



ADENEOP

BLUETOOTH MANAGER

USER'S MANUAL

Réf. : BTHMGR-CE60-02I

HISTORY

Revision	Date	Author	Description
A	30/06/05	MLA	Creation
B	13/03/06	ACHAN	Update
C	09/06/06	RMO	Update
D	28/03/07	VGU	Update for version 1.7 , add the modules requirements
E	25/04/07	VGU	Update for version 2.0 , WM5 pictures changed
F	25/06/07	VGU	Add modules requirements for HSP and HFP profiles
G	05/04/08	RMOES	Add PAN profile
H	12/06/08	JBPIGN	Add A2DP profile
I	30/06/08	JBPIGN	Add ActiveSync compliance in SPP
J	10/07/08	ORABO	Add OPP speed choice

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1. General Features

1.1 Document Presentation

This document describes how to use the Bluetooth Manager for Windows CE. This document is for users and developers who need to use Bluetooth functions:

This document describes:

- Software Installation.
- Bluetooth Manager usage (with screenshots)

1.2 Documentation

1.2.1 Applicable Documentation

1.2.2 Standards

1.2.3 Associates documents

1.3 Acronyms

WM5 : Windows Mobile 5.0

FTP : File Transfer Profile. Bluetooth service used to browse, download and upload files.

OPP : Object Push Profile. Bluetooth service used to upload files and contact cards.

SPP : Serial Port Profile. Bluetooth service used to open a virtual serial communication between two devices.

A2DP: Advanced Audio Distribution Profile profil used to have Hi-Fi sound.

2. Modules requirements

2.1 Catalog items

To use the bluetooth manager on a target device, the target device must have the following modules:

- CAB File Installer/Uninstaller (to use binary package)
- USB Host Support (or Serial Port Support)
- Bluetooth Stack with Integrated CSR Chipset Driver
- Graphical Shell (Standard Shell , AYGShell API Set if no Mouse device)
- Bluetooth Stack with Integrated USB Driver (or UART-Only Driver)
- Microsoft Foundation Classes
- Object Exchange Protocol (OBEX) /Obex Server + Obex Client
- C Libraries and Runtimes
 - C++ Runtime Support for Exception Handling and Runtime Type Information
- Component Object Model (COM/DCOM)
- MSXML 3.0/ XML Core Services and Document Object Model (DOM)
- Bluetooth HS/HF and Audio Gateway Service

The following environment variable:

- Sysgen_bth_a2dp = 1

The following modules are optional (add profiles)

- Bluetooth PAN

2.2 Others

- Add the registry : [HKEY_LOCAL_MACHINE\Software\Microsoft\Bluetooth\HandsfreeProfileOn]
- Add the BTSCOSND audio driver for audio routing to Bluetooth hardware in Built-in WAV1: SYSGEN_BTH_AUDIO

3. Installation

The installation program is a file with .CAB extension. This file must be copied on the Windows CE device and then executed to be installed on the device.

By default, the bluetooth manager is installed in the “\Program Files\BthManager” directory. The installation program also creates the following directories:

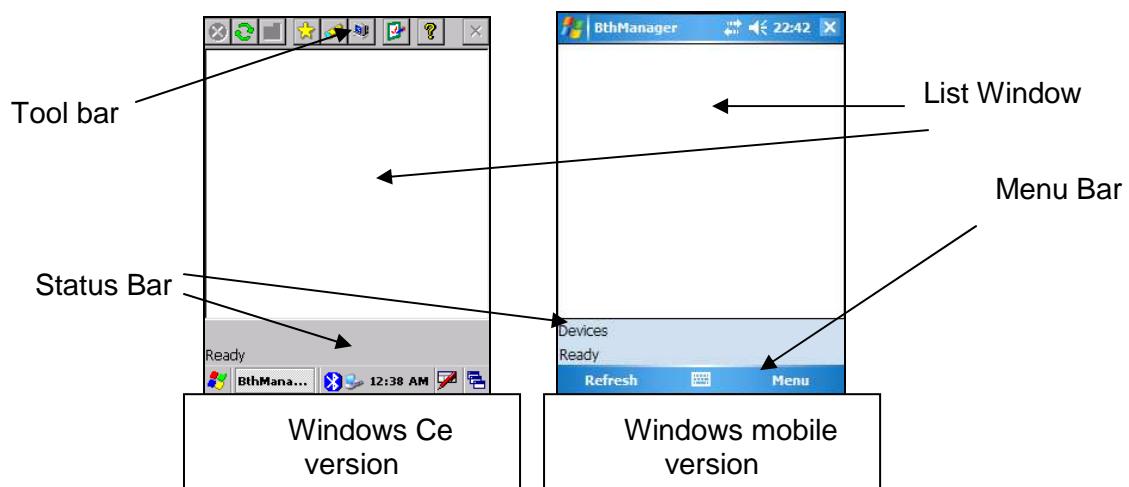
- “\My Documents\Bluetooth\Ftp” : a directory where all downloaded file by the FTP profile will be put
- “\My Documents\Bluetooth\Opp”

4. BlueTooth Manager

4.1 Main window description

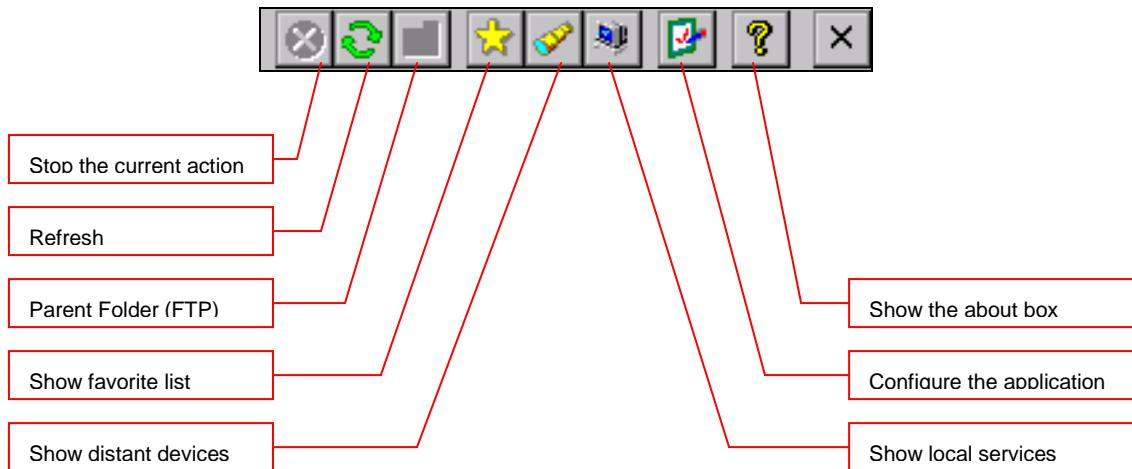
4.1.1 The main window

When the bluetooth manager is run, a new window appears and a bluetooth icon appears in the task bar. This window contains a toolbar with some icons, a status bar, and a list window:



NB: Windows Mobile Version provide a Menu Bar with 2 soft keys “Refresh” and “Menu”. The Menu button provides a menu with all the actions available in the Toolbar.

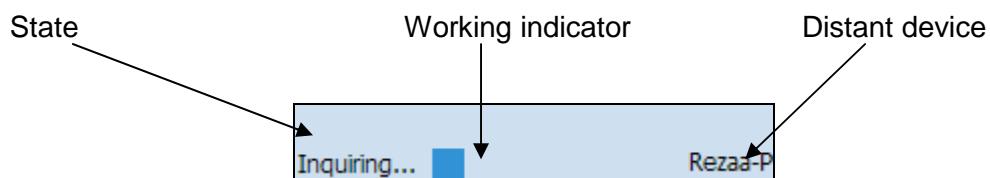
4.1.2 The toolbar



Not available on Windows mobile version, a Menu bar is used instead of it.



4.1.3 The status bar



State: What the bluetooth manager is doing and the name of the current view

Working indicator: For long task (Inquiry, Connection)

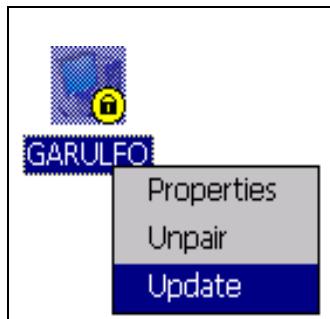
Distant device: With which device the bluetooth manager is currently connected

4.2 Inquiry devices

When the application is started, you need to click on ("Menu>Devices" for WM5) to start inquiry remote Bluetooth devices. The devices found are shown in the main window. They are represented by an icon (showing what class of device they are: computer, laptop, pda, audio device) and the name of the device.

Once you have clicked one time on all futures clicks will show devices without inquiring (to decrease search time). To inquiry again remote bluetooth devices you must refresh the list by clicking on (“**Menu>Refresh**” for WM5). (Note : All the coupled devices are shown without inquiry)

In the list, after an inquiry, some device class and name can be not found. You can update this by right clicking on the device and select update in the contextual menu:



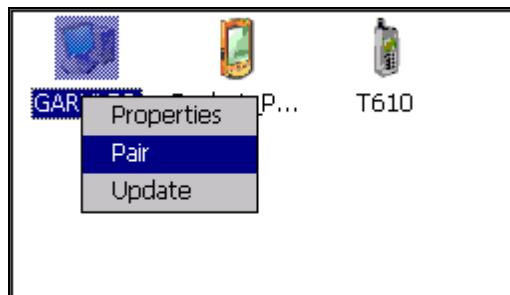
During an inquiry, you can stop it by clicking on the icon (“**Menu>Stop**” for WM5).

4.3 Device pairing

The device pairing can be done in three ways :

- We want to be paired with another distant device

For that the distant device must be in the list window to be paired with the current device. Right click on the selected device and click on pair



A new window appears to insert the pin code. The pairing can be canceled by clicking on the close button or started by clicking on the OK button (after typing a pin code).



- A distant device try to pair with the current device (with no Auto Pin Code)

When a device try to pair with the current device, a new window appear to enter the pin code selected by the distant device.

- A distant device try to pair with the current device (With auto Pin Code)

In this case, the user is not invited to type a pin code. It is automatically typed for him.

NB: On WM2005 the pin request from remote device are not managed by the application. The Bluetooth stack manage it. So remote device icon which requesting pairing will not seems paired.

After the pin code is typed (or auto typed), there are two issues :



Device is not paired



Device is paired

4.4 Properties and configuration

4.4.1 Local services

4.4.1.1 General

In the Bluetooth Manager v1.5, there are three local services proposed to distant devices:

SPP (Serial Port): A distant device wants to establish a serial connection with the local device

OPP (Object Push): To receive files and contact information card

PAN (Personal Area Networking): To create a Network with the device.

FTP (File Transfer): To access to local directories, files and upload files and create directories

Note : the OPP and FTP profil cannot be separated : You cannot deactivate one without deactivate the second.



Click on (“**Menu>Local services**” for WM5), to administrate local services. Local services are shown in the list view with a specific icon and an explicit name.

You can activate or deactivate a local service by double-clicking it or by right clicking it and selecting the Start or stop item from the contextual menu.



Serial Port The local service is not activated



Serial Port The local service is activated

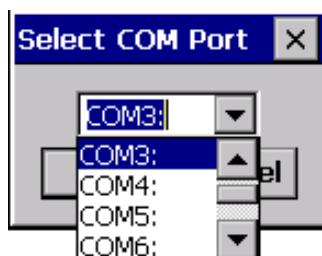
You can also configure the service by selecting the Properties Item when you right click him.

4.4.1.2 SPP Profile

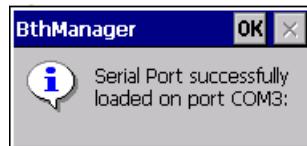
Load the SPP Server :

If the Auto Server COM Port is not checked (cf. 4.4.2.3. Application properties)

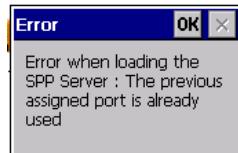
- The application shows a dialog box with all the available port COM



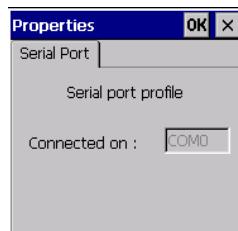
- Select the COM Port to be mapped with the SPP Server
- The Serial Port profile is activated



If the Auto Server COM Port is checked, the serial Port profile is activated with the last used COM Port for the SPP Server profile. If it is not available, an error appears.

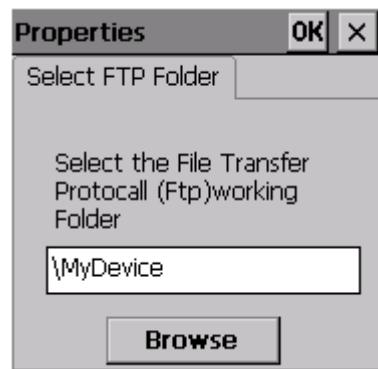


If the service is connected you can know the COM port assigned by selecting "Properties" in the contextual menu of the service.



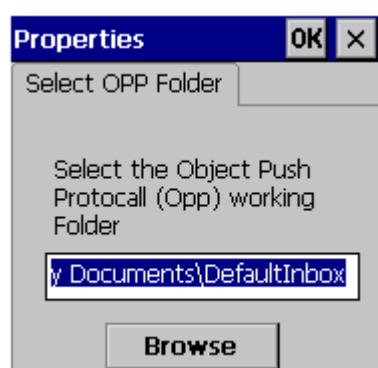
4.4.1.3 FTP Profile

You can change the directory of the FTP server (directory seen by distant device) in the service properties (Contextual menu) (*Not supported on Windows mobile version*)



4.4.1.4 OPP Profile

You can change the directory where the File sent by distant device will be put. (*Not supported on Windows mobile version*)



4.4.1.5 PAN Profile

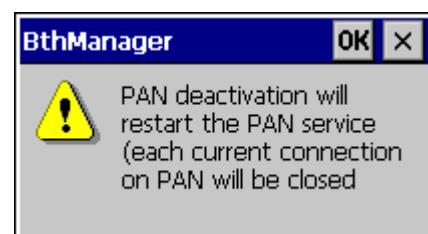
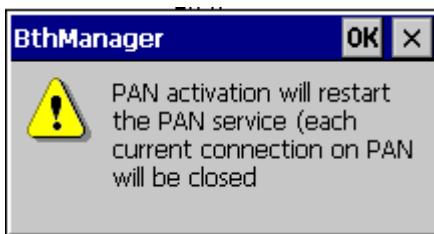
Load the PAN Server: you must choose the type used by the local profile (between PANU/GN/NAP)



But take care that the Bluetooth PAN configuration cannot be modified without:

- WinCE6: restarting the service, so any connection to this service will be deleted:
- WinCE5: restarting the Bluetooth stack: so any connection active on the device will be stopped.

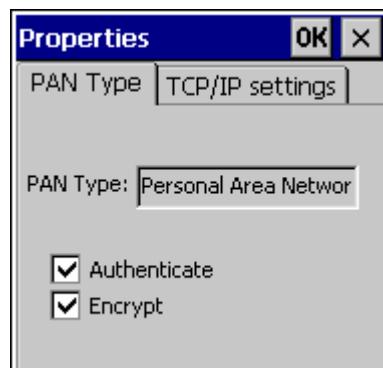
For this a dialog message appears to inform the user:



You can change the TCP/IP settings of the BTPAN miniport.



You can change the authentication and encryption settings and also get the current type used by the PAN profile (between PANU/NAP/GN)

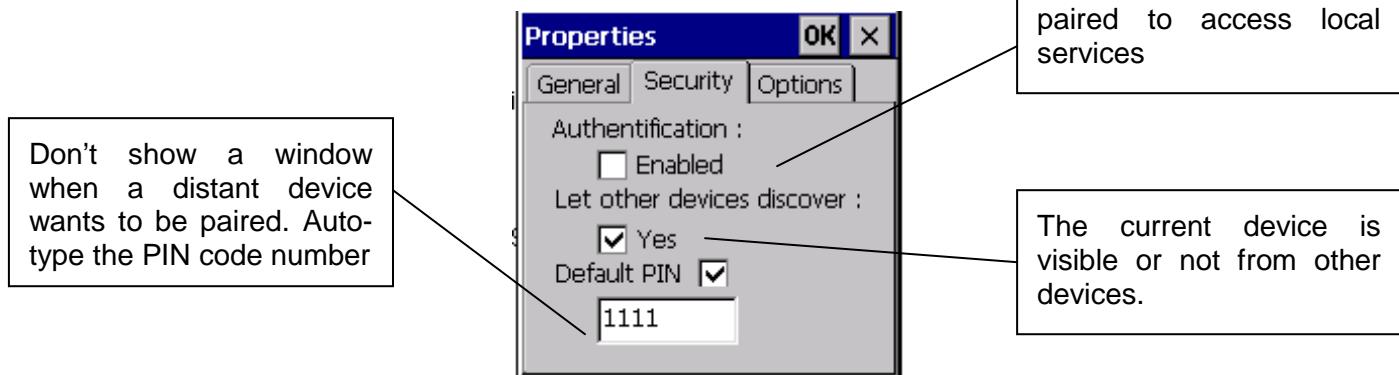


4.4.2 Local device properties and configuration

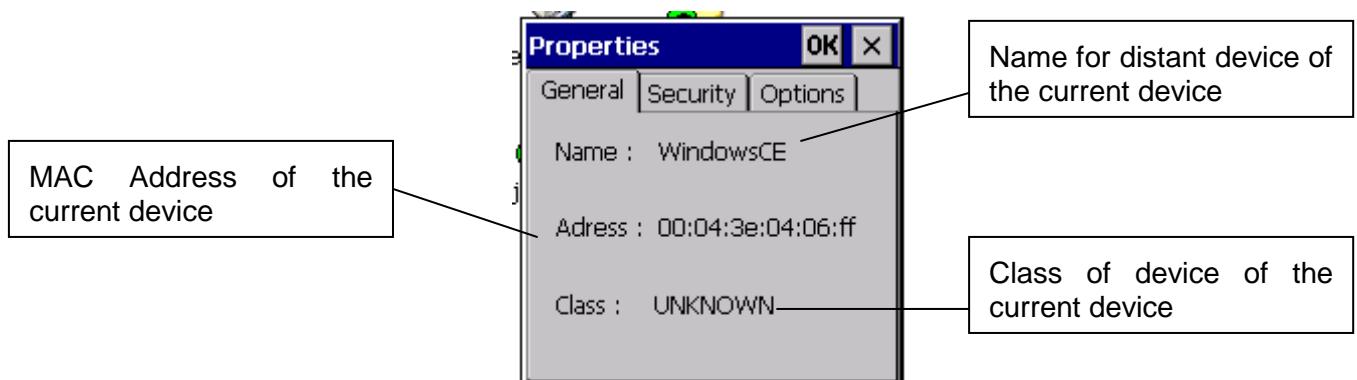
Click on to see:

- the local device properties (MAC address, name and device type)
- application option (start minimized, Auto assigned COM port number for client SPP and server).
- security options of the bluetooth manager

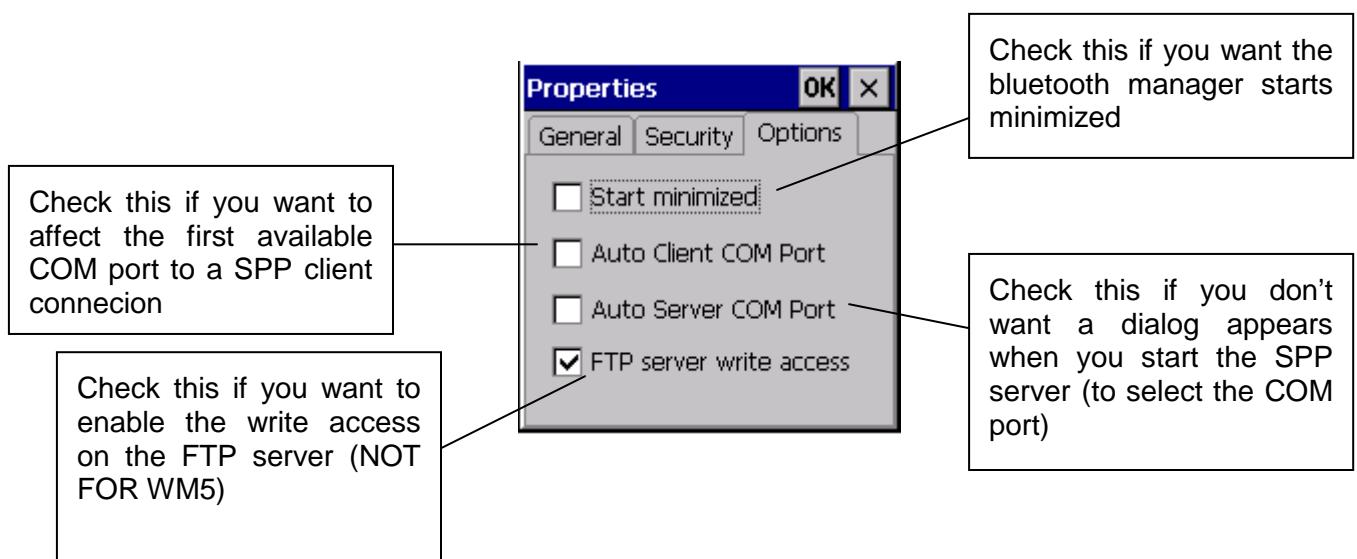
4.4.2.1 Security properties



4.4.2.2 General properties



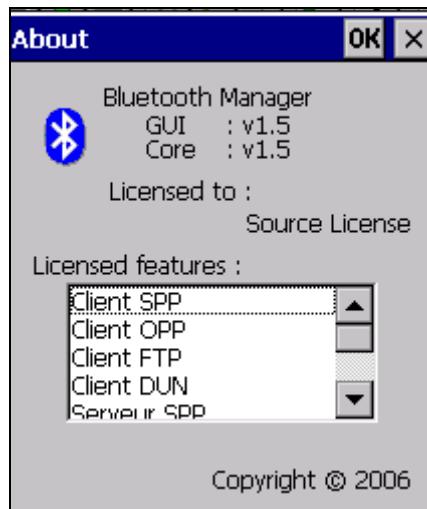
4.4.2.3 Application properties



4.4.2.4 About Box

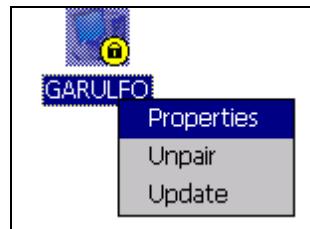
Click on the  icon if you want some general information about the bluetooth manager:

- Version
- License information



4.4.3 Distant device properties

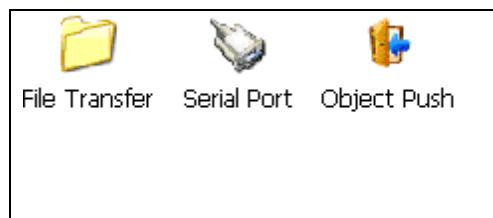
You can have general information on a distant device (like the General tab of the Local device properties) by selecting “properties” in the contextual menu of the distant device.



4.5 Distant services

4.5.1 Services Inquiry

To inquiry the services available on a distant device, you have to double click on this one. After that, the bluetooth manager inquiries (it indicates this in the status bar) for all the services (among SPP/FTP/OPP/DUN) of the distant device. You can stop the inquiry with the  icon (“**Menu>Stop**” for WM5). You can also refresh the list of services by clicking on the  icon (“**Menu>Refresh**” for WM5).

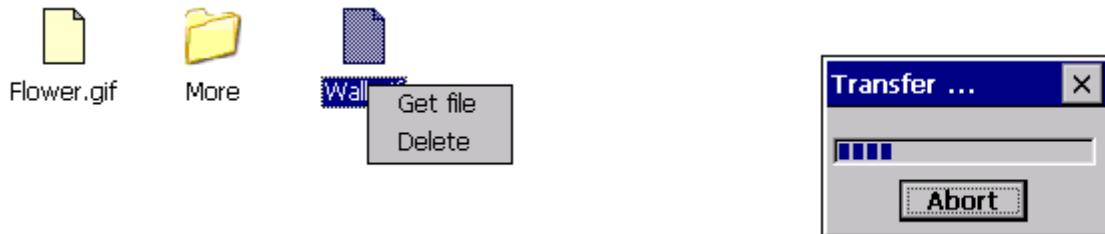


4.5.2 File Transfer



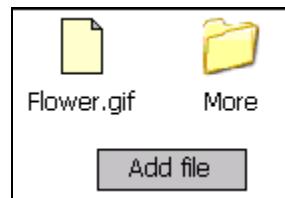
To use this service, double click on the **File Transfer** icon or choose connect on the contextual menu (right click). Then, the bluetooth Manager tries to connect to the distant service. If the connection is successful, the root directory shared by the distant will be shown in the list view. You can browse the device by double clicking on the remote folder and go to the parent directory with  ("Menu>Parent folder" for WM5).

To get a file, double-click or choose "Get File" from the contextual menu. A window is displayed to indicate the transfer state.

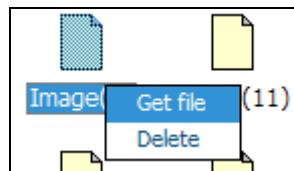


The file is downloaded by default to the "My Documents\Bluetooth\Ftp" directory. You can change this one with the FTP properties (contextual menu of the File Transfer service).

You can upload a file to the distant device by right-clicking on a whitespace of the listview and select Add file.

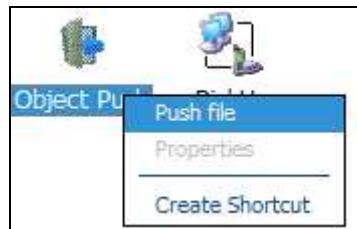


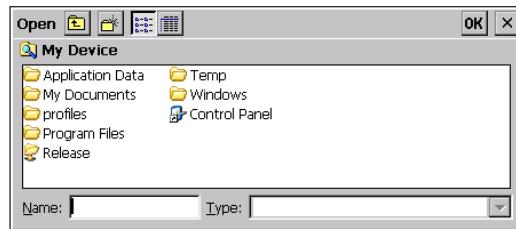
You can also delete a file by selecting delete on his contextual menu.



4.5.3 Object Push

To use this service, double-click on the distant service or select "Push file" on the contextual menu. Then you can choose the file to transfer.

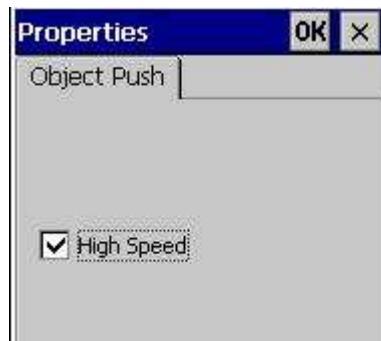




You can choose the speed of transfer (High speed or Low speed) when you select “Properties” on the contextual menu. Low speed is a buffer of 64KBytes and High speed is a buffer of 5000Kbytes.



Then you can check the box or not. If the box is checked, High speed transfer is selected whereas if the box is not checked, Low speed transfer is selected.

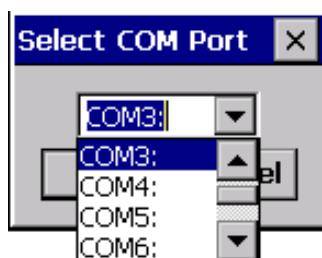


4.5.4 Serial Port

To use this serial service, double-click on the icon or choose “Connect” from the contextual menu.

If the Auto Client COM Port is not checked (cf. 4.4.2.3. Application properties)

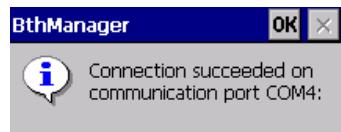
- The application shows a dialog box with all the available COM



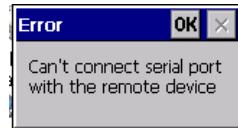
If the Auto Client COM Port is checked (cf. 4.4.2.3. Application properties)

- The Application selects automatically the first available COM port in the system.

If the connection is successful a message box appears:



else an error message appears



The status of the service (connected or not) is displayed as shown below:



Service not connected

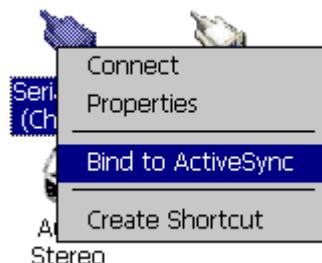


Service connected

When the service is on, all applications could use the virtual COM port. To know the COM port setting, select properties in the contextual menu.

If you want to connect to a device that has ActiveSync installed, proceed as follow:

- Make sure that the remote device has the right COM port selected in the ActiveSync configuration.
- Long click on the SPP icon then select “Bind to ActiveSync”:



- A connection should be launched and Activsync is connected.
- When you want to Disconnect to ActivSync, proceed on the same way and select “Unbind to ActiveSync”



When connected, the Manager can still be used as usual.

4.5.5 Dial-Up Networking

To use the Dial-up Networking service, double click on the icon or choose "Connect" in the contextual menu. The first available COM port in the system is assigned to the DUN profil on the selected device.

The status of the service (connected or not) is displayed as shown below:

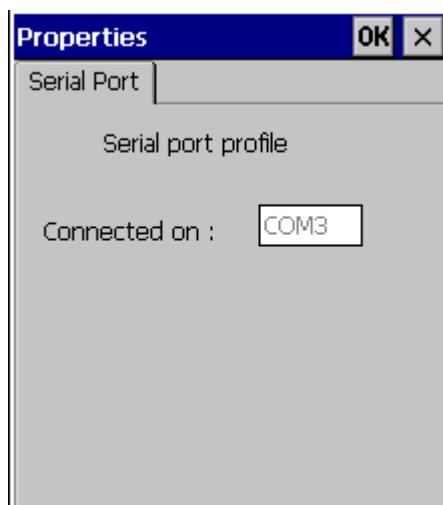


Service not connected

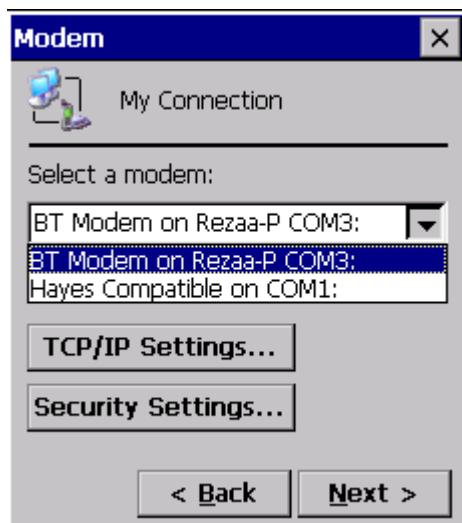


Service connected

When connected, the Manager can still be used as usual. A modem associated to the COM port used by the service is created and can be used to establish a Dial-Up connection. To know the COM port settings, select properties in the contextual menu.



The modem created by the Manager is displayed in the list of available modems for Dial-Up connection when making a new connection ("Make New Connection" icon in the "Network and Dial-Up Connection" system window).

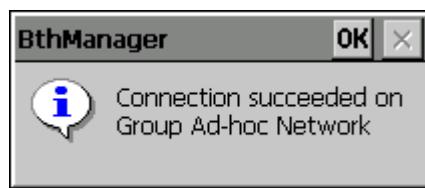


4.5.6 Personal Area Networking (PAN Profile)

The name of the service can be "Personal Area Network User" for PANU PAN profile, "Group Ad-hoc Network" for a GN PAN profile or "Network Access Point" for a NAP PAN profile.

To use the Dial-up Networking service, double click on the icon or choose "Connect" in the contextual menu.

If the connection is successful a messagebox appears:



The status of the service (connected or not) is displayed as shown below:



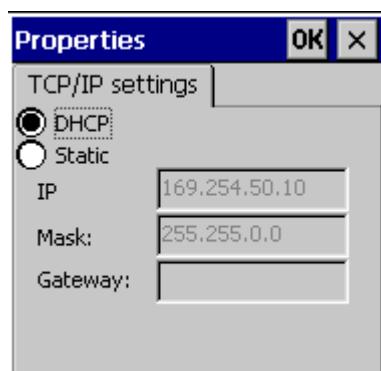
Service not connected



Service connected

When connected, the Manager can still be used as usual.

You can configure the TCP/IP settings of the BTPAN by selecting properties in the contextual menu.



4.5.7 A2DP

The name of the service is "Audio Stereo", to use it, make sure that the device is paired before double click on the icon or choosing "Connect" in the contextual menu.

The status of the service (connected or not) is displayed as shown below:



Service not connected

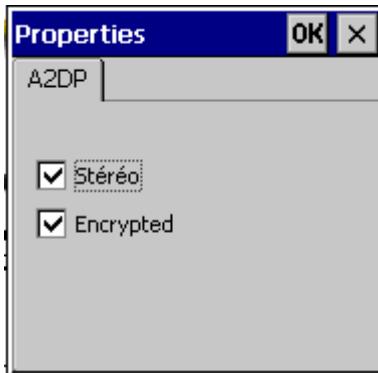


Service connected

If the connection fails, an error message should appear:

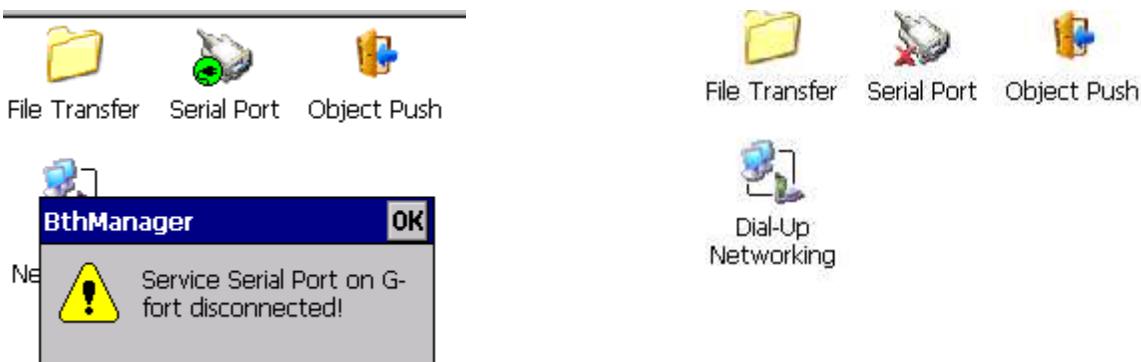


You can configure the audio settings of the A2DP by selecting properties in the contextual menu.



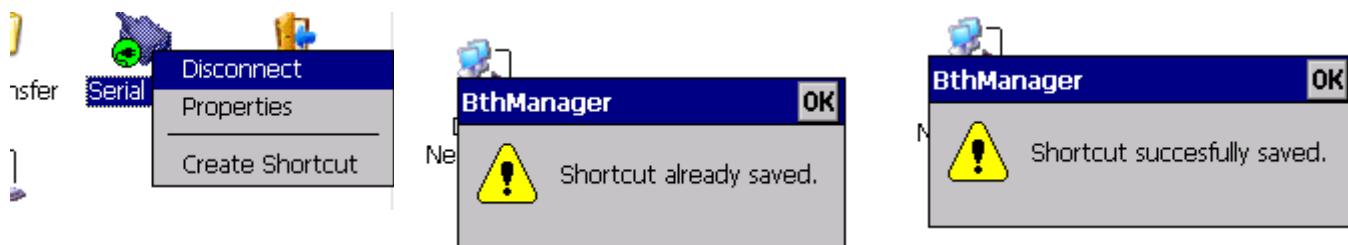
4.6 Distant disconnection management

When a connection, previously established, is shut down by the distant host (manual disconnection or connection loss due to distant device shutting down or due to a weak signal), the user is notified of the disconnection and the Manager attempts to reconnect during a time t (by default, 1min30). The notification is made by a pop-up window and by changing the icon associated to the disconnected service.



4.7 Connection shortcuts management

Shortcuts associated to defined services on defined devices make establishing connections with distant devices easier. A shortcut can be created by selecting the "Create Shortcut" item in the contextual menu of a connected service. If the shortcut already exists, a notification is displayed. If the shortcut is successfully created, a notification is also displayed.



The button in the tool bar ("Menu>Shortcuts" for WM5) displays the connection shortcuts list. The service, the device and, eventually, the COM port are used in the shortcut name.



To establish a connection from the shortcut, double-click on the icon or select "Connect" in the contextual menu. Once the connection is established (even if the connection is not successfully established), the display is switched to the services list associated to device linked to the shortcut. The connection status of the service (connected or not) is displayed not only on the service icon but also on the associated shortcut icon. However, disconnection can only be performed from the service contextual menu.



Shortcuts can be deleted by using the "Delete" item of the contextual menu. The user must confirm the deletion.



The content of the shortcut list is saved between executions of the Manager.

4.8 Stop the Bluetooth Manager

When the BlueTooth Manager window is closed (by the close button X), the application is still running in the background.

- Windows CE :

To display or stop it, click on the BlueTooth icon on the Windows bar and select: "Show" or "Exit". You can also display it by starting again the application

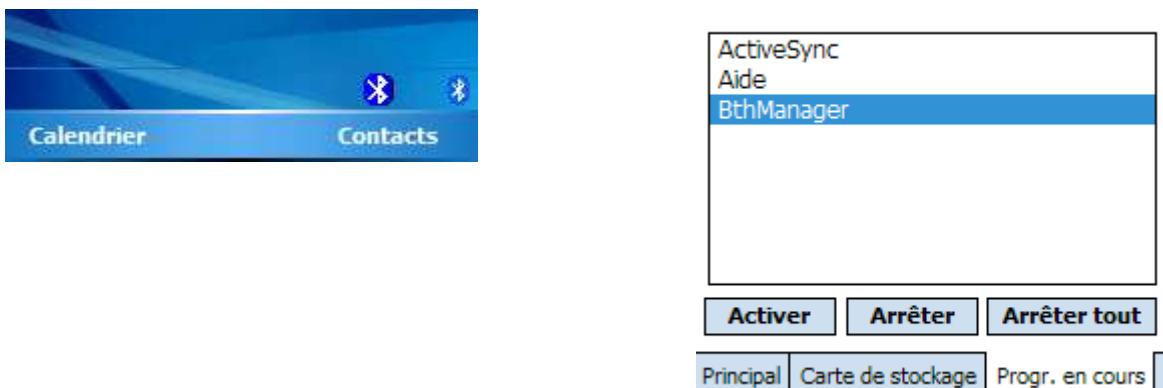


- Windows mobile:

To display it, click on the BlueTooth (left icon) icon on the Windows bar.

To stop it, go to Start Menu >Parameters>"System tab" and select the memory manager.

Go to the current running programs tab and select the "BthManager" then click on Stop.



4.9 Registry information

The Bluetooth Manager configuration is stocked in the registry:

[HKEY_LOCAL_MACHINE\SOFTWARE\ADNEO\BthManager]

- AutoClientCOM

Set at 0 : Ask for a COM port when connecting to a distant SPP profile

- AutoServerCOM

Set at 0 : Ask for a COM port when activating the SPP local service

- StartMinimized

Set at 0 : The Bluetooth manager start maximized

- LocalPortCom

Set at X : The SPP local service is connected with the COMX:

- Reconnection Timeout

Set at X : The application stops trying to connect after a distant disconnection after X seconds

- Scan Period

Set at X : The application scans for disconnection every X seconds

- Default Pin Activated

Set at 0 : The application asks to the user to write a PIN code when a device asks for pairing

- LocalPinRequest

If the "Default Pin Activated" is set at 1, this is the PIN code return to the distant device.

- LastView

Save the last view (Shortcuts, Devices, Local services, etc...) from the last run of the application to retrieve it when restarting

Shortcuts* contains all the informations about shortcuts.