Setting up a PC to work with Ciseco hardware

Ciseco radio technology presents a computer or microcontroller with a serial port through which to send configuration information, commands and data. In this document we will show you how to set up your PC so that you can connect it to a network of Ciseco Radio transceivers.

Ciseco USB technology

Most modern computers no longer have a serial port, but they do have Universal Serial Bus (USB) ports which can show up as a virtual serial RS232, COM or terminal port.

Ciseco has several products that use the USB port to connect a radio unit to a PC:

1. SRF stick (recommended)
2. URF (our first USB based radio)
3. Explorer Plus, a 5 in one USB based interface for Xbee, XRF, RFu, FTDI (recommended if you have various radio modules and want to program them)

Installing USB drivers

When you plug in one of the Ciseco USB devices, Windows will require a driver to be installed. The drivers you need are supplied by Ciseco, and Windows won't automatically find them.

The appropriate USB drivers can be downloaded from http://openmicros.org/images/usb_cdc_driver_cc1111.zip.

Download them and put the unzipped ini file somewhere convenient. Plug the URF into a spare USB port. Windows will prompt you for the driver files, so point it at the **usb_cdc_driver_cc1111.inf** file you downloaded earlier. Confirm that you want to continue and the driver will be installed.

After installation, Windows Device Manager will show a TI C1111 Low-Power RF to USB CDC Serial Port (COMx) where x is the COM port.

Establishing communications

Once the driver is installed, any program can connect to the serial port on which the Ciseco hardware is located and use the port as a standard serial port.

Typical programs that you might want to use include a terminal emulator program, such as Hyperterm, your own program you've written for your PC, or Ciseco's XCM, a configuration management and serial monitor for radio modules. If you use Hyperterm, you'll be asked for a name for the new connection and an icon. Call it URF, select any icon and click next. Then select the COM port to which the URF is connected and set the baud rate to 9600, 8 bits, and one stop bit.

The first thing to do when you have installed the driver and have the USB radio device plugged in is establish connection with the local radio device. Try and send it the string **+++** witout a carriage return. You should receive back: **OK** Please note that **+++** starts a local interaction between your computer and the attached device. Please don't get confused between local configuration and remote communication, and consult this guide for more detail.

Once you can reach the attached device, you can try actual radio communcation. If you have two Windows machines, and two URFs, you can plug a URF in each computer, install the drivers on each machine and you then have the ability to send and receive data over the wireless RF connection without doing anything else. As far as both PCs are concerned, the communications apepars as if were conducted over a serial (RS232) wired connection.

You can try and establich communucations with a Linux, Mac, Raspberry Pi, or Arduino controller equipted with a Ciseco radio. Or you can sit and listen to messages from one of the many sensors units that are available.

All Ciseco radio units are set up so that they can communicate with one another with the default settings with which they ship. You should not need to change settings, install any software, or do anything else. If things don't work, first of all look at the attached computers or controllers first.

Installing XCM

XCM stands for XRF Configuration Manager. It is a versatile tool with which you can

1. collect the configuration of the radio unit that is connected to your PC,
2. make changes to this configuration and store those changes
3. install LLAP personalities on an XRF module placed in Explorer Plus, connected to your PC
4. monitor traffic on your radio network via the radio unit connected to your PC

You can download the latest XCM software at http://www.ciseco.co.uk/downloads/XCM/install.htm. Once installed, the software, will check for updates each time it is run, and may prompt you to download a new version. We recommend that you accept updates when available. The latest XCM source is up on our Github accounthttps://github.com/CisecoPlc/XCM-for-Windows.

For more details see http://openmicros.org/index.php/articles/84-xrf-basics/105-xcm-software-config-for-the-xrf

To easily check if you can communicate with your XRF, use the "Search" button; this will search every available COM port for an XRF. This can take a long time if you have lots of COM ports. If you know what port the XRF is connected to, then select this from the drop down box and make sure the baud rate is set correctly (9600bps is the XRF default).

Press "download config" and after a few seconds all the text boxes should be populated.