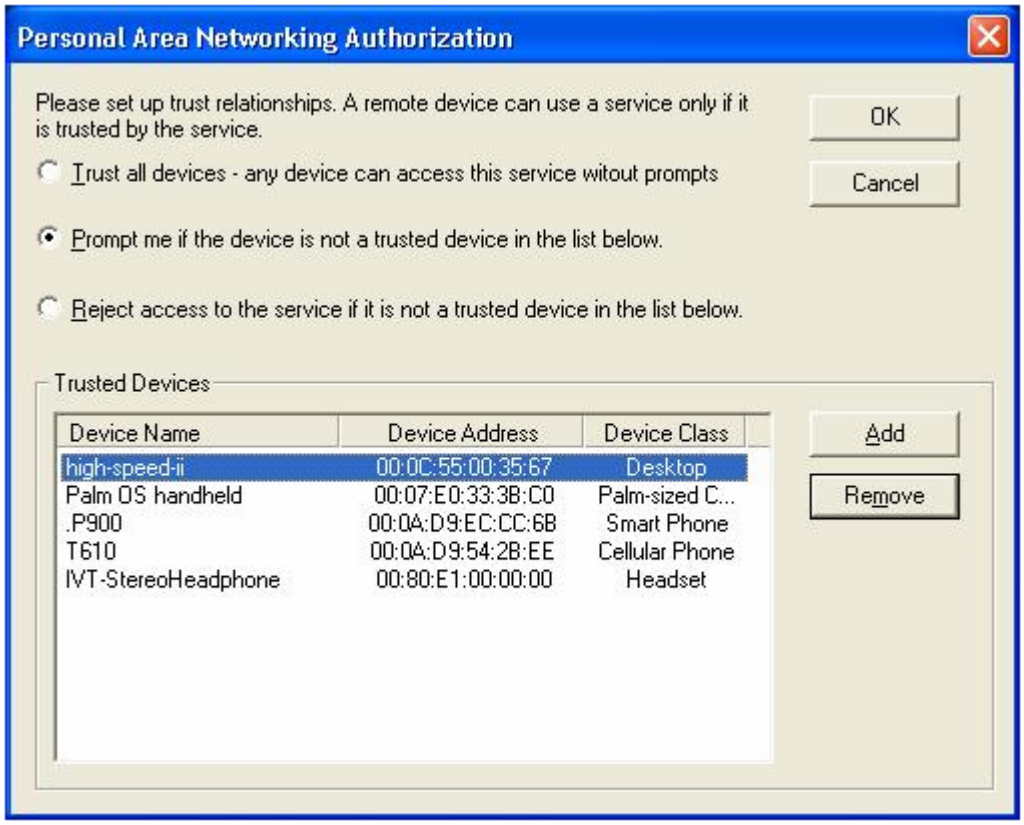
local services when the Security Level is set to Medium. (Set the Security Level in the General Security.)



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.



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.*

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 dongles 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 are 50-100 meters. Class 2 and class 3 devices are low power devices. Their transmission range are 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?

First, 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.
Second, please verify whether the remote device is within the radio range.
Third, 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.
Fourth, 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.

Terms

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

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 dongles, 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 a *Bluetooth* PDA etc. My PC together with the BlueSoleil and the *Bluetooth* dongle 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* Dongle** A *Bluetooth* device which can be added onto a PC or a notebook to make it *Bluetooth* enabled. Typically a 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 a 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* piconet 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 address 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 a *Bluetooth* PDA etc.

T

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

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference 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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.