

CI Station Manual

A guideline for installing and operating CI station

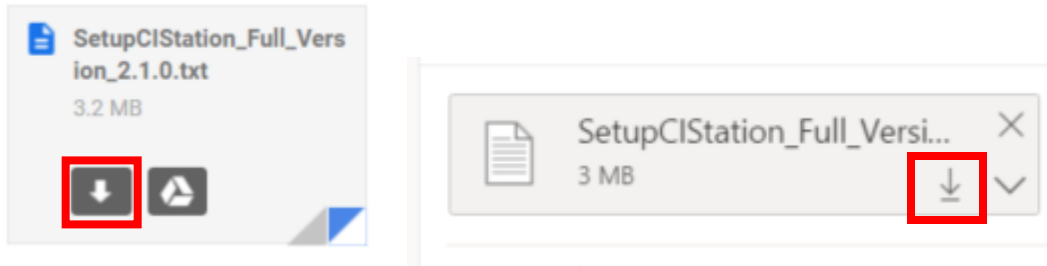
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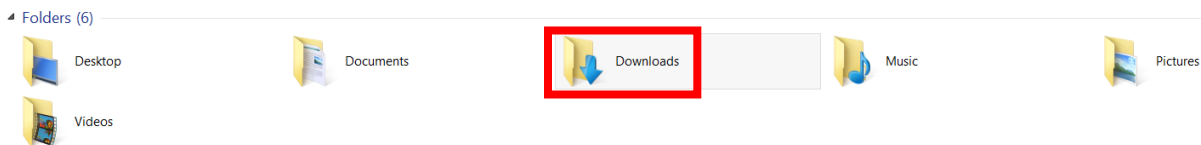
Installing CI Station:

Download Files from Email

- Before installing CI Station, it is important to note that when you receive the installation files from Controls they are text files. There are safety measures that are built into most emailing services that block install files so this is necessary to change the file type in order to email it.
- First, downloaded the text install file from the received email. You will do this by clicking the downward facing arrow on the file as shown by the two examples below.

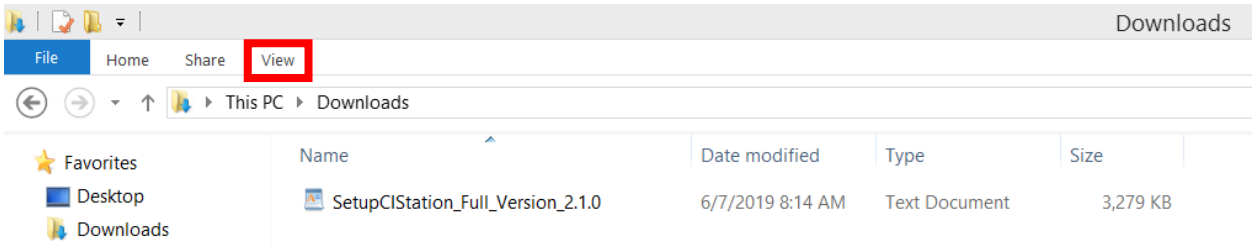


- Note: when downloading these files you will need to place them in a specific folder, if no folder is selected Windows default folder is the Downloads folder.

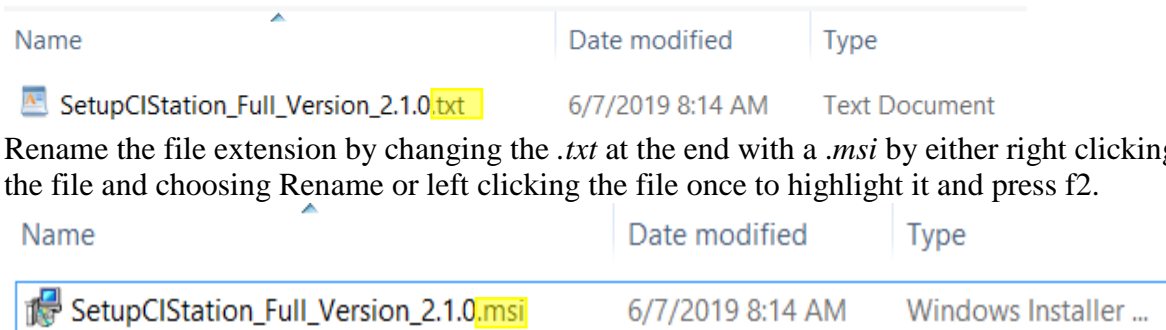


Change File Extension for Windows 8 or 10

- Now that we can see the file, the file extension must be changed. By default Windows hides file extensions so we will need to enable it. First click the view tab.



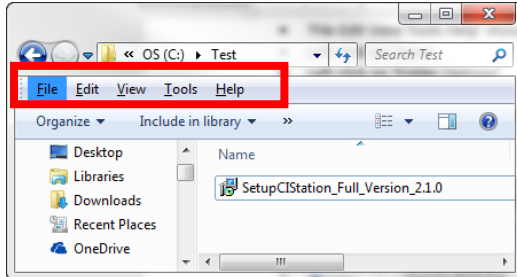
- Click the box *File Name Extensions* now the .txt will show at the end of the file name.



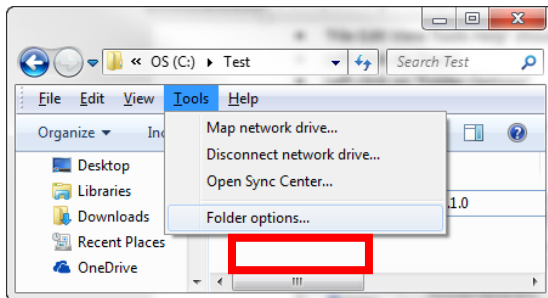
- Rename the file extension by changing the .txt at the end with a .msi by either right clicking the file and choosing Rename or left clicking the file once to highlight it and press f2.

Change File Extension for Windows 7

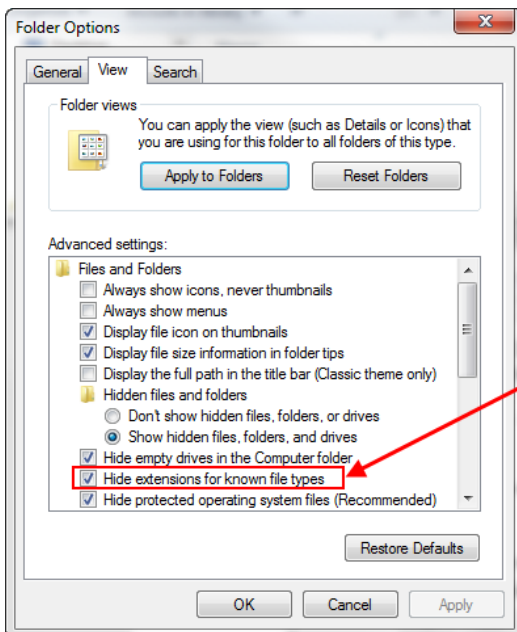
- While in a window, press the Alt key on the keyboard.
- In the new window the *File, Edit, View, Tools, Help* should appear in the upper hand corner as shown below.



- Click Tools and go to *Folder options*.



- Under the *View* tab scroll down to Hide extensions for known file types and uncheck the box.



Run Installer

- With the file type changed to *.msi* double click the SetupCIStation file to begin. The first window to appear may be a Security Warning. This is just a precautionary measure for the CI Station Installer and is safe to click run should this happen.
- Follow the steps of the CI-Station install Wizard to fully install the software.



- Once installed it will be safe to click the Finished button to close the installer. CI Station is now ready to use on the PC.

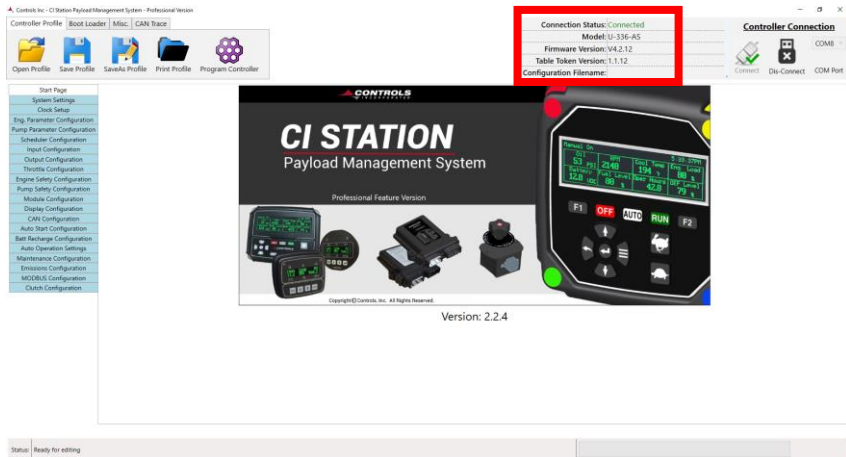
Operating CI Station:

Connecting to CI Station

- With your Controls Inc. controller plugged in the CANUSB converter in the back of the device. Then plug the USB side into your computer. There is also an AC adapter for a wall outlet, you must plug that in as well otherwise your controller will have power.
- Open CI station on your PC and with the Panel connected click Connect. The software window will look similar to this.
- Note: If you are unable to connect, click the COM port and change the COM channel to the one your device is connected to.



- When you're connected to the device CI station Connection Status will show Connected.



- With the device connected, we can manipulate the settings of the device by selected the left side tabs.
- Note: these Tabs change profile to profile. The pictures in this document might display a profile with settings that are different then your project. However, most cases use *System Settings* and *Eng. Parameters* so let's define their capabilities.

System Settings

- Start with the system settings when creating your Profile. Once you have these selections chosen, press the Resync with controller to update the related parameters in the controller.

Configuration Name: Identify the profile for future use. We recommend you save the profile using this name. This name will also appear in the Module Information menu of the controller.

Engine Manufacturer: Select the option that matches your engine. This selection will also preset other menu options based on your choice.

Engine Type: Select the option that matches your engine. This selection will change the behavior of the controller.

TSC Abs Min Spd: The absolute minimum speed that can be set in the module. This setting is only available using CI Station.

TSC Abs Max Spd: The absolute maximum speed that can be set in the module. This setting is only available using CI Station.

Press &Temp Units: Select the units that you would like displayed on the controller.

Engine Parameter Configuration

- Use this section to identify how your engine information will be collected. Much of this section will be prepopulated based on your Engine Type selection sound in the System Settings after you Resync the controller.

Hourmeter Src: Hour meter source can be set to gather the engine hours from the engine's ECU or recorded internally by the controller. If set to internal, the starting number of hours must be set in the display itself.

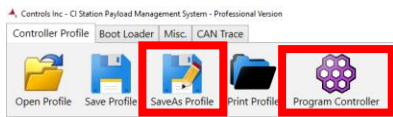
Speed Src: Speed Source can be set to J1939 if on an electronic engine, Mag Pick Up (also used if connected to an alternator tach output) if desired or a Switch which closes to ground when the engine is running. If Switch is selected, no RPM can be displayed, however, the controller will base the running state of the engine from this switch.

Flywheel Teeth: If using a Mag Pick Up or Tach Output, place the number of pulses per revolution here. For example, a Kubota flywheel would have 110 Teeth which will generate a signal of 110 pulses per revolution.

- Temp Src: Temperature Source can be either the J1939 data link or an Analog input. If through an Analog input, you need to select the Temp Sender Type and Channel.
- Temp Sender: Select the type that matches your sender. CI default sender is the S-W 100-300 deg F.
- Temp Channel: Select the Pin location that the temp sender is attached to. CI default is Secondary Pin 10.
- OilP Src: Oil Pressure Source can be either the J1939 data link or an Analog input. If through an Analog input, you need to select the Oil Pressure Sender Type and Channel.
- OilP Sender: Select the type that matches your sender. CI default sender is the S-W. You'll need to set the Oil Pressure Sender Min and Max Values as well.
- OilP Channel: Select the Pin location that the temp sender is attached to. CI default is Secondary Pin 2.
- OilP Min: The zero-scale value of your oil pressure sender. Typically, 0.
- OilP Max: The full-scale value of your oil pressure sender. CI default is 100.
- Fuel Lvl Src: Oil Pressure Source can be either the J1939 data link or an Analog input. If through an Analog input, you need to select the Oil Pressure Sender Type and Channel.
- Fuel Sender: Select the type that matches your sender. CI default sender is the S-W. You'll need to set the Oil Pressure Sender Min and Max Values as well.
- Fuel Channel: Select the Pin location that the temp sender is attached to. CI default is Primary Pin 13.
- Fuel Tank Volume: Set the number of gallons of the fuel tank. Some modules use this to calculate the amount of fuel remaining.
- Voltage Src: Battery Voltage Source can be either the J1939 data link or measured internally. If the J1939 data is being used, be sure to select a type that your engine's ECU is broadcasting. If internally measured, no channel selection is required.

Saving Profile

- Once the necessary changes have been made click *SaveAs* Profile button, name the file appropriately. If you then desire to place the profile onto the controller then click *Program Controller*.



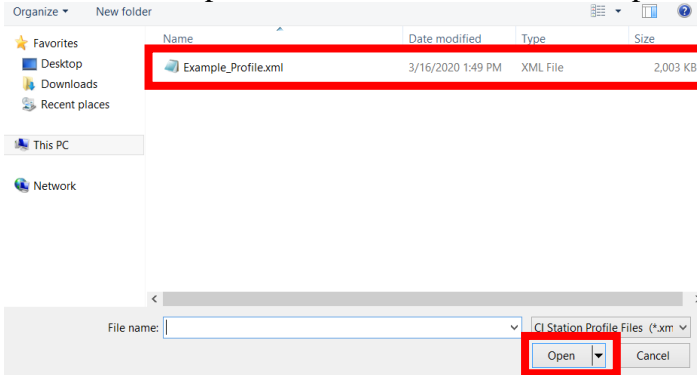
- With the controller programmed and the profile saved, you are able to click *Dis-Connect* and once the Connection Status shows *Not Connected*, it is safe to disconnect the controller from the computer.
- Note: there is another version of CI Station that exists known as **CI Station Lite**. With this version of software you will be able to see what the settings are, however you will be unable to change these settings in CI Station. If this is the case please contact your supervisor for further details.

CI Station Profile Migration:

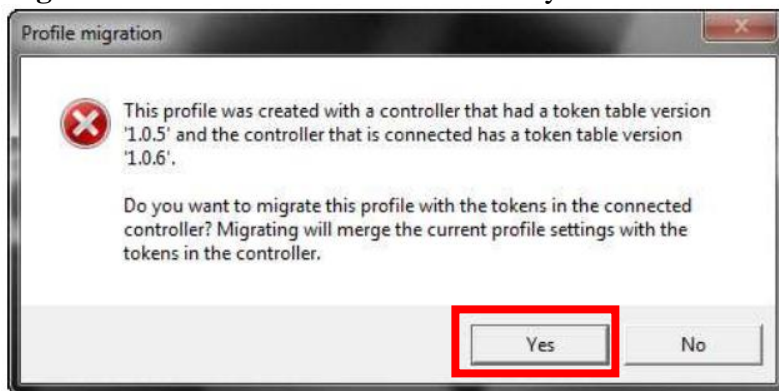
- While using CI station, you may desire to open an existing profile for reusing and programming the controller.
- Open CI station as shown in the previous section and click the *Open Profile Button*.



- Then select the profile that is desired and click Open.



- Once opened, program your Controls Inc. controller by using the *Program Controller* button.
- Note: that if your profiles token table version is out of date, a message will ask if you wish to **migrate** toward the newest version. Click yes.



- After the migration is complete a notification will appear stating that the profile has been updated to the newest version of CI station. It will recommend to click *SaveAs* to permanently store the newly updated profile.
- Please note:
 - The new profile hasn't been saved until the user does so.
 - Strongly recommended, to *SaveAs* and create different versions of the profiles.
 - Due to the migration the controller was **not programmed**. After saving then click *Program Controller* to place the profile on the controller.


Boot loading from CI Station:

Prepare files for Bootloader

- CI Station Bootloader feature is available on CI Station Versions 2.0.0.0 or higher. The following controller series can be bootloaded.

Series	Firmware Version or Higher
C-Series	4.1.#
XL-Series	1.1.#
MX-Series	1.1.#
XCAN-AC	2.1.#

- Note: while using the boot load functions, your computer should **not** be used for anything else during this process.
- Create a new folder anywhere in your computer, but should follow these guidelines for your own record keeping.
 - Use the *Firmware Model* as the folder name followed by the current version number of the firmware needed.
 - Ensure that the files are alone within the folder.
- The example below demonstrates the naming convention: XL-Play-AS Version 4.1.43

 XL-Play-AS V4.1.43

- Copy these files into a new folder so they are isolated from other files. Depending on the column your controller is located in will determine the files you receive.

C-Series MVP-Series XL-Series MX-Series	XCAN-AC Series XCAN-IO Series
C3Main.srec	C3Main.srec
c3eeprom.srec	c3eeprom.srec
c3eeprom2.srec	

- Rename the following files in the new folder to the following as shown below.

Original Filename	New Filename
C3Main.srec	cimain.srec
c3eeprom.srec	cieeprom1.srec
c3eeprom2.srec	cieeprom2.srec

- Next, Plug the CANUSB converter into your computer
- Take the Controls Inc. controller and plug the CANUSB into it then plug the AC adapter into the wall.
- Note: when connecting the panel to the converter together, ensure **both** the **panel** and **converter** have no other connections between them during this process.

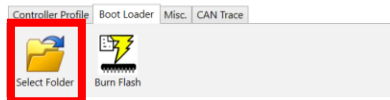
Using CI Station Bootloader

- Start CI Station on the Computer
- Note: for operating CI station please see section 2. Basic Operations
- **IMPORTANT:** do **NOT** press the *Connect* button while using the bootloader process. If this has already happened, close CI station and restart CI station.

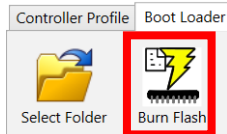


- With CI Station opened, click *Select Files*.

Controls Inc. - CI Station Payload Management System - Professional Version



- Select the folder you created earlier in this section. Our example was *XL-Play-As Version 4.1.43*.
- With the folder selected, click the *Burn Flash* button next to select files.



While Bootloader is Active (Controller)

- The Controls, Inc. panel will red lamp.
- The message **Flash Update** will be displayed on the controller itself.
- Note: if the bootloader attempt fails the display will be blank.

While Bootloader is Active (CI Station)

- The progress Bar will increase from left to right representing 0-100% a total of three times.
- The Status text in the lower left hand alters through the following statements per bar filled.
 - Burning flash file 1 of 3
 - Burning flash file 2 of 3
 - Burning flash file 3 of 3
- Note: the Connection Status at the top of the screen will read **Not Connected**. There is nothing to worry for this is normal during this process.

The screenshot shows the CI Station Payload Management System software interface. At the top, the title bar reads "Controls Inc - CI Station Payload Management System - Professional Version". The main window is divided into several sections:

- Controller Profile:** Includes tabs for "Controller Profile", "Boot Loader", "Misc", and "CAN Trace". Below these are "Select Folder" and "Burn Flash" buttons.
- Controller Connection:** A panel on the right showing "Connection Status: Not Connected", "Model: U-336-AS", "Firmware Version: V4.2.12", "Table Token Version: 1.1.12", and "Configuration Filename:". It also has "Connect", "Dis-Connect", and "COM Port" options.
- Main Display:** A large central area showing the "CI STATION Payload Management System" logo and a professional feature version. Below the logo are images of the controller hardware. A large digital display on the right shows various parameters: "Manual On", "53 psi", "21.40", "Cool Temp 194", "2:03:37PM", "12.0 Vol", "00", "Batt Level 88", "Power Reserve 42.0", and "DEF Level 79". Below the display are buttons for "F1 OFF", "AUTO", "RUN", and "F2".
- Status Bar:** At the bottom, a status bar shows "Status: Burning flash file 1 of 3" and a progress bar that is partially filled with a green bar.

After Bootloader Process

- The Controller will automatically restart, wait for this to complete.
- The CI Station status will change to display *Status: All Done Flashing the Controller*.
- You may disconnect your controller from the CANUSB converter, the controller has been updated.

Bootloading Multiple Controllers

- There may be instances in which multiple controllers will need the same firmware update.
- To do this replace the current Controls Inc. controller with one that does **not** have the latest firmware, and reconnect to CI Station.
- Once in CI Station, click *Burn Flash* to continue updating firmware. There is no need to reselect the folder, but remember to follow the process laid out in this manual.

CI-Station CAN Snooper:

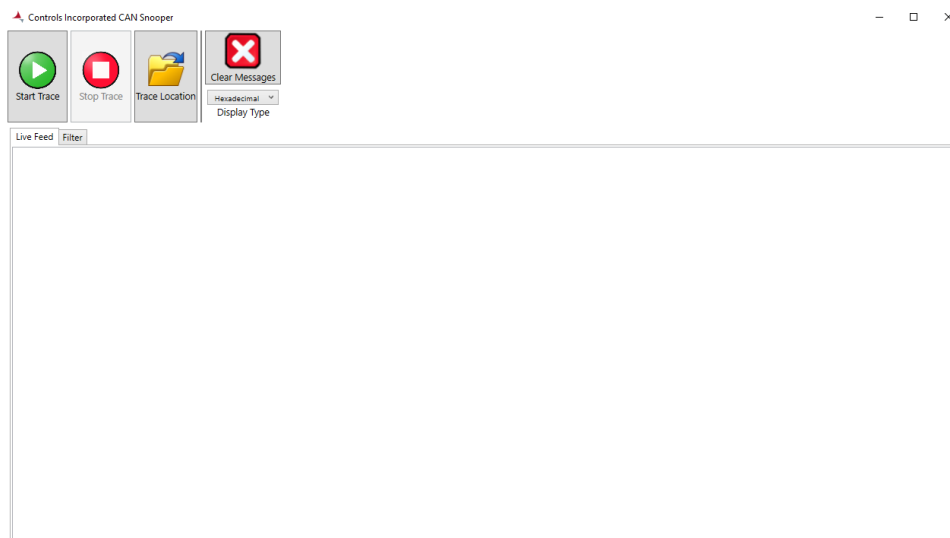
Opening the CAN Snooper

- If the version of CI Station currently being is *CI Station Pro*. CI Station then has the *CAN Trace* Tab available at the top. This functionality allows the operator to view the live CAN Bus traffic using CI Station.
- Before opening the CAN Trace the operator must first select the comport that the CAN to USB serial device is connected to. In this instance *COM8* is selected.
- With the proper COM channel selected click the *Open CAN Trace* button as shown below.



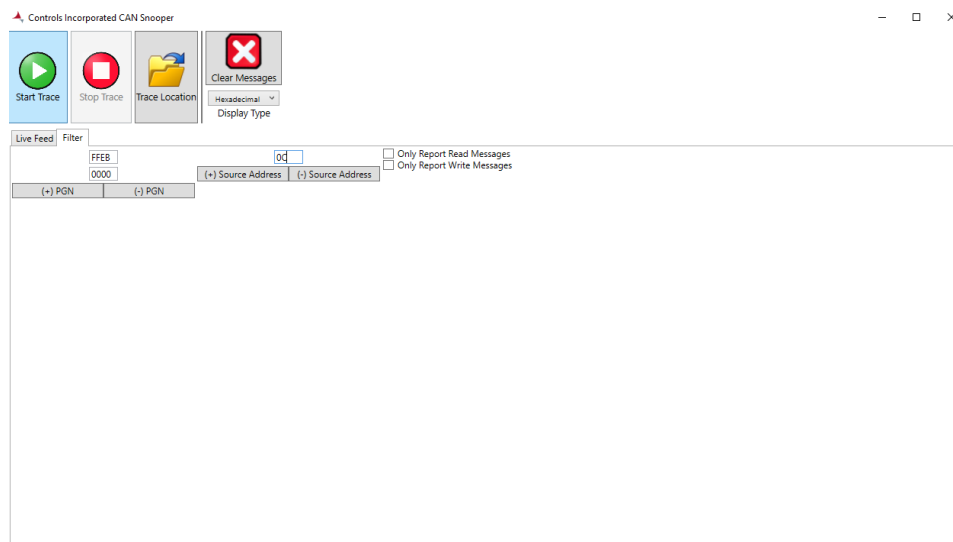
Operating the CI Station Snooper

- With the CI Station CAN Snooper the operator can immediately begin a Trace with the *Start Trace* button and end the sampling with the *Stop Trace* button. Once a trace has been stopped a print out of the data will be shown has a text document.
- Note: the CAN Snooper can be used to observe all traffic during CI Station operations including.
 - Connecting
 - Burn Flashing
 - Resyncing
 - Programming
- However there is more functionality to the Snooper
 - *Trace Location* – this will allow where the print out .txt file will be placed after completeing a trace. *Note:* the default location is the Desktop.
 - *Clear Messages* – clears any current messages gathered during a Trace.
 - *Display Type* – will change the display format of the CAN data between two styles.
 - *Hexa-decimal*
 - *Decimal*



- In addition to these buttons there are two viewing tabs.
 - *Live Feed* – show the current CAN data that has been gathered.
 - *Filter* – Allows the operator to filter messages based on what data they desire to gather.

- Click the check box **Only Report Read Messages** to only view messages that are read off of the bus.
- Click the check box **Only Report Write Messages** to only view messages that are transmitted on the bus.
- By pressing the (+) of either PGN or Source Address will add another PGN or **Source Address** that the Snooper will parse and display. For this example the operator is displaying the information in Hexi-decimal while looking for the folloing information.
 - PNG's – FFEB, 0000
 - Source Address: 0C
- Note: if the operator wants to filter the messages in a Decimal format, change the Display type to **Decimal**. However, the CI Station CAN Snooper will not detect if the filter is entered in an incorrect formate i.e. display type is set to **Hexidecimal** and the operator enters **Decimal Values**.



- Here is a quick example of what a normal trace will look like with no filters set.
- From left to right this is how the information is displayed.
 - Message Entry
 - Time Stamp of the message being entered.
 - Rx – Read Message or Tx – Transmit Message
 - Message Header
 - Message Body
 - Message Length in bytes

Controls Incorporated CAN Snooper

Start Trace Stop Trace Trace Location Clear Messages

Hexadecimal Display Type

Live Feed	Filter					
1	0.008	Rx	0C000003	C5201C00FFFFFFF60	8	
2	0.017	Rx	0C000003	C5201C00FFFFFFF71	8	
3	0.027	Rx	0C000003	C5201C00FFFFFFF02	8	
4	0.037	Rx	0C000003	C5201C00FFFFFFF23	8	
5	0.047	Rx	0C000003	C5201C00FFFFFFF34	8	
6	0.057	Rx	0C000003	C5201C00FFFFFFF45	8	
7	0.067	Rx	0C000003	C5201C00FFFFFFF56	8	
8	0.075	Rx	18F9A2C	FFFFFFFFF050F00	8	
9	0.077	Rx	0C000003	C5201C00FFFFFFF67	8	
10	0.087	Rx	0C000003	C5201C00FFFFFFF60	8	
11	0.097	Rx	0C000003	C5201C00FFFFFFF71	8	
12	0.107	Rx	0C000003	C5201C00FFFFFFF02	8	
13	0.117	Rx	0C000003	C5201C00FFFFFFF23	8	

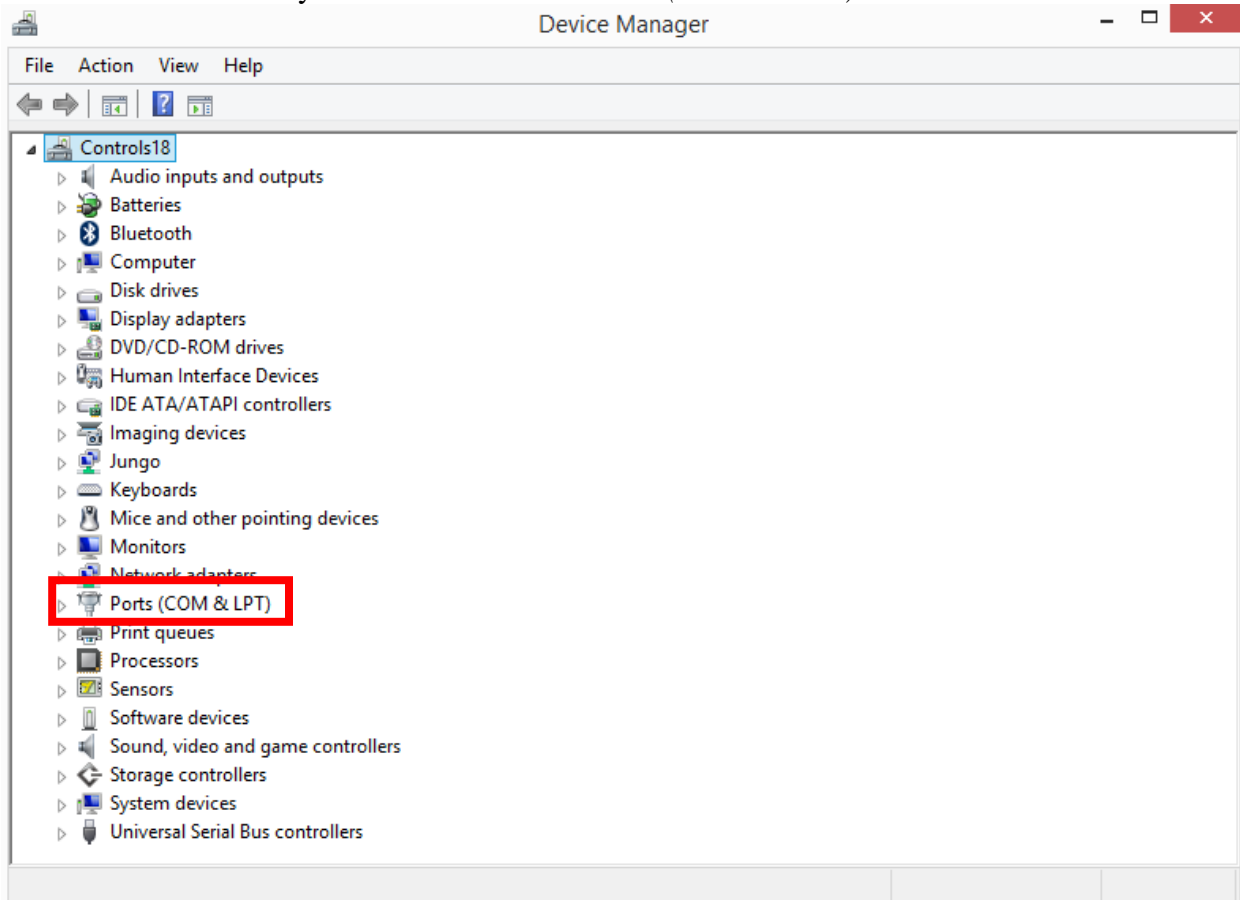
CI-Station Mouse Cursor Problem:

Diagnose Problem

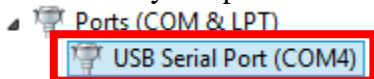
- When you plug the CANUSB adapter into the computer, your mouse cursor can move itself to the right side of the screen. If this problem does afflict your operations here is the solution.
- Unplug the CANUSB device from your computer.
- Open the Device Manager in Windows. You can easily find it by search *device manager* in Search for Programs.
- Click one of the devices to highlight it and plug the CANUSB converter back into your computer.
- Note: being that one of the devices in the menu is highlighted you will be able to use the arrow keys to move in the menu. The mouse will **not** be working at this time.

Navigate the menus

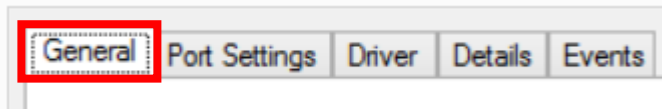
- Use the down arrow key to move towards the *Ports (COM & LPT)*



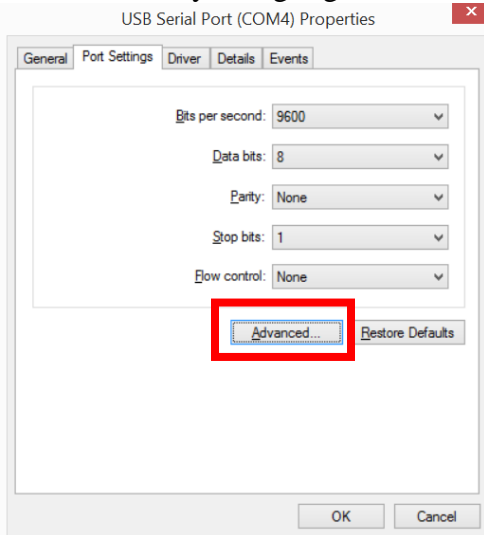
- With Ports highlighted use the right arrow key to expand this menu option. Then hit the down arrow key until the *USB Serial Port (COM4)* is highlighted. With it highlighted press the enter key to open its settings.



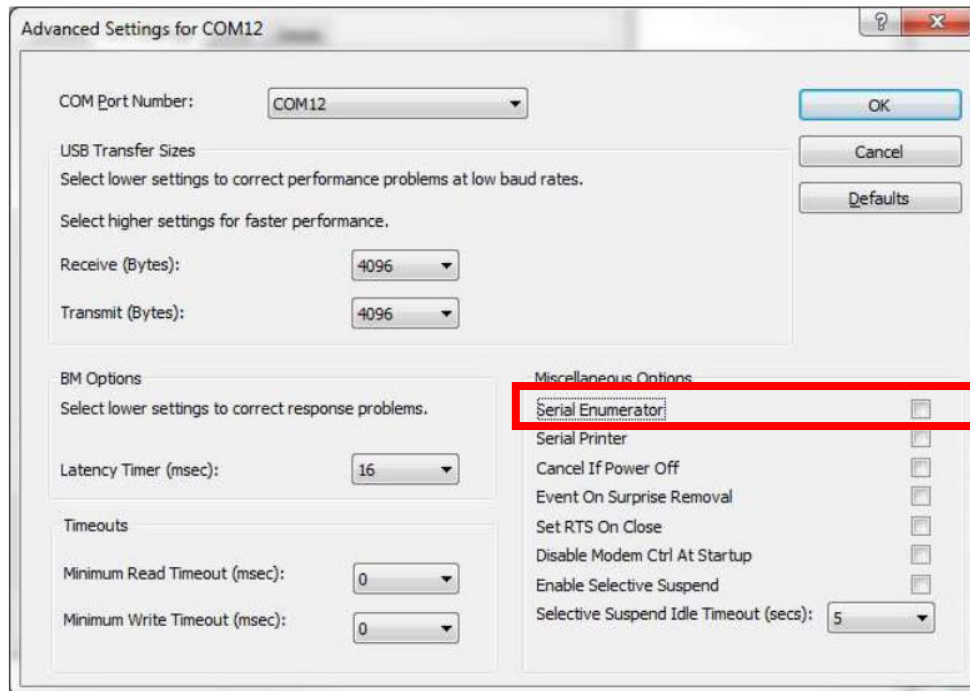
- After opening the USB Serial Port, hit the tab key until the General Tab as a dashed box surrounding it as show below.



-
- Now use the right arrow key to move over to *Port Settings*.
- Use the Tab key to highlight *Advanced* and press Enter.



- Proceed to press the Tab key until *Serial Enumerator* is highlighted and press the space bar to uncheck this option.



- Continue to press the Tab key until *OK* is highlighted and press the Enter. With this completed, the mouse cursor behavior will be corrected and you can use CI Station.