

ILPer Installation Notes

J-F Garnier, Oct. 2009

ILPer program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but **WITHOUT ANY WARRANTY**; without even the implied warranty of **MERCHANTABILITY** or **FITNESS FOR A PARTICULAR PURPOSE**. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307, USA.

Installation of the ILPer software involves:

- installation of the FTDI drivers for the PIL-Box USB interface,
- setting the correct USB serial port,
- installation of the NET Framework 2.0 (for ILPer execution only) or Visual Basic Express Edition (if ILPer sources have to be modified).
- installation of the ILPer executable (and sources if needed)

1. Installation of the FTDI driver

The PIL-Box is using a FTDI FT232R circuit for the USB interface.
Download the drivers for your Operating System from :

<http://www.ftdichip.com/FTDrivers.htm>

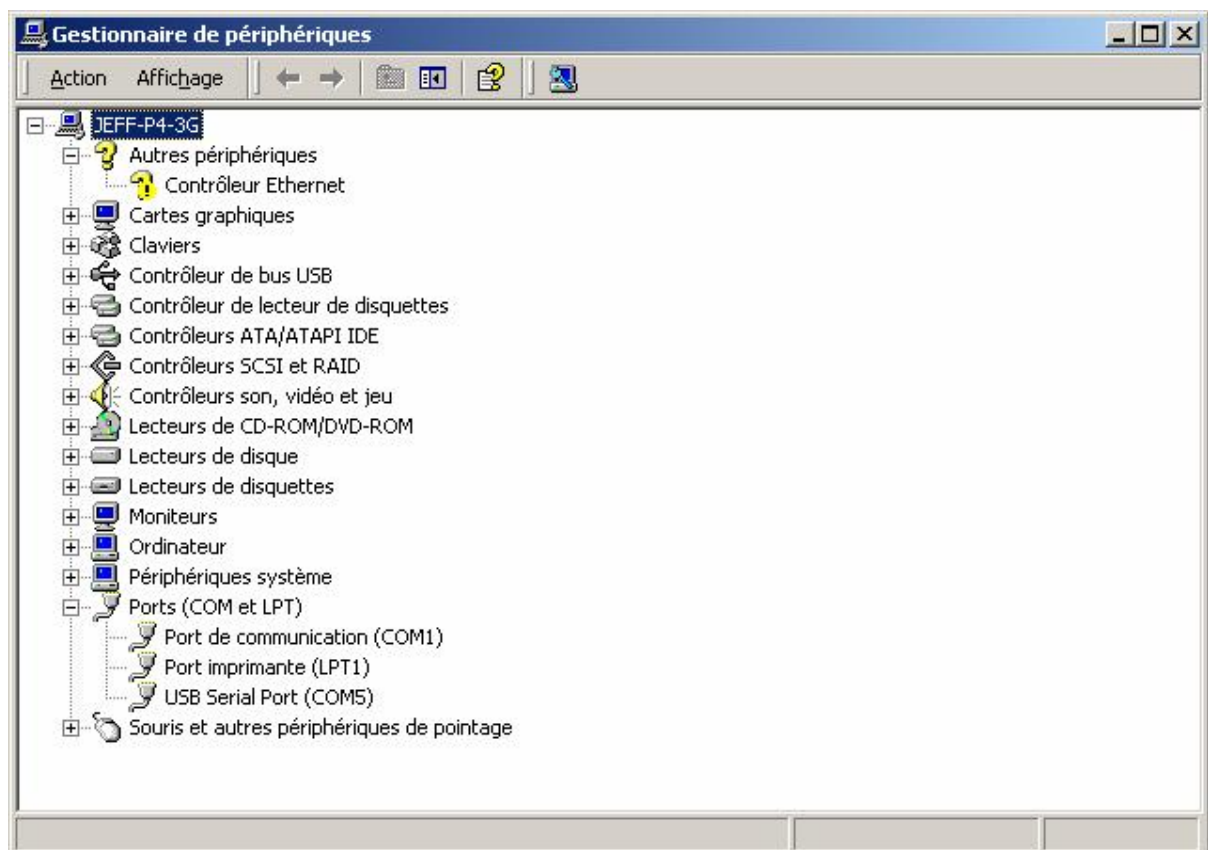
ILPer uses the VCP (Virtual COM Port) driver. Other future software may use the D2XX driver. For most OS, the two drivers are provided in the same package.

I tested the VCP drivers for: Windows 98, 2000, XP.

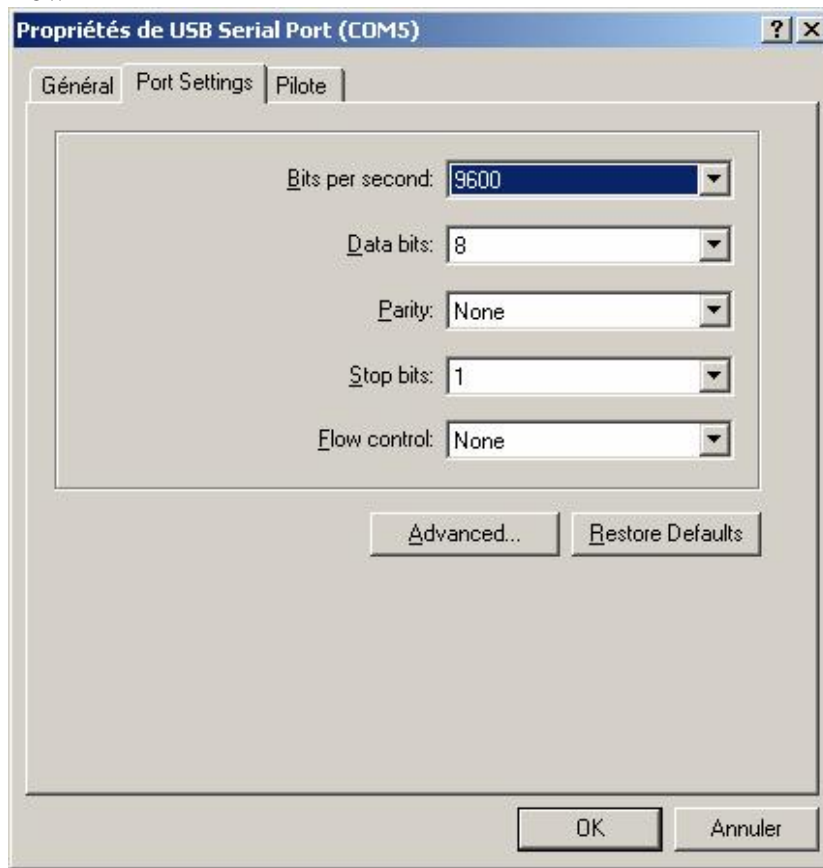
2. Parameter of the USB serial port

Some parameters of the USB serial port must be set before using ILPer:

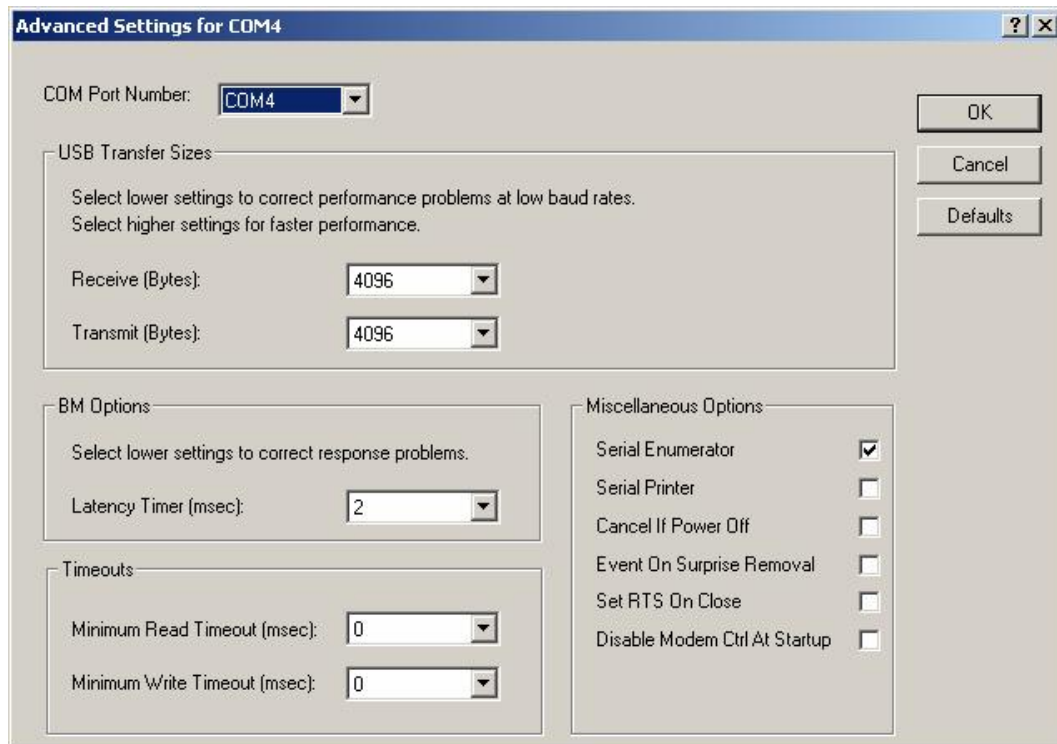
Check that the USB Port correctly appears in the device list:



Select the Port settings and check the parameters : **9600 bauds, 8 bits, no parity, no control flow**



Check the advanced settings: set the COM Port Number **to COM4** and set the Latency Timer **to 2 ms**:



Note : other COM port number can be used if needed, however ILPer uses COM4 by default.

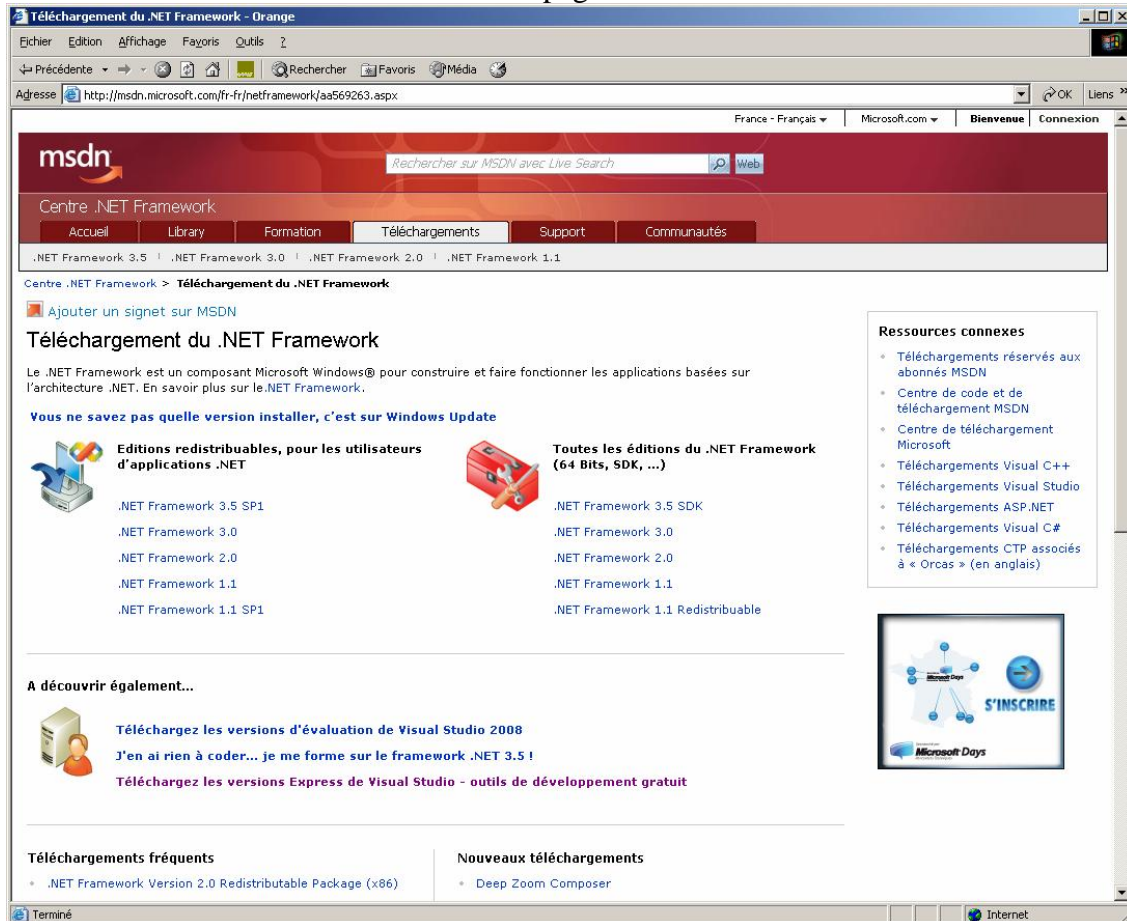
3. Installation of Microsoft .NET Framework 2.0

The .NET Framework package is needed by the ILPer executable file, if it is now yet installed on your machine

Seach for « Framework 2.0 » in Google to find the Microsoft Free Download service for your localized version.

This step is not needed if you install the Visual Basic Express Edition (see below).

For instance here is the French Microsoft page:



Choose the .Net Framework 2.0

4. Installation of ILPer

This is simply done by copying the ILPer.exe file into your favorite folder, for instance the folder where Emu41 or Emu71 is installed.

5. To modify the ILPer source files, use the Visual Basic Express Edition

The Microsoft Visual Express Edition is a free programming language. Refer to the Microsoft Web site for more information.

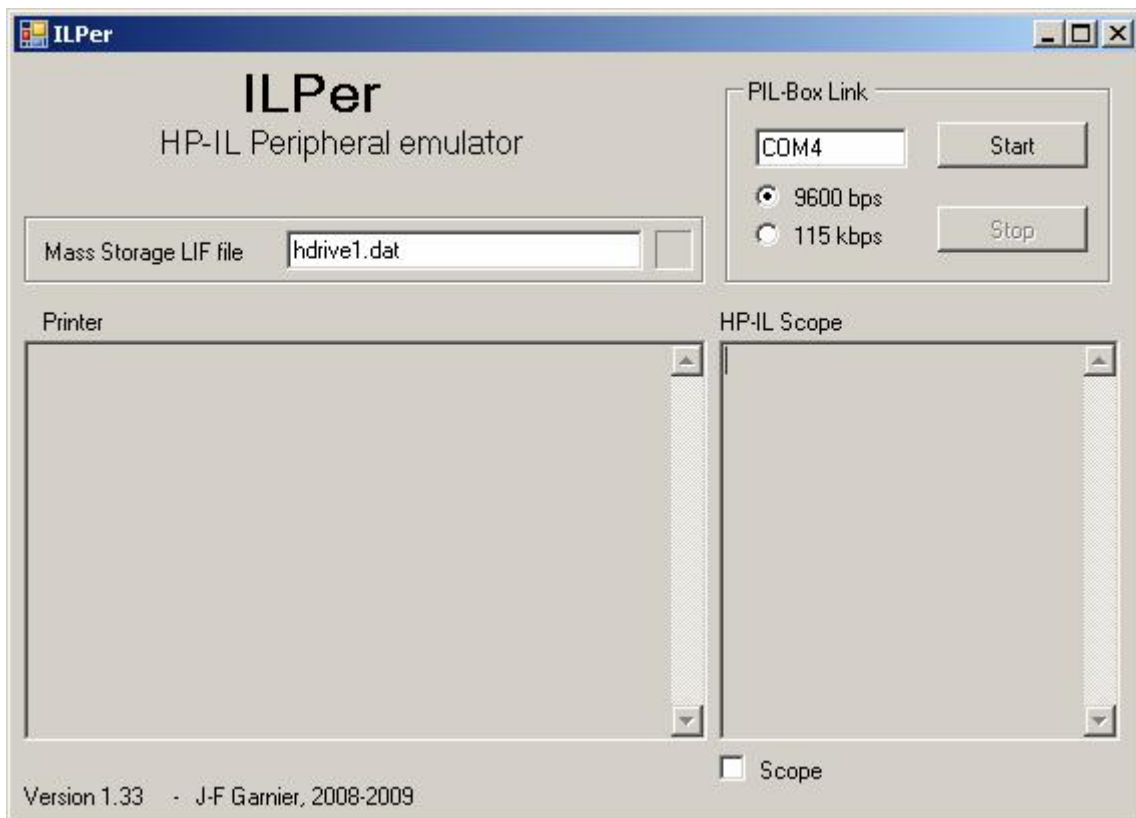
I wrote ILPer with VB Express Edition 2005 which is now replaced by the edition 2008. I didn't test it, but I assume that the ILper source files are compatible with it.

ILPer Usage

ILPer is an emulator of HP-IL devices using the PIL-Box. In version 1, it manages two devices:

- a generic printer device,
- a mass storage device.

A HP-IL scope is also included.



ILPer usage:

- launch ILPer,
- make sure the PIL-Box is connected and using the COM4 Virtual Com Port (VCP), or change the COM port number to use.
- click the 'Start' button. A error message is displayed in case the PIL-Box is not found on the COM port.
- To change the mass storage LIF file, first click on 'Stop' button, modify the file name, then click on Start again.
- The scope feature can be enabled/disabled at any time.

The speed of the COM port can be set to 115kbps instead of 9600 bps. The same speed must be selected by the jumper JP2 on the PIL-Box. The 115 kbps option is useful to optimize the operations with the HP-71B, it has almost no effect with the HP-41C. It is included in ILPer for demonstration.

1. Printer device

The printer device emulates a generic alphanumeric, non-graphic printer.

AID=46

ID="DISPLAY"

Display and printer devices are automatically used by the 41C for print functions. To enable printing, just set flags 15 and/or 16.

Note: No escape sequences are managed.

2. Mass storage device

The HDRIVE1 device emulates a mass storage unit compatible with the HP9114 by using a DOS image file.

AID=16

ID="HDRIVE1"

DDT and DDL command set compatible with the HP82161 and HP9114 units.

The data are recorded in a image file in the ILPer working directory. Maximum size of this file is 640k.

This file is created with NEWM. When created, the file is 32k long, its size is then increased when needed, up to 128k with the HP-IL module standard functions, or up to 640k with special instructions or with the Extended IL ROM from SKWID (don't confuse it with the HP X-IO module).

The format of this file is compatible with LIF disk images that can be found in some Web archives. So it is possible to directly read these files from these archives to an external HP41C using the PILBox.

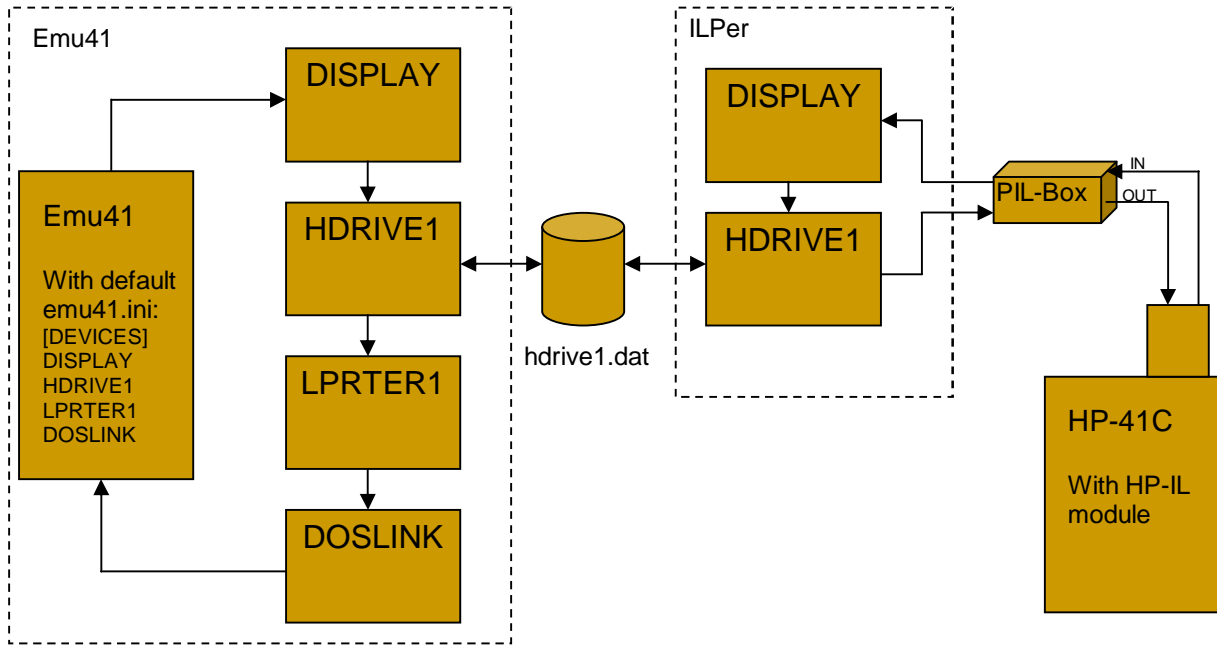
3. Scope mode

By clicking on the 'Scope' box, the frames are displayed during the HP-IL activities.

Note that RFC and IDY frames are not displayed because they are managed locally inside the PIL-Box.

4. ILPer as a gateway between Emu41 and an external HP-41C:

Although native support of the PIL-Box is included in Emu41 for experimental purpose, the recommended setup for reliable communication with Emu41 is to use the ILPer software as a gateway between Emu41 and the HP-41C.



Program and data transfers are done by using the HDRIVE1 devices that are sharing the same LIF image file (hdrive1.dat).

Emu41 and the HP-41C must not access the drive at the same time!