RSILink

Version 4.0.0 (2018-10-19)

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Contents

About

The RSILink application is designed to transfer data between a PC and an RSI instrument. Typical usage includes downloading data files and updating the instrument configuration.

Prerequisites

Using RSILink requires two connections:

- USB
- RS-232

The USB interface connects to a FTDI chip that interfaces with the CF2 Persistor computer. This connection facilitates fast data transfer between a PC and instrument storage. When USB is connected to a computer, the computer will identify this port as a serial port.

The RS-232 serial port connects to the CF2 Persistor console. This connection allows users to control the CF2 Persistor computer. For example, to enable the USB interface.

Note: Instruments that do not have a RS-232 connector on their deck cable have an included USB-to-RS232 converter. These instruments have a single USB connection which provide both required interfaces.

Installation

Windows

Users of Windows must use the executable installer which installs the following:

- Motocross

  Terminal software used to interact with the CF2 Persistor computer. MotoCross also provides the ability to update the firmware of the CF2 Persistor.

  Note: MotoCross only works with COM ports 0 to 9. Should Windows assign a COM port outside this range, use the device manager to manually reassign the device to a suitable COM port.

- RSILink

  Facilitates the transfer of bulk data over USB. Fully described by this document.

MotoCross is installed by default by the RSILink installer. Users can optionally use an alternative terminal such as Tera Term, a popular open source terminal which has some advantages over MotoCross:

- support for XMODEM and YMODEM
- improved handling of USB-to-serial devices.

FTDI drivers are required to connect with RSILink. There are 3 ways that the FTDI rivers can be installed:

- Windows Update

  Drivers will be automatically downloaded, installed, and maintained by Windows Update. Connect the USB connection on the RSI instrument and let Windows Update do the rest. This is the recommended method but requires an Internet connection and that Windows Update be enabled.

- Driver Download from FTDI

  When Windows Update is not available, the required drivers can be downloaded directly from the FTDI website.

- USB Flash Drive

  As a final option, the USB flash drive provided with your instrument includes a copy of the required driver. This is not a recommended option because the driver is probably outdated.

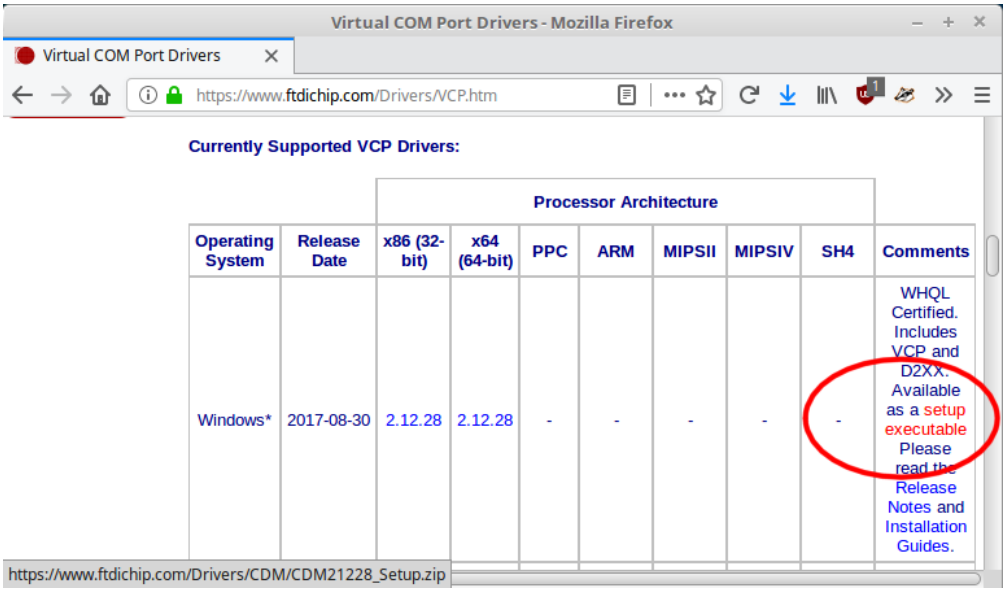

Figure 1: FTDI Driver Download Location

macOS

Installing RSILink on macOS is as simple as dragging the application to a suitable directory. No other installation steps are required.

RSILink connects to a CF2 Persistor running USBL. Launching USBL on the CF2 Persistor requires a suitable terminal. We recommend CoolTerm, a reasonably simple, free terminal application for macOS.

Note: Users who have installed a previous version of RSILink might have to remove the D2xxHelper driver embedded by the previous version of RSILink.

Remove the D2xxHelper driver from the Terminal.app application by typing the command:

```
sudo rm -rdf /Library/Extensions/D2xxHelper.kext
```

After executing the above line within a terminal, reboot the computer. This only has to be done once and exclusively on computers where the previous RSILink was installed.

Linux

Linux users should copy the AppImage file to a suitable location on their system. Execute this file to start RSILink. If the file will not execute, verify that the execute bit is correctly set.

```
chmod guo+x RSILink_v4_0_0-x86_64.AppImage
```

Adjust the name of RSILink in the above example to match the name of the file copied to your system.

Usage

RSILink works in conjunction with USBL, an application that runs on the CF2 Persistor.

Executing USBL

USB Link (USBL) is included with ODAS5-IR on the CF2 Persistor computer. First establish a terminal connection to the CF2 Persistor. Then type *USBL* at the PicoDOS command prompt.

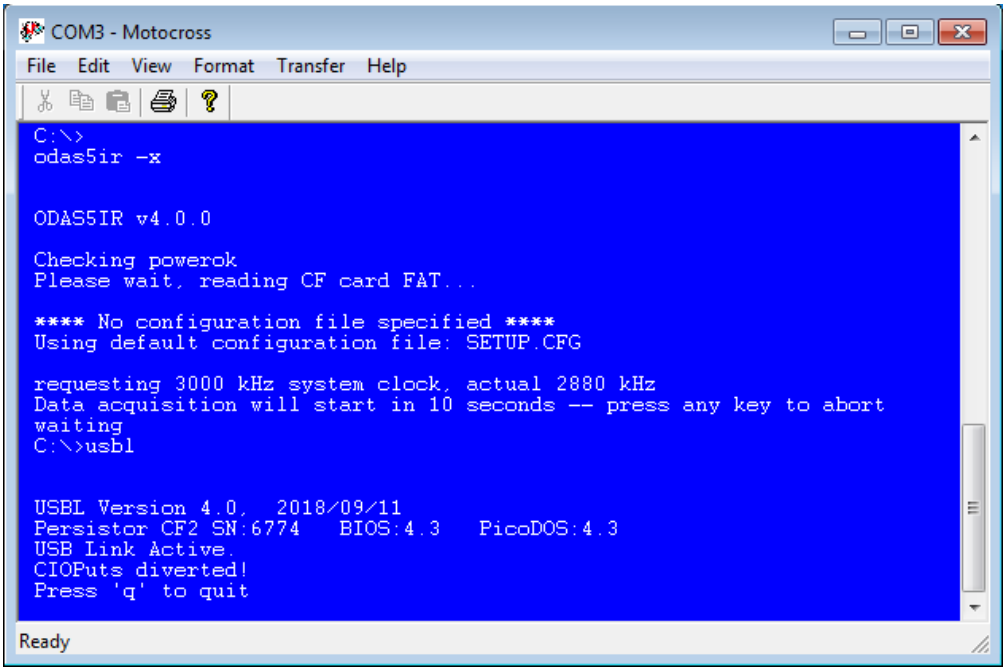

Figure 2: Launching USBL

The default communication settings used to connect to the CF2 Persistor are:

- 9600 baud
- 8N1

Please refer to the ODAS5-IR user guide for help when connecting to the CF2 Persistor computer and launching USBLink.

Connecting With RSILink

After executing USBLink, (see Executing USBL), RSILink should be able to establish a connection with the CF2 Persistor computer. Note that it can take 60 seconds for USBL to boot so please be patient when first connecting.

The correct serial port must be selected from within RSILInk. Note that this is a different serial port then that used to launch USBLink.

Include Image

Use the refresh button to refresh the list of available serial ports. Then select the desired serial port using the pull-down menu box. Finally, click the "*Get Root Directory*" button to obtain a listing of files on the CF card.

If a listing of files is not provided, repeat the above steps while selecting a different serial port. Repeat until the contents of the CF card are successfully displayed.

Changing Directories

To change directory, you can simply double-click on the desired directory. The directory entitled "*..*" brings you up a directory level. Finally you can go back to the top directory by pressing the "*Get Root Directory*" button.

Downloading Files

The "*Download*" button is used to download files from the CF card. This button will be enabled when one or more files are selected from the directory listing. After clicking the "*Download*" button, RSILink will request a location on the local computer where the files can be saved.

When files are downloaded, RSILink will set the file modification date to the same date as recorded on the CF2 Persistor computer.

The CF2 Persistor displays the date / time in UTC format. Most computers display the date / time formatted for the local time zone. As such, the file modification time displayed on the CF2 Persistor will likely differ from that displayed on the computer that downloads the data. This is not an error but the result of the offset between UTC time and the local time zone.

When a file is recorded at 6:00am (local time zone) and then downloaded to a computer at a later time, the resulting file modification time displayed by the computer will be 6:00am. In short, with the CF2 Persistor set to UTC time, everything is how it should be.

Uploading Files

Click the "*Upload*" button to upload files to the CF2 Persistor CF card. Files will be uploaded to the current directory.

After selecting "*Upload*", RSILink will provide an open dialog box to request the files which should be uploaded. The CF2 Persistor only supports DOS 8.3 file naming. In the event that files with non-conforming names are selected, RSILink will suggest, and request conformation / correction, for alternative names to be used for those files. This functionality will remove the need to manually change the file names on your local computer. More information can be found in section Configuration Files with Meaningful Names.

Updating CF2 Persistor Time

As the CF2 Persistor compute module has no knowledge of time zones, it is therefore expected to be in UTC time. This can be set via the "Set Time" button which sets the Persistor to the current UTC time. We strongly recommend using this button to set time rather than other available options. This occurs since Rockland's data processing software assumes the data was acquired in UTC when generating plots.

Once the Persistor clock is set correctly, the reported file modification dates will have a UTC offset applied. The offset is removed when downloading files to the local computer. Therefore, please do not manually configure the CF2 Persistor to use the local time in place of UTC time. Doing so will cause data files to have inaccurate dates when downloaded.

Hints and Tips

Adjust Text Size

Text size within RSILink can be adjusted by holding down the *Ctrl* key while scrolling with the mouse. If using macOS, a different modifier key must be pressed.

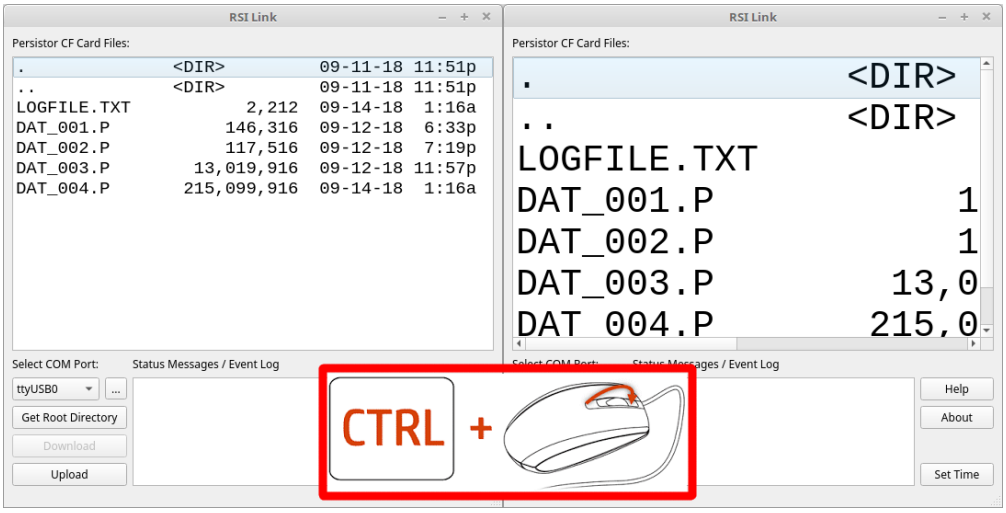

Figure 3: Change Text Size

Configuration Files with Meaningful Names

PicoDOS on the CF2 Persistor only supports 8.3 character file names. As a result, the configuration file is almost always named *setup.cfg*.

It can be difficult to keep track of multiple configuration files when they all have the same file name. One typically provides a more descriptive name to prevent this source of confusion. The problem is that this file must be renamed before sending to the CF2 Persistor.

RSILink now looks at the file names when uploading files. If the file has the *.cfg* extension, the file is assumed to be configuration string file. Therefore, if the file name is inappropriate, an alternative name is recommended in a dialog box to verify if the modification is acceptable.

Automatic renaming of the configuration file allows for more descriptive file naming such as:

File Name	PicoDOS File Name
`setup-2018-01-01.cfg`	`setup.cfg`
`setup double sampling rate (1024).cfg`	`setup.cfg`
`blue ocean.cfg`	`blue_oce.cfg`
`configuration_20180910.cfg`	`configur.cfg`

Note: If the configuration file name is changed, the "*AUTOEXEC.BAT*" must be modified to reflect the change. Test the "*AUTOEXEC.BAT*" file by executing the file at the PicoDOS prompt:

```
C:\> autoexec.bat
```