IBM

Bluetooth PC Card from IBM

Installation and User's Guide

Note: Before using this information and the product it supports, read Appendix E, "Product warranties and notices" on page E-1.

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About this book

This manual contains instructions for installing and using the Bluetooth™ PC Card from IBM®. The manual is divided into three parts:

- **Installation guide**

  The *Installation guide* contains the product description and quick installation instructions.

- **User's guide**

  The *User's guide* provides instructions on operating the Bluetooth Software Suite.

- **Appendixes**

  The appendixes contain reference tables, regulatory information, help and service information, the product warranties, and notices.

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http://www.ibm.com/pc/register

IBM will send you information and updates on your registered product unless you indicate on the Web site questionnaire that you do not want to receive further information.

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Installation guide

This section contains quick instructions for installing and operating the Blue-tooth™ PC Card from IBM® and the Bluetooth Software Suite. For more detailed instructions, refer to the *User's guide* on page 2-1.

Note: The documents supporting the Bluetooth software suite are also provided in PDF format. To view these documents, you must have Adobe® Acro-bat® Reader. If Acrobat Reader is not already installed on your computer, you can install it from the CD-ROM by following these instructions:

1. Click **Start**

2. Click **Run**

3. Type `X:\Acrobat\ar405eng.exe` where `X` corresponds to the letter for your CD-ROM drive.

4. Follow the instructions on your screen.

Product description

Bluetooth wireless technology eliminates the need for cables between electronic devices such as desktop computers, printers, and local area networks (LANs). Bluetooth wireless technology provides fast, reliable, and secure wireless communication in a small space, and enables you to synchronize devices such as your desktop computer and mobile phone.

Bluetooth wireless technology has the following features:

• **Worldwide operation**: The Bluetooth radio transmitter and receiver operates in the 2.45 GHz band, which is license-free and compatible with any radio system in the world (with the exception of France).

• **Link establishment**: You can establish a link between two or more devices almost instantly. The link is maintained even if the devices are not within line of sight.

• **Robust link**: Under normal conditions, your connection will not suffer from interference from other radio signals operating in the same frequency band.

• **Data and voice recognition**: You can use Bluetooth wireless technology for data transfer or voice communication separately or simultaneously.

• **Security**: Two advanced security mechanisms ensure a high level of security:

  — **Authentication** prevents access to critical data and makes it impossible to falsify the origin of a message.

  — **Encryption** prevents eavesdropping and maintains link privacy.

In addition to this guide, your option package includes the following:

• *Bluetooth PC Card from IBM* CD
• Bluetooth PC Card

If either of these items are missing or damaged, contact your reseller.

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Before you begin

Before you begin installing and using your Bluetooth PC Card, review the following terms that will be used throughout the manual.

- **Authentication**: A security mechanism that prevents access to critical data and makes it impossible to falsify the origin of a message.

- **Device address**: The unique address of a Bluetooth device.

- **Device discovery**: Before a link can be established, a Bluetooth device needs to "discover", or find, the other Bluetooth devices that are active and in range.

- **Device name**: The name that a Bluetooth device presents itself with when supplying identity information to another device.

- **Master device**: The device that initiates a connection and, during this connection, controls all traffic in a **piconet**.

- **Park mode**: An economical, low-power "sub-mode" of standby. In **park mode**, a **slave device** does not participate in the **piconet** but remains synchronized to it. **Park mode** is used to increase the number of **slave devices** connected to a **master device**.

- **Piconet**: A wireless network formed by two or more Bluetooth devices.

- **Profile**: An application that a Bluetooth device facilitates. For one device to communicate with another, the two devices must have a shared **profile**.

- **Slave device**: A device in a **piconet** controlled by another device (the **master device**).

System requirements

The Bluetooth Software Suite works with the following operating systems:

- Microsoft® Windows® 95 OSR/2
- Microsoft Windows 98
- Microsoft Windows Millennium Edition (Me)
- Microsoft Windows 2000 Professional

Installing the Bluetooth software suite

Follow these directions to install the Bluetooth software suite for the operating system on your computer.

Note: If you have an older version of the Bluetooth Software Suite on your computer, it must be uninstalled before continuting. For more information, see "Uninstalling the application software" on page 1-5.

Windows 95 OSR/2

1. Insert the Bluetooth software CD-ROM into the CD-ROM drive. In most cases, the software will begin the installation process without intervention. If this is not the case, do the following:

   a. Click **Start**, then click **Run**, and then click **Browse**.

b. Click the icon that corresponds with your CD-ROM drive.
c. Select **Setup**, then click **OK**. The **Run** windows opens.
d. Click **OK**.

2. Click **Yes** to restart your computer.

3. Select **Yes, I want to restart my computer now**, then click **Finish**. Your computer will restart.

4. The **Choose Setup Language** window opens. Click the file of the language you want.

5. Follow the instructions on your screen. At the end of the process, indicate that you want to restart your computer again. The software installation is complete.

Windows 98, Windows 98 SE, Windows Me, or Windows 2000

1. Insert the Bluetooth software CD-ROM into the CD-ROM drive. In most cases, the software will begin the installation process without intervention. If this is not the case, do the following:

a. Click **Start**, then click **Run**, and then click **Browse**.
b. Click the icon that corresponds with your CD-ROM drive.
c. Select **Setup**, then click **OK**. The **Run** windows opens.
d. Click **OK**.

2. The **Choose Setup Language** window opens. Click the file of the language you want.

3. Follow the instructions on your screen. At the end of the process, indicate that you want to restart your computer again. The software installation is complete.

Installing the Bluetooth device driver

Follow these instructions to install the Bluetooth device driver for the operating system on your computer.

Note: Install the Bluetooth Software Suite before installing the Bluetooth device drivers.

Note: Remove or disable any card-management software before installing the Bluetooth device driver. If you need the card-management software to remain on your computer, refer to the card-management software help for the device driver installation process.

Windows 95 OSR/2

1. Insert the PC Card into either of the PC Card slots (PCMCIA slots) on your computer. The **Insert Disk** window will appear.

2. Insert the Bluetooth CD-ROM into the CD-ROM drive, then click **OK**.

3. Click **Browse** , then click the icon that corresponds to your CD-ROM drive.

4. Double-click the **Drivers** folder.

5. Double-click the **Win9x** folder, then select **dgahci.vxd**.

6. Click **OK**.

7. Click **OK**.

8. Click **Next**, then click **Finish**.

   Note: If the **Version Conflict** window appears, continue with steps 9 and 10. Otherwise, the device driver installation is complete.

9. Click **Yes**.

10. Click **No**.

The device driver installation is complete.

Windows 98, Windows 98 SE, or Windows Me

1. Insert the PC Card into either of the PC Card slots (PCMCIA slots) on your computer. The **Insert Disk** window will appear.

   Note: If you are prompted for the location of a driver, select the appropriate subdirectory on the CD-ROM drive. The driver subdirectories are located in the **/DRIVERS** directory.

2. Follow the instructions on your screen.

3. If the **DHCP Client** window appears, then click **No**.

4. Once the driver is installed, click **Finish**.

5. Click **Yes** to restart your computer.

After your computer restarts, the device driver installation is complete.

Windows 2000

1. Insert the PC Card into either of the PC Card slots (PCMCIA slots) on your computer. The Insert Disk window will appear.

   Note: Windows will install four separate device drivers. If you are prompted for the location of a driver, select the appropriate subdirectory on the CD-ROM drive. The driver subdirectories are located in the **/DRIVERS** directory.

2. The **Found New Hardware Wizard** window opens for the Bluetooth PC Card. Follow the instructions on your screen.

3. The **Found New Hardware Wizard** window opens for the Bluetooth Ethernet Adapter. Follow the instructions on your screen.

4. The **Found New Hardware Wizard** window opens for the Bluetooth RF COMM Protocol. Follow the instructions on your screen.

5. The **Found New Hardware Wizard** window opens for the Bluetooth SCP Protocol. Follow the instructions on your screen.

6. When the last device driver has completed installation, click **Start**, then click **Shut Down**.

7. Click **Restart**, then click **OK** to restart your computer.

After your computer restarts, the device driver installation is complete

Creating network profiles

During the installation of the application software, the Network Manager Wizard creates two network profiles on your computer. One of these profiles saves your current network settings; the other is used for Bluetooth ad hoc networking. For more information on Bluetooth networking, refer to the *User's guide* on page 2-1.

When the installation of the application software is complete, restart your computer to activate the Bluetooth Software Suite.

Uninstalling the application software

When the installation program installs the device drivers, it looks for older versions of the Bluetooth Software Suite that might be on your computer. If an older version of the Bluetooth Software Suite is installed on your computer, you must uninstall it before you can complete the installation of the the new application software. You can uninstall the old software manually or automatically.

Manually uninstalling the application software

To uninstall the older Bluetooth Software Suite manually, do the following:

1. When you are prompted to select the method of uninstallation, select manual uninstallation.

2. Close all programs.

3. Click **Start** → **Programs** → **Bluetooth Software Suite V**.

4. Click **Uninstall**.

5. Click **Bluetooth Software Suite**.

6. Follow the on-screen instructions to complete the uninstallation process.

Automatically uninstalling the application software

To uninstall the older Bluetooth Software Suite automatically, select that option when you are prompted to select the method of uninstallation.

When you have uninstalled the previous version of the Bluetooth Software Suite, you can continue with the installation of the application software; then continue with the PC Card installation procedure.

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インストール ガイド

この項では、Bluetooth ^{TM} IBM 製 PC カード® および Bluetooth Software Suite のインストールと操作について、簡単に説明します。さらに詳しい説明について は、「ユーザーズ ガイド」の 2-1 ページを参照してください。

Note: Bluetooth ソフトウェア スイートの解説用文書は、PDF 形式でも提供され ています。これらの付属文書を参照するには、Adobe® Acrobat® Reader が 必要です。Adobe Acrobat Reader がコンピュータにインストールされてい ない場合は、以下の手順で CD-ROM からインストールできます。

   1. **[スタート]** ボタンをクリックします。

   2. **[ファイル名を指定して実行]** をクリックします。

   3. X:¥Acrobat¥ar405eng.exe と入力します。X は CD-ROM ドライブの ドライブ文字です。

   4. 画面上の指示に従います。

製品概要

Bluetooth ワイヤレス テクノロジによって、デスクトップ コンピュータ、プリン タ、ローカル エリア ネットワーク (LAN) などのデバイス間でのケーブル接続を 不要になります。また、コンパクトなスペースでの高速で信頼性の高い安全なワ イヤレス通信を提供し、デスクトップ コンピュータや携帯電話などのデバイス 間で同期を取ることを可能にします。
Bluetooth ワイヤレス テクノロジには以下のような特徴があります。

* **世界中で使用可能**：Bluetooth 無線送信機と受信機は 2.45 GHz 帯で動作しま す。これは免許不要の帯域で、(フランスを除く) 世界中のすべての無線シ ステムと互換性があります。

* **リンクの確立**：複数のデバイス間のリンクをほぼ瞬時に確立することが可能 です。デバイスが監視域の外にある場合でもリンクは保持されます。

* **安定したリンク**：通常の状況下で、接続は同一周波数帯で動作している他の 無線信号からの干渉を受けることはありません。

* **データ認識と音声認識**：Bluetooth ワイヤレス テクノロジでは、データ通信 または音声通信を同時にまた別々に行うことが可能になります。

* **セキュリティ**：高度なセキュリティ機構が 2 系統備えられており、高いレベ ルでのセキュリティが実現できます。

   — **認証**が行われるため、重要データへのアクセスは拒絶されます。また メッセージの発信元を偽造することも不可能です。

   — 盗聴の防止とリンクのプライバシー確保のために、**暗号化方式**を採用し ています。

オプション パッケージには、このガイド以外に以下のものが含まれています。

* *IBM 製 Bluetooth PC カード* CD
* Bluetooth PC カード

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これらの製品が含まれていない場合や破損している場合は、販売店にご連絡ください。

操作を始める前に

Bluetooth PC カードのインストールや使用を始める前に、本マニュアル中で使用されている以下の用語をご確認ください。

- **認証**：重要データへのアクセスを拒絶したり、またメッセージの発信元の偽造を不可能にするセキュリティ機構。

- **デバイス アドレス**：Bluetooth デバイスのユニークなアドレス。

- **デバイス検出**：リンクを確立する前に、Bluetooth デバイスは通信可能範囲内でアクティブになっている他方の Bluetooth 機器を「検出」すなわち認識する必要があります。

- **デバイス名**：Bluetooth 機器自身が持つ名称で、他のデバイスに認証情報を送信するときに使用されます。

- **マスタ デバイス**：接続を開始するデバイス。接続中は **Piconet** 中のすべてのトラフィックをコントロールします。

- **Park モード :** 低消費電力で経済的な、スタンバイ「サブ モード」。**Park モード**では、**スレーブ デバイス**は **Piconet** 上でアクティブにはなりませんが、同期が取れた状態になっています。**Park モード**は**マスタ デバイス**に接続する**スレーブ デバイス**の数を増やすために使用されます。

- **Piconet**：複数の Bluetooth デバイスによって形成されるワイヤレス ネットワーク。

- **プロファイル**：Bluetooth デバイスを効率化するアプリケーション。ある Bluetooth 対応機器が他の機器と情報のやりとりをおこなう場合、その 2 つの機器には共有**プロファイル**がなくてはなりません。

- **スレーブ デバイス**：他のデバイス (**マスタ デバイス**) によってコントロールされている **Piconet** 上のデバイス。

システム要件

Bluetooth Software Suite は以下のオペレーティング システムで動作します。

- Microsoft® Windows® 95 OSR/2
- Microsoft Windows 98
- Microsoft Windows Millennium Edition (Me)
- Microsoft Windows 2000 Professional

Bluetooth Software Suite のインストール

以下の指示に従って、ご使用のコンピュータ上のオペレーティング システム用の Bluetooth Software Suite をインストールします。

Windows 95 OSR/2

1. Bluetooth ソフトウェア CD-ROM を CD-ROM ドライブに挿入します。通常、ソフトウェアは問題なくインストール作業を開始します。インストールが開始されない場合は、以下の指示に従ってください。

   a. **[スタート]** をクリックし、次に **[ファイル名を指定して実行]** をクリックし、さらに **[参照]** をクリックします。
   b. ご使用の CD-ROM ドライブに相当するアイコンをクリックします。
   c. **[Setup]** を選択し、**[OK]** をクリックします。**[実行]** ウィンドウが開きます。
   d. [OK] **をクリックします。**

2. **[はい]** をクリックし、コンピュータを再起動します。

3. **[はい、ここでコンピュータを再起動します]** を選択し **[完了]** をクリックします。コンピュータが再起動します。

4. **[Choose Setup Language]** ウィンドウが開きます。希望の言語のファイルをクリックします。

5. 画面上の指示に従います。作業の最後に、コンピュータを再起動するかどうかの表示が再び現れます。ソフトウェアのインストールはこれで完了です。

Windows 98, Windows 98 SE、Windows Me、Windows 2000

1. Bluetooth ソフトウェア CD-ROM を CD-ROM ドライブに挿入します。通常、ソフトウェアは問題なくインストール作業を開始します。インストールが開始されない場合は、以下の指示に従ってください。

   a. **[スタート]** をクリックし、次に **[ファイル名を指定して実行]** をクリックし、さらに **[参照]** をクリックします。
   b. ご使用の CD-ROM ドライブに相当するアイコンをクリックします。
   c. **[Setup]** を選択し、**[OK]** をクリックします。**[実行]** ウィンドウが開きます。
   d. [OK] **をクリックします。**

2. **[Choose Setup Language]** ウィンドウが開きます。希望の言語のファイルをクリックします。

3. 画面上の指示にいます。作業の最後に、コンピュータを再起動するかどうかの表示が再び現れます。ソフトウェアのインストールはこれで完了です。

Bluetooth デバイス ドライバのインストール

以下の指示に従って、ご使用のコンピュータ上のオペレーティング システム用の Bluetooth デバイス ドライバをインストールします。

Note: BlueTooth デバイス ドライバをインストールする前に、BlueTooth Software Suite をインストールします。

Note: BlueTooth デバイス ドライバをインストールする前には、すべてのカード管理ソフトウェアをアンインストールするか、無効化してください。カード管理ソフトウェアをコンピュータ上に残しておく必要がある場合には、デバイス ドライバのインストールの際に、カード管理ソフトウェアのヘルプを参照してください。

Windows 95 OSR/2

1. PC カードをコンピュータの PC カード スロット (PCMCIA スロット) のどちらかに挿入します。**[ディスクの挿入]** ウィンドウが開きます。

2. Bluetooth CD-ROM を CD-ROM ドライブに挿入し、**[OK]** をクリックします。

3. **[参照]** をクリックし、ご使用の CD-ROM ドライブに相当するアイコンをクリックします。

4. **[ドライバ]** フォルダをダブル クリックします。

5. **[Win9x]** フォルダをダブル クリックし、**[dgahci vxd]** を選択します。

6. **[OK]** をクリックします。

7. **[OK]** をクリックします。

8. **[次へ]** をクリックした後、**[完了]** をクリックします。

   Note: **[Version Conflict]** ウィンドウが表示された場合は、ステップ 9 とステップ 10 に進んでください。それ以外の場合は、デバイス ドライバのインストールはこれで完了です。

9. **[はい]** をクリックします。

10. **[いいえ]** をクリックします。
デバイス ドライバのインストールはこれで完了です。

Windows 98、Windows 98 SE、Windows Me

1. PC カードをコンピュータの PC カード スロット (PCMCIA スロット) に挿入します。**[ディスクの挿入]** ウィンドウが開きます。

   Note: ドライバの場所を指定するよう求められた場合は、CD-ROM ドライブ上の適切なサブディレクトリを選択します。ドライバのサブディレクトリは、**/DRIVERS** ディレクトリに存在します。

2. 画面上の指示に従ってください。

3. **[DHCP クライアント]** ウィンドウが表示された場合は、**[いいえ]** をクリックしてください。

4. ドライバのインストールが終わりましたら、**[完了]** をクリックします。

5. **[はい]** をクリックし、コンピュータを再起動します。
コンピュータが再起動したら、デバイス ドライバのインストールはこれで完了
です。

Windows 2000

1. PC カードをコンピュータの PC カード スロット (PCMCIA スロット) にセッ
    トしてください。[ディスクの挿入] ウィンドウが開きます。

    Note: Windows は 4 種の異なったデバイス ドライバをインストールしま
             す。ドライバの場所を指定するよう求められた場合は、CD-ROM ド
             ライブ上の適切なサブディレクトリを選択します。ドライバのサブ
             ディレクトリは、**/DRIVERS** ディレクトリに存在します。

2. **[Found New Hardware Wizard]** ウィンドウが Bluetooth PC カード用に表示
    されます。画面上の指示に従ってください。

3. **[Found New Hardware Wizard]** ウィンドウが Bluetooth イーサネット アダ
    プタ用に表示されます。画面上の指示に従います。

4. **[Found New Hardware Wizard]** ウィンドウが Bluetooth RF COMM プロト
    コル用に表示されます。画面上の指示に従います。

5. **[Found New Hardware Wizard]** ウィンドウが Bluetooth SCP プロトコル用
    に表示されます。画面上の指示に従います。

6. 最後のデバイス ドライバのインストールが完了したら、**[スタート]** をク
    リックし、**[Windows の終了]** をクリックします。

7. **[再起動する]** をクリックし、**[OK]** をクリックしてコンピュータを再起動し
    ます。
コンピュータが再起動したら、デバイス ドライバのインストールは完了です。

ネットワーク プロファイルの作成

アプリケーション ソフトウェアのインストール時、ネットワーク マネージャ
ウィザードはコンピュータ上に、2 つのネットワーク プロファイルを作成しま
す。これらのプロファイルのうち 1 つは、現在のネットワーク設定を保存したプ
ロファイルを保存したもので、もう 1 つは、Bluetooth アドホック ネットワーク
に使用されるものです。Bluetooth ネットワークのさらに詳しい説明について
は、「ユーザーズ ガイド」の 2-1 ページを参照してください。
アプリケーション ソフトウェアのインストールが完了したら、コンピュータを
再起動し、Bluetooth Software Suite を有効にします。

アプリケーション ソフトウェアのアンインストール

デバイス ドライバのインストール時に、インストール プログラムはコンピュータ上に存在する可能性のある旧バージョンの Bluetooth ソフトウェア スイートを探します。旧バージョンの Bluetooth Software Suite がコンピュータにインストールされている場合、新しいアプリケーション ソフトウェアのインストールを完了する前に、旧バージョンをアンインストールしなければなりません。旧バージョンのソフトウェアは、手動でも自動でもアンインストールできます。

アプリケーション ソフトウェアの手動アンインストール

以下の手順で、旧バージョンの Bluetooth ソフトウェア スイートを手動でアンインストールします。

1. アンインストールの方法を選択するよう求められたら、手動アンインストールを選択します。

2. すべてのプログラムを閉じます。

3. **[スタート]** → **[プログラム]** → **[Bluetooth Software Suite v...]** をクリックします。

4. **[アンインストール]** をクリックします。

5. **[Bluetooth Software Suite]** をクリックします。

6. 画面の指示に従って、アンインストール作業を完了します。

アプリケーション ソフトウェアの自動アンインストール

アンインストールの方法を選択するよう求められた際に、自動アンインストールのオプションを選択して、旧バージョンの Bluetooth Software Suite を自動でアンインストールします。
以前のバージョンの Bluetooth Software Suite がアンインストールされていない場合は、新しいアプリケーション ソフトウェアをインストールし、その後で PC カードをインストールすることができます。

User's guide

This *User's guide* provides product and software descriptions, installation instructions, and user's information for the Bluetooth™ Software Suite. If you need basic information on Bluetooth wireless technology, see the *Installation guide* on page 1-1. Both the *Installation guide* and this *User's guide* are included on the *Bluetooth Software Suite* CD. These two documents are available from the Windows Start menu when you have the Bluetooth Software Suite.

Product description

With the Bluetooth Software Suite, you can establish wireless links between your computer and other Bluetooth wireless devices. Without using an inch of cable, you can do the following:

• Transfer sound files, objects, and other files

• Access the Internet by means of dial-up networking

• Connect to local area networks

• Send fax messages, using the fax software on your computer

• Establish Bluetooth ad hoc networks consisting of two or more Bluetooth-enabled devices

• Connect to serial devices (legacy applications)

The Bluetooth Neighborhood is an equivalent to the Microsoft® Network Neighborhood. The Microsoft Network Neighborhood is an ordinary network, while the Bluetooth Neighborhood is a wireless network of the Bluetooth devices within range.

The basic functions of the Bluetooth Neighborhood include three steps:

• Carrying out device discovery. For example: finding out which remote Bluetooth devices are available within your range

• Carrying out service discovery. For example: finding out which services (applications) a remote device facilitates

• Establishing links to remote devices

© Copyright IBM Corp. 2000   **2-1**

The Bluetooth Neighborhood window
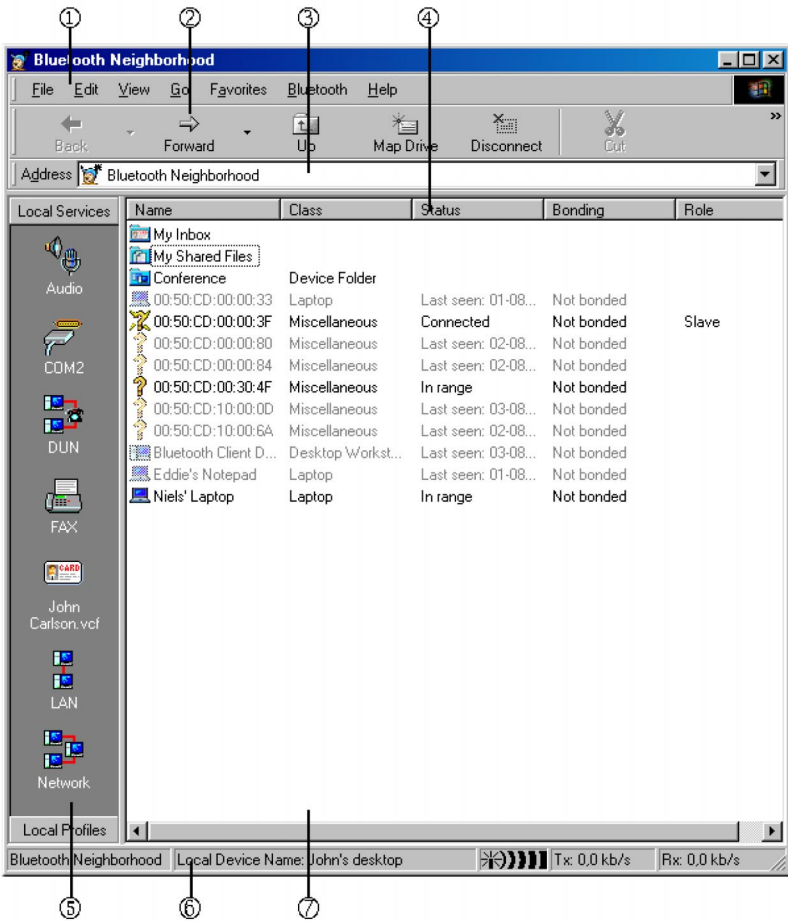
To open the Bluetooth Neighborhood, double-click the shortcut placed on your desktop during installation.

The Bluetooth Neighborhood window displays the following:

1. Menu bar: Contains standard Microsoft Windows® pull-down menus and a Bluetooth menu. 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: Displays which item is currently selected. From this bar, you can also browse in Windows Explorer.

4. View details: Displays various information on the items in the list-view. For more information, see "View details" on page 2-12.

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

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

7. List-view: Displays the contents of the folder, remote device, etc. currently selected (see "List-view" on page 2-5).

The setup of the Bluetooth Neighborhood window depends on your Windows Explorer setup. The above list does not describe all of the standard Windows components that can be added.

Profiles and services

All Bluetooth devices have at least one profile, that is, an application with which you can use the device.

When two devices are to communicate with each other, they must have a shared profile. If, for example, 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, below.
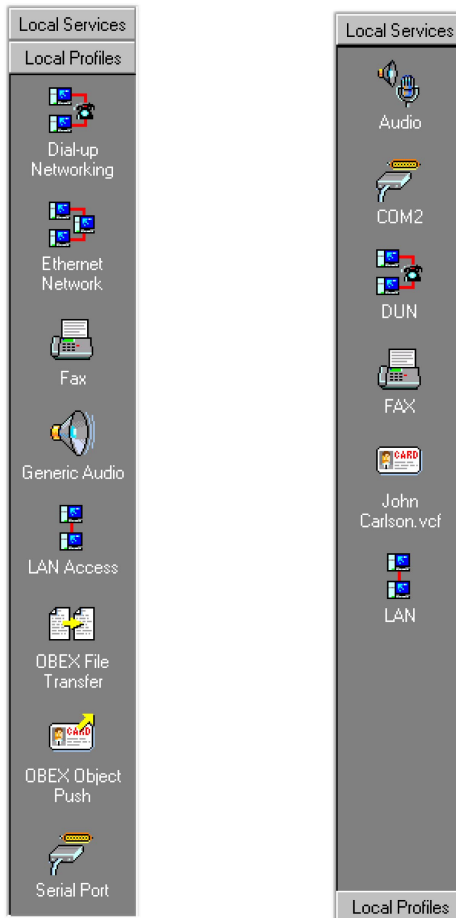
Although the function of the Local Profiles bar is to display the profiles your device supports, the Local Services bar shows what you will actually use when operating the Bluetooth Neighborhood. Facilitated by a profile, each of the services represents a specific operation that your device can carry out. An example of a service is audio, or sound transfer, which is facilitated by the Generic Audio profile. Sound transfer can take place between your computer and other Bluetooth devices that support the Generic Audio profile.

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

Note: For a complete list of the profiles that your Bluetooth device supports, including which services each profile facilitates, see Appendix A, "Profiles" on page A-1.

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, such as My Inbox or a remote device, the list-view displays the contents of that item.

My Inbox

This is where your device receives objects like electronic business cards, messages, and notes. My Inbox is a folder of files like any other Windows folder, and its contents can be copied, renamed, and dragged and dropped. (For more information, see "Receiving objects" on page 2-23.)

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, they 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 authorized – delete files (see "File transfer settings" on page 2-42 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 "File transfer" on page 2-26.

Remote devices or services

The devices shown in the main window list-view are the remote Bluetooth devices that your device has detected during device discovery. The icons show what kind of device each remote device is (device class), such as "desktop computer" or "server-class computer", as shown in the illustration below.

Desktop computer

Server-class computer

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 show the services facilitated by the remote device in question. Each service is represented by an icon.

The icons will also indicate whether the devices are "linked," "bonded," or both.

Linked   **Bonded**   **Both**

The icons also indicate whether a remote device is in range or out of range.

In range   **Out of range**

Appendix B, "List view icons" on page B-1 contains a complete list of the various remote device and service icons.

The list-view settings can be changed as in other Windows list-view settings; you can for instance change the size of the icons or have the elements displayed as a list. For Bluetooth Software Suite settings information, see "View details" on page 2-12.

Naming your local device

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

1. Click **Bluetooth**, then click **Bluetooth Neighborhood Properties**.
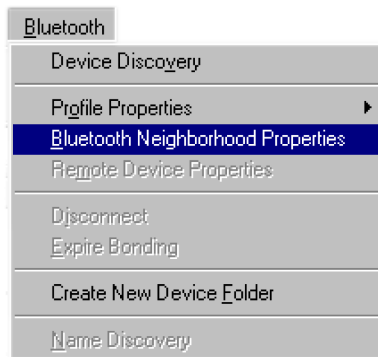
The Bluetooth Neighborhood Properties window opens.

2. Click the **Settings** tab.

Bluetooth Neighborhood Properties

General | Settings | Device Discovery | Trust | Security | Bonding |

Bluetooth Device Name

The Bluetooth Device Name is used by the local Bluetooth Device to identify itself towards remote devices performing e.g. a Device Discovery.

Bluetooth Device Name: [   ]

Bluetooth Device Class

The Bluetooth Device Class is a parameter used by remote devices to identify what class of device the local device is.

Bluetooth Device Class: [▼]

[OK]   [Cancel]   [Apply]   [Help]

3. In the **Bluetooth Device Name** field, type the name you want your device to present when detected by devices; then click **OK**.

Bluetooth Device Name: [Adam]

Other Bluetooth devices that detect your device now see it as the name you have set.

Device discovery

Before your local device can communicate with a remote Bluetooth device, it must discover the remote devices that are available and within range. This is called device discovery. To perform device discovery, do the following:

1. Click **Bluetooth**, then click **Device Discovery**.

Bluetooth

Device Discovery

Profile Properties   ▶
Bluetooth Neighborhood Properties
Remote Device Properties

Disconnect
Expire Bonding

Create New Device Folder

Name Discovery

While your device is looking for remote devices, a window opens, displaying the progress of the device discovery.
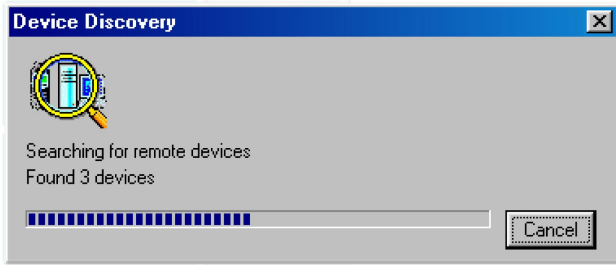
2. When device discovery is finished, the list-view displays the remote devices within range that are currently available. You can also see previously discovered devices that are no longer available.
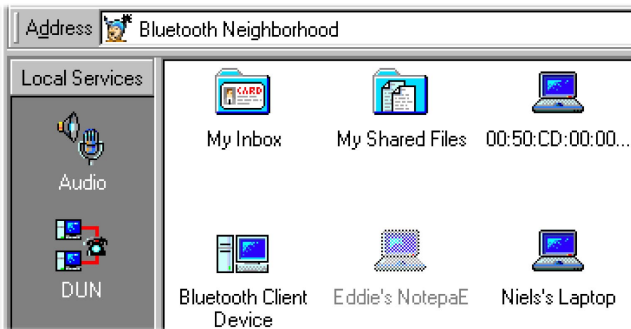
Note: The main window list-view does not show your local device, only the discovered remote ones.

There are alternative ways of performing device discovery:

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

Service discovery

Before trying to establish a link to a remote device, perform service discovery to determine what services the device facilitates. To perform service discovery, select **list**-**view** in the Bluetooth Neighborhood window; then double-click the remote device that you want to discover services for.

Bluetooth Client
Device

When the service discovery has been performed, the list-view displays the services that the remote device supports.
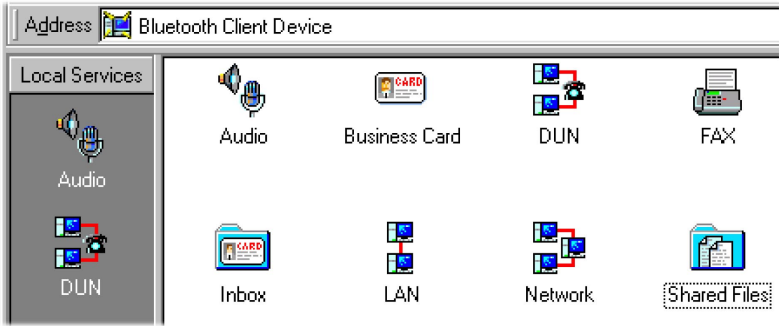
In some situations, it might not be possible to carry out service discovery. There could be a number of reasons for this. For example, the remote user might have set up his device to reject link establishment attempts (see "The Trust tab" on page 2-51). If service discovery (or any other activity) is not carried out successfully, a window opens explaining what went wrong.

Link establishment

When you have performed service discovery, you can establish a link to the remote device. You can use any service that both your device and the remote device support. To establish a link, drag the local service to the corresponding remote service. For example, you can drag your local dial-up networking (DUN) link to the remote DUN service. If the remote device is a computer with access to a modem, you can access the Internet remotely.
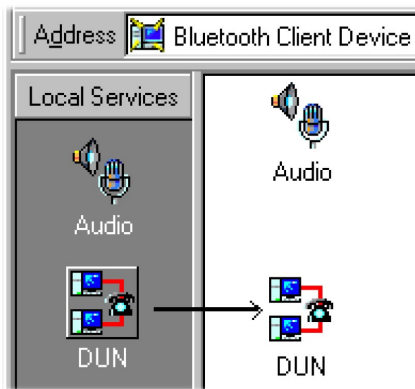
Note: If you know in advance that a remote device supports a particular service, you can skip service discovery. Just drag the local service to the remote device.

2-10 Bluetooth PC Card from IBM: Installation and User's Guide
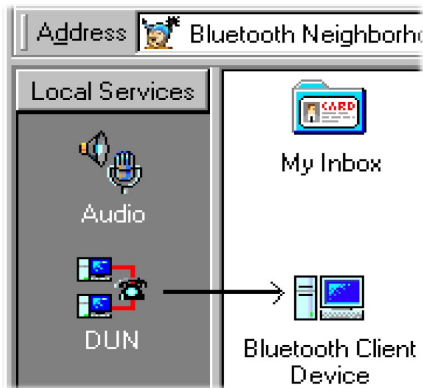
In some situations, it might not be possible to carry out link establishment. There could be a number of reasons for this. For example, the remote user might have set up his device to reject link establishment attempts (see "The Trust tab" on page 2-51). If link establishment (or any other activity) is not carried out successfully, a window opens explaining what went wrong.

Disconnecting a link establishment

To disconnect an established link to a remote device, do the following:

1. Select the remote device or service that you want your device to disconnect from.
2. Click **Bluetooth**, then click **Disconnect**.
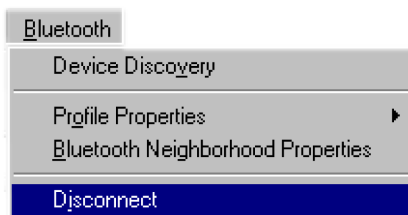
You can also double-click the remote service that your local device is connected to. The link will be disconnected.

Status information

The Bluetooth Neighborhood status bar provides you with information on the item currently selected in the Bluetooth Neighborhood, such as the name of a remote device ("Brent Smith") or "My Inbox". Also, message boxes keep you informed of the progress of any activity, and inform you if anything goes wrong.
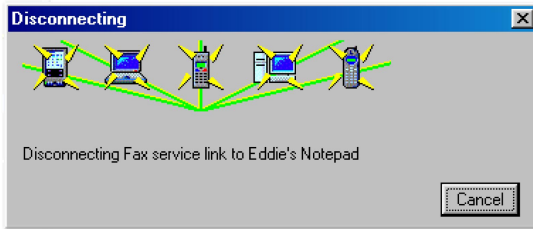
View details

In the Bluetooth window, you can change the settings of the list-view. For example, you can change the settings to view details. To view details, do the following:

1. On the menu bar, click **View**.
2. Click **Details**.
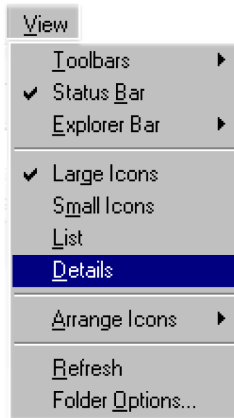
You can also click the **View** icon on the tool bar the appropriate number of times until the details are displayed.

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.

Remote device details

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 the device to present when discovered by other devices.

- Class: The type of the remote device (device class), such as a desktop computer, a notebook computer, or a mobile phone.

- Status: Whether the remote device is within range.

- Bonding: Whether your local device and the remote one have bonded. See "The Bonding tab" on page 2-54.

- Role: Displays if the remote device is the master device or a slave device in the piconet.

Remote services details

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

Name	Class	Status	Bonding	Role
My Inbox				
My Shared Files				
00:50:CD:00:0...	Laptop	Last seen: 01-08...	Not bonded	
00:50:CD:00:3...	Miscellaneous	In range	Not bonded	
Bluetooth Clie...	Desktop Workst...	In range	Not bonded	
Eddie's Notepad	Laptop	In range	Not bonded	
Niels's Laptop	Laptop	In range	Not bonded	

- 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, compatibility between the two devices is possible.

- Status: Whether the remote service is connected to your device.

My Inbox and My Shared Files details

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	Description	Status
Audio	Generic Audio	Not connected
Business Card	OBEX Object Pu...	
DUN	DUN Access	Not connected
FAX	Fax Access	Not connected
Inbox	OBEX Object Pu...	
LAN	LAN Access	Not connected
Network	Ethernet Network	Not connected
Shared Files	OBEX File Trans...	

Name	Size	Type	Modified
Hello_mate.msg	10KB	Outlook Item	26-05-2000 09:15

- 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".
- Modified: The date when the object or file was last saved.

Device folders

In the Bluetooth Neighborhood main list-view, you can create device folders, which are folders containing a number of remote devices. You can communicate with a device folder the same way you can communicate with any single remote device. When doing so, you are 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, or to establish multiple audio links to be used for conferencing.

To create a device folder, do the following:

1. Open the Bluetooth Neighborhood main window.

2. Click **Bluetooth**, then click **Create New Device Folder**. A new folder is displayed 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. To move more than one remote device at the same time, hold down the CTRL key, click each remote device; then drag the selected remote devices to the folder.
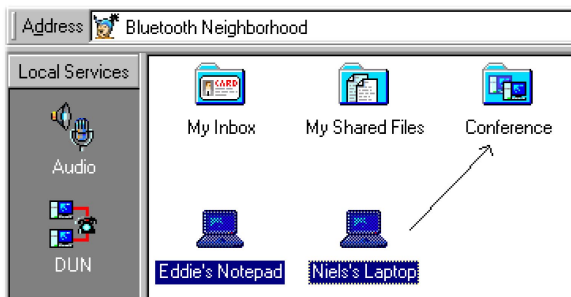
You can create as many device folders as you like, and you can include as many devices in each folder as you like.

Communicating with a device folder is done in exactly the same way as with a single remote device.
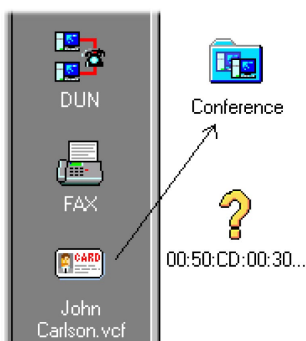
Online help

You can open the Bluetooth Software Suite online help by clicking the **Help** in the menu bar, or by pressing F1. Help provides you with links to the online version of this *User's guide*. The design of the Help function is similar to the Windows Help.
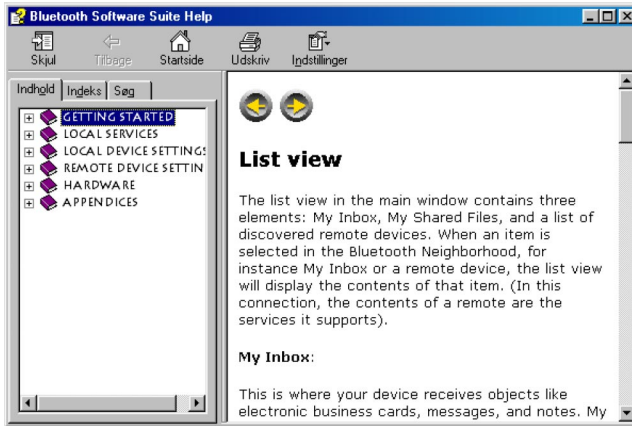
Each tab helps you locate information in a different way. To locate topics, click the **Contents** tab; to look up keywords, click the **Index** tab; and to search for text, click the **Search** tab.

Local services

This section provides information on the local services you can use with Bluetooth wireless technology.

Object transfer

In the Bluetooth Neighborhood, you can transfer such objects as business cards, e-mail messages, and notes. If the Microsoft Outlook® application 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 cards available

Before your business card can be transferred to a remote device, it must be included as a service on your Local Services bar. This will enable remote users to "pull" your business card, that is, transfer your business card to their devices. You can also "push" your business card, that is, transfer the card to remote devices. Pulling and pushing can take place in the same operation, called "exchanging". This can be done by both you and a remote user.

If you have Microsoft Outlook, you can create a business card in Contacts, and then drag it into the Bluetooth Neighborhood. If you do not have Microsoft Outlook, you can use the Object Editor.

Exchanging business cards from Microsoft Outlook: To exchange business cards from Microsoft Outlook, do the following:
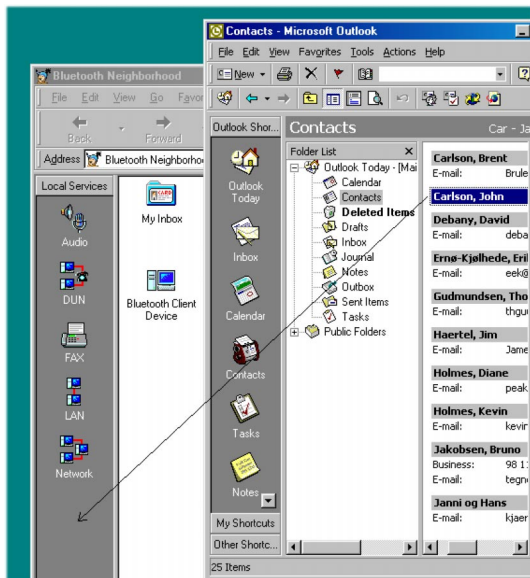
1. Open both the Bluetooth Neighborhood and Microsoft Outlook.

2. Arrange the Bluetooth Neighborhood and Microsoft Outlook Contacts windows so that both are visible on the screen.
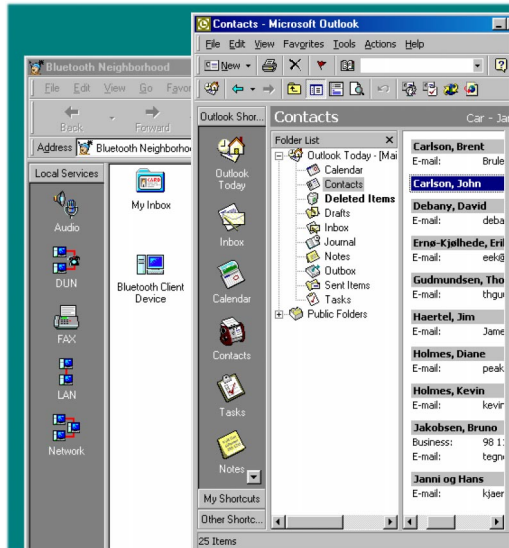
3. Drag the item containing your own contact information into the Local Services bar.

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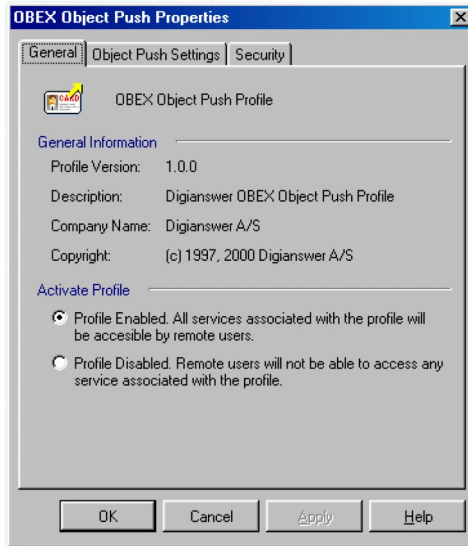

Exchanging business cards from the Object Editor: If your computer does not have Microsoft Outlook, you can exchange business cards from the Object Editor. To exchange from the Object Editor, do the following:
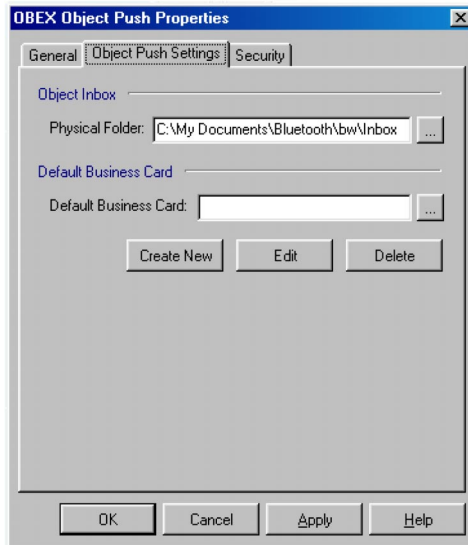
1. On the Bluetooth menu, point to Profile Properties, and then click **OBEX Object Push**.
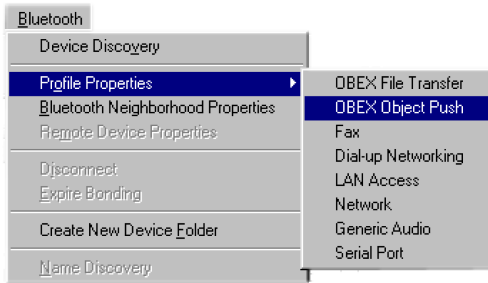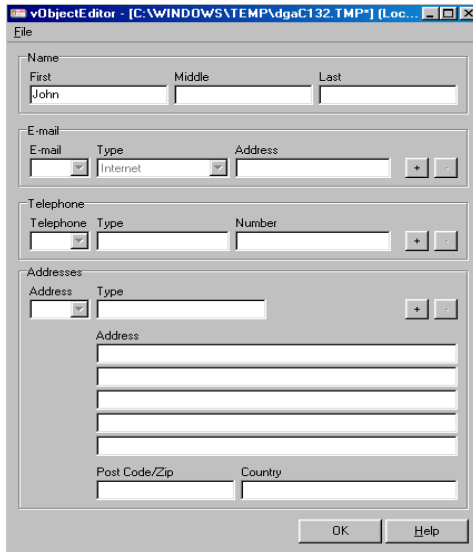

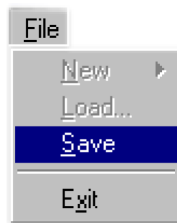The OBEX Object Push Properties window opens.

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

3. In the Default Business Card field, click **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, click **File**, then click **Save**.

6. Click **OK** to exit the Object Editor. The OBEX Object Push Properties window opens. 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 **...** .

7. Click **OK** to complete the creation of the new default business card.

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

To edit an existing business card, click **Edit** rather than **Create New** in step 3.

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 "Making default business cards available" on page 2-16.

To send your business card to a remote device, drag the card icon to the remote device or device folder.
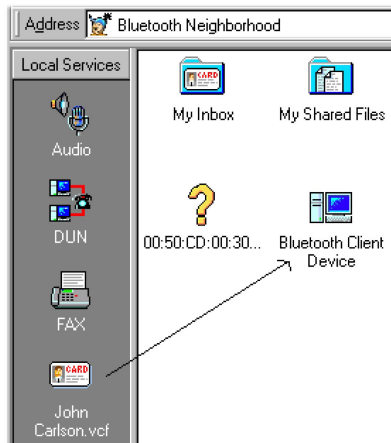
If the link is established successfully, the remote device will now receive your business card in its Bluetooth Neighborhood Inbox.

For the choice of sending, receiving, or exchanging business cards with another user, click the remote device once with your right mouse button; then select **Business Card**.

From the Business Card sub-menu, you can select from the following:

- **Push business card**: To transfer your business card
- **Pull business card**: To transfer a business card from a remote device
- **Exchange business cards**: To exchange business cards with a remote user

Sending business cards directly from Microsoft Outlook

Microsoft Outlook users can send objects (like messages or notes) directly from
Microsoft Outlook. To send objects directly from Microsoft Outlook, drag the
object from Outlook to the remote device (or device folder) in your Bluetooth
Neighborhood.
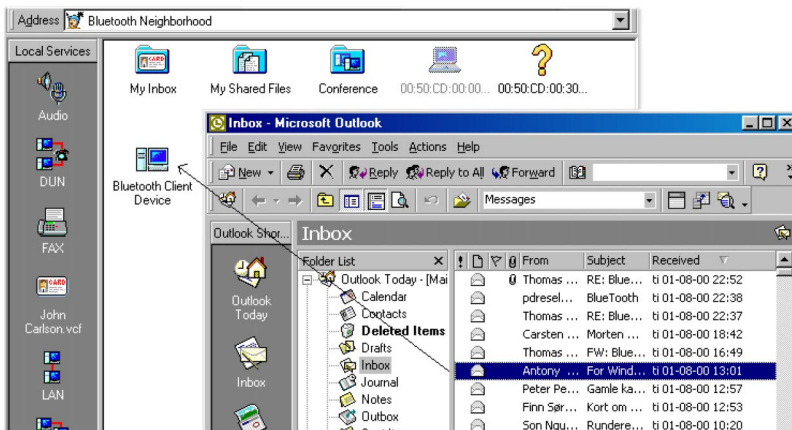
Receiving objects

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

- If you have Microsoft Outlook, the object opens in Microsoft Outlook when you double-click it.

- If you do not have Microsoft Outlook, the object opens in the Object Editor when you double-click it.

You can open a received object directly from My Inbox, or you can drag the object to wherever you want to store it.
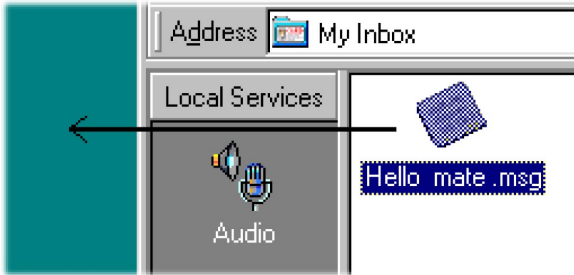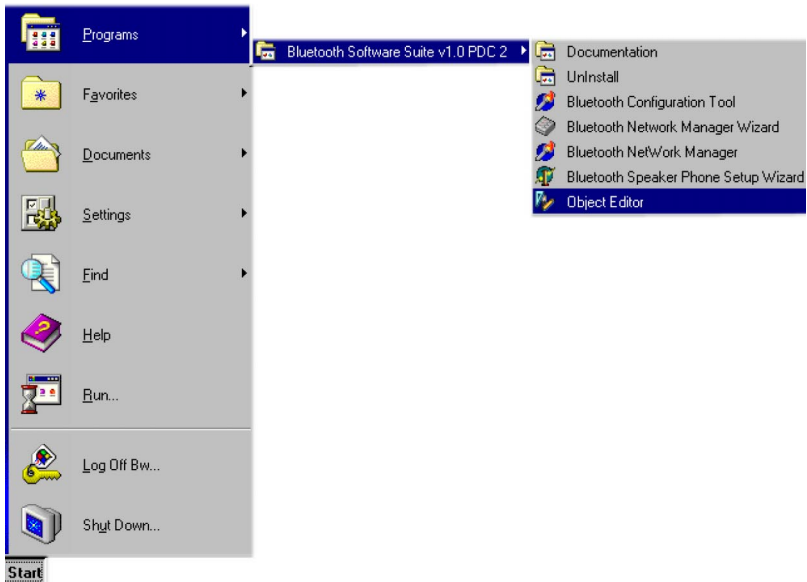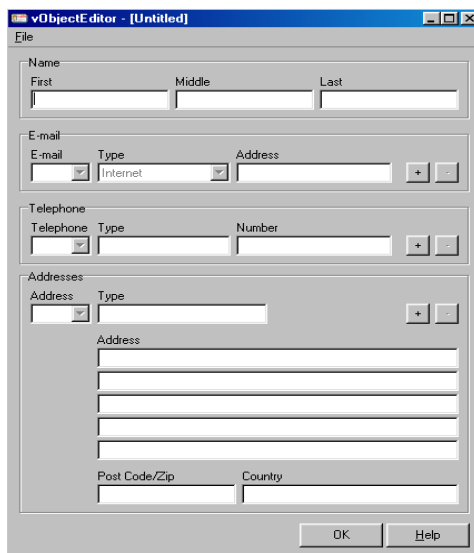

Creating objects in the Object Editor

Users who do not have Microsoft Outlook can use the Object Editor to create objects, such as messages, notes, and cards for sharing with Bluetooth-enabled devices. Objects created in the Object Editor are saved as files. You can then transfer these files as you would any file in the Bluetooth Neighborhood (see "File transfer" on page 2-26).

To open the Object Editor, do the following:

1. Click **Start**, then click**Programs**, and then click **Bluetooth Software Suite**.
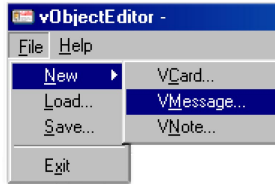2. Click **Object Editor**.

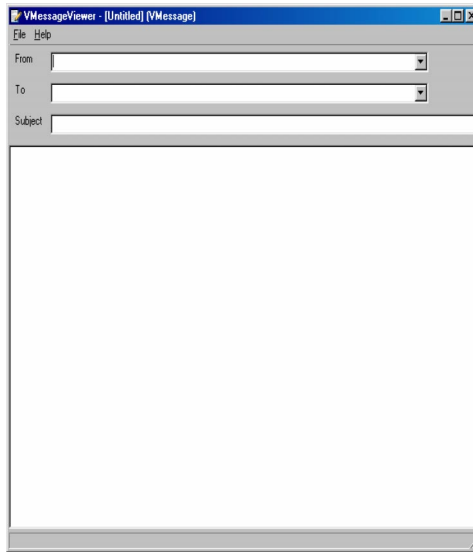The Object Editor window opens.

To create an object in the Object Editor, do the following:

1. Click **File**, then click **New**.

2. Click the object you want to create, such as a VMessage, VCard, or VNote.

   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, as shown in the following illustration.

3. Type the information you want to be included in the object.
4. Save the object.
   - If the object is a message or a note, click **File**, then click **Save As** in the window where you typed the message or note.
   - If the object is a card, click **File**, then click **Save** in the Object Editor.

   A new window opens, where you can select the folder where you want to save the object.
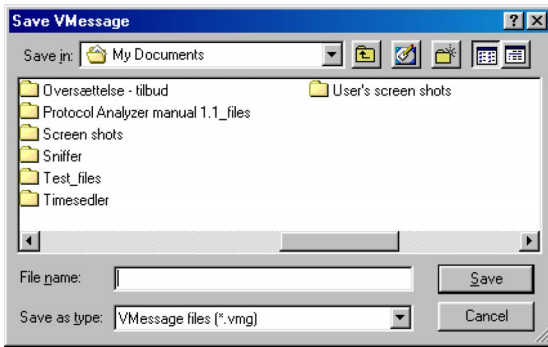
5. Select the location and name of the new file.

6. Click **Save**.

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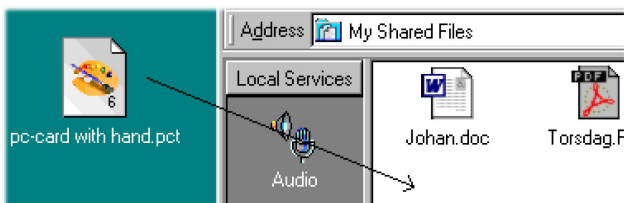
File transfer

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 performed service discovery on your device, that user can open your My Shared Files folder and the files in it. Furthermore, the user can add and delete files if authorized to do so (for information on the security aspects of My Shared Files, see "File transfer settings" on page 2-42).

If a remote device sends a file to your local device, it is received in the My Shared Files folder.

Making a file available in the My Shared Files folder

To place a file in the My Shared Files folder, drag the file from where it is stored to My Shared Files. You can also open the My Shared Files folder first, and then drag the file to the list-view displaying the contents of My Shared Files.

When a remote user opens your folder My Shared Files, they 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).
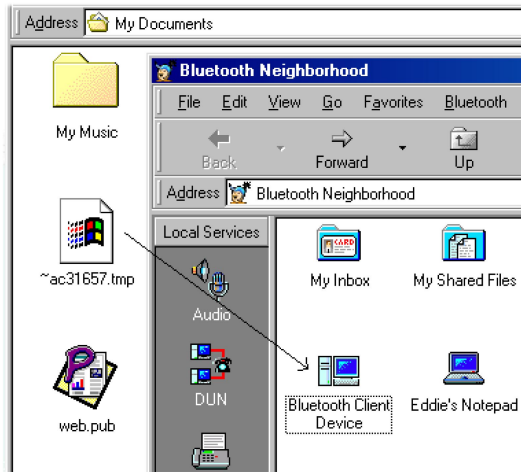
• Perform service discovery on the remote device; then drag the file from where it is stored into the remote Shared Files folder.
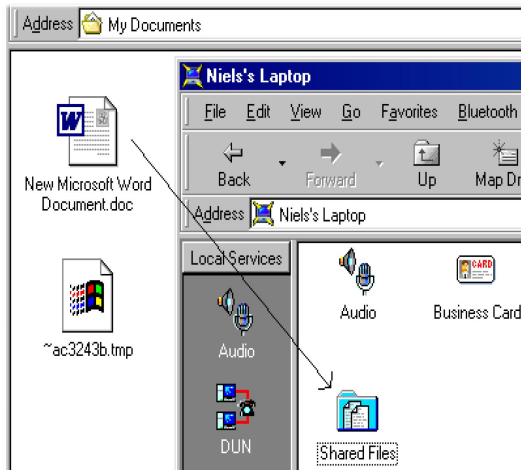
• Perform service discovery on the remote device; then open the remote Shared Files folder. Drag the file from where it is stored to the list-view displaying the contents of the remote Shared Files folder.

User's guide   **2-27**

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

Receiving files

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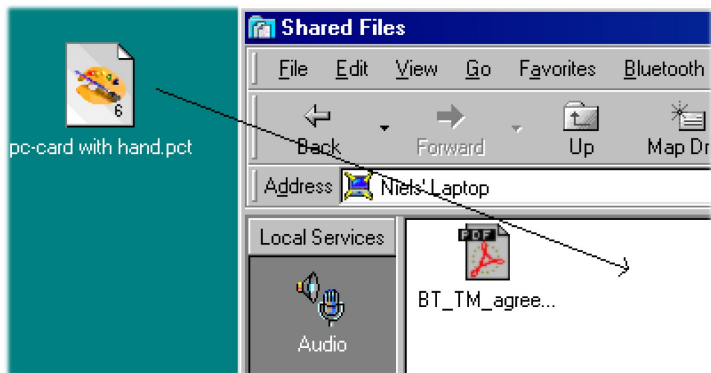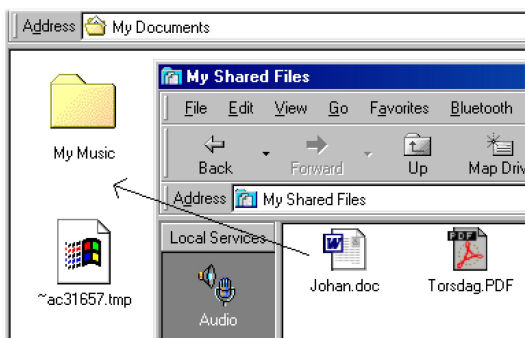

Transferring audio

An audio link makes it possible to transfer sound from one Bluetooth device to another. There are two ways of using an audio link:

•   Using your computer as a Bluetooth Audio Device: Connect a headset to your computer, establish an audio link to one or more remote devices; then use the computer like a 2-way radio. The sound coming from the headset over the Bluetooth link will be detected by the operating system as coming from a sound card. This also makes it possible to use the headset as input or output device in a Microsoft NetMeeting® Internet conference or for dictation software based on voice recognition.

- Using your computer as a Bluetooth Speaker Phone: Connect to a Bluetooth-enabled modem and make telephone calls, using the built-in microphone and speaker of the computer for the conversation.

Link establishment

There are two ways of establishing an audio link:

- Drag the local service **Audio** to a remote device (or device folder).
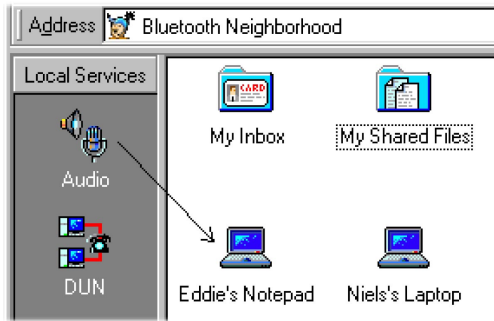
- Perform service discovery first, then drag the local service **Audio** to the remote service **Audio**.
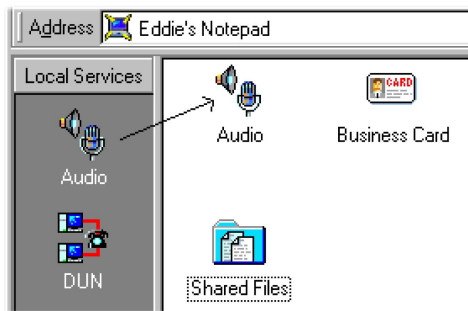
When the link establishment has been performed successfully, you can make use of either the audio device or speaker phone feature as described above.

PC speaker

The speaker phone feature involves using the PC speaker. This can be enabled or disabled from the Local Services bar.

1. Click the local or remote **Audio** service once with your right mouse button.

User's guide   **2-29**
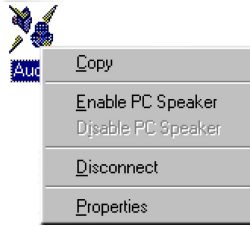
2. Click **enable** or **disable**.

   When the speaker is enabled, you can make use of the speaker phone feature. For more information on audio settings, see "Audio settings" on page 2-43.

Bluetooth COM ports

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 device (legacy application) that would otherwise have been connected using a cable and a physical COM port.

Because Bluetooth links are wireless, you do not need a 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 needed by your legacy application to establish a link to a remote device.

Note: Most users do not need Bluetooth COM ports at all; the default settings ensure that you can use all of 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)
- Serial port profile

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. For more information, see "Bluetooth COM port settings" on page 2-31.

New Bluetooth COM ports and compatibility

Some users might 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 to, for instance, use a serial application like HyperTerminal to transfer data between two Bluetooth-enabled computers.

2-30   Bluetooth PC Card from IBM: Installation and User's Guide

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 also have a Bluetooth COM port with the Serial Port associated with it.

For information on how you can add and remove Bluetooth COM ports and change the settings concerning which profiles are associated with which Bluetooth COM ports, see "Bluetooth COM port settings".

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 (see "Bluetooth COM ports" on page 2-30). These settings are made through the Bluetooth Configuration Tool.

To open the Bluetooth Configuration Tool, do the following:

1. Click **Start**, then click **Settings**, and then click **Control Panel**.
2. Double-click **Bluetooth Configuration Tool**.

   The Bluetooth Configuration Tool opens.
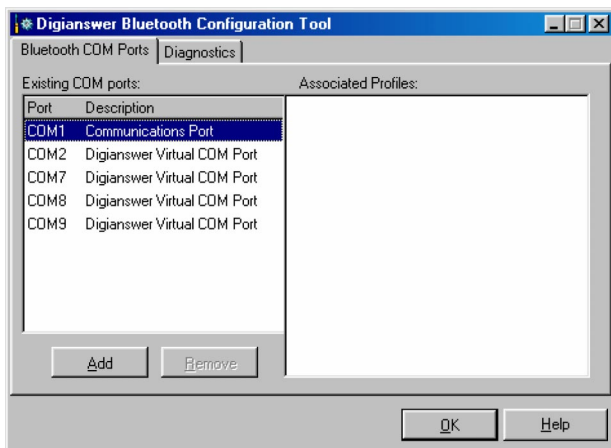
Adding Bluetooth COM ports

To add a Bluetooth COM port, do the following:

1. In the Bluetooth Configuration Tool window, click **Add**. The following window opens.
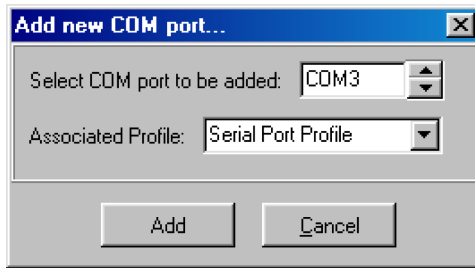
2. Select the Bluetooth COM port you want to add and the profile you want to associate with it.

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

   You can add only Bluetooth COM ports that are not already in use. Only available Bluetooth COM ports are displayed on the list.

3. To confirm the settings, click **Add**.

   The new Bluetooth COM port is now included on the Bluetooth Neighborhood Local Services bar.

Deleting Bluetooth COM ports

To delete a Bluetooth COM port, do the following:

1. In the Bluetooth Configuration Tool window, highlight the Bluetooth COM port you want to delete.
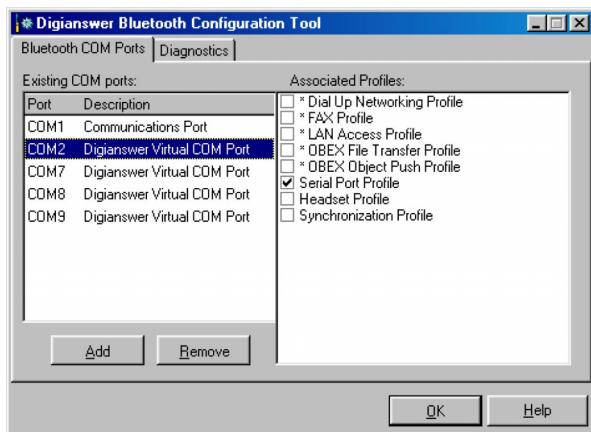
2. Click **Remove**. A window opens prompting you to confirm the port deletion.
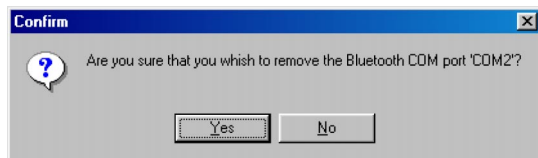
3. To confirm that you want to delete the Bluetooth COM port, click **Yes**.

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

Associating and removing profiles from existing Bluetooth COM ports

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

To associate or remove profiles, do the following:

1. Under the Existing COM ports heading, click the Bluetooth COM port in question.

2. Under the Associated Profiles heading, 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**.

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Bluetooth COM port link establishment

When you have added a Bluetooth COM port to the Local Services bar, you can establish a link to a remote device. To establish a link to a remote device, drag the Bluetooth COM port icon to the remote device (or device folder).
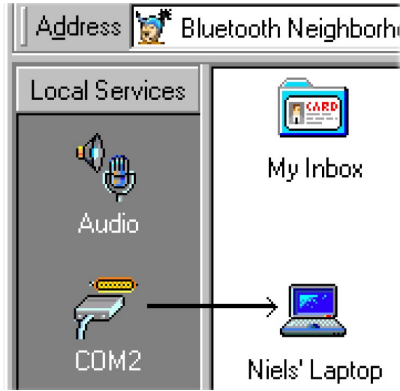
You can also perform service discovery; then drag the local Bluetooth COM port icon to a remote Bluetooth COM port icon.
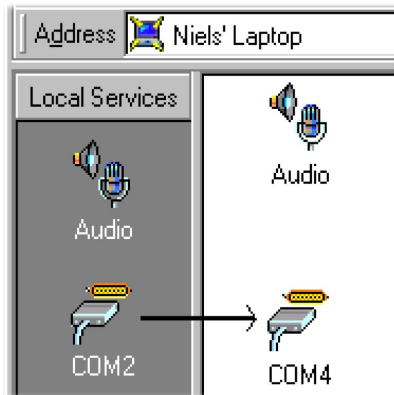
The link established between your local device and the remote one can now be used exactly as if it were a wired link.

LAN service

The LAN service is used for accessing a local area network. You can use this service to establish a link to a remote Bluetooth-enabled computer which has access to a LAN.

The LAN service provides a serial Bluetooth COM port connection for your convenience. This means that you can choose to use it for accessing a LAN, but you could use any other Bluetooth COM port as well.

Note: To set up the LAN service, refer to the Windows user's manual for instructions.

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)
- The remote LAN service
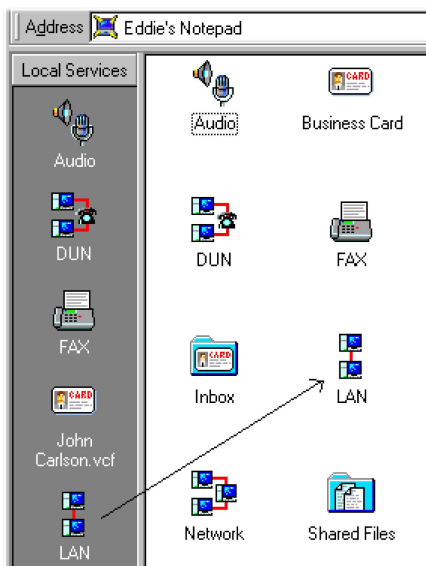
For information on how to set up the program to dial up automatically when a LAN link is established, see "LAN access settings" on page 2-47.

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" on page 2-30.

DUN service

The dial-up networking (DUN) service is used for accessing the Internet. You can use this service to establish a link to a Bluetooth-enabled modem or computer that has access to a modem.

The DUN service provides a serial Bluetooth COM port connection for your convenience. This means that you can choose to use it for dial-up networking, but you could use any other Bluetooth COM port as well.

Note: To set up the DUN service, refer to the Windows user's manual for instructions.

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)
- The remote DUN service

For information on how to set up the program to dial up automatically when a DUN link is established, see "Dial-up networking settings" on page 2-48.

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" on page 2-30.

FAX service

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

The FAX service provides a serial Bluetooth COM port connection for your convenience. This means that you can choose to use it for sending fax messages, but you could use any other Bluetooth COM port as well.

Note: To set up FAX service, refer to the Windows user's manual for instructions.

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)
- The 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" on page 2-30.
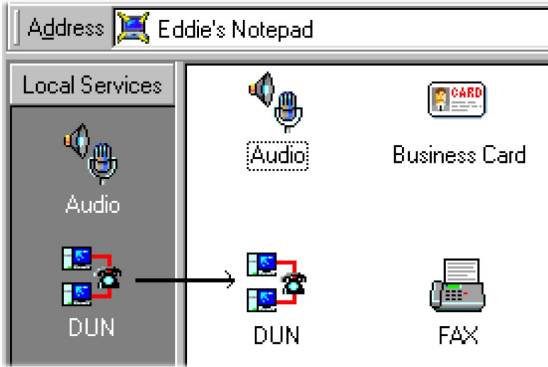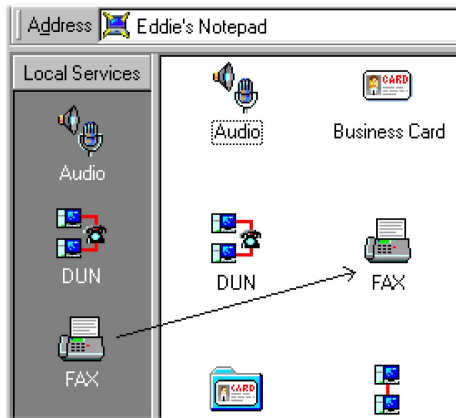
Setting up Bluetooth networks

During the installation of the Bluetooth Software Suite, the Network Manager Wizard created two network profiles on your computer: one saving your current network settings and one to be used for Bluetooth piconet networking.

This feature is included in the Bluetooth Software Suite because of a limitation in the Windows operating system that affects users who use their computer in more than one network.

With the Bluetooth Network Manager Wizard, you can network profiles that memorize your networking setups and allow you to restore them whenever you need to change from one network to another. Switching between two setups is reduced to choosing a network profile from a menu.

If after the installation of the Bluetooth Software Suite you want to change the settings made by the Bluetooth Network Manager Wizard, you can do so from the Bluetooth Network Manager.

To open the Bluetooth Network Manager, do the following:

1. Right-click the **Bluetooth Control Center** icon in the System Tray.
2. Select **Launch Network Manager**.
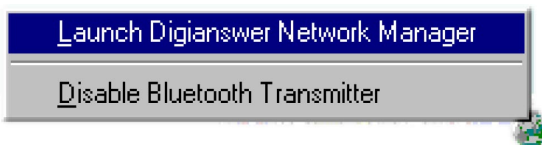
The Network Manager window opens, and you can view or change the network settings.
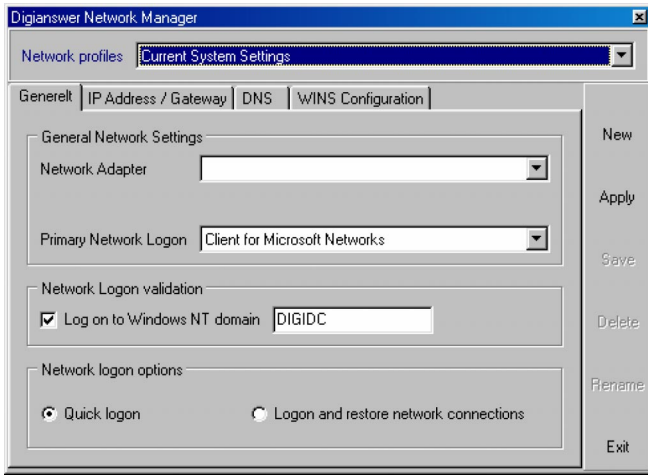
The settings are used when you establish a network link as described in "Network link establishment".

Network link establishment

Establishing a Bluetooth piconet 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.
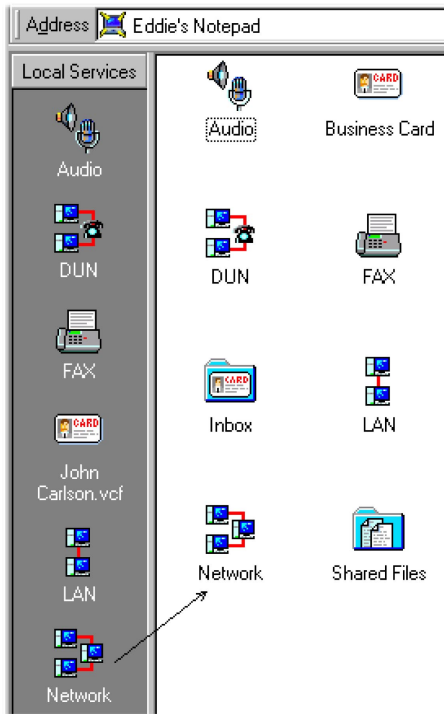
You can now use the Bluetooth network in the same way as a wired network.

Local device settings

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

• The profile version
• A description (e.g., the name of the profile)
• The company name
• The copyright holder

This information is included in the Profile Properties window. To open the Profile Properties window from the Bluetooth Neighborhood, click **Bluetooth** → **Profile Properties** on the menu bar; then click the profile you want to see properties for.
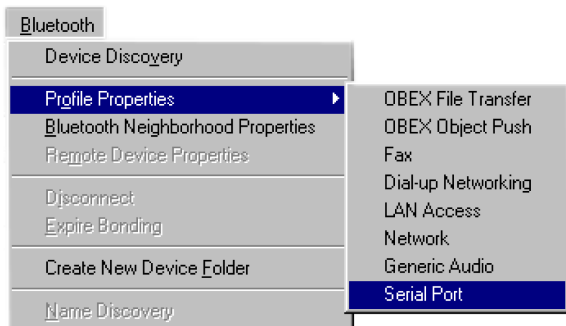
The Properties window for the selected profile opens, as shown below.
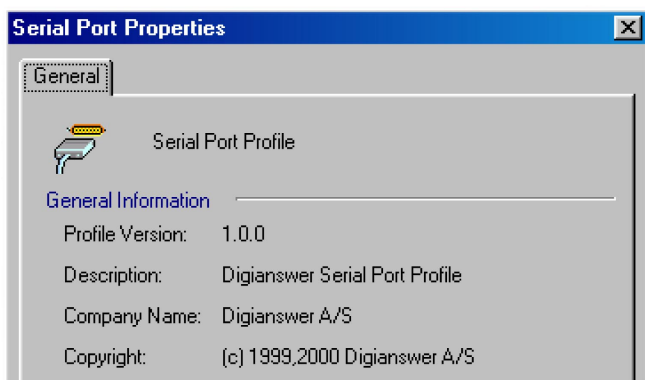
Enabling and disabling a profile

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

To enable or disable a profile, do the following:

1. Click **Bluetooth**, and then click **Profile Properties**.
2. Select the profile you want to enable or disable. The Profile Properties window opens.
3. Under the Activate Profile heading, click to select the button next to **Profile Enabled** to enable the profile, or click to select the button next to **Profile Disabled** to disable the profile.

Object transfer settings

The OBEX Object Push profile is used for transferring objects such as messages, notes, and cards. In the Object Push Settings window, you can view or edit the location of the physical Inbox folder and the default business card. You can also make decisions concerning the security aspects of receiving objects from remote devices.

To open the Object Push Settings window, do the following:

1. Click **Bluetooth**, and then click **Profile Properties**.

2. Select **OBEX Object Push**.

3. At the top of the OBEX Object Push Properties window, click the **Object Push Settings** tab.
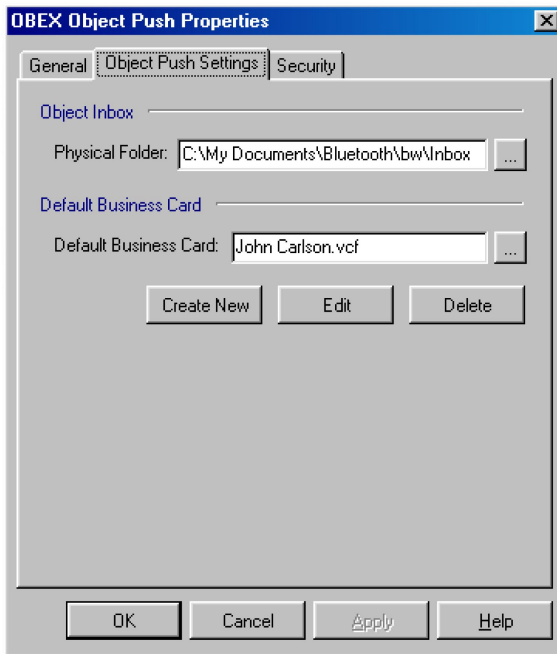
In the **Object Push Settings** tab, you can view and adjust the following fields:

- 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 **...**.

- Default Business Card: The physical default business card is placed in My Documents in a folder named Bluetooth. However, like the Object Inbox, you can browse by clicking **...**, and place the business card where you want.

  If you have not already created a business card, clicking **Create New** opens the Object Editor, where you can register your default business

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card. Click **Edit** if you want to edit an existing business card. For more information, see "Making default business cards available" on page 2-16.

- Security: You can decide whether you want your device to do the following:

  — Automatically accept incoming objects (for example, objects sent to you from remote devices)

  — Prompt you before accepting incoming objects

  — Automatically reject incoming objects

  — Allow remote users to pull your default business card

By default, your device automatically accepts incoming objects, and it enables remote users to pull your default business card.

File transfer settings

The OBEX File Transfer profile is used for transferring files. In the File Transfer Settings window, you can view or edit the location of the physical Shared Files folder. You can also make decisions concerning the security aspects of receiving files from remote devices.

To open the File Transfer Settings dialog box, do the following:

1. Click **Bluetooth**, and then click **Profile Properties**.
2. Click **OBEX File Transfer**.
3. Click the **File Transfer Settings** tab.

In the **File Transfer Settings** tab, you can view the following:

• 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 **…**.

• Security: From this item you can decide whether you want your device to do the following:

— Automatically accept incoming files (for example, files sent to you from remote devices)

— Prompt you before accepting incoming files

— Automatically reject incoming files

— Allow remote users to delete files from your My Shared Files folder

By default, your device automatically accepts incoming files, and it enables remote users to delete files from your My Shared Files folder.

Audio settings

There are two ways of using an audio link:

• The Bluetooth audio device feature, using a headset, with the Bluetooth link serving as a sound card.

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- The Bluetooth speaker phone feature, using the computer speaker and microphone like a phone, with the audio coming from an ordinary sound card.

  For information on how to establish and use audio links, see "Audio settings" on page 2-43.

By default, your computer is set up as a Bluetooth speaker phone. If you want to change this default setting, do the following:

1. Click **Bluetooth**, then click **Profile Properties**, and then click **Generic Audio**.
2. In the Audio Properties window, click the **Audio Settings** tab.

3. Under the Audio Path heading, select **Bluetooth Audio Device** or **Bluetooth Speaker Phone** as the default setting.

Audio quality

Under the Audio Quality heading of the **Audio Settings** tab, you can set the sound quality to be used during the next audio link.

Generally speaking, the higher the sound quality the better. However, the higher the quality, the greater the more resources of the Bluetooth unit are needed for the link. If you want to be able to transfer data at the same time as sound, select medium or low audio quality. The default setting is Low.

Bluetooth speaker phone settings

During the installation of the Bluetooth Software Suite, the program will attempt to configure your computer for optimal sound performance when using the

speaker phone feature. This is done by the Bluetooth Speaker Phone Setup Wizard.

However, as computers are very different, in some cases it is necessary to adjust the settings manually to get the best possible sound quality. You can do this from the Audio Speaker Phone window in the Bluetooth Configuration Tool, or from the Bluetooth Speaker Phone Setup Wizard.

Adjusting the speaker phone settings from the Audio Speaker Phone window: To view or edit the Bluetooth speaker phone settings, do the following:

1. Click **Start**, then click **Programs**, and then click **Bluetooth Software Suite**.
2. Click **Bluetooth Speaker Phone Setup Wizard**.

The Bluetooth Speaker Phone Setup Wizard opens.

Bluetooth Speaker Phone Setup Wizard...

The Bluetooth Speaker Phone Setup Wizard will configure you computer for optimal performance when using the Speaker Phone feature of the Bluetooth Software Suite.

Automatic Optimization:
Automatically optimize the performance of the Speaker Phone feature. This option is recommended.

Manual Optimization:
Manually optimize the performance of the Speaker Phone system. This option is only recommended for advanced users.

Use Default Setting:
Restore the default settings. This will give you an average performance and is recommended if both of the above fails.

< Back   Next >   Cancel

1

You can configure your Bluetooth speaker phone in one of three ways:

- To have the Bluetooth Speaker Phone Setup Wizard automatically configure you computer, click:

- To configure your computer manually, click:

- To use the Bluetooth default settings, click:

Follow the on-screen instructions to complete the configuration of your copmuter for the best sound performance of the Bluetooth phone feature.

LAN access settings

In connection with LAN link establishment, the Bluetooth Software Suite can establish a dial-up connection automatically. To set this up, do the following:

1. Click **Bluetooth**, then click **Profile Properties**, and then click **LAN Access**.

2. In the LAN Access Properties window, click the **LAN Access Settings** tab.
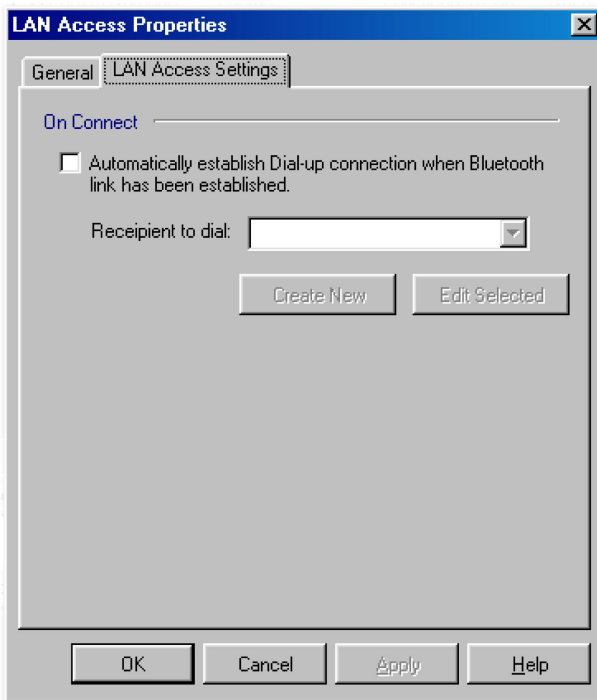
3. Select **Automatically establish Dial-up connection when Bluetooth link has been established**.

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 you can edit the selected recipient by clicking **Edit Selected**.

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When you establish a LAN link as described in "LAN service" on page 2-34, the Bluetooth Software Suite automatically establishes a dial-up connection.

Dial-up networking settings

In connection with DUN link establishment, the Bluetooth Software Suite can establish a dial-up connection automatically. To set up your Bluetooth Software to establish a dial-up network automatically, do the following:

1. Click **Bluetooth**, then click **Profile Properties**, and then click **Dial-up Networking**.

2. Click the **Dial-up Networking Settings** tab.
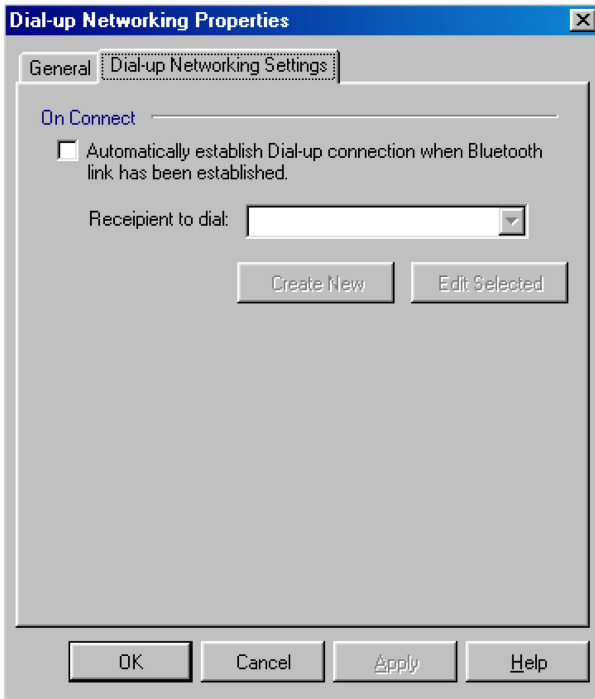
3. Click the check box next to **Automatically establish Dial-up connection when Bluetooth link has been established**.

4. Follow the on-screen instructions to select the recipient that is to be dialed. You can add new recipients to the list by clicking **Create New**, or you can edit the selected recipient by clicking **Edit Selected**.

Bluetooth neighborhood properties

The Bluetooth Software Suite provides information on the properties of the Blue-
tooth Neighborhood. To access this information, click **Bluetooth** → **Bluetooth
Neighborhood Properties**.

The Bluetooth Neighborhood Properties window opens.

Displayed at the top of the window is the name of your local device. (For information on how to name your local device, see "Naming your local device" on page 2-7.) The window also contains the following:

- **General Information** shows the identity information that, in addition to the name of your device, is sent to remote devices performing device discovery or service discovery on your device. The device address and service class are determined by the Bluetooth hardware; you can set the device class yourself (see "The Settings tab").

- **Connections** shows which remote devices your device is currently connected to, if any. You can also see what role your local device plays in the piconet: master device or slave device.

In addition to the **General** tab, the Bluetooth Neighborhood Properties window also contains the following tabs:

- Settings
- Device Discovery
- Trust
- Security
- Bonding

The Settings tab

In the **Settings** tab of the Bluetooth Neighborhood Properties window, you can set the name and class of your local device.

Bluetooth Device Name

Here you can select a name for your device (see "Naming your local device" on page 2-7).

Bluetooth Device Class

Here you can provide the Bluetooth Software Suite with information on which class of device your computer belongs to.
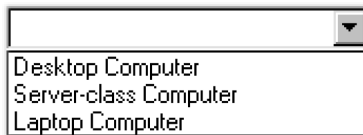
This information is given to remote devices that have performed device discovery on your local device.

The Device Discovery Tab

In the **Device Discovery** tab you can choose for device discovery to take place only when you activate the function manually, or to be automatically initiated at

certain intervals. If you choose for device discovery to take place automatically, you can set the duration of the interval between device discovery sessions.

Device Discovery Length

In **Device Discovery Length** you can set the number of seconds that you want device discovery to last. The default setting is 10 seconds. However, if for some reason it is difficult for two devices to discover each other, you can increase the duration.

Device Discovery Period

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 you set automatic device discovery to take place periodically.

Previously Discovered Devices

In **Previously Discovered Devices** you can have the Bluetooth Neighborhood list-view display remote devices discovered during previous device discovery sessions. If this item is not selected, the list-view only displays the remote devices discovered during the latest session.

Expire Discovered Devices

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 Previously Discovered Devices is not selected, the list-view only displays the remote devices discovered during the latest device discovery.

The Trust tab

The **Trust** tab pertains to the trust relationship you want your local device to apply to remote devices, that is, how you want your local device to react if a remote device tries to establish a link to it.

Configure Newly Discovered Devices

In **Configure Newly Discovered Devices**, you can choose to have the program display a configuration box when your device discovers a remote device for the first time. This will enable you to consider the trust relationship for each newly discovered device.

Trust Relationship

In **Trust Relationship**, you can make default settings to be applied when your local device discovers a remote device for the first time. These settings will not be used by default if you selected the previous item, **Configure Newly Discovered Devices**, for making trust relationship decisions upon initially detecting remote devices. You can decide whether your device should:

• Reject a link establishment attempt

- Prompt you before accepting link establishment
- Accept link establishment automatically

To have the default trust relationship settings applied to all existing discovered devices, 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 **Trust** tab of the Remote Device Properties window.

The Advanced Link Policy window

To view or change the trust relationship settings for one or more discovered remote devices, click **Advanced Settings**.
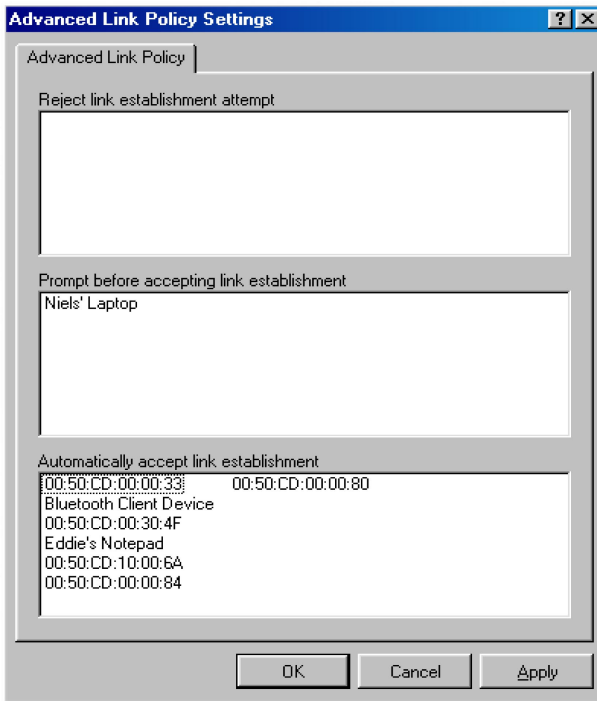
In this window, each discovered remote device is listed in one of three boxes:

- Reject link establishment attempt
- Prompt before accepting link establishment
- Automatically accept link establishment

The location of each remote device 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 window, drag the device from its present position to the box representing the trust

relationship you want for the device. The new settings are now applied to the remote device the next time it attempts to connect to your local device.

The Security tab

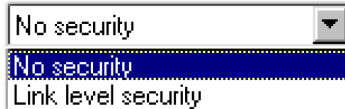In the **Security** tab, you can make a number of decisions concerning the security of your local device.

Security Mode

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

```
No security              ▼
No security
Link level security
```

If a device has selected link level security, no remote device can connect to it without bonding (see "The Bonding tab" on page 2-54). You can only use encryption when you have selected link level security.

Encryption Mode

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.

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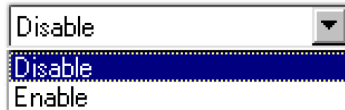
If encryption is enabled: When your device is communicating, only the linked devices will be able to understand the data sent between them.

Connectibility Mode

Connectibility Mode refers to whether remote devices, having discovered your device, can 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.

```
Connectable mode         ▼
Non-connectable mode
Connectable mode
```
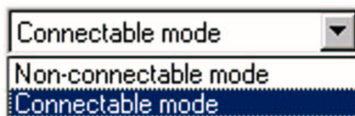
Discoverability Mode

Discoverability Mode refers to whether other devices can discover your device. In other words, selecting non-discoverable mode is a way to prevent remote devices from discovering your device.

```
General discoverable mode  ▼
Non-discoverable mode
General discoverable mode
```

The Bonding tab

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 "The Security tab" on page 2-53 for more information). When a remote device attempts to connect to the device requiring link level security, the users of both devices are prompted for a password. They must then enter the same password.

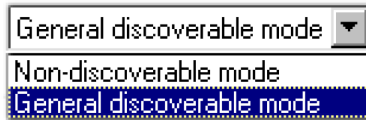The purpose of bonding is for two devices to be able to identify each other so that no remote device can connect without knowing the right password. This is convenient if, for instance, you do not want any other device than your own Bluetooth-enabled phone to be able to connect to your computer. Other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

The duration of the bonding can be set to last beyond the current link; if so, the two devices are prompted only for the password the first time they connect (i.e., when they create the bond).

When creating the bond and when making use of an existing one, both devices must be in bondable mode. Bonding settings are configured in the **Bonding** tab of the Bluetooth Neighborhood Properties window.

In the **Bonding** tab, you can decide whether your device is able to bond to other devices. To be able to establish a new bond and to make use of an existing one, your device must be in bondable mode.

```
Bondable mode              ▼
Non-bondable mode
Bondable mode
```
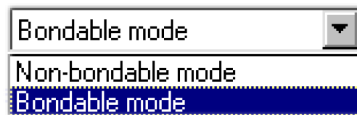
Default Bluetooth Bonding Expiration

In **Default Bluetooth Bonding Expiration**, you can set bonding to expire when the link is disconnected, after a specified period of time, or never.

Note: The settings you make in the **Bonding** tab are default settings that are 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 Trust tab" on page 2-51.

Bluetooth unit settings

The settings of the Bluetooth unit are controlled from the Bluetooth Control Center. From this application, you can enable or disable the Bluetooth unit. Also, the **Bluetooth Control Center** icon indicates the state of the Bluetooth unit.

Enabling or disabling the Bluetooth unit

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

1. Right-click the **Bluetooth Control Center** icon in the System Tray.
2. Select **Enable Bluetooth Transmitter** or **Disable Bluetooth Transmitter**.
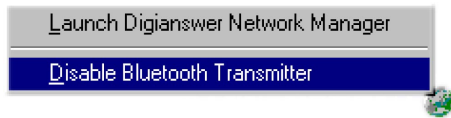
Indication of Bluetooth unit state

Located in the Windows taskbar, the Bluetooth Control Center displays one of three icons to show the state of the Bluetooth unit:

Disabled	Enabled but not transmitting	Enabled and transmitting
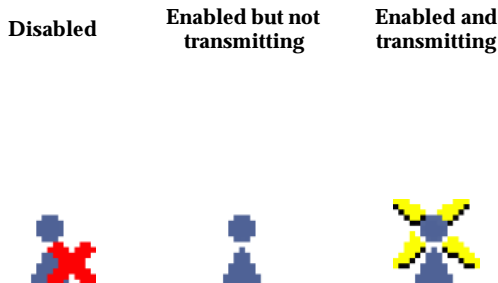
- Disabled: In this state, your Bluetooth device cannot communicate with other devices.

- 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

For information on the properties of a remote device, do the following:

1. Right-click the remote device.
2. Click **Properties**.
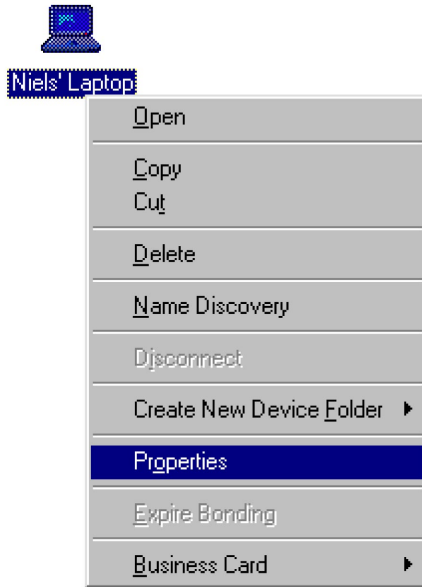
The Remote Device Properties window opens.

The General tab

In the **General** tab of the Remote Devices Properties window, the following is displayed:
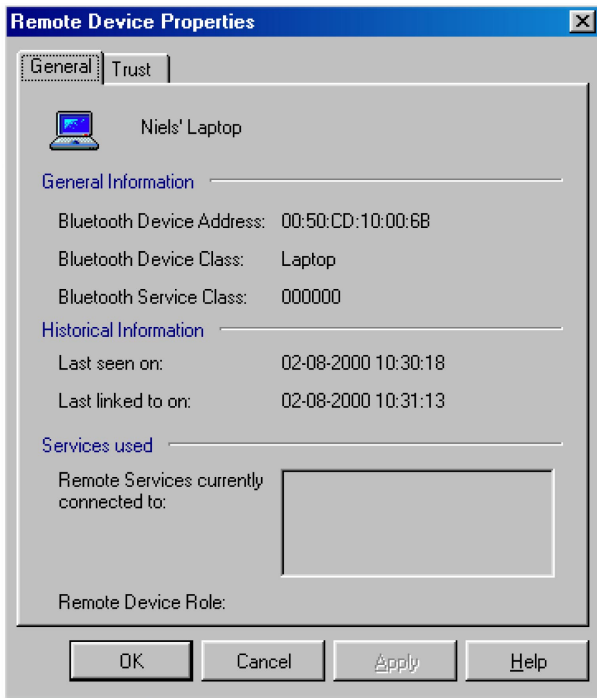
- The name of the remote device
- General information: Provides the identity information of the remote device.
- Historical Information: Provides information on when the remote device was last seen by your device, and when it was last linked to it.
- Services used: Provides information on which services of the remote device are currently connected to your local device, if any. You can also see what role the remote device plays in the piconet, that is, if it is a master device or a slave device.

The Trust tab
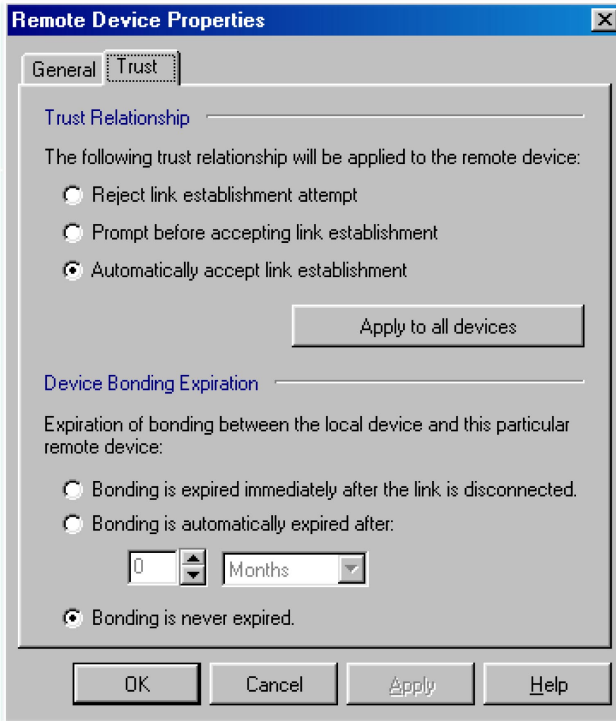
In the **Trust** tab of the Remote Devices Properties window, you can make settings for the individual remote device concerning:

- **Trust relationship**: The way your local device reacts if the remote device attempts to establish a link to it.

  In **Trust Relationship**, you can define the trust relationship to be applied when the remote device wants to establish a link to your device:

  — Reject link establishment
  — Prompt before accepting link establishment
  — Automatically accept link establishment

  If you want to, you can apply the selected trust relationship to all remote devices. To do so, click **Apply to all devices**.

- **Bonding expiration**: How long the bond between your local device and the remote device lasts (see "The Bonding tab" on page 2-54 for more information).

  With **Bonding Expiration**, you can make settings concerning the duration of bonding between your local 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.

Note: You can make similar settings in the **Trust** tab and the **Bonding** tab of the Bluetooth Neighborhood Properties window (see "Bluetooth neighborhood properties" on page 2-49). However, the settings made in those windows are applied to all remote devices discovered; the settings in the **Trust** tab of the Remote Device Properties window apply only to a particular remote device.

LED operation

The green light-emitting diode (LED) indicator on the Bluetooth PC card from IBM is lit for 10 seconds after you turn on your computer, and flashes when the Bluetooth unit is communicating with a remote Bluetooth unit.

Bluetooth diagnostics

After you are finished installing the Bluetooth PC Card and the Bluetooth Software Suite from IBM, check that the PC Card has been installed properly. This is done by performing a loopback test. To perform a loopback test, do the following:

1. Click **Start**, then click **Settings**, then click **Control Panel**.

2. Double-click **Bluetooth Configuration Tool**.
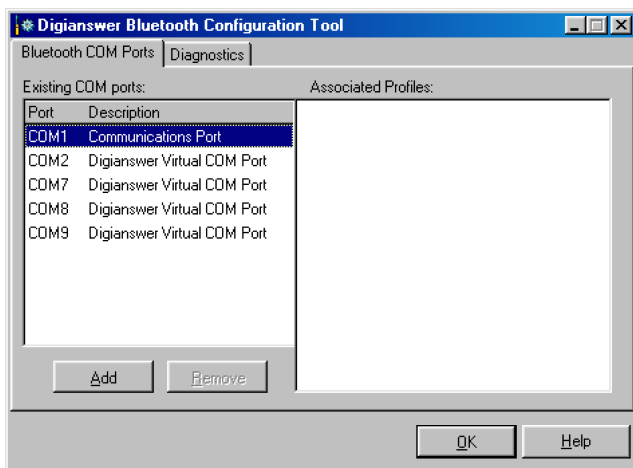
3. Click the **Diagnostics** tab.
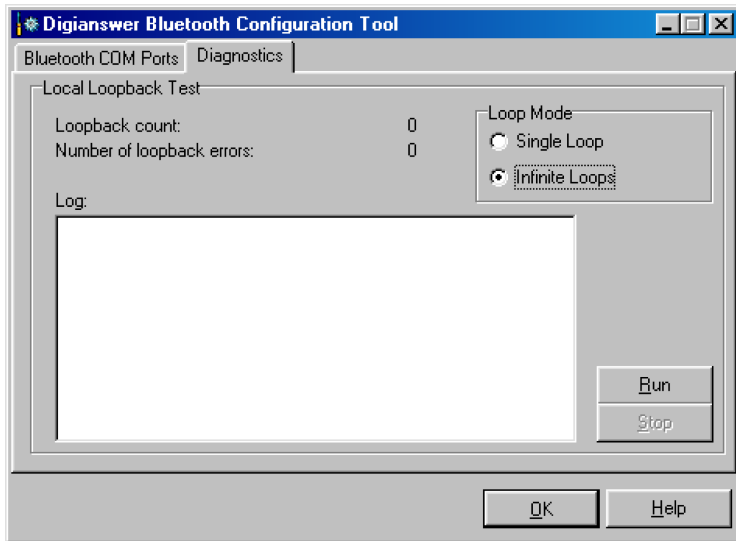
4. Under the Loop Mode heading, select **Single Loop** (to run the test once) or **Infinite Loops** (to run the test multiple times).

5. To start the test, click **Run**.

   Note: If you selected Infinite Loops, the test runs until you click **Stop**.

In Loop Count you can see the number of loops tested. The number of Errors should always be zero. If the test shows one or more errors, your hardware has probably not been installed correctly. Do the following:

• Be sure that the hardware is installed correctly. See the *Installation guide* on page 1-1 for information on installing the PC Card.

• Restart your computer.

Appendix A. Profiles

The following table shows the profiles that the Bluetooth Software Suite currently supports and what role each profile plays.

Profile	Services
Ethernet Network	Network service
Generic Audio	Audio service
OBEX File Transfer	File transfer
OBEX Object Push	Object transfer
Serial Port	Bluetooth COM port service
Service Discovery Application	Service discovery
Dial-up Networking	DUN service
Fax	FAX service
LAN Access	LAN service
Generic Object Exchange	OBEX File Transfer and OBEX Push profiles
Generic Access	All other profiles

A-2 Bluetooth PC Card from IBM: Installation and User's Guide

Appendix B. List view icons

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

Remote device	Icon
	Desktop computer
	Laptop computer
	Server-class computer
	Handheld PC/PDA
	Palm-sized PC or PDA
	Cellular phone
	Cordless phone

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Remote device	Icon
	Smart phone
	Voice gateway
	LAN access point
	Unclassified audio
	Audio — headset
	Unclassified

Remote service	Icon
	Audio service
	Bluetooth COM port

Remote service	Icon
LAN service	
DUN service	
FAX service	
Business card	
Network service	

B-4   Bluetooth PC Card from IBM: Installation and User's Guide

Appendix C. Regulatory information

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)

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. See FCC 47CFR part 15.19(b)(2).

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.

Canada (IC notice)

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment that is installed outdoors is subject to licensing.

Pour empêcher un brouillage radioélectrique au service faisant l'objet d'une licence, cet appareil doit être utilisé à l'interieur et loin des fenêtres afin de founir un écran de blindage maximal. Au cas aù un installation en plain air, le materiel doit faire l'objet d'une licence.

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本装置をご使用になる際には、必ずこのラベルを見える場所に貼り付けてください。

電波干渉についての注意

この機器の使用周波数帯では、電子レンジ等の産業・科学・医療用機器のほか工場の製造ライン等で使用されている移動体識別用の構内無線局（免許を要する無線局）及び特定小電力無線局（免許を要しない無線局）が運用されています。

- この機器を使用する前に、近くで移動体識別用の構内無線局及び特定小電力無線局が運用されていないことを確認してください。
- 万一、この機器から移動体識別用の構内無線局に対して電波干渉の事例が発生した場合には、速やかに使用周波数を変更するか又は電波の発射を停止した上、下記連絡先にご連絡頂き、混信回避のための処置等（例えば、パーティションの設置など）につてご相談してください。
- その他、この機器からの移動体識別用の特定小電力無線局に対して電波干渉の事例が発生した場合など何かお困りのことが起きたときは、次の連絡先へお問い合わせください。

　　　連絡先 ： ダイヤルIBM
　（最新の電話番号は、次のホームページでご確認ください。
　　　　http://www.ibm.co.jp/services/its/ibmsvc.html　　）

上記の内容は、「社団法人 電波産業会」ARIB STD-T66 （案）の主旨に基づくものです。

Appendix D. Help and service information

This section contains information on how to obtain online and telephone technical support.

Online technical support

Online technical support is available during the life of your product. Online assistance can be obtained through the Personal Computing Support Web site and the IBM Automated Fax System.

Online technical support	
IBM Personal Computing Support Web site	http://www.ibm.com/pc/support
IBM Automated Fax System	1-800-426-3395 (U.S. and Canada)

During the warranty period, assistance for replacement or exchange of defective components is available. In addition, if your IBM option is installed in an IBM computer, you might be entitled to service at your location. Your technical support representative can help you determine the best alternative.

Telephone technical support

Installation and configuration support through the HelpCenter will be withdrawn or made available for a fee, at IBM's discretion, 90 days after the option has been withdrawn from marketing. Additional support offerings, including step-by-step installation assistance, are available for a nominal fee.

To assist the technical support representative, have available as much of the following information as possible:

- Option name
- Option number
- Proof of purchase
- Computer manufacturer, model, serial number (if IBM), and manual
- Exact wording of the error message (if any)
- Description of the problem
- Hardware and software configuration information for your system

If possible, be at your computer. Your technical support representative might want to walk you through the problem during the call.

For the support telephone number and support hours by country, refer to the following table or to the enclosed technical support insert. Support phone numbers

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are also available by clicking **HelpCenter phone list** on the IBM support Web page at

http://www.ibm.com/pc/support

If the number is not provided, contact your IBM reseller or IBM marketing representative. Response time may vary depending on the number and nature of the calls received.

Support 24 hours a day, 7 days a week	
Canada (Toronto only)	416-383-3344
Canada (all other)	1-800-565-3344
U.S.A. and Puerto Rico	1-800-772-2227

Appendix E. Product warranties and notices

The following section provides product warranty information and legal notices.

Warranty Statements

The warranty statements consist of two parts: Part 1 and Part 2. Part 1 varies by country. Part 2 is the same for both statements. Be sure to read both the Part 1 that applies to your country and Part 2.

- **United States, Puerto Rico, and Canada (Z125-4753-05 11/97)** "IBM Statement of Limited Warranty for United States, Puerto Rico, and Canada (Part 1 - General Terms)"
- **Worldwide except Canada, Puerto Rico, Turkey, and United States (Z125-5697-01 11/97)** "IBM Statement of Warranty Worldwide except Canada, Puerto Rico, Turkey, United States (Part 1 - General Terms)" on page E-4
- **Worldwide Country-Unique Terms** "Part 2 - Worldwide Country-Unique Terms" on page E-7

IBM Statement of Limited Warranty for United States, Puerto Rico, and Canada (Part 1 - General Terms)

This Statement of Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. **The terms of Part 2 may replace or modify those of Part 1.** *The warranties provided by IBM in this Statement of Warranty apply only to Machines you purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.*

The IBM Warranty for Machines

Machine - Bluetooth PC Card from IBM
Warranty period* - One Year
* Contact your place of purchase for warranty service information. Some IBM Machines are eligible for on-site warranty service depending on the country where service is performed.

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications. The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

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During the warranty period IBM or your reseller, if approved by IBM to provide warranty service, will provide repair and exchange service for the Machine, without charge, under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded. The replacement may not be new, but will be in good working order.

Extent of Warranty

The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD.

Items Not Covered by Warranty

IBM does not warrant uninterrupted or error-free operation of a Machine.

Unless specified otherwise, IBM provides non-IBM machines **WITHOUT WARRANTIES OF ANY KIND.**

Any technical or other support provided for a Machine under warranty, such as assistance via telephone with "how-to" questions and those regarding Machine set-up and installation, will be provided **WITHOUT WARRANTIES OF ANY KIND.**

Warranty Service

To obtain warranty service for the Machine, contact your reseller or IBM. In the United States, call IBM at 1-800-565-3344. In Canada, call IBM at 1-800-565-3344. You may be required to present proof of purchase.

IBM or your reseller provides certain types of repair and exchange service, either at your location or at a service center, to keep Machines in, or restore them to, conformance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. IBM may repair the failing Machine or exchange it at its discretion.

When warranty service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item.

Any feature, conversion, or upgrade IBM or your reseller services must be installed on a Machine which is 1) for certain Machines, the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade. Many features, conversions, or upgrades involve the removal of parts and their return to IBM. A part that replaces a removed part will assume the warranty service status of the removed part.

Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service.

You also agree to

1. ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. where applicable, before service is provided

    a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provides,
    b. secure all programs, data, and funds contained in a Machine,
    c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations, and
    d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Neither IBM nor your reseller is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

Production Status

Each IBM Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's appropriate warranty terms apply.

Limitation of Liability

Circumstances may arise where, because of a default on IBM's part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), IBM is liable for no more than

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and

2. the amount of any other actual direct damages, up to the greater of U.S. $100,000 (or equivalent in local currency) or the charges (if recurring, 12 months' charges apply) for the Machine that is the subject of the claim.

   This limit also applies to IBM's suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOL-LOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCI-DENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSE-QUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF IBM, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

IBM Statement of Warranty Worldwide except Canada, Puerto Rico, Turkey, United States (Part 1 - General Terms)

This Statement of Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. **The terms of Part 2 may replace or modify those of Part 1.** *The warranties provided by IBM in this Statement of Warranty apply only to Machines you purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.*

Machine - Bluetooth PC Card from IBM

Warranty period* - One Year

* Contact your place of purchase for warranty service information. Some IBM Machines are eligible for on-site warranty service depending on the country where service is performed.

The IBM Warranty for Machines

IBM warrants that each Machine 1) is free from defects in materials and work-manship and 2) conforms to IBM's Official Published Specifications. The warranty period for a Machine is a specified, fixed period commencing on its Date of Instal-lation. The date on your sales receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period IBM or your reseller, if approved by IBM to provide warranty service, will provide repair and exchange service for the Machine, with-

out charge, under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded. The replacement may not be new, but will be in good working order.

Extent of Warranty

The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRAN- TIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRAN- TIES APPLY AFTER THAT PERIOD.

Items Not Covered by Warranty

IBM does not warrant uninterrupted or error-free operation of a Machine.

Unless specified otherwise, IBM provides non-IBM machines **WITHOUT WAR- RANTIES OF ANY KIND.**

Any technical or other support provided for a Machine under warranty, such as assistance via telephone with "how-to" questions and those regarding Machine set-up and installation, will be provided **WITHOUT WARRANTIES OF ANY KIND.**

Warranty Service

To obtain warranty service for the Machine, contact your reseller or IBM. You may be required to present proof of purchase.

IBM or your reseller provides certain types of repair and exchange service, either at your location or at a service center, to keep Machines in, or restore them to, con- formance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. IBM may repair the failing Machine or exchange it at its discretion.

When warranty service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The

Appendix E. Product warranties and notices   **E-5**

replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item.

Any feature, conversion, or upgrade IBM or your reseller services must be installed on a Machine which is 1) for certain Machines, the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade. Many features, conversions, or upgrades involve the removal of parts and their return to IBM. A part that replaces a removed part will assume the warranty service status of the removed part.

Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service.

You also agree to

1. ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. where applicable, before service is provided

    a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provides,
    b. secure all programs, data, and funds contained in a Machine,
    c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations, and
    d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Neither IBM nor your reseller is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

Production Status

Each IBM Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's appropriate warranty terms apply.

Limitation of Liability

Circumstances may arise where, because of a default on IBM's part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), IBM is liable for no more than

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and

2. the amount of any other actual direct damages, up to the greater of U.S. $100,000 (or equivalent in local currency) or the charges (if recurring, 12 months' charges apply) for the Machine that is the subject of the claim.

This limit also applies to IBM's suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOL-LOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCI-DENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSE-QUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF IBM, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Part 2 - Worldwide Country-Unique Terms

ASIA PACIFIC

AUSTRALIA: The IBM Warranty for Machines: The following paragraph is added to this Section:
The warranties specified in this Section are in addition to any rights you may have under the Trade Practices Act 1974 or other legislation and are only limited to the extent permitted by the applicable legislation.

Extent of Warranty: The following replaces the first and second sentences of this Section:
The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, operation in other than the Specified Operating Environment, improper mainte-nance by you, or failure caused by a product for which IBM is not responsible.

Limitation of Liability: The following is added to this Section:
Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limita-tions in this paragraph apply.

PEOPLE'S REPUBLIC OF CHINA: Governing Law: The following is added to this Statement:
The laws of the State of New York govern this Statement.

INDIA: Limitation of Liability: The following replaces items 1 and 2 of this Sec-tion:

1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence;
2. as to any other actual damage arising in any situation involving nonperfor-mance by IBM pursuant to, or in any way related to the subject of this State-

ment of Warranty, IBM's liability will be limited to the charge paid by you for the individual Machine that is the subject of the claim.

NEW ZEALAND: The IBM Warranty for Machines: The following paragraph is added to this Section:
The warranties specified in this Section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

Limitation of Liability: The following is added to this Section:
Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

EUROPE, MIDDLE EAST, AFRICA (EMEA)

The following terms apply to all EMEA countries.

The terms of this Statement of Warranty apply to Machines purchased from an IBM reseller. If you purchased this Machine from IBM, the terms and conditions of the applicable IBM agreement prevail over this warranty statement.

Warranty Service

If you purchased an IBM Machine in Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland or United Kingdom, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

If you purchased an IBM Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kirghizia, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

The applicable laws, Country-unique terms and competent court for this Statement are those of the country in which the warranty service is being provided. However, the laws of Austria govern this Statement if the warranty service is provided in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Federal Republic of Yugoslavia, Georgia, Hungary, Kazakhstan, Kirghizia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, and Ukraine.

The following terms apply to the country specified:

EGYPT: Limitation of Liability: The following replaces item 2 in this Section:
2. as to any other actual direct damages, IBM's liability will be limited to the total amount you paid for the Machine that is the subject of the claim.

Applicability of suppliers and resellers (unchanged).

E-8   Bluetooth PC Card from IBM: Installation and User's Guide

FRANCE: Limitation of Liability: The following replaces the second sentence of the first paragraph of this Section:
In such instances, regardless of the basis on which you are entitled to claim damages from IBM, IBM is liable for no more than: (items 1 and 2 unchanged).

GERMANY: The IBM Warranty for Machines: The following replaces the first sentence of the first paragraph of this Section:
The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this Section:
The minimum warranty period for Machines is six months.

In case IBM or your reseller are unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

Extent of Warranty: The second paragraph does not apply.

Warranty Service: The following is added to this Section:
During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

Production Status: The following paragraph replaces this Section:
Each Machine is newly manufactured. It may incorporate in addition to new parts, re-used parts as well.

Limitation of Liability: The following is added to this Section:
The limitations and exclusions specified in the Statement of Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

In item 2, replace "U.S. $100,000" with "1.000.000 DEM."

The following sentence is added to the end of the first paragraph of item 2:
IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

IRELAND: Extent of Warranty: The following is added to this Section:
Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

Limitation of Liability: The following replaces items one and two of the first paragraph of this Section:
1. death or personal injury or physical damage to your real property solely caused by IBM's negligence; and 2. the amount of any other actual direct damages, up to the greater of Irish Pounds 75,000 or 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

Applicability of suppliers and resellers (unchanged).

Appendix E. Product warranties and notices   **E-9**

The following paragraph is added at the end of this Section:
IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

ITALY: Limitation of Liability: The following replaces the second sentence in the first paragraph:
In each such instance unless otherwise provided by mandatory law, IBM is liable for no more than: (item 1 unchanged) 2) as to any other actual damage arising in all situations involving non-performance by IBM pursuant to, or in any way related to the subject matter of this Statement of Warranty, IBM's liability, will be limited to the total amount you paid for the Machine that is the subject of the claim.

Applicability of suppliers and resellers (unchanged).

The following replaces the second paragraph of this Section:
Unless otherwise provided by mandatory law, IBM and your reseller are not liable for any of the following: (items 1 and 2 unchanged) 3) indirect damages, even if IBM or your reseller is informed of their possibility.

SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND: Limitation of Liability: The following is added to this Section:
IBM's entire liability to you for actual damages arising in all situations involving nonperformance by IBM in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from IBM.

TURKIYE: Production Status: The following replaces this Section:
IBM fulfills customer orders for IBM Machines as newly manufactured in accordance with IBM's production standards.

UNITED KINGDOM: Limitation of Liability: The following replaces items 1 and 2 of the first paragraph of this Section:

1. death or personal injury or physical damage to your real property solely caused by IBM's negligence;
2. the amount of any other actual direct damages or loss, up to the greater of Pounds Sterling 150,000 or 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

The following item is added to this paragraph:
3. breach of IBM's obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

Applicability of suppliers and resellers (unchanged).

The following is added to the end of this Section:
IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default will be limited to damages.

NORTH AMERICA

CANADA: Warranty Service: The following is added to this section:
To obtain warranty service from IBM, call **1-800-565-3344**. In Toronto, call **416-383-3344**.

UNITED STATES OF AMERICA: Warranty Service: The following is added to this section:

To obtain warranty service from IBM, call **1-800-772-2227**.

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Electronic emission notices

Bluetooth PC Card from IBM

Federal Communications Commission (FCC) Statement

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 an IBM authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the 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.

Responsible party:

International Business Machines Corporation
New Orchard Road
Armonk, NY 10504
Telephone: 1-919-543-2193

FC Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

Industry Canada Class B emission compliance statement

This Class B digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de classe B est conforme à la norme NMB-003 du Canada.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

**Deutsche EMV-Direktive
(electromagnetische Verträglichkeit)**

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM UK, Greenock.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse B.

Union Européenne - Directive Conformité électromagnétique

Ce produit est conforme aux exigences de protection de la Directive 89/336/EEC du Conseil de l'UE sur le rapprochement des lois des États membres en matière de compatibilité électromagnétique.

IBM ne peut accepter aucune responsabilité pour le manquement aux exigences de protection résultant d'une modification non recommandée du produit, y compris l'installation de cartes autres que les cartes IBM.

Ce produit a été testé et il satisfait les conditions de l'équipement informatique de Classe B en vertu de CISPR22 / Standard européen EN 55022. Les conditions pour l'équipement de Classe B ont été définies en fonction d'un contexte résidentiel ordinaire afin de fournir une protection raisonnable contre l'interférence d'appareils de communication autorisés.

Unione Europea - Directiva EMC (Conformidad électromagnética)

Este producto satisface los requisitos de protección del Consejo de la UE, Directiva 89/336/CEE en lo que a la legislatura de los Estados Miembros sobre compatibilidad electromagnética se refiere.

IBM no puede aceptar responsabilidad alguna si este producto deja de satisfacer dichos requisitos de protección como resultado de una modificación no recomendada del producto, incluyendo el ajuste de tarjetas de opción que no sean IBM.

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E-16 Bluetooth PC Card from IBM: Installation and User's Guide

IBM

Part Number: 19K4260
File Number:

(1P) P/N:19K4260

19K4260

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