Hydrology Radio Field Setup/Programming

Overview:

This document outlines how to setup and install a Hytera Digital Radio for a Catchment Data Telemetry Site. It also outlines the cables, M500 converter

Horizons Repeaters have two timeslots, Slot1 and Slot2. Our telemetry network (loggers/radios) operate on Slot2, this is to keep it separate from other traffic that might occur on the network. Slot1 is for voice/GPS locations of vehicles.

1. Plug in aerial and power cable
2. Connect 12v power cable to power source
3. Turn power button on

4. Plug in Programming Cable into the front port of radio. If there is a switch on the cable, make sure it's in CPS mode, not DL. DL is for firmware updates etc.

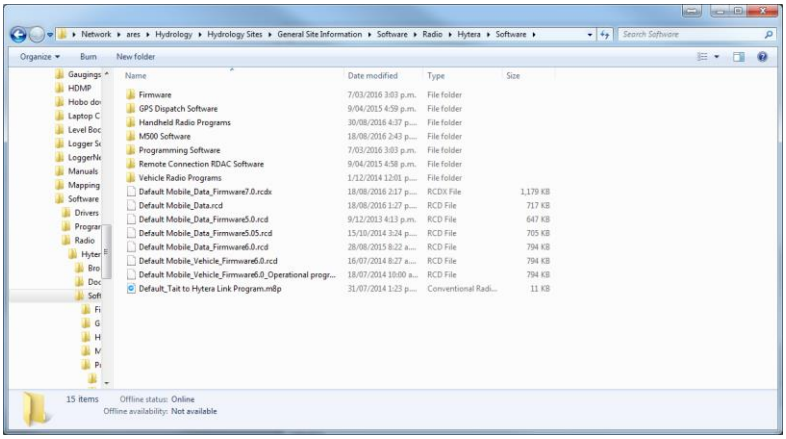
5. Install the latest 'Customer Programming Software' (CPS) from the following folder:
   \\ares\Hydrology\Hydrology Sites\General Site Information\Software\Radio\Hytera\Software\Programming Software\

   Run the setup.exe, and copy/paste the serial number when asked (from the SN.txt file).

   Install the USB driver (for first time users), located in:
   \\ares\hydrology\Hydrology Sites\General Site Information\Software\Radio\Hytera\Software\Programming Software\USB Driver\5.30.41.01\driverinstaller

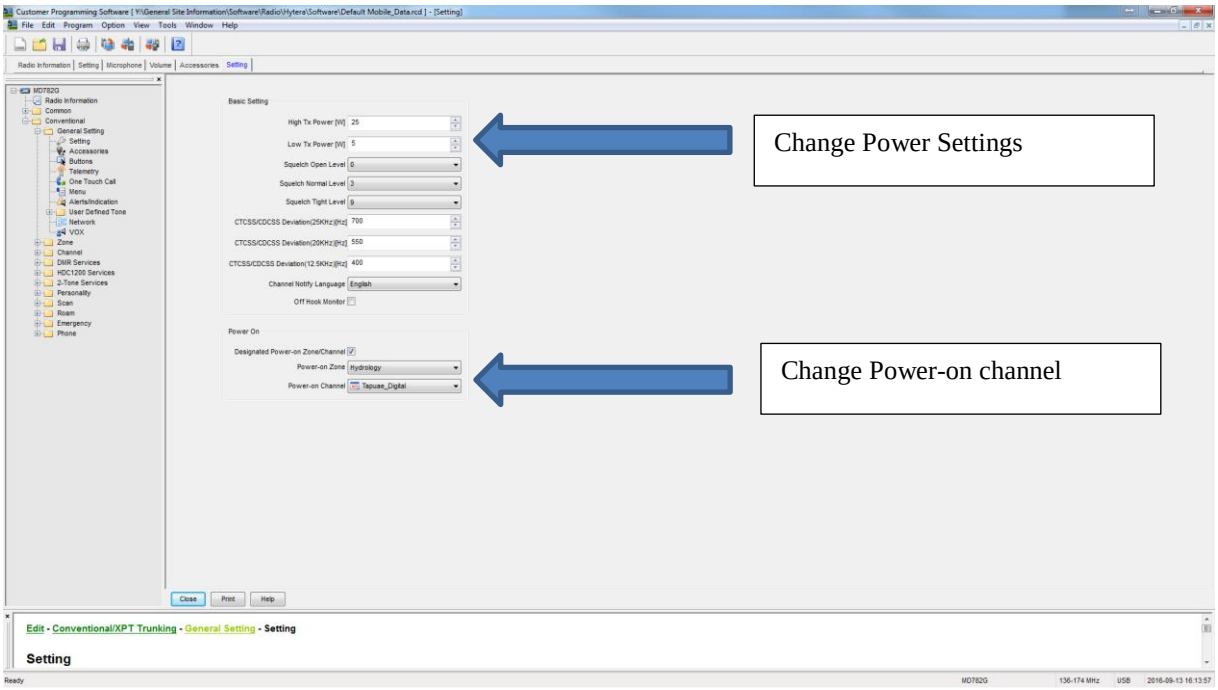
   There are a few steps to installing this driver, so please read the installation guide first:
   \\ares\hydrology\Hydrology Sites\General Site Information\Software\Radio\Hytera\Software\Programming Software\USB Driver\5.30.41.01\document\Digital USB Driver Installation Guide R5.0.pdf

6. Once installed, run the CPS program. Click open and target this folder: \\ares\Hydrology\Hydrology Sites\General Site Information\Software\Radio\Hytera\Software\

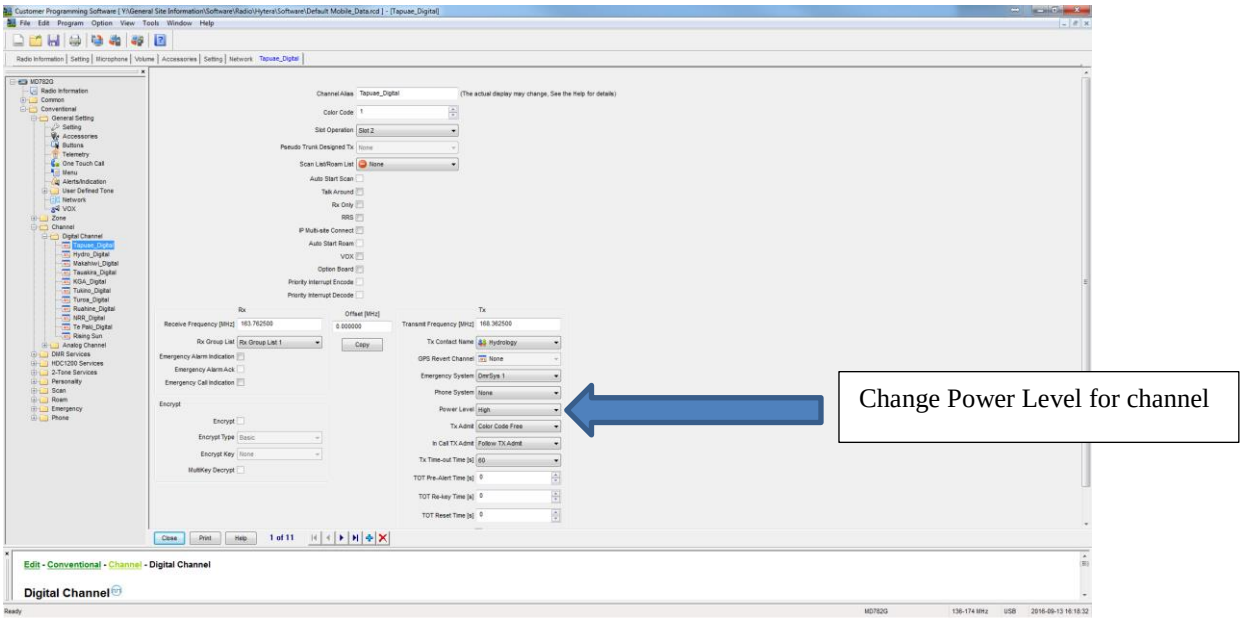


Open up the template radio file for the respective radio firmware you have. The standard file is 'Default Mobile_Data.rcd', this is for firmware 4.05. Pick any other file as required; they all have the channels loaded.

7. All of the radio channels are loaded into these files, so there are only a few basic settings you need to change per radio/site. The first is the power settings, i.e. what power level is low/high. Minimum is 5W, Maximum is 25W. Also, make sure the power-on channel is set correctly. The radio will revert to this channel when repowered.

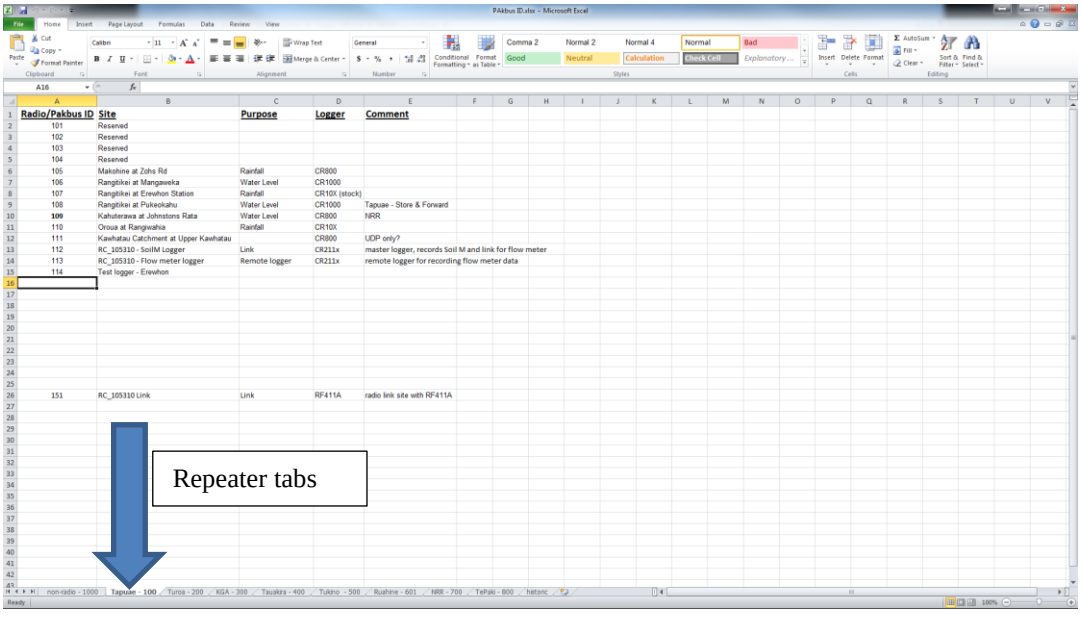


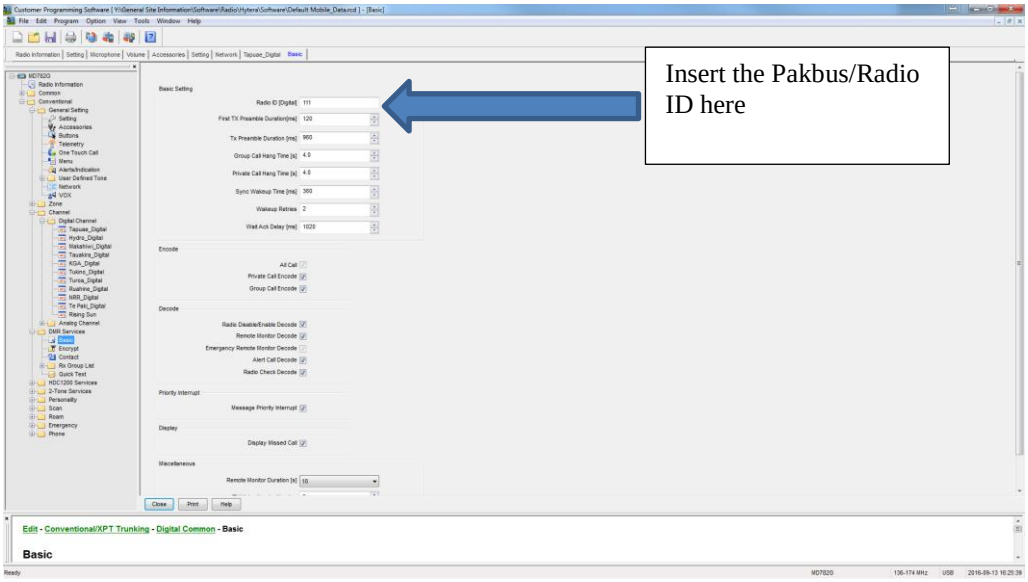
8. The next item to check is the channel setup. It should all be configured; the only thing to change might be the power level for the channel. This can also be changed on site with the P1 button.



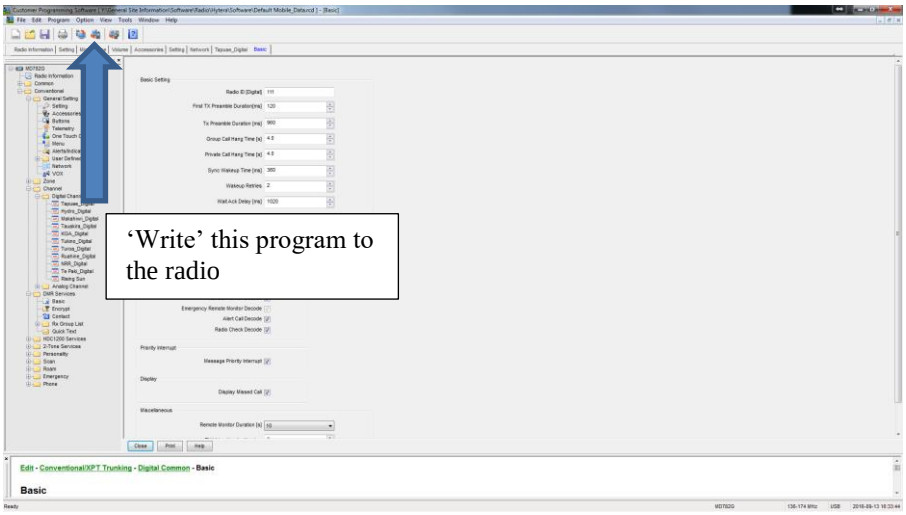
9. The final setting to change is the unique radio ID number. This radio number matches the Pakbus number for the Campbell logger. First you need to check the Pakbus ID spreadsheet \\ares\hydrology\Hydrology Sites\General Site Information\Logger Software\MK100 base Software\PAkbus ID.xlsx

   Find the repeater/channel tabs down the bottom, select the correct one and add your new site to the list. Grab the next available number.



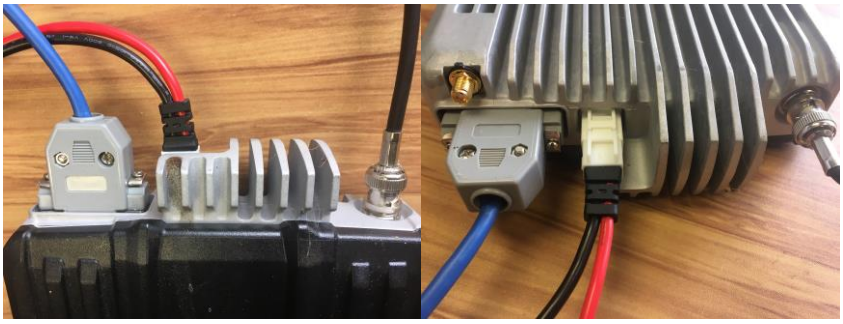


10. Once those settings have been configured, then press the “Write” button to program the radio. Once completed remove the programming cable and you are good to go.



11. Once the radio is programmed, then the correct cables/adaptors need to be matched with the logger:

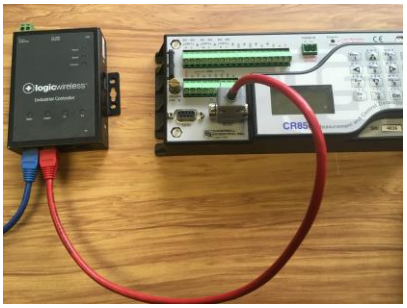
    a. Firstly connect the 12v power, aerial BNC connector, and the blue radio cable (26pin connector). This blue radio cable then plugs into the radio port of the 'M500' (or 'Logic Wireless Controller').



The M500 has two ports setup, the first is for the radio, the second is for the logger. The blue radio cable has an ignition sense cable attached (black wire in photo), this turns the radio on again if power is lost/restored. This is normally connected to the green power plug on top of the M500.

Once connected, the radio light should flash every 5 seconds, the logger light will flash when its providing data to the M500.

    b. Then plug in the cable from the logger. If using a CR800/CR1000, then try to use the RS232 port and the red RS232 cable as shown in picture. The M500 is designed to talk in RS232, so removes the need for additional converters for CS I/O.



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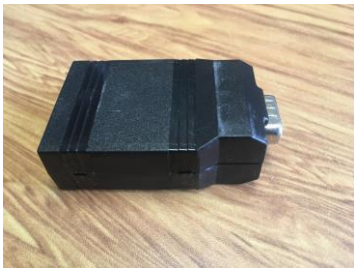
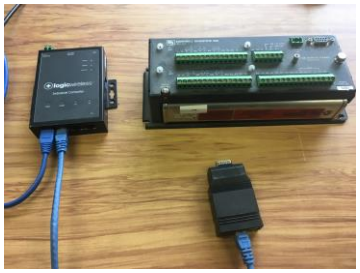
If you can't use the RS232 port on the CR800 or you're trying to connect to an older CR10XPB logger, then a CS I/O adaptor is required. This converts RS2323 into Campbell CS I/O language.

There are currently 3 types of adaptors:

1) A Black adaptor, which has a network cable at one end (goes to the M500 logger port), then a CS I/O port on the other end. Use this if you only have radio comms at the site, no dual comms.


2) The 'Tri-Comm Adaptor', this is the first version of the Horizons triple comms adaptor. There is a special network port on the side just for the radio, run this network cable back to the M500. Then use a normal serial cable from the 'Datalogger CSIO Port' to the logger CS I/O port.

3) The final option is the 'Multi-Comm Adaptor'; this is version 2 of the Horizons comms adaptor. Slightly improved from the 'Tri-Comm Adaptor' with more ports and options.