

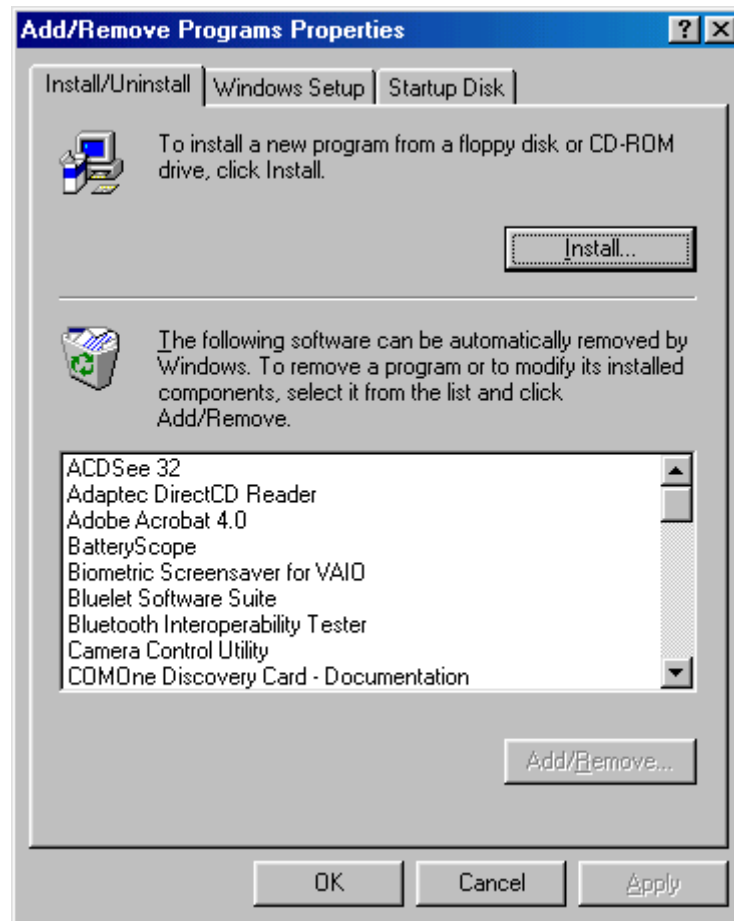


Figure 8.11: Select Windows Setup tab

- Step 4: Double-click the **Communications** item in the **Windows Setup** component list to check the properties. (Figure 8.12)

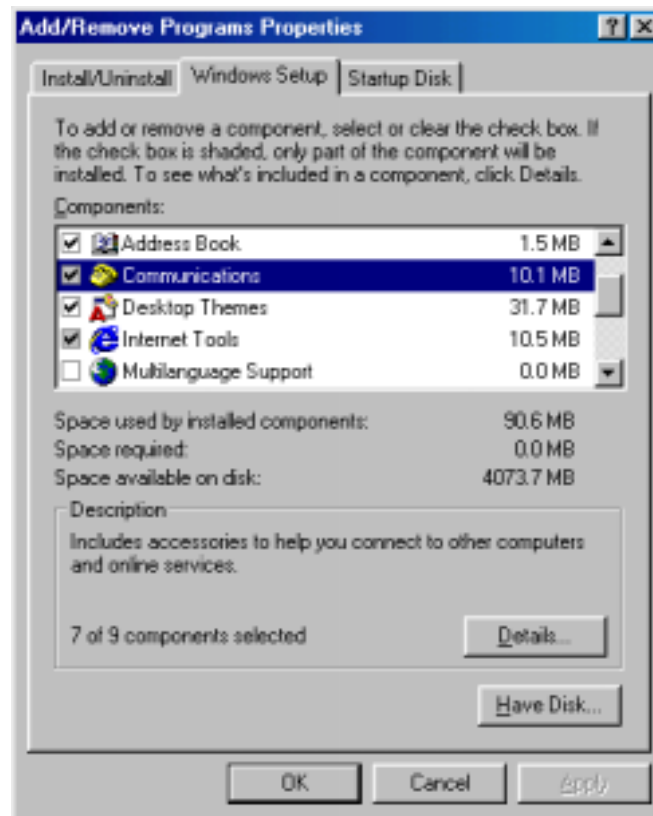


Figure 8.12: Double-click Communications item

- Step 5: Check if **Direct Cable Connection** is selected. If not, select it and click **OK** to install a **Direct Cable Connection**. (Figure 8.13)

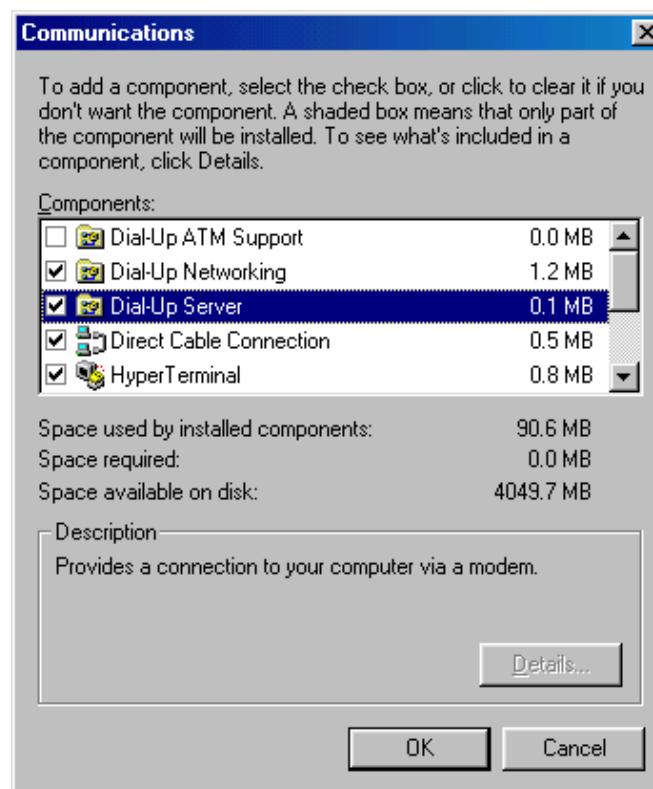


Figure 8.13: Check if Direct Cable Connection is selected

8.5 Usage of LAN Access Profile (server side) in Windows98/Me

8.5.1 Configure a LAP server in Windows 98/ Me

Step 1: Start the LAP service.

- ♦ See "Section 8.2: Access a Local Area Network (LAN)", Steps 1 to 5.
- ♦ If this is the first time the service is started in Windows 98/Me, the **Direct Cable Connection** window pops up.

Step 2: Select **Host** and click the **Next** button. (Figure 8.14)

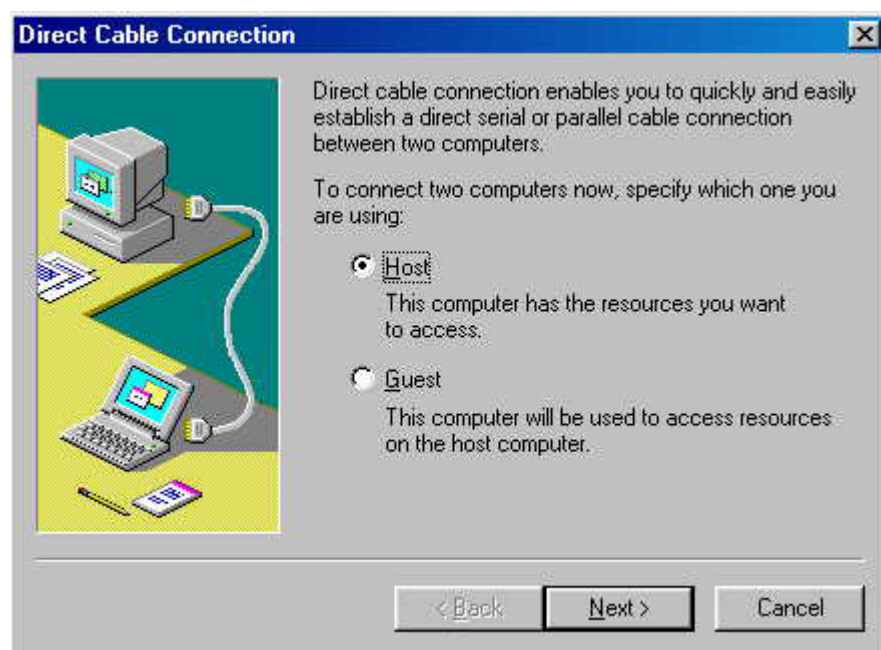


Figure 8.14: Direct Cable Connection window

Step 3: Select **Bluelet NULL Modem (Server)** and click **Next**. (Figure 8.15)

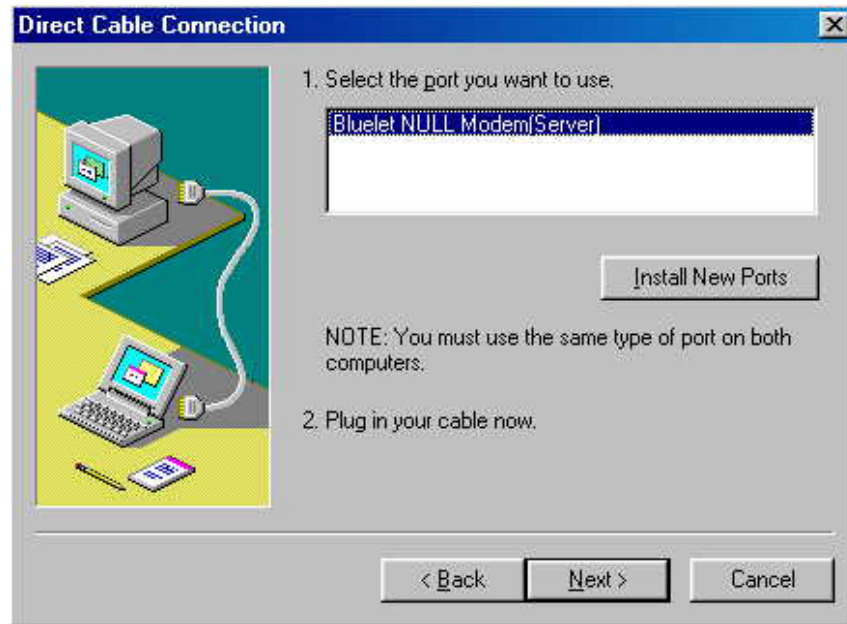


Figure 8.15: Select Bluelet NULL Modem (Server)

Step 4: Click the **Finish** button. (Figure 8.16)

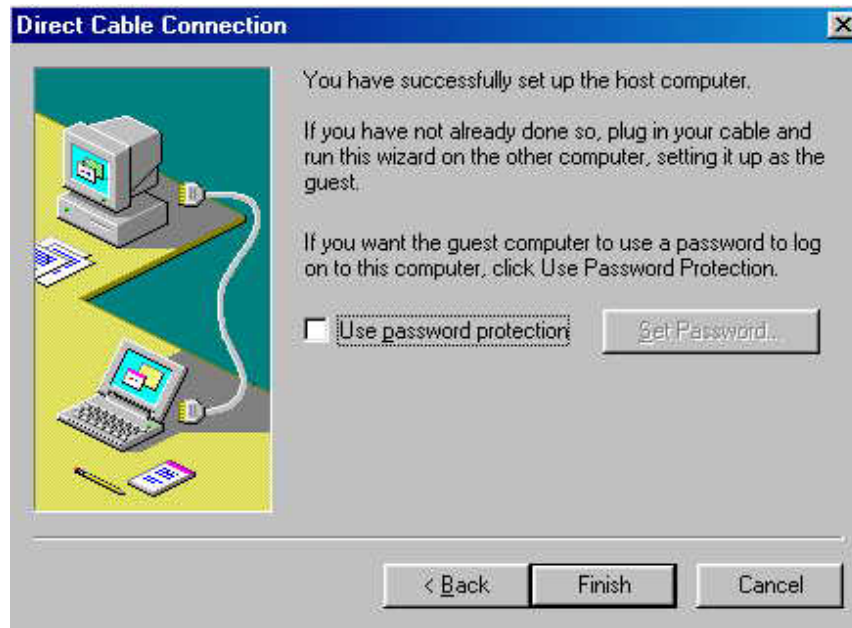


Figure 8.16: Click Finish button.

Step 5: Finally, the **Direct Cable Connection** window pops up. It is now possible to connect to the LAP server. No password is required.

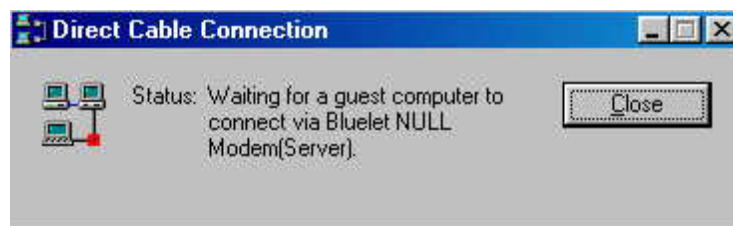


Figure 8.17: Connection created

Note: The above steps are applicable when configuring the LAP server for the first time only. The next time the LAP service is started, the Direct Cable Connection window (Figure 8.17) appears.

8.5.2 Set-up a LAP connection from Windows 2000 to Windows 98/Me

Step 1: In the **Connect BlueSoleil LAP Connection** window click **Properties** and a window as shown in Figure 8.18 pops up.



Figure 8.18: Connect BlueSoleil LAP Connection window

Step 2: Select the **Security** tab in **BlueSoleil LAP Connection** window. Select **Advanced (custom settings)** and click **Settings**. (Figure 8.19)



Figure 8.19: Select Advanced (custom settings)

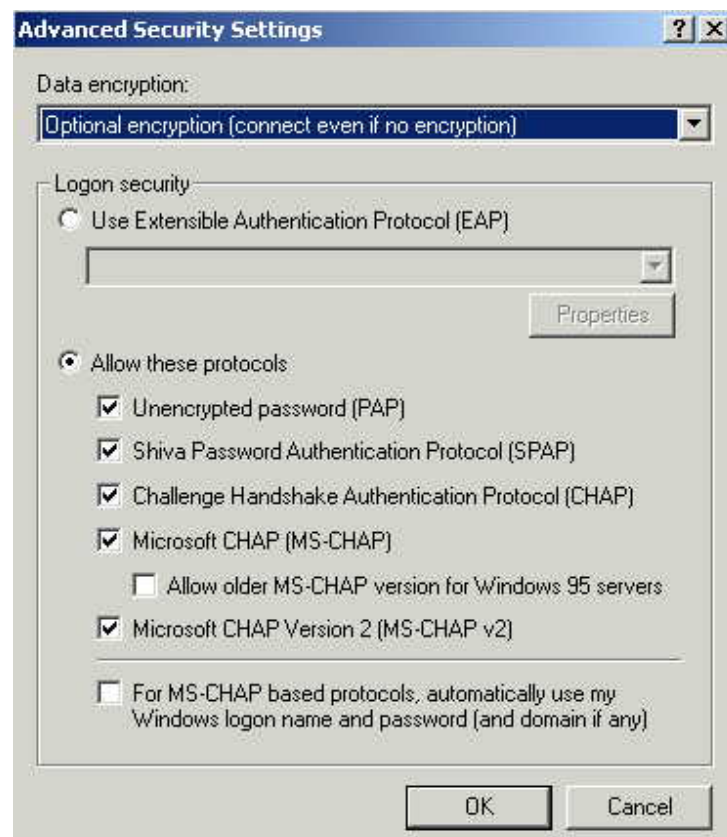


Figure 8.20: Advanced Security Settings window

- Step 3: Select **Allow older MS-CHAP version for Windows 95 servers** and click **OK**. (Figure 8.21)

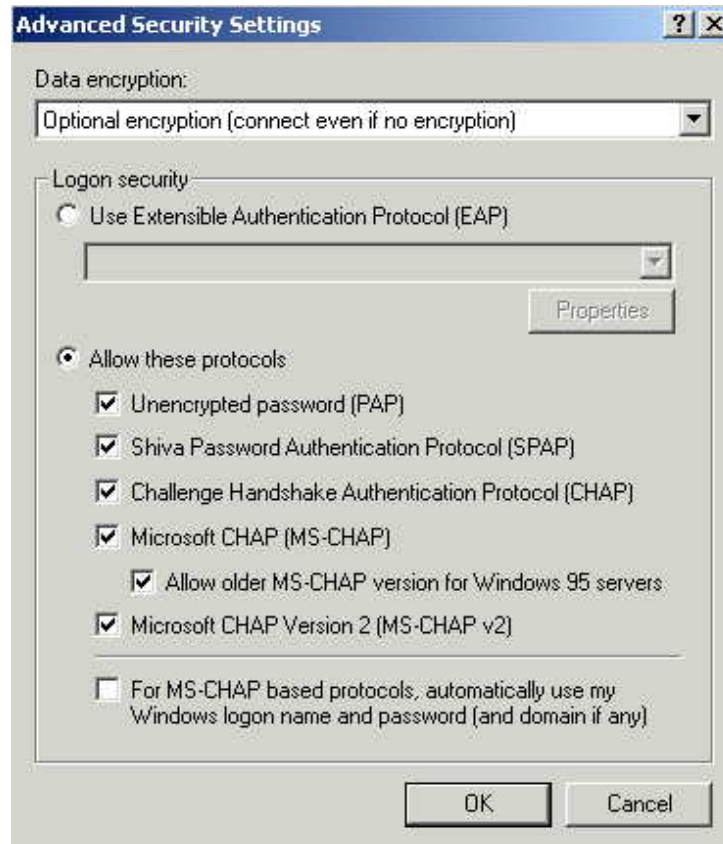


Figure 8.21: Select Allow older MS-CHAP version for Windows 95 servers

- Step 4: Select the **Yes** button. The LAP client in Windows 2000 is now able to connect to the LAP server in Windows 98/Me. (Figure 8.22)

Note: The IVT Corporation LAP service does not require a password.

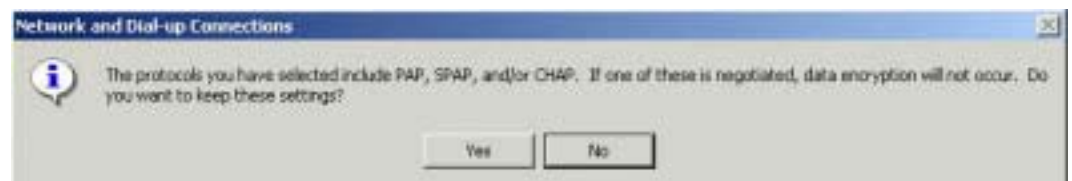


Figure 8.22: Click Yes button

9 Object Push

9.1 Introduction

The Bluetooth Object Push profile (OPP) is an application that offers a way to send and receive Personal Information Management (PIM) data objects from one Bluetooth-enabled device to or from the other one.

The objects Object Push supports the following four formats:

- ◆ Business cards (*.vcf)
- ◆ Calendar entries (*.vcs)
- ◆ Notes (*.vnt)
- ◆ Messages (*.vmg)

The OPP profile can be used in the following scenarios:

- ◆ Connecting a computer to a Bluetooth cellular phone (or PDA), and transferring objects from the computer to the cellular phone (or PDA).
- ◆ Connecting a computer to a Bluetooth cellular phone (or PDA), and transferring objects from the cellular phone (or PDA) to the computer.
- ◆ Connecting two computers and transferring objects between them.

9.2 Transfer Objects from a Computer to a Bluetooth Cellular Phone

This section outlines the steps involved in transferring OPP objects from a Computer to a Bluetooth cellular phone.

Computer A:	Bluetooth Cellular Phone:
IVT BlueSoleil™	Ericsson T39
A Bluetooth Device	

Step 1: Insert the Bluetooth Device into the computer.

Step 2: Start BlueSoleil™ in the computer.

Step 3: Configure the business card of Computer A.

1. Open the **Service Configuration** window and select the **Object Push** page. In the BlueSoleil™ Main Window, click **Tools | Configuration | My Services** (Figure 9.1).
2. Check the boxes, Send Business Card on Request, Accept Business Card, Accept Calendar Items, Accept Email Messages and Accept Notes.
3. To set 'my business card', click the box **Send My Business Card (*.VCF)**. This opens the **Open File** window. Select a VCF file as your own business card and click the **Open** button. Click the **OK** button on the **Service Configuration** window. If you do not set a business card, the program will generate a business card file

automatically using your computer name. (Figure 9.2)

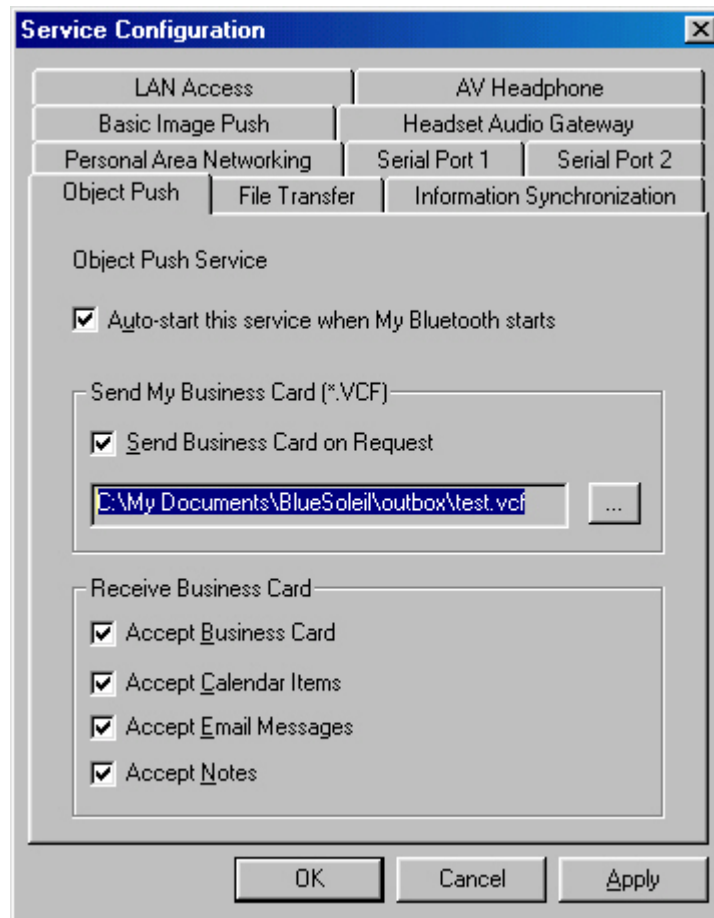


Figure 9.1: Service Configuration

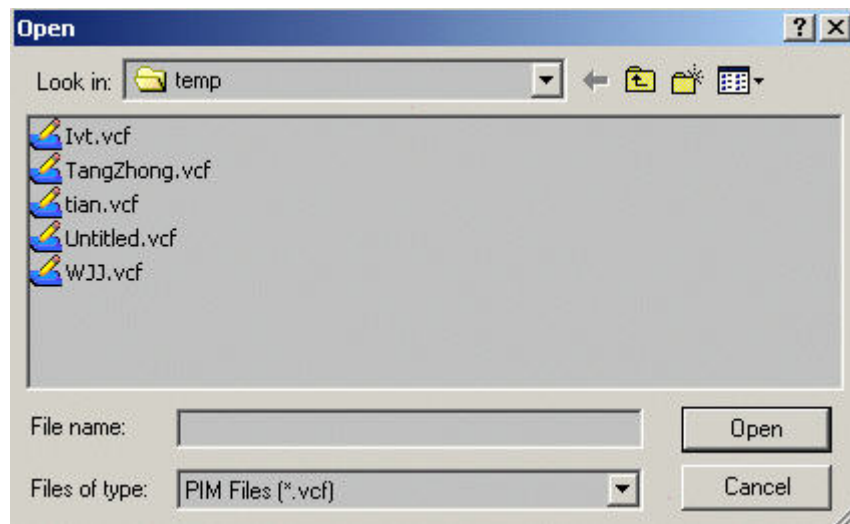


Figure 9.2: Open File

- Step 4:** To obtain a VCF card file from MS Outlook.
- ♦ Open MS Outlook, and select the **Contacts** item in **Outlook Shortcuts**. (Figure 9.3)

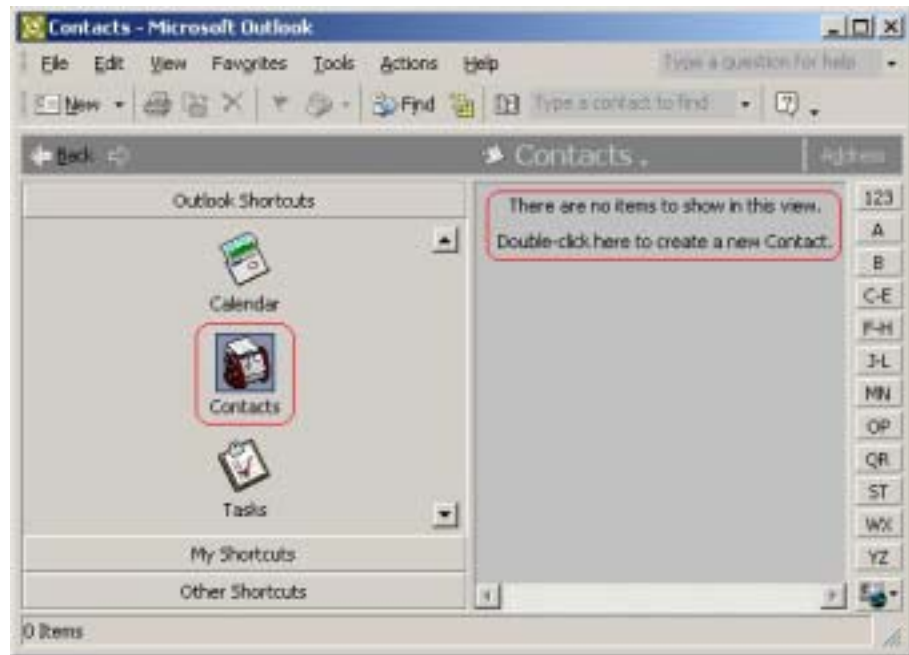


Figure 9.3: MS Outlook main window

- ♦ If there are no contacts entered, the following message appears on the main window **"There are no items to show in this view. Double-click here to create a new Contact."** Double-click and a pop-up window appears. (Figure 9.4)

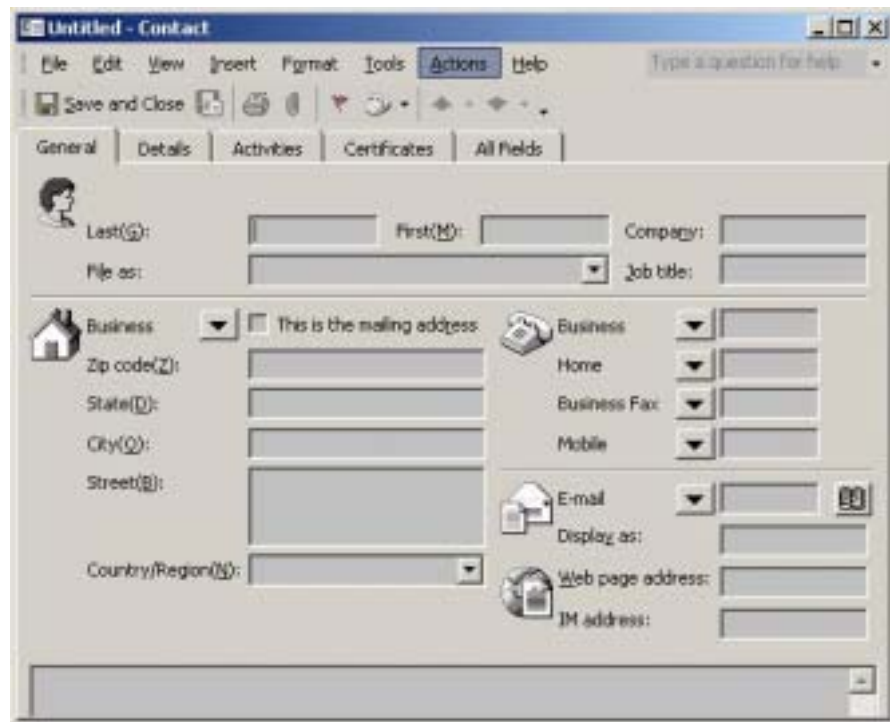


Figure 9.4: Create a new contact

- ♦ Enter your Contact information. Click **File | Save as** and a **Save As** window pops up. Select the name of the file and the directory where you want to save the file. Select the **vCard Files (*.vcf)** item in the **Save as type** box. Click the **Save** button. (Figure 9.5)



Figure 9.5: Save new Contact

Step 5: Set the T39 to be discoverable.

- ◆ Press the **Menu** button on the T39 to find the menu list, and then select the **Extras** item. Press the **Yes** key to enter the **Extras** menu, and then select the **Bluetooth** item. Then select the **Discoverable** item.

Step 6: Pair with T39

If the pairing succeeds, you will see the services of the T39 include the OPP service. (Figure 9.6) If you have never created a shortcut **DUN**, the following dialog pops up asking you whether **Create a Shortcut on the windows desktop**. If you choose **yes**, a shortcut icon called **DUN** will occur on the desktop, otherwise the icon will not occur. For details, please refer to the related part of DUN.

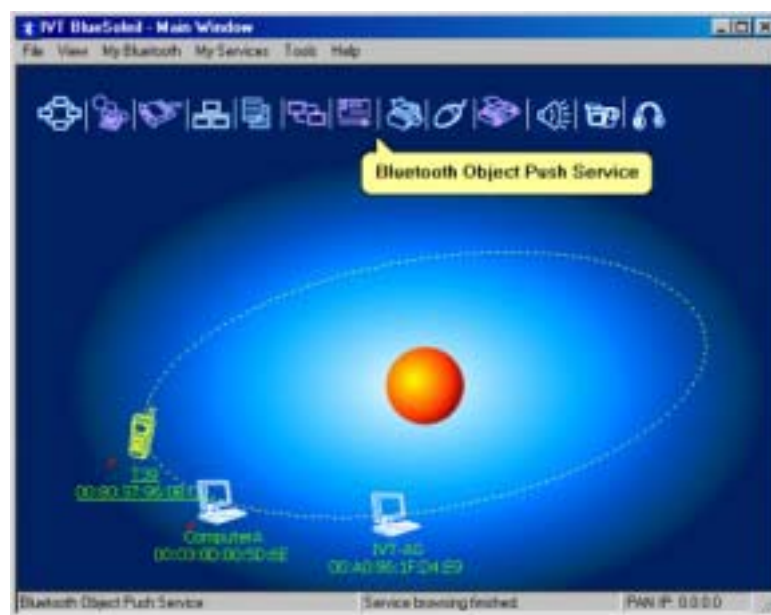


Figure 9.6: Find the services

Step 7: To send or get objects data, right-click the OPP service icon. There are four options (Figure 9.7) on the pop-up menu:

- ◆ **Send My Card:** Click this menu item, and a business card from Computer A is sent to the T39.
- ◆ **Get Card:** Click this menu item to receive a business card from the T39. Open the folder **inbox** to check if you have received the card.
(Note: Open the **My Documents** folder on the computer and find a new folder called **BlueSoleil**. Open this folder to find the subfolders **inbox** and **outbox**. **Inbox** is used to deposit the objects received from other Bluetooth devices. **Outbox** is used to deposit the objects you want to send to other Bluetooth devices.)
- ◆ **Send Objects:** Click this menu item to send an object in Computer A to the T39 (there are four types of object: *.vcf, *.vcs, *.vmg, *.vnt). Select the objects that you want to send in the window that pops up and click **Open**.
- ◆ **Exchange cards:** Click this menu item to exchange business cards between Computer A and the T39.

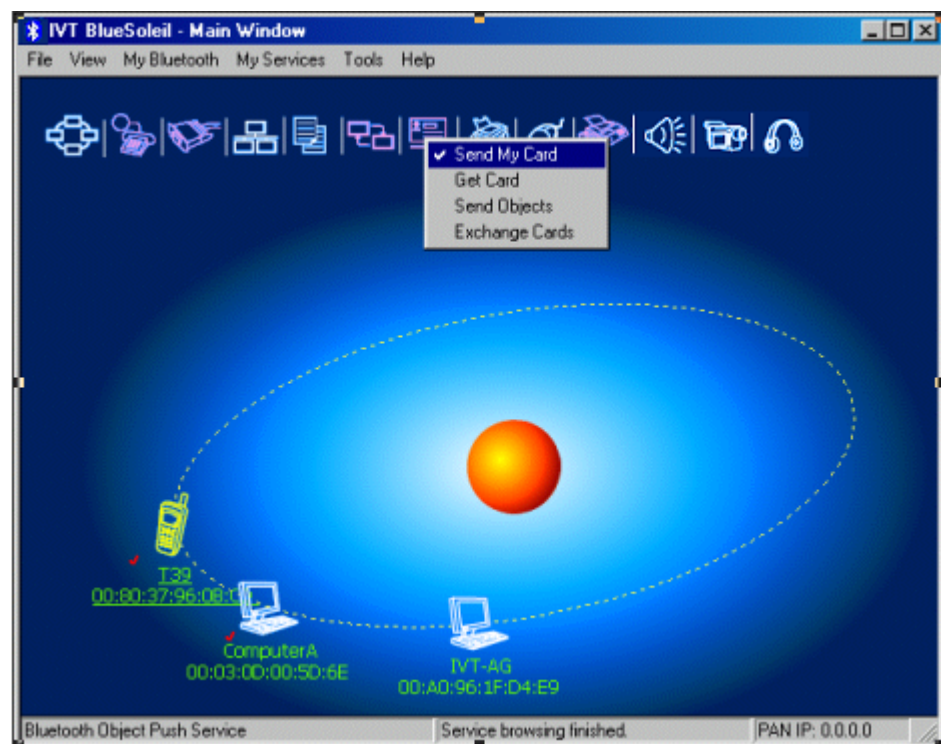


Figure 9.7: Four types of operation

9.3 Transfer Objects from a Bluetooth Cellular Phone to a Computer

This section outlines the steps involved in transferring OPP objects from a Bluetooth cellular phone to a computer.

Computer A:

IVT BlueSoleil™

A Bluetooth Device

Bluetooth Cellular Phone:

Ericsson T39

Step 1: Insert the Bluetooth Device into the computer.

Step 2: Start BlueSoleil™ in the computer.

Step 3: ♦ Configure the OPP service attribute of Computer A, and start the OPP service.I

Step 4: ♦ Discover and pair Computer A on the T39.

Step 5: Start the OPP operation.

- ♦ Select Menu | Phone book | Business cards on the T39.
 - ♦ To send "my card" from the T39.
From the **Business cards** menu, select **Send my own** and then select **Via Bluetooth**. The T39 searches the surrounding Bluetooth devices. To send the business card from the T39 to Computer A, select 'Computer A' on the T39 screen.
 - ♦ To select an object and send it.
From the **Business cards** menu, select **Send contact** and then select **Via Bluetooth**. The T39 asks you to select the object that you want to send. Select an object and send it as specified above.
 - ♦ To receive a business card.
From the **Business cards** menu, select **Receive** and then select **Via Bluetooth**. The T39 is now in discoverable status, and you can send an object to it from other Bluetooth devices.
 - ♦ To send all business cards.
From the **Business cards** menu, select **Send all** and then select **Via Bluetooth**. Select the destination device Computer A. The T39 then sends all its *.vcf files to Computer A.

9.4 Transfer Objects between Two Computers

This section outlines the steps involved in transferring OPP objects between two Computers (Computer A and Computer B).

Computer A:

IVT BlueSoleil™

A Bluetooth Device

Computer B:

IVT BlueSoleil™

A Bluetooth Device

- Step 1: Insert Bluetooth Devices in both computers.
- Step 2: Start BlueSoleil™ in both computers.
- Step 3: Start the OPP service on Computer B.
- Step 4: Perform an OPP operation. (See "Section 9.3: Transfer Objects from a Bluetooth Cellular Phone to a Computer", Step 5)

9.5 Configure OPP Service

In the BlueSoleil™ Service Window, right-click the Object Push icon. To configure 'my OPP service', select **Properties** on the pop-up menu.

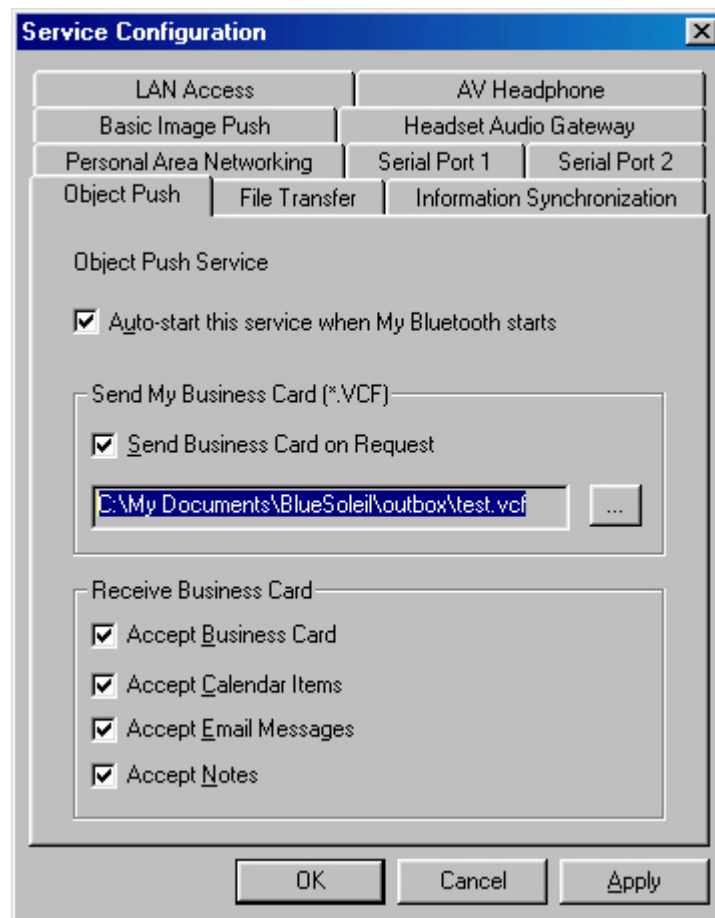


Figure 9.8: Configure OPP service

Setting Items:

- ◆ **Auto start this service when my Bluetooth starts**
Select this item if you want to automatically start the OPP service every time BlueSoleil™ starts.
- ◆ **My Business Card (*.vcf)**
You must select your own business card (*.vcf file) every time you start BlueSoleil™. If you forget to do this, BlueSoleil™ creates a *.vcf file using your computer name and regards this file as your own business card.
- ◆ **Send Business Card on Request**
Select this item to allow other users to receive your business card.

◆ **Receive Business Card**

There are four possible items here. Each item represents one type of object. You may select the object types that you want to accept.

- Accept Business Card **to accept business cards (*.vcf)**
- Accept Calendar Items **to accept calendar items (*.vcs)**
- Accept Email Messages **to accept email messages (*.vmg)**
- Accept Notes **to accept notes (*.vnt)**

9.6 Using OPP in Microsoft Outlook

9.6.1 The GUI of Outlook Application with bluetooth plug-in

After correct installation of BlueSoleil, lunch the Outlook application. If the GUI looks like the following, namely there are four buttons added into the toolbar and **File** menu, the OPP is integrated into Outlook successfully.

Notice: both the OPP and Synchronization functionalities are available in Microsoft Office 2000(or higher version) and , BlueSoleil must start first.

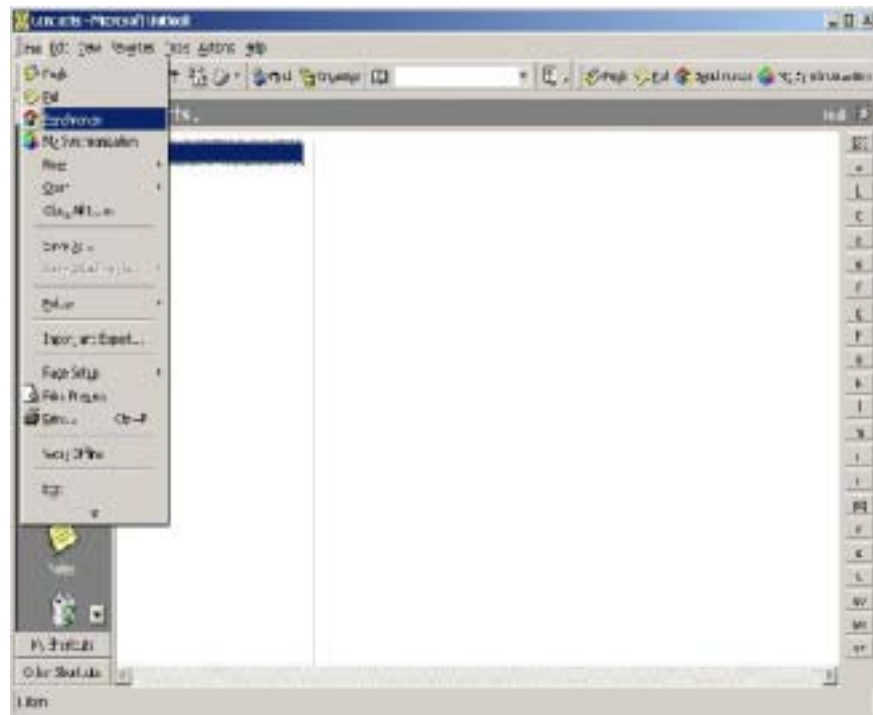


Figure 9.9: OPP and Sync integrated with Outlook

9.6.2 The usage of OPP Push-function

Start the Outlook application and select **Contacts** from the shortcuts to browse the **Contacts** folder. Select the item(s) to be pushed then click the **Push** button from the toolbar or **File** menu. If BlueSoleil is running properly, a dialog will appear with all discovered bluetooth devices listed.

From the devices list, user can select the target device and then click the Push button.

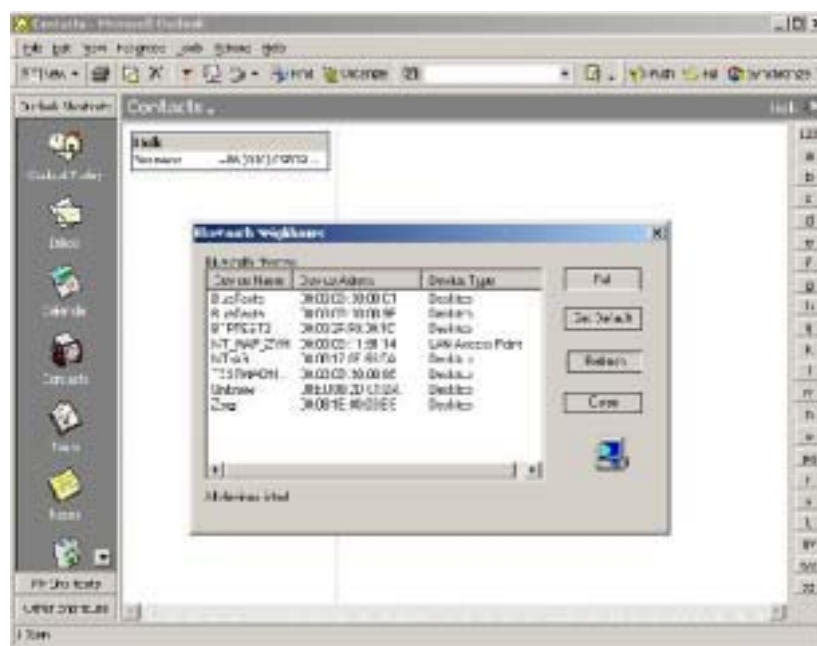


Figure 9.10: Select the target device and click **Push** button

The operation result will be reported on the dialog.

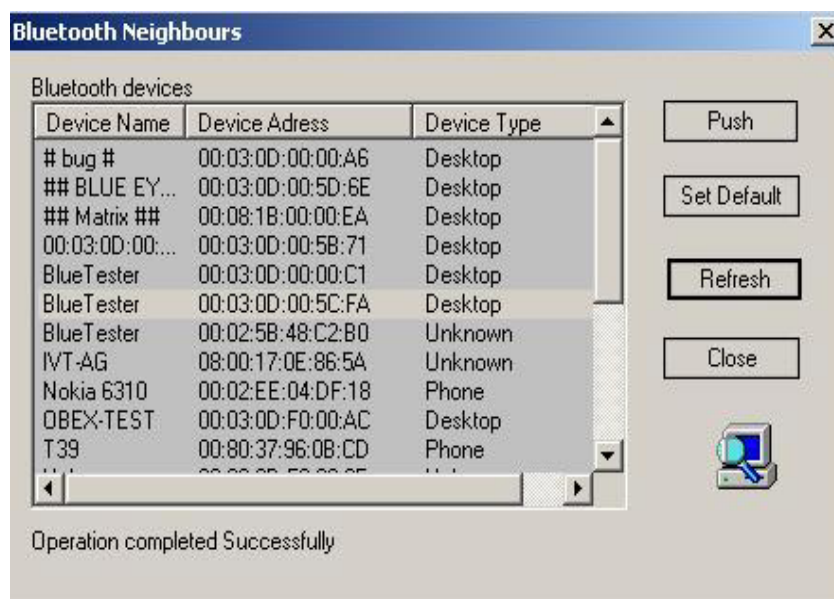


Figure 9.14: Push operation completed Successfully

As to other items, for example, note, message and calendar, the steps are the same with ones above.

9.6.3 The usage of OPP-Pull function

Click the **Pull** button from toolbar or **File** menu then the devices list dialog will appear. Select the target device from the list and click the Pull button to perform OPP-Pull function.

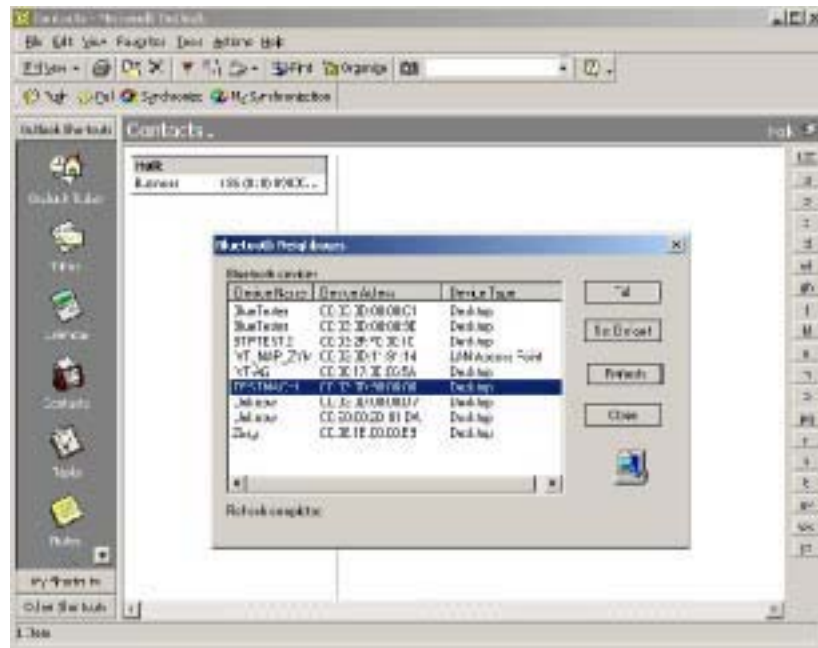


Figure 9.15: Before Pull only one card named "holk"

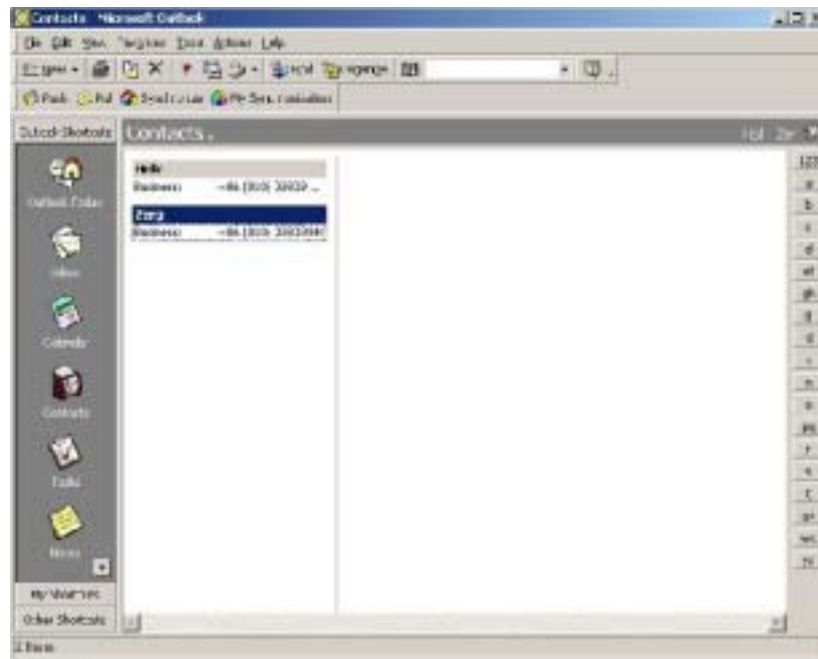


Figure 9.16: The card named "zerg" is pulled in.

If the operation completes successfully the newly pulled card is imported into Outlook.

10 Synchronization

10.1 Introduction

Using Bluetooth Synchronization (SYNC), Bluetooth devices can synchronize messages, notes, calendars and cards with each other.

The objects Synchronization (SYNC) supports are:

- ◆ Business cards (*.vcf)
- ◆ Calendar entries (*.vcs)
- ◆ Notes (*.vnt)
- ◆ Messages (*.vmg)

The SYNC application is typically used in the following scenarios:

- ◆ A computer exchanging PIM (Personal Information Management) data with a cellular phone or PDA.
- ◆ Two computers exchanging PIM data with each other.

10.2 Exchange PIM Data with a Cellular Phone

This section outlines the steps involved in connecting a computer to a Bluetooth cellular phone. The cellular phone works as a server that provides the SYNC service.

Computer A:	Bluetooth Cellular Phone:
IVT BlueSoleil™	Ericsson T39
A Bluetooth Device	

Step 1: Insert the Bluetooth Device into the computer.

Step 2: Start BlueSoleil™ in the computer.

Step 3: Configure the T39.

- ◆ Set T39 to be discoverable.

Step 4: Start synchronization.

- ◆ Now use the computer running BlueSoleil™ to start the synchronization. (See "Section 9.3: Transfer Objects from a Bluetooth Cellular Phone to a Computer", Step 5).

10.3 Set up SYNC Connection between Two Computers

This section outlines the steps involved in setting up a SYNC connection between two computers, Computer A and Computer B. Computer A works as a server that provides the BlueSoleil™ SYNC service. Computer B works as a client that uses the SYNC service provided by Computer A.

Computer A:

IVT BlueSoleil™

A Bluetooth Device

Computer B:

IVT BlueSoleil™

A Bluetooth Device

Step 1: Insert the Bluetooth Devices into each computer.

Step 2: Start BlueSoleil™ in each computer.

Step 3: Start the BlueSoleil™ SYNC service on Computer A. Before starting the SYNC Server, it may need to be configured. To configure the server, follow the steps below:

- ◆ In the Main Window click **View | Service Window**
- ◆ In the Service Window, right-click the Information Synchronization icon. Select **Properties** on the pop up menu.
- ◆ Set the option you require, and then click **OK**. (Figure 10.1)



Figure 10.1: Service Configuration

- Step 4: ♦ Connect to the SYNC service of Computer A. (Figure 10.2)

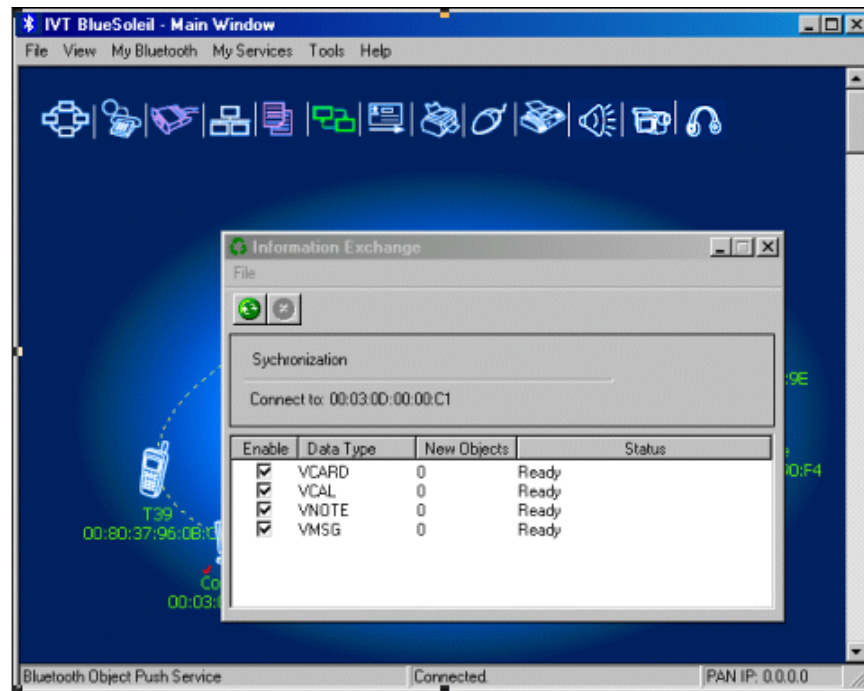


Figure 10.2: Connection is established successfully

- ♦ The SYNC clients can now start synchronization. Press the green button to begin synchronization. (Figure 10.3)

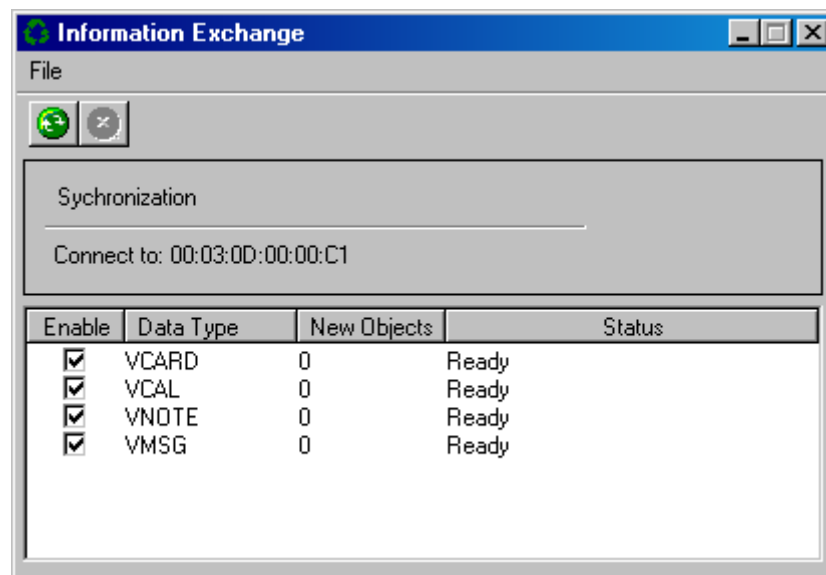


Figure 10.3: Press the green button

Advanced Usage:

- ♦ Before synchronization select the data type that you want to exchange. Leave the checkbox unchecked to disable the object type that you do not support.
- ♦ During synchronization push the red button if you want to stop the synchronization.

- ◆ Open Microsoft Outlook to check the information data that saved in the folder of Contacts(VCARD), Calendar(VCAL), Notes(VNOTE) and Inbox(VMSG) after synchronization. (Figure 10.8)

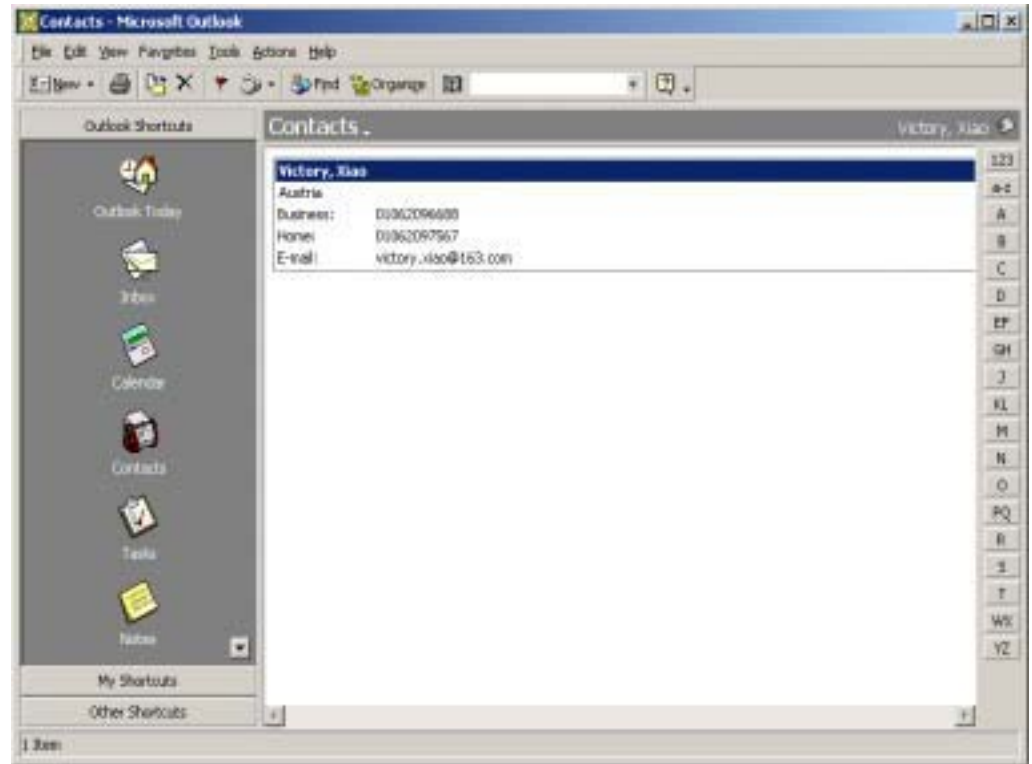


Figure 10.8: Microsoft Outlook

10.4 Synchronization Configuration

In the BlueSoleil™ Service Window, right-click the Information Synchronization icon. To configure the synchronization service select **Properties** on the pop-up menu. (Figure 10.9)

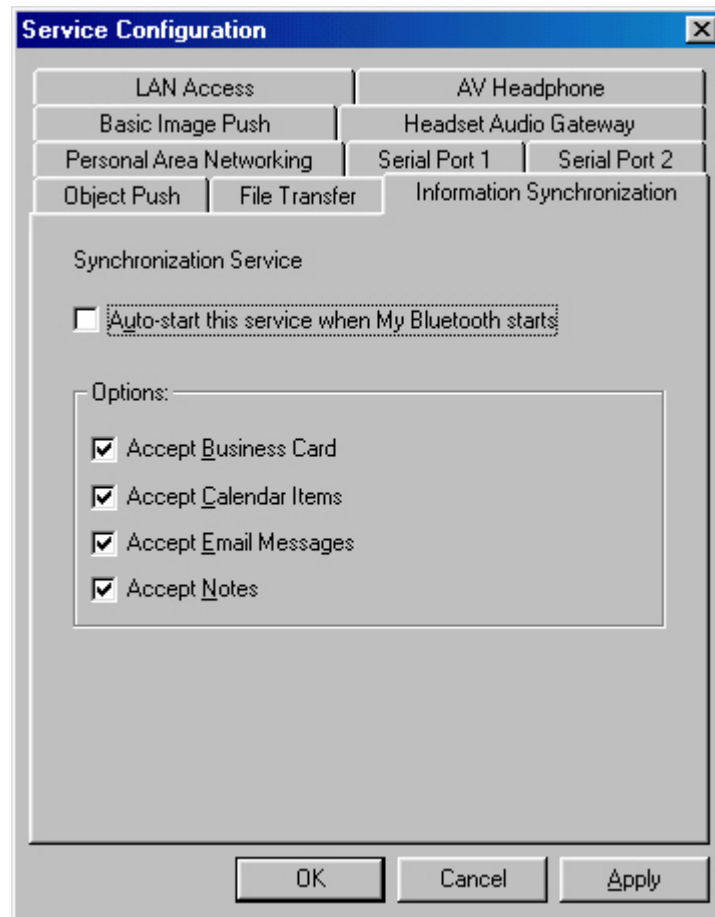


Figure 10.9: Service Configuration

Setting Items:

- ◆ **Auto start this service when my Bluetooth starts**
Check this item to start my synchronization service automatically every time BlueSoleil™ is started.
- ◆ **Options**
This service supports options for vCard, vCalendar, vMessage and vNote data types. You can select the data type you want to support.

10.5 Using Synchronization in Outlook

After correct installation of BlueSoleil the GUI of Outlook application looks like figure 9.12.

Notice: This function requires Microsoft Office 2000 or higher version and is available only when BlueSoleil is running properly.

10.5.1 The usage of synchronization

Click the **Synchronization** button from the toolbar or **File** menu, from the devices list dialog user can select the target device to synchronize with.

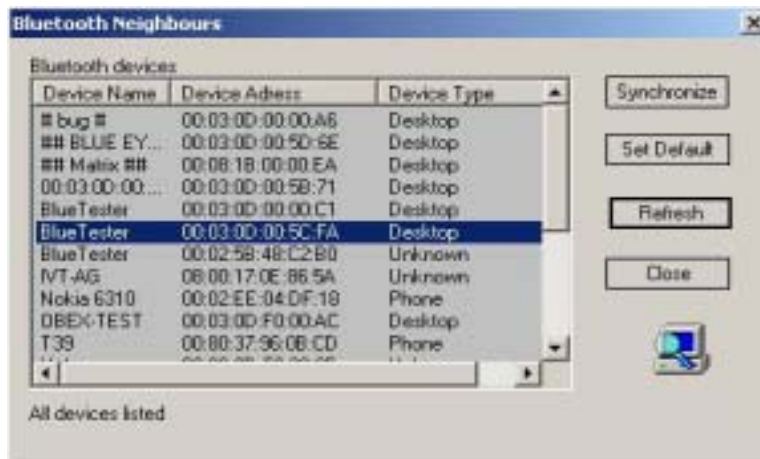


Figure 10.10: Select the target device to synchronize with

After selecting the target device, the Sync-dialog appears.

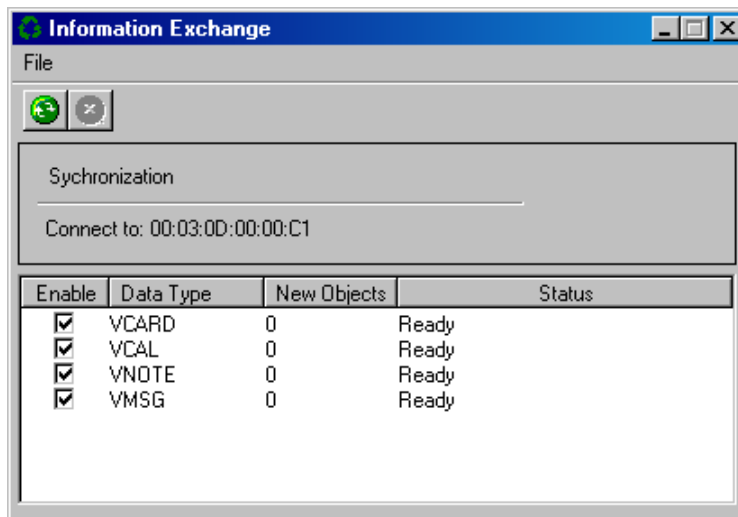


Figure 10.11: Choose the item type to synchronize

Click the Sync button from the toolbar or File menu to start the synchronization process, during and after the synchronization process the current status will be displayed to users.

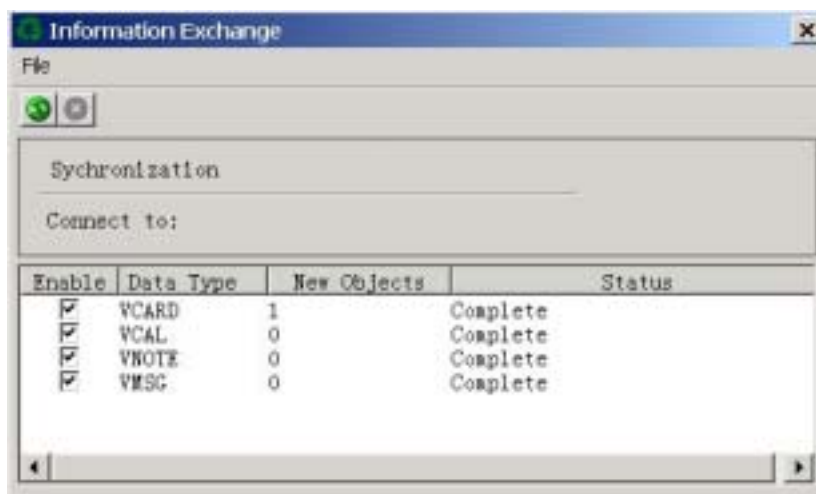


Figure 10.12: The status when operation finished

Just like the OPP-Pull function, the synchronization's result will be visible in Outlook application. The following two diagrams show the **Note** folder before and after the synchronization.

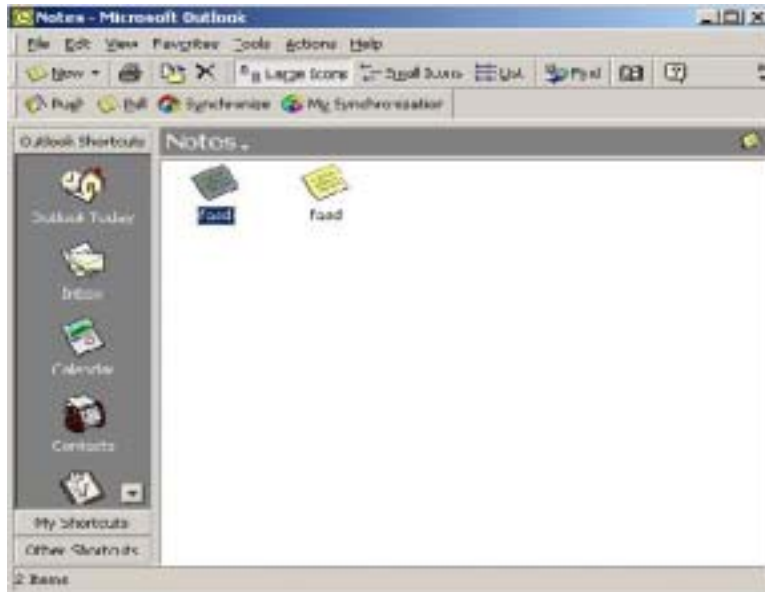


Figure 10.13: Before Synchronization

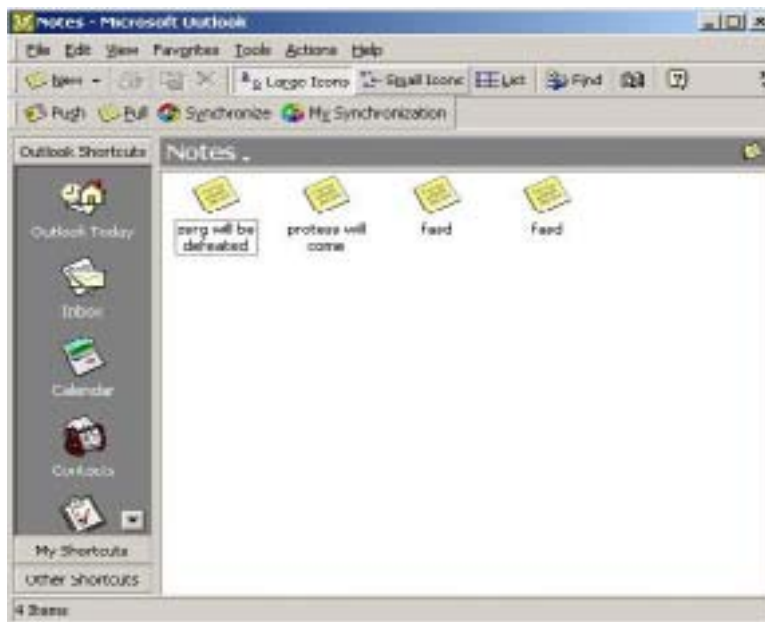


Figure 10.14: After Synchronization

User can set the most often-used device to default device. From the devices list dialog please choose the right device and then click **Set Default** button. So when synchronize next time user can click **My Synchronization** button to start synchronization directly avoiding the time-consuming selecting device steps. When mouse move onto the button the message tip will display current default device information.

11 Hardcopy Cable Replacement

11.1 Introduction

The Bluetooth Hardcopy Cable Replacement profile (HCRP) provides services to replace the cable between a host and peripheral device with a Bluetooth link. The most common devices using these services are laptops and desktop computers, however other devices are not excluded.

The HCRP profile can be used in the following scenario:

- ◆ Print a document using a Bluetooth Printer.

11.2 Print a Document Using a Bluetooth Printer

This section outlines how to print a document from Computer A (client) using a Bluetooth Printer (server)

Computer A:	Bluetooth Printer B:
Notebook/Laptop	Bluetooth Printer
A Bluetooth Device	
Windows 2000	
IVT BlueSoleil™	

Step 1: Insert the Bluetooth Device into the computer.

Step 2: Start BlueSoleil™ in the computer.

Step 3: Turn on the Bluetooth printer to provide the HCRP service for Computer A.

Step 4: **Connect the two devices.**

1. Search for Bluetooth devices on Computer A
2. Search the HCRP services of Printer B.
3. Double-click the HCRP service icon to connect Computer A and the Bluetooth printer.

Step 5: Once the connection is established, please check:

- ◆ If there is no driver installed for the Bluetooth printer, then BlueSoleil™ displays a message asking the user to install a driver for the Bluetooth Printer, see the Windows system icons in the bottom right hand corner of the Windows desktop. (Figure 11.1) Install the driver for the printer on Computer A and set its port to COMx.
- ◆ If there is already a driver installed for the Bluetooth printer, a message appears indicating that the Bluetooth printer is ready (Figure 11.2). BlueSoleil™ sets the Bluetooth printer's port to COMx (e.g. COM3). If there are

several drivers for the Bluetooth printer installed on Computer A, BlueSoleil™ automatically sets one of them as the Bluetooth printer.

Figure 11.1: Bluetooth Printer Driver is not installed

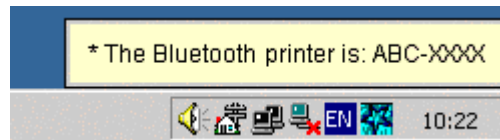


Figure 11.2: Bluetooth Printer Driver is ready

Step 6: Print documents.

- ♦ Computer A and Bluetooth Printer B are now connected. On Computer A, open the document that you want to print. Select **File | Print**. Then select the Bluetooth printer and print.

Step 7: Disconnect the Bluetooth Printer.

- ♦ Right-click the HCRP service icon; select **Disconnect** on the pop up menu.

12 Human Interface Device

12.1 Introduction

A typical Bluetooth Human Interface Devices (HID) is a Bluetooth-enabled mouse, keyboard or joystick. The HID service allows wireless communication to Bluetooth HID devices.

The HID profile can be used in the following scenarios:

- ◆ Connecting a computer to a Bluetooth Mouse.
- ◆ Connecting a computer to a Bluetooth Keyboard.

12.2 Connect a Computer to a Bluetooth Mouse

This section outlines how to connect a computer (Computer A) to a mouse (Bluetooth Mouse B).

Computer A:	Bluetooth Mouse B:
Desktop	Bluetooth wireless mouse
A Bluetooth Device	
Windows 2000	
IVT BlueSoleil™	

Step 1: Insert the Bluetooth Device into the computer.

Step 2: Start BlueSoleil™ in the computer and set the security level to low using the **Tools | Configurations | Security** menu.

Step 3: Power on the Bluetooth mouse. (Bluetooth Mouse B)

Step 4: **Connect to HID service:**

1. Search for Bluetooth devices in Computer A until you find Bluetooth Mouse B.
2. Double-click the Bluetooth Mouse B device icon to find it's HID service. If found, the HID service icon turns red. (Figure 12.1)

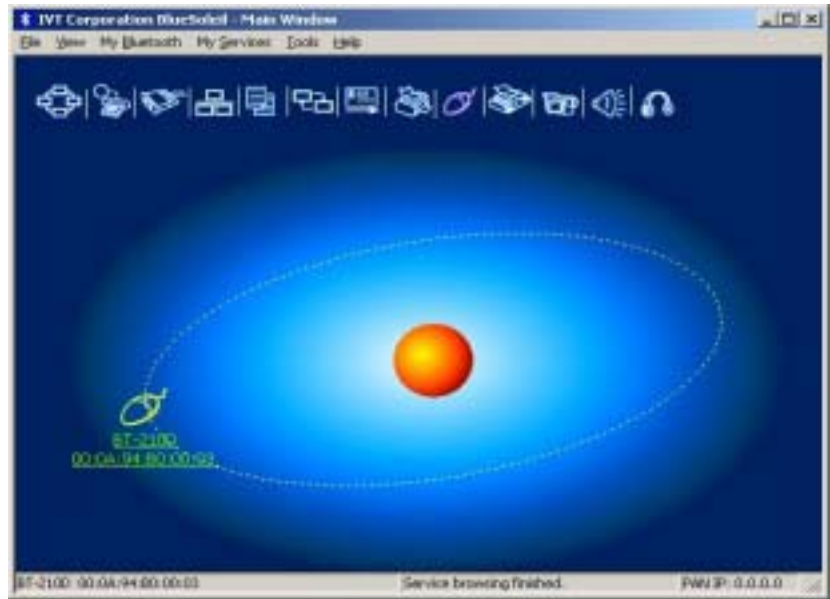


Figure 12.1: Find Bluetooth mouse and its service

- Step 5: Double-click the HID service icon to connect to Mouse B. After the connection is successfully set-up, a dashed line appears between the center ball and the Mouse B icon. The HID service icon turns green.
- Step 6: Install drivers for Bluetooth mouse.
- ◆ If this is the first time Computer A has connected to a Bluetooth mouse, wait for a few seconds to allow Windows to install drivers for a Bluetooth mouse.
 - ◆ You will see two new devices in Computer A: **Bluetooth HID Mouse** in 'Human Interface Devices' class and **HID-compliant mouse** in 'Mice and other pointing devices' class. (Figure 12.2)
- Step 7: Now the Bluetooth mouse is ready to use. You can use it as a legacy PS/2 or serial mouse.
- Step 8: To disconnect Mouse B.
- ◆ Right-click the HID service icon in the Main Window and click **Disconnect**. Alternatively right-click Mouse B in the Main Window and select **Disconnect | Human Interface Device**.

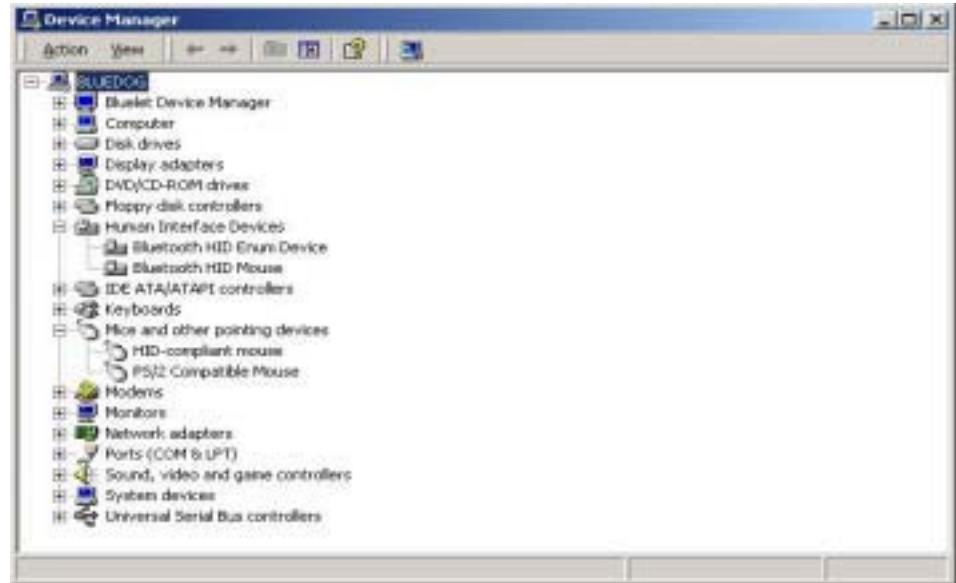


Figure 12.2: New HID mouse device in Device Manager

12.3 Connect a Computer to a Bluetooth Keyboard

This section outlines how to connect a computer (Computer A) to a keyboard (Bluetooth Keyboard B).

Computer A:

Desktop

A Bluetooth Device

Windows 2000

IVT BlueSoleil™

Bluetooth Keyboard B:

Bluetooth wireless keyboard

Step 1: Insert the Bluetooth Device into the computer.

Step 2: Start BlueSoleil™ in the computer and set the security level to low using the **Tools | Configurations | Security** menu.

Step 3: Power on the Bluetooth keyboard. (Bluetooth Keyboard B)

Step 4: Connect to Keyboard. (Figure 12.3)

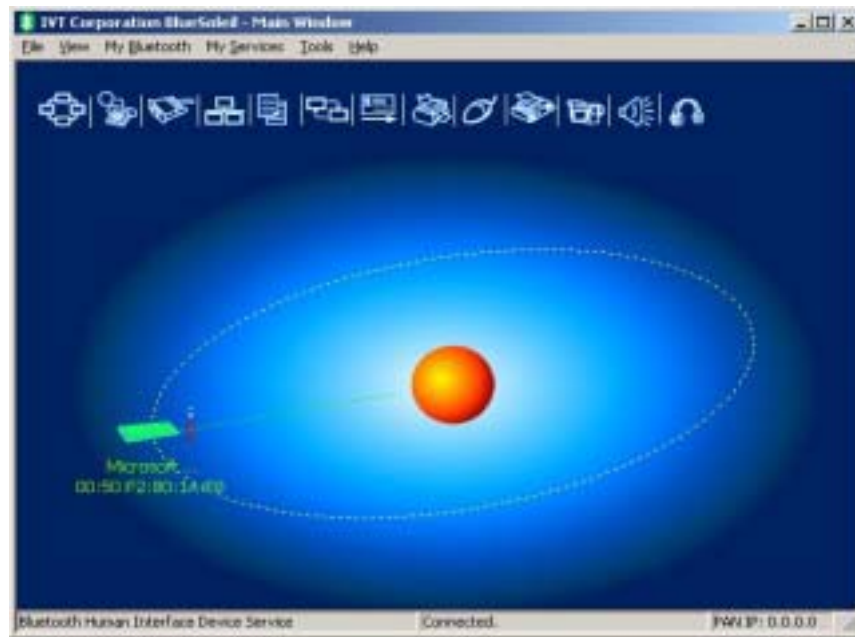


Figure 12.3: Connect to Bluetooth keyboard

Step 5: Install drivers for the Bluetooth keyboard.

- ◆ If this is the first time Computer A has connected to a Bluetooth keyboard, wait for a few seconds to allow Windows install drivers for a Bluetooth keyboard.
- ◆ You will see two new devices in Computer A: **Bluetooth HID Keyboard** in 'Human Interface Devices' class and **HID Keyboard Device** in 'Keyboards' class. (Figure 12.4)

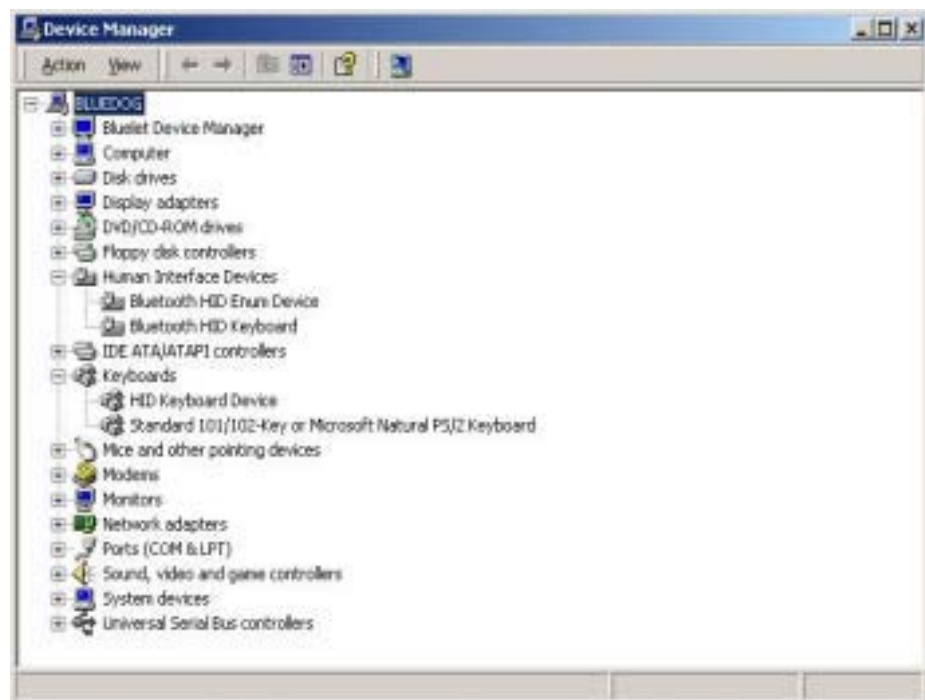


Figure 12.4: New HID keyboard device in Device Manager

Step 6: Now the Bluetooth keyboard is ready to use. You can use it as a legacy PS/2 keyboard.

legacy PS/2 keyboard.

Step 7: To disconnect Keyboard B.

- ◆ Right-click the HID service icon in the Main Window and click **Disconnect**. Alternatively right-click Keyboard B in the Main Window and select **Disconnect | Human Interface Device**.

13 FAX

13.1 Introduction

The Bluetooth Fax service allows a Bluetooth-enabled client to send fax messages wirelessly through a fax modem on another Bluetooth device or a cellular phone. The other Bluetooth device or the cellular phone is called the fax gateway (server) as it provides the service to send/receive fax messages.

The FAX profile can be used in the following scenario:

- ◆ A Bluetooth computer sends/receives fax messages through a Bluetooth cellular phone or Bluetooth fax modem.

13.2 Connect to a FAX Gateway from a Computer

This section outlines the steps involved in a computer (client) sending a fax message through a Bluetooth cellular phone.

Computer A:	Bluetooth Cellular Phone:
Notebook/ Laptop	Ericsson T39 cellular phone
A Bluetooth Device	
Windows 2000	
IVT BlueSoleil™	

Step 1: Insert the Bluetooth Device in the computer.

Step 2: Start BlueSoleil™ in the computer.

Step 3: ◆ Set the Ericsson T39 to be discoverable so that Computer A can find the T39.

Step 4: ◆ Add Computer A to the paired device list in the T39.

Step 5: Connect to the phone FAX service .

13.3 Using FAX software on a bluetooth computer

There are many commercial or free fax software could be found. And they all can work with IVT BlueSoleil. Since these fax software have their own MMI feature, the usages will not be listed step by step.

Please check the following setting in FAX software before using it:

- ◆ The FAX modem must be set to "**Bluelet Fax Modem**". This "**Bluelet Fax Modem**" device is added to windows modem device list when BlueSoleil is installed.

And please make sure the bluetooth connection has been set up between the computer and FAX Gateway (refer to Section 12.2) .

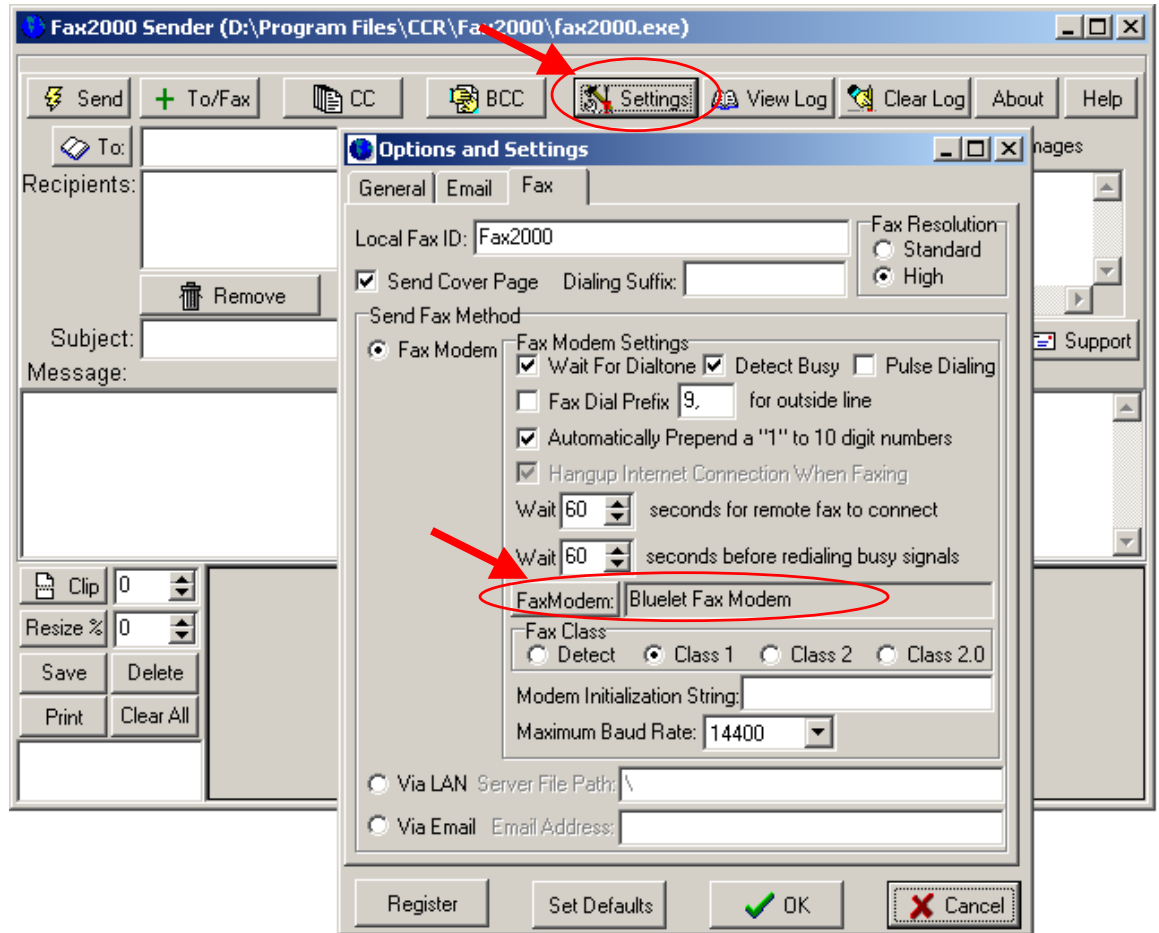


Figure 13.1 Settings in Fax2000

14 Headset

14.1 Introduction

The Bluetooth Headset Profile defines the procedures implementing audio wireless transmission on SCO channels. It provides services to replace the cable between an Audio Gateway and Headset with a Bluetooth link.

Audio Gateway (AG) – This is the device that is the gateway of the audio, both for input and output. Typical devices acting as Audio Gateways are cellular phones and personal computer.

Headset (HS) – This is the device acting as the Audio Gateway's remote audio input and output mechanism.

Now BlueSoleil acts as Audio Gateway, which can initiate a connection to a headset and can also provide service for headset to be connected.

The Headset profile in BlueSoleil can be used in the following scenario:

- ◆ Play music from computer to Headset wirelessly.
- ◆ Record sound from Headset to computer wirelessly.
- ◆ Chat with chatting tools using Headset as voice input/output device.

14.2 Create an audio connection between computer and Headset

This section outlines how to create an audio connection between Computer A and Headset. Here, the name of the demo headset is EL-235.

Computer A	Headset
Notebook/Laptop	Bluetooth Headset
A Bluetooth Device supporting SCO	
Windows 2000 or Windows XP	
IVT BlueSoleil™	

Step 1: Insert the Bluetooth Device into computer A.

Step 2: Start BlueSoleil™ on computer A.

Step 3: Power on Headset EL-235 to supply headset service and make it discoverable.

Step 4: Search for Headset device on Computer A.

- ◆ Double-click the **My Device icon**  until you find the device Headset EL-235.

Step 5: Find the headset service of Headset EL-235 .

- ◆ Double-click the Headset EL-235 device icon  on Computer A.
- ◆ Enter the Bluetooth passkey (Generally,0000), if necessary, to start authentication.
- ◆ Once authentication is complete, the Headset service is found.

Step 6: Connect to Headset EL-235.

After creating pairing relationship between Headset and dongle, we can establish the audio connection in several ways:

- ◆ Right-click Headset service icon; select **Connect** on the pop-up menu. The headset ring to alert the user. After the user answers the call, the connection will be established. (Figure 14.2) But, if user does not answer after 20 rings, the connection will be released.
- ◆ Make sure you have started your Headset AG service in Service Window. You can press answer key on your headset, and then it will initiate a connection to BlueSoleil.

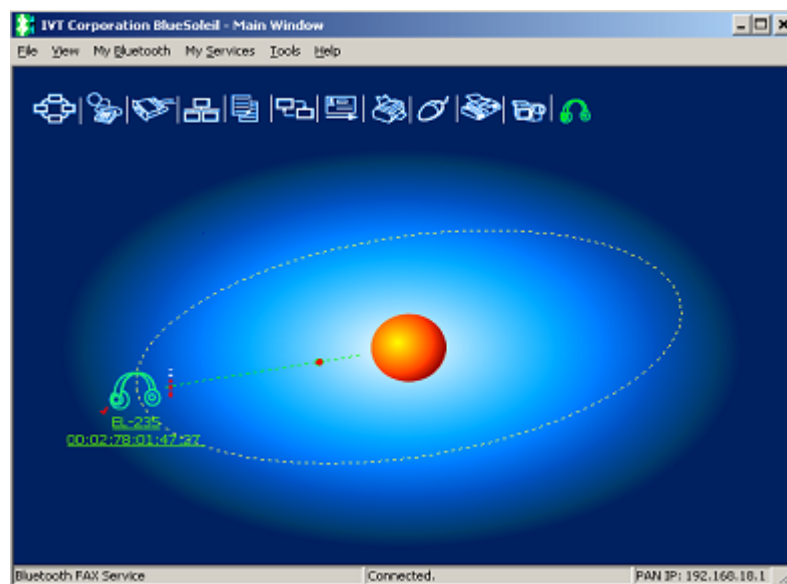


Figure 14.2: The connection is successfully established

Step 7: ◆ Play music, record sound or chatting, please refer to [Chapter 14.3](#)

Step 8: After using Headset, you can disconnect the connection as follows.

- ◆ If BlueSoleil initiate connection to Headset, Right-click Headset service icon; select **Disconnect** on the pop-up menu.
- ◆ Or, press answer key on Headset to release this connection.
- ◆ If BlueSoleil is connected by headset, Press answer key on Headset to release this connection.
- ◆ Or, stop Headset AG service in Service Window.

14.3 Using Headset Profile in BlueSoleil

14.3.1 Play music from computer to Headset wirelessly

After creating audio connection (for details about how to create an audio connection, please refer to [Chapter 14.2](#)), you can play music files using popular music player on Computer A. Open music files (e.g. mp3, WMA, rm etc.) with Winamp or other media player program and play them, the music can be heard on Headset. (Figure 14.3)



Figure 14.3 Play Music Files on Computer A

14.3.2 Record sound from Headset to computer wirelessly.

After creating audio connection (for details about how to create an audio connection, please refer to [Chapter 14.2](#)), you can record sound on Computer A. (Figure 14.4)



Figure 14.4: Record Sound on Computer A

14.3.3 Chat with chatting tools using Headset as voice input/output device.

After creating audio connection (for details about how to create an audio connection, please refer to [Chapter 14.2](#)), you can chat with you friends by chatting tools such as MSN, NetMeeting and so on.

Take NetMeeting as an example.

Open NetMeeting Program, select **Tools | Audio Tuning Wizard...**, click **Next**, the following dialog occurs, choose as show in this dialog. Click **Next** until finishing configuration. (Figure 14.5)



Figure 14.5: Audio Tuning Wizard on Computer A

15 Advanced Audio Distribution

15.1 Introduction

The Bluetooth Advanced Audio Distribution Profile (A2DP) defines the procedures that realize distribution of audio content of high-quality in mono or stereo on ACL channels. It provides services to replace the cable between an Audio Source and Sink with a Bluetooth link.

The A2DP profile can be used in the following scenario:

- ◆ Play music between computer and AV Headphone wirelessly.
- ◆ Play music between two computers wirelessly.

15.2 Play music between computer and AV Headphone wirelessly

This section outlines how to play music from Computer A and listen to the music on AV Headphone B.

Computer A	AV Headphone B
IVT BlueSoleil™	IVT Stereo Headphone
A Bluetooth Device	
Windows 2000 or Windows XP	

Step 1: Insert the Bluetooth Device into computer A.

Step 2: Start BlueSoleil™ on computer A.

Step 3: Power on IVT Stereo Headphone to supply AV Headphone service.

Step 4: Search for AV Headphone B on Computer A.

- ◆ Double-click the **My Device icon**  until you find the device AV Headphone B.

Step 5: Find the AV Headphone service of AV Headphone B.

- ◆ Double-click the AV Headphone B device icon on Computer A. (Figure 15.1)
- ◆ Enter the Bluetooth passkey (if security is set to **High** on either side) to start authentication.
- ◆ Once authentication is complete, the AV Headphone service is found.

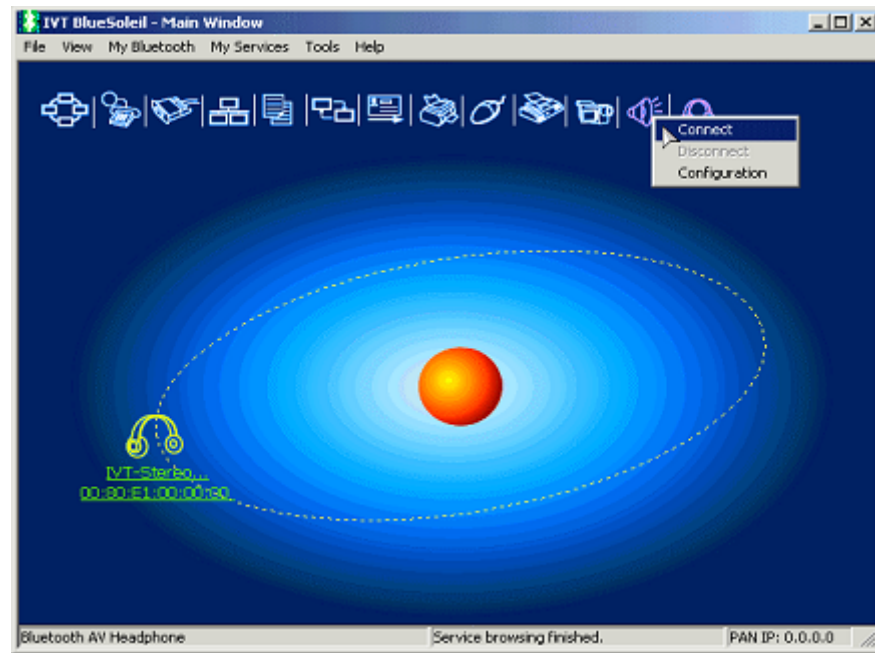


Figure 15.1: Double-click the Computer B device icon

Step 6: Connect to AV Headphone B.

- ◆ Right-click the AV Headphone service icon; select **Connect** on the pop-up menu. The connection will be established. (Figure 15.2)

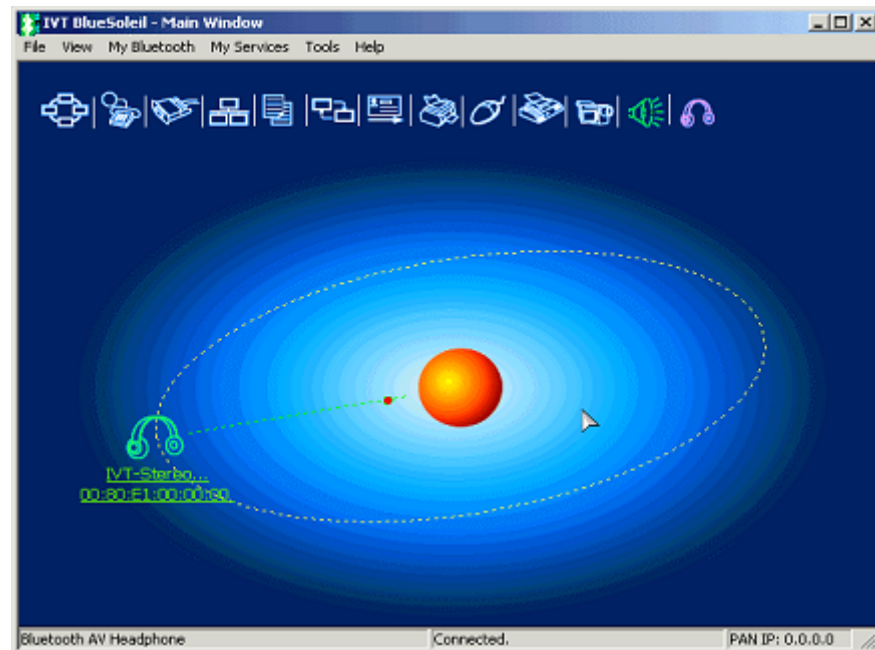


Figure 15.2: The connection is successfully established

Step 7: All the audio media played on Computer A can be heard on AV Headphone B.

- ◆ Open music files (e.g. mp3, CD, rm etc.) with Windows Media Player or RealOne Player or other media player and play them, the music can be heard on AV Headphone B. (Figure 15.3, Figure 15.4)

- ◆ When playing VCD or DVD on Computer A, the audio part can be listened on AV Headphone B.

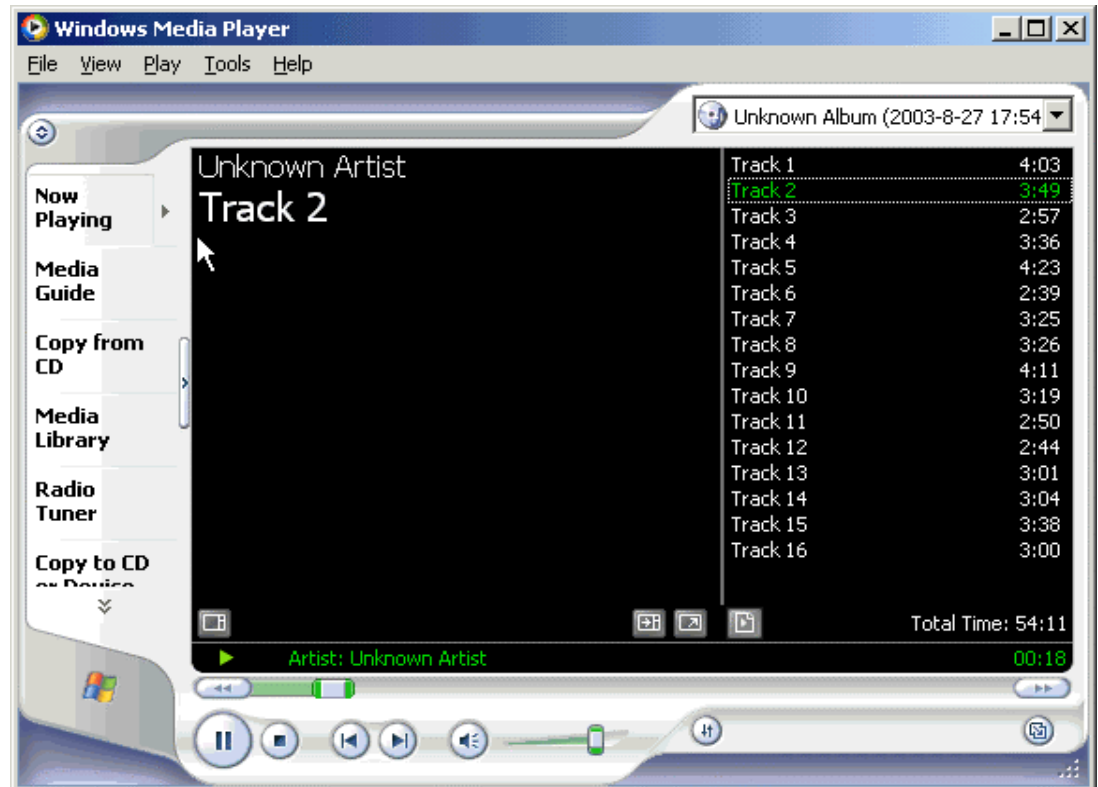


Figure 15.3: Play Music Files on Computer A

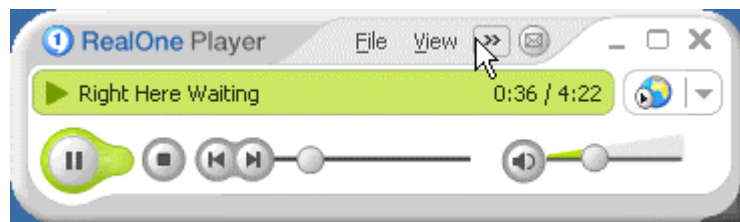


Figure 15.4: Play Music Files on Computer A

15.3 Play music between two computers wirelessly

This section outlines how to play music from Computer A (Client) and listen to the music on Computer B (Server).

Computer A:

Notebook/Laptop

A Bluetooth Device

Windows 2000 or Windows XP

IVT BlueSoleil™

Computer B:

Notebook/Laptop

A Bluetooth Device

A physical Sound Card

Windows 2000 or Windows XP

IVT BlueSoleil™

Step 1: Insert the Bluetooth Device into each computer.

Step 2: Start BlueSoleil™ on each computer.

Step 3:

Configure the AV Headphone service  on Computer B.

- ◆ In the Service Window, right-click the **AV Headphone** icon. Select **Properties** on the pop-up menu.
- ◆ The **Service Configuration** window pops up. (Figure 15.5)

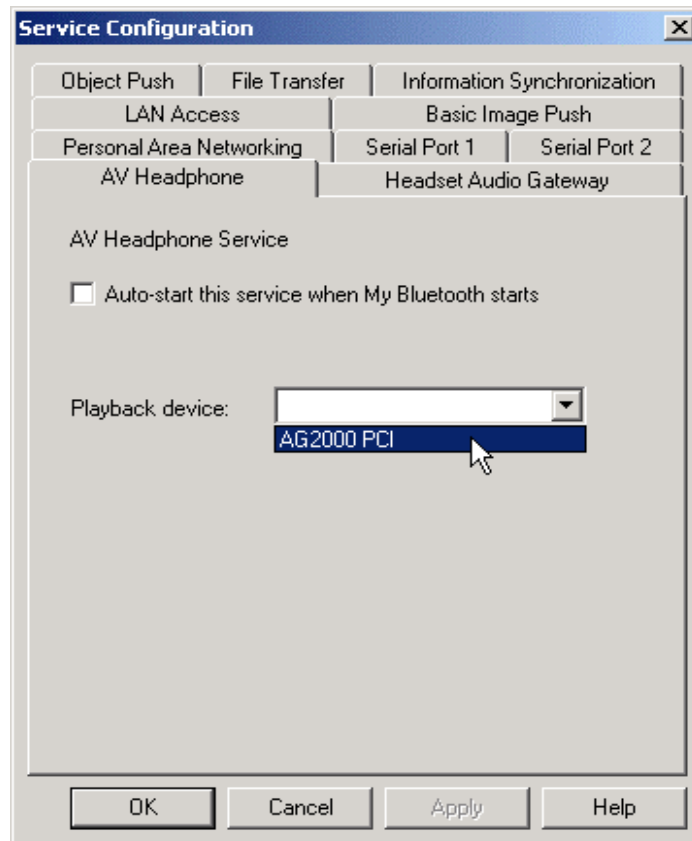


Figure 15.5: Service Configuration Window

- ◆ In the **Playback device** field select the device that you want to use. (Figure 15.5) Once the playback device is selected, it will be used until you select another one.
- ◆ For the first time the AV Headphone service is started, this step is mandatory. Otherwise, if you don't want to change the playback device, this step can be skipped.

Step 5: Start AV Headphone Service on Computer B.

- ◆ In the Service Window, right-click the **AV Headphone** icon. Select **Start Service** on the pop-up menu.

Step 6: Configure the Codec priority on Computer A.

- ◆ In the main Window, right-click the **Bluetooth AV Headphone** icon . Select **Configuration** on the pop-up menu. (Figure 15.6)
- ◆ The **Codec Priority Configuration** window pops up.
- ◆ The **Codec List** is a descending priority-ranked list. Select the Codec and click button **Up** and **Down** to adjust its priority. When connecting with the AV Headphone Server, the upper Codec has the higher priority to be used.
- ◆ If you don't want to change the priority of the Codec, this step can be skipped.

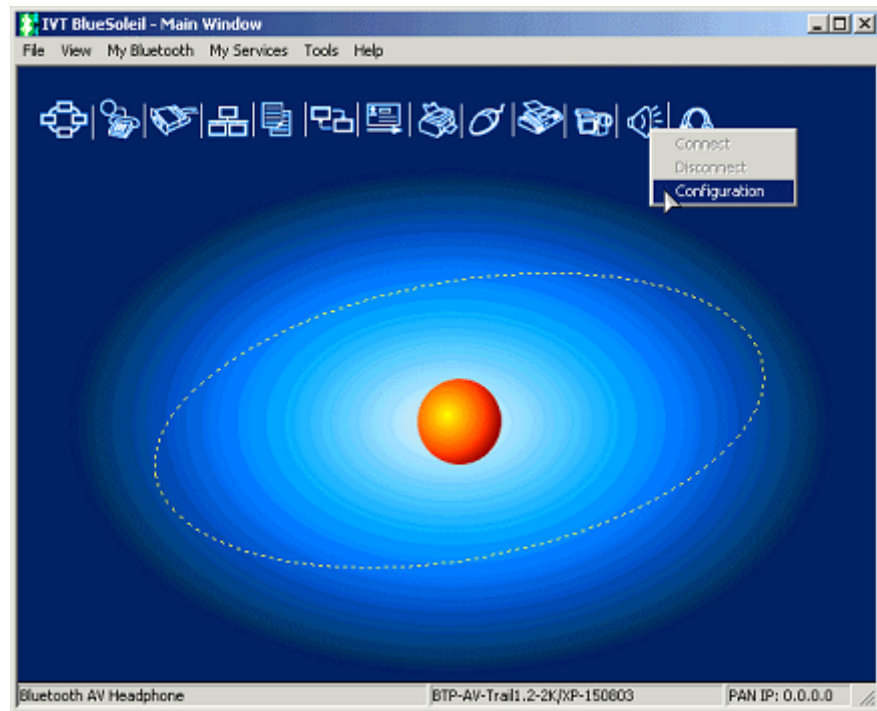


Figure 15.6: Main Window

Step 7: Search for Computer B on Computer A.

- ◆ Double-click the My Device icon until you find the device Computer B.

Step 8: Find the AV Headphone service on Computer B.

- ◆ Double-click the Computer B device icon on Computer A. (Figure 15.7)
- ◆ Enter the Bluetooth passkey (if security is set to **High** on either side) to start authentication.
- ◆ Once authentication is complete, the AV Headphone service is found.

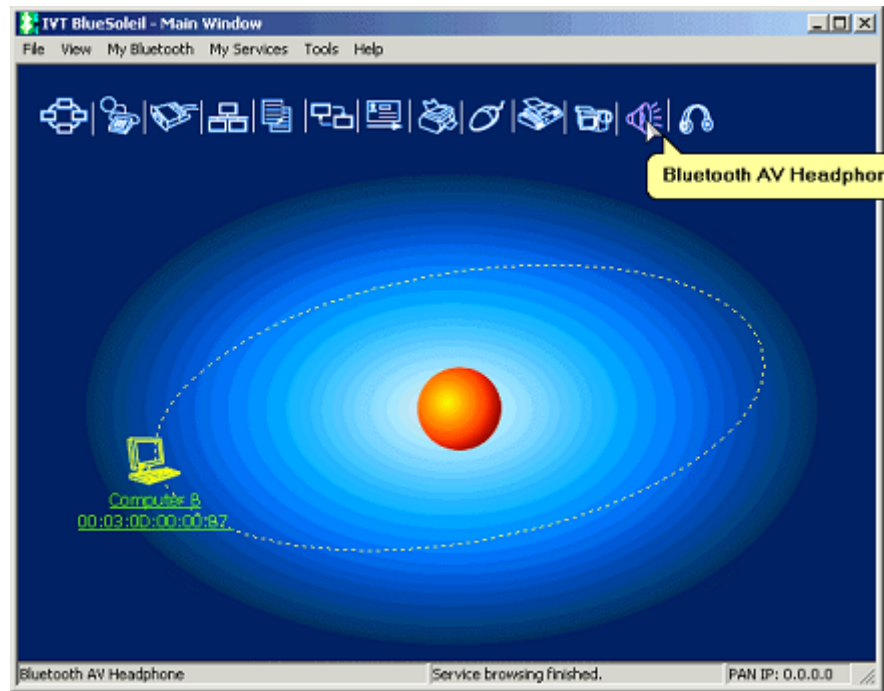


Figure 15.7: Double-click the Computer B device icon

Step 9: Connect to Computer B.

- ◆ Right-click the AV Headphone service icon ; select **Connect** on the pop-up menu. The connection will be established.
- ◆ If SBC Codec is set with higher priority, SBC Codec will be selected for use.
- ◆ If mp3 Codec is set with higher priority and there is no professional mp3 Codec installed on Computer A or Computer B. BlueSoleil will select SBC Codec for use.
- ◆ If mp3 Codec is set with higher priority and there is professional mp3 Codec installed on both computers. BlueSoleil will select mp3 Codec for use.

Step 10: All the audio media played on Computer A can be heard on Computer B.

- ◆ Open music files (e.g. mp3, CD, rm etc.) with Windows Media Player or RealOne Player or other media player and play them, the music can be heard on Computer B. (Figure 15.3, Figure 15.4)
- ◆ When playing VCD or DVD on Computer A, the audio part can be listened on Computer B.

16 Basic Imaging

16.1 Introduction

The Bluetooth BIP Profile defines six useful features: Image Push, Image Pull, Advanced Image Printing, Automatic Archive, Remote Camera and Remote Display. BlueSoleil™ support Image Push and Remote Camera now.

The BIP profile in BlueSoleil can be used in the following scenario:

- ◆ Push an image from a digital still camera.
- ◆ Control a digital still camera remotely.

Note: You can also use any device with a camera embedded instead of a digital still camera.

16.2 Push an image from a digital still camera.

This section outlines how to push an image from a digital still camera B to computer A.

Computer A	Digital Still Camera B
IVT BlueSoleil™	
A Bluetooth Device	

Step 1: Insert the Bluetooth Device into computer A.

Step 2: Start BlueSoleil™ on computer A.

Step 3: ◆ Make sure Basic Image service  is started on computer A.

Step 4: ◆ Power on camera B and Start Bluetooth function on camera B.

Step 5: ◆ Browse images in camera B and select the one you want to push. From a context menu, select to send the image via Bluetooth.

Step 6: ◆ Generally, camera B will display a device list to let you choose to which device you want to push the image; Select Computer A.
◆ If Computer A is not in the list, you need to start a new search.

Congratulations! The image has now been pushed to the computer successfully. You can select where the received images are stored by selecting **Properties...** in the context menu popped up on the Basic Image service icon.

Note: In some digital still camera, step 5 and step 6 may interchange each other.

16.3 Control a digital still camera¹ remotely.

This section outlines how to control a digital still camera B via computer A.

Computer A

IVT BlueSoleil™

A Bluetooth Device

Digital Still Camera B

Step 1: Insert the Bluetooth Device into computer A.

Step 2: Start BlueSoleil™ on computer A.

Step 3: Power on camera B.

Step 4: Start remote camera function on camera B.

Step 5: Search for camera B on computer A and connect to its BIP service



Step 6: The **Bluetooth Camera Controller** dialog pops up; the image on the camera's LCD is displayed in this dialog. (Figure 16.1)

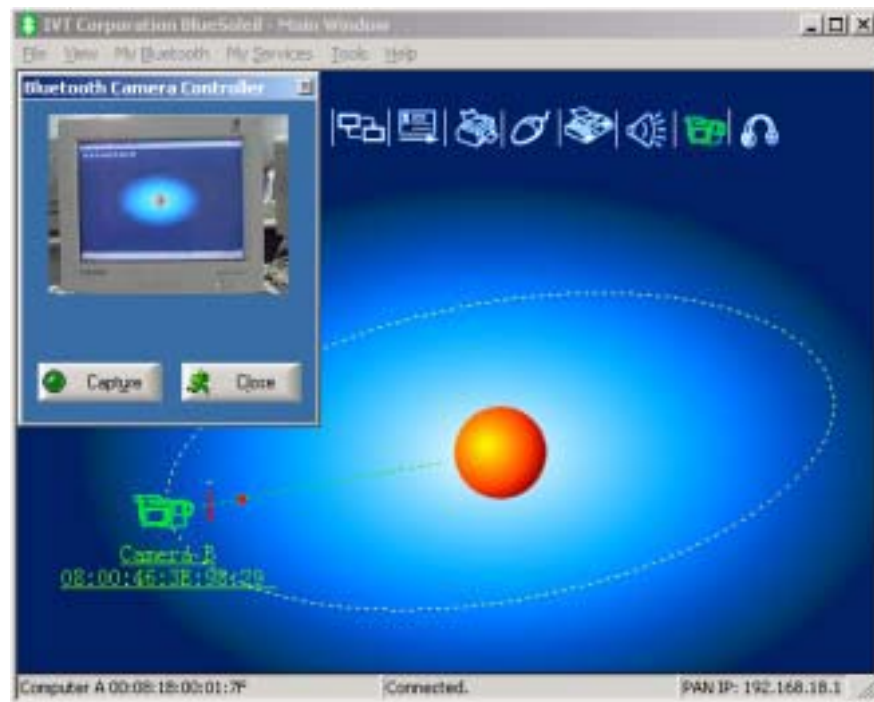


Figure 16.1 Computer A has connected to Camera B

¹ The camera must have remote camera function.

Step 7: Capture pictures:

1. Click "Capture" button on the dialog. BlueSoleil™ triggers the shutter of the camera to capture the image.
2. A "Save As..." dialog pops up to let you select where to save the image.
3. BlueSoleil™ gets the image from camera B. A progress bar in the **Bluetooth Camera Controller** dialog shows how much the process is finished. (Figure 16.2)
4. When the image is completely downloaded, it is displayed on the computer's screen.



Figure 16.2 BlueSoleil™ is getting the image

Step 8: If you want to capture more pictures, just repeat step 7.

Step 9: Click "Close" button on the dialog, BlueSoleil™ disconnects computer A with camera B.

17 Connection Shortcut

17.1 Introduction

Connection shortcut profile is used to save time used in searching for devices and browsing services. Once a connection has been established, it can be saved as a shortcut. The shortcut is then used to re-establish the connection, without having to search for the remote Bluetooth device and required Bluetooth service.

17.2 How to use Connection Shortcut

This section outlines how to save a Bluetooth File Transfer connection as a connection shortcut.

Computer A:

Notebook, Laptop

A Bluetooth Device

Windows 2000

IVT BlueSoleil™

Computer B:

Desktop

A Bluetooth Device

Windows 2000

IVT BlueSoleil™

- Step 1: Establish a File Transfer connection. (See "Section 7.2 Transfer files to/from a Computer", Steps 1 to 7).
- Step 2: Save the Bluetooth File Transfer connection shortcut on Computer B.
- ◆ Right-click the Computer A device icon and select **Save the Connection as Shortcut | Bluetooth File Transfer**. (Figure 17.1)

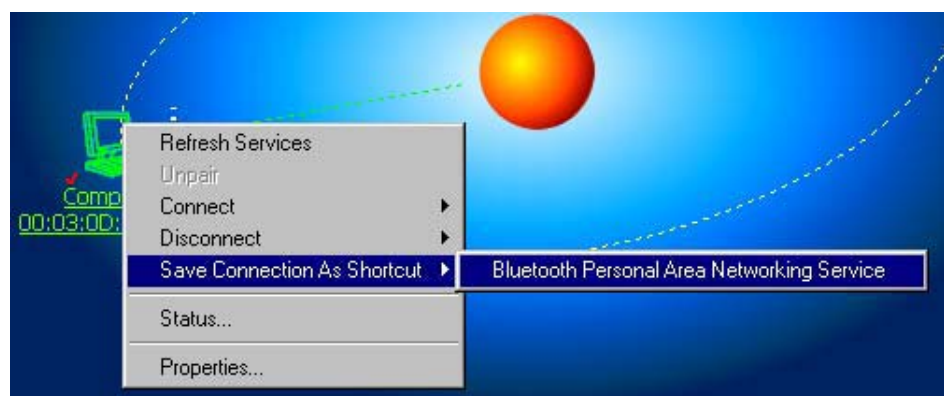


Figure 17.1: Save Bluetooth File Transfer as connection shortcut

- Step 3: Close BlueSoleil™ on Computer B by selecting **File | Exit** in the BlueSoleil™ Main Window.
- Step 4: Re-start BlueSoleil™ on Computer B.

Step 5: In the BlueSoleil™ Main Window, click **Tools | My Shortcuts**. The **Bluetooth Shortcuts** window pops up. (Figure 17.2)

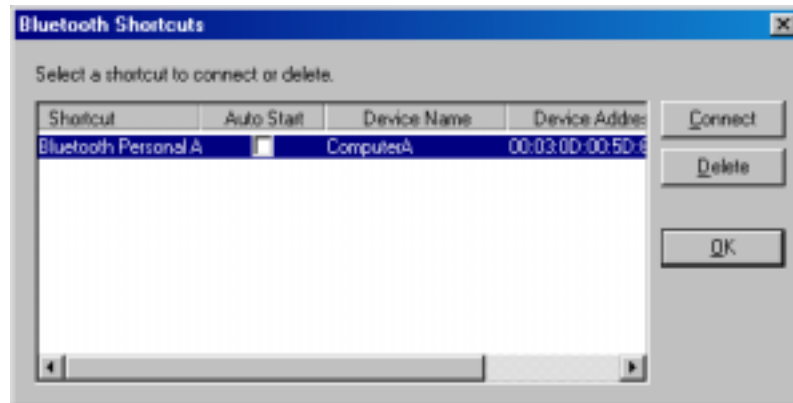


Figure 17.2: Bluetooth Shortcuts window

Step 6: Check the **Auto Start** box and click **Connect**. (Figure 17.3)



Figure 17.3: Bluetooth Shortcuts

Step 7: Once the connection is successfully established, click **OK** in the **Bluetooth Shortcuts** window. (Figure 17.4)

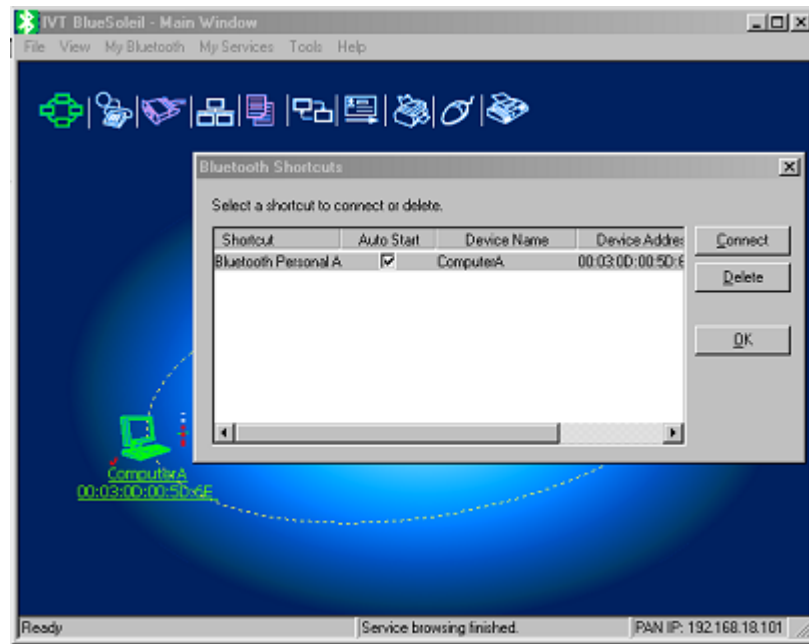


Figure 17.4: Click OK on Bluetooth Shortcuts

Step 8: Start to use the FTP service provided by Computer A.

18 Bluetooth Glossary

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 requested on both sides of the connection. 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 a connection cannot be established.

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 device. Every Bluetooth service in your BlueSoleil™ has an authorization setting. The authorization devices list for each service records the devices that have been authorized for that service. The user can change the authorization status for each device.

Bluetooth Connection A Bluetooth connection refers to the Bluetooth link that can be set up between two Bluetooth devices. Connected Bluetooth devices have a server/ client relationship. One Bluetooth device provides services and another Bluetooth device uses these Bluetooth services.

Bluetooth Connection Shortcut Connection shortcut is used to save time used in searching for devices and browsing services. Once a connection has been established, it can be saved as a shortcut. The shortcut is then used to re-establish the connection, without having to search for the remote Bluetooth device and required Bluetooth service.

Bluetooth Device Bluetooth Devices can refer to either of the following:
(1) When referring to the local device configuration, a Bluetooth Device is the local Bluetooth hardware, e.g. Device, UART device, PCMCIA card or BCSP device.
(2) When referring to the Bluetooth application, the Bluetooth device is the Bluetooth system as a whole, e.g. a Bluetooth modem, Bluetooth mobiles or a Bluetooth PDA. A computer 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 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 the Bluetooth 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 first time set-up.

Bluetooth Device Inquiry To use Bluetooth, the user has to first find the remote device. The searching procedure is called device inquiry. There are two kinds of inquiry procedure; 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 Dial-up Networking This is the implementation of the Bluetooth Dial-up Networking profile (DUN). Using DUN, Bluetooth devices can dial-up to the Internet via a Bluetooth modem or a Bluetooth mobile phone.

Bluetooth FAX This is the implementation of the Bluetooth FAX profile (FAX). Using FAX, Bluetooth devices can send a FAX via a Bluetooth mobile.

Bluetooth File Transfer This is the implementation of the Bluetooth File Transfer profile (FTP). Bluetooth File Transfer enables the transfer files between Bluetooth devices.

Bluetooth HCRP This is the implementation of the Bluetooth Hardcopy Cable Replacement profile (HCRP). HCRP provides services to replace the cables between hosts and peripheral devices with a Bluetooth link. HCRP is mainly used for wireless printing.

Bluetooth Information Synchronization This is the implementation of the Bluetooth Synchronization profile (SYNC). Using Synchronization, Bluetooth devices can synchronize messages, notes, calendars and cards with each other.

Bluetooth LAN Access This is the implementation of the Bluetooth LAN Access profile (LAP). Using LAP, Bluetooth devices can access Local Area Network via LAN access points.

Bluetooth Object Push This is the implementation of the Bluetooth Object Push profile (OPP). Using OPP, Bluetooth devices can transfer messages, notes, calendars and cards with each other.

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, Bluetooth peripheral input devices such as a Bluetooth mouse or keyboard, can remotely interface with the host computer.

Bluetooth Personal Area Networking This is the implementation of the Bluetooth Personal Area Networking profile (PAN). Using PAN, Bluetooth devices can connect to each other to form ad-hoc networks. They can form a TCP/IP network or connect to a Local Area Network and the Internet.

Bluetooth Printer This is the implementation of the Bluetooth Hard-copy Cable Replacement profile (HCRP) as a printer. Bluetooth Printer allows Bluetooth devices to wirelessly print documents to a Bluetooth printer.

Bluetooth Security Bluetooth security is an important part of the Bluetooth wireless communication technology. Bluetooth security enables illegal access to your computer to 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 to 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 computer. Otherwise, the Bluetooth passkey is not requested. If authorization is set, the remote device has to be in the authorized devices list.

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 four services, which include synchronization, dial-up networking, file transfer and serial port. In BlueSoleil™, all services need to be started manually before use..

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 first find the services. This is called service browse.

Bluetooth Serial Port This is the implementation of the Bluetooth Serial Port profile (SPP). SPP emulates a serial port over Bluetooth, for the Bluetooth device.

Bonding Bonding is the creation of a relationship between two devices, which are known to each other prior to the bonding procedure. A user initiates the bonding procedure and enters a passkey to create a bond between two devices. This differs from the authentication procedure where the user is requested to enter a passkey during the establishment of the link.

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

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

Bluetooth Dongle A Bluetooth device which can be added onto a computer or notebook to make it Bluetooth enabled, A Bluetooth dongle is typically a USB device.

General Discoverable Bluetooth devices have three 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.

HID A Human Interface device such as a keyboard or mouse.

ICS (Internet Connection Sharing) For more detailed information about ICS, please refer to the Microsoft Windows help topic: Internet Connection Sharing.

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

LAN A LAN is a Local Area Network.

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.

NAT Network Address Translation (NAT) is used to re-map IP numbers from one 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 another device to connect to their computer.

Non-discoverable Bluetooth devices have three modes: General discoverable, Limited discoverable and Non-discoverable mode. In Non-discoverable mode, a Bluetooth device will not respond to any inquiry, so another Bluetooth device will not be able to 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.

Pairable A Bluetooth device can be pairable or non-pairable. When it is pairable, it will accept a bonding request from other devices. After the bonding process is finished successfully, two devices are paired. They now form a trusted relationship. There is no need to exchange Bluetooth Passkeys the next time they connect.

Piconet A collection of devices connected via Bluetooth wireless technology in an ad hoc fashion. A piconet starts with two connected devices, such as a portable PC and an Access Point, and may expand to eight connected devices. All Bluetooth devices are peer units and have identical implementations. However, when establishing a piconet, one unit will act as a master and the other(s) as slave(s) for the duration of the piconet connection. All devices have the same physical channel utilizing the same Frequency-hopping sequence, defined by the master device clock and the Bluetooth Device Address.

PIM Personal Information Management.

Radio Signal Strength Bluetooth operates on the 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 transfer speed is slow. However, if the two devices are too close and the radio signal is too strong, the Bluetooth data transfer 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 My Bluetooth device sees all other Bluetooth enabled devices as remote Bluetooth devices. For example, a Bluetooth modem, Bluetooth mobiles or a Bluetooth PDA .

Start Bluetooth Service Start the selected Bluetooth service. Only after the service is started, can other devices browse the service and connect to it.

Stop Bluetooth Service Stop the selected Bluetooth service. After the service is stopped, other devices cannot browse the service or connect to it. The existing connection will be disconnected.

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.