

(NOTE! This document is DRAFT)

Nokia Connectivity Card DTL-1

User's guide

For your safety

Read these simple guidelines. Breaking the rules may be dangerous or illegal. Further detailed information is given in this user's guide.

Road safety

Do not use the Nokia Connectivity Card while driving; park the vehicle first.

Interference

All Nokia Connectivity Cards may receive interference, which could affect performance.

Hospitals and aircraft's

Nokia Connectivity Cards can cause interference. Observe restrictions for use in these areas.

Switch off when refuelling

Do not use the Nokia Connectivity Card at a refuelling point. Do not use near fuel or chemicals.

Switch off near blasting

Do not use the Nokia Connectivity Card where blasting is in progress. Observe restrictions, and follow any regulations or rules.

Use sensibly

Use only in the normal operating position.

Use qualified service

Only qualified service personnel must repair equipment.

Accessories

Use approved accessories only. Do not connect incompatible products.

Water resistance

Your Nokia Connectivity Card is NOT water-resistant. The Nokia Connectivity Card is not covered under warranty for damage by any liquid substance.

Make backup copies

Remember to make backup copies of all important data.

Connecting to other devices

When connecting to any other device, read its user's guide for detailed safety instructions. Do not connect incompatible products.

DECLARATION OF CONFORMITY

We, NOKIA MOBILE PHONES Ltd declare under our sole responsibility that the product DTL-1 is in conformity with the provisions of the following Council Directive: 1999/5/EC.

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Introduction

Nokia Connectivity Card is a PC Card (and a Compact Flash) device that establishes a wireless radio link (Bluetooth) between PCs with PC card or Compact Flash™ (CF+™) slot using Bluetooth wireless technology. Bluetooth wireless technology provides a virtual network of devices that can exchange data using microwave radio frequency, 2.4 GHz unlicensed ISM band.

The purpose of this product is to enhance people's daily data communication life by removing cables and thus adding freedom and flexibility. With Nokia Connectivity Card and Bluetooth compatible phones or other devices user can handle emails, web browsing, fax and calendar and contact synchronizing file transfer easily without physical cable connection and direct line-of-sight.

Bluetooth is a global standard for wireless connectivity. The main members of Bluetooth consortium are Nokia, Ericsson, IBM, Intel and Toshiba. Afterwards companies like 3Com, Psion, Dell, Compaq, Casio and Seiko-Epson have also joined to Bluetooth. Bluetooth technology allows for the replacement of the many proprietary cables that connect one device to another with one universal short-range radio link (radio range up to 10m). This enlarges freedom and flexibility of using different devices and peripherals. For instance, phone number and calendar data can be easily transferred from mobile phone to laptop and vice versa. Bluetooth technology doesn't require line-of-sight connection as infrared does. 360 degrees of freedom makes Bluetooth devices extremely flexible and easy to use. To achieve real benefit for user, the key characteristics of Bluetooth devices would be *interoperability*, *reliability* and *simplicity*.

Bluetooth Connectivity

The Nokia Connectivity Card employs the data transmission capabilities of a Bluetooth Connectivity in order to send and receive data, to browse the Internet, and to establish connections with other computers, for example.

Data connections can be made from most locations where your Nokia Connectivity Card operates. However, it is recommended that you move the Nokia Connectivity Card to a location where the strongest possible signal can be obtained. When the signal is strong, data transmission is efficient.

The following factors may impair wireless connections:

Noise

Electronic appliances and equipment can cause radio interference. Also in areas where Nokia Connectivity Cards are prevalent, other Nokia Connectivity Cards can impair the wireless connection.

Electrostatic discharge

A discharge of static electricity from a finger or a conductor may cause erroneous functions in electrical devices. The discharge may result in unstable software operation. Network connections may become unreliable, data may be corrupted, and the transmission halted. In this case, end the existing connection (if any), stop the Nokia Connectivity Card, and remove it from the PC card slot. Then re-insert the Nokia Connectivity Card into the PC card slot and try connecting again.

Dead spots and dropouts

Dead spots are areas where radio signals cannot be received. Dropouts occur when the Nokia Connectivity Card user passes through an area where the radio signal is blocked or reduced by geographical or structural obstructions, such as concrete walls.

Signal impairment

Distance and obstacles can cause out-of-phase reflected signals that result in a loss of signal strength.

Low signal strength

Due to either distance or obstacles, the radio signal strength from an access point may not be strong or stable enough to provide a reliable wireless connection for communication. Therefore, to ensure the best possible communication, remember to consider the following points:

- Data connection works best when the Nokia Connectivity Card is in a stationary position.
- Do not place the Nokia Connectivity Card on a metal surface.

Important!

Warning: Do not use the Nokia Connectivity Card when the use of a wireless device is prohibited or when it may cause interference or danger. Note that the Nokia Connectivity Card may cause similar interference as a cellular device and must not be used in areas where the use of a cellular device is prohibited.

Warning: Be careful when moving your computer so that you do not cause damage to the protruding end of the inserted Nokia Connectivity Card.

Warning: In Europe, this equipment is intended to be used in the following EU Member States: Austria, Belgium, Denmark, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and United Kingdom. This equipment can also be used in Norway and Switzerland.

Warning: Use the Nokia Connectivity Card in the specified countries only. Using the Nokia Connectivity Card in any other country or with an incorrect country setting may be illegal.

Note: The Nokia Connectivity Card does not encrypt Transmitted data by default. For more information about security in data transmission, please visit www.nokia.com.

Security

The Bluetooth specification includes security features at the link level. It supports authentication (unidirectional or mutual) and encryption. These features are based on a secret link key that is shared by a pair of devices. To generate this key a pairing procedure is used when the two devices communicate for the first time.

Antennas

The Nokia DTL-1 Nokia Connectivity Card is equipped with one internal antenna. As with any other radio transmitting device, do not touch the antenna unnecessarily when the Nokia Connectivity Card is in use. Contact with the antenna affects the quality of the transmission and may cause the Nokia Connectivity Card to not operate properly.

Note: Do not cover the antenna.

Warning: The use of any other type of accessories will invalidate any approval or warranty applying to the Nokia Connectivity Card and may be dangerous.

Note: For availability of approved accessories, please check with your dealer.

Getting started

Installation

For instructions on installing the Nokia DTL-1, please see the separate *Installation guide* on the CD-ROM.

Bluetooth Neighborhood Introduction

With the Bluetooth Software Suite, you can establish wireless links between your computer and other Bluetooth enabled devices. Without using a cable, you can for example:

- Transfer objects and files
- Access the Internet by means of dial-up networking;
- Connect to local area networks
- Send fax messages, using the fax software of your computer;
- Establish Bluetooth ad hoc networks consisting of two or more Bluetooth devices;
- Connect to serial devices (legacy applications).

Most operations are carried out from an application called the Bluetooth Neighborhood. The basic functions of the Bluetooth Neighborhood include three steps:

1. Carrying out device discovery, i.e. finding out which remote Bluetooth devices are available within your range
2. Carrying out service discovery, i.e. finding out which services/applications a remote device facilitates
3. Establishing links to remote devices.

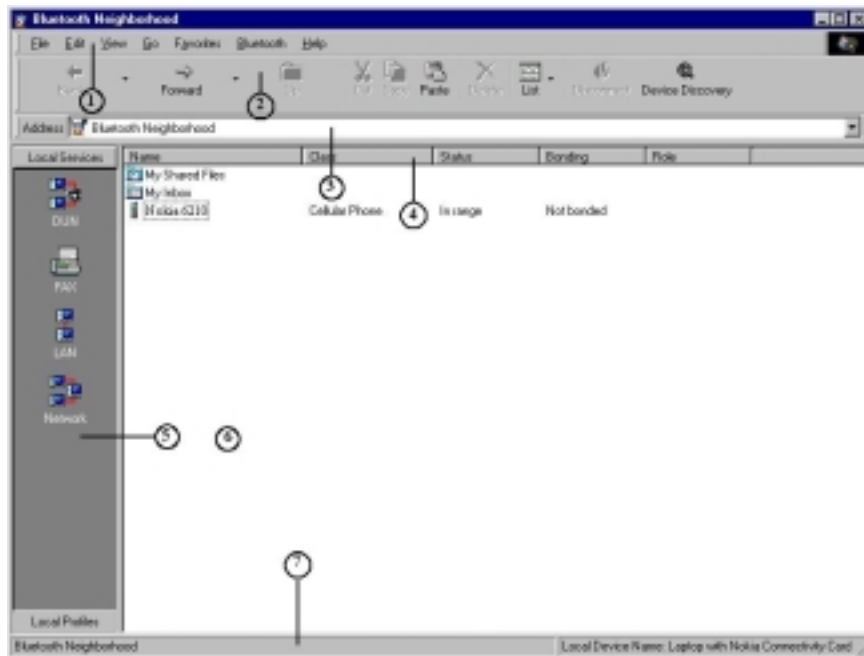
The Bluetooth Neighborhood should be seen as an equivalent to the Network Neighborhood. The latter is an ordinary network, the Bluetooth Neighborhood is a wireless network of the Bluetooth devices within range.

Opening Bluetooth Neighborhood

The Bluetooth Neighborhood and Windows Explorer are highly integrated. Therefore, Windows Explorer is the natural place to open the Bluetooth Neighborhood: Open Windows Explorer, and select the Bluetooth Neighborhood among the folders in Windows. Alternatively, you can open the Bluetooth Neighborhood from the shortcut placed on your desktop during the installation.

Bluetooth Neighborhood window

When you open the Bluetooth Neighborhood, the following window appears * :



The figures 1-7 refer to the following explanations:

* The first time you open the Bluetooth Neighborhood, you will not see any remote Bluetooth devices. To discover the remote devices within range, press **F5**. For information on the contents of the list view, see the section "List view". Note also that as the setup of the window depends on your Windows Explorer setup, the components in the above example may not be exactly the ones shown on your screen.

1: **Menu bar:** Contains standard Windows pull-down menus and a Bluetooth menu. We will deal with the Bluetooth menu in later sections. Furthermore, from the menu bar, you can access the Bluetooth Software Suite online help.

2: **Tool bar:** Contains standard Windows tools like Back, Forward, View, etc. In addition, the bar contains such Bluetooth tools as Device Discovery and Disconnect.

3: **Address bar:** Shows which item is currently selected. Also, from this bar you can browse in Windows Explorer.

4: **View details:** Appears when on the View menu you have selected the item View Details. You will see various informations on the items in the list view. For more information, see the section "View details".

5: **Local Profiles/Local Services bar:** Shows the local profiles or the local services that your Bluetooth device supports. For more information, see the section "Profiles and services".

6: **Status bar:** Provides information on the item currently selected in the Bluetooth Neighborhood.

7: **List view:** Shows you the contents of the folder, remote device, etc. currently selected. See the section "List view".

The setup of the Bluetooth Neighborhood window depends on your Windows Explorer setup. Thus, the above example does not show all the standard Windows components that may be added to the window.

Profiles and services

Interoperability depends on profiles

Any Bluetooth device has at least one profile, i.e. an application that you can use the device for. When two devices are to interoperate, i.e. communicate with each other, they must have a shared profile. If, for instance, you want to transfer a file from one Bluetooth enabled computer to another, both computers must support the profile OBEX File Transfer. The Bluetooth Software Suite supports a number of profiles, called your Local Profiles. You will find these on the Local Profiles bar.

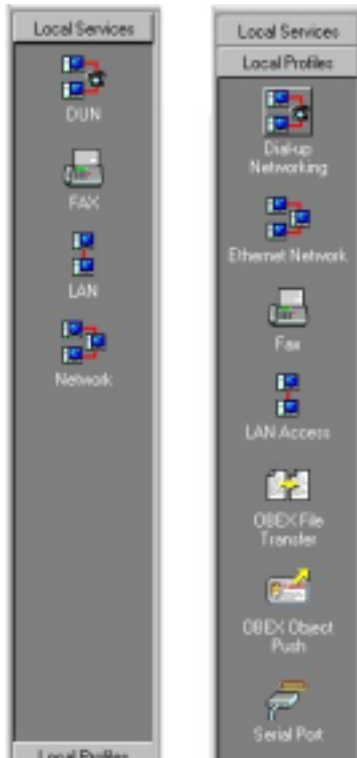
Services are used for link establishment

While the function of the Local Profiles bar is to display the profiles your device supports, the Local Services bar is what you will actually be *using* when operating the Bluetooth Neighborhood. Facilitated by a profile, each of the services represents a specific operation that your device can carry out. An example of a service is file transfer. You can transfer files between§ between your computer and other Bluetooth devices supporting the File Transfer profile.

For the Local Profiles bar, click **Local Profiles**.

For the Local Services bar, click **Local Services**.

For a complete list of the profiles that your Bluetooth device supports, including which services each profile facilitates, see “Appendix A: Profiles”.



List view

The list view in the main window contains three elements: My Inbox, My Shared Files, and a list of

discovered remote devices. When an item is selected in the Bluetooth Neighborhood, for instance My Inbox or a remote device, the list view will display the contents of that item. (In this connection, the contents of a remote device are the services it supports).

My Inbox:

This is where your device receives objects like electronic business cards, messages, notes, and calendar objects. My Inbox is a folder of files like any other Windows folder, and its contents can be copied, renamed, dragged and dropped etc. (For more information, see the section “Receiving objects”).

My Shared Files:

In this folder, you can make files available to remote users. When a remote user has carried out service discovery on your device, he will be able to open your folder My Shared Files and the files you have placed in

it. Also, remote users can place files in your folder My Shared Files and – if allowed – delete files (see “File Transfer Settings” for information on the security aspects of receiving files). Finally, if a remote device sends a file to your device, it is received in My Shared Files. Like My Inbox, you can manipulate My Shared Files like any Windows folder. For more information, see the section “File transfer”.

Remote devices or services:

The devices shown in the main window list view are the remote Bluetooth devices that your device has discovered during *device discovery*. The icons show what kind of device each remote device is (device class), like the desktop and laptop computer icons in the following example:



A question mark is used to show that the device class is unknown:



Furthermore, the icons indicate it whether or not a device is within range as follows:



Within range



Out of range

Note: The list view does not show your local device, only remote ones.

When service discovery has been carried out on a remote device, the list view will change to showing the services facilitated by the remote device in question. Each service is represented by an icon, for instance DUN (dial-up networking) and FAX:



Appendix B contains a complete list of the various remote device and service icons.

Finally, the icons will indicate “linked” and “bonded” as follows:



Linked



Bonded



Linked and bonded

The list view settings can be changed like other Windows list view settings; you can for instance change the size of the icons or have the elements displayed as a list. For information on settings specifically relevant in connection with the Bluetooth Software Suite, see the section “View details”.

Basic functions

Naming your local device

Before you start communicating with remote users, you should select the name that you want your device to present itself with when discovered by remote devices. To do so:

1. On the Bluetooth menu, click **Bluetooth Neighborhood Properties**:



The following dialog box opens:



2. At the top of the dialog box, click the tab **Settings**.



3. In the item **Bluetooth Device Name**, type the name you want your device to present itself with when discovered by devices, for instance "Nokia DTL-1":

4. Click **OK**.

Other Bluetooth devices discovering your device will now see it as "Marco's laptop".

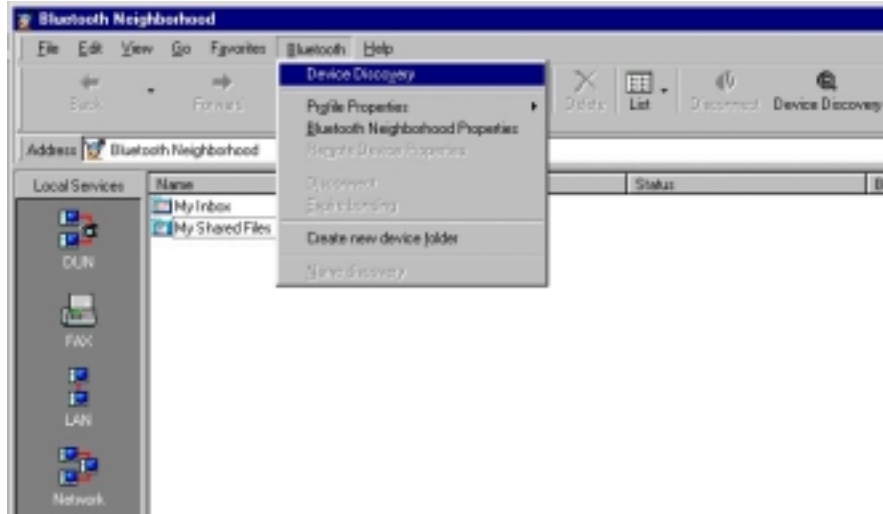
Bluetooth Device Name:

For information on the item **Bluetooth Device Class** in the dialog box shown above, see the section “Bluetooth Neighborhood properties” – “Settings”.

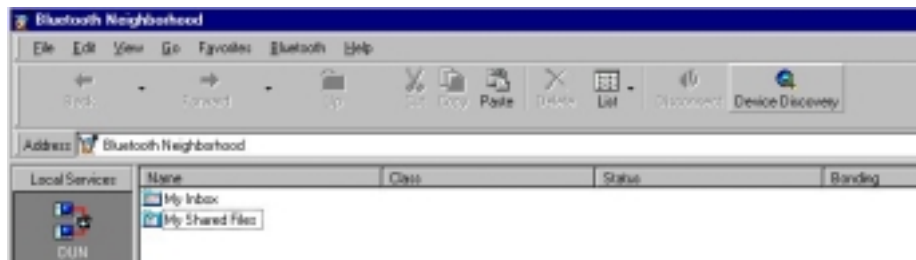
Device discovery

Before your local device can get to communicate with a remote Bluetooth device, it needs to discover the remote devices that are available within range. This activity is called device discovery.

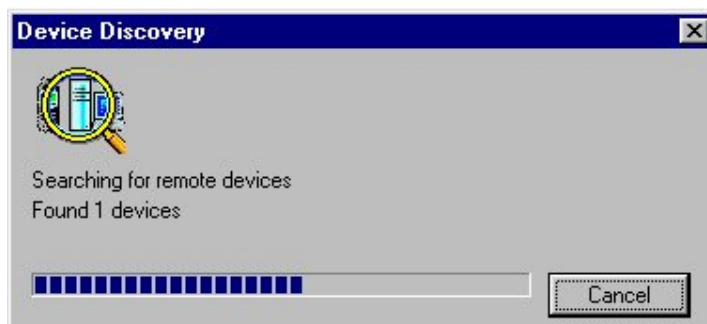
To carry out device discovery: On the Bluetooth menu, click **Device Discovery**.



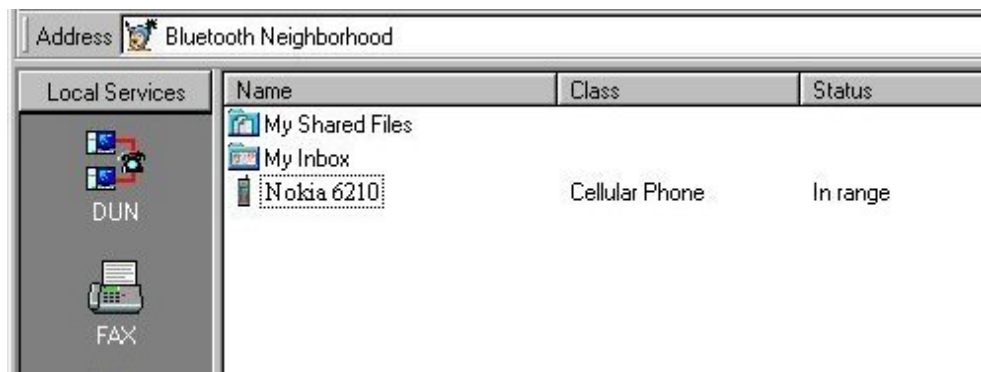
Or click Device Discovery button on the menubar.



While your device is looking for remote devices, the following dialog box will show the progress of the device discovery:



When the device discovery has been carried out, the list view will show which remote devices within range are currently available. Also, you can see the previously discovered devices that are no longer available (cf. the section "List view"):



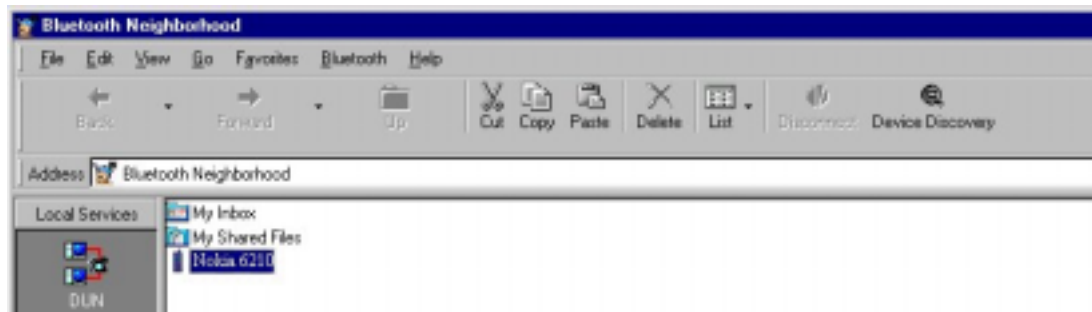
Note: The main window list view does not show your local device, only the discovered remote ones.

Alternative ways of carrying out device discovery:

- When the main window list view (with discovered devices) is displayed, press **F5**. This will update the list view.
- On the tool bar, click the tool button **Device Discovery**.

Service discovery

Before trying to establish a link to a remote device, it may be useful to know which services the device facilitates. To find out, you can carry out service discovery. Double-click the remote device in the main window list view, for instance the one named "Nokia 6210":



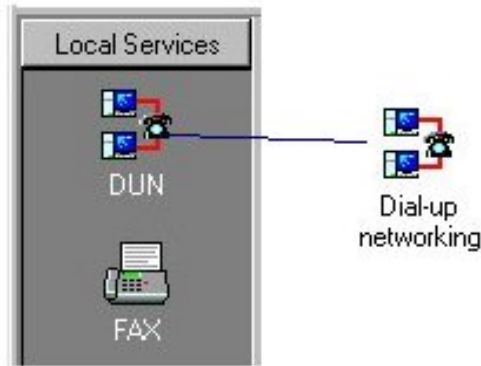
When the service discovery has been carried out, the list view will show the services that the remote device supports:



In some cases, it may not be possible to carry out service discovery. There could be a number of reasons for this: The remote user may have set up his device to reject link establishment attempts (cf. "Trust"), the distance between the two devices may be too far, etc. If service discovery (or any other activity) is not carried out successfully, a message box will let you know what went wrong.

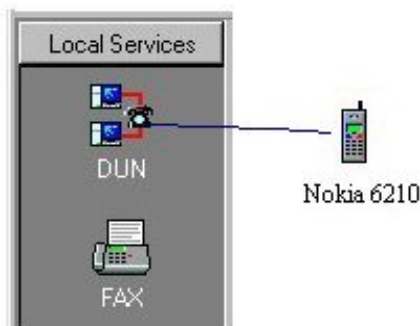
Link establishment

When you have carried out service discovery, you can establish a link to the remote device. You can make use of any service that both your device and the remote device support. Drag the local service to the corresponding remote service:



In the above example, a DUN (dial-up networking) link is being established by dragging the local DUN service to the remote DUN service. (The remote device could be a computer with access to a modem, which would allow you to access the Internet.)

Alternatively, if you know in advance that a remote device supports a particular service, you can skip service discovery. Just drag the local service to the remote device:

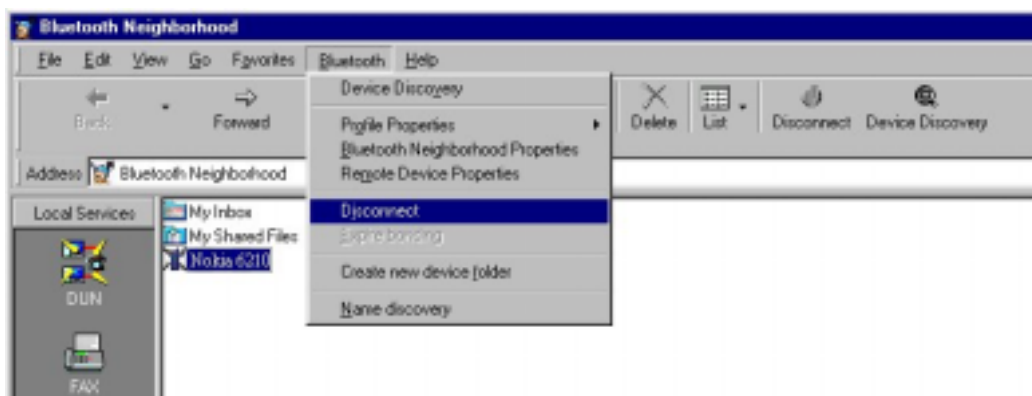


In this example, a DUN link is being established by dragging the local DUN service to the remote device. For information on how to make use of each of the local services when a link has been established, refer to the section about the local service in question. If link establishment is not carried out successfully: The remote user may have set up his device to reject link establishment attempts (cf. "Trust"), the distance between the two devices may be too far, etc. A message box will let you know what went wrong.

Disconnecting

To disconnect a link established to a remote device:

1. Select (click) the remote device or services that you want your device to disconnect from.
2. On the Bluetooth menu, click the item **Disconnect**:



Alternatively, double-click the remote service that your local device is connected to. The link will now be disconnected.

Status information

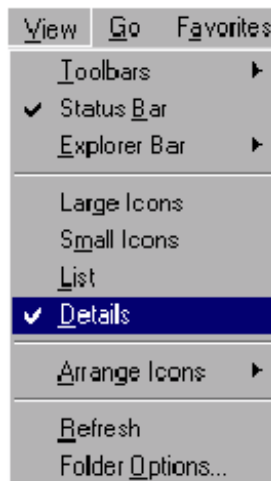
The Bluetooth Neighborhood status bar provides you with information on the item currently selected in the Bluetooth Neighborhood, like the name of a remote device (“Marko’s Laptop”) or My Inbox. Also, message boxes keep you informed of the progress of any activity, and let you know if anything goes wrong. The following example is a message box showing that the local device is being disconnected from a remote one:



View details

One of the Windows-like features of the Bluetooth Software Suite is the possibility of changing the settings of the list view. What is of special interest, however, is the **Details** information of the list view:

1. On the menu bar, click **View**.
2. Click **Details**.



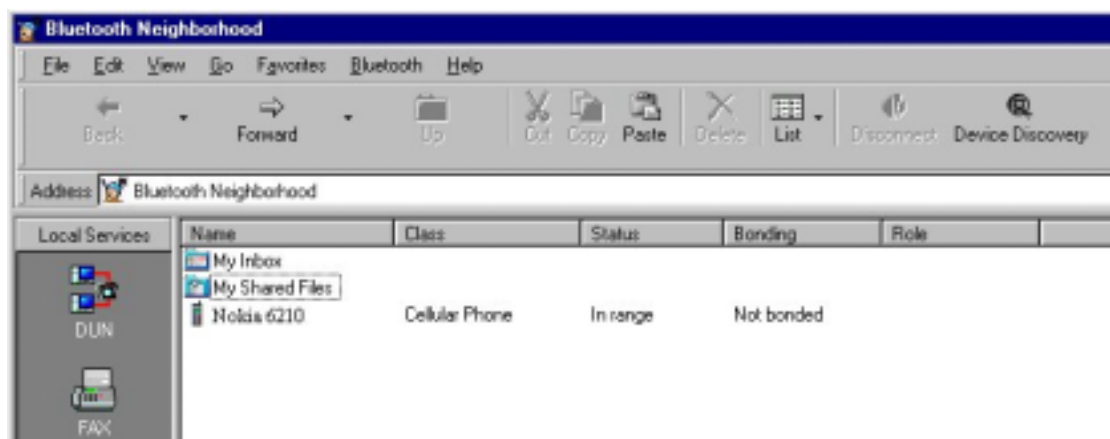
Alternatively, on the tool bar, click the **List** icon the appropriate number of times until the details are displayed:



The type of details displayed depends on the contents of the list view: remote devices, remote services, or the contents of My Inbox or My Shared Files.

Details concerning remote devices

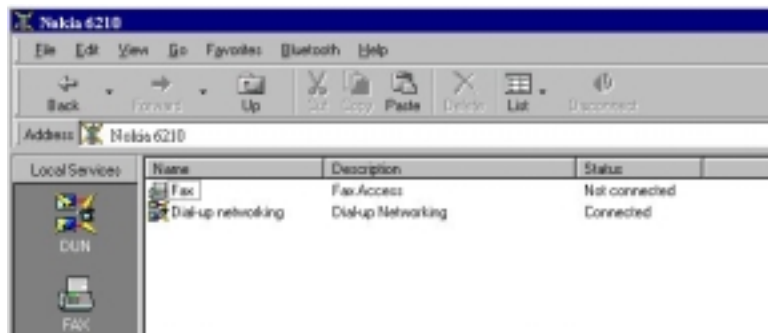
In the main window, the list view can display information on each of the remote devices discovered:



- **Name:** The name the remote user has chosen for his device to present itself with when discovered by other devices.
- **Class:** The type of the remote device (device class), for instance a desktop computer, a laptop, or a mobile phone.
- **Status:** Whether the remote device is within range or not.
- **Bonding:** Whether or not your local device and the remote one have *bonded*. See the section "Bonding".
- **Role:** Shows if the remote device is the master or a slave in the piconet.

Details concerning remote services

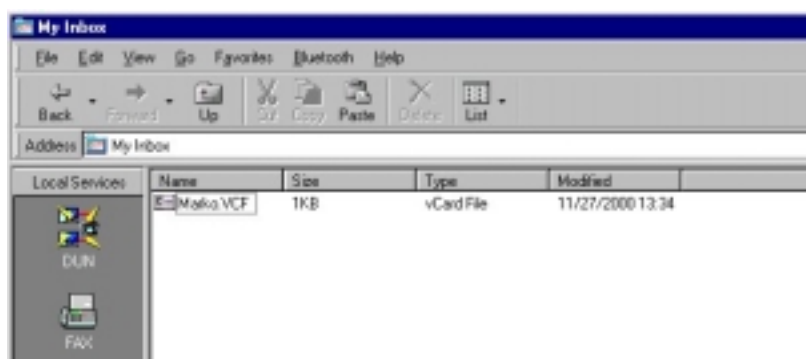
When you have carried out service discovery on a remote device, the list view can display the following information on the services that the remote device supports:



- **Name:** The name of the remote service.
- **Description:** The name of the profile that supports the remote service. If your device features the same profile, interoperability between the two devices is possible.
- **Status:** Whether or not the remote service is connected to your device.

Details concerning My Inbox and My Shared Files

If you have opened My Inbox or My Shared Files, you can get the same information on each of the received objects or files that you can get in standard Windows folders:



- **Name:** The name given to the object or file when it was saved.
- **Size:** The size of the object or folder.
- **Type:** The type of the object or folder, for instance “vCard File” or like the business card in the above example.
- **Modified:** The date when the object or file was last saved.

Device folders

What is a device folder?

In the Bluetooth Neighborhood main list view, you can create device folders: folders containing a number of remote devices. You can communicate with a device folder as with any single remote device. When doing so, you will be communicating with all the devices in the folder at the same time. This feature makes it easy to distribute objects and files to more than one device at a time.

How to create a device folder:

1. Open the Bluetooth Neighborhood main window.
2. On the Bluetooth menu, click **Create New Device Folder**.

A new folder will appear in the list view:

The default name of the folder is New Folder. However, you can rename the folder like any Windows folder by selecting it, clicking **F2**, and typing the name you want.

3. Drag the remote devices you want to the device folder. This is a standard Windows drag-and-drop operation; to move a number of remote devices at the same time, hold down the CTRL key, click each remote device, and then drag the selected remote devices to the folder.

You can create as many device folders as you like, and you can include as many devices in each folder as you like.

Communicating with a device folder is done in exactly the same way as with a single remote device. In the following example, a business card is being dragged to the device folder named “Conference”.

Each of the remote devices included in the device folder “Conference” will now receive the business card.

Local services

Object transfer

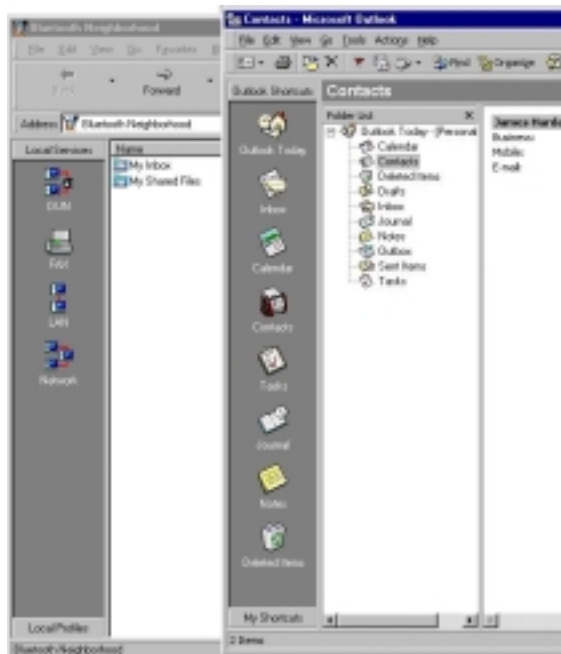
With the Bluetooth Neighborhood, you can transfer such objects as business cards, e-mail messages, calendar objects, and notes. If Microsoft Outlook is installed on your computer, that is where you create and send objects. If Microsoft Outlook is not installed on your computer, you can use the Object Editor included in the Bluetooth Software Suite.

Making default business card available

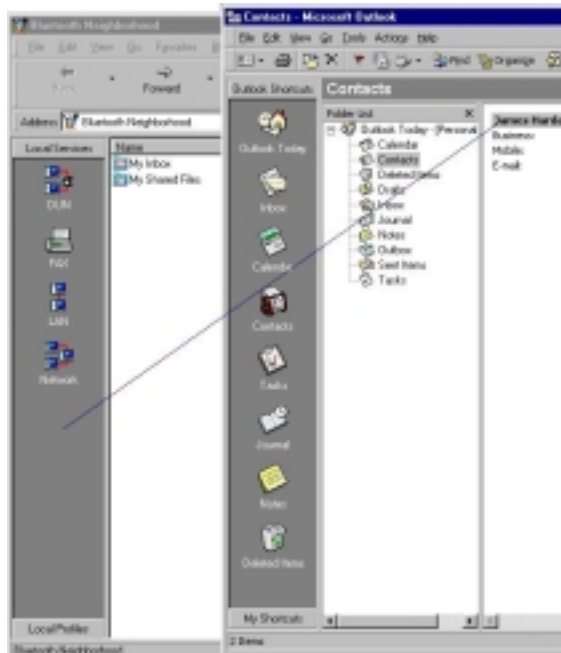
Before your business card can be transferred to a remote device, it needs to be included as a service on your Local Services bar. This will allow remote users to *pull* your business card, i.e. transfer it to their devices. Also, you can *push* the business card yourself, i.e. transfer it to remote devices. Finally, *pulling* and *pushing* can take place in one and the same operation: *exchanging* business cards. Both you and a remote user can do this. If Microsoft Outlook is installed on your computer, you can create a business card in Contacts, and then drag it into the Bluetooth Neighborhood. If Microsoft Outlook is not installed, you can use the Object Editor. Both ways of making your default business card available on the Local Services bar will be explained in the following.

From Microsoft Outlook

1. Open both the Bluetooth Neighborhood and Microsoft Outlook.
2. Arrange the Bluetooth Neighborhood and Microsoft Outlook, Contacts windows so that both are visible on the screen:



3. Drag the item containing your own contact information into the Local Services bar:



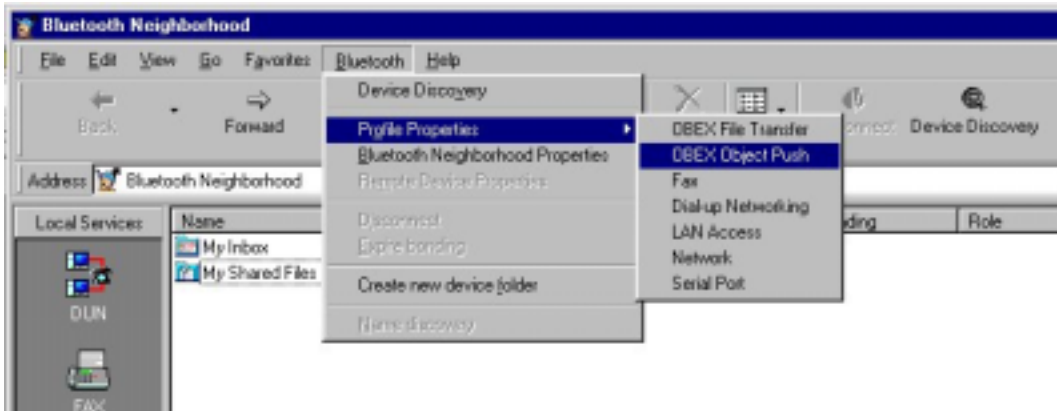
A new icon on the Local Services bar shows that your default business card is now available for transfer to remote devices:



From the Object Editor

An alternative way of registering your default business card is by means of the Object Editor. To open the Object Editor:

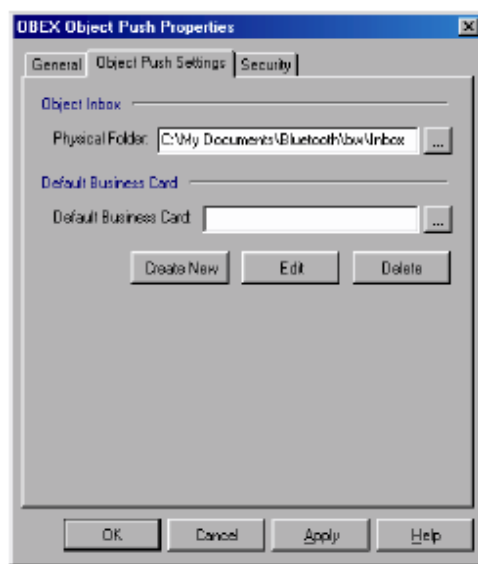
1. On the Bluetooth menu, point to **Profile Properties**, and click **OBEX Object Push**.



The OBEX Object Push Properties dialog box opens:



2. At the top of the dialog box, click the tab **Object Push Settings**.



3. In the item **Default Business Card**, click the button **Create New**. The Object Editor opens:



4. In the Object Editor, type the information you want to include in your default business card. You can include information about your name and one or more e-mail addresses, telephone numbers, and addresses.

5. To save the business card: On the Object Editor **File** menu, click **Save**.



6. To quit the Object Editor: Click the **OK** button. You will now return to the dialog box OBEX Object Push Properties – Object Push Settings. Here you will see the name of your default business card, which is the same as the name typed in the Object Editor.



If you want to view or edit the default location of the business card, click the “...” button.

7. To complete the creation of the new default business card: Click the **OK** button.

A new icon on the Local Services bar shows that your default business card is now available for transfer to remote devices:

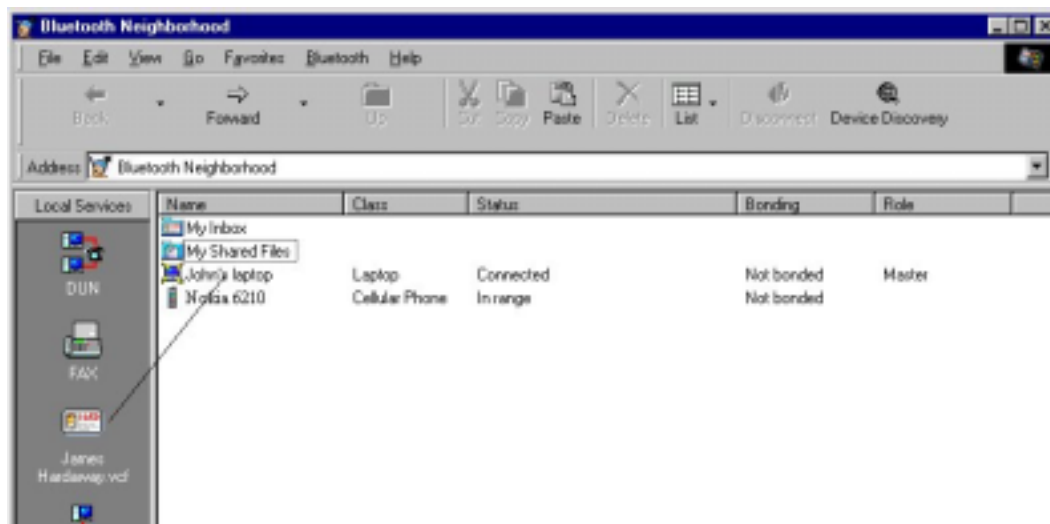
Editing an existing business card in the Object Editor:

As appears from the information above, the Object Editor can be used to create a new default business card. Furthermore, you can use the Object Editor to edit an existing business card. The procedure is almost the same as that described above; however, in step 3, click **Edit** (instead of **Create New**).

Business card transfer

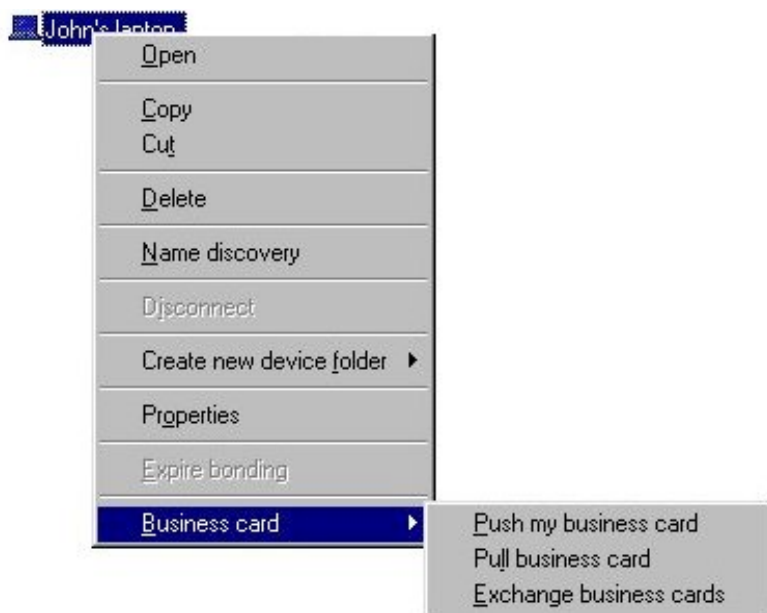
Before your default business card can be transferred to remote devices, you must make it available among your local services as described in the section "Making default business card available".

To send your business card to a remote device, drag the card icon to the remote Inbox folder or remote device (or device folder). In the following example, the business card is being dragged to a remote device named “John's laptop”:



If the link is established successfully, the remote device will now receive your business card in its Bluetooth Neighborhood Inbox.

For the choice of sending, receiving, or exchanging business cards with another user, right-click the remote device, and point to Business Card:

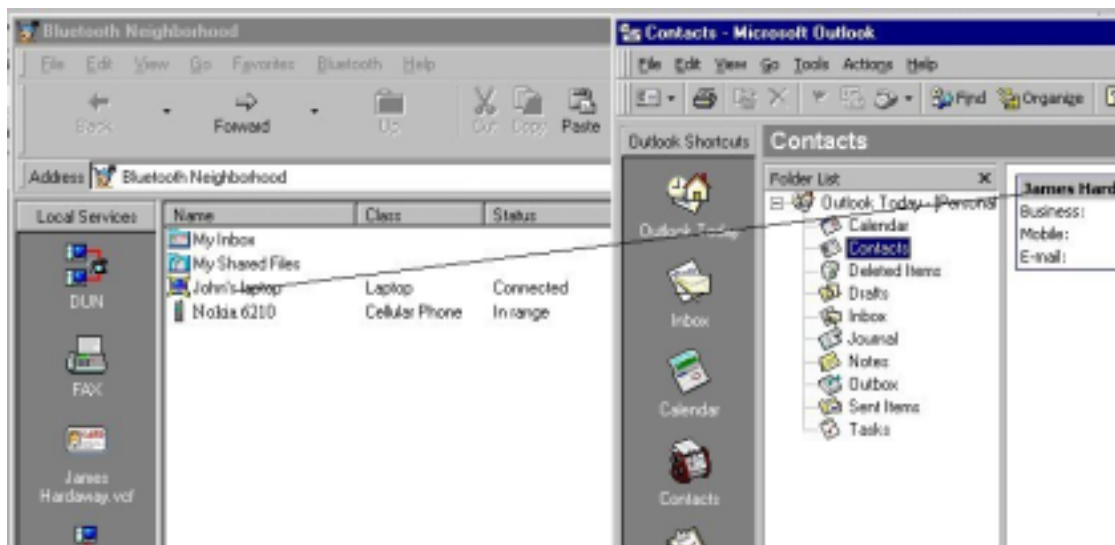


You can now choose:

- To transfer your business card (included on the Local Services bar) to the remote device: Click **Push business card**.
- To transfer the remote user's business card to your device: Click **Pull business card**.
- To exchange business cards with the remote user: click **Exchange business cards**.

Sending objects directly from MS Outlook

Microsoft Outlook users can send objects (like messages or notes) directly from Microsoft Outlook: Drag the object either to the remote Inbox folder or to the remote device (or device folder):



In the above example, an e-mail message is being forwarded from the Microsoft Outlook inbox to the remote Bluetooth device.

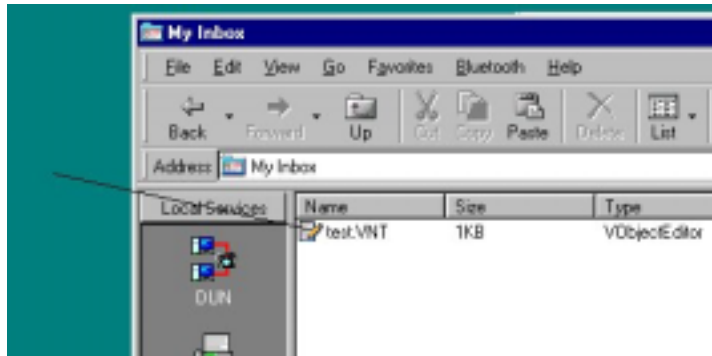
Receiving objects

When your local Bluetooth device receives an object (a default business card, message, note, or calendar object) from a remote device, the object is placed in My Inbox.

If you have Microsoft Outlook: When you double-click a received object, it will open in Microsoft Outlook.

If you do not have Microsoft Outlook: When you double-click a received object, it will open in the Object Editor.

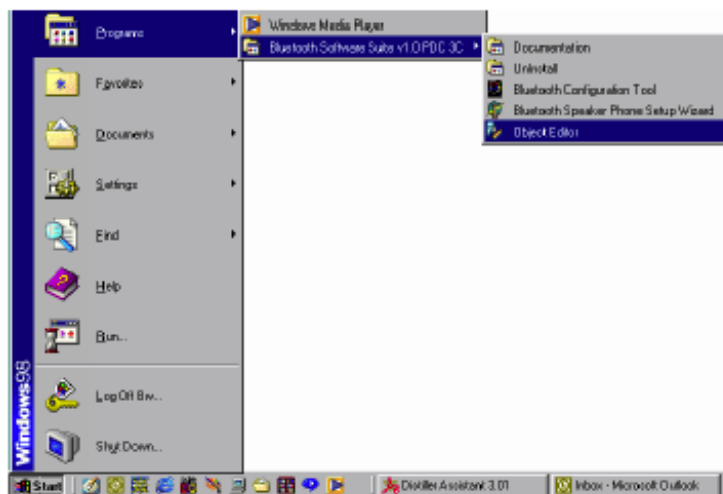
You can open a received object directly from My Inbox, or you can drag the object to wherever you want to store it. In the following example, an object is being dragged from My Inbox to the Desktop:



Creating objects in the Object Editor

If Microsoft Outlook is not installed on your computer, you may use the Object Editor to create objects – messages, notes, and cards. Note that objects created in the Object Editor are not saved as objects but as **files**. You can then transfer these files as you would any file in the Bluetooth Neighborhood (cf. “File transfer”).

1. To open the Object Editor: Click **Start**, point to **Programs**, point to **Bluetooth Software Suite ...**, and click **Object Editor**:



The Object Editor opens:

2. To create an object in the Object Editor:

Click **File**, point to **New**, and click the kind of object you want to create, for instance a **VMessage**:



Cards are created in the Object Editor itself (by typing the information you want to include); messages and notes are created in a new window. The following example shows the window that pops up on clicking **VMessage** as shown above:

3. Type the information you want to be included in the object.

4. To save the object:

- If it is a **message** or a **note**, in the window where you typed the contents, click **File** and **Save As**.
- If it is a **card**, in the Object Editor, click **File** and **Save**. A new dialog box pops up. In the following example, a **message** is about to be saved:

5. Select the location and name of the new file.

6. Click **Save**.

When you have saved the file, you can transfer it like any file using the Bluetooth Neighborhood. For more information, see "File transfer".

File transfer

File transfer is a way of sharing files with others. In the Bluetooth Neighborhood, you can make a file available to a remote user by placing it in the folder My Shared Files:

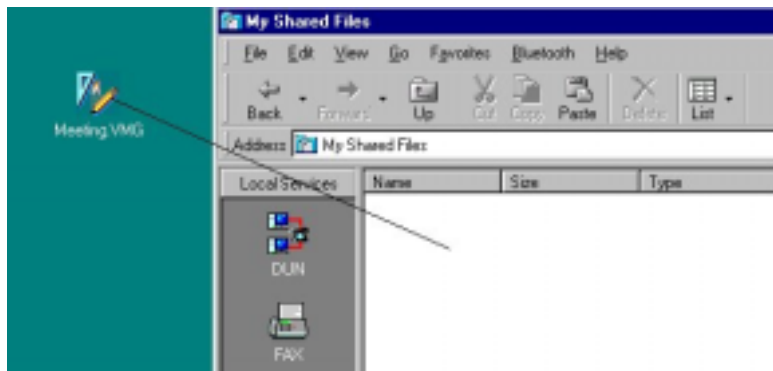


When a remote user has carried out service discovery on your device, he can open your folder My Shared Files and the files in it. Furthermore, he can add and delete files if he is allowed to do so (for information on the security aspects of My Shared Files, see the section “File Transfer Settings”).

Finally, if a remote device sends a file to your local device, it is received in My Shared Files.

Making a file available in My Shared Files

Placing a file in My Shared Files is easily done by dragging the file from where it is stored to the folder My Shared Files. Or you can open My Shared Files first, and then drag the file to the list view displaying the contents of My Shared Files.



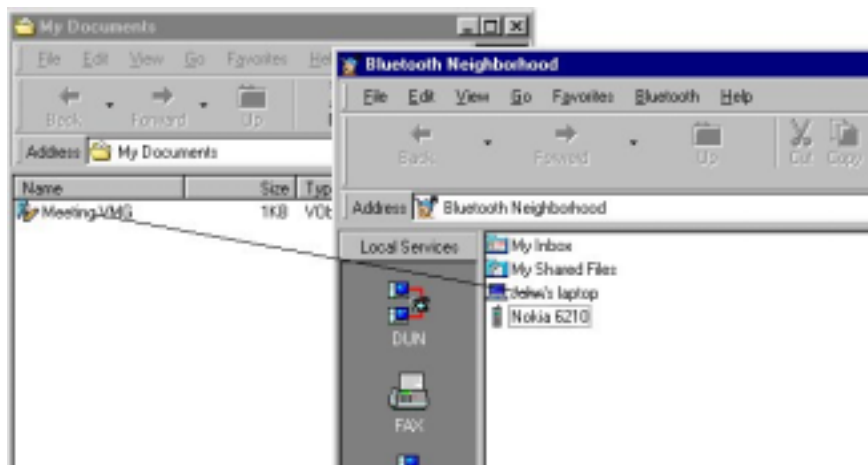
In the above example, a file is being dragged from the desktop to the list view displaying the contents of My Shared Files.

When a remote user opens your folder My Shared Files, he will have access to the file you placed in it.

Sending a file to a remote device

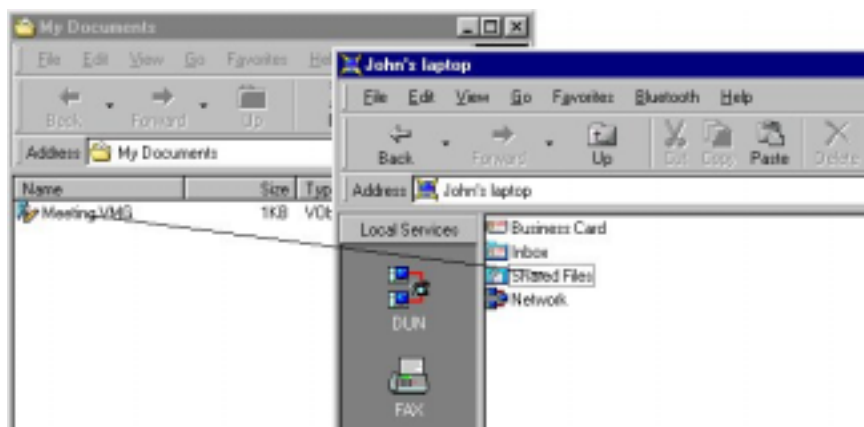
If you want to transfer a file to the Shared Files folder of a remote device, you can do so in a number of ways:

- Drag the file from where it is stored to the remote device (or device folder):



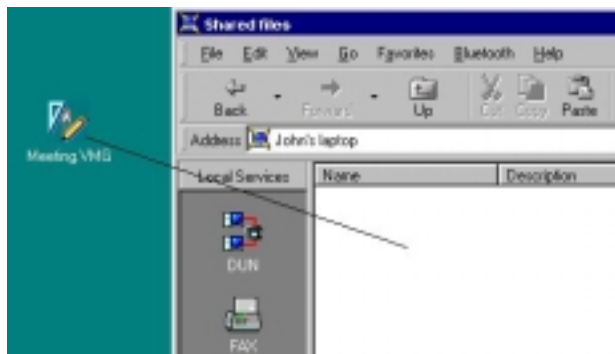
In the above example, a file is being dragged from My Documents to the remote device.

- First carry out service discovery on the remote device; then open the remote Shared Files folder;



In the above example, a file is being dragged from My Documents to the Shared Files folder of the remote device.

- First carry out service discovery on the remote device; then open the remote Shared Files folder; finally drag the file from where it is stored to the list view displaying the contents of the remote Shared Files folder: finally drag the file from where it is stored to the list view displaying the contents of the remote Shared Files folder.



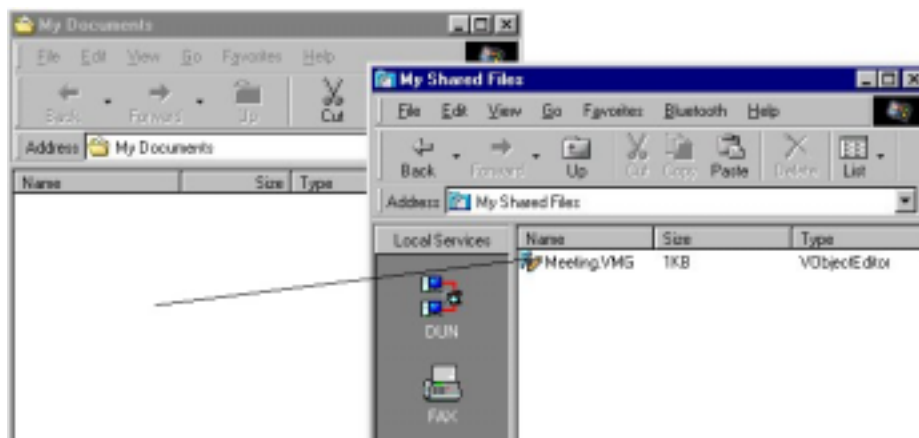
In the above example, a file is being dragged from the Desktop into the contents of the remote Shared Files folder.

No matter which way you choose to transfer a file to a remote device, the user of that device will receive the file in his Shared Files folder.

Receiving files

When your local Bluetooth device receives a file sent from a remote device, the file is placed in My Shared Files.

You can then open the received file directly from My Shared Files, or you can drag the file to wherever you want to store it. In the following example, a file is being dragged from My Shared Files to My Documents.



Bluetooth COM ports

General information

What is a Bluetooth COM port?

Physical communications (COM) ports are used when two serial devices are connected by means of a cable. A Bluetooth COM port, however, is a virtual COM port providing a wireless alternative to a physical one. Bluetooth COM ports make it possible to connect to almost any Bluetooth enabled serial application (legacy application) that would otherwise have been connected using a cable and a physical COM port.

Some profiles require a Bluetooth COM port

As Bluetooth links are wireless, you need no physical COM port to connect to a remote device. However, in connection with some of your local profiles, you need a Bluetooth COM port. This provides an address, so to speak, needed by your legacy application to establish a link to a remote device.

Note: Most users need not worry about Bluetooth COM ports at all; the default settings ensure that you can use all your Local Services without having to make any Bluetooth COM port settings.

The following services are supported by profiles that are associated with a Bluetooth COM port:

- DUN (Dial-up Networking Profile)
- FAX (Fax Profile)
- LAN (LAN Access Profile)
- Default business card (OBEX Object Push)
- File transfer (OBEX File Transfer)

Furthermore, the **Serial Port Profile** is used in connection with Bluetooth COM ports.

Except for the Serial Port Profile, the above-mentioned profiles are associated with the **Bluetooth COM ports 7, 8, and 9** by default. You can change these settings, if you like. For more information, see the section "Bluetooth COM port settings".

New Bluetooth COM ports and interoperability

Some users may want to add one or more additional Bluetooth COM ports to the computer. This is necessary if you want to make use of the Serial Port Profile, for instance to use a serial application like HyperTerminal to transfer data between two Bluetooth enabled computers.

The same profile must be associated with the local Bluetooth COM port and the remote one you want to connect to. Therefore, before you can establish a serial Bluetooth COM port link to a remote device, you must associate the Serial Port Profile with a Bluetooth COM port, and then add the Bluetooth COM port to your computer. For link establishment to be possible, the remote device must have a Bluetooth COM port with the Serial Port associated with it, too.

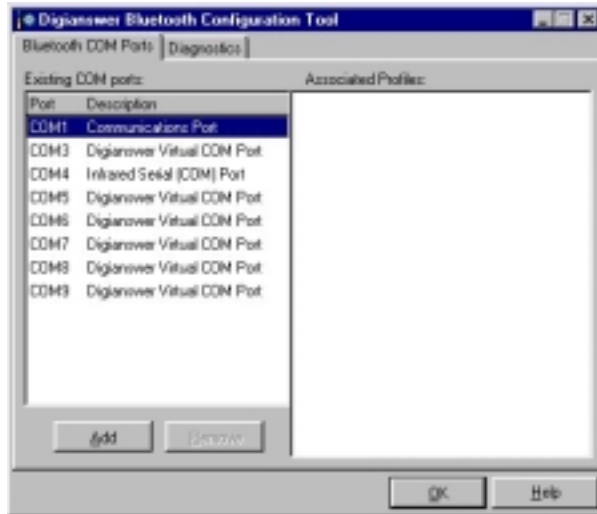
In "Bluetooth COM port settings" we will look into how you can add and remove Bluetooth COM ports, and change the settings concerning which profiles are associated with which Bluetooth COM ports.

Bluetooth COM port settings

Before you can make use of a Bluetooth COM port link, you must associate one or more appropriate profiles with a Bluetooth COM port and then add the COM port to your Local Services bar (cf. "Bluetooth COM ports" – "General information"). These settings are made by means of the Bluetooth Configuration Tool. **Opening the Bluetooth Configuration Tool:**

1. Open the Microsoft Control Panel.
2. Double-click **Bluetooth Configuration Tool**.

The Bluetooth Configuration Tool dialog box opens:



Adding Bluetooth COM ports

To add a Bluetooth COM port:

1. In the Bluetooth Configuration Tool window, click **Add**. The following dialog box opens:



2. Use the arrows to go to the Bluetooth COM port you want to add and the profile you want to associate with it. In the above example, the Serial Port Profile is being associated with Bluetooth COM port 10.

Note: Some programs (like HyperTerminal) cannot detect COM ports higher than 4.

You will only be allowed to add Bluetooth COM ports that are not already in use. Only available Bluetooth COM ports will appear on the list in the above dialog box.

3. To confirm the settings, click **Add**. The new Bluetooth COM port will now be included on the Bluetooth Neighborhood Local Services bar:



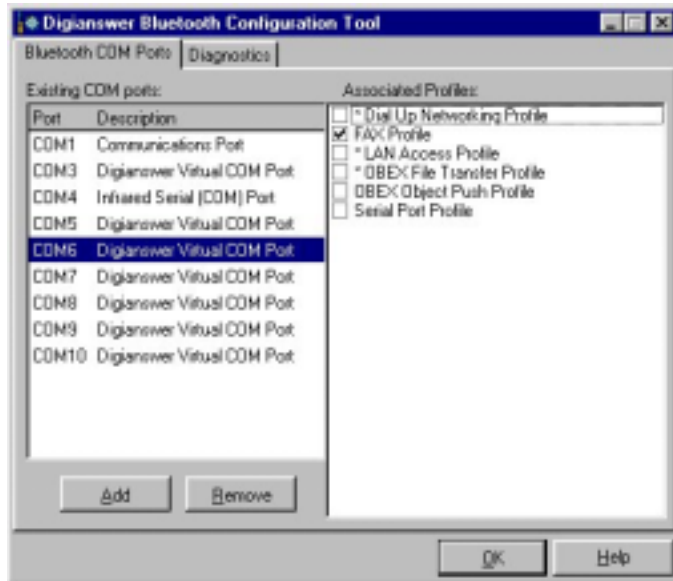
Note: Before you can use the new Bluetooth COM port, you have to **restart** your computer.

Note: Windows NT users will not see the new Bluetooth COM port icon on the local services bar until the computer has been restarted.

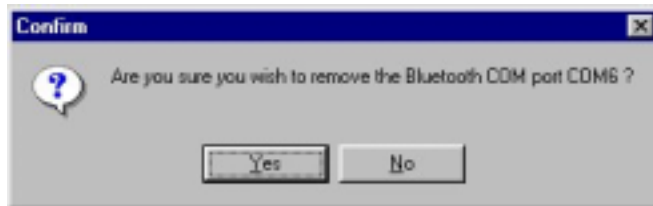
Deleting Bluetooth COM ports

If you want to delete a Bluetooth COM that you no longer need:

1. In the Bluetooth Configuration Tool window, highlight the Bluetooth COM port you want to delete, for instance COM6:



2. Click **Remove**. The following dialog box opens:



3. To confirm that you want to delete the Bluetooth COM port, click **Yes**.

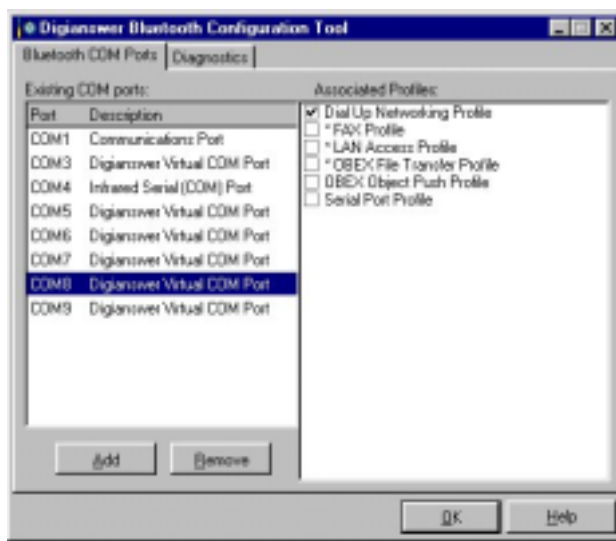
The Bluetooth COM port will now be removed from the Local Services bar.

Note: Windows NT users have to restart the computer for the changes to take effect.

Associating and removing profiles from existing Bluetooth COM ports

In the Bluetooth Configuration Tool, you can see which profiles are associated with which Bluetooth COM ports. You change these settings so as to associate the profiles you need with an existing Bluetooth COM port. Also, you can remove a profile from a Bluetooth COM port.

In the following example, it appears that the Dial-Up Networking Profile is associated with Bluetooth COM port 8:



To change the settings:

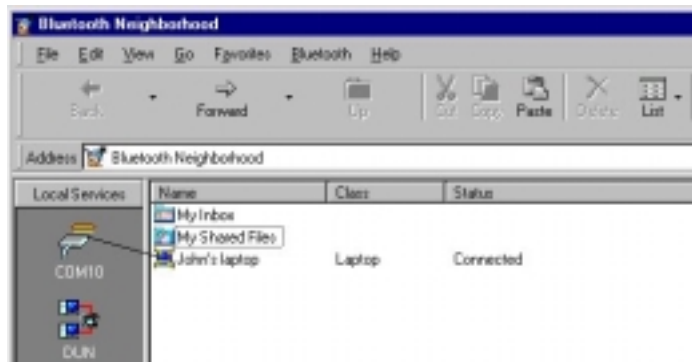
1. In **Existing COM ports**, click the Bluetooth COM port in question.
2. In **Associated Profiles**, check the profiles you want to associate with the Bluetooth COM port, or remove the ones you no longer want to be associated with it.
3. Click **OK**.

Note: **Windows NT** users have to restart the computer for the changes to take effect.

Bluetooth COM port link establishment

When you have added a Bluetooth COM port to the Local Services bar (as described in the section “Bluetooth COM port settings”), you can establish a link to a remote device.

Drag the Bluetooth COM port icon to the remote device (or device folder):



Alternatively, carry out service discovery, then drag the local Bluetooth COM port icon to a remote Bluetooth COM port icon:



The link established between your local device and the remote one can now be used exactly as if it were a wired link.

LAN

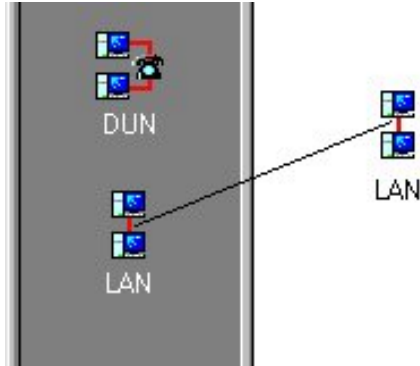
The LAN service is used for accessing a Local Area Network through a dial-up networking gateway. You can use this service to establish a link to a remote Bluetooth enabled computer that has access to a LAN.

The LAN service provides a Bluetooth COM port prepared for Bluetooth dial-up networking. You can use the LAN COM port with Microsoft dial-up networking in order to establish a LAN connection. Please refer to the Windows online help for instructions in how to use Microsoft dial-up networking.

Links can be established by dragging and dropping in the Bluetooth Neighborhood: Drag the LAN icon from the Local Services bar to one of the following in the list view:

- The remote device (or device folder), *or*
- The remote LAN service.

In the following example, a link is being established by dragging the local LAN service to a remote LAN service:



For information on how to set up the program to dial up automatically when a LAN link is established, see "LAN Access settings".

Note: The LAN Access Profile requires a Bluetooth COM port. By default, the profile is associated with Bluetooth COM port 7. For more information, see "Bluetooth COM ports".

DUN

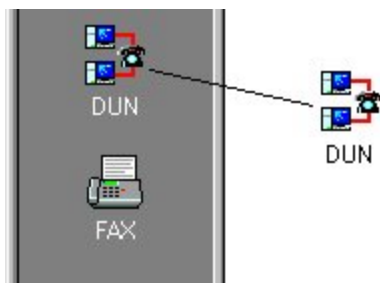
The DUN service, i.e. dial-up networking, is used for accessing the Internet through a DUN gateway. You can use this service to establish a link to a Bluetooth enabled modem or computer, which has access to a modem.

The DUN service provides a Bluetooth COM port prepared for Bluetooth dial-up networking. You can use the DUN COM port with Microsoft DUN in order to establish a DUN connection. Please refer to the Windows online help for instructions in how to use Microsoft DUN.

Links can be established by dragging and dropping in the Bluetooth Neighborhood: Drag the DUN icon from the Local Services bar to one of the following in the list view:

- The remote device (or device folder), *or*
- The remote DUN service.

In the following example, a link is being established by dragging the local DUN service to a remote DUN service:



For information on how to set up the program to dial up automatically when a DUN link is established, see "DUN Access settings".

Note: The Dial-up Networking Profile requires a Bluetooth COM port. By default, the profile is associated with Bluetooth COM port 7. For more information, see "Bluetooth COM ports".

FAX

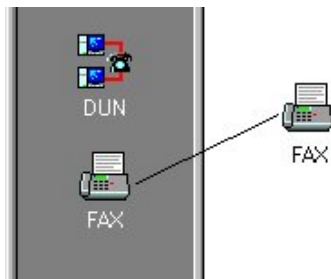
The FAX service is used for sending fax messages, using the fax software on your computer. You can use this service to establish a link to a remote Bluetooth enabled fax machine or computer which has access to a fax machine.

The FAX service provides a Bluetooth COM port prepared for Bluetooth faxing. You can use the fax COM port in connection with the Microsoft fax software or a third party application such as Symantec WinFax Pro in order to establish a fax connection. Please refer to the relevant documentation, like the Windows online help (if you use the Microsoft fax software).

Links can be established by dragging and dropping in the Bluetooth Neighborhood: Drag the FAX icon from the Local Services bar to one of the following in the list view:

- The remote device (or device folder), *or*
- The remote FAX service.

In the following example, a link is being established by dragging the local FAX service to a remote FAX service:



Note: The FAX Profile requires a Bluetooth COM port. By default, the profile is associated with Bluetooth COM port 7. For more information, see "Bluetooth COM ports".

Network

In this section, we will focus on setting up and establishing Bluetooth networks. **We will assume that you have some previous experience in ordinary, i.e. wired networks using Microsoft networking. If that is not the case, please refer to the Microsoft Windows online help for information on Microsoft networking.**

Setting up networks

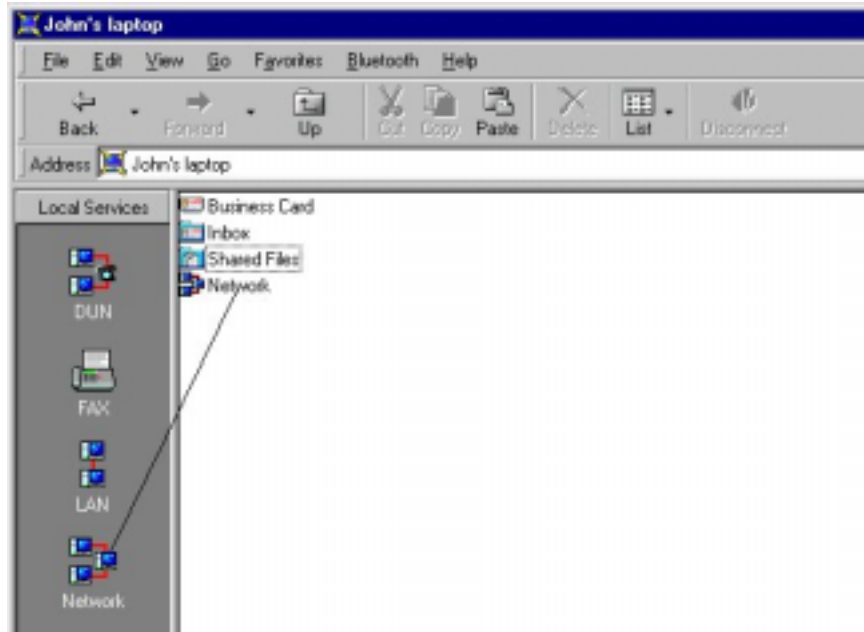
During the installation of the Bluetooth Software Suite, the installation program assigned a static IP address to the TCP/IP protocol bound to the Bluetooth Ethernet adapter.

The settings made during the installation will be used when you establish a network link as described in the section "Network link establishment". You can, of course, change these settings as you like.

The Bluetooth network works in the same way as if the computers were connected through a hub using a wired Ethernet. The settings made in Windows are used, exactly as if using Microsoft networking.

Network link establishment

Establishing a Bluetooth ad hoc network link is done in the same way as you establish other Bluetooth links: In the Bluetooth Neighborhood main window, drag the local service Network to the remote device, device folder, or service:



When a network link has been established between a master and its slaves, this network is similar to connecting the same computers through a hub using a wired Ethernet. The settings made in Windows are used, exactly as if using Microsoft networking.

Local device settings

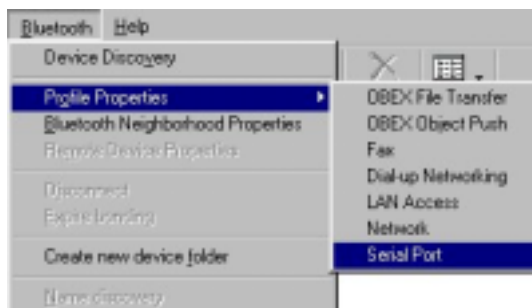
Local profile properties

General information

The Bluetooth Software Suite provides you with general information on the profiles that your device supports. For each profile, you can see:

- Which version of the profile your device features;
- A description, i.e. the name of the profile;
- The company name;
- The copyright holder.

This information is included in the Profile Properties dialog box. To open this: On the Bluetooth menu, point to **Profile Properties**, and click the profile in question, for instance Serial Port:



The mentioned information appears from the item

General Information:



Enabling/disabling profile

You can enable or disable each of the profiles that your device supports. If you enable a profile, remote users will be allowed to access the services associated with the profile. If you disable a profile, remote users will not be allowed to access the services associated with the profile.

Enabling/disabling a profile is done from the Profile Properties dialog box. To open this: On the Bluetooth menu, point to **Profile Properties**, and click the profile in question, for instance OBEX File Transfer:



In the item **Activate Profile**, you can now enable or disable the profile.

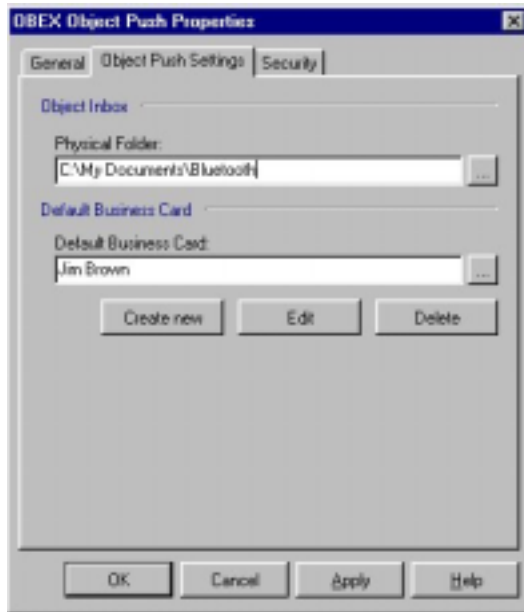
Note: You can only disable a profile when your computer is not connected to any remote device.

Object Push Settings

The profile OBEX Object Push is used for transferring objects: messages, notes, cards (including the default business card), and calendar objects. In the Object Push Settings dialog box, you can view or edit the location of the physical Inbox folder and the default business card.

To open the Object Push Settings dialog box:

1. On the Bluetooth menu, point to **Profile Properties**, and click **OBEX Object Push**.
2. At the top of the OBEX Object Push Properties dialog box, click the tab **Object Push Settings**.



- **Object Inbox:** By default, the physical Inbox folder is placed in My Documents in a folder named Bluetooth. However, you can move the Inbox to any location you want. To browse for a different location, click the "..." button.
- **Default Business Card:** The physical default business card is placed in My Documents in a folder named Bluetooth. However, like the Inbox, you can browse using the "..." button, and place the business card where you want.

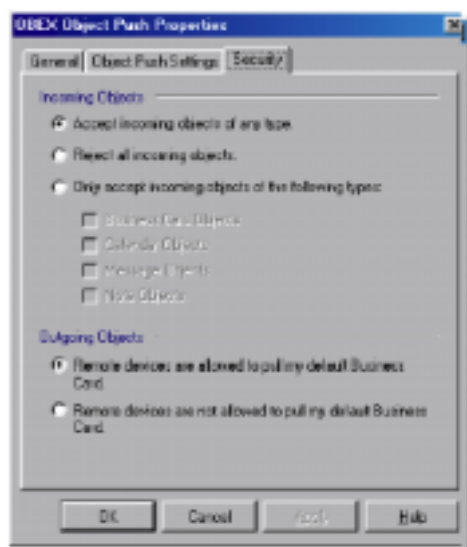
If you have not already created a business card, clicking **Create New** will open the Object Editor, where you can register your default business card. Click **Edit** if you want to edit an existing business card. For more information, see "Making default business card available".

Object Push - Security

The profile OBEX Object Push is used for transferring objects: messages, notes, cards, and calendar objects. In the Security dialog box, you can make decisions concerning the security aspects of receiving and sending objects.

To open the Security dialog box:

1. On the Bluetooth menu, point to **Profile Properties**, and click **OBEX Object Push**.
2. At the top of the OBEX Object Push Properties dialog box, click the tab **Security**.



- **Incoming Objects:** Here you can decide if your device should:
 - Accept incoming objects of any type; or
 - Reject all incoming objects; or
 - Only accept incoming objects of certain types: Business cards, calendar objects, messages, and/or notes.
- **Outgoing Objects:** Here you can select for remote devices to be allowed/not allowed to pull your default business card.

By default, your device will automatically accept incoming objects, and it will allow remote users to pull your default business card.

File Transfer Settings

The profile OBEX File Transfer is used for transferring files. In the File Transfer Settings dialog box, you can view or edit the location of the physical My Shared Files folder. Furthermore, you can make decisions concerning the security aspects of remote users' access to the files in "My Shared Files".

To open the File Transfer Settings dialog box:

1. On the Bluetooth menu, point to **Profile Properties**, and click **OBEX File Transfer**.
2. At the top of the OBEX File Transfer Properties dialog box, click the tab **File Transfer Settings**.



- **Shared Files Folder:** By default, this folder is placed in My Documents in a folder named Bluetooth. However, you can move it to any location you want. To browse for a different location, click the ".." button.
- **Security:** From this item you can make settings regarding which kind of access remote users will have to your local My Shared Files folder, i.e. whether they will be allowed to read, edit, and delete the contents of the folder. You can choose among:
 - Read only access; or
 - Read and write access; or
 - Read, write, and delete access.

Furthermore, if you select "Remote users are required to be authenticated..." remote users will have to enter a password before they can access your shared files. In the field at the bottom of the dialog box, you can type the password you require remote users to enter.

The default settings are as shown in the above illustration.

LAN Access settings

In connection with LAN link establishment, the Bluetooth Software Suite can establish a dial-up connection automatically. Setting up the program for this is done from the LAN Access Properties dialog box.

1. On the Bluetooth menu, point to **Profile Properties**, and click **LAN Access**.
2. At the top of the LAN Access Properties dialog box, click the tab **LAN Access Settings**. The following dialog box appears:



3. Select the option **Automatically establish Dial-up connection when Bluetooth link has been established**.
4. Follow the on-screen instructions to select which recipient should be dialed. You can add new recipients to the list by clicking **Create New** or edit the selected recipient by clicking **Edit Selected**.

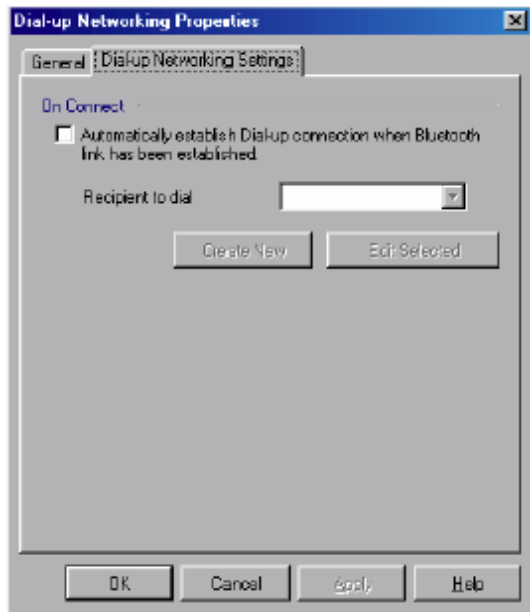
When you establish a LAN link as described in the section "LAN", the Bluetooth Software Suite will now automatically establish a dial-up connection.

For more information on LANs, please refer to the Windows online help.

Dial-up Networking settings

In connection with DUN link establishment, the Bluetooth Software Suite can establish a dial-up connection automatically. Setting up the program to do so is done from the Dial-up Networking Properties dialog box.

1. On the Bluetooth menu, point to **Profile Properties**, and click **Dial-up Networking**.
2. At the top of the Dial-up Networking Properties dialog box, click the tab **Dial-up Networking Settings**.
The following dialog box appears:



3. Select the option **Automatically establish Dial-up connection when Bluetooth link has been established**.
4. Follow the on-screen instructions to select which recipient should be dialed. You can add new recipients to the list by clicking **Create New** or edit the selected recipient by clicking **Edit Selected**.

When you establish a DUN link as described in the section "DUN", the Bluetooth Software Suite will now automatically establish a dial-up connection to the selected recipient.

For more information on dial-up networking, please refer to the Windows online help.

Bluetooth Neighborhood properties

General

The Bluetooth Software Suite provides information on the properties of the Bluetooth neighborhood. This information is accessed from the Bluetooth Neighborhood Properties dialog box. To open this:

On the Bluetooth menu, click **Bluetooth Neighborhood Properties**.



The Bluetooth Neighborhood Properties – General dialog box opens:



At the top of the dialog box you can see the name of your local device, in this case “John's desktop”. (For information on how to name your local device, see “Naming your local device”).

Furthermore, the dialog box contains the items **General Information** and **Connections**:

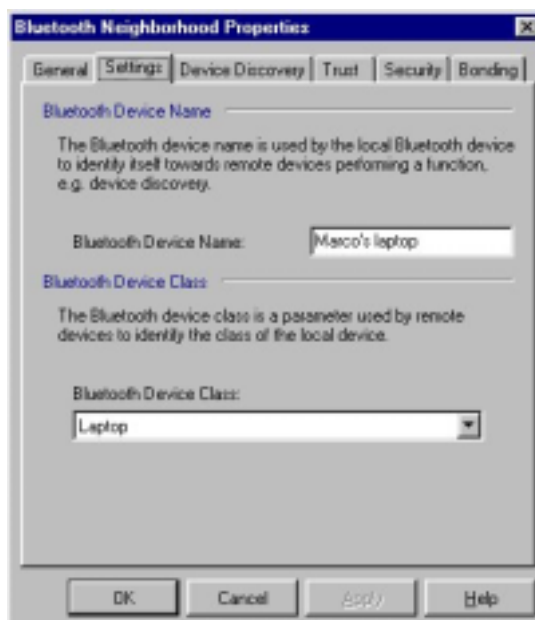
- **General Information** shows the identity information that, in addition to the name of your device, will be sent to remote devices carrying out device or service discovery on your device. The device address and service class are determined by the Bluetooth hardware, the device class you can set yourself (see “Settings”).
- **A connection shows** which remote devices your device is currently connected to, if any. Also, you can see which role your local device plays in the piconet: master or slave.

As appears, from this dialog box you can access a number of other dialog boxes: Settings, Device Discovery, Trust, Security, and Bonding. We will deal with each of these in the following.

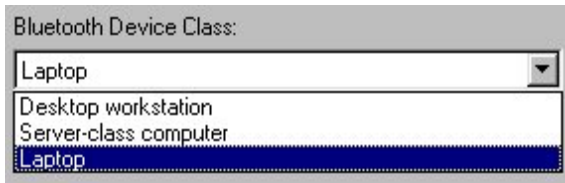
Settings

In the Bluetooth Neighborhood Properties – Settings dialog box, you can set such identity information as the name and class of your local device. To open the dialog box:

1. On the Bluetooth menu, click **Bluetooth Neighborhood Properties**.
2. Click the tab **Settings**.



- **Bluetooth Device Name:** Here you can select a name for your device (cf. “Naming your local device”).
- **Bluetooth Device Class:** Here you can provide the Bluetooth Software Suite with information on which class of device your computer belongs to: is it a desktop, laptop or server-class computer?



This information will be given to remote devices having carried out device discovery on your local device.

Device discovery

In connection with device discovery, you can make a number of settings in the Bluetooth Neighborhood Properties – Device Discovery dialog box. To open this dialog box:

1. On the Bluetooth menu, click **Bluetooth Neighborhood Properties**.
2. Click the tab **Device Discovery**.

The Bluetooth Neighborhood Properties – DeviceDiscovery dialog box opens:



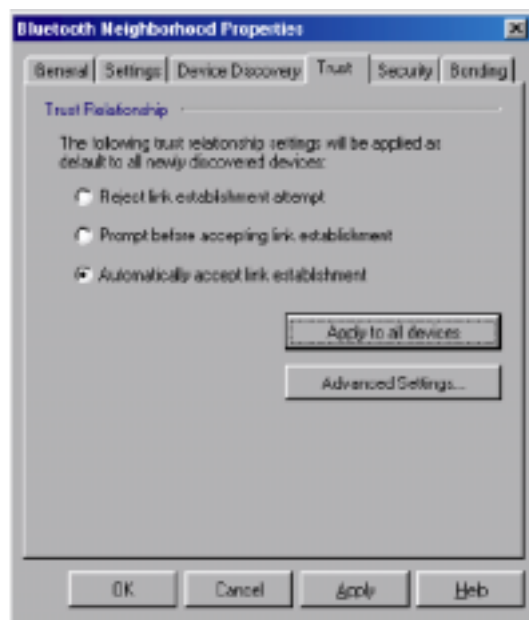
- In **Device Discovery** you can choose for device discovery to take place only when you activate the function manually (which is the default setting), or for device discovery to be initiated automatically at certain intervals. If you select the latter option so that device discovery will take place automatically, you can set the duration of the interval between device discovery sessions in the item **Device Discovery Period**.
- In **Device Discovery Length** you can set the number of seconds that you want device discovery to last. The default setting is 10 seconds, which should be enough in most cases. However, if for some reason it is difficult for two devices to discover each other, you can increase the duration.
- In **Device Discovery Period** you can set the number of minutes that you want the intervals between automatic device discovery sessions to last. This function is active when in the item **Device Discovery** you have set automatic device discovery to take place periodically.

- In **Previously Discovered Devices** you can have the Bluetooth Neighborhood list view display remote devices discovered during previous device discovery sessions. (This item is selected by default). If this item is not selected, the list view will only display the remote devices discovered during the latest session.
- In **Expire Discovered Devices** you can decide to have discovered remote devices removed automatically from the Bluetooth Neighborhood list view when they have not been seen for a specified period of time. Note that if the dialog box item **Previously Discovered Devices** is not selected, the list view will only display the remote devices discovered during the latest device discovery.

Trust

The Bluetooth Neighborhood Properties – Trust dialog box concerns the trust relationship you want your local device to apply to newly discovered remote devices: How do you want your local device to react if a newly discovered remote device tries to establish a link to it? To open this dialog box:

1. On the Bluetooth menu, click **Bluetooth Neighborhood Properties**.
2. Click the tab **Trust**.



You can decide whether your device should:

- Reject a link establishment attempt; or
- Prompt you before accepting link establishment; or
- Accept link establishment automatically. (This is the default setting).

To have the default trust relationship settings applied to all *existing* discovered devices as well as the newly discovered ones, click **Apply to all devices**.

Note: If you want to make trust relationship settings for a particular remote device – rather than for *all* remote devices – you can do so from the Remote Device Properties – Trust dialog box. For information on how to open this, see "Remote device properties" – "Trust".

Advanced link policy

To view or change the trust relationship settings for one or more discovered remote devices, click

Advanced Settings:



In this dialog box, each discovered remote device is located in one of three boxes: **Reject link establishment attempt**, **Prompt before accepting link establishment**, or **Automatically accept link establishment**. The location of each remote device (i.e. the box it is placed in) indicates which default trust relationship settings have been selected for it.

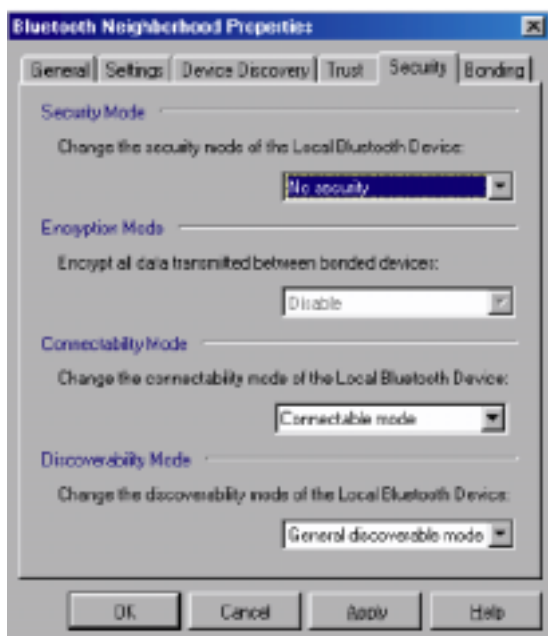
To change the trust relationship setting for a device in the Advanced Link Policy dialog box:

Drag the device from its present position into the box representing the trust relationship you want for the device. The new settings will now be applied to the remote device next time it attempts to connect to your local device.

Security

In the Bluetooth Neighborhood Properties –Security dialog box, you can make a number of decisions concerning the security of your local device. To open this dialog box:

1. On the Bluetooth menu, click **Bluetooth Neighborhood Properties**.
2. Click the tab **Security**.

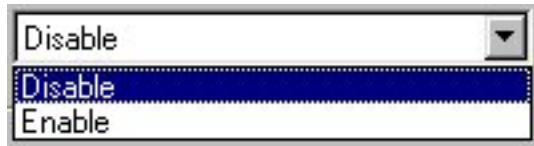


- **Security Mode** can be set to either **No Security** or **Link level security**.



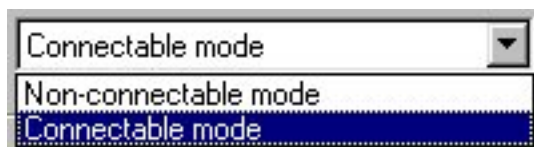
If a device has selected link level security, no remote device can connect to it without bonding (see “Bonding”.) Furthermore, only when you have selected link level security can you use encryption (see below).

- **Encryption Mode** can be enabled or disabled. Based on the use of a link key, this feature can only be enabled when link level security has been selected (see above).

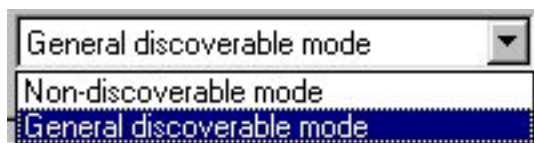


If encryption is enabled: When your device is communicating, only the linked devices will be able to understand the data sent between them.

- **Connectability Mode** refers to whether or not remote devices having discovered your device will be allowed to establish a link to it. In other words, selecting non-connectable mode is a way of ensuring that no remote device can connect to your device.



- **Discoverability Mode** refers to whether or not other devices will be allowed to discover your device. In other words, selecting non-discoverable mode is a way of preventing remote devices from discovering your device.



The default settings are as shown in the examples (the illustrations) above.

Bonding

Bonding refers to the creation of a link key –a bond – between two devices. Bonding is used when a device requires *link level security* (see “Security” for information on how to do so). When a remote device attempts to connect to the device requiring link level security, the users of both devices will be prompted for a password. They must then enter the same password.

The purpose of bonding is for two devices to be able to identify each other so that no remote device can connect without knowing the right password. This may be convenient if for instance you do not want any other device than your own Bluetooth enabled phone to be able to connect to your computer. Other devices trying to connect will be prompted for the password, which prevents them from interfering in the connection.

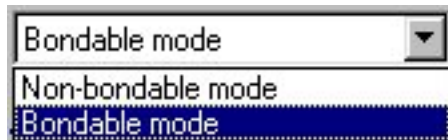
The duration of the bonding can be set to last beyond the current link; if so, the two devices will only be prompted for the password the first time they connect, i.e. when creating the bond. Both when creating the bond and when making use of an existing one, both devices must be in bondable mode. Below you will find information on how to set both bonding mode and duration.

Settings concerning bonding are done in the Bluetooth Neighborhood Properties – Bonding dialog box. To open this:

1. On the Bluetooth menu, click **Bluetooth Neighborhood Properties**.
2. Click the tab **Bonding**.



- In **Bluetooth Bonding**, you can decide whether or not your device should be able to bond to other devices.



The default setting is bondable mode. Both to be able to establish a new bond and to make use of an existing one, your device has to be in bondable mode.

- In **Default Bluetooth Bonding Expiration**, you can set bonding to expire when the link is disconnected; after a specified period of time; or never. (The default setting is: Never).

Note: The settings you make in the Bluetooth Neighborhood Properties – Bonding dialog box are default settings that will be applied to all remote devices. For information on how to make settings for the duration of a bond between your device and a particular remote device, see the section "Remote Device Properties" – "Trust".

Bluetooth unit settings

The settings of the Bluetooth unit are controlled from the Bluetooth Control Center. From this application, which is located in the lower right corner of the screen, you can enable/disable the Bluetooth unit. Also, the Bluetooth Control Center icon indicates the state of the Bluetooth unit.

Enabling/disabling Bluetooth unit

From the Bluetooth Control Center, you can enable or disable the Bluetooth unit.

1. Right-click the Bluetooth Control Center icon in the lower right corner of the screen.
2. Click **Enable ...** or **Disable ...**:



Indication of Bluetooth unit state

Located in the lower right corner of the screen, the Bluetooth Control Center displays one of three icons to show the state of the Bluetooth unit:

- Disabled:

In this state, your Bluetooth device cannot communicate with other devices.

- Enabled but not transmitting: 

Your device is ready to communicate with other devices.

- Enabled and transmitting: 

Your device is communicating with one or more remote devices, or an attempt is being made to establish a link.

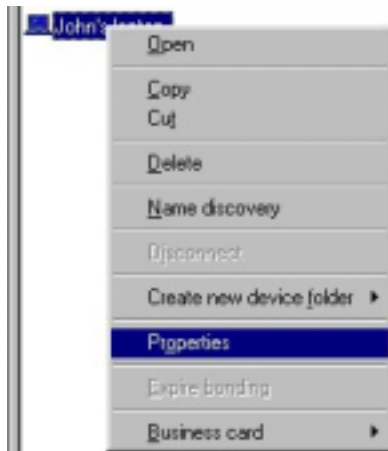
Remote device settings

Remote device properties

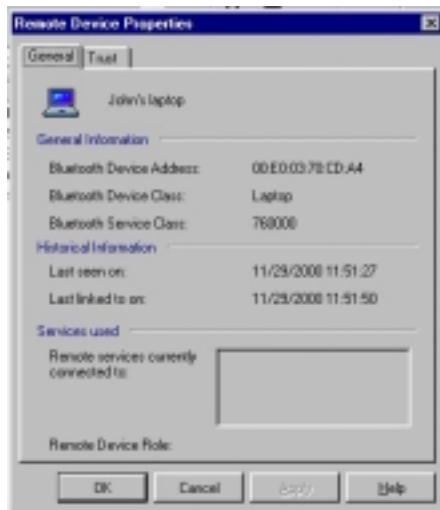
General

For information on the properties of a remote device:

1. Right-click the remote device.
2. Click **Properties**.



The Remote Device Properties – General dialog box opens.



At the top of this dialog box, you will see the name of the remote device.

In addition, the box contains the items **General Information**, **Historical Information**, and **Services used**.

- **General Information** provides such identity information on the remote device as its address, device class, and service class.
- **Historical Information** tells you when the device was last seen by your device, and when it was last linked to it.
- **Services used** shows which services of the remote device are currently connected to your local device, if any. Also, you can see which role the remote device plays in the piconet, i.e. master or slave.

Trust

In the Remote Device Properties – Trust dialog box, you can make settings for the individual remote device concerning:

- **Trust relationship**, i.e. the way your local device will react if the remote device attempts to establish a link to it.
- **Bonding expiration**, i.e. if your local device and the remote one bond, how long should the bonding last? (cf. "Bonding").

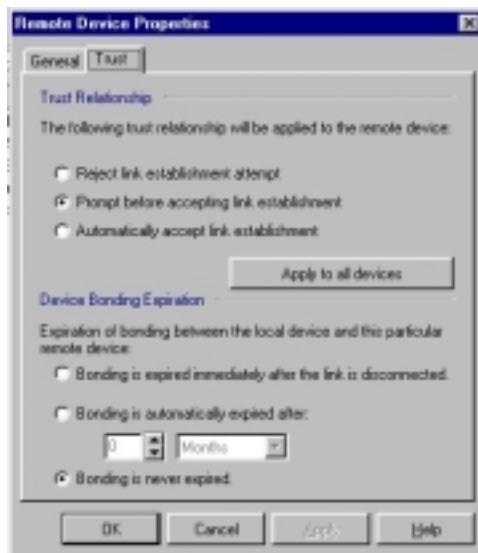
You can make similar settings in the dialog boxes Bluetooth Neighborhood Properties – Trust (cf.

"Trust") and Bluetooth Neighborhood Properties –Bonding (cf. "Bonding"). However, while the settings made in those dialog boxes concern *all* remote devices discovered, the settings in the

Remote Device Properties – Trust dialog box concern a *particular* remote device.

To open this dialog box:

1. Right-click the remote device in question.
2. Click **Properties**.
3. In the General dialog box, click the tab **Trust**.



- **Trust Relationship** allows you to define the trust relationship to be applied when the remote device wants to establish a link to your device:
 - Reject link establishment, or
 - Prompt before accepting link establishment, or
 - Automatically accept link establishment. (This is the default setting).

If you like, you can apply the selected trust relationship to all remote devices (as in the Bluetooth Neighborhood Properties –Trust and Bonding dialog boxes). To do so, click **Apply to all devices**

- **Device Bonding Expiration** allows you to make settings concerning the duration of bonding between your device and the remote one. You can set the bonding to expire when the link is disconnected, after a specified period of time, or never. (The default settings is: Never).

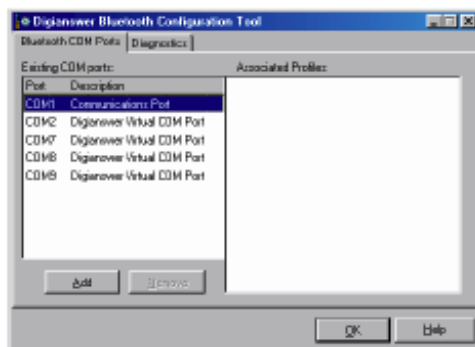
For more information on bonding, see "Bonding".

Hardware

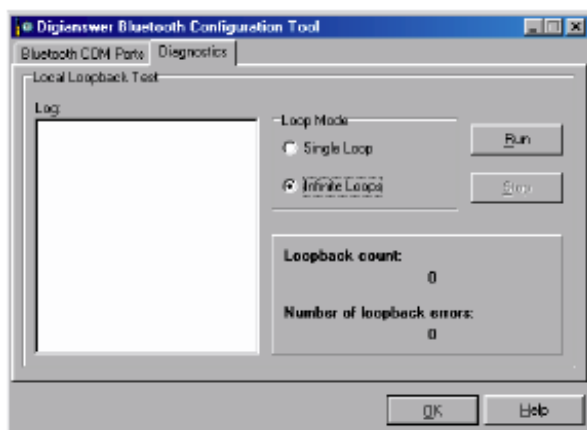
Diagnostics

After the installation, you have possibility to check that the hardware for the Bluetooth Software Suite (i.e. either a PC card or a USB adapter) has been installed properly. This is done by performing a *loopback* test. The test is carried out from the Bluetooth Configuration Tool:

1. Open the Microsoft Control panel.
2. Double-click **Bluetooth Configuration Tool**. The Bluetooth Configuration Tool dialog box opens:



3. Click the tab **Diagnostics**. The following window opens:



You can now perform a loopback test to check that the hardware is working properly:

4. In **Loop Mode**, select either **Single Loop** (to test a single loop) or **Infinite Loops** (to test a number of loops). We recommend that you choose the latter (which is also the default setting).
5. To start the test, click **Run**. When in the loop mode Infinite Loops, the test will run until you click **Stop**.

6. In **Loop Count** you can see the number of loops tested. The number of **Errors** should always be: 0. If the test shows one or more errors, your hardware has probably not been installed correctly. We recommend that you:

- Ensure that the hardware is installed correctly, whether a matter of inserting a PC card (cf. the Installation Manual).
- Restart your computer.

Appendices

Appendix A: Profiles

The following table shows which profiles the Bluetooth Software Suite currently supports and which role each profile plays:

The profile:	Supports the following:
Ethernet Network	Network service
OBEX File Transfer	File transfer
OBEX Object Push	Object transfer
Serial Port	Bluetooth COM port service
Generic Access	All other profiles
Service Discovery Application	Service discovery
Dial-up Networking	DUN service (as data terminal)
Fax	FAX service (as data terminal)
LAN Access	LAN service (as data terminal)
Generic Object Exchange	OBEX File Transfer and OBEX Object Push profiles

Appendix B: List view icons

In the Bluetooth Neighborhood list view, the following icons are used to represent remote devices and remote services respectively:

Remote devices:

Desktop computer	
Laptop computer	
Server-class computer	
Handheld PC/PDA	
Palm sized PC/PDA	
Cellular phone	
Cordless phone	
Smart phone	

Unclassified phone	
LAN access point	
LAN access point, 33-50% utilized	
Unclassified audio	
Modem	
Peripheral	
Unclassified	

Remote services:

Audio	
Bluetooth COM port	
LAN	
DUN	
FAX	
Business card	
Network	
Inbox	
Shared Files	
Device folder	

Appendix C: Regulatory statements

General

This product complies with any mandatory product specification in any country where the product is sold. In addition, the product complies with the following.

European Union (EU) and EFTA

This equipment complies with the R&TTE directive 1999/5/EC and has been provided with the CE mark accordingly. Note that the radio frequency band used by this equipment has not been harmonized in all of the EU.

United States of America and Canada

Tested To Comply with FCC Standards FOR HOME OR OFFICE USE. This device complies with part 15 of the FCC rules and with RSS-210 / RSS-139 of the Industry Canada. 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. Note that any changes or modifications to this equipment not expressly approved by the manufacturer may void the FCC authorization to operate this equipment.

Card specifications

Physical specifications

Type	Compact Flash size PC card
dimensions	36 mm x 43 mm x 3,3mm
weight	9g
standards	Bluetooth
Antennas	Integrated T-shaped patch antenna
Security	According to Bluetooth specification
Power consumption (3.3 V/5 V)	Sleep: < 1 mA/ 1mA Receive: < 105 mA / 105 mA Transmit: < 75 mA/ 75 mA
Operating temperature	0°C...+60°C

Radio specifications

Channels	79 channels
Modulation technique	GFSK (Gaussian Frequency Shift Keying), frequency hopping
Output power	1 mW
Receiver sensitivity	Min. -70 dBm
Coverage area	Up to 10 m

Important safety information

Important information

Traffic safety

Do not use the Nokia Connectivity Card while driving a vehicle. If using the Nokia Connectivity Card, park the vehicle first. Do not place the Nokia Connectivity Card on the passenger seat or where it can break loose in a collision or sudden stop.

Remember: road safety always comes first!

Operating environment

Remember to follow any special regulations in force in any area and always power off your Nokia Connectivity Card whenever it is forbidden to use it, or when it may cause interference or danger. Note that the Nokia Connectivity Card may cause similar interference as a cellular terminal and must not be used in areas where the use of a cellular terminal is prohibited.

When connecting the Nokia Connectivity Card or any accessory to another device, read its user's guide for detailed safety instructions. Do not connect incompatible products.

As with other mobile radio transmitting equipment, users are advised that for the satisfactory operation of the equipment and for the safety of personnel, it is recommended that the Nokia Connectivity Card should only be used in the normal operating position.

Electronic devices

Most modern electronic equipment is shielded from radio frequency (RF) signals. However, certain electronic equipment may not be shielded against the RF signals from your Nokia Connectivity Card.

Pacemakers

Pacemaker manufacturers recommend that a minimum separation of 20 cm (6 inches) be maintained between a Nokia Connectivity Card and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research. Persons with pacemakers should always keep the Nokia Connectivity Card more than 20 cm (6 inches) from their pacemaker when the Nokia Connectivity Card is powered on. If you have any reason to suspect that interference is taking place, power off your Nokia Connectivity Card immediately.

Hearing aids

Some digital wireless devices may interfere with some hearing aids. In the event of such interference, you may want to consult your service provider.

Other medical devices

Operation of any radio transmitting equipment, including Nokia Connectivity Cards, can cause interference. Observe restrictions for use. Power off your Nokia Connectivity Card in health care facilities when any regulations posted in these areas instruct you to do so.

Vehicles

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles (e.g. electronic fuel injection systems, electronic anti-skid (anti-lock) braking systems, electronic speed control systems and air bag systems). Check with the manufacturer or its representative regarding your vehicle. You should also consult the manufacturer of any equipment that has been added to your vehicle.

Do not store or carry flammable liquids, gases, or explosive materials in the same compartment as the Nokia Connectivity Card, its parts, or accessories.

For vehicles equipped with an air bag, remember that an air bag inflates with great force. Do not place objects in the area over the air bag or in the air bag deployment area. If the in-vehicle Nokia Connectivity Card is improperly placed and the air bag inflates, serious injury could result.

Remove your Nokia Connectivity Card from the PC card slot before boarding an aircraft. The use of Nokia Connectivity Cards in an aircraft may be dangerous to the operation of the aircraft and may be illegal.

Failure to observe these instructions may be illegal and lead to legal action.

Posted facilities

Power off your Nokia Connectivity Card in any facility where posted notices so require.

Potentially explosive atmospheres

Power off your Nokia Connectivity Card when located in any area with a potentially explosive atmosphere and obey all signs and instructions. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.

Users are advised to power off the Nokia Connectivity Card when at a refuelling point (service station). Users are reminded of the need to observe restrictions on the use of radio equipment in fuel depots (fuel storage and distribution areas), chemical plants, or where blasting operations are in progress.

Areas with a potentially explosive atmosphere are often but not always clearly marked. These include the area below deck on boats; chemical transfer or storage facilities; vehicles using liquefied petroleum gas (such as propane or butane); areas where the air contains chemicals or particles, such as grain, dust, or metal powders; and any other area where you would normally be advised to turn off your vehicle engine.

FCC Declaration of Conformity Statement

Name: Nokia Connectivity Card

Responsible party: Nokia Mobile Phones Ltd.

P.O. Box 100

FIN-00045 Nokia Group

Finland

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.

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

Caution: Any changes or modifications not expressly approved by Nokia Mobile Phones Ltd. could void the user's authority to operate this device.

Care and maintenance

Your Nokia Connectivity Card is a product of superior design and craftsmanship and should be treated with care. The suggestions below will help you to fulfill any warranty obligations and to enjoy this product for many years. When using you're Nokia Connectivity Card or any accessory:

- Keep it and all its parts and accessories out of small children's reach.
- Keep it dry. Precipitation, humidity, and liquids contain minerals that will corrode electronic circuits.
- Do not use or store it in dusty, dirty areas.
- Do not store it in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store it in cold areas. When the Nokia Connectivity Card warms up (to its normal temperature), moisture can form inside the Nokia Connectivity Card, which may damage electronic circuit boards.
- Do not attempt to open it. Non-expert handling of the Nokia Connectivity Card may damage it.
- Do not drop, knock, or shake it. Rough handling can break internal circuit boards.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean it. Wipe it with a soft, dry cloth.
- Do not paint it. Paint can prevent proper operation.
- Use only the supplied or an approved external antenna. Unauthorised antennas, modifications, or attachments could damage the Nokia Connectivity Card and may violate regulations governing radio frequency devices.

If the Nokia Connectivity Card or any accessory is not working properly, contact your dealer.

Glossary

Ad hoc

One of the two operating modes that can be selected when using the Nokia DTL-1. With this configuration option, users can set up a wireless network where wireless stations can send and receive data directly with each other without access points. This type of network is sometimes called a peer-to-peer network.

Bandwidth

Quantitative difference between the limiting frequencies of a frequency band.

Channel

A specified frequency band for the transmission and reception of signals.

Coverage area

Geographical area within which service from a radio communications facility can be received.

Bluetooth

Bluetooth is a global standard for wireless connectivity. The main members of Bluetooth consortium are Nokia, Ericsson, IBM, Intel and Toshiba. Afterwards companies like 3Com, Psion, Dell, Compaq, Casio and Seiko-Epson have also joined to Bluetooth. Bluetooth technology allows for the replacement of the many proprietary cables that connect one device to another with one universal short-range radio link (radio range up to 10m). This enlarges freedom and flexibility of using different devices and peripherals. For instance, phone number and calendar data can be easily transferred from mobile phone to laptop and vice versa. Bluetooth technology doesn't require line-of-sight connection as infrared does. 360 degrees of freedom makes Bluetooth devices extremely flexible and easy to use.

Profile

Any Bluetooth device has at least one profile, i.e. an application that you can use the device for. When two devices are to interoperate, i.e. communicate with each other, they must have a shared profile. If, for instance, you want to transfer a file from one Bluetooth enabled computer to another, both computers must support the profile OBEX File Transfer.

Range

The distance that radios signal travels from a radio transmitter before becoming too weak for a radio receiver to identify it.