TECH/OPS

SEVCON

# Using DVT with Gen4 Systems

Introduction:

The DVT software can be installed on a PC to allow engineers and service technician's access to adjustments and allows them to monitor status of a Sevcon Gen4 motor controllers. This document covers some DVT basics.
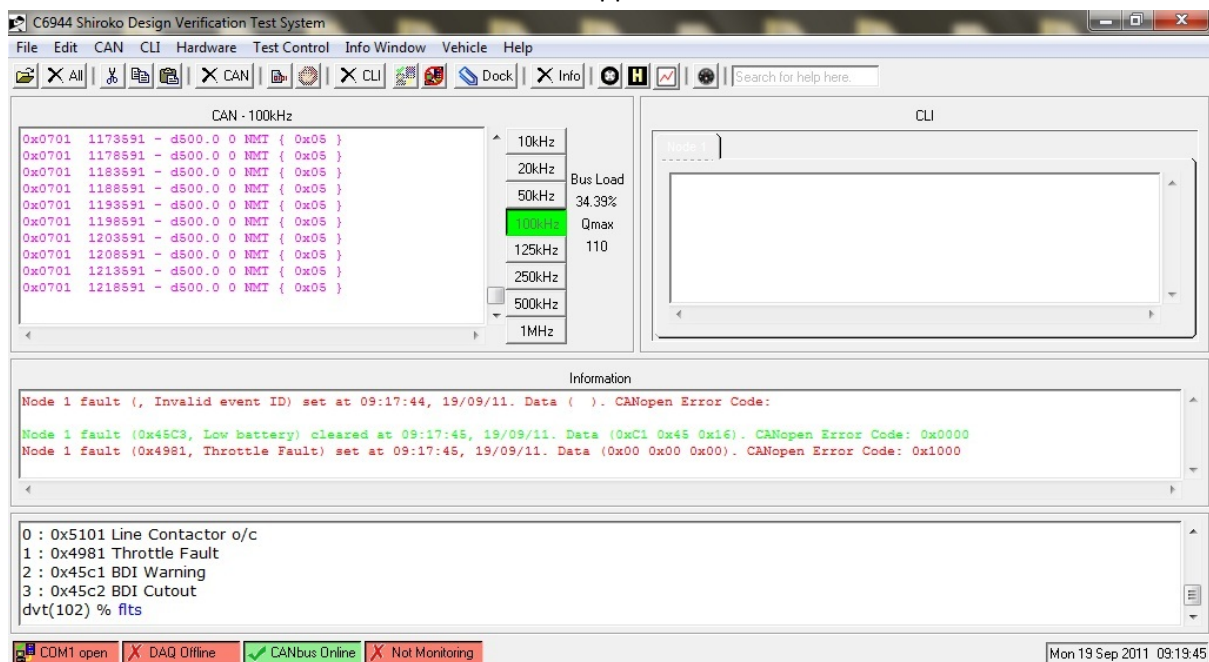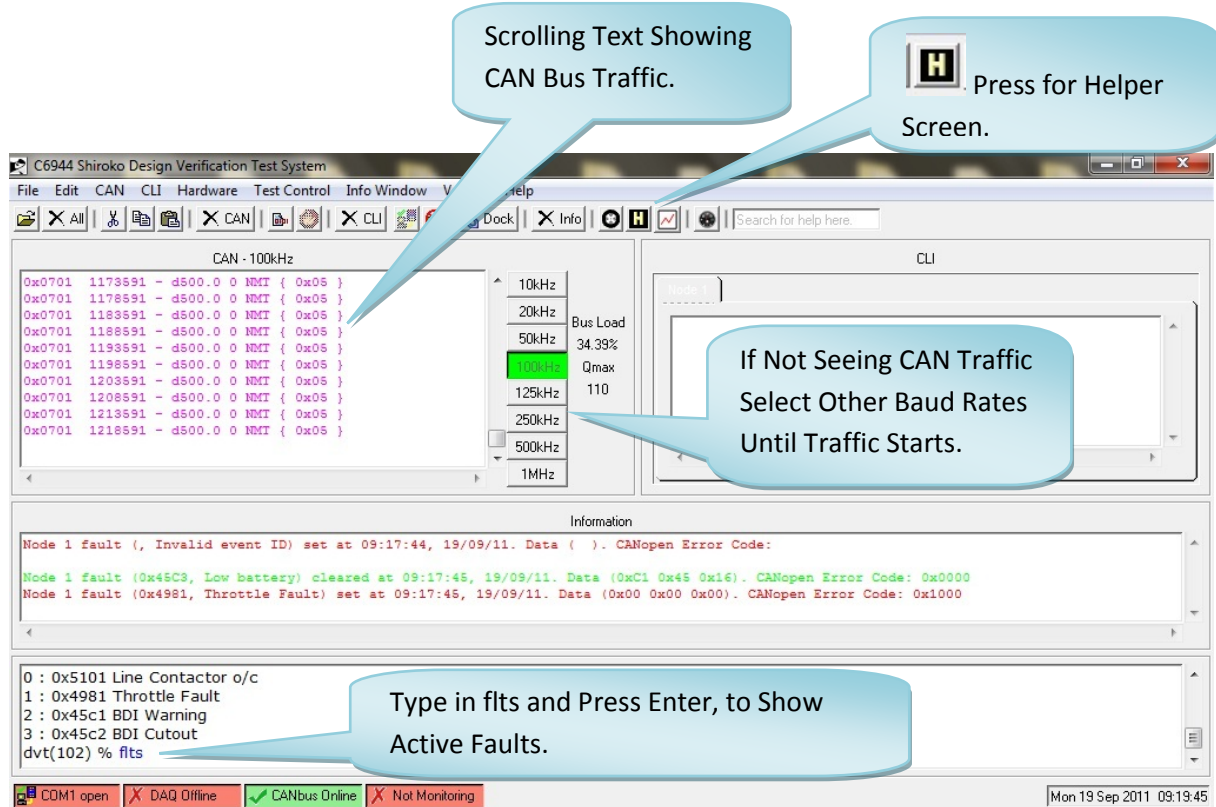
Requirements:

- IXXAT Model - 1.01.0087.10200 (w/galvanic isolation) USB to CAN adapter, Sevcon part # 661/30132.
- CD with DVT software, provided by Sevcon.

Starting DVT:
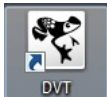
Click and Start DVT.   The Screen will appear as shown below.

If not seeing CAN Bus Traffic after trying other Baud Rates, check connections between IXXAT and Computer. Also check connections between Gen4 and IXXAT, recycle power on controller and restart DVT.

DVT Helper Screen :

The DVT helper screen is where setting changes are made and controller status is monitored.
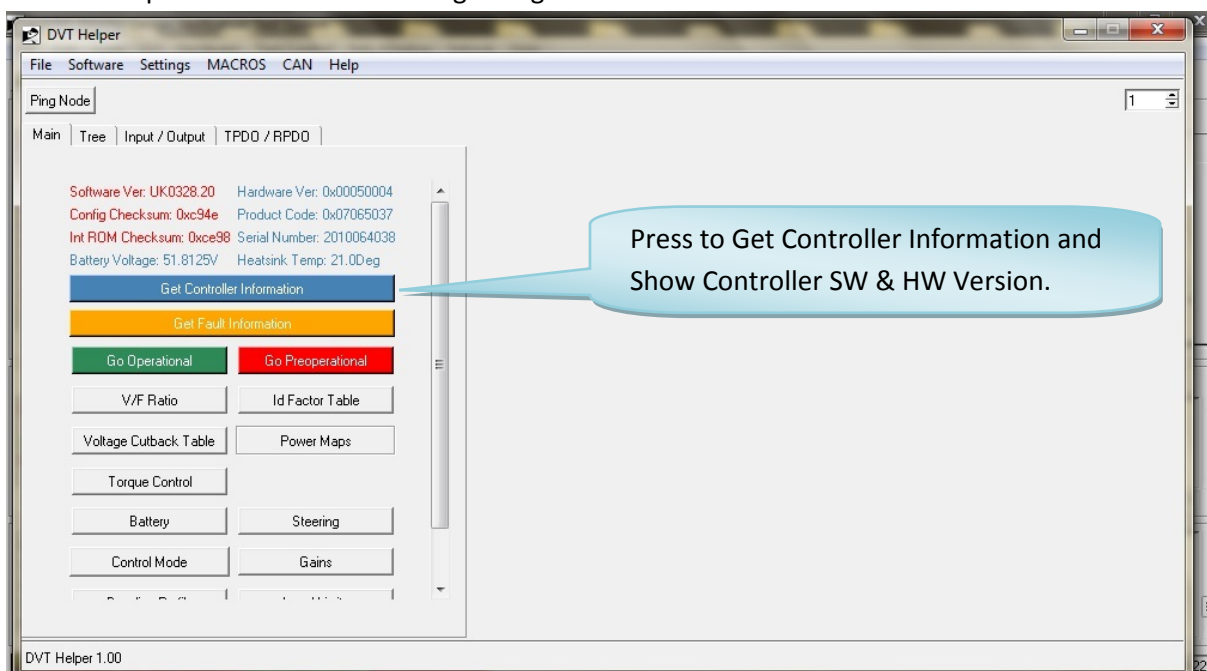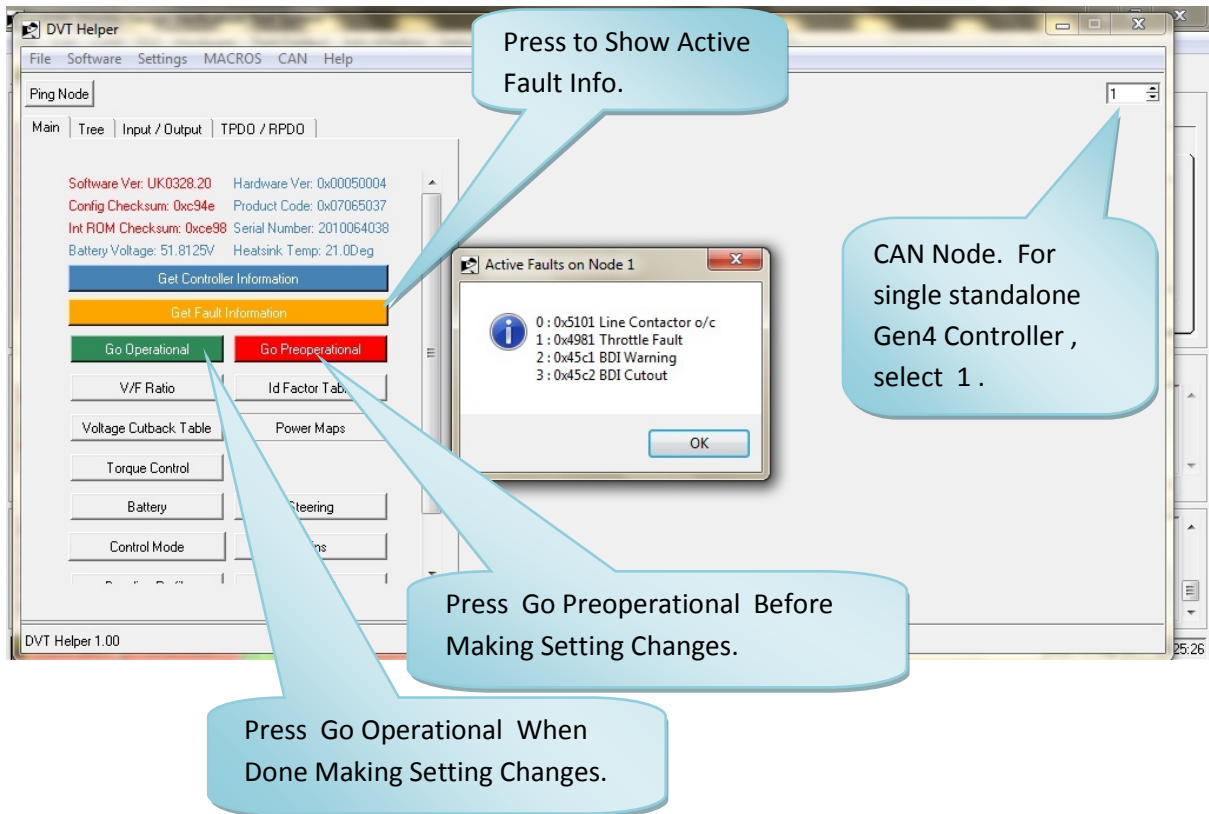
The <u>Go Preoperational</u> mode disables the controller so that the motor will not run while adjustments are being made. When selecting Go Preoperational Mode, you will hear the line contactor drop out.

The <u>Go Operational</u> mode must be selected after settings changes are made and confirmed. The controller will not run the motor until Go Operational is selected. When Go Operational mode is selected you should hear the line contactor close.

Making adjustments:

Keep in mind that you must press "Go Preoperational" before making settings changes.

Reducing Maximum Motor Speed.

Select Tree Tab for Settings List.

Select Profiles, Then Select "Baseline Profile".

Max Forward Motor Speed.

Max Reverse Motor Speed.

Once Settings are Changed Press Load Values.

Keep in mind that raising these max speeds higher than the rated maximum speed of the motor will cause some undesired results.
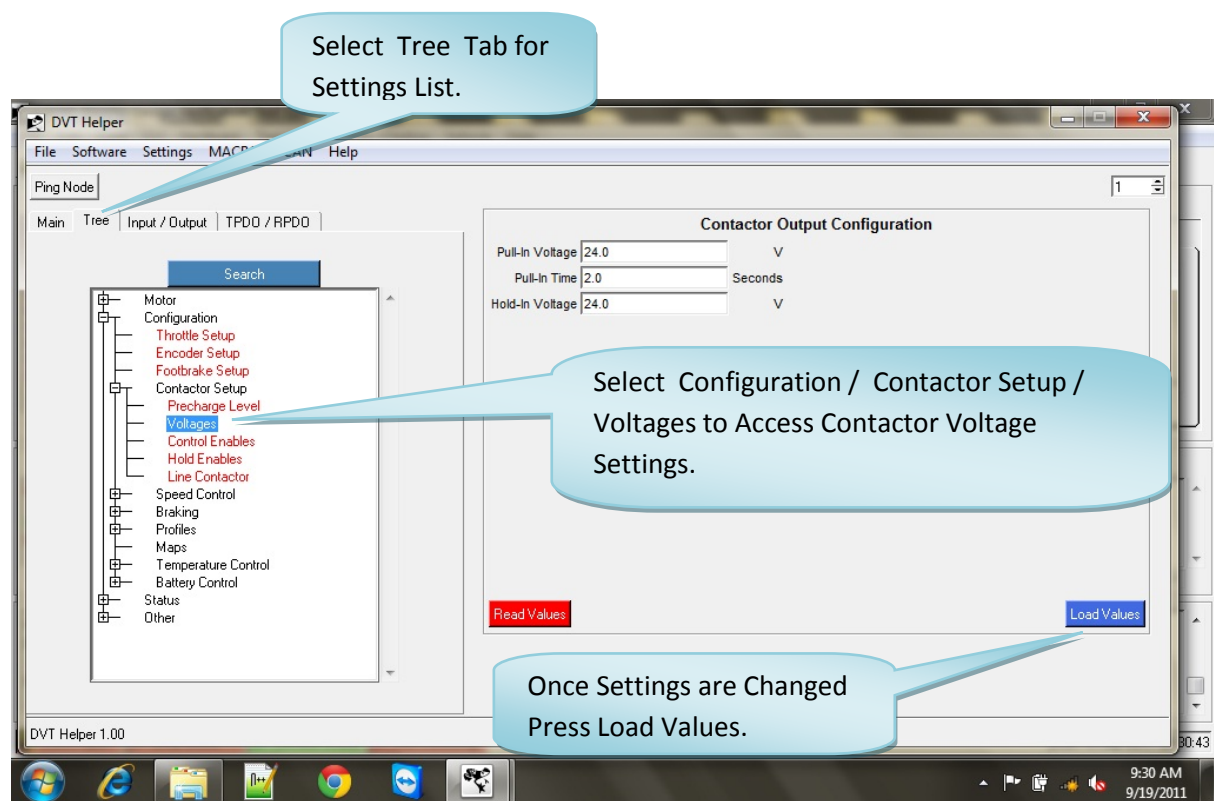
Once settings are changed, click the "Load Values" button.

You must press "Go Operational" after making settings changes.
Controller Will Not Run In Preoperational Mode.

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Contactor Setup Adjustments.

The contactor setup allows you to set the line contactor pull in voltage and holding voltage. This would also allow you to us a 24 Volt Line contactor on a 72 Volt system or at any system voltage.
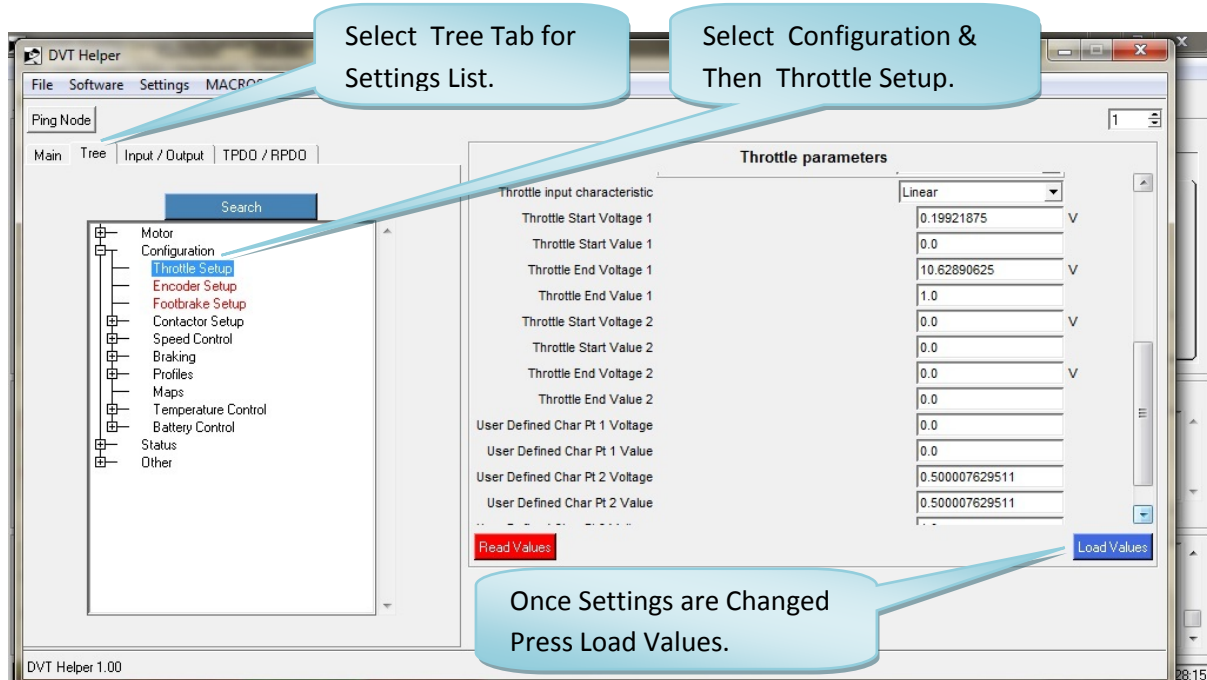

Once settings are changed, click the "Load Values" button.

You must press "Go Operational" after making settings changes.

Controller Will Not Run In Preoperational Mode.

Changing Throttle Settings.

Throttle Start Voltage 1 = Voltage on throttle input, with throttle at minimum speed. It is recommended that you add .2 Volts to the actual value, to allow for some dead band at the beginning of the throttle travel.

Throttle Start Value 1 = This is always set to 0.0.

Throttle End Voltage 1 = Voltage on throttle input, with throttle at maximum speed. It is recommended that you subtract .2 volts from the actual value, to allow for some dead band at the end of throttle travel.

Throttle End Value 1 = This is always set to 1.0.

Once settings are changed, click the "Load Values" button.

You must press "Go Operational" after making settings changes.

Controller Will Not Run In Preoperational Mode.

Status:

Checking Throttle Voltages.

The "Raw Analogue Inputs" screen shows actual throttle voltage on Analogue inputs, as shown below. Typically when using just a throttle, the varying throttle voltage will be shown next to the "Analogue Input 1 Voltage", check this voltage with accelerator fully released (= Throttle Start Voltage 1 setting + .2 Volts) and then again with accelerator fully depressed (= Throttle End Voltage 1 setting - .2 Volts).
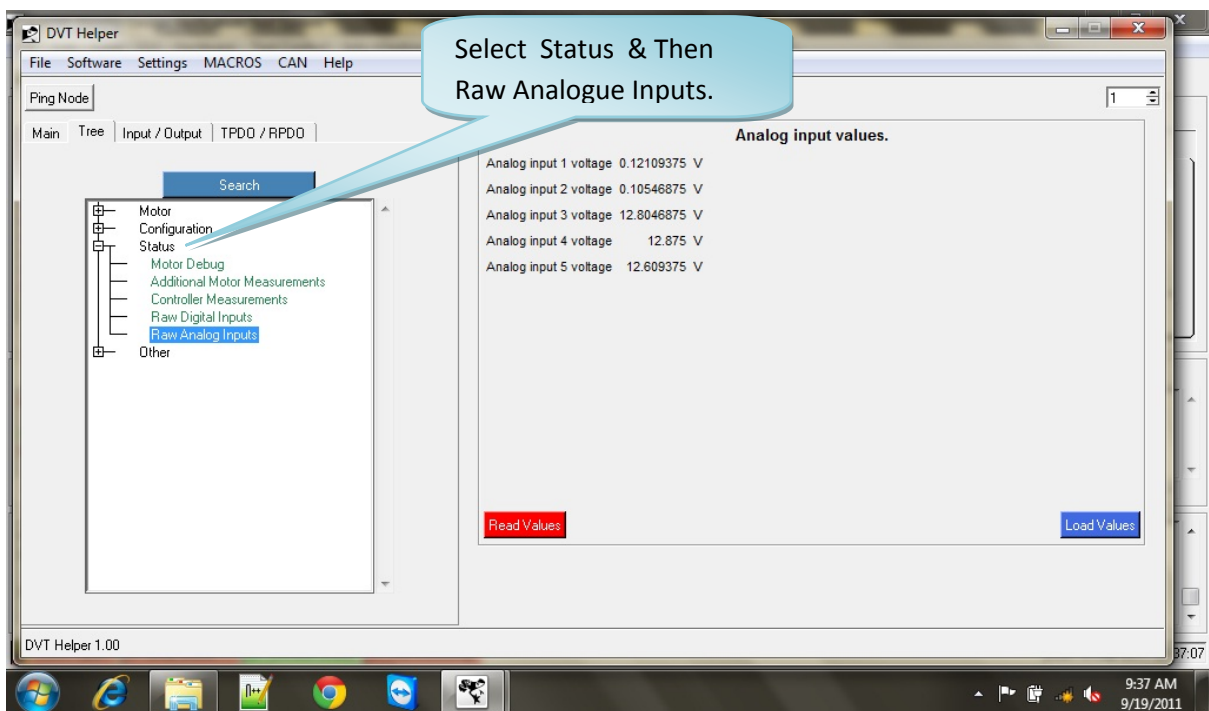
Saving and Sending Settings File (DCF):

In DVT we refer to a Gen 4 settings file as a "DCF" (Device Configuration File).

Select DVT Helper ⬛ .

Select Settings:

- Save DCF: Clicking this will allow you to save the settings stored in a Gen4 controller; the settings will be saved as a .DCF. This file can be downloaded into other controllers of the same hardware and software. Saving a DCF does not require you to be in Preoperational Mode.
- Send DCF to Unit: Clicking this will allow you to send a .DCF file to a controller, as long as the file was created on the same hardware & software platform. Before sending A DCF to a controller, you are required to be in Preoperational Mode.

Notes: You must be in Preoperational Mode before Sending a DCF to a Gen4 controller, once the file is downloaded into the controller you will be instructed to recycle the key switch power. The Go Operational button will need to be clicked before the Gen4 will become operational again.
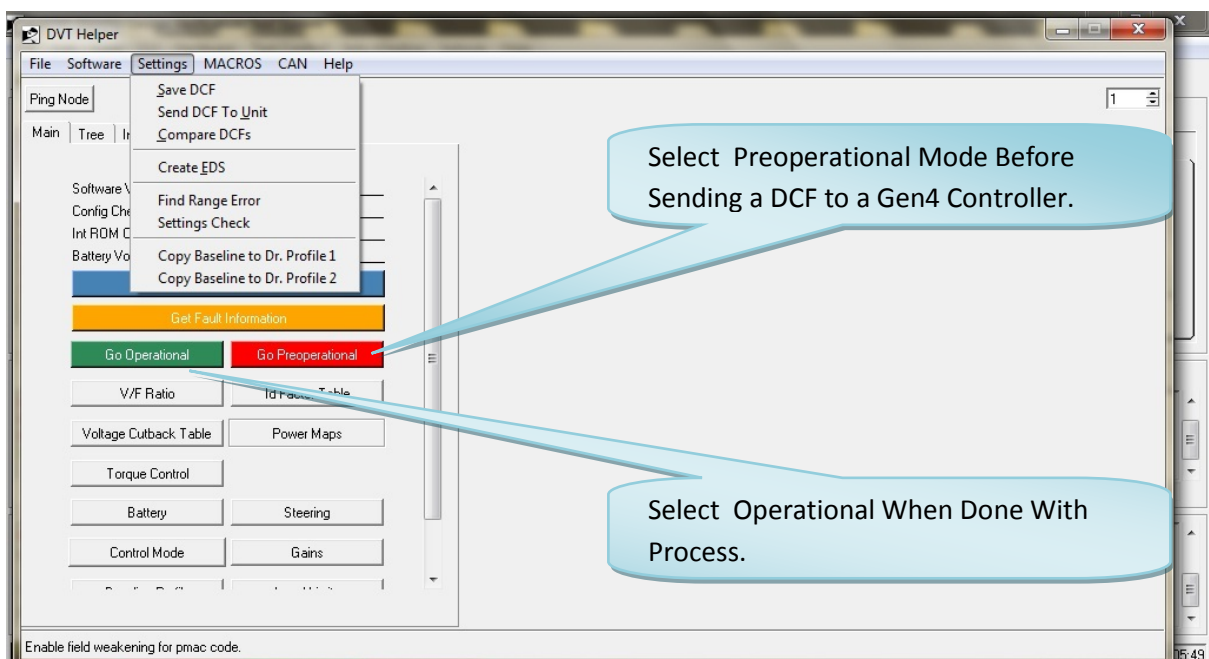
Motor Temperature Control:

Set this to "None" if not using motor Temperature sensor.
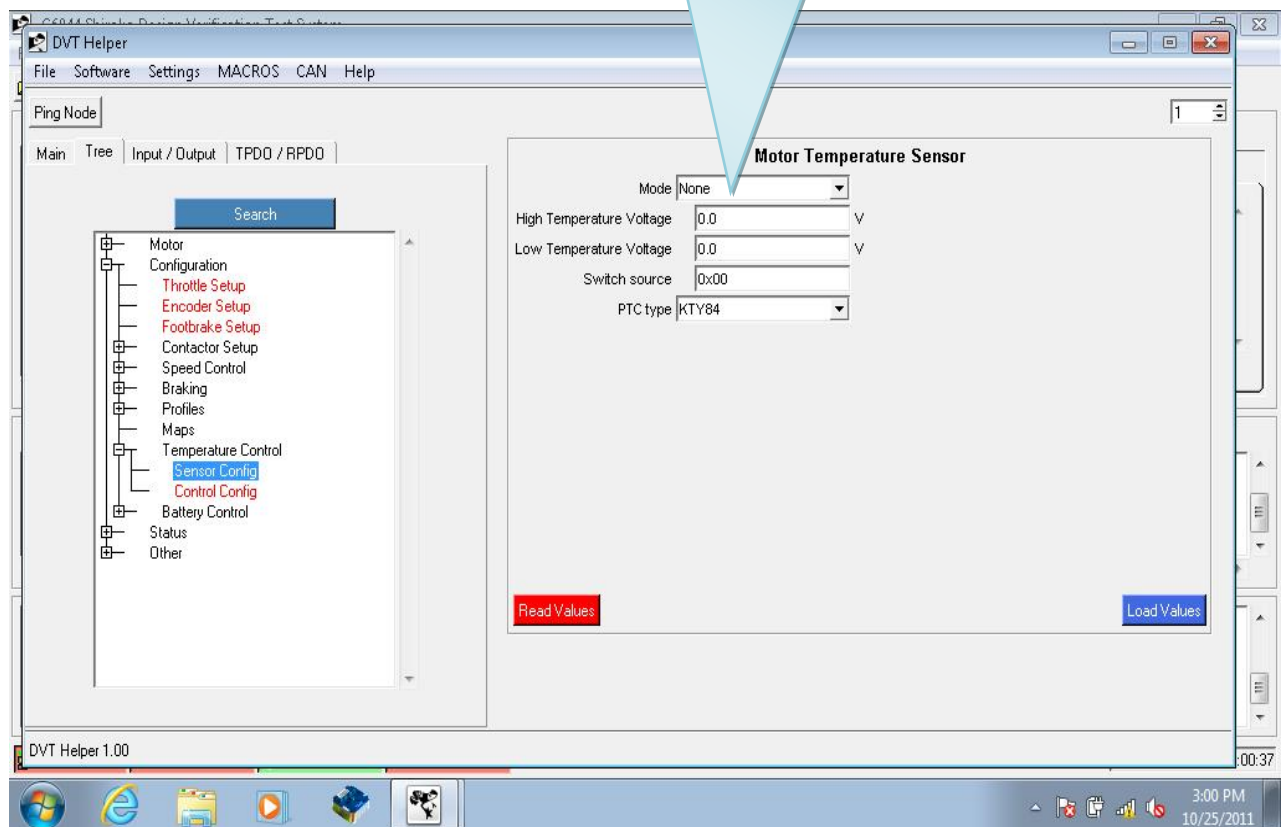
The Go Operational button will need to be clicked before the Gen4 will become operational again.

Downloading Software (dld File) into the Gen4:

It is very important that when downloading software into the controller that battery power to the controller does not get interrupted during the process.
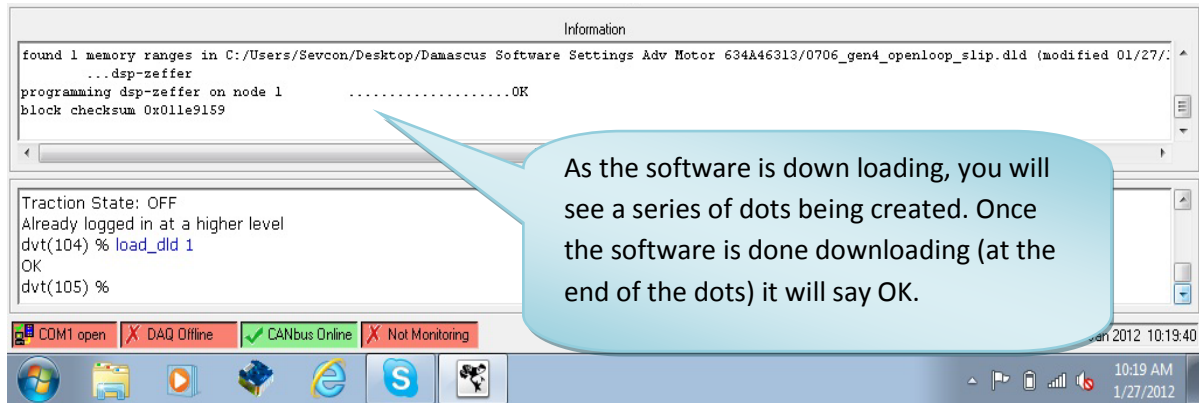
Have the software (dld file) saved somewhere on your computer ready for installing.

In DVT Screen Command Line Box.
Type the command bts 1 then press enter.
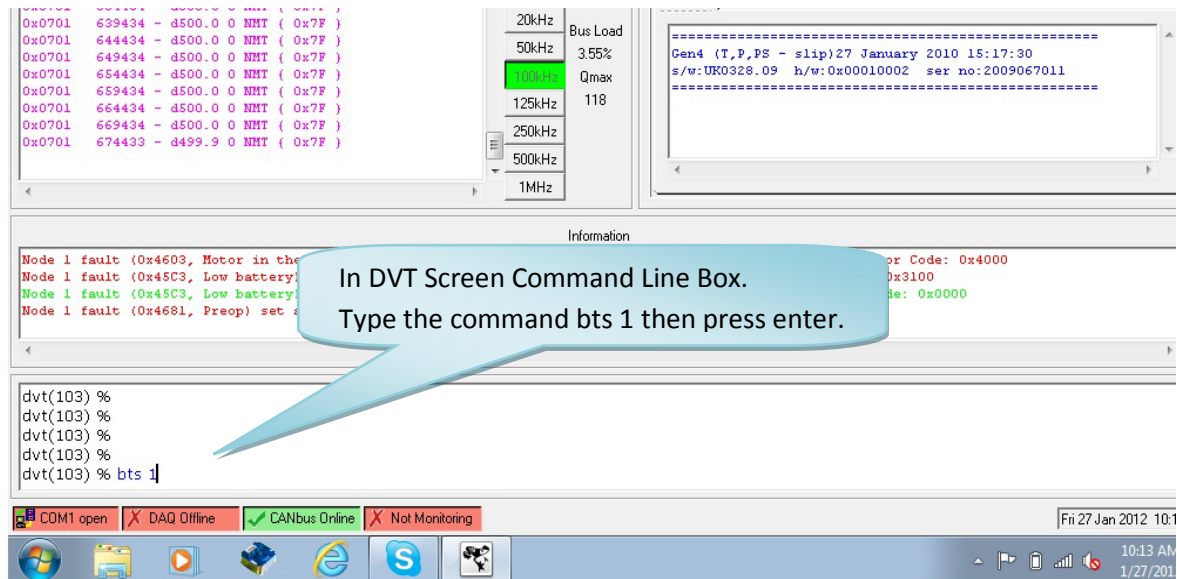
Type in the command bts 1 and press the enter key. This puts the controller in boot loader mode and the controller is now ready to accept the new software. Note that when the controller goes into boot loader mode, the green LED on top of the Gen4 will flicker and go out. It is important that the controller remains powered on now until software is loaded and we exit boot loader mode.

Type the command load_dld 1 and press enter.
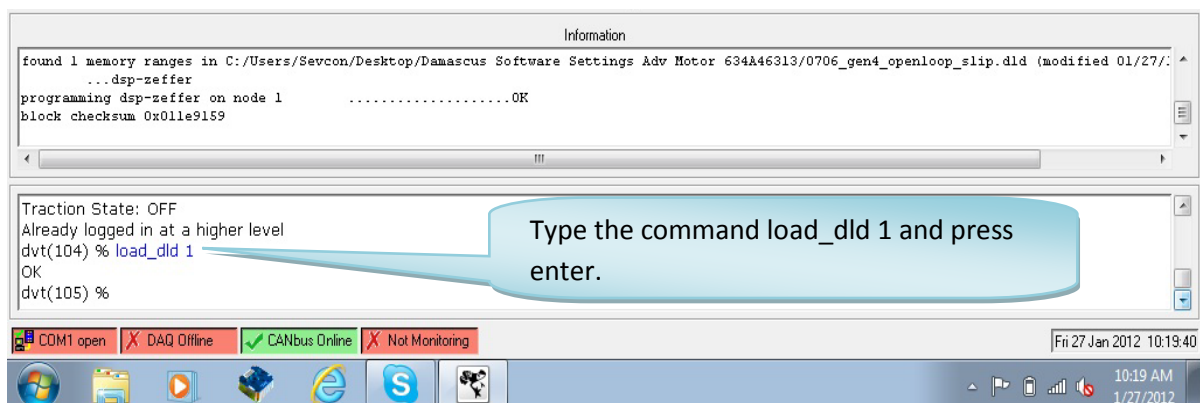
Once you type the command load_dld 1 and press enter, you will then be prompted to a file directory, find your dld software file and press enter.

As the software is down loading, you will see a series of dots being created. Once the software is done downloading (at the end of the dots) it will say OK.

Once you get the OK message type the command bte 1, this forces the controller to exit boot loader mode.

When exiting boot loader mode, the controller LED will turn back on and you are now ready to install the settings (dcf) file.

Note; that is for some reason this software download process gets interrupted, do not exit boot loader mode, but instead recycle or re-apply power to the controller and start over again.