Connecting to Data Loggers in the Field

Overview
The Environmental Data team operates a number of monitoring sites, using a range of data logging and telemetry devices. This document is designed to aid technicians in connecting to data loggers for the purposes of routine checks, maintenance, and upgrades. This document is limited to the connection of devices and does not explain the procedures associated with changing a program or troubleshooting site issues related to the data loggers and communications.

Data Loggers
Horizons regional Council primarily operates Campbell Scientific Data loggers but does have some other devices such as the "Point Orange", which is an all-in-one logger and telemetry device.

Campbell Scientific Loggers
These devices are used for the majority of our open channel flow and water quality sites, as well as the majority of our rainfall recording sites. These loggers have three main methods by which a technician can connect to the site to perform routine tasks. These methods are:

- Laptop
- 1000KD handheld display
- Loggernet Mobile app (via VPN or WiFi network)

Each of the methods above have limitations and not each one will be possible at all sites.

Connecting to Data logger via Laptop
Using your laptop is the most reliable and versatile method of connection. This method gives you access to all options as far as site checks, program changes, data downloads, and port/flag settings. To connect using your laptop, you will need:
- Laptop
- Loggernet software
- Connection cables*

Different loggers require different cables, CR300 series loggers use a USB connection while the CR800 and CR1000 Series loggers can be connected to via their RS232 port using a serial cable, or via CS I/O port using a serial cable with the SC32B plug attached.

1. Connect the appropriate cable to the laptop (running Device Configuration Utility)
2. Connect the cable to the data logger
3. Go to the connect screen of Device Config

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4. Choose the correct logger type
5. Choose the correct com port
6. Click "Connect"

At this point, the technician can access the live data feed from the site, as well as any stored values – this is key for site inspections carried out at a 5-minute point as you can do the reference checks and then view what the logger WAS reading at that time. To access the most recent stored data:

1. Click the "Data Monitor" tab (pictured)
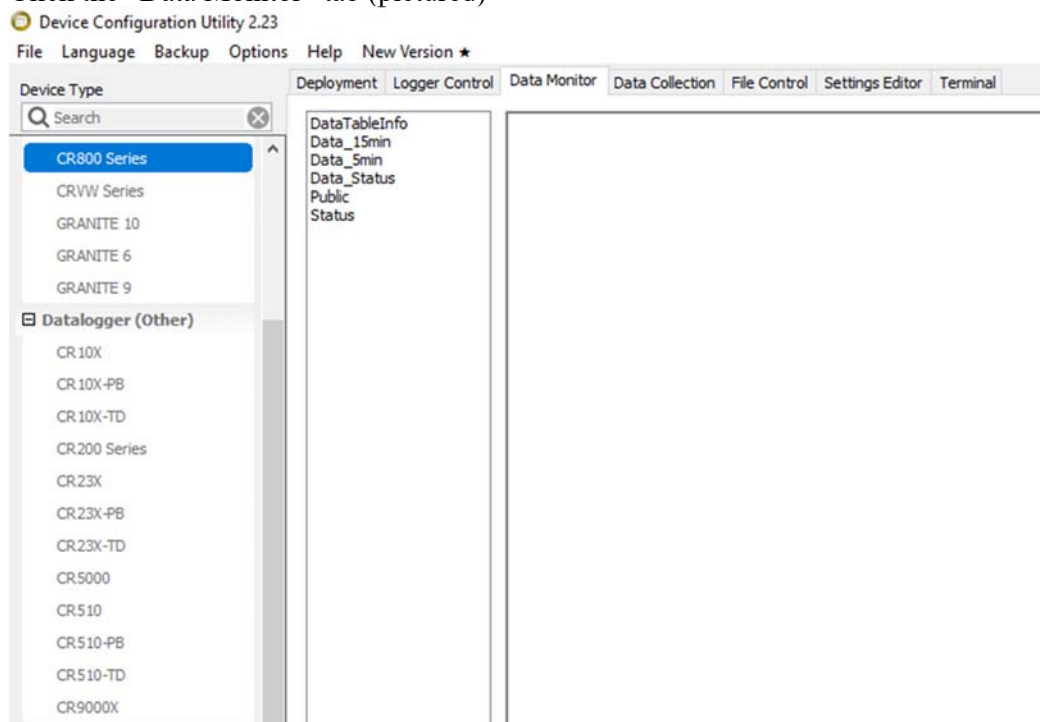
2. Choose the appropriate data table – *generally* 5-minute for water level and 15-minute for water quality

Connecting via 1000KD handheld display
The 1000KD unit is a quick way of connecting to a logger for the purposed of general site inspections. The unit gives a limited functionality comprised of viewing data tables, setting ports or flags, and resetting rainfall totals or Auto Sampler counts.

To connect via 1000KD, a CS I/O port is required on your data logger. At present, the only data loggers with these ports at our sites are the CR800 series (includes CR850)

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and CR1000 series (including CR1000X).

Proceed through the menus using the enter key, and navigate to the real-time tables, and the desired data table for the reading you are looking for. All port and flag settings, along with rainfall totals can be found in the public table (live data).

To edit a value, like the Auto Sampler counts, highlight the value, press enter, enter the desired value, and press enter again. To go back to the previous screen, use the escape key.

Connecting via Loggernet Mobile app
VPN connection from the technician's cellphone is a convenient way to connect to a logger without even opening up a recorder box. The major advantage to this is that there is minimal physical interference with the connections and less likelihood of communications failures caused by cables being left unplugged. This method is limited by WiFi or cellular connectivity from your phone to the site and is unreliable or not possible in some areas.

In order to connect via Loggernet at sites without WiFi, the technician needs to have a smartphone with the Loggernet Mobile app downloaded as well as having VPN access enabled on their device. The app can be downloaded from the App store and VPN access can be added by taking your device down to the I.T department and having them set it up and enable it on your account.
When you want to use VPN to connect to a site:
1. go into your phone settings and turn VPN on
2. Enter your username and password
3. Open "Loggernet Mobile"
4. Select the site you want to connect to (you can use the search function)
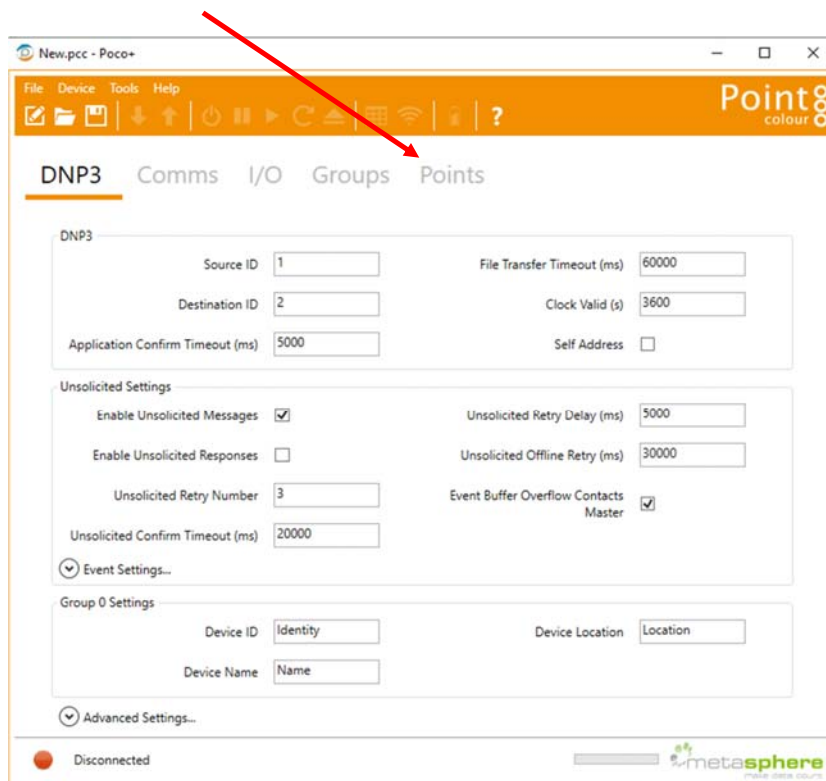5. Select the table you want to view

Connecting to a Point Orange
Point Orange telemetry units are more widely used with our water metering sites, but are also used with some of our smaller site setups due to the low cost nature of the deployments. Connecting to these loggers in the field requires the Point Orange to PC cable and a Computer running the POCO software. To connect and read the data at a site follow these steps:
1. Connect a computer to a Point Orange using the connector cable
2. Run the Poco+ software (can be downloaded from Hydro Sites)
3. Once in this menu, click the download settings button (a Down Arrow) located in the top ribbon
4. Click the points tab to view data points and readings

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