LevelOne

MDU-0001USB

LevelOne Bluetooth USB Adapter

User's Guide

Version 1.0 D

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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: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices) 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.

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1. Introduction

1.1 About Bluetooth Dongle

Thank you for purchasing Bluetooth USB Adapter, Bluetooth Dongle. With the features of small, lightweight and easy plug-and play, Bluetooth USB Adapter enables the integration of Bluetooth technology into your personal computers.

Features:

- Bluetooth 1.1 Spec. Compliant
- Data Speed of up to 1Mbps
- Range of up to 10 meters
- Multiple functions such as Dial-up networking, File transfer, LAN Access…
- 2.4 GHz FHSS technology
- Easy to expand the network
- Small size and easy installation
- Extensive security: Authorization / Authentication / Encryption.
- Supports Windows 95/98SE, ME, 2000, and XP

As a Bluetooth Client, Bluetooth USB Adapter provides:

- To locate other Bluetooth-enabled devices in the vicinity
- To discover the services of those devices
- Connect to, use, and disconnect from those services.

As a Bluetooth Server, Bluetooth USB Adapter provides:

- To include or exclude individual services in the list of services provided to clients.

1.2 Kit Contents

- Bluetooth USB Adapter
- Installation Software CDROM

1.3 Icons Used

By changing color, Bluetooth icons help you to distinguish a device or service's status.

Device icons

Icons with blue-color indicates "normal" state. Icons with green-color indicates "Connected" state. Icons with a check mark indicate that devices are paired with this computer.

Device Icon Types			
Device Type	Normal	Connected	Paired
Cellular Telephone			
Desktop Computer			
Laptop Computer			
Modem			
Network			
Personal Digital Assistant (PDA)			
Printer			
Unknown devices.			

Service icons

Icons with gray or yellow-color indicates “normal” state. Icons with green-color indicates “Connected” state.

Service Icon Types		
Service Name	Normal	Connected
Bluetooth Serial Port		
Dial-up Networking		
Fax		
File Transfer		
Information Exchange		
Information Synchronization		
Network Access		

Icons with a red “X”  ndicate “not available”.

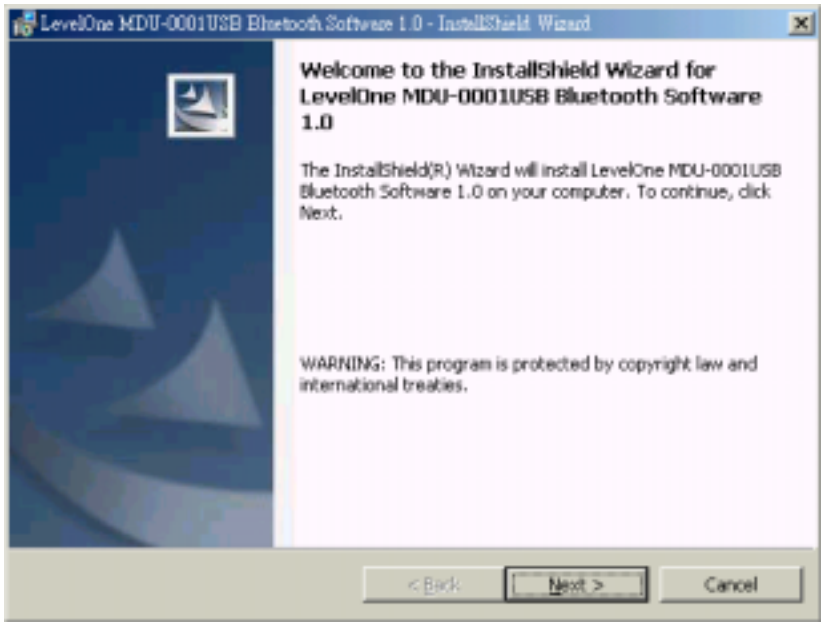
2. Step-by-Step Installation Guide

This chapter shows you in detail how to install and uninstall the Bluetooth USB Adapter.

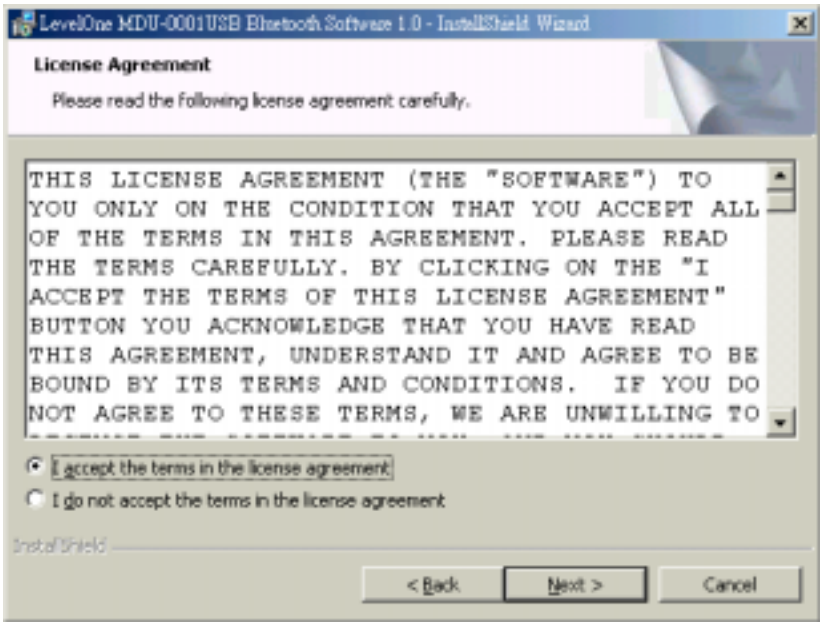
2.1 Installation

Before installation, make sure the previous version of Bluetooth USB Adapter software has been uninstalled. See Chapter 2.2 Uninstallation.

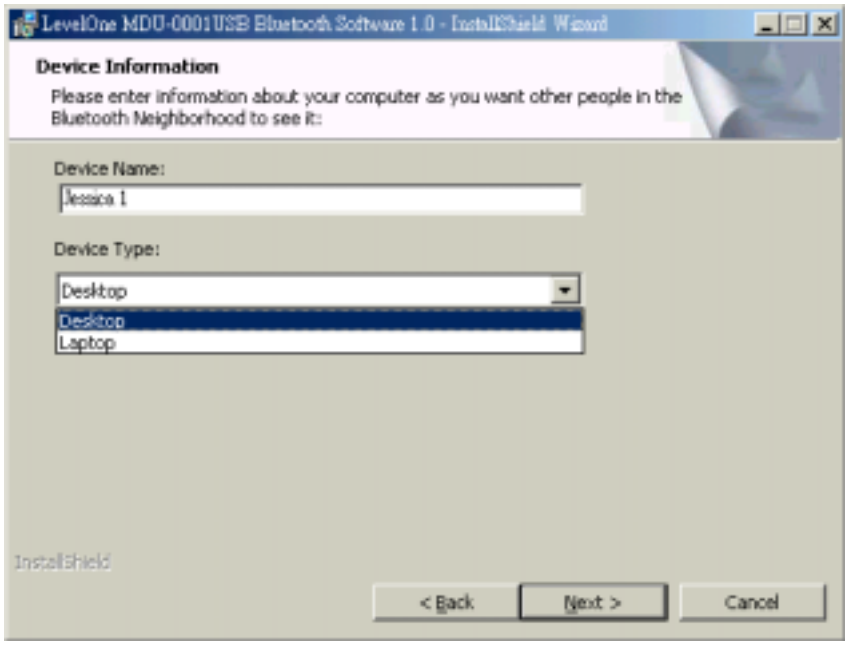
1. Insert the installation software CDROM into the CDROM drive on the computer. The auto-run option starts. You may manually start the setup process: click Start>Run>setup.exe. When the Welcome screen displays, click “Next”.



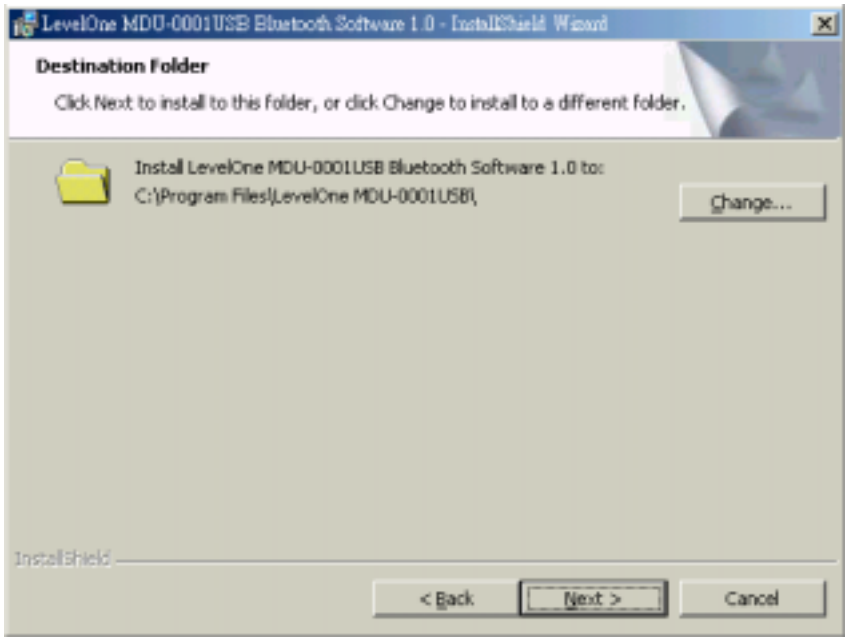
2. Read the License Agreement and tick “I accept the terms in the license agreement”. Click “Next”.



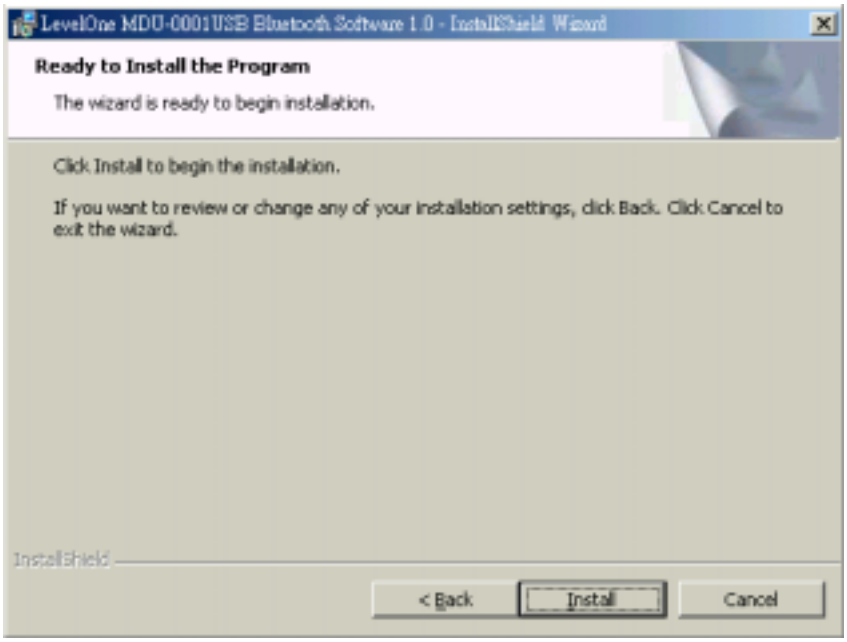
3. Enter a name for your computer, and select a device type. Click “Next”.



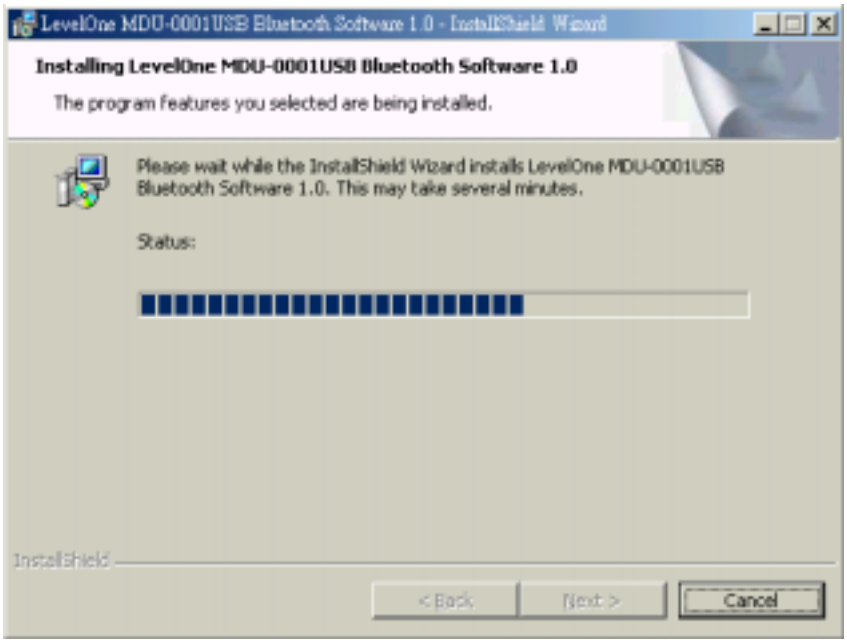
4. Click “Next” to install to this folder, or click “Change” to install to a different folder.



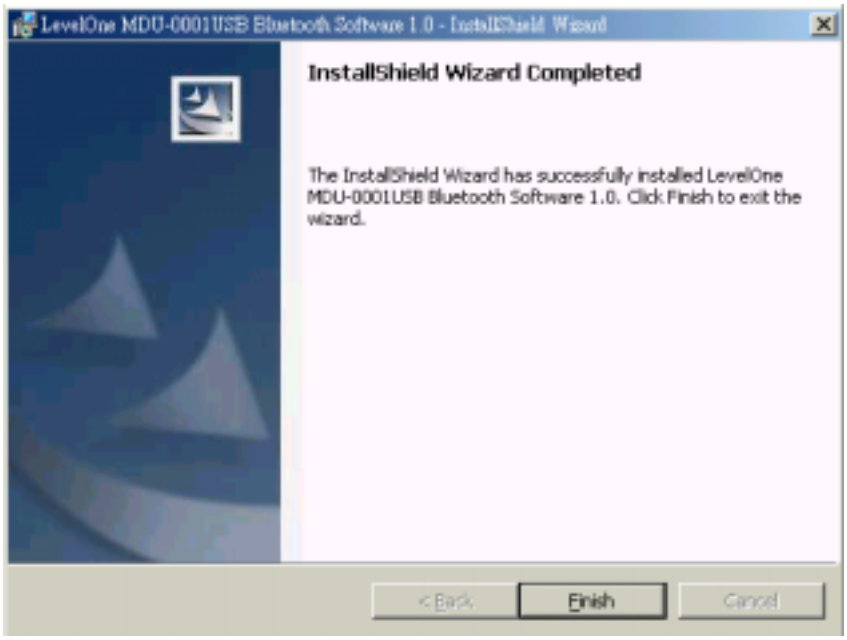
5. Click “Install” to begin installation.



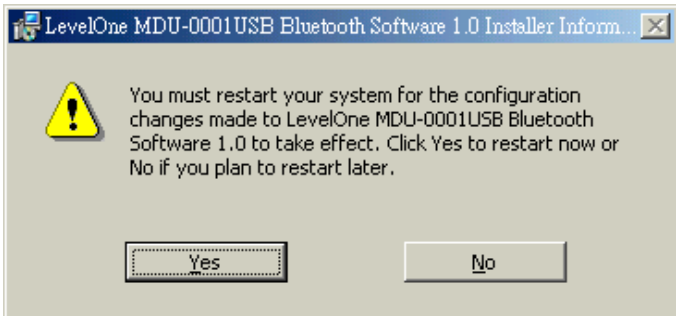
6. Installing…



7. Installation completed. Click “Finish” to exit the InstallShield Wizard.



8. Click “Yes” to restart your computer.



Additional Notes for Windows XP:

- For the first time inserting the Bluetooth USB Adapter, the system will ask you to install the driver again. Click “Next” and then “Finish”.





- If your laptop notebook has 2 USB ports, you have to install the driver again for the first time inserting Bluetooth USB Adapter into either port. Click “Next” and then “Finish”.

2.2 Uninstallation

Two ways of uninstallation:

1. When installing an upgraded version, the InstallShield Wizard automatically uninstalls the previous version.
2. Manually uninstall the software:
   a. Close any open applications.
   b. Open “Control Panel”.
   c. Double click “Add/Remove Programs”.
   d. On the *Add/Remove Programs* window, select the “LevelOne MDU-0001USB Bluetooth Software 1.0”.
   e. Click “Remove”. Follow the Uninstallation Wizard steps to complete uninstallation.
   f. Restart your computer.

3. Basic Operations

3.1 Finding Bluetooth Devices

Follow the steps below to use the submenu “Search for Devices” to find any available Bluetooth devices in the vicinity:

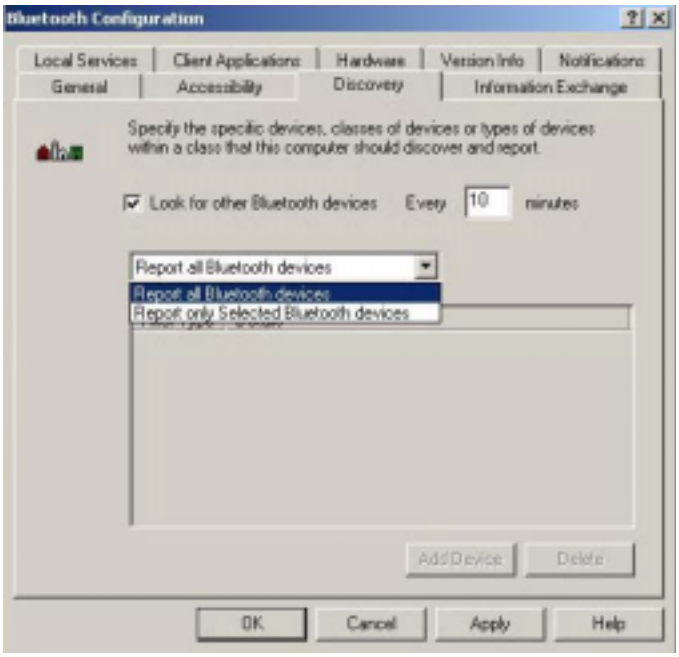
1. Double click on “My Bluetooth Places” icon  on the desktop.
2. Double click “Entire Bluetooth Neighborhood”. The devices found are displayed.



3. Click Bluetooth>Search for devices to search most recent available Bluetooth devices.



You may go to Bluetooth>Device Configuration>Discovery to make your computer to automatically search for devices on a regular basis. Doing so can guarantee you that the displayed list of devices in the neighborhood is current.



Note! If there are some devices within connection range not found in the list, it might because of:

1. Those devices are set to be non-discoverable. (From those unfound devices, go to

Bluetooth Configuration Panel and select “Accessibility” tab to change the settings.)

2. Your device is configured to search for only specific types or classes of devices. (From your device, go to Bluetooth Configuration Panel, and select “Discovery” tab to change the settings.)

3.2 Finding a Service

To find a service: In the Folders pane of My Bluetooth Places, double-click on the device, or right-click on the device and select “Discover Available Services” from the pop-up menu.



The followings are possible available services:

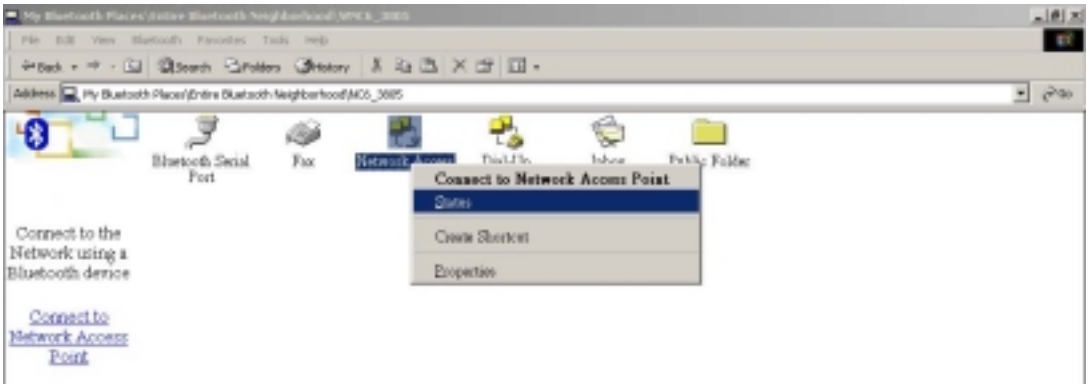
- **Bluetooth Serial Port –** allows two devices to build a Bluetooth wireless connection. This service provides a wireless connection being used by applications as if a physical serial cable connected the devices.
- **Dial-up networking –** Allows a Bluetooth client to use a modem that is attached to the Bluetooth server.
- **Fax –** Allows a Bluetooth client to send a fax using a device that is attached to the Bluetooth server.
- **File Transfer –** Allows your computer to wirelessly perform file system operations (browse, drag, open, copy, etc.) on another Bluetooth device.
- **Information Exchange –** Allows two Bluetooth devices to wirelessly exchange personal information manager data such as email messages, notes, business cards and calendar items.
- **Network Access –** Allows a Bluetooth client to wireless connect to a server that is physically connected to the LAN. If the client has user name and password for the LAN, the wireless connection can be used as though the client were hardwired to the LAN.

Note! Note every Bluetooth server provides all of these services.

3.3 Connection's Status

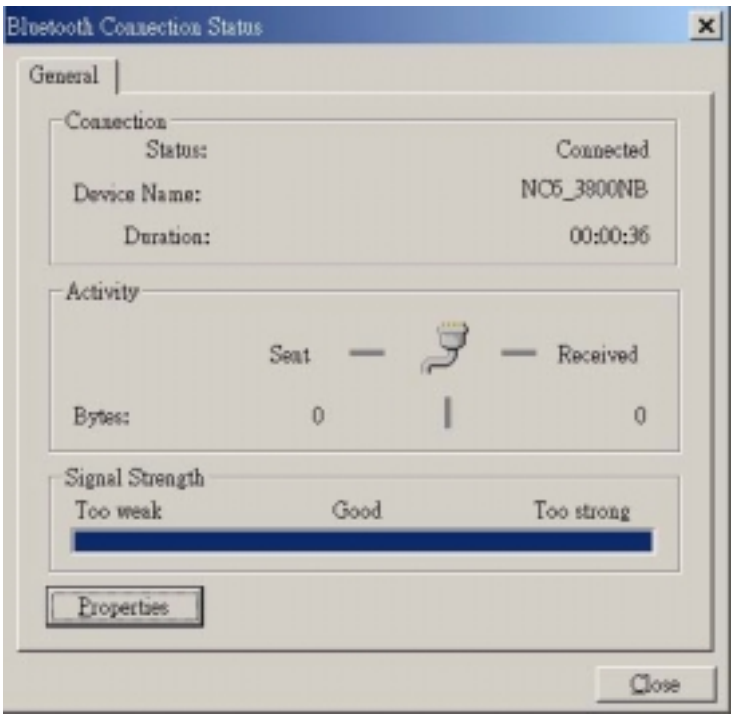
Follow the steps below to open Bluetooth Connection Status dialog box that allows you to view the connection status or to disconnect an active connection:

1. In My Bluetooth Places, highlight a device.
2. In the right pane of My Bluetooth Places, right-click on a service name and select "Status" from the pop-up menu.



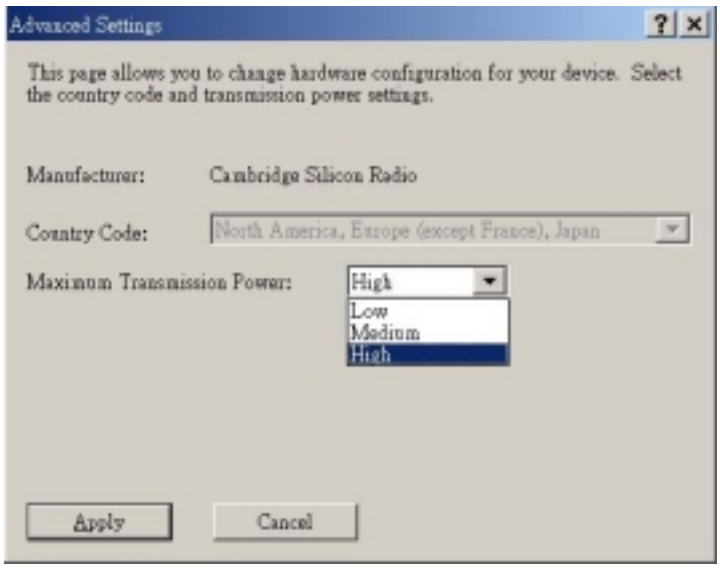
The following information is provided:

- **Status:** Shows you the connected or disconnected status.
- **Device Name:** Shows you the name of the device with which this computer is connected.
- **Duration:** Shows you the time it took to build the connection. The connection may be disabled after a specific period of inactivity.
- **Activity:** Gives you the number of bytes sent and received over the connection.
- **Signal Strength:** Shows you the signal strength – Too Weak, Good or Too Strong.



To change the power transmission level of this computer:

1. Go to Bluetooth>Device Configuration>Hardware.
2. Click “Advanced”.
3. Change the setting in the Maximum Power Transmission drop-down list.



The following control buttons are provided:

- Properties: Click this button to display the Bluetooth Properties dialog box.
- Disconnect: Click this button to disable this connection (see status of “Network Access” and “Dial-Up Networking”).
- Close: Click this button to close this dialog box.

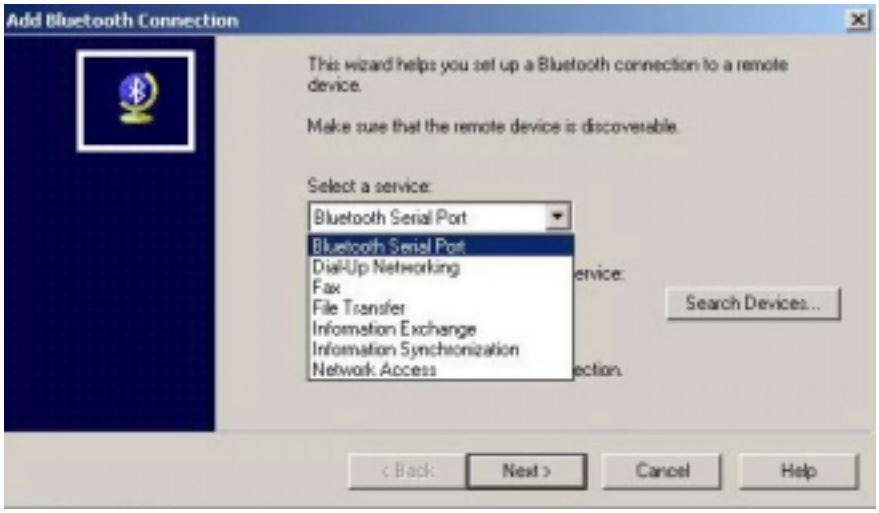
3.4 New Connection

Connection Wizard helps you to easily set up a new Bluetooth connection with another device. To active the connection, double-click the shortcut that is placed in the right pane of My Bluetooth Places. Follow the steps below to set up a new connection:

1. In the Windows system tray, right-click on the Bluetooth icon , and select “Services” from the pop-up menu. Select “Connection Wizard” from the submenu, and the first Connection Wizard screen displays.



2. From the “Select a Service” drop-down menu, choose the *type* of connection that will be established. (You may select a specific service later.)



3. From the “Select a device that provides the service” drop-down menu, select the device that will provide the service. (To update the list of devices found, follow the steps in Chapter 3.1 Finding Bluetooth Devices.)



4. Select the “Require secure encrypted connection” option to enable Authentication and Encryption for this connection. Click “Next” to go to next screen.
5. If there is more than one service in the “Select a Service” drop-down menu of the selected device, choose the specific service to be used. Click “OK” to close the dialog box. On the other hand, if there is only one service of the type selected in the drop-down menu, the next Connection Wizard screen appears.
6. If you choose “Require secure encrypted connection”, a security screen appears. You need to enter your Personal ID Number in the PIN Code field of the security screen to establish a paired relationship with the remote device. Click “Next”. However, if this is the first time connection, leave the PIN Code field blank in the security screen, and click “Next”.



Note! You will not see the Security screen if the devices have been paired.

7. From the last Connection Wizard screen, you can see the basic information about the new connection (includes the name of the device providing service and the name of the service). If the information is not correct, go back to the previous screen and modify the selection.



8. Enter a name for the connection in the “Connection Name” field. For example, “Bluetooth Serial Connection to Molly’s Laptop”.

3.5 Bluetooth Tray

You can find the Bluetooth Tray in the Windows System Tray (usually in the lower-right corner of the screen). Double click on the Bluetooth icon allows you to access “My Bluetooth Places”.

Right click on the Bluetooth icon, you can find the following functions:

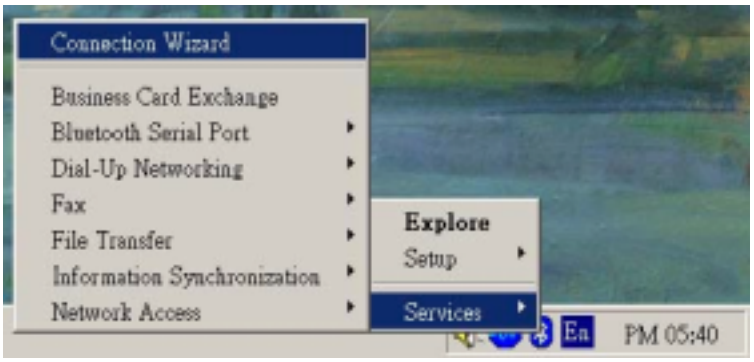
- Configuration: Go to Setup>Configuration to access the Bluetooth Configuration Panel.



- Security: Go to Setup>Security to access the Bluetooth Security dialog box



- Connection Wizard: Go to Services>Connection Wizard to active Connection Wizard.



- Business Card Exchange: Go to Services>Business Card Exchange to enable exchanging Business Cards with another Bluetooth computer.
- Other services: Go to Services and choose the desired service from the submenu (includes Bluetooth Serial Port, Dial-up Networking, Fax, File Transfer, Information Synchronization and Network Access). Additional submenu will appear, includes:
  - ■ Find Devices…

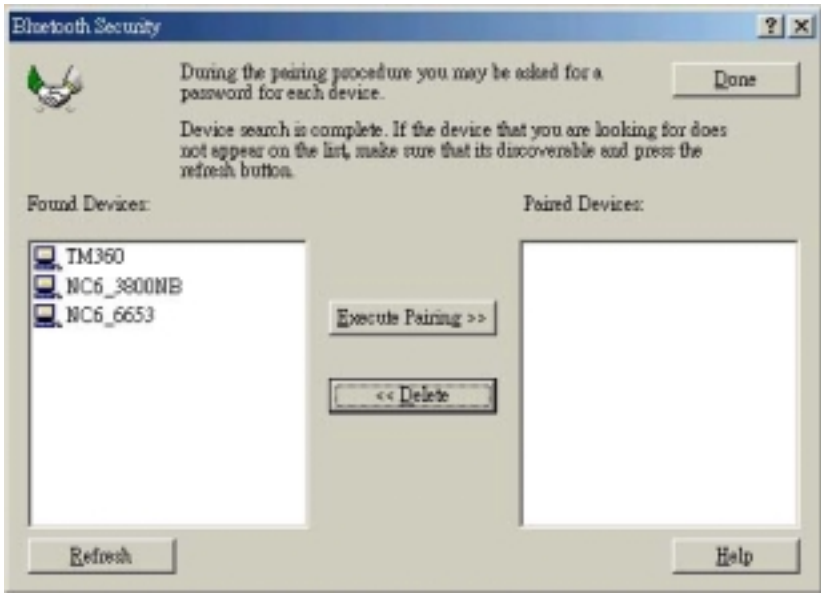
  or
  - ■ Other Devices…and one or more device names. The device names appear because the computer used to use this service and connect via this technique before. Select the device from the additional submenu will re-initialize the connection.

3.6 Pairing Devices

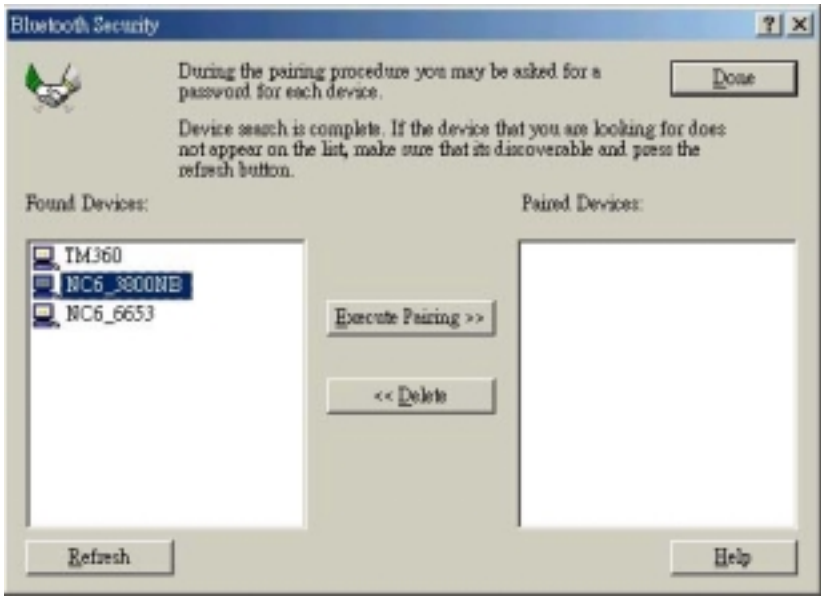
1. Right click on the Bluetooth icon in the Windows System Tray. Choose “Setup” and select “Security” from the submenu.



2. Click “Refresh” button  to update the list of available Bluetooth devices in vicinity.



3. From the list of Found Devices, click the device’s name.



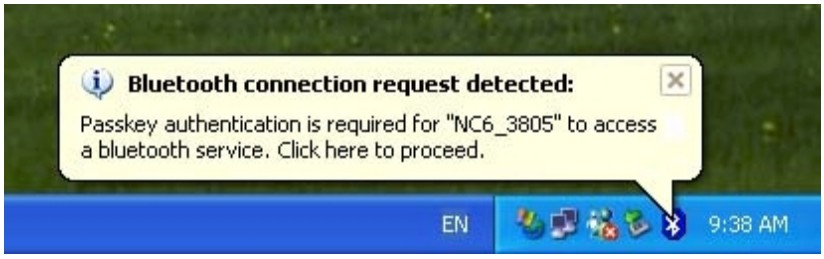
4. Click “Execute Pairing” button 

.

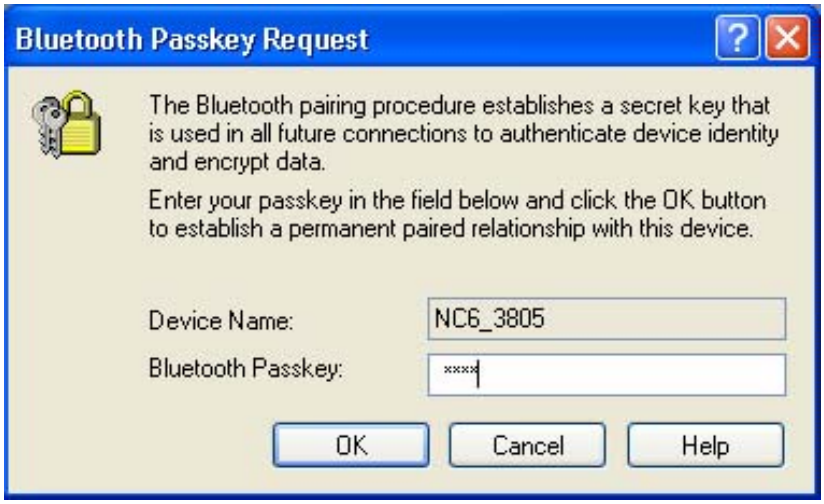
5. When Bluetooth Passkey Request dialog box appears, enter a passkey in the Bluetooth Passkey field. You can type within 16 alphanumeric characters (for example: 0000). Click “OK”.



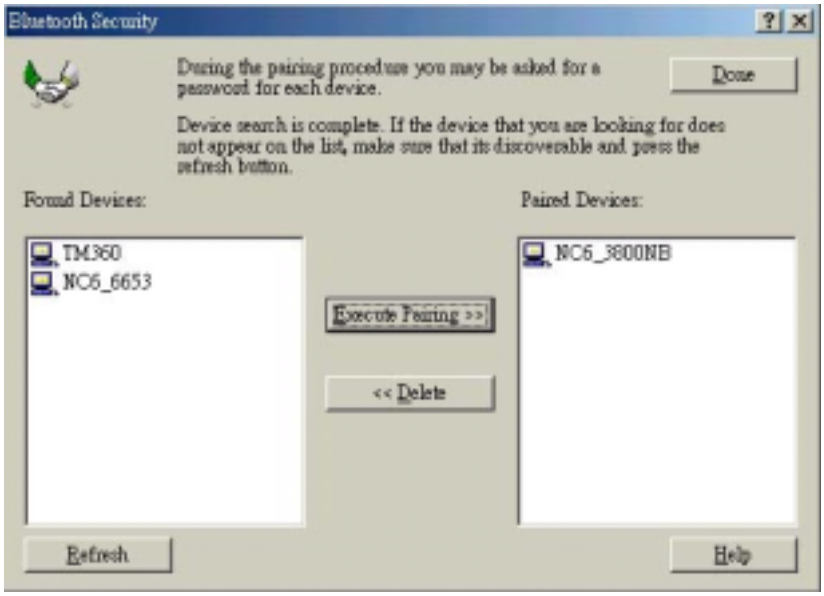
6. From the other Bluetooth device, a message pops up informing you that a Bluetooth connection request is detected. Click the Bluetooth icon in the Windows System Tray.



7. In the Bluetooth Passkey field, enter the passkey. The passkey for both of the paired devices should be the same (“0000” in this example). Click “OK”.



8. After pairing, the Paired Device's name is listed in the Paired Devices pane. Click "Done" button to close the "Bluetooth Security" dialog box.



9. Devices remain paired until the pairing relationship is terminated on BOTH devices.

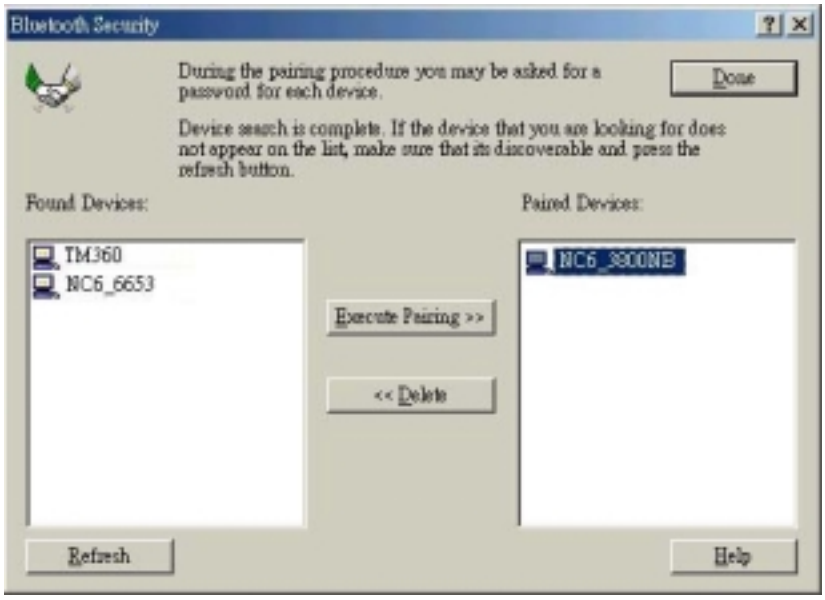
3.7 Breaking a Paired Device Relationship

1. Right click the Bluetooth icon in the Windows System Tray. Choose “Setup” and select “Security” from the submenu.



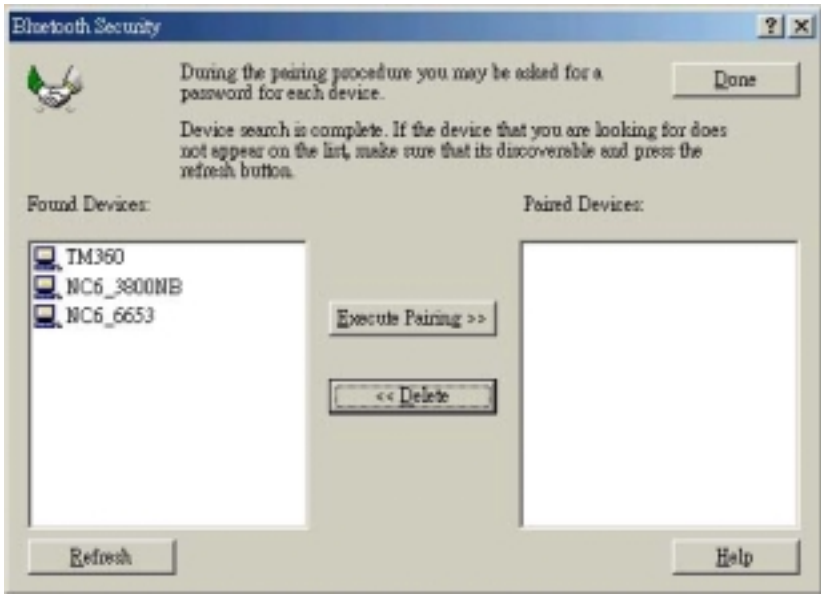
2. From the Paired Devices pane, select the device. Click “Delete” 

.



3. Click “Done” 

.



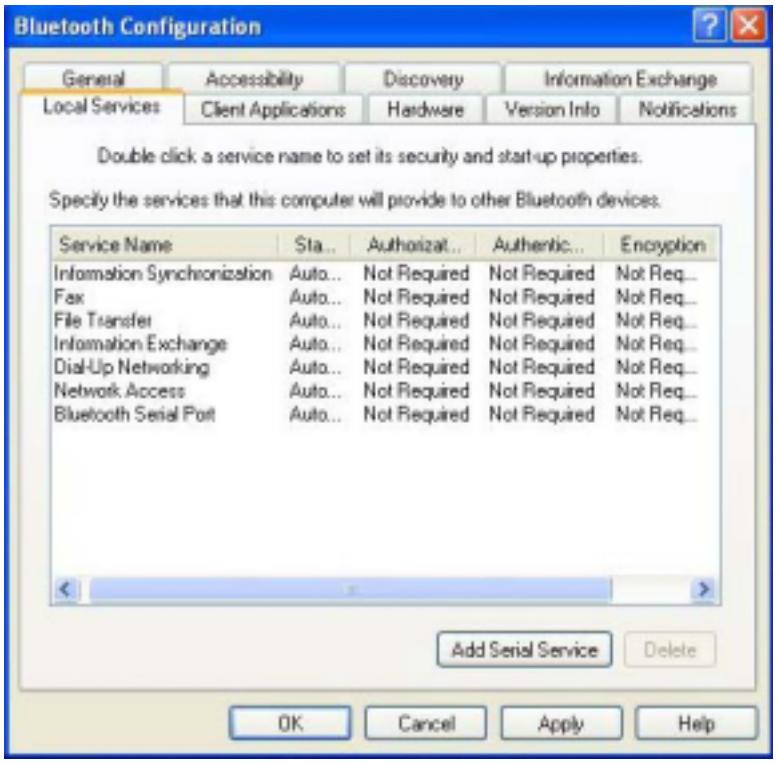
4. Repeat Step1~Step3 on the other Bluetooth device.

3.8 Setting Security for Local Services

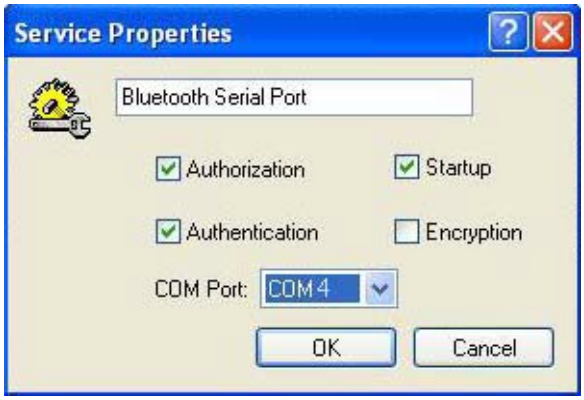
1. Right-click the Bluetooth icon in the Windows System Tray. Select “Setup” and then “Configuration”.



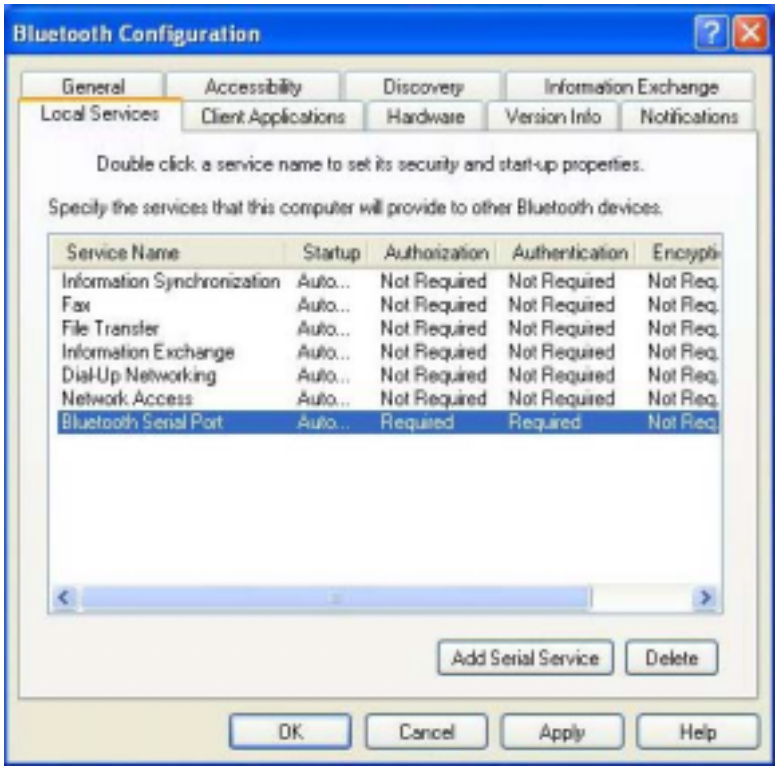
2. Click “Local Services” tab. Double click a service name to set its security. For example: Bluetooth Serial Port.



3. In the “Service Properties” dialog box, select the check boxes of “Authorization”, “Authentication”, “Startup” or “Encryption”. Select a COM Port. Click “OK”.



4. Click “Apply” and then “OK” to save and implement the new settings.

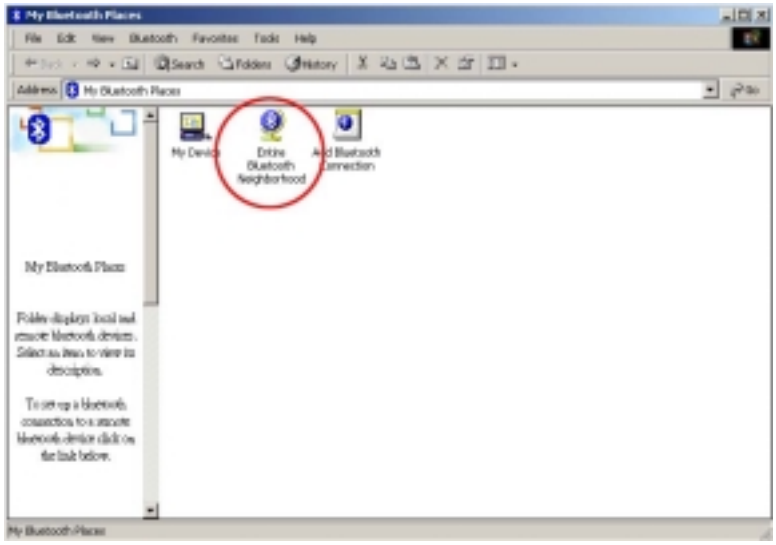


3.9 Connecting to a Secured Service

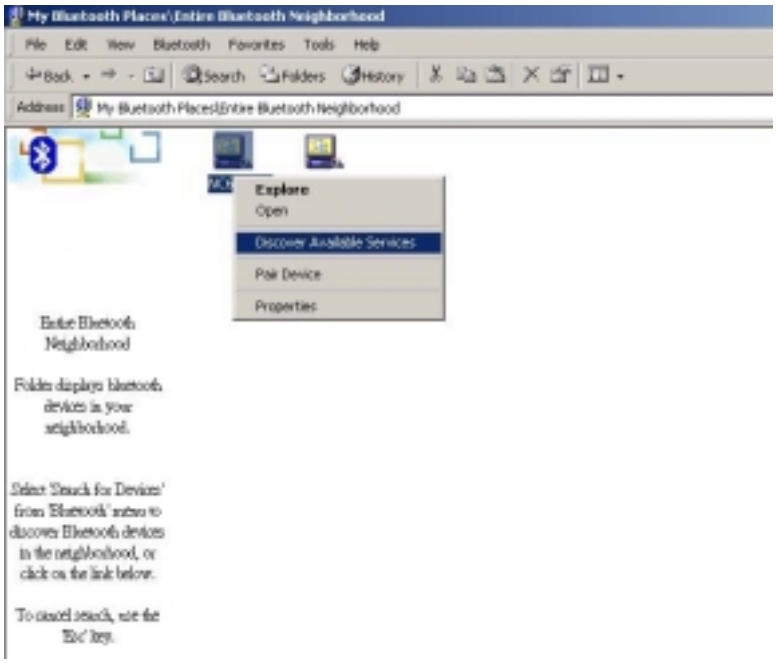
1. Double click the shortcut icon, My Bluetooth Places, on the desktop.



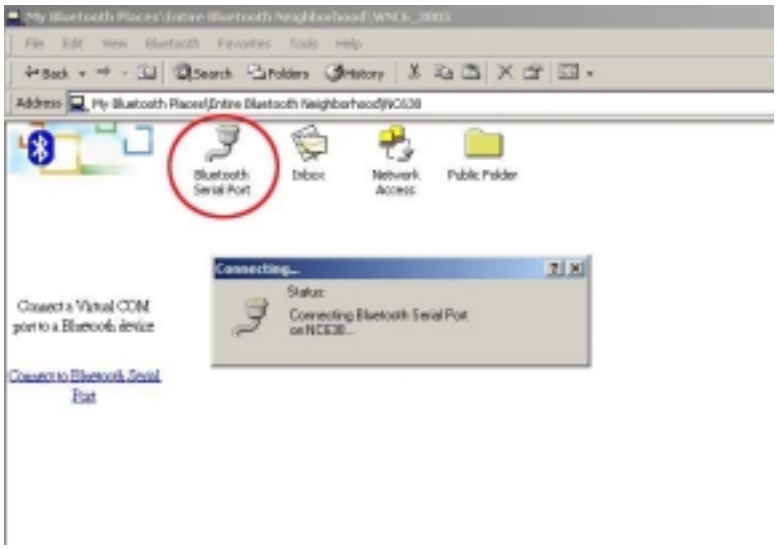
2. Double click “Entire Bluetooth Neighborhood”. All available Bluetooth devices are then listed.



3. Right-click the chosen device (“NC6_3805” in this case) and select “Discover Available Services”.



4. Double click one service (“Bluetooth Serial Port” in this case).



5. From the other device (“NC638” in this case), a message pops up informing that “NC6_3805” is trying to connect to the secured service.



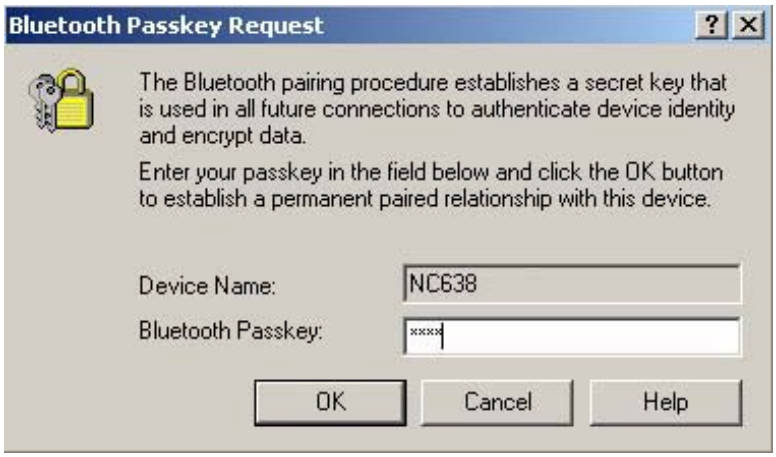
6. If the user of “NC638” allows this connection, he/she will click the Bluetooth icon in the Windows System Tray and then create a Bluetooth Passkey. You need this passkey to access this service.



7. Once you get the permission for the connection, from your device, a message pops up asking for the passkey.



Enter the passkey and then click “OK”.



8. Click “OK” to complete the service connection.



The “Bluetooth Serial Port” icon changes the color to green.

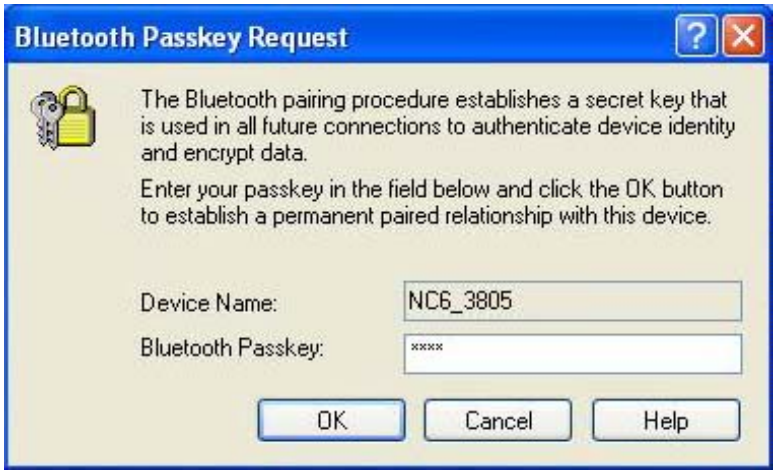


3.10 Sharing Secured Local Services

1. When you see a message pops up telling you that there's one Bluetooth device ("NC6_3805" in this case) is trying to connect to one of your secured service, click the Bluetooth icon in the Windows System Tray.



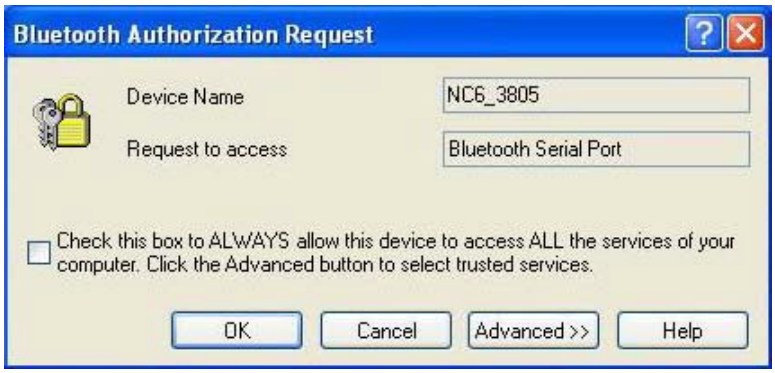
2. If you would like to allow this connection, enter a passkey. (The user of "NC6_3805" will need to know this passkey.) Click "OK".



3. When the message below pops up, click the Bluetooth icon.



4. Click “OK” to permit this connection. Or, you may click “Advanced>>” button to select the services that the connecting device is allowed to access without authorization.



5. Click “OK”.



4. Client Applications

4.1 Network Access

Network Access service allows a Bluetooth client to use a Local Area Network connection that is physically connected to another Bluetooth device (the server). Network Access servers can be Bluetooth-enabled computers that have a hardwired Ethernet connection, or Stand-alone Bluetooth Network Access Points. The server must be configured to provide the Network Access service. Once the device is configured as a Network Access server, it cannot act as a Network Access client without being re-configured.

4.1.1 Network Access Server-side Setup (for Windows 2000)

- Click Start>Settings>Control and select Network and Dial-up Connections.
- Right-click the "Local Area Connection" icon and choose Properties.
- Choose Sharing tab. In the Local Area Connection Properties dialog box, select "Enable Internet Connection Sharing" for this connection. Click "OK".
- Click "Yes".

4.1.2 Configuring the server

- Click Start>Settings>Control>Network
- From Configuration tab, select TCP/IP > Bluetooth LAN Access Server Driver
- Click Properties and select IP Address tab.
- Select "Specify an IP address"
- Enter an IP Address and a Subnet Mask (check with the network administrator for the value).
- Click "OK" twice.
- Click "Yes" to restart the computer.

4.2 Bluetooth Serial Port

Bluetooth Serial Port service allows two devices to build a Bluetooth wireless connection. This service provides a wireless connection being used by applications as if a physical serial cable connected the devices. A Bluetooth serial port connection is initiated from the client. Follow the steps below to establish a connection:

1. Double click on "My Bluetooth Places" icon  on the desktop. Double click "Entire Bluetooth Neighborhood".
2. Right-click anywhere except on a device name. When the pop-up menu shows up, select "Refresh".

3. Right-click on the server you want to connect with. When the pop-up menu shows up, select “Discover Available Services” to update the available services list.
4. Double-click “Bluetooth Serial Port”. The communications port number assigned to this connection by the client is displayed in the pop-out dialog box. The application using this connection must be configured to send data to this port.

The application on the server must use the correct communications port.

Follow the steps below to determine and configure the communications port being used by the service:

- On the server, in “My Bluetooth Places”, right-click “My Device”. When the pop-up menu appears, choose Properties. “Bluetooth Configuration” panel appears.
- Click “Local Services”.
- Double-click “Bluetooth Serial Port” in the Service Name column to display its Service Properties dialog box in which you can find the communications port the connection is using.

To close a Bluetooth serial port connection from the client, follow the steps below:

- On the client, in “My Bluetooth Places”, highlight the device providing the Bluetooth Serial Port service.
- In “My Bluetooth Places”, right-click “Bluetooth Serial Port”. Select “Disconnect Bluetooth Serial Port” from the pop-up menu.

To close a connection from the server (not recommended), follow the steps below:

- On the server, in “My Bluetooth Places”, right-click “Bluetooth Serial Port” and select “Stop”. Re-start the service before it is ready to remote devices (right-click “Bluetooth Serial Port” and select “Start” from the pop-up menu).

4.3 Dial-Up Networking

Dial-Up Networking service allows a Bluetooth client to use a modem that is attached to the Bluetooth server. The client can use the server’s modem as if it were a local device on the client.

Follow the steps below to establish a Dial-Up Networking session (a connection is initiated from the client):

1. On the client, in “My Bluetooth Places”, double-click “Entire Bluetooth Neighborhood”.
2. In “Entire Bluetooth Neighborhood”, right-click anywhere except on a device

name and choose “Refresh” from the pop-up menu.

3. In “My Bluetooth Places”, right-click the server that will provide the Dial-Up Networking service. When the pop-up menu appears, choose “Discover Available Services” to update the available services list.
4. In “My Bluetooth Places”, double-click “Dial-Up Networking”.
5. In “Connect To” dialog box, enter your user name, password, and the phone number to be dialed, and click “Dial”. Select the Save password check box and then the dialog box will not appear for subsequent connections to the same phone number.
6. Now you can open the web browser and connect to the Internet.

Follow the steps below to close a Dial-Up Networking connection:

1. On the client, in “My Bluetooth Places”, highlight the device that is providing the Dial-Up Networking service.
2. In “My Bluetooth Places”, right-click Dial-Up Networking. When the pop-up menu appears, select Disconnect Dial-Up Networking.

4.4 Fax

Fax service allows a Bluetooth client to send a fax using a device that is physically attached to the Bluetooth server.

Follow the steps below to send a fax (the connection is initiated from the client):

1. On the client, in “My Bluetooth Places”, double-click “Entire Bluetooth Neighborhood”.
2. In “Entire Bluetooth Neighborhood”, right-click anywhere except on a device name and choose “Refresh” from the pop-up menu.
3. In “My Bluetooth Places”, right-click the server that will provide the fax service. Select “Discover Available Services” when the pop-up menu appears. The available services list is updated.
4. In “My Bluetooth Places”, double-click Fax.
5. Open or create the document to be faxed. Use “Print” or “Send to Fax Recipient” option available in most applications.
6. The Fax connection will be closed automatically after the transmission is complete.

4.5 File Transfer

File Transfer service allows your computer to wirelessly perform file system operations (browse, drag, open, copy, etc.) on another Bluetooth device.

Follow the steps below to perform an operation on a folder or file (on the device from

which the File Transfer service will be used):

1. In “My Bluetooth Places”, double-click “Entire Bluetooth Neighborhood”.
2. In “Entire Bluetooth Neighborhood”, right-click anywhere except on a device name. Choose “Refresh” from the pop-up menu.
3. In “My Bluetooth Places”, right-click the device you want to transfer files with. Choose “Discover Available Services” when the pop-up menu appears.
4. In “My Bluetooth Place”, click “+” in front of Public Folder to expand that folder. If there are additional folders inside the expanded folder, those folders may have to be expanded.

4.5.1 File Transfer Operations

In the right pane of “My Bluetooth Places”, right-click on a folder item, and choose an option from the pop-up menu. A dialog box displays. The status line (in the bottom of the dialog box) shows the operational step that is being carried out.

There are 8 types of operations can be accomplished: Open, Print, Send to, Cut, Copy, Delete, Rename and Properties.

Other options may be available (depends on the context the menu appears in):

- **Update:** updates a folder’s contents
- **New Folder:** creates a new folder on the server
- **Abort FTP Operation:** aborts an in-process File Transfer operation

4.6 Information Exchange

Information Exchange service allows two Bluetooth devices to wirelessly exchange personal information manager data such as email messages, notes, business cards and calendar items.

Three types of operations are available: Send, Receive and Exchange.

The supported Outlook items are:

- Business cards (~.vcf, ~.vcd)
- Calendar entries (~.vcs)
- Notes (*.vnt)
- Messages (~.vmg)

In the Bluetooth Configuration Panel, you can configure the default location for placing your business card and receiving items.

To send/receive/exchange an item, you can right-click the Inbox icon of the remote device (from “My Bluetooth Places”), and choose an option from the pop-up menu.

To send Calendar Items, Notes, and Message, navigate to that folder and select the item. Click “Open”.

4.7 Information Synchronization

Information Synchronization service enables the information synchronized between a Bluetooth client and a Bluetooth server.

For the first time using Information Synchronization service with a new application may take a few minutes to synchronize the database. The data from both devices must be merged. After deleting duplicate entries, the updated database will be copied back to both devices. From the second time using this service with the same application will be much faster, because it exchanges only those changes that have been made since the database were synchronized last time.

Follow the steps below to use Information Synchronization service:

1. On the client, in “My Bluetooth Places”, double-click “Entire Bluetooth Neighborhood”.
2. In “Entire Bluetooth Neighborhood”, right click anywhere except on a device name. Select “Refresh” when the pop-up menu appears.
3. In “My Bluetooth Places”, right-click the server that will be synchronized with and choose “Discover Available Services” from the pop-up menu, which will update the available services list.
4. In “My Bluetooth Places”, double-click “Information Synchronization”.

When the process is complete, a dialog box displays and shows you that synchronization has successfully completed, and then the connection closes automatically.

5. Local Services

Local Services are services that a Bluetooth server can provide, including *Bluetooth Serial Port*, *Dial-Up Networking*, *Fax*, *File Transfer*, *Information Exchange*, *Information Synchronization* and *Network Access*.

The server might not be able to provide all displayed services. For example, without a fax modem, Fax service cannot be executed.

The services are set to be started automatically once the Bluetooth USB Adapter is initialized. However, the automatic start-up can be turned off for individual services, and the services can be started manually by right-clicking the service and selecting “Start” from the pop-up menu.

To terminate a local service, you can right-click the service and choose “Stop” from the pop-up menu.

When a Local Device is selected, the Details view of Explorer provides the following basic information of each local service:

- Service: shows the name of the service
- Startup: has 2 options (Automatic or Manual)
- Status:
  - Started (COM): means that the service is running and ready to use COM#
  - Not Started: means that the service is not running (not available for use by clients)
  - Connected (COM#): means that the service is in use, and the local port is COM#
- Device name (if connected):
  - Empty field: indicates that the service is not connected
  - A device name and/or Bluetooth Device Address: shows the name and the address of the device that is using the service.

Two ways to interrupt a connection from the server:

- Right-click the local service. Choose “Stop” from the pop-up menu.
- Right-click the local service. Choose “Start” from the pop-up menu to restart the service.

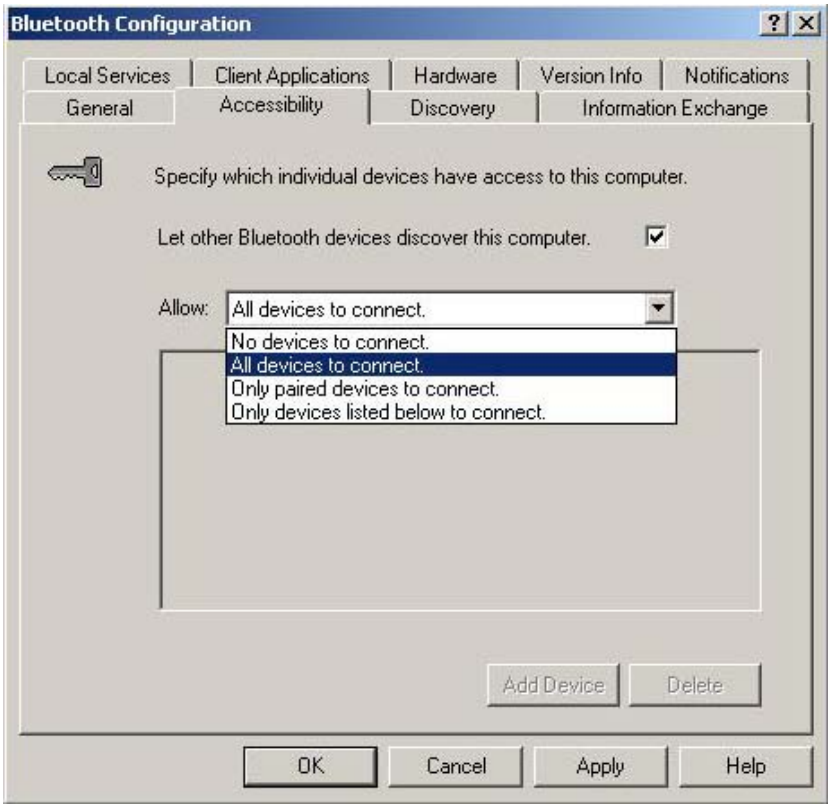
6. Configuration Panel

Bluetooth Configuration Panel allows you to view or modify the settings for Bluetooth services, hardware and security and for event notification.

To access the Configuration Panel, click Start>Settings>Control>Bluetooth Configuration, or right-click the Bluetooth icon in the Windows System Tray and select Setup>Configuration.

6.1 Accessibility Tab

From Accessibility tab, you can specify which remote devices to access this computer. The security settings (in General, Local Services and Client Applications tabs) will also affect which devices can access to this computer.



To permit other Bluetooth devices to find and report this computer: select “Let other Bluetooth devices discover this computer”.

To allow only specific type of devices to connect to this computer

From the Allow drop-down menu, there are 4 options as follows:

- No devices to connect: no remote devices are allowed to initiate a connection with this computer. The computer can initiate connections (as a client) with remote Bluetooth devices.
- All devices to connect: allows all remote devices to connect to this computer.
- Only paired devices to connect: allows devices been paired with this computer

can connect to this computer.

- Only devices listed below to connect: allows only the listed devices to connect to this computer.

6.1.1 Adding and Deleting Devices

To allow only specific remote devices to access to your computer: from Bluetooth menu, choose “Device Configuration”, click “Accessibility” tab, and select “Only devices listed below to connect” from “Allow” drop-down menu.

To add an unfound device to the list of devices:

- From Bluetooth Configuration Panel, select “Accessibility” tab, and select “Only devices listed below to connect” from “Allow” drop-down menu. Click “Add Device”, and “Devices with access…” dialog box displays.
- From the “Devices with access…” dialog box, select the devices and click “OK”. (Use “Shift + click” or “Ctrl + click” to select multiple devices at the same time.)

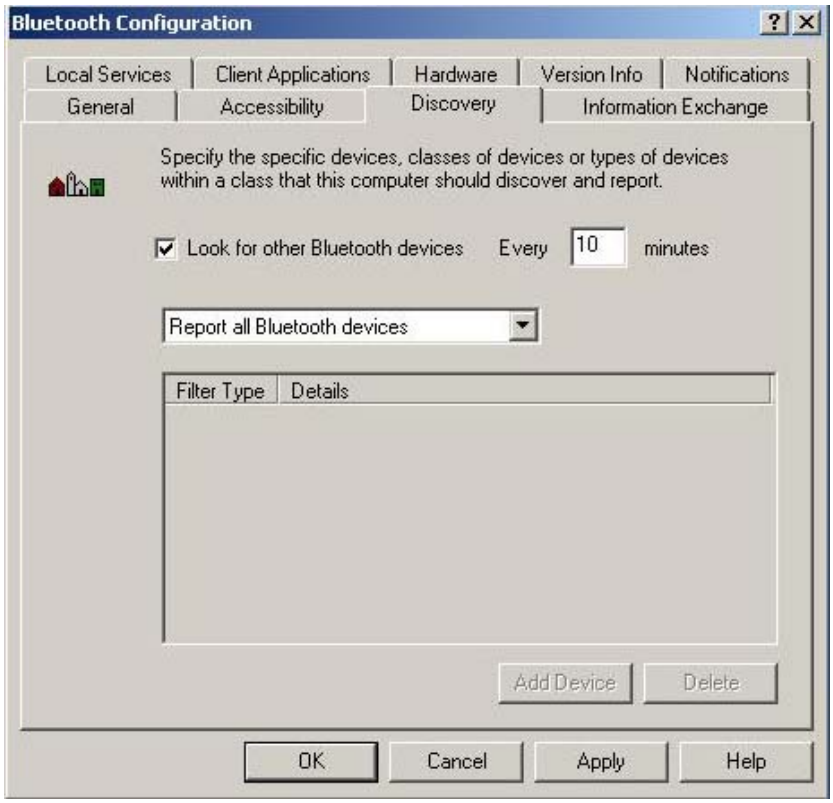
To delete a device from the list of devices allowed for connection:

- From “Bluetooth Configuration Panel”, choose “Accessibility” tab
- In the list of devices, click the name of the device and click “Delete” to remove that device.

6.2 Discovery Tab

Discovery Tab allows you to modify the settings of your computer:

- To look for other Bluetooth devices automatically
- How often it looks
- What type of devices it looks for



To perform a periodic Search for Device: Select “Look for other Bluetooth devices”. Highlight the existing time and enter a new time. The time can be an integer from 1 to 60 minutes. For the first time opening “My Bluetooth Places” (even when “Look for other Bluetooth devices” is not enabled) the computer automatically searches for devices.

You have two options to report the devices:

- Report all Bluetooth devices
- Report only selected Bluetooth devices.

You can modify the settings to report only specific devices, specific classes of devices, or specific types of devices within a class.

To report only specific devices:

- In Bluetooth Configuration Panel, choose “Discovery” tab, and select “Report only selected Bluetooth devices” from the drop-down menu. Click “Add Device”.
- In the “Discoverable devices…” dialog box, select the device to be discovered. Click “OK”. You can choose multiple devices at the same time.

To report only a specific class of device:

- In Bluetooth Configuration Panel, choose “Discovery” tab, and select “Report only selected Bluetooth devices” from the drop-down menu. Click “Add Device”, and “Discoverable devices…” dialog box displays.
- From the “Discoverable devices…” dialog box, select “Allow this computer to discover all devices of a specific class or a specific type of device within a specific class”.
- Select a class of devices to be discovered from the “Class” drop-down list, and click “OK”.

To report only a specific type of device within a class:

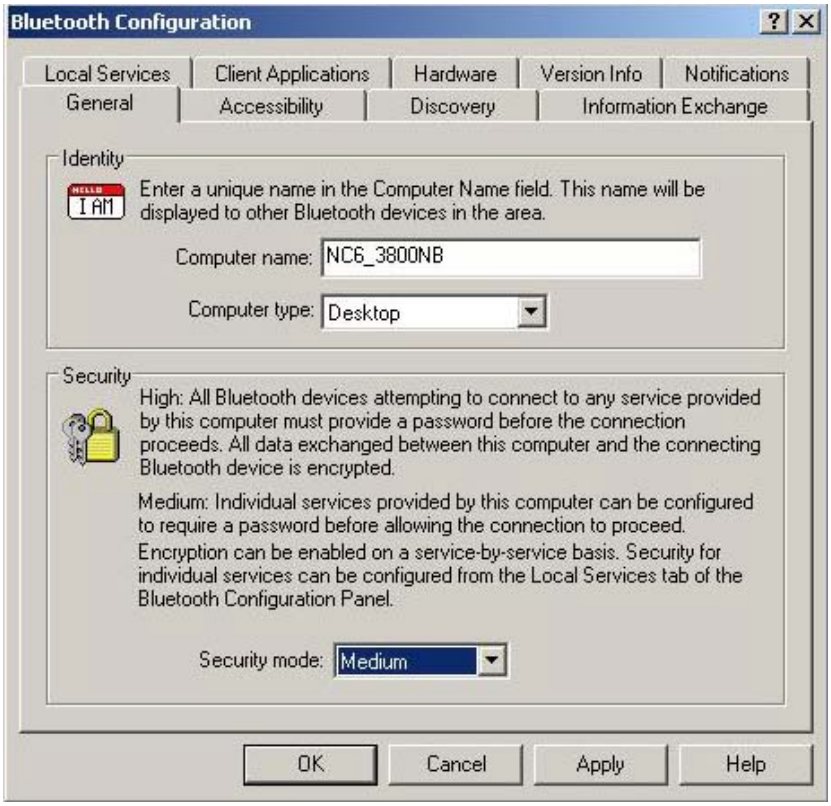
- In Bluetooth Configuration Panel, choose “Discovery” tab, and select “Report only selected Bluetooth devices” from the drop-down menu. Click “Add Device”.
- From the “Discoverable devices…” dialog box, select “Allow this computer to discover specific devices or types of devices within a class”.
- Select a class of devices to be discovered from the “Class” drop-down list.
- From the “Discoverable devices…”dialog box, select the specific type of devices to be reported from the “Type” drop-down menu, and click “OK”.

To temporarily override the discovery of specific devices: From Bluetooth Configuration Panel, select “Discovery” tab, and choose “Report all Bluetooth devices”.

To re-enable specific device discovery: re-select “Report only selected Bluetooth devices”. When all devices are deleted and “Report all Bluetooth devices” is not selected, an error message appears.

6.3 General Tab

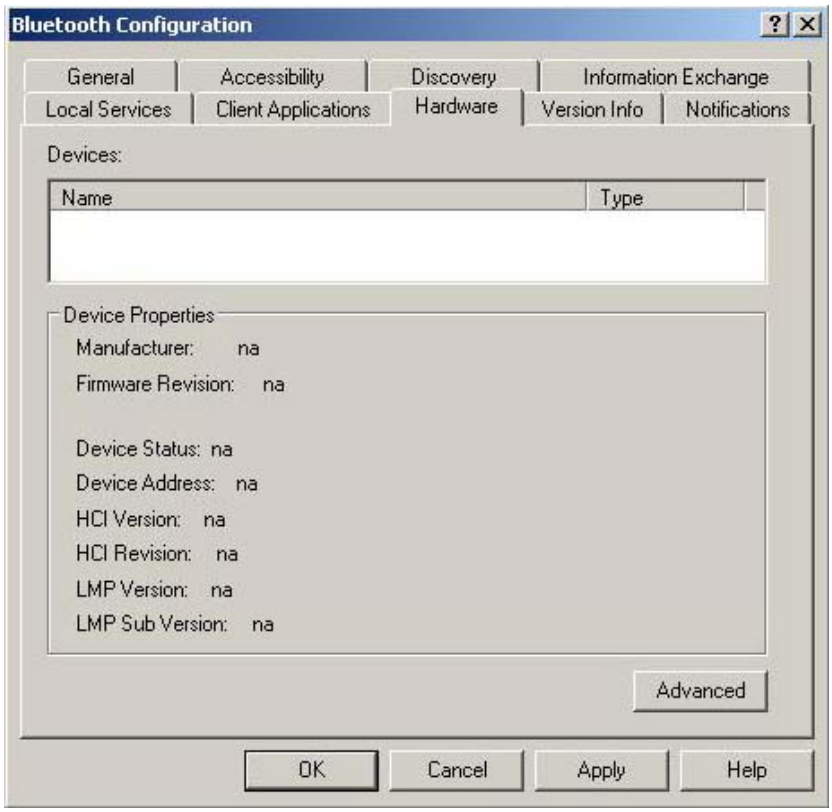
In “General” tab, you may view or modify the settings of “Computer Name”, “Computer type” and “Security mode”.



- Computer Name: Enter a unique name for this computer. This field cannot be left blank.
- Computer type: From the drop-down menu, you may choose either “Desktop” or “Laptop”.
- Security mode: **“Medium”** is the default setting. In Medium security mode, the security is configured at the service-level, which means that each individual service must have its security settings set independently. **“High”** security mode requires Bluetooth devices to authenticate before allowing a connection to be built. The data exchange between your computer and the connected Bluetooth device is done through security settings.
- If the “Medium” security mode is selected and service-level security is not configured, any Bluetooth devices in the range will be able to discover your computer and use it’s services.

6.4 Hardware Tab

To view basic information about the Bluetooth hardware installed on this computer, choose "Hardware" tab from the Bluetooth Configuration Panel.



- Devices:
  - Name: shows the name of the device.
  - Type: shows the type of the device
- Device Properties:
  - Manufacturer: shows the name of the company that manufactured the device selected in the Devices section of this dialog box.
  - Firmware Revision: shows the manufacturer's firmware version number.
  - Device status: shows that the device is operating properly or that there's a conflict.
  - Device Address: shows the Bluetooth Device Address programmed into this device when it was manufactured.
  - HCI Version: shows the version number of the Bluetooth Specification that the Host Controller Interface complies with.
  - HCI Revision: shows the revision number of the Bluetooth Specification that the Host Controller Interface complies with.
  - LMP Version: shows the version number of the Bluetooth Specification that the Link Manager Protocol complies with.
  - LMP Sub Version: shows the sub-version number of the Bluetooth Specification

that the Link Manger Protocol complies with.

- Advanced: Clicking on “Advanced” displays the Advanced Settings dialog box, and from which you can select the country code and transmission power settings. This option is not available on all systems. However, the “Advanced” button my not be present depends on the country where the hardware is sold.

  You may choose one country code from 2 options:

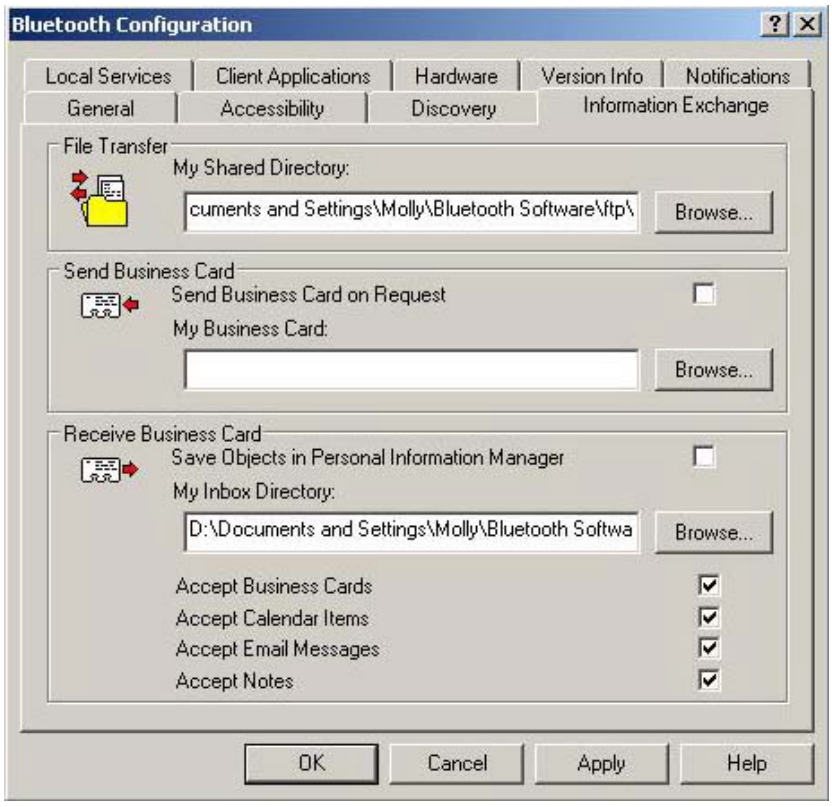
  - North America, Europe (except France), and Japan
  - France and China

  Three options of Maximum Transmission Power are available: High, Medium and Low.

  Click “Apply” to save and implement the modification of the settings. A message appears to inform you that this computer must to be reset to allow the changes take effect.

  Click “Yes” to reset the Bluetooth device, and all open Bluetooth connections will be closed.

6.5 Information Exchange Tab



Settings in “Information Exchange” tab of Bluetooth Configuration Panel configure:

- The highest-level directory on this computer that a remote device has permission to access - **My Shared Directory**

  The directory configured in this section and its sub directories are displayed in the remote device’s My Bluetooth Places. Click “Browse” to choose a directory that will be used as My Shared Directory.

- The path to your electronic business card - **My Business Card**

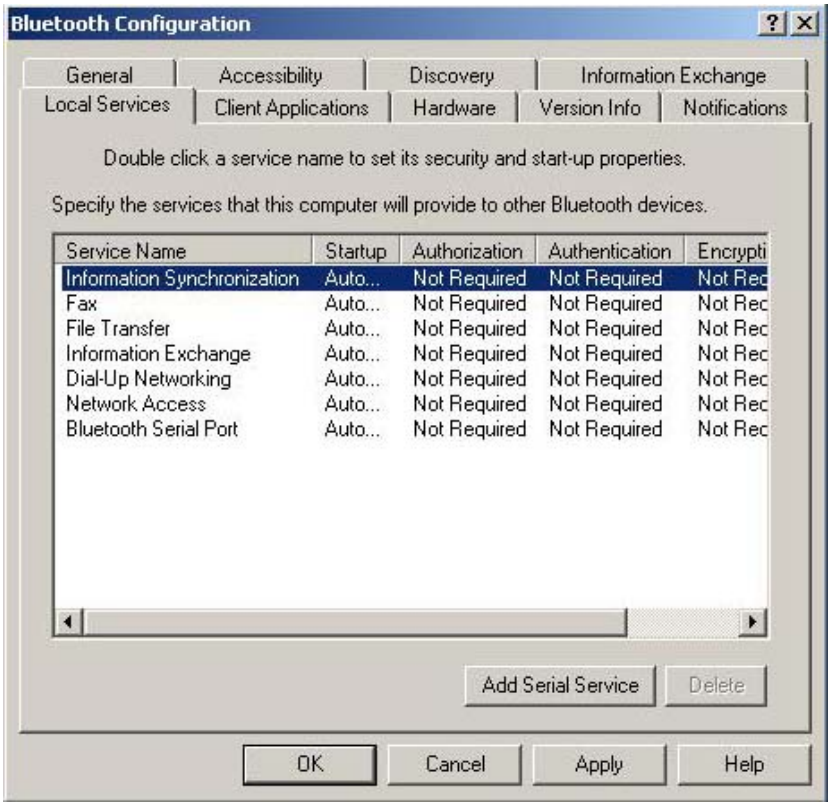
  Select “Send Business Card on Request” to allow remote devices to obtain your business card. Click “Browse” to choose a directory that contains your business card.

- The path to the directory that will be used to save incoming - **My Inbox Directory**:
  - Business cards
  - Calendar items
  - Email Message
  - Notes

  Select the types of items you wish to accept, and then click “Browse” to choose a directory where they will be saved. Select “Save Object in Personal Information Manager” to save incoming objects directly in the PIM.

6.6 Local Services Tab

The settings in this tab determine the configuration of the services provided by your computer to remote devices. The Local Service names include: Bluetooth Serial Port, Dial-Up Networking, Fax, File Transfer, Information Exchange, Information Synchronization and Network Access. Each service can be configured individually for security, name and other settings.



Property setting which are common to all of the local services

All local services have settings for:

- Service Name
- Startup
- Authorization
- Authentication
- Encryption

Some services have their specific additional setting:

- **Network Access service** has an additional setting for the maximum number of connections allowed at any time.
- **Dial-Up Networking service** has an additional setting for selecting the modem that will be used by the service.
- **Fax service** has an additional setting for selecting the modem that will be used by the service.
- **Bluetooth Serial Port** has an additional setting for selecting the communications

that will be used by the service.

Adding an additional Bluetooth Serial Port

1. In Bluetooth Configuration Panel, choose “Local Services” tab, and click “Add Serial Service”. The Service Properties dialog box displays.
2. Enter a unique name.
3. Select the appropriate security settings.
4. Select “Startup” if you want the service to start automatically when Bluetooth connection initializes.
5. Choose a communications port that is not assigned to any other service from the COM Port drop-down menu.

Removing a user-defined Bluetooth Serial Port

From Bluetooth Configuration Panel, choose “Local Services” tab. Highlight the port to be removed, and click “Delete”.

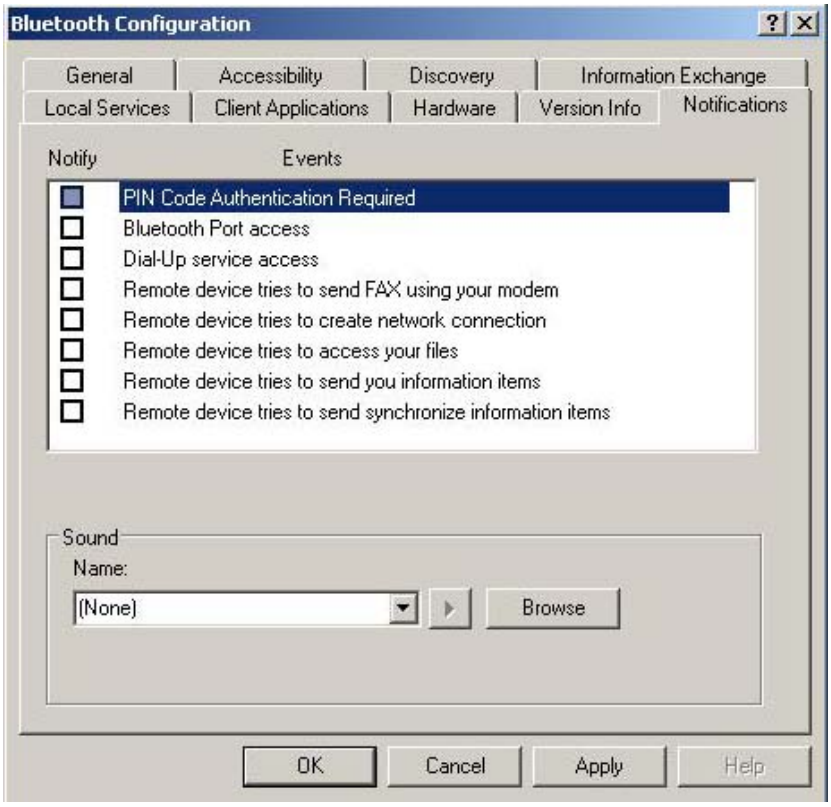
To change a local service’s properties: from Bluetooth Configuration Panel, choose “Local Services” tab and double-click the service name.

Select or clear the appropriate check boxes and click “OK”.

The service properties that can be changed include:

- Startup: The default setting is enabled. If Startup is not enabled, the service can still be started manually.
- Authorization: when this option is selected, the server operator requires a confirmation before a remote device is allowed to connect to this service. When Authorization is enabled, Authentication is automatically enabled. The default of Authorization setting is disabled.
- Encryption: When this option is selected, the data exchanged by the Bluetooth server and the Bleutooth client is encrypted. Encryption affects only those data exchanged through Bluetooth connection. Data exchanged through modem, Local Area Network, etc., will not be affected by this setting. When Encryption is enabled, Authentication is automatically enabled.
- Authentication: When this setting is enabled, a passkey or Link Key is required. The default setting is disabled. Devices are paired automatically when authentication is complete.
- Service Name: Enter a service name in this field. Although in most cases the default service name will serve, you may customize the service name when there’s more than one device of the same type or one device provides more than one service of the same type in the environment.

6.7 Notifications Tab



In this tab, you can associate a sound (~.wav file) with specific Bluetooth events such as:

- When a PIN code is required
- When a remote device attempts to access:
  - Files on this computer
  - A Bluetooth port
  - The Dial-up network service
  - The LAN Access service
  - The Fax service
- When a remote device attempts to send information items or Synchronization information.

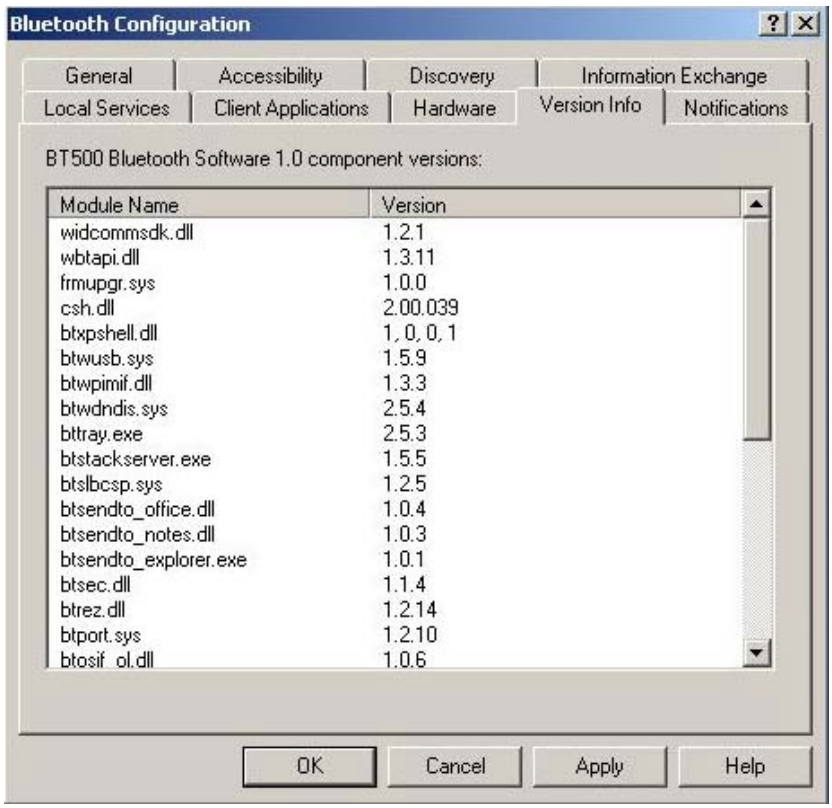
Follow the steps below to associate a sound with a Bluetooth event:

1. In Bluetooth Configuration Panel, choose “Notifications” tab
2. Select the check box associated with the event from the Notify column of the events list.
3. In the Sound area of the Notifications tab, click “Browse” to navigate to the sound file (~.wav) to be used. Click play button to preview the sound file.
4. Click “OK” to close Bluetooth Configuration Panel.

Note! The sound will not play even though it has been assigned, unless the Notify check box is selected.

6.8 Version Info Tab

You may view the name and version number of the software components from Version Info tab.



7. Security

Each service the server provides can be configured to require “Authorization”, “Authentication” and “Encryption”. The default setting for Authorization, Authentication and Encryption is disabled.

7.1 Authentication

Authentication is used to verify identify which requires a passkey or Link Key from the remote device. The local operator can open a dialog box that provides “The user-friendly name of the device attempting access” and “A place for the local operator to enter a Bluetooth passkey”.

The operator of the remote system has to enter the identical passkey, otherwise the access will be denied.

If the notification is ignored, access is denied after a preset timeout. When devices are “paired”, those devices automatically exchanged a Link Key and Authentication is carried out without operator intervention.

7.2 Authorization

The server operator will see or hear a warning when a remote device is attempting to connect. The server operator responds by clicking the Bluetooth icon in the Windows system tray to open a dialog box that displays “The user-friendly name of the device attempting to connect” and “The local service to which the remote device is attempting to connect”. By clicking an on-screen button, the server operator may grant or deny access to the service. If the server operator ignores the Authorization notification access will be denied after a preset timeout.

7.3 Encryption

Encrypting translates data into an unreadable format with a secret key or password. To decrypt the data, the same key or password that was used to encrypt are required. The passkey or Link Key of encryption is based on those for Authentication. Therefore, if Authentication is not enabled, the key is not available and encryption will not take place.

Follow the steps below to enable Encryption for service:

1. Right-click a service name and the pop-up menu displays. Select Properties to display the Bluetooth Properties dialog box.
2. Select Encryption.
3. Click “OK” to close the dialog box.

7.4 Levels of Security

The configuration options include:

- Startup-Automatic or Manual
- Authorization
- Authentication
- Encryption

To access the security settings for a local service, select “Local Services” tab from Bluetooth Configuration Panel, and double-click the service name.

7.5 Link Key

A Link Key is an access code. When devices are paired or when Authentication is enabled, the Link Keys are generated automatically. Combining “The Passkey”, “The Bluetooth Device Address” and “An internally generated random number” creates link Keys.

7.6 Pairing Devices

“Pairing” can avoid entering access information each time a connection is attempted.
Paired devices share a unique Link Key that is exchanged when connecting.
The mate of paired devices will always appear in “My Bluetooth Places”, even if the mate is not turned on or is out of connection range. Paired devices remain paired even when that one of the devices is not powered up, or a service connection is interrupted, or the service stopped or one or both devices are rebooted.
Follow the steps in Chapter 3.6 and Chapter 3.7 to pair devices and break a paired device relationship.

7.7 Passkey

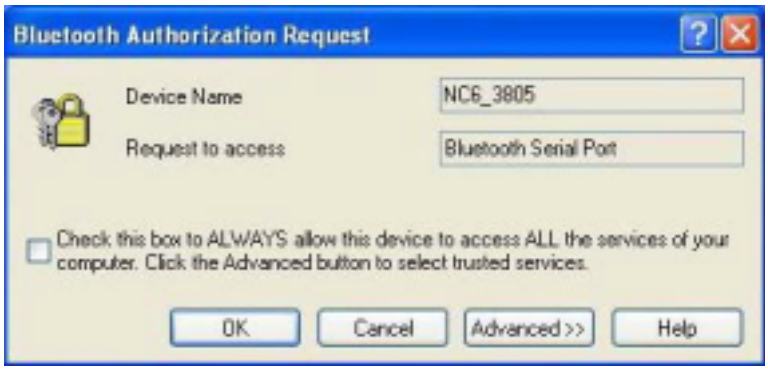
A passkey can be a number of up to 16 characters in length. Passkeys are used in the Authentication and Encryption process.

7.8 Security Request Dialog Box

When either Authorization or Authentication is enabled, a “Bluetooth Authorization” or “Bluetooth Passkey Request” dialog box may appear when a connection is attempted.
In the dialog box, you can find:

- Device Name: Shows the name of the device attempting to connect.
- Request to access: Shows the service the remote device is attempting to access.

Click “OK” to allow the connection, or click “Cancel” to deny the connection. You may select the check box to grant the connecting device access to all of the services on this computer.



7.9 Authorization Request Dialog Box, Advanced Button

The check box on the main page of Bluetooth Authorization dialog box, when selected, allows the device attempting to connect to access all services on this computer when attempting to connect in the future.

Follow the steps below to limit the services the connecting device may use:

1. Click “Advanced”.
2. From the expanded dialog box, select the services that the connecting device is allowed to use. Once selected, the service will not require authorization in the future.
3. Click “OK”.



8. BlueMux

BlueMux is a software that allows two or more Client PCs, using their own keyboards and mice, to wirelessly operate the Server PC as if using Server PC's keyboard and mouse. When "Accept multiple connection" is selected (described below), you can connect seven Client PCs at the same time to the Server PC. Once connected, any one of the seven Client PCs can operate the Server PC.

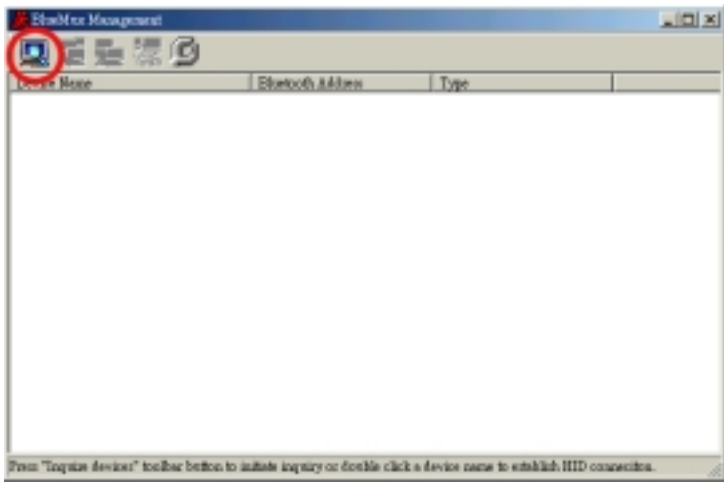
Using BlueMux:

1. From **BOTH** the Server PC and Client PC(s), click Start>Programs>MDU-0001USB>BlueMux.

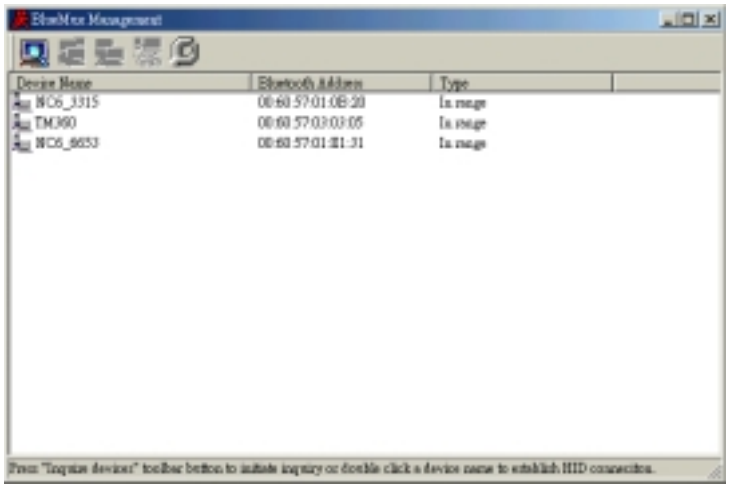
2. From the Windows System Tray, double-click the BlueMux icon.



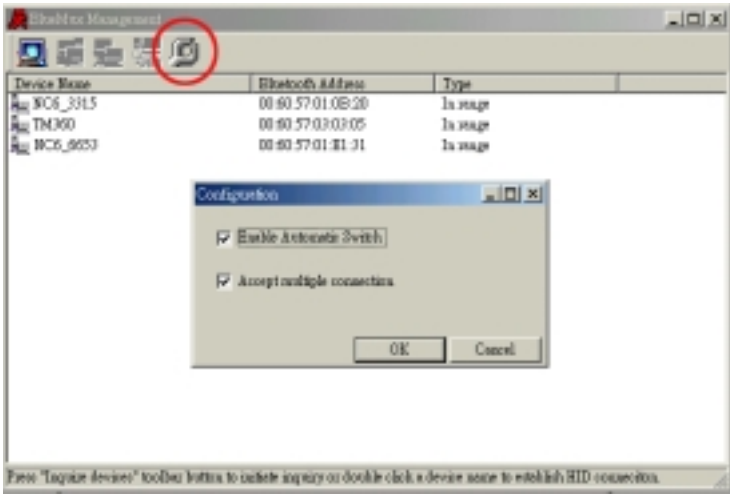
3. From the toolbar of the BlueMux Management window, click the Inquiry Button to search vicinity Bluetooth devices.



4. From the device list, double-click the Server PC to build the connectivity between the Client and the Server.



5. From the Client PCs, you have 4 ways to turn on the remote control function:
   (1) Press Ctrl + F1
   (2) From the Windows System Tray, right-click on the BlueMux icon , and select “HID Switch”.
   (3) From the Toolbar of the BlueMux Management window, click “HID Switch” button.
   (4) Enable Automatic Switch. From the Toolbar of the BlueMux Management window, click “Configuration” button, and select “Enable Automatic Switch”. If the Client PC(s) is set to enable “Automatic Switch”, when the cursor reaches the border of the screen, it automatically switches on the remote control function. If the remote control function is on and both the Client and Server are set to enable “Automatic Switch”, when the cursor reaches the border of the Server’s screen border, it automatically switches off the remote function.



Note! You can only turn on or off the remote control function from the Client PCs, not from the Server PC.

Configuring BlueMux:

1. **Automatic Switch:** Click Configuration button and select “Enable Automatic Switch” from the drop-down menu. If the Client PC(s) is set to enable “Enable Automatic Switch”, when the cursor reaches the border of the screen, it automatically switches on the remote control function. If the remote control function is on and both the Client and Server are set to enable “Enable Automatic Switch”, when the cursor reaches the border of the Server’s screen border, it automatically switches off the remote function.
2. **Multiple Connection:** From the Server PC, click Configuration button and select “Accept multiple connection” to allow up to seven Client PCs to connect to the Server PC, otherwise only one Client PC is allowed for the connection. When this function is disabled, the connected Client PCs will remain connected until they decide to exit.

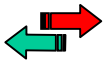
9. Connection with Mobile Phone T68

Pairing and connecting Bluetooth USB Adapter with Sony Ericsson's mobile phone T68:

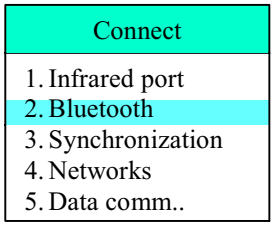
1. Press the "Function Key" of your T68.



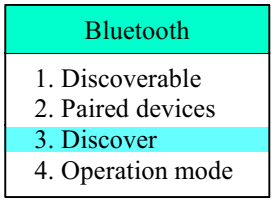
2. Select "Connect" from the display and press "Yes".



3. Select "Bluetooth" from the display and press "Yes".



4. Select "Discover" from the display and press "Yes". "Searching" is displayed.



5. The T68 seeks all Bluetooth™ devices in the vicinity and displays all available devices. Select the desired device to connect with and press "Yes".

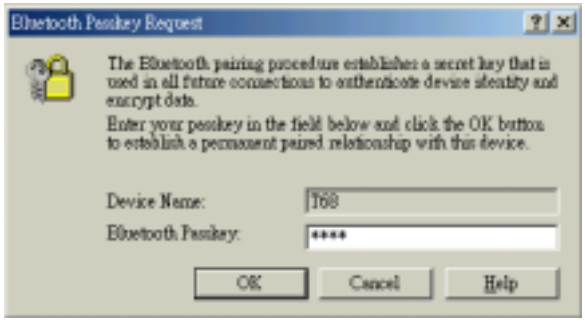
6. Select "Add to paired" and press "Yes".

7. Enter a Passkey (e.g. '1234'), and press "Yes".

8. From your laptop computer, double click the Bluetooth icon on in the Windows System Tray. A "Bluetooth connection request detected" message might pop up.



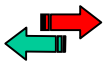
9. In the Bluetooth Passkey field, input the same number as that entered for T68 ('1234' in this example). Click "OK".



10. "Pairing succeeded" is displayed on T68.
11. On T68, click "Yes" to add this pairing into the list. "Added to Paired Devices" is displayed.
12. On the desktop of your laptop computer, double click the Bluetooth icon .
13. From your laptop, double click "Entire Bluetooth Neighborhood".
14. From your laptop, double click the T68 icon. 

15. On your laptop computer, double click "Dial-Up Networking".
16. T68 dials the number wirelessly transmitted from your laptop computer. (You can see the dial-up number displayed on your T68).

Note: If "Discover" function of T68 is disabled, please follow the steps below to turn on the function.

1. Press Function Key of your T68.
2. Select "Connect" from the display and press "Yes". 
3. Select "Bluetooth" from the display and press "Yes".

Connect
1. Infrared port
2. Bluetooth
3. Synchronization
4. Networks
5. Data comm..

4. Select "Operation mode" from the display and press "Yes".

Bluetooth
1. Discoverable
2. Paired devices
3. Discover
4. Operation mode

5. Select "On" and press "Yes".

10. Specifications

Hardware

Host Interface	USB ver.1.1
Input Voltage / Current	DC5V/ 150 mA (Typical)
Current Consumption (Typical)	- Standby mode, Ista: 30mA
	- Transmission mode, Itx: 120mA
Data Transfer Rate	1.0 Mbps (Max)
Antenna	Meander IFA

RF

Frequency Range	2.402 GHz ~ 2.480 GHz
Channel Spacing	1 MHz
Power Class	Class 2
Tx Power (Typical)	0 dBm
Rx Sensitivity	0.1% BER/Pin: -70dBm
Antenna Load	50 Ohm

Software

Operation System	Windows™ 95/98SE, ME and Windows™ 2000, XP
Core Protocol Stack	-HCI (Host Control Interface)
	-L2CAP (Logical Link Control and Adaptation Protocol)
	-RFCOMM (RS232 Serial Cable Emulation Profile)
	-SDP (Service Discovery Protocol)
	-OBEX (Object Exchange)
Profile Pack	-GAP (General Access Profile)
	-SDGP (Service Discovery Application Profile)
	-SPP (Serial Port Profile) Client & Server
	-LAN Access Client & Server
	-DUN (Dial-Up Networking) Client & Server
	-FAX Profile Client
	-GOEP (Generic Object Exchange Profile)
	-FTP (File Transfer Profile) Client & Server
	-OPP (Object Push Profile) Client & Server
	-SYNC (Synchronization Profile)

Bluetooth™ Wireless Technology
Qualified Product Listing

BQB: **Kurt B. Fischer**

Assessment Date:	April 10, 2002
Listing Date:	April 10, 2002
Applicant:	Wistron NeWeb Corporation No. 10-1, Li-hsin Road I, Science-based Industrial Park, Hsinchu 300, Taiwan, R.O.C.
Manufacturer:	Same as above
Product Name:	Bluetooth USB Dongle
Product ID:	BT-500
Product Category:	Computer Accessory
Product Type:	Product
Specification Version:	1.1
Reference:	24.B.190/1.0 Test Case Reference List (TCRL_V1-1), July 5, 2001 24.B.190/1.0 Addendum_TCRL_V1-1, effective April 10, 2002
Hardware Version:	01
Software Version:	Firmware: 12.7; BTW 0500 Version:1.2.1.16
Covered Functionality/ Pre-Qualified Test Cases:	Appendix A

Protocol/Profiles Supported by the Implementation Under Test (IUT)				
	Pre-Tested Protocol/Profile – Conformance	Profile – Interoperability	Roles Supported	
QPL# 0007T	Radio (RF); Baseband (BB); Link Manager (LM) Logical Link Control and Adaptation Protocol (L2CAP) Service Discovery Protocol (SDP) RFCOMM with TS07.10; IrDA Interoperability Host Controller Interface (HCI); HCI – USB; Generic Access Profile (GAP); Serial Port Profile (SPP)	DUN	GW	DT
		FAX	GW	DT
		LAP	AP	DT
		GOEP		
		OPP	Server	Client
		FTP	Server	Client
		Synchronization	Server	Client

I certify that the **Bluetooth USB Dongle** has a *Bluetooth* Brand License based on the requirements as described in the *Bluetooth* Program Reference Document 1.0, Sec. 6.2.4. Bluetooth End Products Incorporating Bluetooth Components.

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Job Control # 606-0203006