



GEN4 PRO XTREME
System Hardware & BigComm Pro
Software Installation
Instruction Manual

BASE & UNIVERSAL COP

Revision 2.0

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1. Introduction

Thank you for purchasing BigStuff3's next generation GEN4 PRO XTREME system. It is a state of the art powertrain management system, which implements an industry first high-speed Ethernet communication and topology to enable wired or wireless communication and real-time closed loop WBO2 feedback on a per cylinder basis. These features, along with numerous others, make the GEN4 PRO XTREME system the most technologically advanced powertrain management system on the market.

2. GEN4 PRO XTREME - Standard Features

- Dual core 32 bit microcontroller (266 MHz)
- 100 MB Ethernet communication (direct and wireless)
- Integrated Barometric Pressure Sensor
- Integrated 3-Axis Accelerometer & G-meter
- 120 channels of ECU Inputs/Outputs
- Data Logging Internal (**DAI**) - Up to 500 channels at 1 kHz for 15 minutes data acquisition permanently stored to micro-sd card
- 2 CAN channels (CAN 1: BS3 Touch Screen Dash, CAN 2: Racepak HUD or PCS 8-Ch T/C module)
- Dual Electric Fan enable capability
- Primary & Secondary Fuel Pump enable capability
- Tach & 3 Points outputs
- Multiple 24 x 24 Fuel, Spark & Lambda Maps (Map per Gear)
- Configurable Load & RPM axes to enable optimization in desired operating range
- Programmable injector opening vs. battery voltage
- Primary Bosch LSU4.9 “Wide Band Oxygen” (WB02) Lambda or Air/Fuel Ratio (AFR) control to eliminate base engine and transient fuel calibration guesswork for **gasoline** applications.
- Capable of driving smart Coil-on-Plug (COP) ignitions with the stock sensors for the GM LSX engines and the Ford MOD motor
- Ignition system type is software configurable for GM HEI, Ford TFI, LT1, and IPU
- GM Idle Air Control (IAC)
- Individual cylinder fuel & spark compensation. Trims also per Gear.
- Turbocharged starting line functions (Timing, Fuel Correction, Lambda, ICFs)
- An integrated 2-Step and 3-Step is a base feature on all Coil-On-Plug (COP) ignitions systems and is optional on distributor based ignition systems using the BS3 ETM
- 1, 2, 3, 4, 5 and 7 BAR MAP sensor compatible
- Comprehensive transient fueling algorithms
- Seamless decel fuel cut-off
- Excellent cold starting and drivability
- TPS Auto-calibrate
- Closed Loop PID WBO2 heater control to insure accurate and consistent AFR control
- Improved EMI algorithms
- True Speed-Density algorithm allows for easier tuning
- Windows 7 and 10 compatible BIGCOMM PRO calibration software.
- Compact, Silver powder coated aluminum extruded ECM with integrated rubber isolators
- Electronics rated from -40 °C to +105 °C
- Braided wire harnesses with integrated ECU and Injector/WBO2 fuse protection. GEN4 PRO XTREME ECU is compatible with many of the GEN3 PRO SEFI wire harnesses.
- OEM style Packard & TYCO waterproof connectors & terminals

3. GEN4 PRO XTREME - Standard Feature Upgrades (SFU)

- Secondary Bosch LSU4.9 “Wide Band Oxygen” (WB02) Lambda or Air/Fuel Ratio (AFR) control for gasoline applications Single or Dual channel
- Primary or Secondary NTK Wide Band Oxygen” (WB02) Lambda or Air/Fuel Ratio (AFR) control for **methanol** systems capable of reading AFR down to 2.9:1.
- 16 low impedance injector control using (2) BIG DRIVE injector modules
- CAN interfaces to:
 - BIGSTUFF3 bi-directional Touch Screen Dash (TSD)
 - Various RacePak™ dashes to send GEN4 engine operating information directly to a RacePak dash.
 - Racepak™ V300 or 500 data acquisition system to send GEN4 engine and powertrain data to a Racepak™ data acquisition system and avoid having to buy redundant sensors.
 - PCS 8-Channel T/C module
- **BIG BAND** for 4 or 8-Channel real-time WBO2 control utilizing Bosch LSU4.9 sensors. **1st ever real-time closed loop WBO2 control on a per cylinder basis enabled by GEN4 PRO XTREME's Ethernet topology!**
- **BIG BAND** for 4 or 8-Channel EGT monitoring with safety shut off utilizing ¼” Type-K thermocouples compatible with gasoline/E85 and methanol fuels.

4. GEN4 PRO XTREME - Optional Feature Upgrades (OFU)

- **E85** - E10/E85 ethanol “flex fuel” control using GM style “flex fuel” sensor
- **SR2.3 / ETM** - Traction control utilizing Drive Shaft RPM, Engine Torque Management (ETM) and Spark Timing control.
- **DAE** - Additional data logging capabilities for the following engine/vehicle parameters;
 - Fuel pressure (150 psi) - Oil Pressure (150 psi) - Turbo back Pressure (150 psi)
 - Drive shaft RPM (HED) - Input shaft RPM (HED) - Oil Pan Vacuum
 - PWM Solenoid - NOS bottle pressure - Transmission temperature
- **DAE2** - Additional data logging capabilities for the following engine/vehicle parameters;
 - Boost (WG pressure) - Trans line pressure - A/C Clutch Override
 - A/C Bump - RF Shock (Racepak) - LF Shock (Racepak)
 - RR Shock (Racepak) - LR Shock (Racepak) - Shift light
 - TurboShaft Speed_1 - TurboShaft Speed_2
- **BOOST (CO2)** - CO2 based Boost control using 3 independent Boost vs Time, Boost vs MPH, Boost vs RPM or Boost vs Gear curves (32 points/curve with scalable axis)
- **4L60E / 4L80E** - Transmission control for GM 4L60E/80E transmissions
- **DAE3** - Additional data logging and configurable general purpose input/output control for the following parameters;
 - (4) Spare A/D - Spare Injector Driver - Wheelie Control
 - (7) Configurable I/O
- **NOS** – 6 Stages of NOS control with individual cylinder Fuel and Spark control

5. GEN4 PRO XTREME ECU Upgrade Kit (EUK) – Package Contents

GEN4 PRO XTREME systems can be ordered on a “a la carte” basis using a step by step online order form accessible from the BS3 website (www.bigstuff3.com). There are two order forms. The first form is used to order initial GEN4 ECU Upgrade Kits (EUK) and new GEN4 PRO XTREME systems. The second form is used by existing GEN4 PRO XTREME customers to order subsequent optional and standard feature upgrades.

The GEN4 PRO XTREME ECU Upgrade Kit (EUK) allows an existing GEN3 PRO SEFI system to be upgraded/converted to a new GEN4 PRO XTREME system by replacing the existing GEN3 PRO SEFI ECU with a new GEN4 PRO XTREME ECU with the option to reuse the existing GEN3 PRO SEFI ECU 60-way “primary side” Main Wire and Injector Wire Harnesses, as well as some of the GEN3 PRO SEFI ECU 60-way “secondary side” “upgrade kit” harnesses. The GEN3 PRO SEFI ECU 60-way “secondary side” “upgrade kit” harnesses can be reused to a certain extent by relocating the wires in the 30-way Cinch ECU connectors to maintain compatibility with the GEN4 ECU.

The GEN4 PRO XTREME ECU Upgrade Kit (EUK) contains the necessary components to upgrade an existing GEN3 PRO SEFI system to a GEN4 PRO XTREME system. The GEN4 PRO XTREME ECU Upgrade Kit (EUK) includes the following items;

- **GEN4 PRO XTREME ECU** includes all 120 ECU pins e.g. (2) 60 pin header connectors. This will allow subsequent optional feature upgrades to be ordered online and downloaded to the GEN4 ECU via the Micro SD card without having to return the ECU to BS3.
- **New Bosch LSU4.9 sensor and 6-way replacement connector kit** (The GEN4 ECU is not compatible with the GEN3 system's "old" Bosch LSU4.2 WBO2 sensor. The GEN3 MWH's LSU4.2 WBO2 6-way connector must be removed and replaced with the included LSU4.9 WBO2 6-way connector kit. Instructions on how to replace the LSU4.2 connector with the LSU4.9 connector can be found on the BS3 website under the GEN4 PRO XTREME section).
- **GEN4 PRO XTREME BigComm Pro software license** which can be downloaded directly from the www.bigcommpro.com website.
- **8 GB Micro SD Card with USB Drive Adapter** (Micro SD card is used to obtain subsequent optional feature upgrades online and provides 4 GB external data log RAM storage).
- **5' CAT6a Shielded Ethernet cable** (Connects between GEN4 PRO XTREME ECU's RJ45 Ethernet port and PC's RJ45 Ethernet port. If your PC is not equipped with an integrated RJ45 Ethernet port, a USB-to-RJ45 Ethernet Dongle is required. A USB-to-RJ45 Ethernet dongle can be ordered from BS3. The part number is BS4-003-



The GEN4 PRO XTREME ECU Upgrade Kit (EUK) not only contains the necessary components to upgrade an existing GEN3 PRO SEFI system to a GEN4 PRO XTREME system but is also the basis for an all new GEN4 PRO XTREME system. The balance of components for a “new” GEN4 PRO XTREME system i.e. upgrade kits with harnesses, main wire harnesses with injector harnesses, coil-on-plug harnesses, etc, can be ordered separately and will be discussed later in these instructions.

These instructions will first discuss how to upgrade a GEN3 PRO SEFI system to a GEN4 PRO XTREME system using the GEN4 PRO XTREME ECU Upgrade Kit (EUK). It will then discuss how the GEN4 PRO XTREME ECU Upgrade Kit (EUK) is used as the basis for an all new GEN4 PRO XTREME System.

6. GEN3 PRO SEFI-to-GEN4 PRO XTREME ECU Upgrade Kit (EUK) installation

The GEN4 PRO XTREME ECU Upgrade Kit (EUK) allows an existing GEN3 PRO SEFI system to be upgraded/converted to a new GEN4 PRO XTREME System by;

1. Replacing the existing GEN3 PRO SEFI ECU with a new GEN4 PRO XTREME ECU.
2. Reusing the existing GEN3 PRO SEFI systems “primary side” Main Wire and Injector Wire Harnesses as well as some of the GEN3 PRO SEFI ECU 60-way “secondary side” “upgrade kit” harnesses. The GEN3 PRO SEFI ECU 60-way “secondary side” “upgrade kit” harnesses can be reused to a certain extent by relocating the wires in the 30-way Cinch ECU connectors to maintain compatibility with the GEN4 ECU.
3. Removing the existing GEN3 PRO SEFI System’s Bosch LSU4.2 WBO2 6-way connector and replacing it with the GEN4 PRO XTREME ECU Upgrade Kit’s Bosch LSU4.9 WBO2 6-way connector. The Bosch LSU4.2 WBO2 sensor is not compatible with the GEN4 PRO XTREME system and must be replaced by the Bosch LSU4.9 WBO2 sensor.

The GEN4 PRO XTREME ECU and GEN3 PRO SEFI ECU are the same physical size and have the same mounting provisions. The only difference between the two ECU’s may be the existing GEN3 PRO SEFI ECU may only have one 60-way ECU connector, whereas the GEN4 PRO XTREME ECU has two 60-way ECU connectors. Therefore, be sure to mount the GEN4 PRO XTREME ECU in the same location and orientation as the GEN3 PRO SEFI ECU. Please note the GEN4 PRO XTREME ECU “ENGINE (A-K)” and “ENGINE (L-Y)” labels identify the two primary side 30-way Cinch ECU connectors. See [Section 11](#) for additional GEN4 PRO XTREME ECU installation instructions. The existing GEN3 PRO SEFI system main wire harness’ two 30-way Cinch connectors need to be connected to the GEN4 PRO XTREME ECU’s two primary side 30-way Cinch connectors labeled “ENGINE (A-K)” and “ENGINE (L-Y)”.

A spreadsheet is shown on the following page to compare the GEN3 PRO SEFI ECU to GEN4 PRO XTREME ECU Inputs/Outputs (I/O) relative to the Cinch 30-way primary and secondary ECU connectors. The GEN3 PRO SEFI and GEN4 PRO XTREME ECU I/O relative to the Cinch 30-way primary “ENGINE (A-K)” and “ENGINE (L-Y)” connectors, for the most part, are the same. Therefore, none of these wires need to be relocated. However, some of the GEN3 PRO SEFI wires located in the Cinch 30-way connectors, of the existing GEN3 PRO SEFI upgrade kit harnesses, need to be relocated to be compatible with the GEN4 PRO XTREME ECU I/O for the Cinch 30-way “SECONDARY (A-K)” and “SECONDARY (L-Y)” connectors. The wires can be relocated using the GEN4 Cinch Terminal Removal Kit (P/N: BS4-CIN-001). The **GEN4 PRO XTREME Cinch connector-harness-assembly manual** located on the Bigstuff3 website (www.bigstuff3.com) details how to remove and relocate the wires into the Cinch 30-way connectors using the Cinch Terminal Removal kit.

The **GEN3 vs GEN4 PRO XTREME Upgrade Harness Pin Out Comparison** sheet located on the Bigstuff3 website is another good reference to help identify how the wires need to be relocated into the Cinch 30-way connectors.

GEN3 vs GEN4 ECU I/O Comparison

ECU HEADER 1 30-WAY - ENGINE (A-K)			ECU HEADER 2 30-WAY - SECONDARY (A-K)		
ECU Pin	GEN3 PRO SEFI	GEN4 PRO XTREME	ECU Pin	GEN3 PRO SEFI	GEN4 PRO XTREME
A1	MAP SIGNAL	MAP SIGNAL	A1	INJ 17 / ACCEL SGNL / DUMB COIL1	SPARE A/D 1
A2		TPS2 SGNL / FORD IAC OUT	A2		SPARE INJECTOR DRIVER
A3	IPU CRANK (+)	IPU CRANK (+)	A3		A/C CLUTCH OVERRIDE
B1	TPS1 SIGNAL	TPS1 SIGNAL	B1	INJECTOR 24 / DUMB COIL 8	A/C BUMP INPUT
B2	2-STEP / STARTING LINE TIMING	2-STEP / STARTING LINE TIMING	B2	INJ 18 / TLP & BOOST SGNL / DUMB COIL 2	WG PRESSURE SGNL (BOOST)
B3	IPU CRANK (-)	IPU CRANK (-)	B3		TRANS LINE PRESSURE SGNL
C1	COOLANT TEMP SIGNAL	COOLANT TEMP SIGNAL	C1		RIGHT FRONT SHOCK SGNL
C2	COIL 6	COIL 6	C2	PWRGND1	WHEELIE CONTROL SGNL
C3	IPU CAM (+)	IPU CAM (+)	C3	INJECTOR 19 / DUMB COIL 3	SHIFT LIGHT
D1	AIR TEMP SIGNAL	AIR TEMP SIGNAL	D1		LEFT FRONT SHOCK SGNL
D2	TACH OUT	TACH OUT	D2	INJECTOR 20 / DUMB COIL 4	DAE2 SENSOR RTN
D3	IPU CAM (-)	IPU CAM (-)	D3		DBW PEDAL1 SIGNAL
E1	MAP & TPS 5VR	MAP & TPS 5VR	E1	INJECTOR 21 / DUMB COIL 5	DBW PEDAL2 SIGNAL
E2	MAP, TPS, AIR & COOLANT RTN	MAP, TPS, AIR & COOLANT RTN	E2	INJECTOR 22 / DUMB COIL 6	SPARE A/D 2 / DIGISET 6
E3	CAM HED SIGNAL	CAM HED SIGNAL	E3	INJECTOR 23 / DUMB COIL 7	DAE2 SENSOR 5VR
F1	NOS STAGE 3	8-TO-16 INJECTOR BIG DRIVE ENABLE	F1		SPARE A/D 3 / DIGISET 5
F2	RUEGOIP (LSU4.2)	RUEGOIP (LSU4.9) / RUEGOIP+ (NTK)	F2	LUEGOIP (LSU4.2) / LUEGOIP+ (NTK)	LUEGOIP (LSU4.9) / LUEGOIP+ (NTK)
F3	RUEGOIA (LSU4.2)	RUEGOIA (LSU4.9) / RUEGOVS- (NTK)	F3	LUEGOIA (LSU4.2) / LUEGOVS- (NTK)	LUEGOIA (LSU4.9) / LUEGOVS- (NTK)
G1	RUEGOH- (LSU4.2)	RUEGOH- (LSU4.9) / RUEGOH- (NTK)	G1	LUEGOH- (LSU4.2) / LUEGOH- (NTK)	LUEGOH- (LSU4.9) / LUEGOH- (NTK)
G2	RUEGOUN (LSU4.2)	RUEGOUN (LSU4.9)	G2	LUEGOUN (LSU4.2)	LUEGOUN (LSU4.9)
G3	RUEGOVM (LSU4.2)	RUEGOVM (LSU4.9) / RUEGOVS+ (NTK)	G3	LUEGOVM (LSU4.2) / LUEGOVS+ (NTK)	LUEGOVM (LSU4.9) / LUEGOVS+ (NTK)
H1	H.S. FUEL PUMP ENABLE	H.S. FUEL PUMP ENABLE	H1		LEFT REAR SHOCK SGNL
H2	COIL 7	COIL 7	H2	PWRGND2	SPARE A/D 4 / DIGISET 4
H3	COIL 2	COIL 2	H3		RIGHT REAR SHOCK SIGNAL
J1	COIL 3	COIL 3	J1	TRANS LP / ACCEL/BOOST 5VR	DAE3 SENSOR 5VR
J2	HEI GND / LOW CURRENT GND	HEI GND / LOW CURRENT GND	J2		KNOCK RIGHT BANK (+)
J3	HEI REF. / CRANK HED SGNL	HEI REF. / CRANK HED SGNL	J3		KNOCK RIGHT BANK (-)
K1	COIL 1	COIL 1	K1		KNOCK LEFT BANK (+)
K2	HEI BYPASS	HEI BYPASS	K2	TRANS LP / ACCEL/BOOST RTN	DAE3 SENSOR RTN
K3	HEI / TFI EST	HEI / TFI EST	K3		KNOCK LEFT BANK (-)

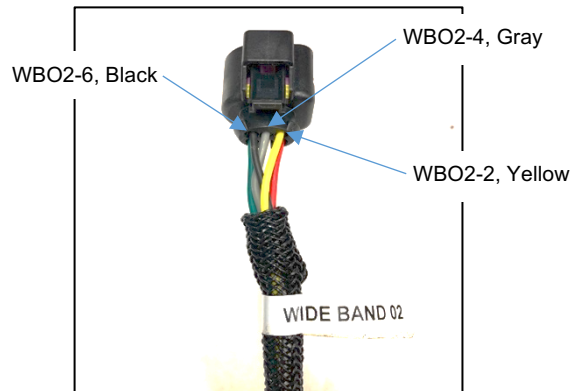
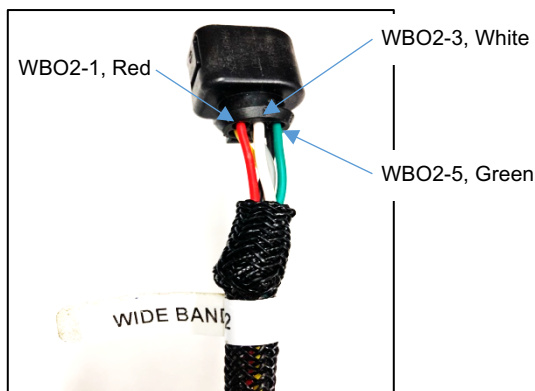
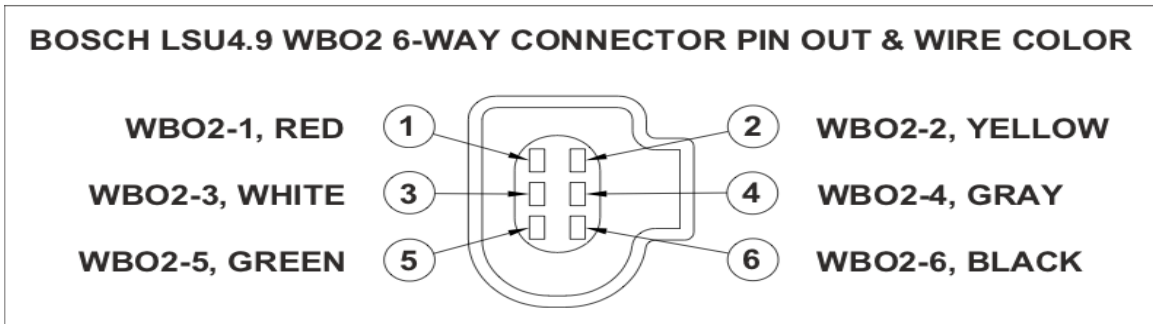
ECU HEADER 1 30-WAY - ENGINE (L-Y)			ECU HEADER 2 30-WAY - SECONDARY (L-Y)		
ECU Pin	GEN3 PRO SEFI	GEN4 PRO XTREME	ECU Pin	GEN3 PRO SEFI	GEN4 PRO XTREME
L1	COIL 4	COIL 4	L1	INJECTOR 16	PWM SOLENOID (NOS)
L2	BOOST ENABLE / TIMER ENABLE	TIMER ENABLE	L2	ECU VBATT	NOS BOTTLE PRESSURE
L3	+12V SWITCH	+12V SWITCH	L3	INJECTOR 14	STAGE 5 NOS
M1	ECU VBATT	ECU VBATT	M1	INJECTOR 12	STAGE 3 NOS
M2	COIL 5	COIL 5	M2	SHIFT SOLENOID B	SHIFT SOLENOID B / GPIO 1
M3	COIL 8	COIL 8	M3		TRANS MODE A / DIGISET_1 / GPIO_2
N1	RS232 TxD	CAN HIGH	N1	INJECTOR 13	STAGE 4 NOS
N2	RS232 RxD	CAN LOW	N2	TCC PWM	TCC PWM / GPIO 3
N3	RS232 RTN	FAN2 ENABLE	N3	FORCE MOTOR HIGH	FORCE MOTOR HIGH / GPIO 4
P1	IAC A-LOW	IAC A-LOW	P1	INJECTOR 11	STAGE 2 NOS
P2	IAC A-HIGH	IAC A-HIGH	P2	SHIFT SOLENOID A / NOS STAGE 4	SHIFT SOLENOID A / GPIO 5
P3	PWRGND1	PWRGND1	P3		TRANS MODE B / DIGISET_2 / GPIO_6
R1	IAC B-LOW	IAC B-LOW / FORD IAC	R1	INJECTOR 15	STAGE 6 NOS
R2	IAC B-HIGH	IAC B-HIGH	R2	INJECTOR 9	TURBO SHAFT SPEED 1 SGNL
R3	FAN1 ENABLE	FAN1 ENABLE	R3	INJECTOR 10	STAGE 1 NOS
S1	INJECTOR 8	INJECTOR 8	S1	TOSS (+) / DRIVE SHAFT HED SGNL	TOSS (+) / DRI VE SHAFT HED SGNL
S2	INJECTOR 4	INJECTOR 4	S2		TRANS MODE C / DIGISET_3 / GPIO_7
S3	L.S. FUEL PUMP ENABLE	L.S. FUEL PUMP ENABLE	S3	TOSS (-) / DRIVE SHAFT (-)	TURBO SHAFT SPEED 2 SGNL
T1	INJECTOR 7	INJECTOR 7	T1	TISS (+) / INPUT SHAFT HED SGNL	TISS (+) / INPUT SHAFT HED SGNL
T2	INJECTOR 3	INJECTOR 3	T2	FUEL PRESSURE SIGNAL	FUEL PRESSURE SIGNAL
T3	BOOST INCREMENT / NOS STAGE_1	BOOST INCREMENT	T3	TISS (-) / INPUT & TURBO SHAFT (-)	TRANS SENSOR RTN
W1	INJECTOR 6	INJECTOR 6	W1	TURBO SHAFT (+) / 3-STEP ENABLE	3-STEP ENABLE
W2	INJECTOR 2	INJECTOR 2	W2	ECU VBATT	GM FLEX FUEL SENSOR SGNL
W3	BOOST DECREMENT / NOS STAGE 2	BOOST DECREMENT	W3	FORCE MOTOR LOW / SENSOR RTN	DAE SENSOR RTN
X1	INJECTOR 5	INJECTOR 5	X1	TRANS MD A, TBP SGNL, NOS STG2 DS	TURBO BACK PRESSURE SGNL
X2	INJECTOR 1	INJECTOR 1	X2	TRANS MD B, OP SGNL, NOS STG3 DS	OIL PRESSURE SIGNAL
X3	POINTS OUTPUT	POINTS OUTPUT	X3	TRANS MD C, OP VAC SGNL, NOS STG4 DS	OIL PAN VACUUM SIGNAL
Y1	ECU VBATT	ECU VBATT	Y1	TRANS TEMP SIGNAL	TRANS TEMP SIGNAL
Y2	ECU VBATT	ECU VBATT	Y2	DATA LOG TRIGGER	DATA LOG TRIGGER
Y3	PWRGND2	PWRGND2	Y3	PAN VAC, OIL, TBB, FP 5VR	DAE SENSOR 5VR



The only remaining installation step to upgrade the GEN3 PRO SEFI system to a GEN4 PRO XTREME system is to remove and replace the Bosch LSU4.2 WBO2 6-way connector from the existing GEN3 PRO SEFI system's main harness with the included GEN4 PRO XTREME ECU Upgrade Kit's Bosch LSU4.9 WBO2 6-way connector kit.

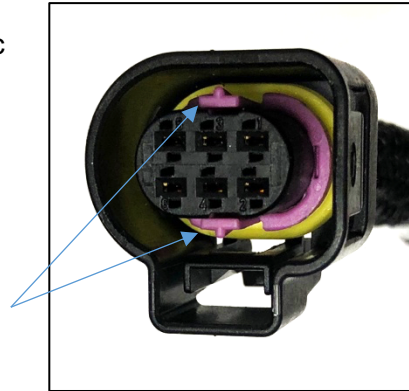
NOTE: The GEN3 PRO SEFI system's Bosch LSU4.2 WBO2 sensor **is not** compatible with the GEN4 PRO XTREME system. The GEN4 PRO XTREME system is only compatible with the Bosch LSU4.9 WBO2 sensor. Therefore, the GEN3 Main Wire Harness' existing Bosch LSU4.2 WBO2 6-way connector must be removed and replaced with the enclosed Bosch LSU4.9 WBO2 6-way connector kit as follows;

1. Cut off Bosch LSU4.2 WBO2 6-way connector from the GEN3 PRO SEFI system's main wire harness. Be sure to cut as close to the 6-way connector as possible.
2. Strip the wire sleeving back ~1/4" to exposed wires on all six wire leads.
3. Slip enclosed wire seals onto sleeving of all six wire leads leaving only the wire exposed.
4. Carefully place terminal onto wire sleeving/seal/exposed wire lead ensuring proper position. Once properly positioned, crimp terminal onto wire and seal. Make sure the terminal is properly crimped onto wire by pulling terminal to make sure it does not come off.
5. Repeat Step 4 for the remaining wire leads.
6. Insert the (6) crimped terminal/wire assemblies into the enclosed Bosch LSU4.9 WBO2 6-way connector as shown below. Please note the numbers shown in the diagram below correspond to the numbers molded into the backside edge of the Bosch LSU4.9 6-way connector where the wires are inserted into the connector. Be sure the terminals are properly positioned and orientated when inserting them into the connector. Once inserted, be sure they are properly seated into the connector by pulling on the wires to ensure they do not pull out of the connector.



7. Complete the installation by pushing the pink plastic terminal retaining clip through the side of the Bosch LSU4.9 6-way connector. Make sure the clip is properly positioned into the connector to ensure secondary terminal retention.

The pink terminal retaining clip is properly seated once the two pink tabs are centered between the two center terminal positions.



Once the GEN3 PRO SEFI to GEN4 PRO XTREME system installation is completed, please proceed to [Section 12](#) of these instructions.

7. New GEN4 PRO XTREME System installation

The instructions will now focus on the installation steps associated with a new GEN4 PRO XTREME system. They will explain how to install, a new GEN4 PRO XTREME system, which at a minimum, includes a GEN4 PRO XTREME ECU Upgrade Kit (EUK) along with a new GEN4 PRO XTREME main wire harness (MWH) with injector wire harness (IWH). As mentioned previously, the GEN4 PRO XTREME ECU Upgrade Kit (EUK) not only contains the necessary components to upgrade an existing GEN3 PRO SEFI system to a GEN4 PRO XTREME system but is also the basis for an all new GEN4 PRO XTREME systems. All of the GEN4 PRO XTREME system components, i.e. GEN4 PRO XTREME ECU Upgrade Kits, Main Wire Harnesses with Injector Wire Harnesses, Coil-on-Plug Wire Harnesses, etc, can be ordered separately using the GEN4 PRO XTREME online order form found on the Bigstuff3 website.

These instructions will detail how to install a “minimally” configured GEN4 PRO XTREME system. A separate set of the instructions will elaborate on how to install the numerous GEN4 PRO XTREME Standard Feature Upgrades (SFU), Optional Feature Upgrades as well as the all new GEN4 BIG BAND 4-Channel and 8-Channel WBO2 and Thermocouple modules. Below, is an example of a full featured GEN4 PRO XTREME system configuration.

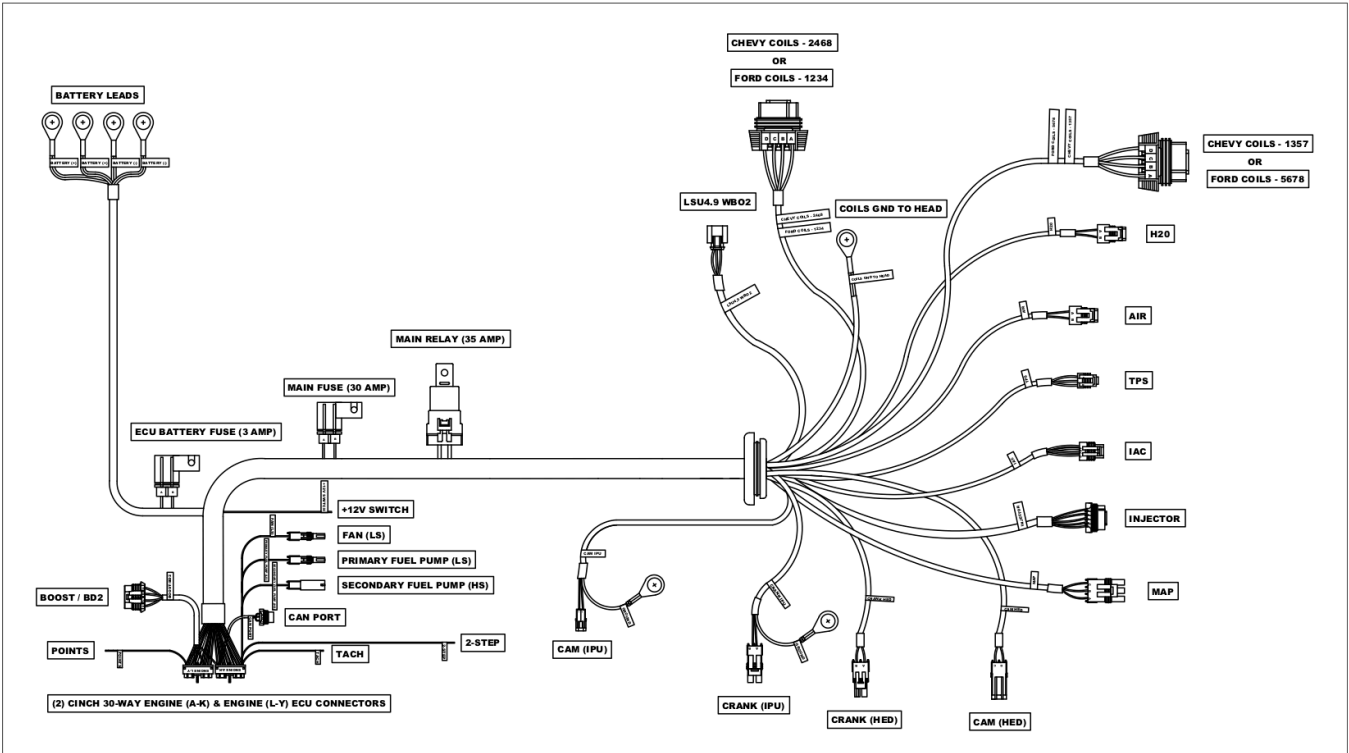


8. GEN4 PRO XTREME Main Wire Harness Installation

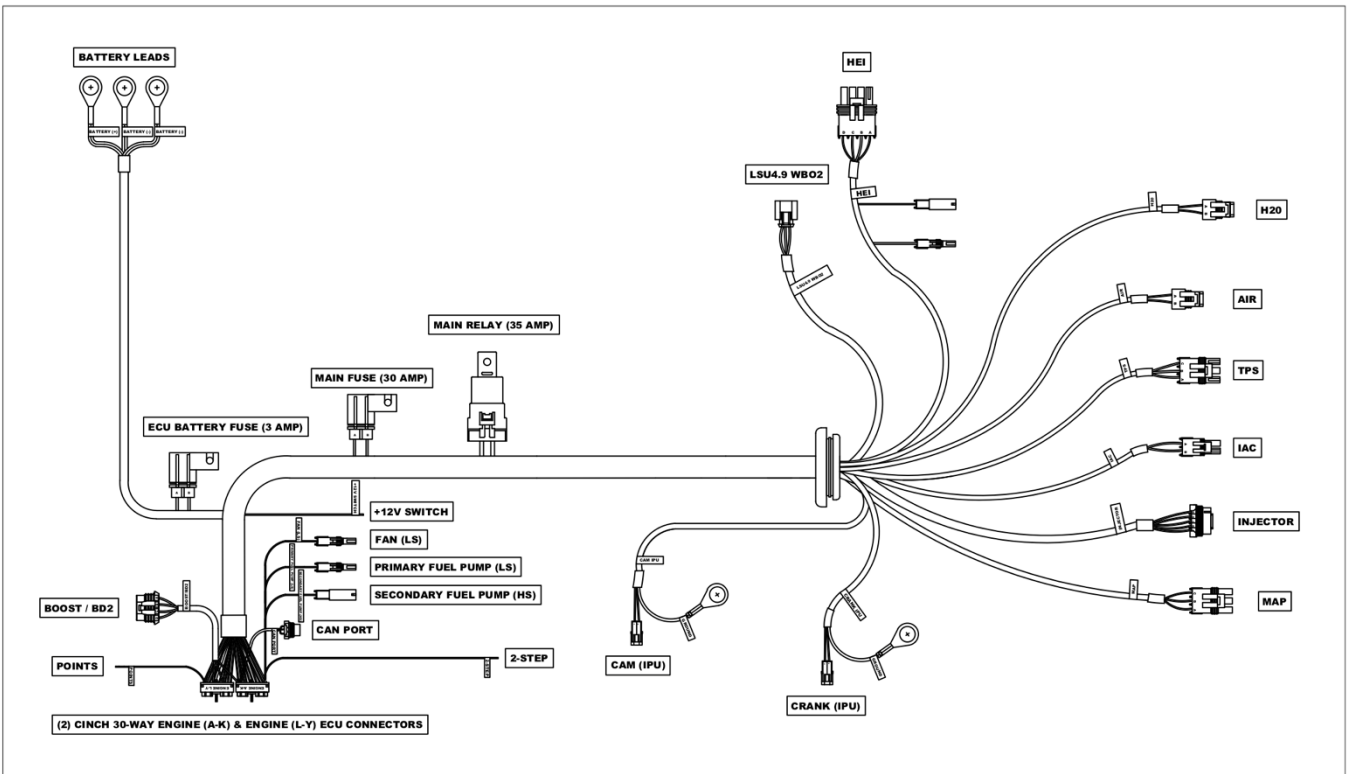
[Back to Main Wire Harness Installation](#)

Below are the GEN4 PRO XTREME – UNIVERSAL COP & BASE Main Wire Harness drawings.

GEN4 PRO XTREME UNIVERSAL COP MAIN WIRE HARNESS – CHEVY & FORD:



GEN4 PRO XTREME BASE MAIN WIRE HARNESS



To improve the overall wire harness installation process, the GEN4 PRO XTREME main wire harness has identification labels at the end of each wire or connector to ensure proper connections. The main wire harness has two halves; one half is intended to be located inside the vehicle to connect to the ECU, the other half connects to the sensors in the engine compartment. The two halves of the harness are separated by a firewall grommet designed to fit into a 2-1/8" hole in the firewall.



The best location for the hole in the firewall is in an unobstructed location, on either side of the engine closest to where the ECU will be mounted in the passenger compartment. Care should be taken to keep the harness as close to the center of the vehicle as possible. Locating the hole too far away from the vehicle center may affect wire lengths that connect to sensors on the engine. Once the main harness grommet is installed into the firewall, the connections need to be made to sensors, the ECU, etc.

The instructions below are specific to the GEN4 PRO XTREME systems. Hyperlinks (underlined, blue wording) in the column titled "Further Details" are included to further assist with the main wire harness installation. Left clicking the PC's mouse on the hyperlink will immediately link to a photo of the connector along with additional installation information. To return to the same location in the table, simply left click on the "Return-to" hyperlink at the end of the text.

Note: Additional components such as relays and special connectors may be required to complete your specific installation. Contact your dealer or BigStuff3 for further details.

Important System Wiring/Grounding Notes:

BigStuff3 cannot stress the importance of properly grounding the GEN4 PRO XTREME system!! The GEN4 PRO XTREME **main wire harness ground cables, and the ignition system ground cable(s), MUST BOTH be grounded to the same negative post, of the same battery!!** Failure to run the ground cables from **both** of these systems **directly to the battery** will cause performance issues and potentially damage one or both of the electronic systems. No other ground paths/solutions are acceptable!

A common practice is to run a AWG 1 through AWG 4 isolated ground from the battery to a firewall ground lug, and then run every other electrical system ground to it. This grounding solution will create ground loop issues!! If the isolated ground lug is only going to be used for the GEN4 and ignition system, then it will work. The problem with this approach is that with time other systems also end up being grounded to this lug, which will then cause ground loop issues. To avoid ground loop issues, and the hours of frustration that come with them, ground the BS3 and MSD systems directly to the battery!!

Also, do not splice any other ground wires (from other systems/components) into either the MSD or BS3 ground cables.

The GEN4 system 12V power cables can be connected to the vehicle cut-off switch. Power for the GEN4 system and the ignition system should also be from the same source (the battery or the cutoff switch). To avoid the potential of severely damaging the ECU, make the positive and negative connections to the **battery first, and then connect the header connectors to the ECU.**

For coil-on-plug systems, the main wire harness “coil ground” wire (eyelet) must also be grounded to the cylinder head/engine. No other ground locations are adequate.

If a 16V charging system is being used, **do not charge the battery with the ignition switch on**. The 16V battery charger can reach peak voltages above the maximum rated voltage of some of the electronic circuitry. These over-voltage conditions can completely damage the ECU. This type of damage is easy to identify and is not covered under the factory warranty! **Also, when running a 16V charging system with a GEN4 coil-on-plug system, the maximum coil dwell cannot exceed 4 milliseconds. If running a 12V system, the maximum coil dwell cannot exceed 6 milliseconds.**

The GEN4 PRO System has two main wire harness types. The first is a “Base” main wire harness intended for distributor-based systems and the other is a “Universal COP” main harness for distributor and/ or Coil on Plug (COP) systems. These instructions will primarily focus on the Universal COP main wire harness. The primary difference between the two main harnesses is that the Universal main wire harness has provisions for COP connections, whereas the Base main wire harness does not have COP provisions.

Harness Label	Wire Color/Connector Type	Label Definition	Connect To	Further Details
CAN PORT (formerly Calport for GEN3 PRO SEFI system)	Black, 3-way Packard connector with a purple seal	The CAN PORT allows the GEN4 ECU to interface with external BS3 Touch Screen dash or 3 rd party CAN modules.	Connect to the BS3 Touch Screen Dash or 3 rd party CAN modules.	CAN PORT for further information.
PRIMARY FUEL PUMP (LS) Must be wired as the <u>Primary</u> fuel pump!	Black, 1-way Male Packard connector with a single black/white striped wire.	Primary Fuel Pump Relay Low Side connection	Connect to the negative side of the fuel pump relay .	Do not connect this wire directly to the fuel pump. <u>A relay must be used.</u> PRIMARY FUEL PUMP (LS)
SECONDARY FUEL PUMP (HS) Must be wired as the <u>Secondary</u> fuel pump!	Black, 1-way Female Packard connector with a single red/white striped wire	Secondary Fuel Pump Relay High Side connection	Connect to the positive side of the fuel pump relay .	Do not connect this wire directly to the fuel pump. <u>A relay must be used.</u> SECONDARY FUEL PUMP (HS)
TACH (GEN4 PRO XTREME Universal COP MWH only)	Single green wire	Tachometer	Connects to vehicle tachometer	Tach output signal TACH

Harness Label	Wire Color/Connector Type	Label Definition	Connect To	Further Details
FAN (LS)	Black, 1-way Male Packard connector with a single black/red striped wire.	Engine Cooling Fan Relay Low Side connection	Connect to the negative side of a cooling fan relay.	Do not connect this wire directly to the fan or positive side of the relay. <u>A relay must be used.</u> FAN (LS)
POINTS	Single white wire	Connection for inductive pickup ignition	Only to the MSD system white points input wire	POINTS
+12V SWITCH	Single pink wire	Switched 12V supply input	Connect to a 12V source that is “live” when the ignition key is in the “start” position	See +12V SWITCH paragraph below for further information. +12V SWITCH
BATTERY (+) & BATTERY (-)	Four (4) red wires with (2) 3/8” ring terminals and three (3) black wires with (2) 3/8” ring terminals)	Positive and Negative Battery Connections	Connect directly to the vehicle battery only!	See paragraph below titled “Battery Connections” for further important information. Battery Connections
HEI <i>(GEN4 PRO XTREME Base MWH only)</i>	Black, 4-way Male Packard connector	High Energy Ignition [Original Equipment (OE) ignition]	Connect to GM factory installed ignition system.	Inductive pickup ignitions will not use this connection! See paragraph below titled “HEI” for further relevant information. HEI
CAM IPU <i>(Both GEN4 PRO XTREME Base & Universal COP MWH)</i>	Gray, 2-way Female Packard connector with a separate ground wire (3/8” ring terminal)	Camshaft Position Sensor Input for Inductive Pickup Cam sensor	Connect to the engine’s camshaft position sensor	Used only for injector phase angle and individual cylinder spark control. <u>System includes mating 2-way Packard connector & terminals.</u> CAM (IPU)
CAM HED <i>(GEN4 PRO XTREME Universal COP MWH only)</i>	Black, 4-way Female Packard connector	Camshaft Position Sensor Input for +5V or +12V Hall Effect Cam senso	Connect to the engine’s camshaft position sensor	Used only for injector phase angle and individual cylinder spark control. <u>System includes mating 4-way Packard connector & terminals.</u> CAM HED

Harness Label	Wire Color/Connector Type	Label Definition	Connect To	Further Details
CRANK IPU (Both GEN4 PRO XTREME Base & Universal COP MWH)	Black, 2-way Male Packard connector with a separate ground wire (3/8" ring terminal)	Crankshaft Position Sensor Input for Inductive Pickup Cam sensor	Connect to engine's crankshaft position sensor	<u>System includes a mating 2-way Packard connector & terminals.</u> CRANK IPU
CRANK HED (GEN4 PRO XTREME Universal COP MWH only)	Black, 4-way Male Packard connector	Crankshaft Position Sensor Input for +5V or +12V Hall Effect Crank sensor	Connect to engine's crankshaft position sensor	<u>System includes a mating 4-way Packard connector & terminals.</u> CRANK HED
H2O	Black, 2-way Packard connector	Engine Cooling Fluid Temperature Input	Connect to the engine's GM (only) coolant temp. sensor, typically located on the intake manifold	Used to measure engine coolant temperature for the purpose of calibrating cranking fuel and warm up enrichment. H2O
AIR	Gray, 2-way Packard connector.	Engine Intake Air Temperature Input	Connect to the engines' GM (only) air temp. sensor typically located in the air intake duct between the air cleaner and the throttle body	Used to measure the manifold air temperature for the purpose of several fuel and spark related compensations. AIR
IAC	Black, 4-way Packard connector	Idle Air Speed Control (IAC) input	Connect to the IAC motor assy located on or near the throttle body.	Used to meter and controls intake air around the throttle blades at idle and during cold starts. IAC
TPS	Black, 3-way Packard connector	Throttle Position Sensor	Connect to the TPS located at the end of the throttle shaft on the throttle body	Used to measure the position of the throttle blades [0% (throttle closed) to 100% (throttle wide open)]. TPS

Harness Label	Wire Color/Connector Type	Label Definition	Connect To	Further Details
MAP	Green, 3-way Packard connector	Manifold Absolute Pressure Sensor	Connect to the MAP sensor	Used to measure the engines Manifold Absolute Pressure, which is a key parameter for fuel, spark and lambda control. MAP
CHEVY COILS-ODD <i>(GEN4 PRO XTREME Universal COP MWH only)</i>	White, 7-way Packard connector	Coil on Plug – Chevy 1, 3, 5 & 7 coils	Connect to mating GEN4 PRO XTREME “Smart” High Output & High Current Output COP harnesses	Used for Chevy COP applications using the GEN4 PRO XTREME Smart Coils. CHEVY COILS-ODD
CHEVY COILS-EVEN <i>(GEN4 PRO XTREME Universal COP MWH only)</i>	White, 7-way Packard connector	Coil on Plug – Chevy 2, 4, 6 & 8 coils	Connect to mating GEN4 PRO XTREME “Smart” High Output & High Current Output COP harnesses	Used for Chevy COP applications using the GEN4 PRO XTREME Smart Coils. CHEVY COILS-EVEN
FORD COILS-1234 <i>(GEN4 PRO XTREME Universal COP MWH only)</i>	White, 7-way Packard connector	Coil on Plug – Ford 1, 2, 3 & 4 coils	Connect to mating GEN4 PRO XTREME “Smart” High Output & High Current Output COP harnesses	Used for Ford COP applications using the GEN4 PRO XTREME Smart Coils. FORD COILS-1234
FORD COILS-5678 <i>(GEN4 PRO XTREME Universal COP MWH only)</i>	White, 7-way Packard connector	Coil on Plug – Ford 5, 6, 7 & 8 coils	Connect to mating GEN4 PRO XTREME “Smart” High Output & High Current Output COP harnesses	Used for Ford COP applications using the GEN4 PRO XTREME Smart Coils. FORD COILS-5678
COILS GND TO HEAD <i>(GEN4 PRO XTREME Universal COP MWH only)</i>	$\frac{3}{8}$ ” RING TERMINAL	A separate Coil on Plug ground wire is required for COP applications	Fasten the COILS GND TO HEAD $\frac{3}{8}$ ” Ring Terminal to the backside of the cylinder head	Required for all COP applications. COILS GND TO HEAD

Harness Label	Wire Color/Connector Type	Label Definition	Connect To	Further Details
BOOST / BD2	Black 4-way Packard connector with an orange seal	Boost Control, Secondary BIG DRIVE (BD) enable for 16 Injector systems, and Timer/ Boost enable	Connect to BOOST /BD2 4-way connector A: Trigger Timer/Boost Enable wire, B: Increment Boost valve C: Decrement boost valve D: Secondary BIG DRIVE enable wire	BOOST / BD2
2-STEP	Single yellow wire	2-Step trigger function	Clutch or trans brake switch	2-STEP
Main Fuse & Relay	N/A	N/A	N/A	Main Fuse & Relay
ECU Battery Fuse	N/A	N/A	N/A	ECU Battery Fuse
MAIN WIRE HARNESS (2) CINCH 30-WAY ENGINE (A-K) & ENGINE (L-Y) ECU Connectors	(2) Cinch 30-way connectors	ENGINE (A-K) & ENGINE (L-Y)	Connect to GEN4 PRO XTREME ECU'S (2) CINCH 30-way Header connectors	GEN4 PRO XTREME ECU ENGINE (A-K) & ENGINE (L-Y) Connection
Optional Feature Upgrade Harnesses (2) CINCH 30-WAY SECONDARY (A-K) & SECONDARY (L-Y) ECU Connectors	(2) Cinch 30-way connectors	SECONDARY (A-K) & SECONDARY (L-Y)	Connect to GEN4 PRO XTREME ECU'S (2) CINCH 30-way Header connectors	GEN4 PRO XTREME ECU SECONDARY (A-K) & SECONDARY (L-Y) Connection

Harness Label	Wire Color/Connector Type	Label Definition	Connect To	Further Details
INJECTOR	Black, 10-way Packard connector	Injector harness connector	Connect to Injector wire harness	INJECTOR
LSU4.9 WBO2	Black, 6-way Tyco connector	Wideband O2 Sensor connector	Connect to Bosch LSU4.9 Wideband O2 Sensor	LSU4.9 WBO2

The following section of the instructions provide additional details for the information outlined in the table above.

CAN PORT (Black, 3-way Packard connector with a purple seal)

The GEN4 PRO XTREME main wire harness' **CAN PORT** black, 3-way Packard connector connects to the BS3 Touch Screen Dash or 3rd Party CAN Modules.

Do not connect the GEN4 PRO XTREME 3-way CAN PORT connector to the GEN3 PRO SEFI systems 3-way BIGCOM serial cable.

[Back to CAN PORT](#)

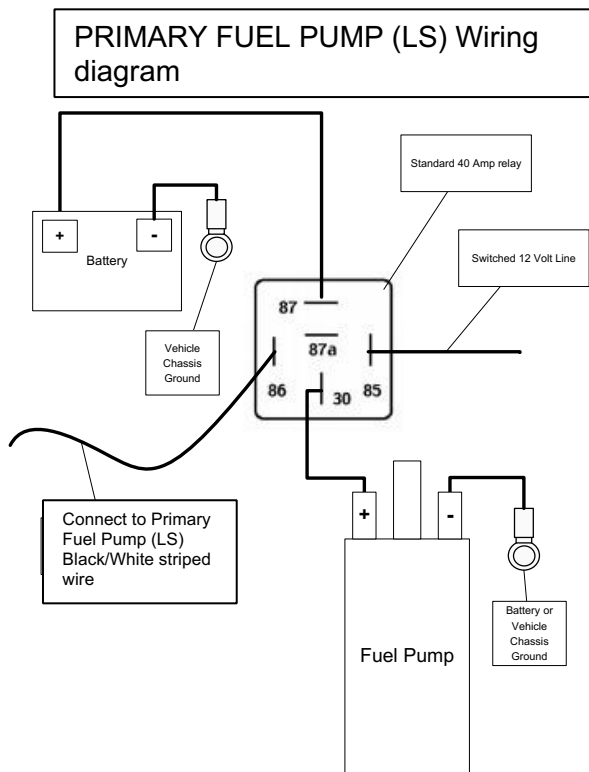


PRIMARY FUEL PUMP (LS) – (Black, 1-way Male Packard connector with a single BLACK/WHITE striped wire)

This is the PRIMARY pump connection. If only one fuel pump is being used, it must be wired to this low side connection!

The PRIMARY FUEL PUMP lead **must** connect to the negative side of a fuel pump relay, not directly to the fuel pump. **Connecting directly to a fuel pump will damage the GEN4 PRO XTREME ECU and will void the warranty!** The primary fan wire is black with a red stripe, but the connector is identical to the fuel pump connector(s); so make sure to read the wire label to ensure the connector is terminated correctly. Wire the primary (low side) fuel pump relay per the diagram below.

[Back to PRIMARY FUEL PUMP \(LS\)](#)



This diagram is also available on the Bigstuff3 website via this link: <http://bigstuff3.com/pdf/LS%20Fuel%20Pump%20Wiring%20Diagram.pdf>. The fuel pump relay is **not** supplied with the system. A standard 40 Amp, four post relay, available at most part stores, will work.

SECONDARY FUEL PUMP (HS) – (Black, 1-way Female Packard connector with a single RED/WHITE striped wire)

This is the **SECONDARY** pump connection. If only one fuel pump is being used, it **must** be the Primary Fuel Pump (LS) shown above! The secondary fuel pump turns on as a function of throttle position and is configurable!

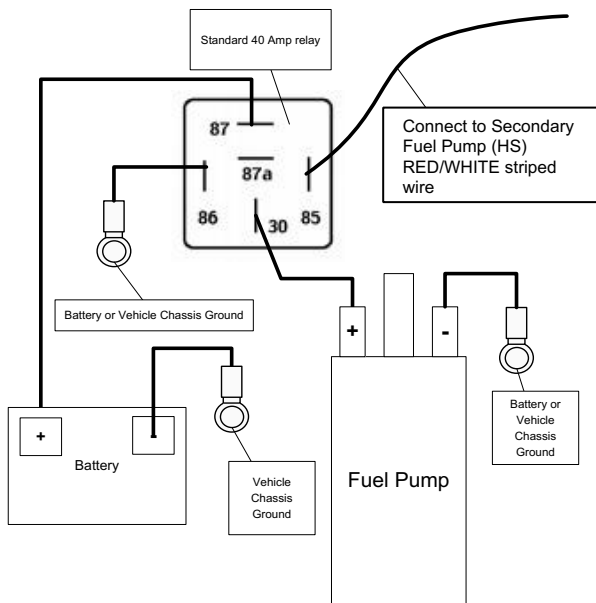
The SECONDARY FUEL PUMP lead **must** connect to the positive side of a fuel pump relay, not directly to the fuel pump. **Connecting directly to a fuel pump will damage the GEN4 PRO XTREME ECU and will void the warranty!** The fan connector is identical to the fuel pump connector(s); so make sure to read the wire label to ensure the connector is terminated correctly.

Wire the secondary (high side) fuel pump relay per the diagram below.

[Back to SECONDARY FUEL PUMP \(HS\)](#)



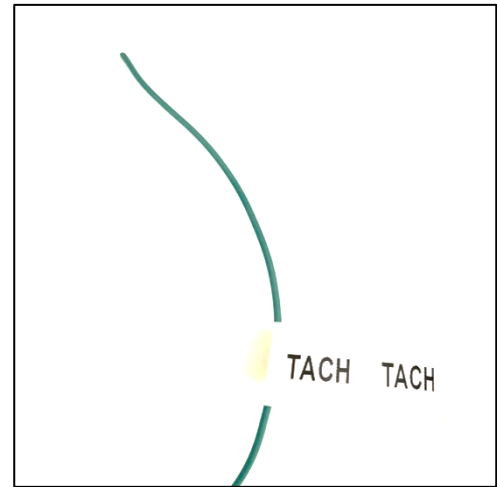
SECONDARY FUEL PUMP (HS) Wiring diagram



This diagram is also available on the Bigstuff3 website via this link: <http://bigstuff3.com/pdf/HS%20Fuel%20Pump%20Wiring%20Diagram.pdf>. The fuel pump relay is not supplied with the system. A standard 40 Amp, four post relay, available at most part stores will work.

TACH – (Single Green wire)

The Tach wire supplies a generic Tach “out” signal and will drive most traditional tachometers. A 4-pulse per revolution, for a V8 engine, is outputted. [Back to TACH](#)

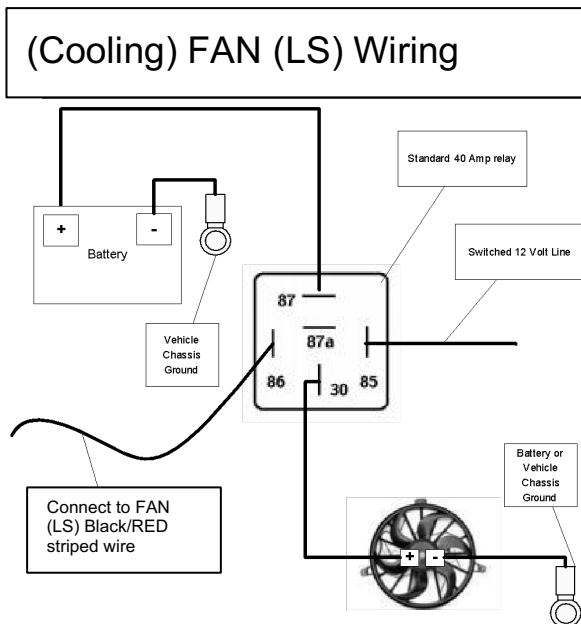
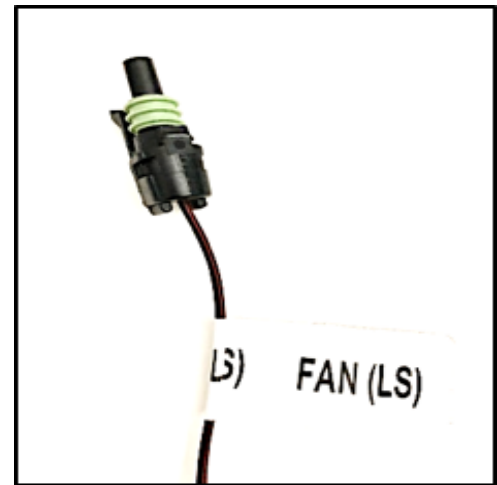


FAN (LS) – (Black, 1-way Male Packard connector with a single BLACK/RED striped wire)

The FAN (LS) lead **must** connect to the negative side of a cooling fan relay, not directly to the cooling fan. **Connecting directly to a cooling fan will damage the GEN4 PRO XTREME ECU and will void the warranty!** The fan connector is identical to the fuel pump connectors; so make sure to read the label to ensure the connector is terminated correctly.

Wire the cooling fan relay per the diagram below.

[Back to FAN \(LS\)](#)



This diagram is also available on the Bigstuff3 website via this link:

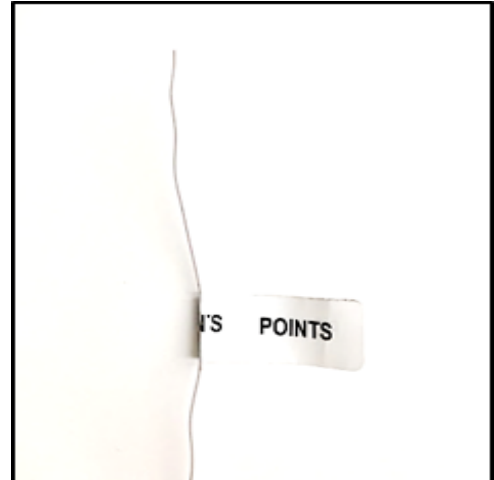
<http://bigstuff3.com/pdf/Cooling%20Fan%20Wiring%20Diagram.pdf>. The fan pump relay is not supplied with the system. A standard 40 Amp, four post relay, available at most part stores will work.

POINTS – (Single, White wire)

The GEN4 PRO XTREME "POINTS" output wire connects to an aftermarket ignition module, e.g. MSD 6A box when used with a distributor based system. It does not need to be connected if a factory ignition or Coil-on-Plug ignition system is being used.

- **Note : Applying 12V to the BS3 points wire will immediately damage the GEN4 PRO XTREME ECU!**

[Back to POINTS](#)

**+12V SWITCH** – (Single, Pink wire)

The GEN4 PRO XTREME "+12V SWITCH" wire must connect to a **secure** +12V switched supply. The best source is a switched 12V supply at the vehicle fuse block. Twelve volts (12V) must be present on this wire during and after cranking. **If the 12V supply does not remain during and after cranking, the ECU will not power up and the engine will not start and/or remain running.** A simple way to determine if a live 12V supply exists during cranking is to check it with a voltmeter. Securely fasten the voltmeter's red (+ positive) wire to the ignition input on the fuse block. Secure the voltmeter's black wire (- negative) to an adequate ground location. Crank the engine and the voltage meter should indicate an output of between 12 to 14 volts. If the output voltage is below 12 volts, check to make sure the battery is fully charged and all the cells of the battery are functioning properly.



NOTE: If the engine cranks, but does not start make sure the battery voltage is at or above 12V during cranking. Low battery voltage conditions must be fixed prior to starting the engine. Battery voltage (especially during cranking) is even more important with coil-on-plug applications. [Back to +12V SWITCH](#)

POSITIVE (BATTERY +) & NEGATIVE BATTERY (-) – (Four (4) red wires with (2) 3/8" ring terminals and three (3) black wires with (2) 3/8" ring terminals)

The GEN4 PRO XTREME **main wire harness ground cables and the ignition system must BOTH be grounded to the same negative post of the same battery!!** Failure to run the ground cables from both these systems directly to the battery will cause performance issues and potentially damage one or both of the electronic systems. No other ground paths/solutions are acceptable!

To avoid ground loop issues, and the hours of frustration that come with them, ground the BS3 and MSD systems directly to the battery!!

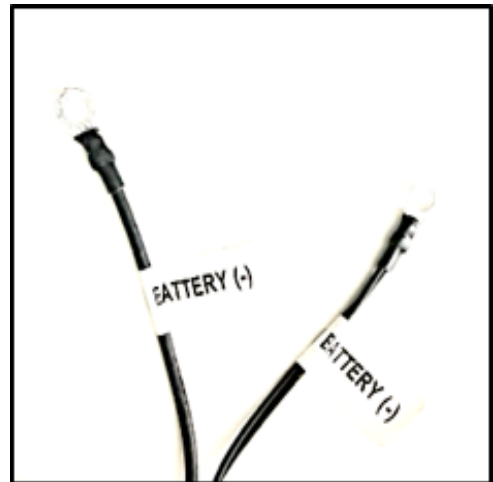
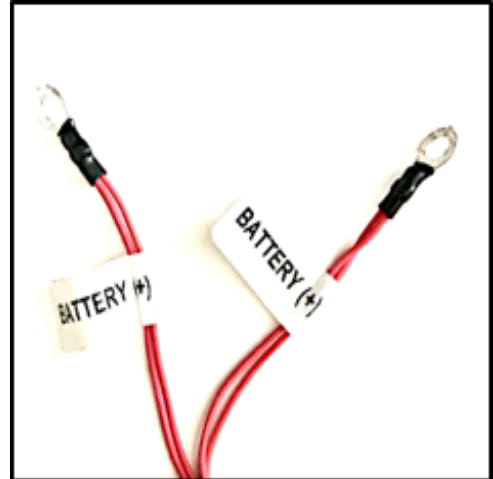
Also, do not splice any other ground wires (from other systems/components) into either the ignition or BS3 ground cables.

The GEN4 PRO XTREME system 12V power cables can be connected to the vehicle cut-off switch.

Power for the GEN4 PRO XTREME system and the ignition system must be from the same source (the battery or the cutoff switch).

The positive and negative battery cable lengths have been designed (are long enough) to accommodate a trunk-mounted battery. If the cable lengths are not long enough, splice, solder and shrink wrap AWG 8 wire the remaining distance to the battery. Make sure the two clearly

marked black **BATTERY (-)** wires with 3/8" ring terminals are **securely fastened to the negative battery post (NO EXCEPTIONS)**. The red **BATTERY (+)** wires with 3/8" ring terminals must be securely fastened to the positive (+) battery post. Connecting the positive and negative cables to the wrong battery post **will damage the GEN4 PRO XTREME ECU**. This type of damage is easy to identify and is not covered under the factory warranty. To avoid the potential of severely damaging the ECU, **connect the (2) 30-WAY Main Wire Harness connectors to the ECU only after the battery connections are properly made.** [Back to Battery Connections](#)



Ignition Systems Setup

For additional information on ignition system setups, go to the BigStuff3 website, and then the document titled Ignition System Setup Tutorial. The link is:

<http://bigstuff3.com/pdf/Ignition%20Guide%20rev%201.2.pdf>. The Ignition System Setup

Tutorial document covers the following nine (9) ignition system setups:

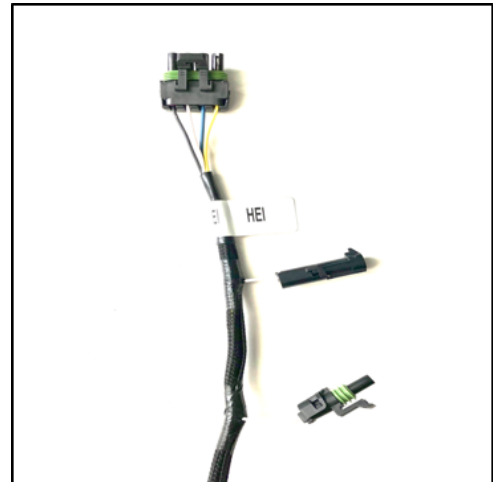
1. Stand-alone IPU Distributor Only
2. Modified IPU Distributor (serving as the cam sync) with a Crank Trigger Setup
3. MSD Distributor Used to Only Distribute Spark from an MSD 6A/7A/8A ignition box, with a Crank Trigger.
4. MSD 2340 Cam Sync Distributor with a Crank Trigger Setup
5. MSD All-in-One, Crank and Cam Sync Distributor
6. GM's CAM Sync Drive with BigStuff3's 24 Tooth Crank Wheel.
7. MSD Mag44 Magneto
8. GM LS1/2/7 COP System
9. Ford Mod Motor COP System

Also in the "How-to/Help" section of the website there is additional information on the setting up the Ford TFI, GM HEI, GM Opti-spark & MSD8 ignition systems. More information, along with the appropriate links to the website, is provided below.

HEI – (Black, 4-way Packard connector)

The main harness HEI connection is designed to work with a GM Y-car (Corvette) distributor. The HEI connection also includes a "bypass" connector for setting the timing.

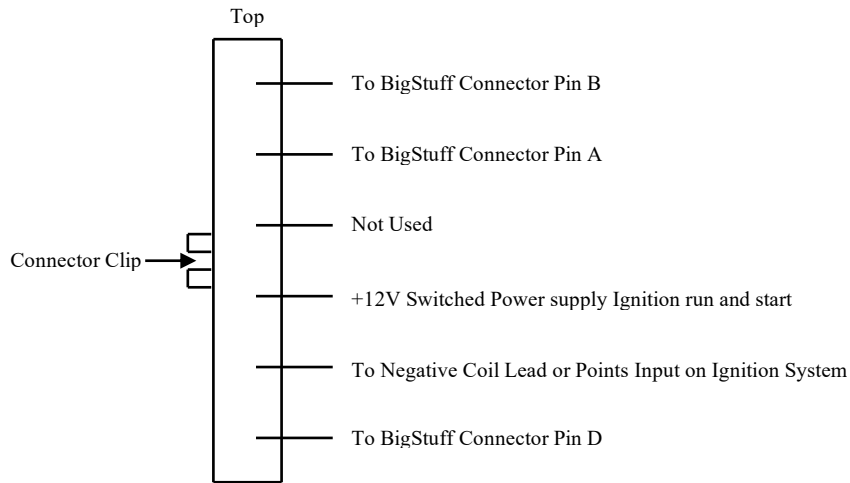
Re-configuring the A, B, C and D pins of the main harness HEI connector allows for other types of types of ignition systems to be used. The diagrams below outline connector configurations that can be made to interface with Ford TFI, Buick DIS, GM Optispark and GM Northstar ignition systems. [Back to HEI](#)



HEI Connector on Main Wire Harness	A	B	C	D
Ford TFI	Spout	PIP	Not Used	Ground
GM HEI	EST	REF HI	Bypass	DIST RTN
Buick DIS	EST	REF HI	Bypass	DIST RTN
GM Optispark	EST	LOW RES	Not Used	DIST RTN
GM Northstar DIS	EST	Crank Ref	Bypass	DIST RTN

Ford Thick Film Ignition (TFI) Pin-out Detail

More Ford TFI wiring information is available on Bigstuff3 website via link:



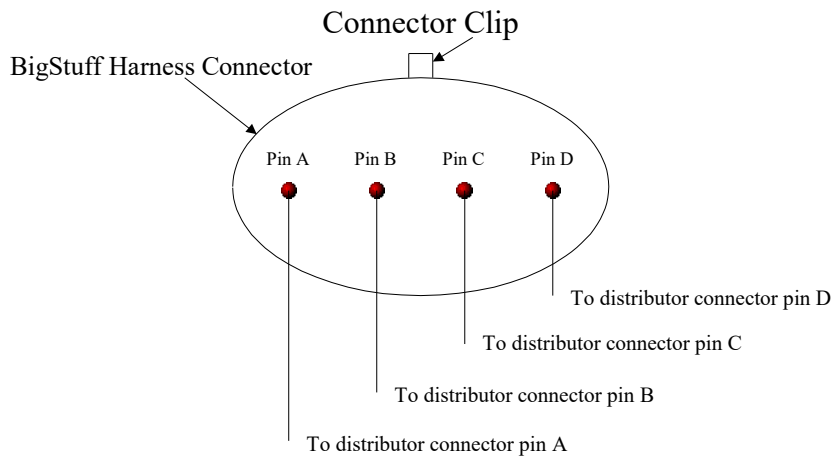
ignition
the
this

Note: BigStuff Connector Pin C is not used with the Ford TFI Ignition

<http://bigstuff3.com/pdf/Ford%20TFI.pdf>

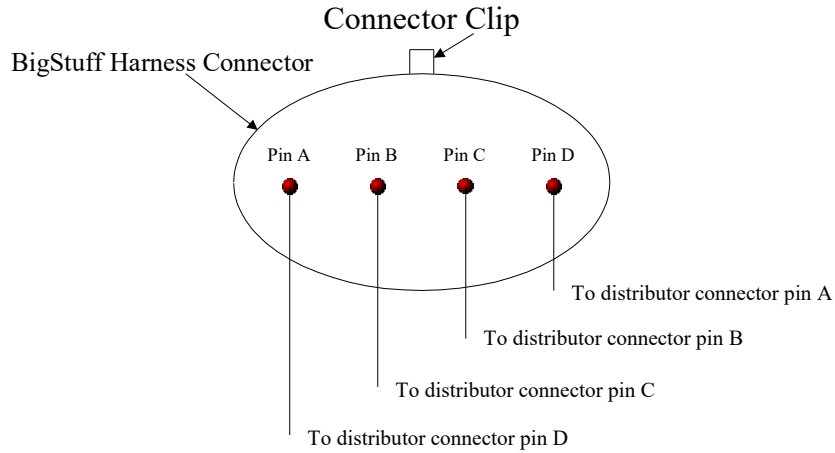
GM High Energy Ignition (HEI) Pin-out Detail

(For Distributors with Ignition Coil in the Distributor Cap)



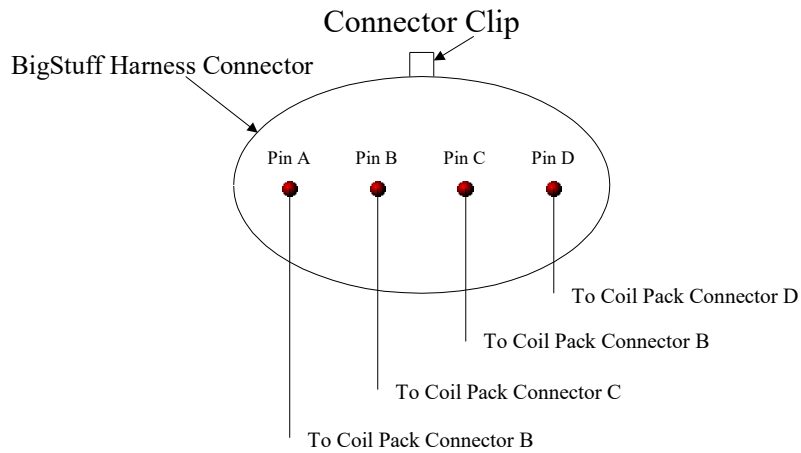
GM High Energy Ignition (HEI) Pin-out Detail

(For Distributors with External Ignition Coil)

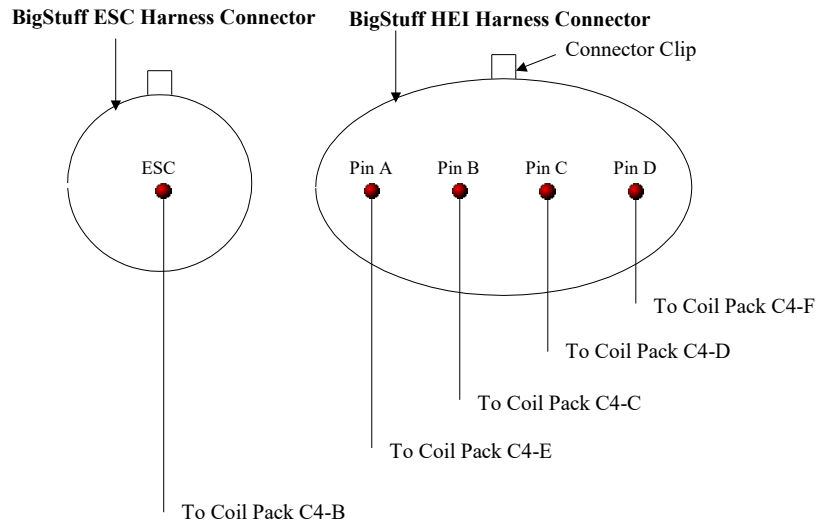


More GM HEI ignition wiring information is available on the Bigstuff3 website via this link:
<http://bigstuff3.com/pdf/Visio-Small%20Cap%20HEI%20Drawing.pdf>.

Buick Direct Ignition System (DIS) Pin-out Detail

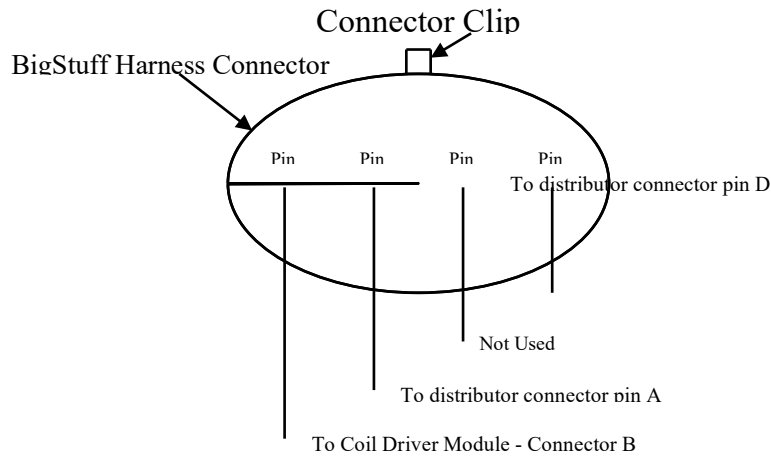


GM Northstar Direct Ignition System (DIS) Pin-out Detail



More GM Opti-spark ignition wiring information is available on the Bigstuff3 website via this link:

GM Opti-spark Ignition Pin-out Detail



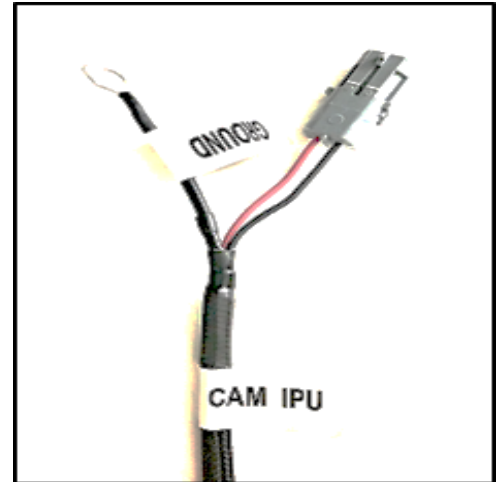
<http://bigstuff3.com/pdf/OPtiSpark%20to%20BS3%20HEI%20Wiring.pdf>

[Back to Ignitions](#)

CAM IPU – (Gray, 2-way Female Packard connector with a separate ground wire with a 3/8” ring terminal)

For GEN4 PRO XTREME distributor based applications, BigStuff3 recommends using the CAM (IPU) sync input. The CAM (IPU) sync input is required for all coil-on-plug applications. The GEN4 PRO XTREME system will operate sequentially without the cam sync hooked up, but the point of injection (the number of degrees BTDC where the fuel is injected) will vary every time the engine is started. Individual spark control per cylinder will also not function without the CAM (IPU) sync hooked up.

The GEN4 PRO XTREME main wire harness' **CAM IPU** gray 2-way Packard connector must be connected to the engine's inductive pickup Cam sensor or distributor (not supplied). The 3/8” ring terminal must be fastened to a secure ground location, preferably on the engine block near the Cam sensor. The system is supplied with the CAM IPU sensor side 2-way Male mating connector, terminal and seals, which needs to be configured per the table below. [Back to CAM IPU](#)



Gray, 2-way Male Packard CAM IPU mating Connector	MSD Synch Pulse
A – Red (+)	A – Green (+)
B – Black (-)	B – Purple (-)

CAM HED – (Black, 4-way Female Packard connector)

GEN4 PRO XTREME Coil-On-Plug based applications using the stock CAM HED sensor require the CAM (HED) sync input. Non GEN4 PRO XTREME Coil-on-Plug applications system will operate sequentially without the CAM (HED) sync hooked up, but the point of injection (the number of degrees BTDC where the fuel is injected) will vary every time the engine is started. Individual cylinder fuel and spark control will not function properly without the CAM (HED) sync hooked up.

The GEN4 PRO XTREME main wire harness' **CAM HED** black 4-way Female Packard connector must be connected to the engine's Cam HED sensor. The system is supplied with the CAM HED sensor side 4-way Male mating connector, terminal and seals, which needs to be configured per the table below.

[Back to CAM HED](#)



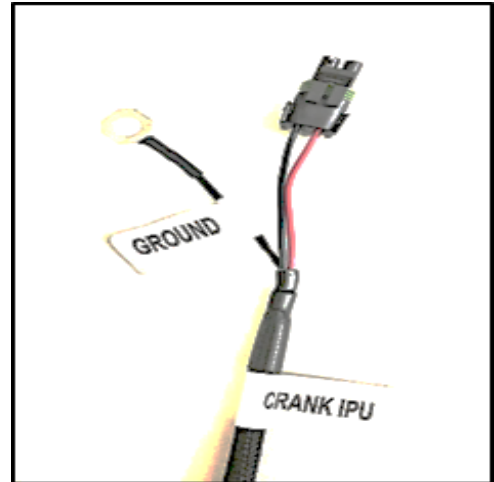
Black, 4-way Male Packard CAM HED mating connector
A: CAM HED Signal, Brown/White wire
B: CAM HED Ground, Black / Pink wire
C: CAM HED +12V Switch, Red wire
D: CAM HED 5 Volt, Red/Brown wire

CRANK IPU – (Black, 2-way Male Packard connector with a separate ground wire with a 3/8” ring terminal)

The GEN4 PRO XTREME main wire harness' **CRANK IPU** black 2-way Male Packard connector must be connected to the engine's inductive pickup crankshaft sensor or distributor (not supplied). The 3/8” ring terminal must be fastened to a secure ground location, preferably on the engine block near the Crank sensor. The system is supplied with the Crank sensor side black, 2-way female mating connector, terminal and seals, which needs to be configured per the table below. Other crank trigger systems can be used, assuming the connections are properly made.

[Back to CRANK IPU](#)

Crank Trigger Reference	CRANK IPU Black, 2-way Female mating connector: A (Red wire)	CRANK IPU Black, 2-way Female mating connector: B (Black wire)
MSD Distributor	Violet/Black	Orange/Black
MSD Crank Trigger	Green	Purple
Accel 44000 Series	Black	White
Accel Crank Trigger	Black	White



CRANK HED – (Black, 4-way Male Packard connector)

GEN4 PRO XTREME Coil-On-Plug based applications using the stock Crank HED sensor require the CRANK HED sync input.

The GEN4 PRO XTREME main wire harness' **CRANK HED** black 4-way Male Packard connector must be connected to the engine's Crank HED sensor. The system is supplied with the Crank sensor side black, 4-way female mating connector, terminal and seals, which needs to be configured per the table below.

[Back to CRANK HED](#)

CRANK HED Black, 4-way Female Packard mating connector
A: CRANK HED Signal, Blue/White wire
B: CRANK HED Ground, Black /Yellow wire
C: CRANK HED +12V Switch, Red wire
D: CRANK HED 5 Volt, Red/Brown wire



H2O (Coolant Temperature) – (Black, 2-way Packard connector)

The GEN4 PRO XTREME main wire harness' **H2O** (black, 2-way Packard connector) must be connected to the engine's (GM only) coolant temperature sensor. [Back to H2O](#)

**AIR** (Air Temperature) – (Gray, 2-way Packard connector)

The GEN4 PRO XTREME main wire harness' **AIR** (gray, 2-way Packard connector) must be connected to the engine's (GM only) air temperature sensor. [Back to AIR](#)



IAC (Idle/Air Control) – (Black, 4-way Packard connector)

The GEN4 PRO XTREME main wire harness' **IAC** (black, 4-way Packard connector) must be connected to the engine's (GM only) Idle Air Control Motor. The GEN4 Universal COP Main Wire Harness' IAC connector is compatible with a GM style IAC motor and valve assembly with a 1 x 4 connector. The GEN4 Base Main Wire Harness' IAC connector is compatible with a GM style IAC motor and valve assembly with a 2 x 2 connector. The IAC pinouts for the 1 x 4 and 2 x 2 IAC connectors are shown below. These connector components are available from BigStuff3 in the event they need to be changed. The LS1/LS7/Ford Mod Motor systems main harness IAC connector is a 1x4 GM style IAC motor connector.



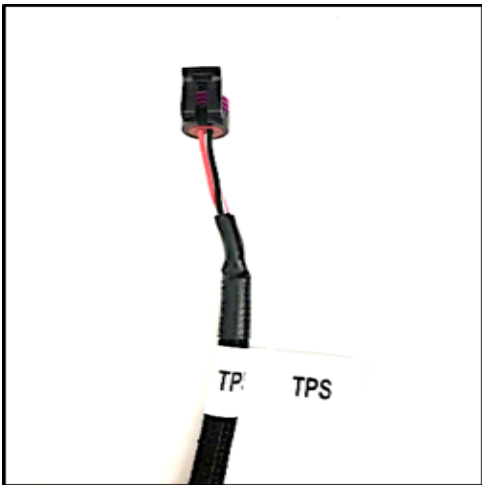
2x2 IAC Connector Pin-out Identifier	1x4 In-line IAC Connector Pin-out Identifier
A	D
B	C
C	B
D	A

[Back to IAC](#)

More IAC wiring information is available on the Bigstuff3 website via this link: <http://bigstuff3.com/pdf/IAC.pdf>.

TPS (Throttle Position Sensor) – (Black, 3-way Packard connector)

The GEN4 PRO XTREME main wire harness' **TPS** (black, 3-way Packard connector) must be connected to the engine's (GM only) Throttle Position Sensor. The GEN4 Universal COP Main Wire Harness' TPS connector is compatible with a GM style TPS with a "round" 1 x 2 connector. The GEN4 Base Main Wire Harness' TPS connector is compatible with a GM style TPS with a 1 x 3 connector. The TPS pinouts for the "round" 1 x 2 and 1 x 3 IAC connectors are shown below. These connector components are available from BigStuff3 in the event they need to be changed. The GEN4 PRO XTREME LS1/LS7/Ford Mod Motor systems main harness TPS connector are compatible with the "round" GM style 1 x 2 TPS connectors.



GM Late Model TPS

GM 3 x 1 TPS Connector Pin-out Identifier	GM Late Model "Round" 1 x 2, TPS Connector Pin-out Identifier
A	B
B	C
C	A

Ford TPS

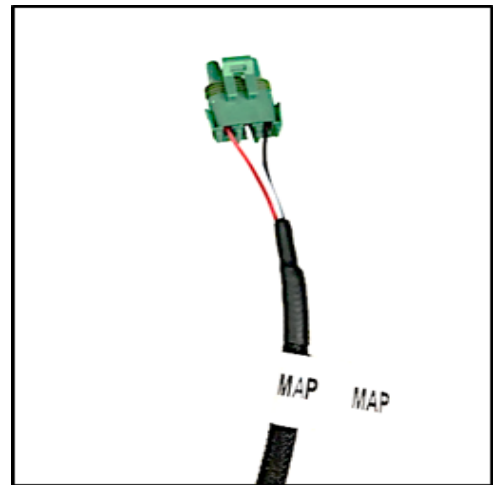
BS3 3-by-1 TPS Connector Pin-out Identifier	Ford TPS Connector Pin-out Identifier
A	C
B	B
C	A

[Back to TPS](#)

More TPS wiring information is available on the Bigstuff3 website via this link: <http://bigstuff3.com/pdf/TPS.pdf>.

MAP (Manifold Absolute Pressure) – (Green, 3-way Packard connector)

The GEN4 PRO XTREME main wire harness' **MAP** (green, 3-way Packard connector) must be connected to the engine's (GM only) Manifold Absolute Pressure (MAP) Sensor. The GEN4 PRO XTREME main wire harness uses a green 3-way Packard connector, which is compatible with and connects directly to a GM style 0-1 Bar Manifold Absolute Pressure (MAP) sensor. For normally aspirated engines, a 0-1 Bar MAP sensor is required. For blown or turbocharged applications, a 0-2 BAR MAP sensor must be used for boost pressures up to 15 PSI. For boost pressures up to 30 PSI a 0-3 BAR MAP sensor must be used. If 0-2 or 0-3 BAR MAP sensors are used, the harness side MAP sensor connector can be easily modified (or replaced). The modification involves cutting a new key-way in the connector or replacing the "green" 3-way MAP connector with an "orange" 3-way MAP connector. Contact a BigStuff dealer if questions come up related to the MAP sensor supplied with your system, and to procure the necessary connectors.



The GEN4 PRO XTREME system is also compatible with 0-4 Bar (45 PSI), 0-5 (60 PSI) Bar and 0-7 Bar (60 PSI) MAP sensors. A new 3-way MAP connector (available from BigStuff3) must be used with these MAP sensors.

For speed/density applications the MAP sensor must be connected to an intake manifold port.

For Alpha/N systems, a 0-1 BAR MAP sensor can be used to sense ambient air pressure in the hood scoop or air cleaner. **Do not attach the sensor pressure port to the manifold.**

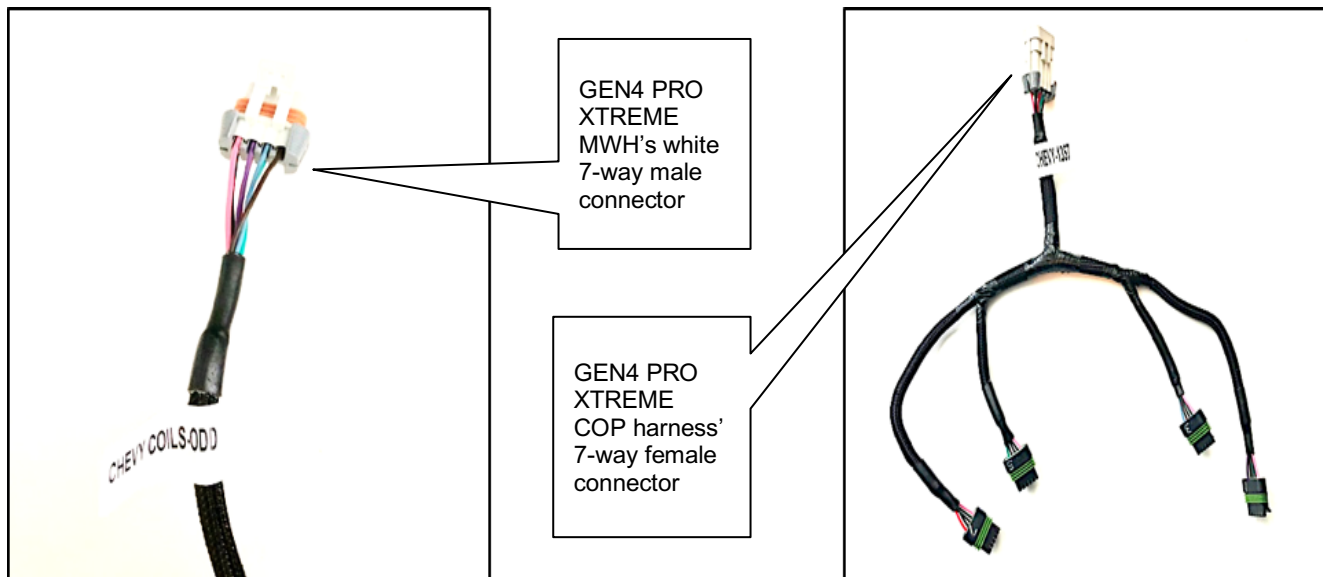
[Back to MAP](#)

More MAP sensor wiring information is available on the Bigstuff3 website via this link: <http://bigstuff3.com/pdf/MAP-Pressure.pdf>.

CHEVY COILS-ODD (White, 7-way Packard Connector)

Once the GEN4 PRO XTREME main wire harness has been installed the GEN4 PRO XTREME Coil on Plug (COP) harnesses can be installed. The GEN4 PRO XTREME Universal COP Chevy Main Wire Harness' **CHEVY COILS-ODD** (white, 7-way Packard connector) must be connected to the GEN4 PRO XTREME "Smart" High Output COP or GEN4 PRO XTREME "Smart" High Current Output COP **CHEVY-1357** harnesses' mating connector (white, 7-way female) after the GEN4 PRO XTREME COP harness' 5-way coil connectors are connected to the engine's individual coils. The 5-way coil connectors on the GEN4 PRO XTREME COP harness are marked with a number for each of the corresponding coils/cylinders they need to be connected. There are specific COP wire harnesses for Chevy (Chrysler), Ford and Buick V6 engines. The engine firing order can be configured with the GEN4 PRO XTREME BigComm PRO software.

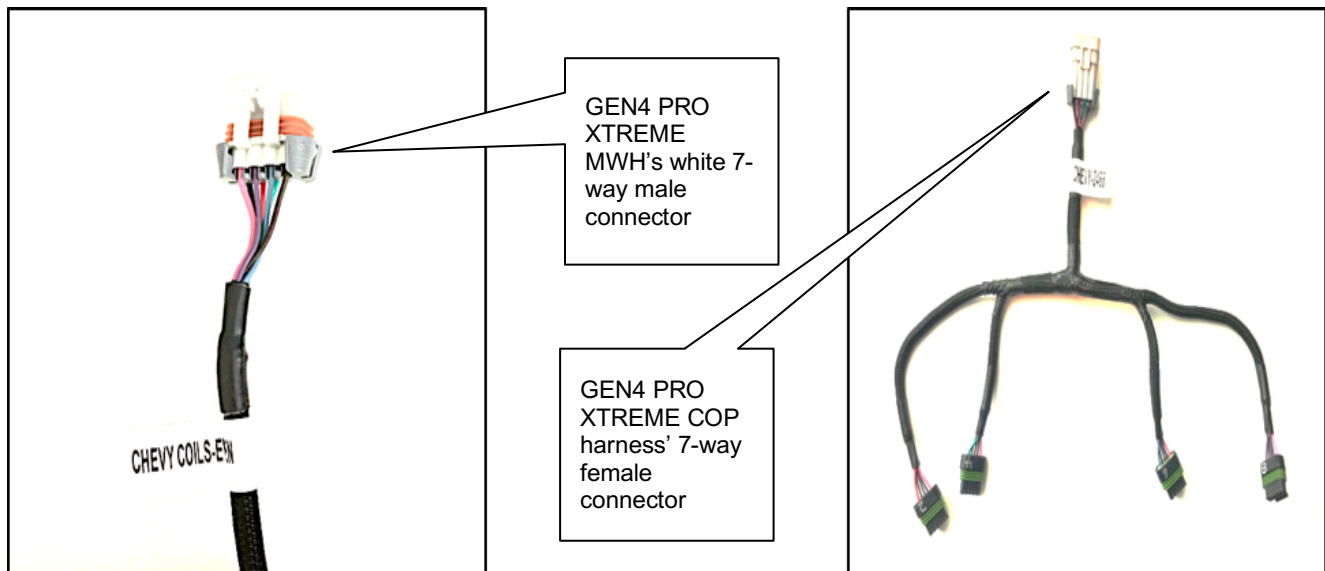
[Back to CHEVY COILS - ODD](#)



CHEVY COILS-EVEN (White, 7-way Packard Connector)

Once the GEN4 PRO XTREME main wire harness has been installed the GEN4 PRO XTREME Coil on Plug (COP) harnesses can be installed. The GEN4 PRO XTREME Universal COP Chevy Main Wire Harness' **CHEVY COILS-EVEN** (white, 7-way Packard connector) must be connected to the GEN4 PRO XTREME "Smart" High Output COP or GEN4 PRO XTREME "Smart" High Current Output COP **CHEVY-2468** harnesses' mating connector (white, 7-way female) after the GEN4 PRO XTREME COP harness' 5-way coil connectors are connected to the engine's individual coils. The 5-way coil connectors on the GEN4 PRO XTREME COP harness are marked with a number for each of the corresponding coils/cylinders they need to be connected. There are specific COP wire harnesses for Chevy (Chrysler), Ford and Buick V6 engines. The engine firing order can be configured with the GEN4 PRO XTREME BigComm PRO software.

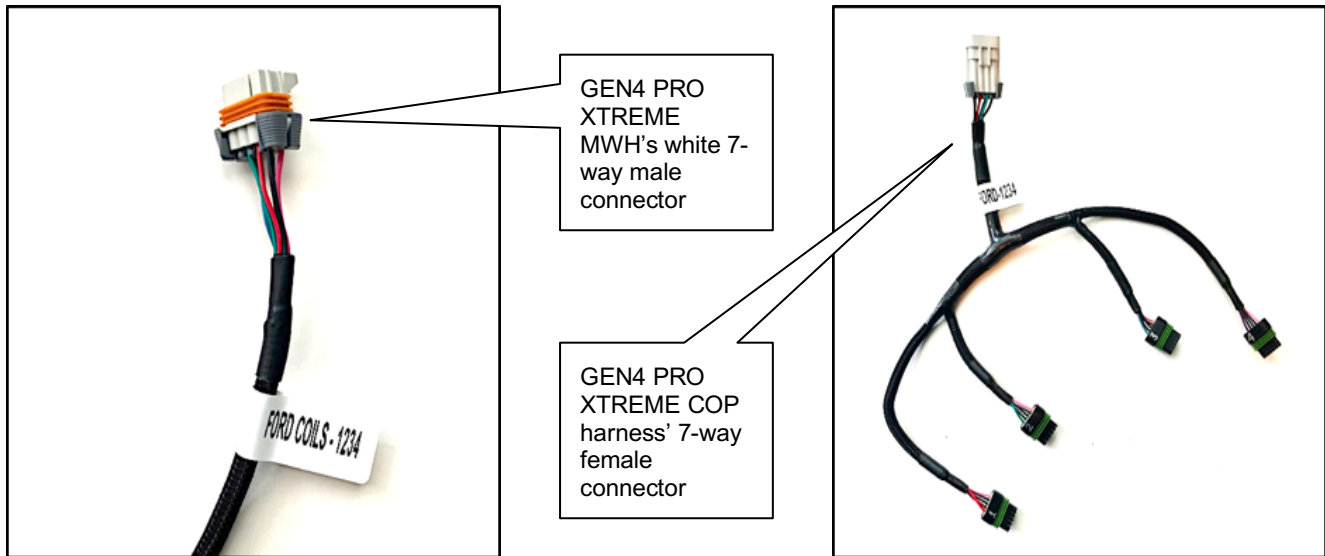
[Back to CHEVY COILS – EVEN](#)



FORD COILS-1234 (White, 7-way Packard Connector)

Once the GEN4 PRO XTREME main wire harness has been installed the GEN4 PRO XTREME Coil on Plug (COP) harnesses can be installed. The GEN4 PRO XTREME Universal COP Ford Main Wire Harness' **FORD COILS-1234** (white, 7-way Packard connector) must be connected to the GEN4 PRO XTREME "Smart" High Output COP or GEN4 PRO XTREME "Smart" High Current Output COP **FORD-1234** harnesses' mating connector (white, 7-way female) after the GEN4 PRO XTREME COP harness' 5-way coil connectors are connected to the engine's individual coils. The 5-way coil connectors on the GEN4 PRO XTREME COP harness are marked with a number for each of the corresponding coils/cylinders they need to be connected. There are specific COP wire harnesses for Chevy (Chrysler), Ford and Buick V6 engines. The engine firing order can be configured with the GEN4 PRO XTREME BigComm PRO software.

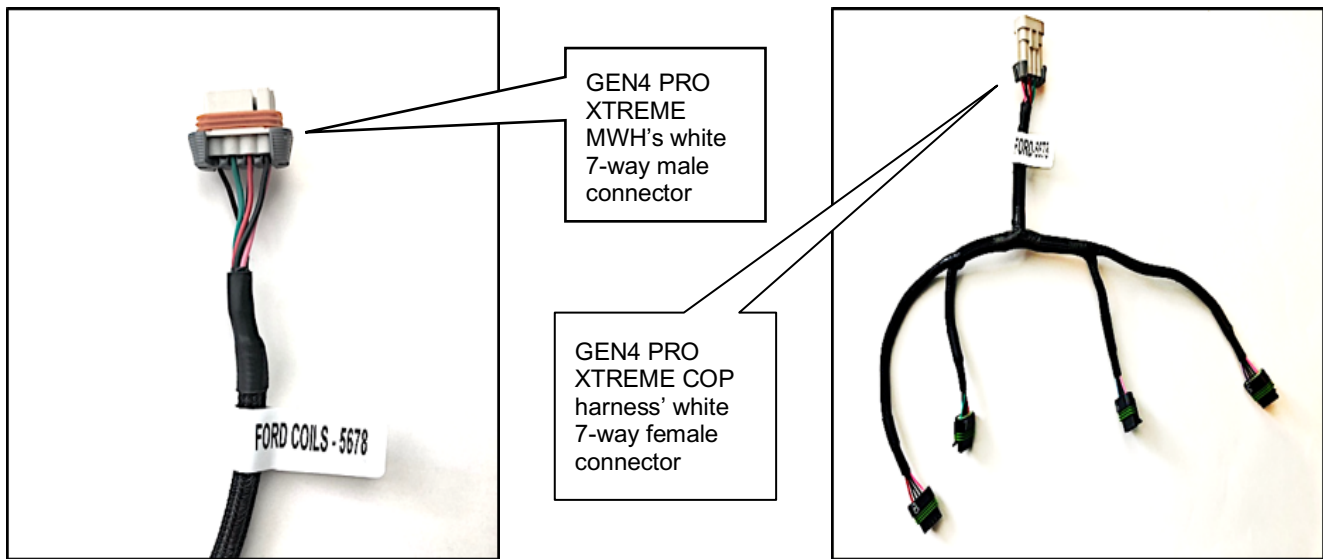
[Back to FORD COILS -1234](#)



FORD COILS - 5678 (White, 7-way Packard Connector)

Once the GEN4 PRO XTREME main wire harness has been installed the GEN4 PRO XTREME Coil on Plug (COP) harnesses can be installed. The GEN4 PRO XTREME Universal COP Ford Main Wire Harness' **FORD COILS-5678** (white, 7-way Packard connector) must be connected to the GEN4 PRO XTREME "Smart" High Output COP or GEN4 PRO XTREME "Smart" High Current Output **COP FORD-5678** harnesses' mating connector (white, 7-way female) after the GEN4 PRO XTREME COP harness' 5-way coil connectors are connected to the engine's individual coils. The 5-way coil connectors on the GEN4 PRO XTREME COP harness are marked with a number for each of the corresponding coils/cylinders they need to be connected. There are specific COP wire harnesses for Chevy (Chrysler), Ford and Buick V6 engines. The engine firing order can be configured with the GEN4 PRO XTREME BigComm PRO software.

[Back to FORD COILS-5678](#)



COILS GND TO HEAD ($\frac{3}{8}$ " Ring Terminal)

The GEN4 PRO XTREME Universal COP Main Wire Harness' **COILS GND TO HEAD** ($\frac{3}{8}$ " Ring Terminal) must be grounded to the back side of the cylinder head.

[BACK to COILS GND TO HEAD](#)

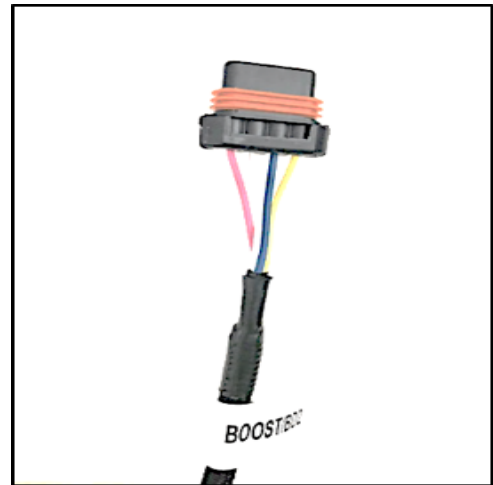


BOOST / BD2 (Black, 4-way Packard Connector)

The GEN4 PRO XTREME main wire harness' **BOOST / BD2** (Black, 4-way Packard connector) is used to;

- Trigger the internal timer, known as the “Boost” or “Timer Enable” (connector location A).
- Increment and Decrement boost control valves (connector locations B & C).
- Enable the Secondary Big Drive injector module for 16 Injector systems (connector location D).

All GEN4 PRO XTREME systems include the mating **Boost / BD2** Black, female 4-way Packard mating connector, terminals and rubber seals.



For all GEN4 PRO XTREME systems, connector location “A” of the BOOST / BD2 connector;

1. Enables the internal timer trigger, referred to as the “Timer Enable”. Location “A” of the BOOST / BD2 connector which needs to have 12V applied to it for the boost controller/SR2/NOS features to work. This is typically a switch installed that passes 12v to this pin input. When the three step wire input Pin (H2 W1) has 12v applied to it and all of the BC/SR2/NOS enable criteria are met, the RELEASE of the 3 step will start all of the timer sequences for all of the features.



When the GEN4 PRO XTREME system is upgraded to include Standard and Optional Features Upgrades (OFU) i.e. DAE, DAE2, DAE3, Boost, SR2.3 traction control, NOS and secondary Bosch LSU4.9 or secondary NTK methanol, the wire used to trigger the internal data logger is moved from the CINCH 30-way ENGINE (L-Y) connector, pin location L2, to the CINCH 30-way SECONDARY (L-Y) connector, pin location Y2. No matter how the GEN4 PRO XTREME system is configured, or what options the system has, Pin A of the BOOST/BD2 connector will always act as the Timer Enable trigger wire (used for boost control, nitrous control, traction control, and other optional features).

Note: The “Timer” sequence will be reactivated, every time the throttle is closed and then opened again, since the “Minimum RPM and Minimum TPS criteria are re-satisfied.

The other three terminal locations in the BOOST/BD2 connector are used to;

- Increment and Decrement boost control valves (connector locations B & C) for the GEN4 PRO XTREME CO2 Boost upgrade. See the GEN4 PRO XTREME Boost upgrade instructions for further details.
- Enable the Secondary Big Drive injector module for 16 Injector systems (connector location D). See the GEN4 PRO XTREME 16 Injector upgrade instructions for further details.

[Back to BOOST / BD2](#)

2-STEP and 3-STEP Rev Limiters

The GEN4 PRO XTREME system provides 2-Step and 3-Step rev limiter functionality as a standard feature for all Coil-On-Plug (COP) ignitions systems. They are optional features for distributor-based ignition systems when used with a BS3 ETM module and MSD ignition system.

The yellow 2-STEP wire is an RPM rev limiter based on a 12V input to pin location **B2** in the Cinch 30-way **ENGINE (A-K)** connector. The yellow/red 3-Step Enable wire is an RPM rev limiter based on a 12V input to pin location **W1** in the Cinch 30-way **SECONDARY (L-Y)** connector. The 3-Step Enable “release” is also used to start any timer sequences for the Boost Control, SR2.3 and NOS features.

The 2-Step is typically used as an rpm rev limiter to help build boost in a turbo car. The 2-Step “release” will not enable the Boost Control, SR2.3 or NOS features if your ECU is enabled with them. The Boost Control, SR2.3 & NOS features will start their sequence ONLY upon the release of the 3-Step Enable and when the user defined parameters are true. If the 2-Step and 3-Step are both enabled, the 3-Step will override the 2-Step and will go to the higher 3-Step RPM. If the 3-Step is released and the 2-Step still has 12V applied on the input, the ECU will not go back to the 2-Step rev limiting RPM.



The GEN4 ECU will maintain the engine RPM at the user defined 2-Step RPM limits if the following criteria are met:

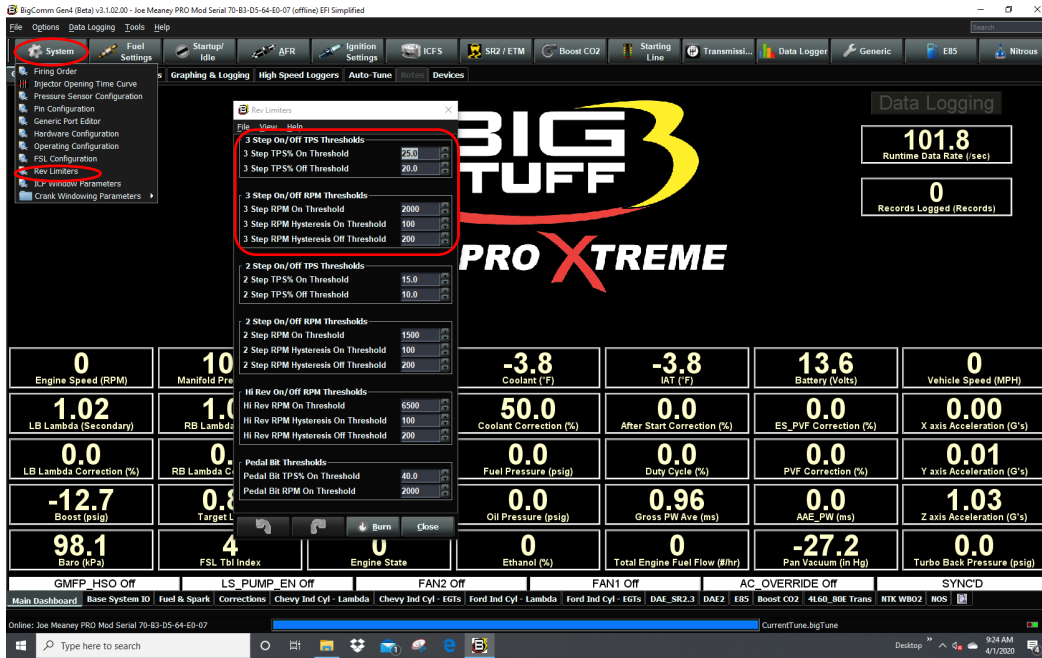
- 12V is applied to the yellow 2-STEP wire (via a clutch, foot-brake, trans-brake switch, or any 12V input source).
- The **2-Step On / Off TPS Thresholds & 2-Step On / Off RPM Thresholds** conditions are met. These thresholds can be configured in the BigComm Pro Software under the System / Rev Limiters section.

The screenshot shows the BigComm Pro software interface. A 'Rev Limiters' configuration window is open, showing settings for 2-Step and 3-Step rev limiters. The 2-Step section is highlighted with a red box. The main dashboard displays various engine parameters:

0 Engine Speed (RPM)	10 Manifold Pressure (psi)	-3.8 Coolant (F)	-3.8 IAT (F)	13.6 Battery (Volts)	0 Vehicle Speed (MPH)
1.02 LB Lambda (Secondary)	1.0 RB Lambda (Primary)	50.0 Coolant Correction (%)	0.0 After Start Correction (%)	0.0 ES_PV Correction (%)	0.00 X axis Acceleration (G's)
0.0 LB Lambda Correction (%)	0.0 RB Lambda Correction (%)	0.0 Fuel Pressure (psig)	0.0 Duty Cycle (%)	0.0 PVP Correction (%)	0.01 Y axis Acceleration (G's)
-12.7 Boost (psi)	0.0 Target Load (%)	0.0 Oil Pressure (psig)	0.96 Gross PW Ave (ms)	0.0 AVE_PW (ms)	1.03 Z axis Acceleration (G's)
98.1 Baro (kPa)	4 FSL Tbl Index	0 Ethanol (%)	0 Total Engine Fuel Flow (#/hr)	-27.2 Pan Vacuum (in Hg)	0.0 Turbo Back Pressure (psig)

The GEN4 ECU will maintain the engine RPM at the user defined 3-Step RPM limits if the following criteria are met:

- 12V is applied to the yellow/red 3-step enable wire (via a clutch, foot-brake, trans-brake switch, or any 12v input source).
- The **3-Step On / Off TPS Thresholds & 3-Step On / Off RPM Thresholds** conditions are met. These thresholds can be configured in the BigComm Pro Software under the System / Rev Limiters section.



[Back to 2-STEP](#)

Main Fuse & Relay

The GEN4 PRO XTREME Main Wire Harnesses include a 30-Amp fuse and 35-Amp relay to provide a fused 12V battery supply to the GEN4 ECU, WBO2 sensor and High Output coils.

NOTE: The stand-alone GEN4 PRO XTREME “Smart” High Current Output COP harnesses include a separate 40-Amp relay and a fused 12V battery supply. The GEN4 PRO XTREME “Smart” High Current Output COP harnesses are recommended for applications above 1500 HP.

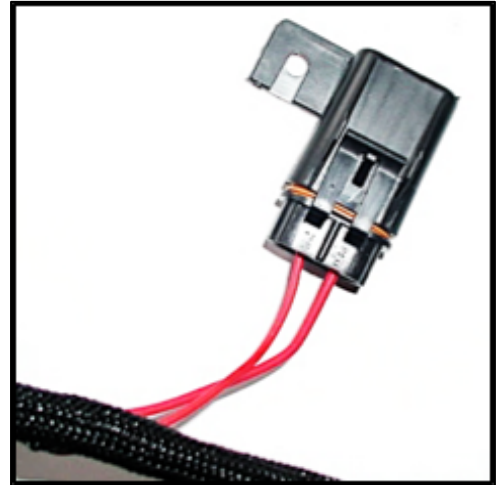
[Back to Main Fuse & Relay](#)



GEN4 PRO XTREME ECU 3-Amp Fuse

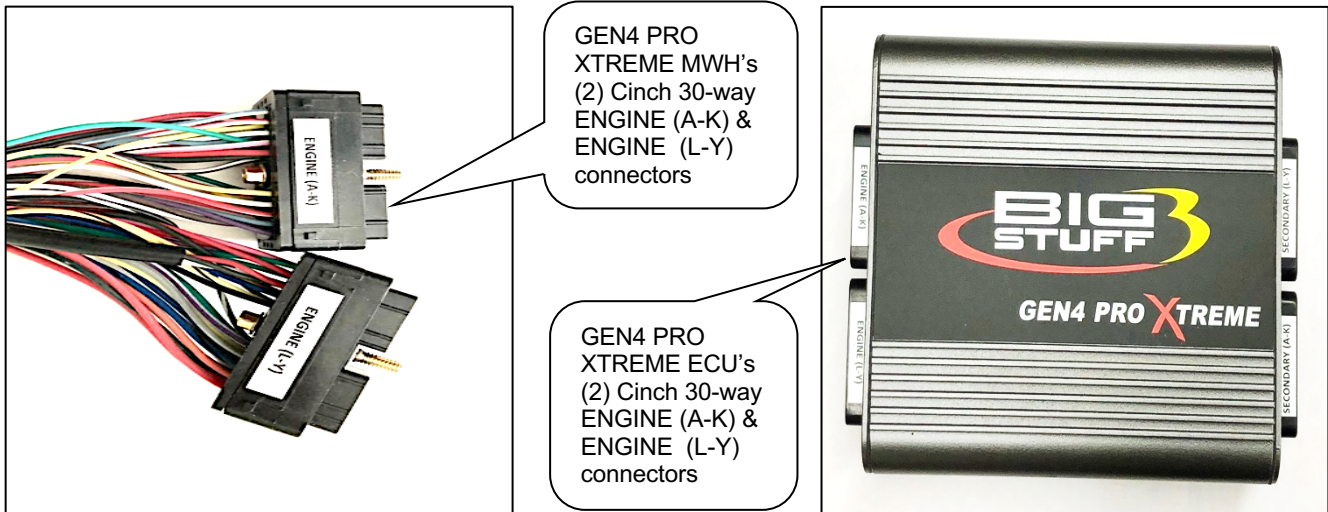
The GEN4 PRO XTREME Main Wire Harnesses incorporate a 3-Amp fuse to protect the ECU electronics.

[Back to ECU Battery Fuse](#)



GEN4 PRO XTREME ENGINE (A-K) & ENGINE (L-Y) ECU Connection

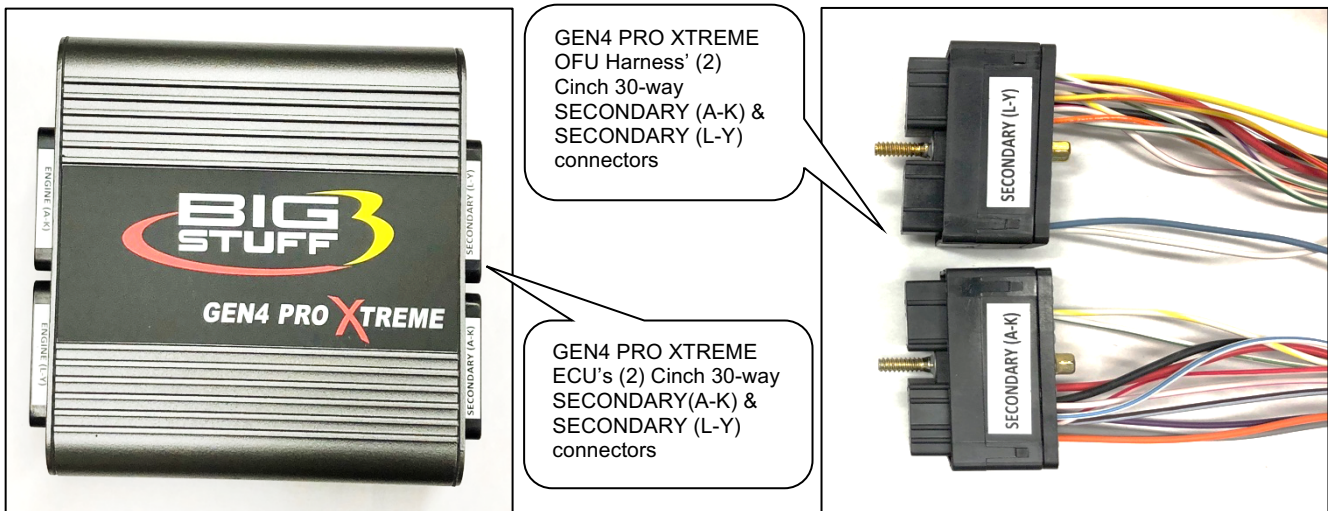
To avoid the potential of severely damaging the ECU, **connect the head connectors to the ECU only after the battery connections are made**. The two Cinch 30-way MWH header connectors are labeled **ENGINE (A-K)** & **ENGINE (L-Y)** and are keyed such that they will only fit in only one (1) of the two (2) ECU Cinch 30-way mating-half connectors. Connect the MWH's Cinch 30-way connector labeled **ENGINE (A-K)** into the GEN4 PRO XTREME ECU's 30-way connector labeled **ENGINE (A-K)**. And, then connect the MWH's Cinch 30-way connector labeled **ENGINE (L-Y)** into the GEN4 PRO XTREME ECU's 30-way connector labeled **ENGINE (L-Y)**. To fasten the MWH connectors to the ECU, use a 1/4-nut driver. Make sure the header connectors, are tightened to 15 – 20 in lbs. Do not over-tighten the header connectors!! Be sure to connect ENGINE (A-K) first, then Engine (L-Y).



[Back to GEN4 PRO XTREME ENGINE \(A-K\) & ENGINE \(L-Y\) ECU Connection](#)

GEN4 PRO XTREME SECONDARY (A-K) & SECONDARY (L-Y) ECU Connection

The GEN4 PRO XTREME Optional Feature Upgrade (OFU) Harness' Cinch 30-way connectors connect to the GEN4 PRO XTREME ECU's SECONDARY (A-K) & SECONDARY (L-Y) Cinch 30-way opposite of the GEN4 PRO XTREME ECU's ENGINE (A-K) & ENGINE (L-Y) Cinch 30-way connectors. **The (OFU) harnesses should only be connected to the GEN4 PRO XTREME ECU after the GEN4 PRO XTREME MWH-to-ECU connections are made.** The GEN4 PRO XTREME Optional Feature Upgrade (OFU) Harness' Cinch 30-way connectors are labeled **SECONDARY (A-K) & SECONDARY (L-Y)** and are keyed such that they will only fit in one (1) of the two (2) ECU Cinch 30-way mating-half connectors. Connect the OFU Harness' Cinch 30-way connector labeled **SECONDARY (A-K)** into the GEN4 PRO XTREME ECU's 30-way connector labeled **SECONDARY (A-K)**. And, then connect the OFU Harness' Cinch 30-way connector labeled **SECONDARY (L-Y)** into the GEN4 PRO XTREME ECU's 30-way connector labeled **SECONDARY (L-Y)**. Use a 1/4-nut driver to fasten the OFU Harness Cinch 30-way connectors to the ECU. Make sure the header connectors, are tightened to 15 – 20 in lbs. Do not over-tighten the header connectors!! Be sure to connect SECONDARY (A-K) first, then SECONDARY (L-Y).



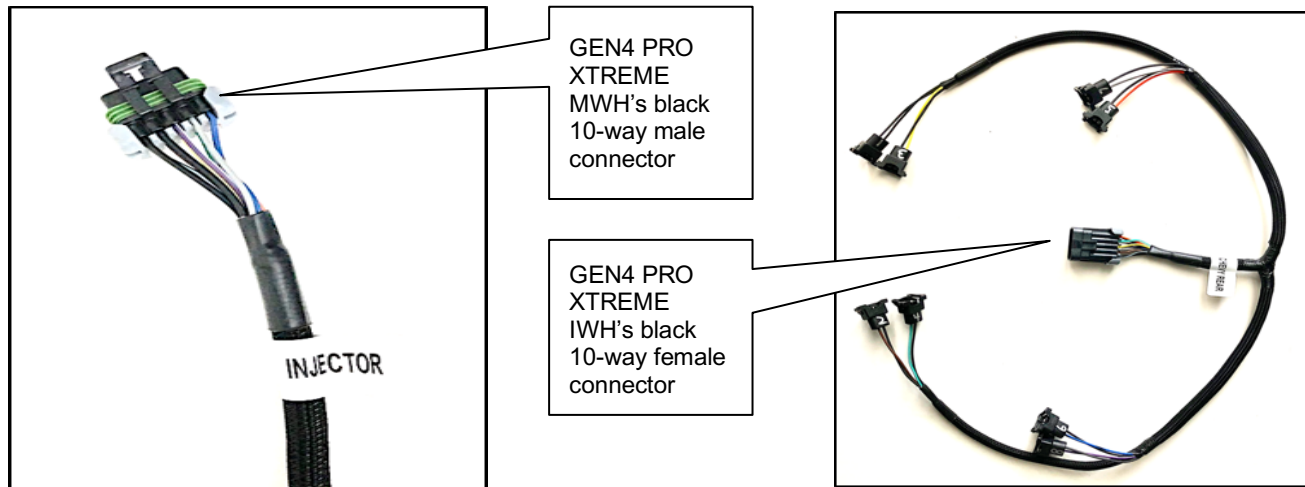
[Back to GEN4 PRO XTREME SECONDARY \(A-K\) & SECONDARY \(L-Y\) ECU Connection](#)

9. Injector Harness Installation

[Back to Injector Harness Installation](#)

INJECTOR (Black, 10-way Packard Connector)

Once the GEN4 PRO XTREME MWH has been installed the GEN4 PRO XTREME Injector Wire harness (IWH) can be installed. The GEN4 PRO XTREME MWH's **INJECTOR** connector (black, 10-way male Packard connector) must be connected to the GEN4 PRO XTREME IWH's **CHEVY REAR** or **FORD REAR** mating connector (black, 10-way female Packard connector) after the GEN4 PRO XTREME Injector harness' 2-way injector connectors are connected to the engine's individual injectors. The 2-way injector connectors on the GEN4 PRO XTREME IWH harness are marked with a number for each of the corresponding injectors/cylinders they need to be connected. There are specific Injector wire harnesses for Chevy (Chrysler), Ford and Buick V6 engines. The engine firing order can be configured with the GEN4 PRO XTREME BigComm PRO software.



NOTE: The main wire harness-to-injector wire harness 10-way connection should be made at the back-side of the engine.

Injector Wire Harness diagrams, and pin out information, for Chevy (Chrysler), Ford and Buick V6 applications, are available on the BigStuff3 website via the following links:

- Chevy (and Chrysler) - <http://bigstuff3.com/pdf/Visio-chevy%20Injector%20Harness.pdf>.
- Ford - <http://bigstuff3.com/pdf/Visio-Ford%20Injector%20Harness.pdf>.
- Buick V6 - <http://bigstuff3.com/pdf/Visio-Buick%20Injector%20Harness.pdf>.

[Back to INJECTOR](#)

10. Wide Band Oxygen Sensor Installation

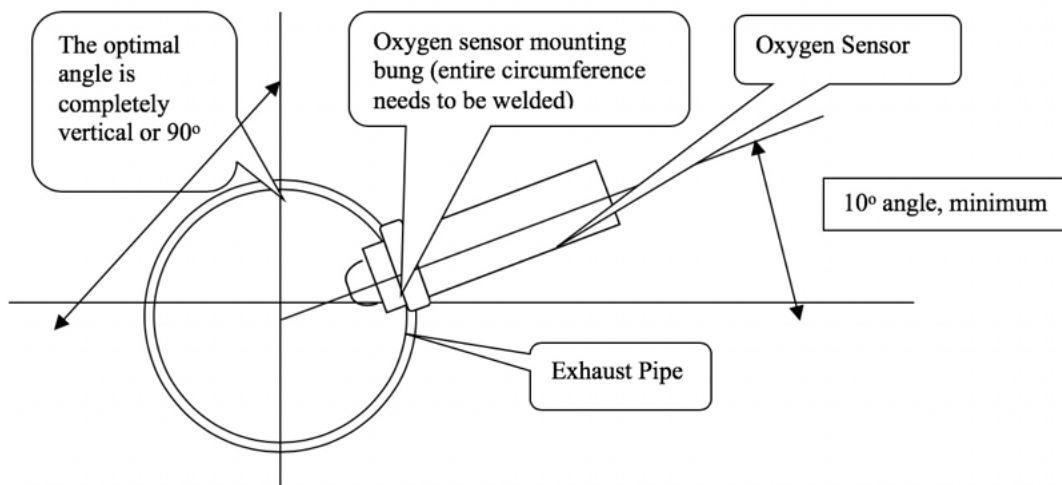
[Back to Wide Band Oxygen Sensor Installation](#)

LSU4.9 WBO2 (Black, 6-way TYCO Connector)

Once the main and injector harnesses are installed, the Wide Band Oxygen (WBO2) sensor needs to be installed and connected to the main harness. First, install the wide band sensor.

The WBO2 sensor threads into the sensor mounting bung [(optional) (see picture below)], which needs to be drilled and welded into the exhaust pipe. Before drilling and welding read the design guidelines below.

- Install mounting bung approximately 8" – 12" from where the primary pipes enter the exhaust collector.
- Make sure the mounting location selected does not allow condensation to collect directly in front of the sensor. Make sure there are no depressions, projections, edges, etc. in the exhaust pipe near the sensor tip.
- The mounting angle of the sensor should be tilted a minimum of 10° to the horizontal tip of the sensor. The tip of the sensor must be tilted down. See the diagram below. The optimum sensor angle is 90°.



- Make sure sensor cabling is routed and secured away from the exhaust system.

Stainless steel mounting bungs are also available for turbocharged applications.

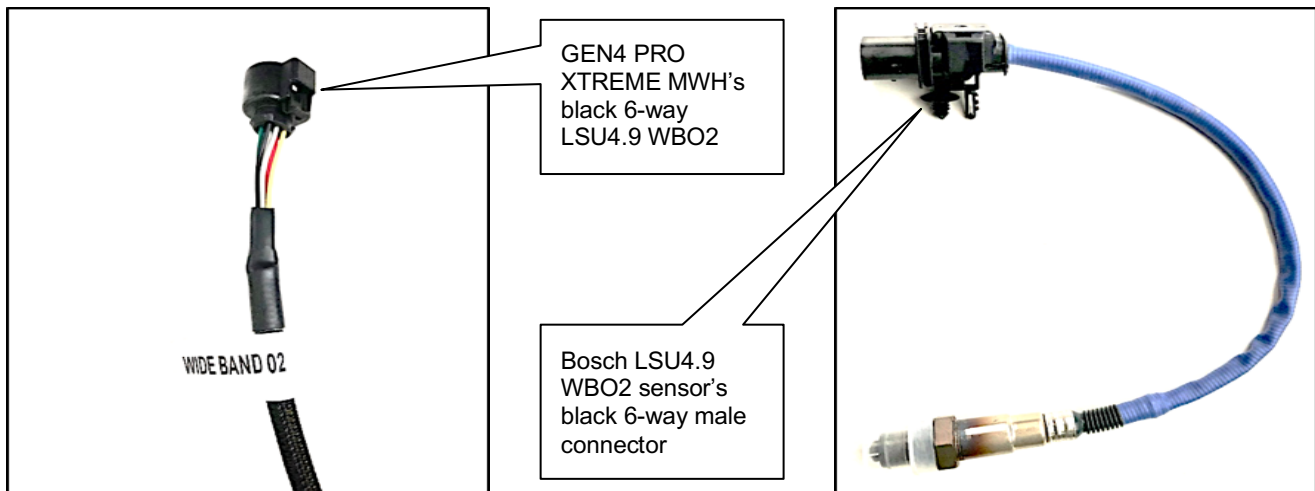
Drill a 7/8" – 15/16" hole in the exhaust pipe. Weld a WBO2 sensor-mounting bung into the exhaust pipe. The mounting bung was manufactured with a lip to help locate it prior to welding it to the exhaust pipe. **The entire circumference of the mounting bung must be welded and free of exhaust leaks! Exhaust leaks around the bung will affect sensor readings!** Carbon and stainless steel bungs are available from BigStuff3.



Once the sensor-mounting bung is welded in place, thread the sensor into the bung. Installation torque is about 10 – 15 ft/lbs.

Once the BOSCH LSU4.9 WBO2 sensor is installed, connect the LSU4.9's 6-way black male connector to the GEN4 PRO XTREME Main Wire Harness' black, 6-way female Tyco connector.

[Back to LSU4.9 WBO2](#)



11. GEN4 PRO XTREME ECU Installation

[Back to ECU Installation](#)

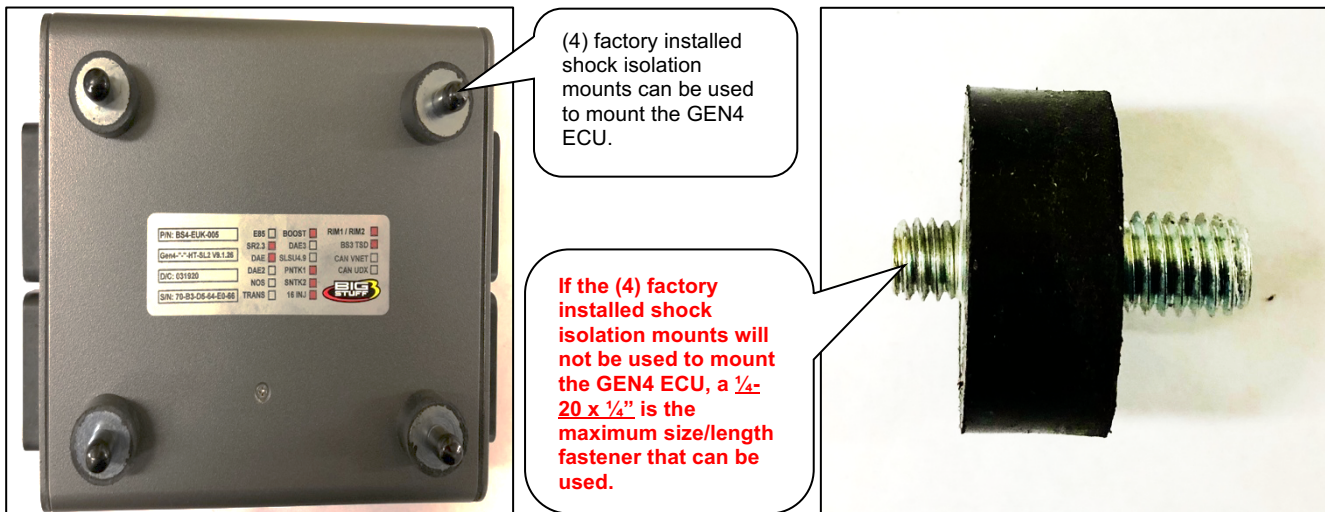
The GEN4 PRO XTREME ECU must be installed in the passenger compartment! If a GEN3 PRO SEFI ECU is being replaced with a GEN4 PRO XTREME ECU, the GEN4 PRO XTREME ECU can be installed in the same location as the GEN3 PRO SEFI ECU. Be sure the GEN4 ECU's 30-way Cinch header connectors are orientated the same as the GEN3 ECU being replaced to ensure the Main Wire Harness' Cinch 30-way connectors (ENGINE & SECONDARY) are correctly mated to the GEN4 PRO XTREME's 30-way Cinch header connectors (ENGINE & SECONDARY).

NOTE: If the GEN3 PRO SEFI Main Wire Harness is being reused, be sure to connect the GEN3 PRO SEFI's (2) Cinch 30-way MWH connectors to the GEN4 PRO XTREME ECU's (ENGINE A-K) & ENGINE (L-Y) connectors.

The GEN4 PRO XTREME ECU can be mounted using the four 1/4-20 x 5/16 x 1/2" threaded isolation grommets threaded into the bottom of the ECU housing. To avoid the potential of severely damaging the ECU, **connect the main wire harness Cinch 30-way connectors to the ECU only after the battery connections have been made.**



Note: If the factory installed shock isolation mounts are not going to be used to mount the ECU, a 1/4-20 X 1/4" is the thread type and maximum thread length. Using fasteners longer than 1/4" will contact and damage the ECU and void the warranty! The isolators are not used for any type of electrical grounding.



The GEN4 PRO XTREME system hardware installation process is now completed. The remainder of the manual will describe how to install the BigComm Pro software and establish a “Wired” or “Wireless” Ethernet connection between the PC running the BigComm Pro software and the GEN4 PRO XTREME ECU’s RJ45 Ethernet connector.

12. BigComm Pro Software Download & “Wired Ethernet” Connection Overview

[Back to BigComm Pro Software Download & Wired Ethernet Connection](#)

The GEN4 PRO XTREME system can be configured to operate on almost any engine configuration, normally aspirated; nitrous oxide injected, supercharged and turbocharged applications! The BigComm Pro software is designed to measure, calibrate and record the engine parameters and acts as the graphical user interface between the GEN4 PRO XTREME ECU and the engine it is installed on. The BigComm Pro software allows the user extraordinary fuel, ignition and power management system tunability for improved performance and drivability.

The BigComm Pro software allows full user access to all of the tables needed to calibrate the GEN4 PRO XTREME system. Calibrations can be modified both “on-line” and “off-line”. The engine control tables in the GEN4 PRO XTREME ECU are stored in non-volatile memory, allowing for the stored information not to be lost when power to the ECU is removed.

As already mentioned, the GEN4 PRO XTREME system implements an industry first high-speed Ethernet communication and topology to enable wired and wireless communication and real-time closed loop WBO2 feedback on a per cylinder basis. This section of the instructions will detail how to download the BigComm Pro software and establish a hard “Wired Ethernet” connection with the GEN4 PRO XTREME ECU. The following section of the instructions will detail how to establish a “Wireless Ethernet” connection with the GEN4 PRO XTREME ECU or a WiFi connection. Either option will work fine as the connection choice is up to the end user.

The following Instructions explain how to;

- (1) Download the GEN4 PRO XTREME BigComm Pro (BCP) software onto a PC
- (2) Establish a wired Ethernet connection between PC running the BCP software and GEN4 PRO XTREME ECU
- (3) Activate the BCP and GEN4 PRO XTREME ECU interface to enable BCP software to create an initial Project
- (4) Connect to the GEN4 PRO XTREME ECU to establish online wired Ethernet communication
- (5) Save the calibration file, included with the GEN4 PRO XTREME ECU, into the initial Project

Once these 5 steps are completed you will be communicating online via a direct wired Ethernet connection between the PC running the BCP software and GEN4 PRO XTREME ECU with the initial Project loaded and calibration saved into the GEN4 ECU.

Once these 5 steps are completed you will be communicating online via a direct wired Ethernet connection between the PC running the BCP software and GEN4 PRO XTREME ECU with the initial Project loaded and calibration saved into the GEN4 ECU.

Below are key considerations for each of the GEN4 PRO XTREME Initial Setup Instruction steps.

STEP 1.0 - Download the GEN4 PRO XTREME (BCP) software from www.bigcommpro.com website onto a PC

- An internet connection needs to be established with the PC that the BCP software will be downloaded onto.
- **Step 1 assumes “offline” communication i.e. PC is not connected to the GEN4 PRO XTREME wired Ethernet network.**
- The BCP software download package includes an example Project containing a demo calibration and preconfigured Dashboards and Tuning Tabs to help get you acquainted with the PCB software offline.

The minimum computer requirements to run the BigComm Pro software are:

- Microsoft Windows XP, Vista, 7, 8, 10, OSX 10.6+, & Linux
- 1.6 GHz Intel Core i5 minimum.
- 8GB of RAM minimum. Ideally, 16+ GB RAM
- RJ45 Ethernet port recommended. A USB port can also be used with a USB-to-RJ45 Ethernet adapter (not included).

STEP 2.0 - Establish a wired Ethernet connection between PC running BCP software & GEN4 PRO XTREME ECU

- **The GEN4 PRO XTREME ECU can be connected directly to a PC by Wired Ethernet Networks OR by optional Wireless Ethernet Networks using Wireless Routers. The Wired Ethernet Networks are the default configurations and are covered in these instructions. The optional Wireless Ethernet Network configurations are covered in a separate GEN4 PRO XTREME Initial Setup Instructions for “Wireless Ethernet”.**
- There are (2) GEN4 Wired Ethernet Network options to choose from:
 - o The GEN4 PRO XTREME “In-Vehicle” Wired Ethernet Network provides a flexible, portable solution and is intended for “non-Race Car” GEN4 PRO XTREME applications. It only requires a 5’ CAT6a shielded Ethernet cable to be connected between the PC’s RJ45 Ethernet port and GEN4 ECU’s RJ45 port. If the PC is not equipped with a RJ45 Ethernet port a USB-to-RJ45 Ethernet dongle is required. (See Wired Ethernet Network 1 configuration for “In-Vehicle” applications on page 62).

- o The GEN4 PRO XTREME “**Race Car**” Wired Ethernet Network provides a flexible, permanently installed solution and is intended for Race Car and Dyno GEN4 PRO XTREME applications. The Race Car Wired Ethernet Network converts the GEN4 PRO XTREME Race Car Wireless Ethernet Network to a Wired Ethernet Network by connecting a 5’ CAT6a shielded Ethernet cable between one of the NETGEAR’s RJ45 Ethernet LAN ports and PC’s RJ45 port. If the PC is not equipped with a RJ45 Ethernet port a USB-to-RJ45 Ethernet dongle is required. (See Wired Ethernet Network 2 configuration for “Race Car” & Dyno applications on page 63).
- Once a wired Ethernet connection has been established between the PC running the BCP software and either of the above Wired Ethernet Network options, the GEN4 ECU needs to be powered on (VBATT & +12V switched Ignition) in order to establish online communication.

STEP 3.0 - Activate BCP and GEN4 PRO XTREME ECU interface to enable the BCP software to create an initial Project

- Step 3 assumes Steps 1 & 2 have been completed.
- The first step of Step 3 is to open the BCP software from the PC’s desktop.
- The BCP software & GEN4 PRO XTREME ECU interface is activated by entering the end user name and contact information.
- The BCP software creates an initial Project* using the Serial Number (MAC ID) of the GEN4 PRO XTREME ECU connected to the PC running the BCP software and activation information.
- **STEP 3.0 only occurs when connecting between a PC running the BCP software and GEN4 PRO XTREME ECU for the first time.**

* A Project is a universal BCP file that contains all pertinent calibration data & files as well as preconfigured Dashboards, Tuner Tabs and Datalog Tabs associated with a particle GEN4 PRO XTREME ECU application.

STEP 4.0 - Connect to the GEN4 PRO XTREME ECU to establish online wired Ethernet communication

- Online wired Ethernet communication is established between the BCP software running on the PC and GEN4 PRO XTREME ECU.
- The calibration file included with the GEN4 PRO XTREME ECU is uploaded into the BCP software.

STEP 5.0 - Save the calibration file, also known as “Tune”, included with the GEN4 PRO XTREME ECU, into the initial Project

- **It is necessary to save the calibration file, also known as “Tune”, included with the GEN4 PRO XTREME ECU, into the initial Project.**

Wired Ethernet Network 1 configuration for “In-Vehicle” applications

Step 1:

Step 1.0 thru 1.18 - Download GEN4 PRO XTREME BigComm Pro (BCP) software from the www.bigcommpro.com website onto a PC. (Step 1 Assumes offline communication)

Step 2:

Step 2.0 - Establish wired Ethernet connection between PC running BCP software & GEN4 PRO XTREME ECU with 5’ CAT6a shielded Ethernet cable. The 5’ CAT6a Ethernet cable can be connected directly to the PC’s RJ45 Ethernet port **OR** if the PC is not equipped with a RJ45 Ethernet port a USB-to-RJ45 Ethernet Dongle is required.

Note: See detailed [GEN4 PRO XTREME Wired Ethernet Network 1 configuration for “In-Vehicle” applications on page 62.](#)

Step 3:

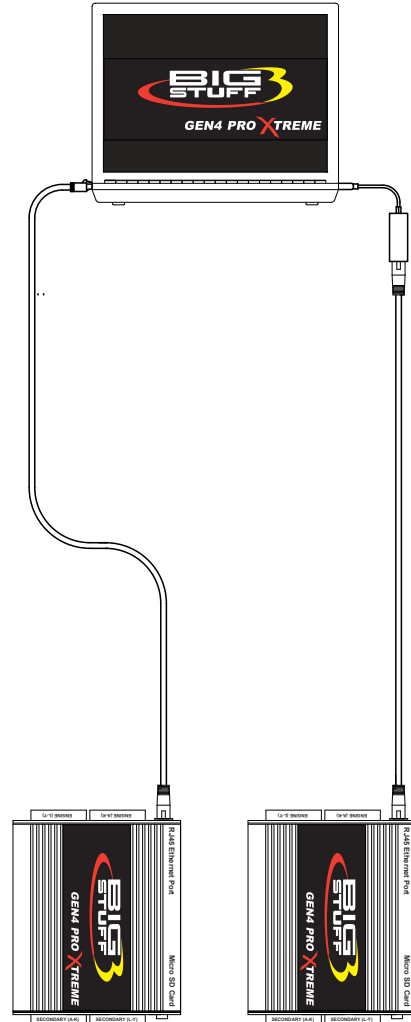
Step 3.0 thru 3.6 - Activate BCP and GEN4 PRO XTREME ECU interface to enable BCP software to create an initial Project.

Step 4:

Step 4.0 thru 4.2 - Connect to the GEN4 PRO XTREME ECU to establish online wired Ethernet communication.

Step 5:

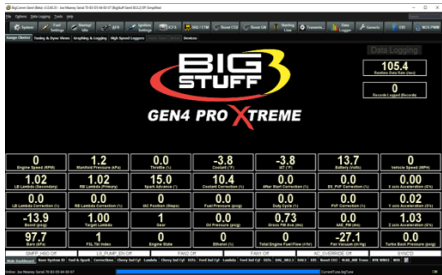
Step 5.0 thru 5.5 - Save calibration, aka “Tune”, included with the GEN4 PRO XTREME ECU into the initial Project.



Ethernet connection using 5’ CAT6a shielded Ethernet cable only

OR

Ethernet connection using USB-to-RJ45 Ethernet Dongle & 5’ CAT6a shielded Ethernet cable



Wired Ethernet Network 2 configuration for “Race Car” & Dyno applications

Step 1:

Step 1.0 thru 1.18 - Download GEN4 PRO XTREME BigComm Pro (BCP) software from the www.bigcommpro.com website onto a PC. (Step 1 Assumes offline communication)

Step 2:

Step 2.0 - Establish wired Ethernet connection between PC running BCP software & GEN4 PRO XTREME ECU using a MikroTik hAP ac lite Router and 5’ CAT6a shielded Ethernet cables. One of the 5’ CAT6a Ethernet cables can be connected directly to the PC’s RJ45 Ethernet port **OR** if the PC is not equipped with a RJ45 Ethernet port a USB-to-RJ45 Ethernet Dongle is required.

Note: See detailed [GEN4 PRO XTREME Wired Ethernet Network 2 configuration for “Race Car” and Dyno applications on page 63.](#)

Step 3:

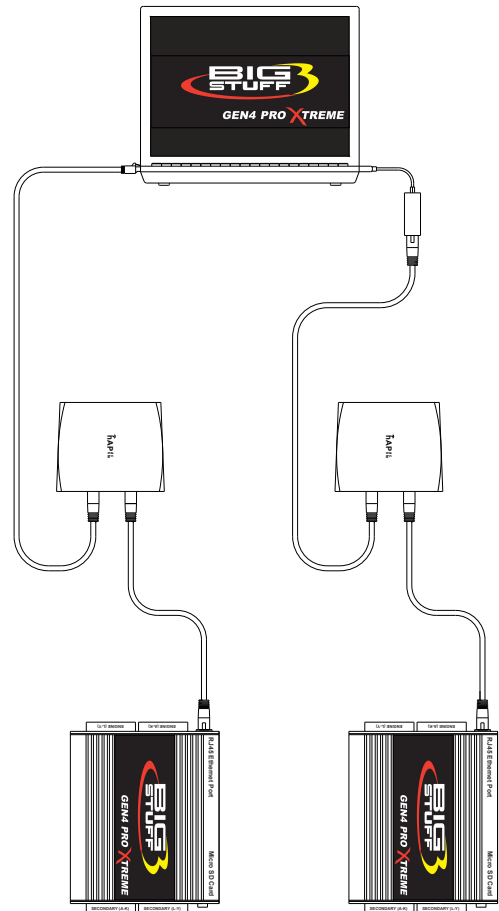
Step 3.0 thru 3.6 - Activate BCP and GEN4 PRO XTREME ECU interface to enable BCP software to create an initial Project.

Step 4:

Step 4.0 thru 4.2 - Connect to the GEN4 PRO XTREME ECU to establish online wired Ethernet communication.

Step 5:

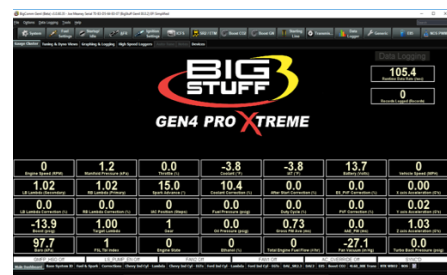
Step 5.0 thru 5.5 - Save calibration, aka “Tune”, included with the GEN4 PRO XTREME ECU into the initial Project.



Wired Ethernet connection using MikroTik hAP ac lite Router and 5’ CAT6a Ethernet cables

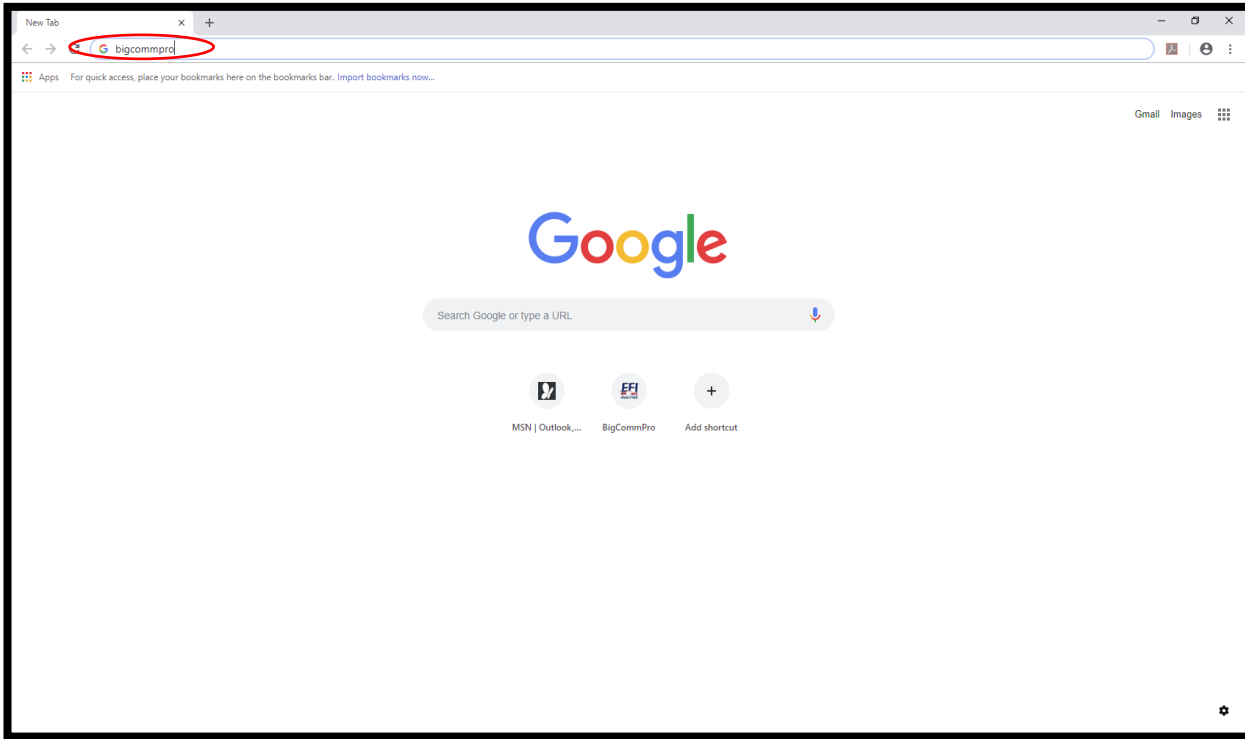
OR

Wired Ethernet Connection using MikroTik hAP ac lite Router with USB-to-RJ45 Ethernet Dongle & 5’ CAT6a Ethernet cables

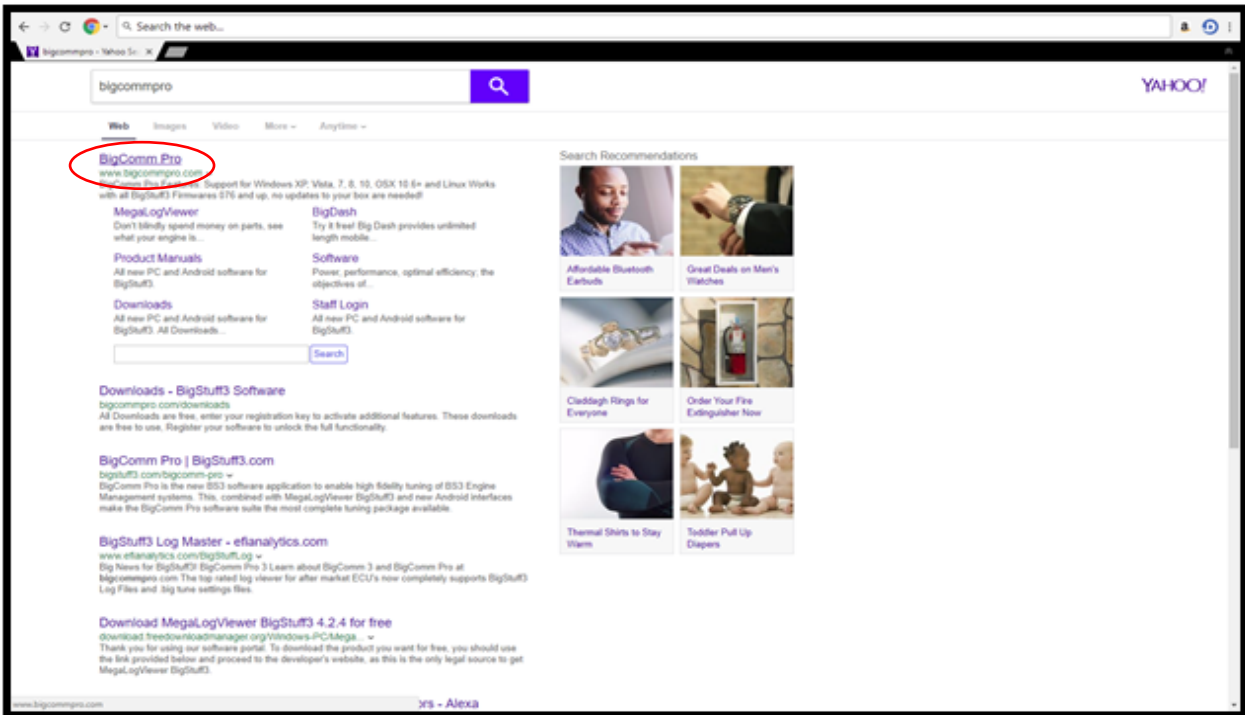


Step 1.0 - Download GEN4 PRO XTREME BigComm PRO (BCP) Software from the www.bigcommpro.com website onto a PC

Step 1.1 - With the PC connected to the internet, type **bigcommpro into the web browser and hit enter. At this point, the PC should not be connected to the GEN4 PRO XTREME wired Ethernet network.**



Step 1.2 - Select BigComm Pro.



Step 1.3 - Once the www.bigcommpro.com home page opens, select **DOWNLOAD NOW**.

BIG NEWS FOR BIGSTUFF3!

BigStuff3 just got Simpler and more Powerful than ever!

When it comes to modern horsepower, the most important tools are no longer found in your toolbox. Just think, in the 1980's Top Fuel dragsters made about 2500 hp using a 500 cubic inch Aluminum Hemi headed engine on Nitromethane, some of today's Pro Mod cars crush these numbers! Why? It is a matter of optimizing all aspects of the engine to improving efficiency. This demands the tools to gather data to understand what is happening inside the engine at the completely and identify opportunities to improve efficiency. EFI has brought new capabilities to enable maximum efficiency, but also additional complexity getting started. Together BigComm Pro and MegaLogViewer bring you the power to capture, view and analyze vehicle data as your engine produces it, then act upon it. These easy to use applications simplify making changes and even offer recommendations and automatic correction using data analytics at a level that is not offered by any other automotive tuning solutions.

0	7.0	0.0	0.2	0	0.0
0.0	0.00	-40	91	0.0	0

BIGCOMM PRO NOW AVAILABLE!

[DOWNLOAD NOW](#) [PURCHASE REGISTRATION](#)

- 1) Download the all new BigComm 3
- 2) Purchase a registration - Choose BigComm Pro Single if you only tune 1 BigStuff3 or BigComm Pro Tuner if you tune multiple BigStuff3 ECU's
- 3) Enter the registration in BigComm and all the BigComm Pro features will be activated!

Step 1.4 - Download the BigComm Pro Beta for Gen 4 by selecting **Download**.

For Linux

BigComm Pro version 3 (Approximately 30 MB) [Download](#)

MegaLogViewer BigStuff Version 4.3.18 (3.5 MB) [Download](#)

Android

BigDash v 1.6.08 (6/13/2018) [Download](#)

Big Replay Upload 1.6.08 (6/13/2018) [Download](#)

GEN4 PRO XTREME

All new Gen 4 Beta

For Windows

BigComm Pro Beta for Gen 4 (Approximately 84 MB) [Download](#)

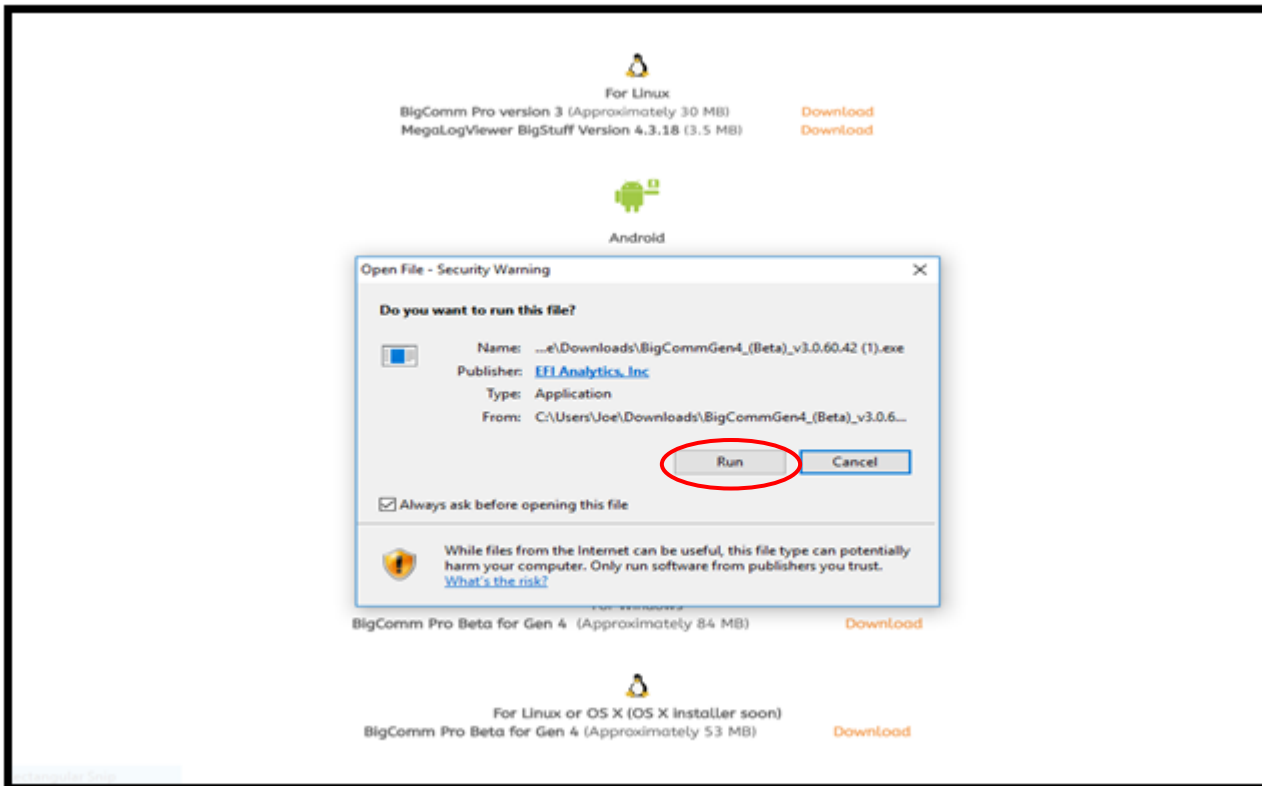
For Linux or OS X (OS X Installer soon)

BigComm Pro Beta for Gen 4 (Approximately 53 MB) [Download](#)

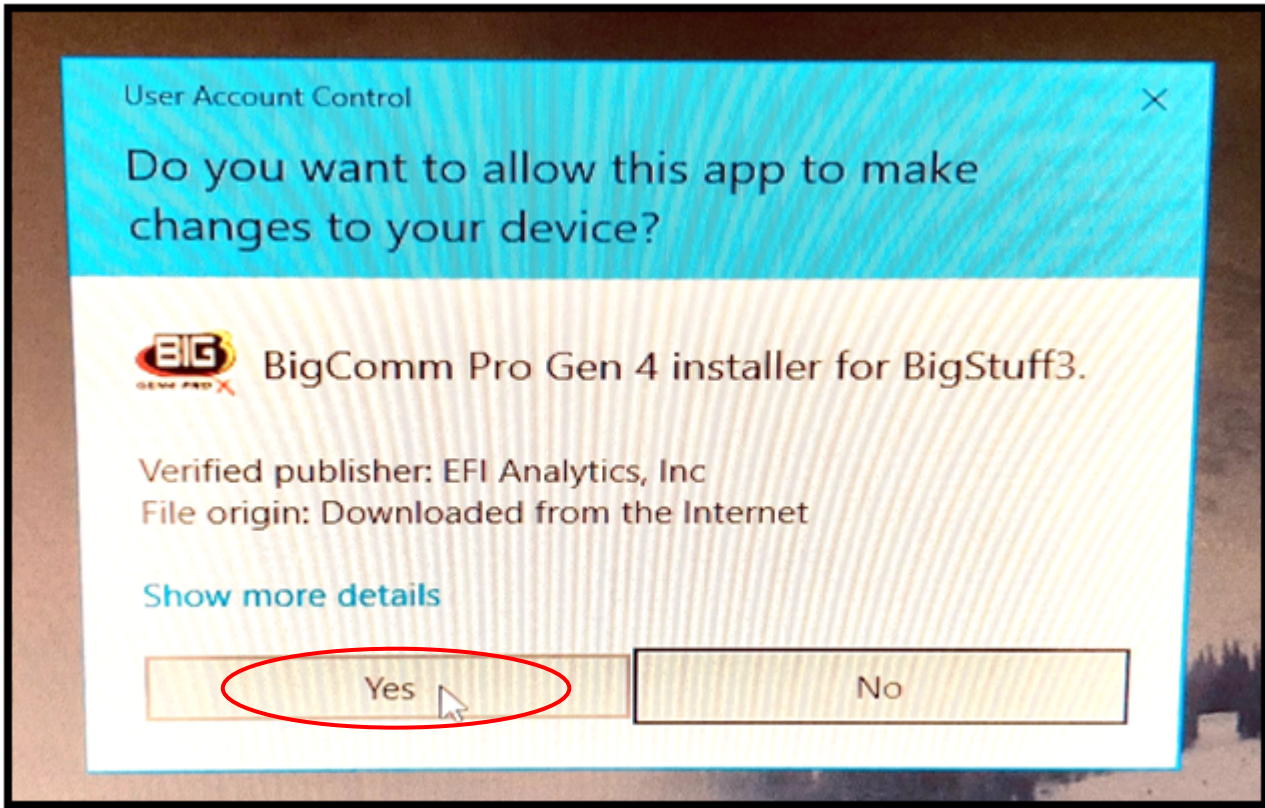
Step 1.5 - Once the **BigCommGen4** executable has completed downloading (84 MB), select it from the lower left-hand corner of the screen.



Step 1.6 - Select Run.



Step 1.7 - Select Yes.



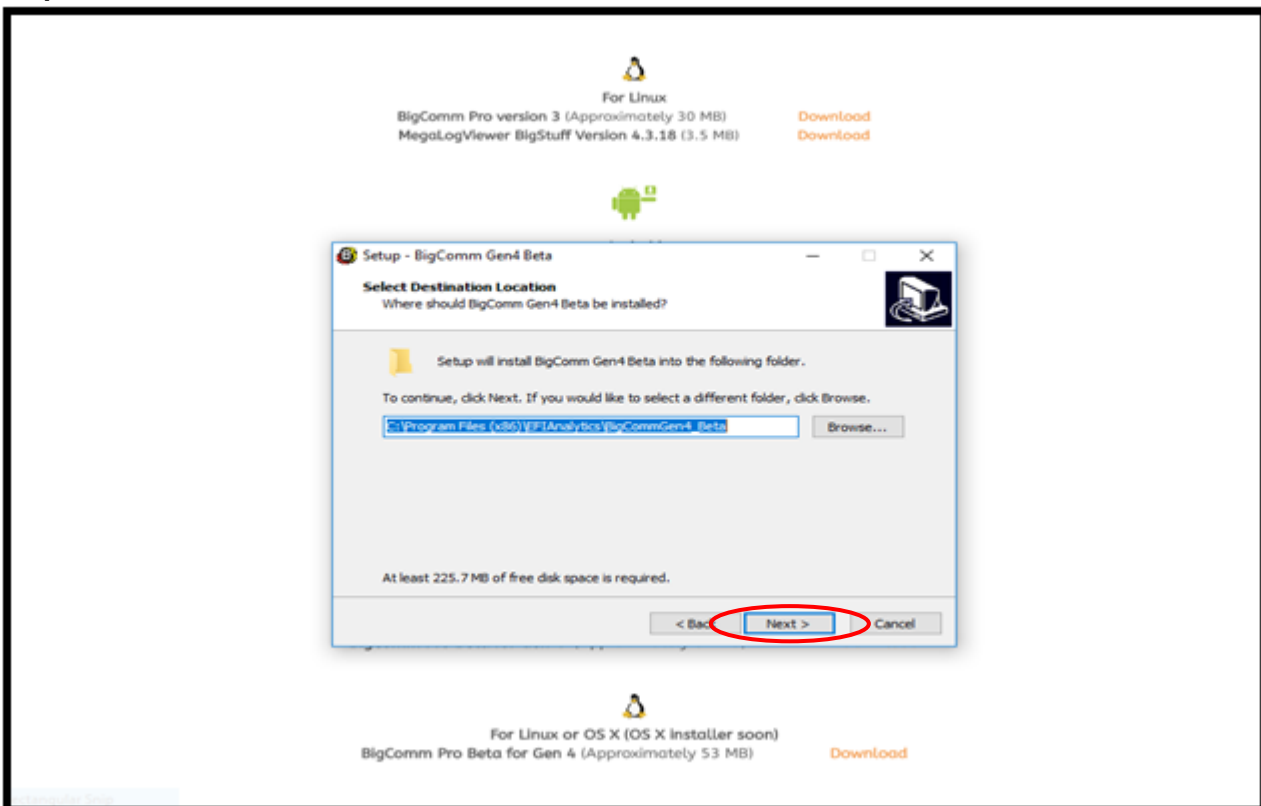
Step 1.8 - Select Next >



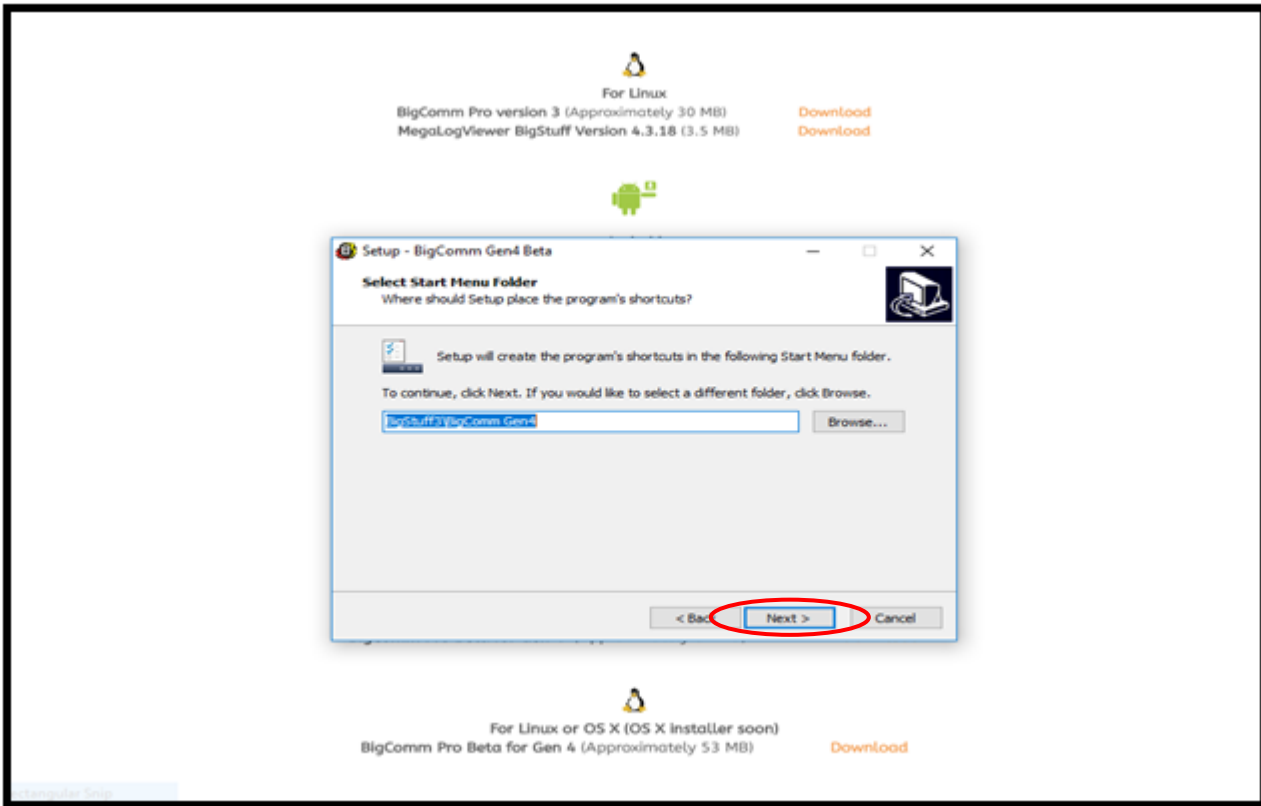
Step 1.9 - Select "I accept the agreement" and then select Next >



Step 1.10 - Select Next >



Step 1.11 - Select Next >



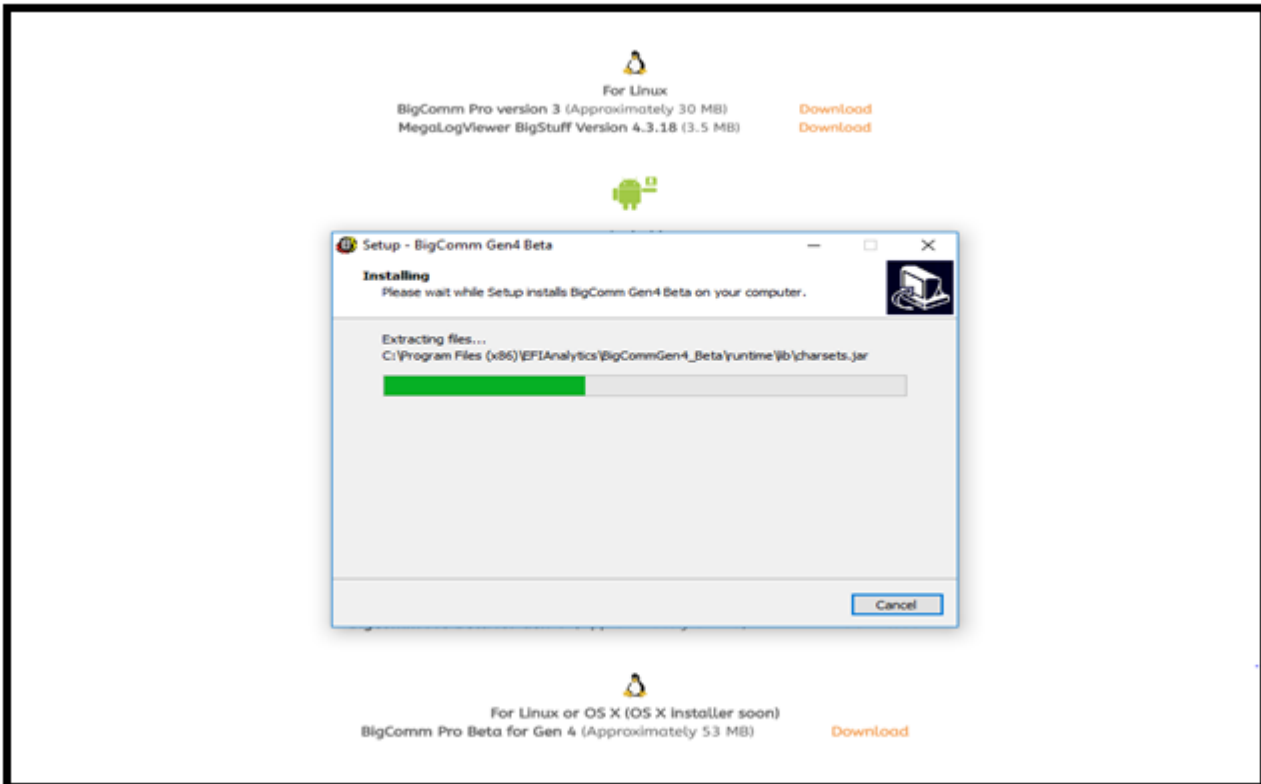
Step 1.12 - Check the "Create a desktop icon" box and then select Next >



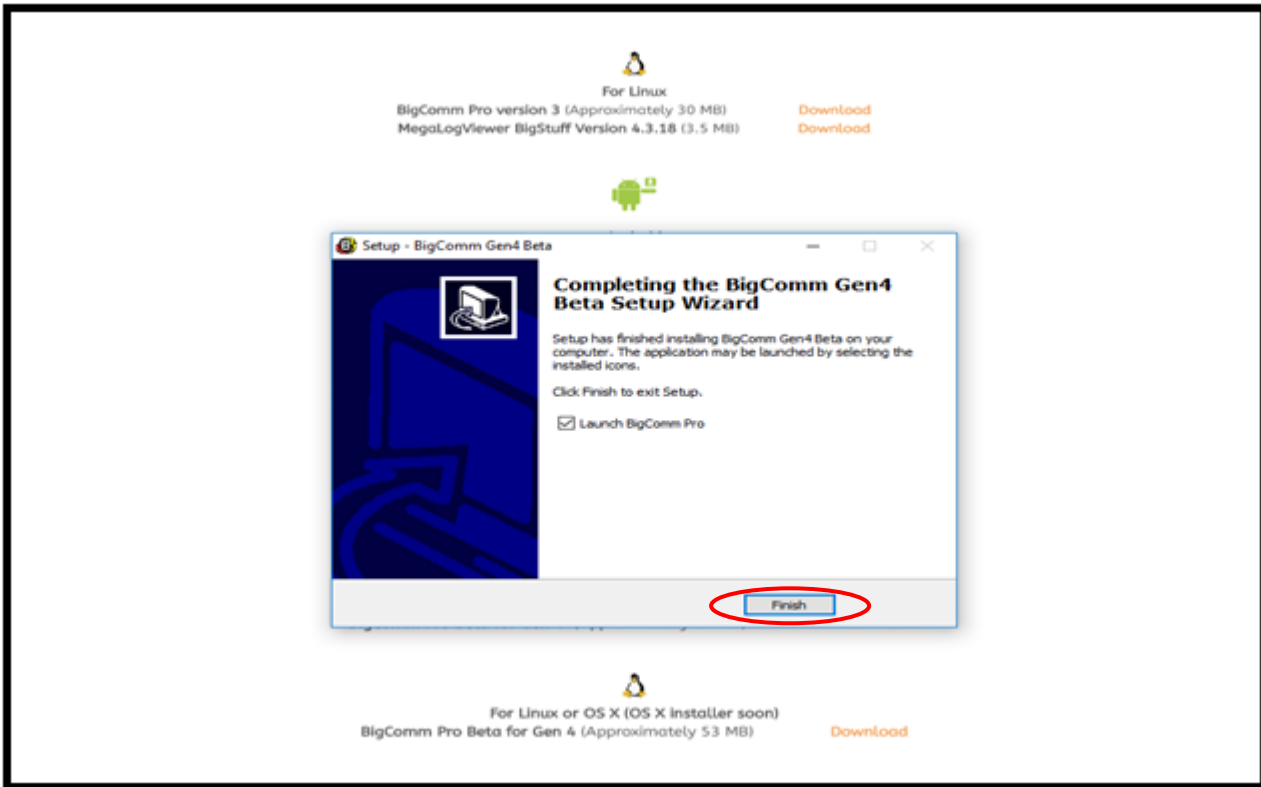
Step 1.13 - Select Install.



Step 1.14 - After selecting **Install from Step 1.13, a status bar will appear showing the progress of the BigComm Pro (BCP) GEN4 software download to your PC.**



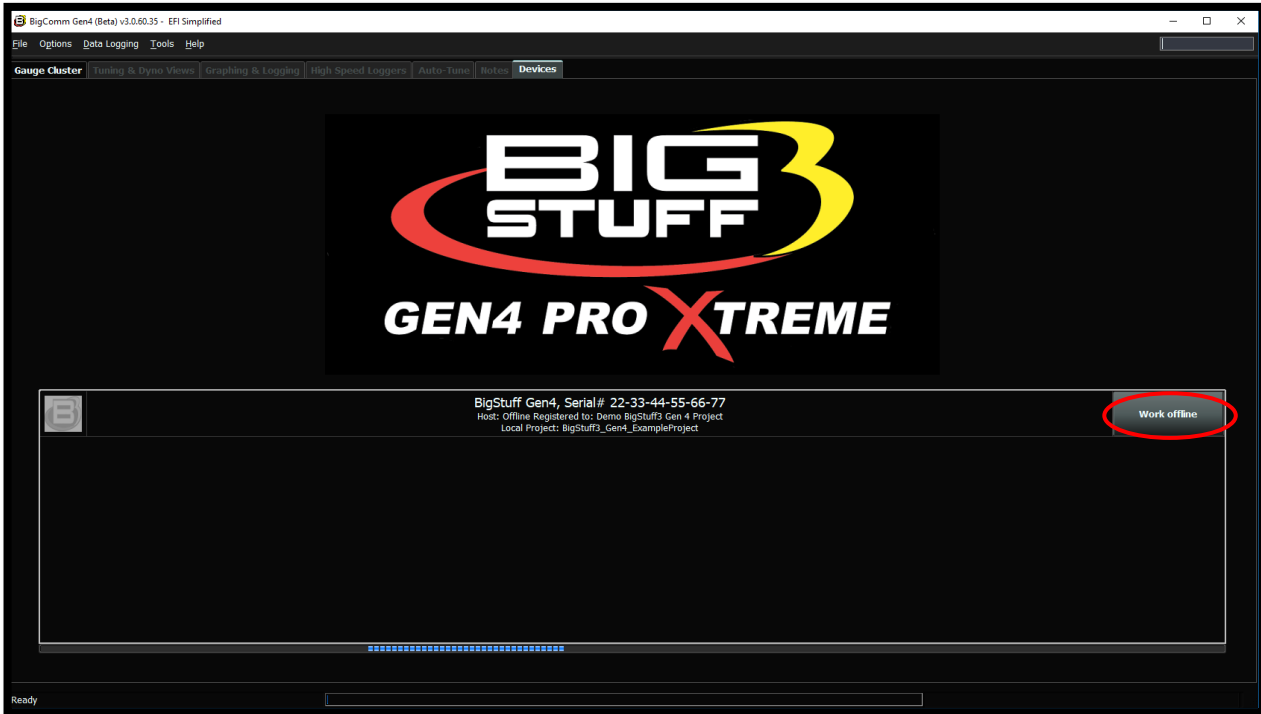
Step 1.15 - Select Finish.



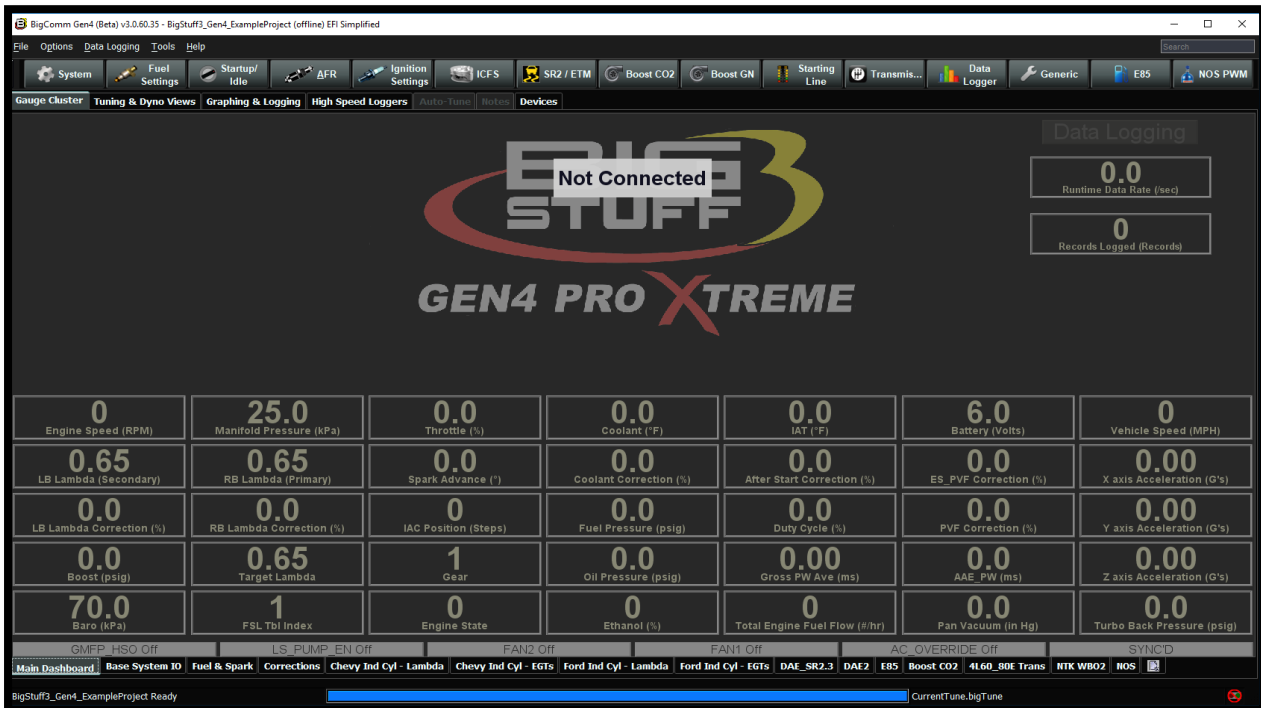
Step 1.16 - After selecting Finish from Step 1.15, after a slight pause, the GEN4 PRO XTREME graphic screen will appear momentarily.



Step 1.17 - After another slight pause, the following GEN4 PRO XTREME software window will open. At this point, the software is running on your PC and you can work offline with an example Local Project: **BigStuff3_Gen4_ExampleProject** by selecting **Work offline**. The example Local Project contains a demo calibration, preconfigure dashboards and tuning tabs and **should only be used offline**.



Step 1.18 - After selecting **Work offline** from Step 1.17, the following **Main Dashboard** window will open. Now would be a great time to navigate the GEN4 PRO XTREME BigComm Pro software to get acquainted with it before establishing an “online” connection.



Step 2.0 - Establish a wired Ethernet connection between PC running BCP software & GEN4 PRO XTREME ECU

The communication between the BigComm Pro (BCP) GEN4 software running on a PC and GEN4 PRO XTREME ECU is based on a Wired Ethernet connection. Online wired Ethernet communication between the PC running the BCP software and GEN4 PRO XTREME ECU can be established once the following Wired Ethernet Network connections are made:

For the Wired Ethernet Network 1 Configuration for “In-Vehicle” applications;

- The 5' CAT6a Ethernet cable is connected between the RJ45 Ethernet port of the PC running the BCP software and the GEN4 PRO XTREME ECU's RJ45 Ethernet port. If the PC is not equipped with a RJ45 Ethernet port a USB-to-RJ45 Ethernet dongle is required. A USB-to-RJ45 Ethernet dongle can be ordered from BS3. The part number is BS4-003-007. (See the GEN4 PRO XTREME Wired Ethernet Network 1 Configuration for “In-Vehicle” applications on page 62).

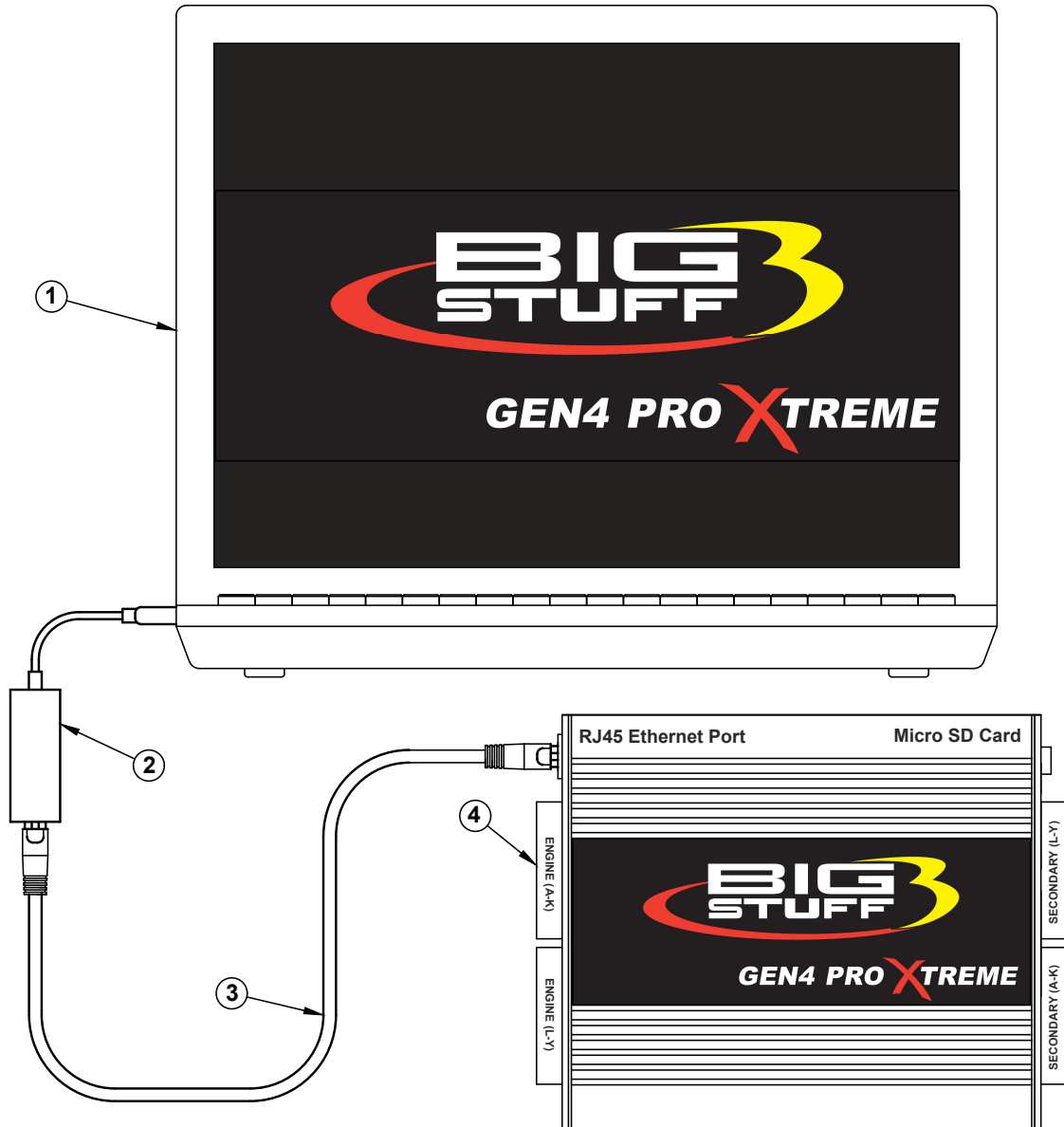
For the Wired Ethernet Network 2 Configuration for “Race Car” & Dyno applications;

- The “Race Car” Wireless Router Battery Power Interface Harness is connected between the MikroTik hAP ac lite Race Car Wireless Router's 10-28V DC plug and Battery (+) & (-).
- One of the 5' CAT6a shielded Ethernet cables is connected between one of the MikroTik hAP ac lite router's (4) RJ45 LAN ports and GEN4 ECU's RJ45 Ethernet port.
- One of the 5' CAT6a shielded Ethernet cables is connected between one of the MikroTik hAP ac lite router's (4) RJ45 LAN ports and the RJ45 Ethernet port of the PC running the BCP software. If the PC is not equipped with a RJ45 Ethernet port a USB-to-RJ45 Ethernet dongle is required. A USB-to-RJ45 Ethernet dongle can be ordered from BS3. The part number is BS4-003-007. (See the GEN4 PRO XTREME Wired Ethernet Network 2 Configuration for “Race Car” & Dyno applications on page 63).
- Once the GEN4 PRO XTREME MikroTik hAP ac lite wireless router is connected to the 10-28V DC power source, the green LED will illuminate to indicate it is powered on. After one of the 5' CAT6a shielded Ethernet cables is connected between one of the MikroTik hAP ac lite router's (4) RJ45 LAN ports and GEN4 ECU's RJ45 Ethernet port and another one of the 5' CAT6a shielded Ethernet cables is connected between one of the MikroTik hAP ac lite router's (4) RJ45 LAN ports and the RJ45 Ethernet port of the PC running the BCP software, the associated MikroTik hAP ac lite LAN channel LEDs, located on the backside of the MikroTik hAP ac lite wireless router, will illuminate to indicate a wired connection can now be established.

Once either the above Wired Ethernet Network connections have been made, the GEN4 PRO XTREME ECU needs to be powered on (VBATT & +12V switched Ignition) in order to establish online communication with the PC running the BCP software. The ECU's RJ45 green LED will illuminate when it is powered on and the ECU's RJ45 orange LED will illuminate and begin flashing when a wired Ethernet connection is established. Once the wired Ethernet connection is established, instruction Steps 3.0 & 4.0 will detail how to establish online communication between the PC running the BCP software and GEN4 PRO XTREME ECU.

Wired Ethernet Network 1 configuration for “In-Vehicle” applications

GEN4 PRO XTREME ECU / PC / Wired Ethernet Connection Configuration



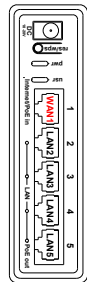
- ① PC running BIGCOMM PRO Software
- ② USB-to-RJ45 Ethernet Dongle
- ③ 5' CAT6a Shielded Ethernet Cable
- ④ GEN4 PRO XTREME ECU

Connection Instructions

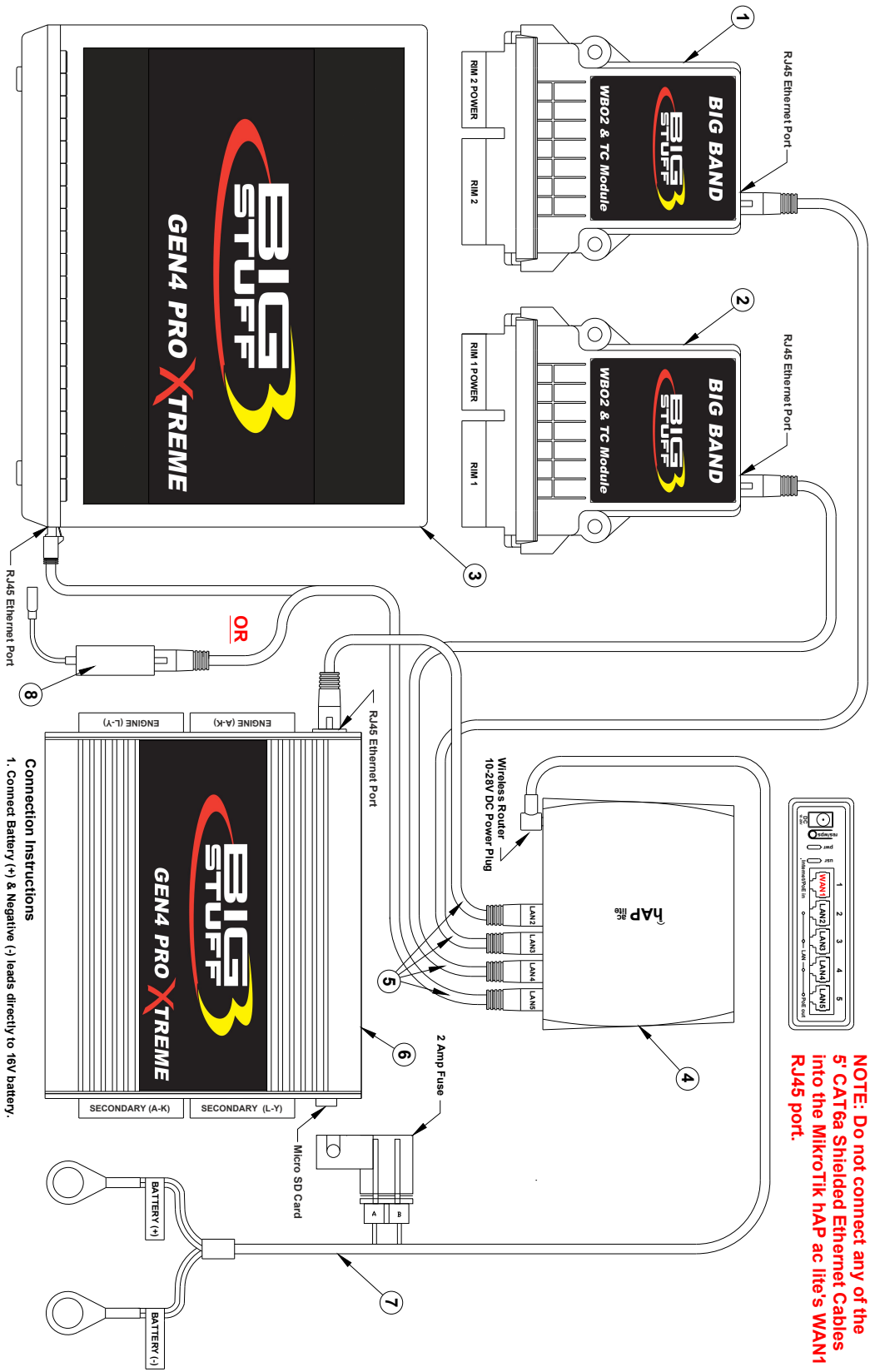
1. Connect one end of the 5' CAT6a Shielded Ethernet Cable directly to the PC's RJ45 Ethernet port and the other end to the GEN4 PRO XTREME ECU's RJ45 Ethernet port. **OR**
2. If the PC is not equipped with a RJ45 Ethernet port, use the BS3 USB-to-RJ45 Ethernet Dongle (P/N: BS4-003-007) to establish a RJ45 Ethernet port using one of the PC's USB ports. Once installed, connect one end of the 5' CAT6a Shielded Ethernet Cable into the RJ45 Ethernet port of the USB-to-RJ45 Ethernet Dongle and the other end to the GEN4 PRO XTREME ECU'S RJ45 Ethernet port.

Wired Ethernet Network 2 configuration for "Race-Car" & Dyno applications

GEN4 PRO XTREME ECU / BIG BAND / PC / MikroTik hAP ac lite Race Car Wired Router Network Configuration



NOTE: Do not connect any of the 5' CAT6a Shielded Ethernet Cables into the MikroTik hAP ac lite's WAN1 RJ45 port.



- 1 BIG BAND Module 1
- 2 BIG BAND Module 2
- 3 PC running BIGCOMM Pro Software
- 4 MikroTik hAP ac lite Race Car Wireless Router
- 5 5' CAT6a Shielded Ethernet Cable
- 6 GEN4 PRO XTREME ECU
- 7 Wireless Router Battery Power Interface Harness
- 8 USB-to-RJ45 Ethernet Dongle (required if PC does not have a RJ45 Ethernet port)

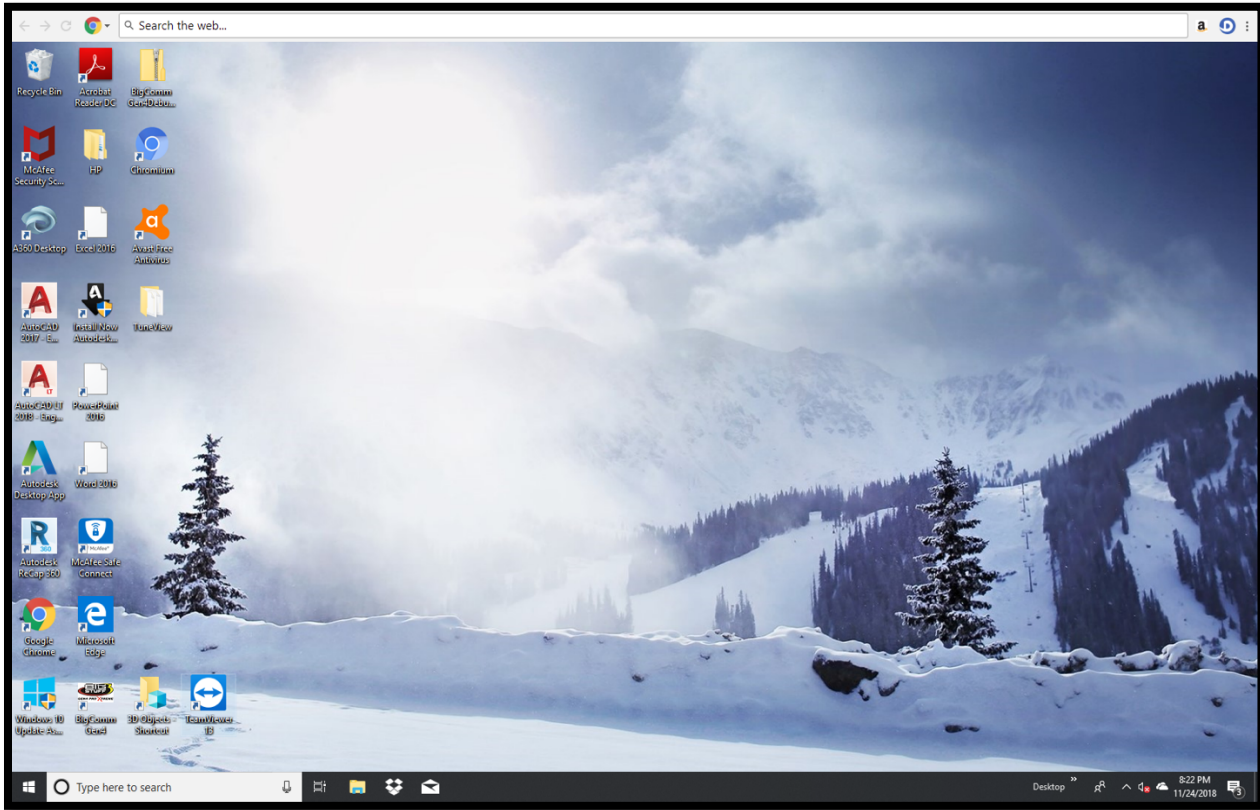
Connection Instructions

1. Connect Battery (+) & Negative (-) leads directly to 16V battery.
2. Connect 10-28V DC Power Plug into Wireless Router DC Power Plug Receptacle.
3. Connect (1 of 4) 5' CAT6a Shielded Ethernet Cable between GEN4 PRO XTREME ECU RJ45 Ethernet port and MikroTik hAP ac lite Wireless Router RJ45 LAN2 port.
4. Connect (2 of 4) 5' CAT6a Shielded Ethernet Cable between BIG BAND Module 1 RJ45 port and MikroTik hAP ac lite Wireless Router RJ45 LAN3 LAN5 port.
5. Connect (3 of 4) 5' CAT6a Shielded Ethernet Cable between BIG BAND Module 2 RJ45 port and MikroTik hAP ac lite Wireless Router RJ45 LAN1 LAN4 port.
6. Connect (4 of 4) 5' CAT6a Shielded Ethernet Cable between MikroTik hAP ac lite Wireless Router RJ45 LAN4 port and PC's RJ45 Ethernet Port. If PC is not equipped with a RJ45 Ethernet port a USB-to-RJ45 Ethernet Dongle is required.

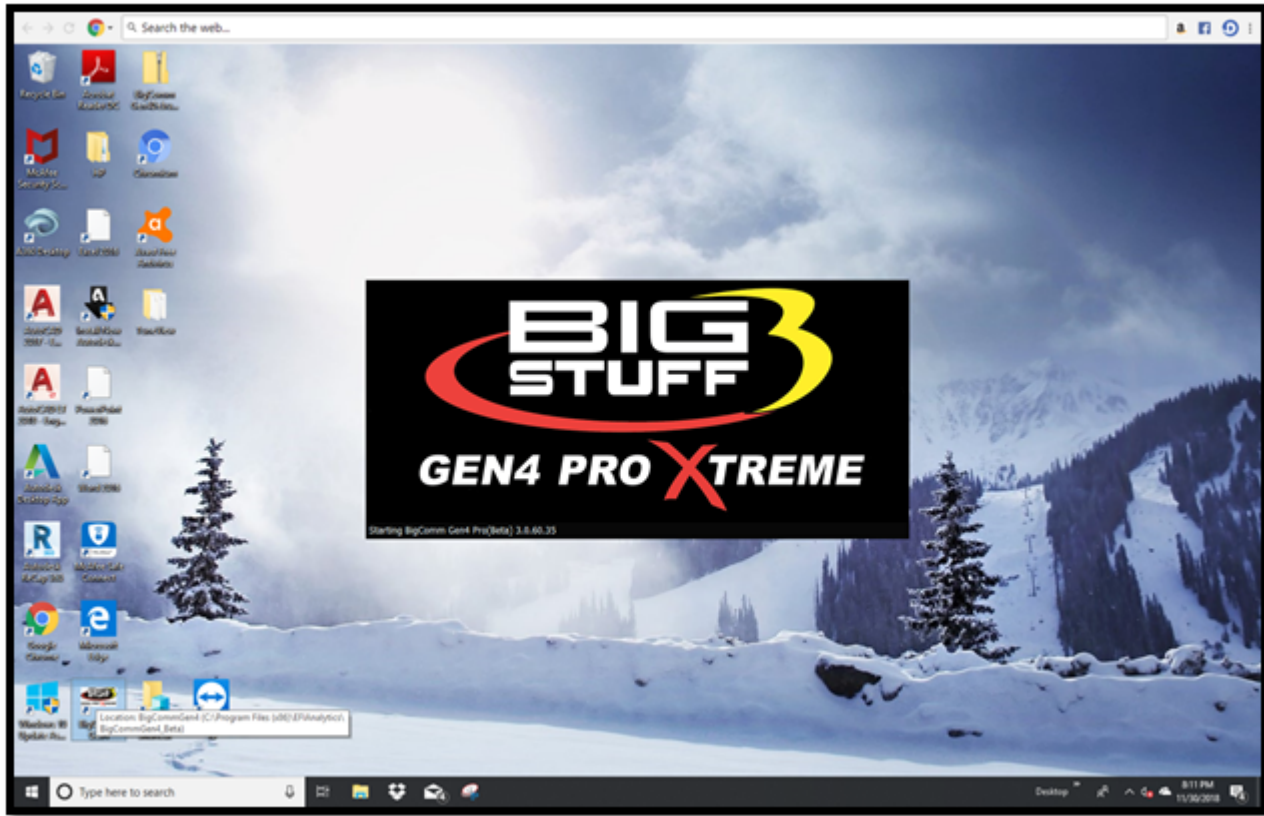


STEP 3.0 - Activate the BCP software and GEN4 PRO XTREME ECU interface to enable BCP software to create initial Project (STEP 3.0 only occurs when connecting between a PC running the BCP software and GEN4 PRO XTREME ECU for the first time)

Step 3.1 - Once a Wired Ethernet Network connection is established, as detailed on page 62 for In-Vehicle applications or page 63 for Race Car & Dyno applications, and the GEN4 PRO XTREME ECU is powered on (VBATT & +12V switched Ignition), open the GEN4 PRO XTREME BCP software from the PC's desktop by double clicking on the **GEN4 PRO XTREME BCP icon** located in the lower left-hand corner of screen.



Step 3.2 - Once the **BCP icon** is selected, the following GEN4 PRO XTREME graphic will momentarily appear on the screen.

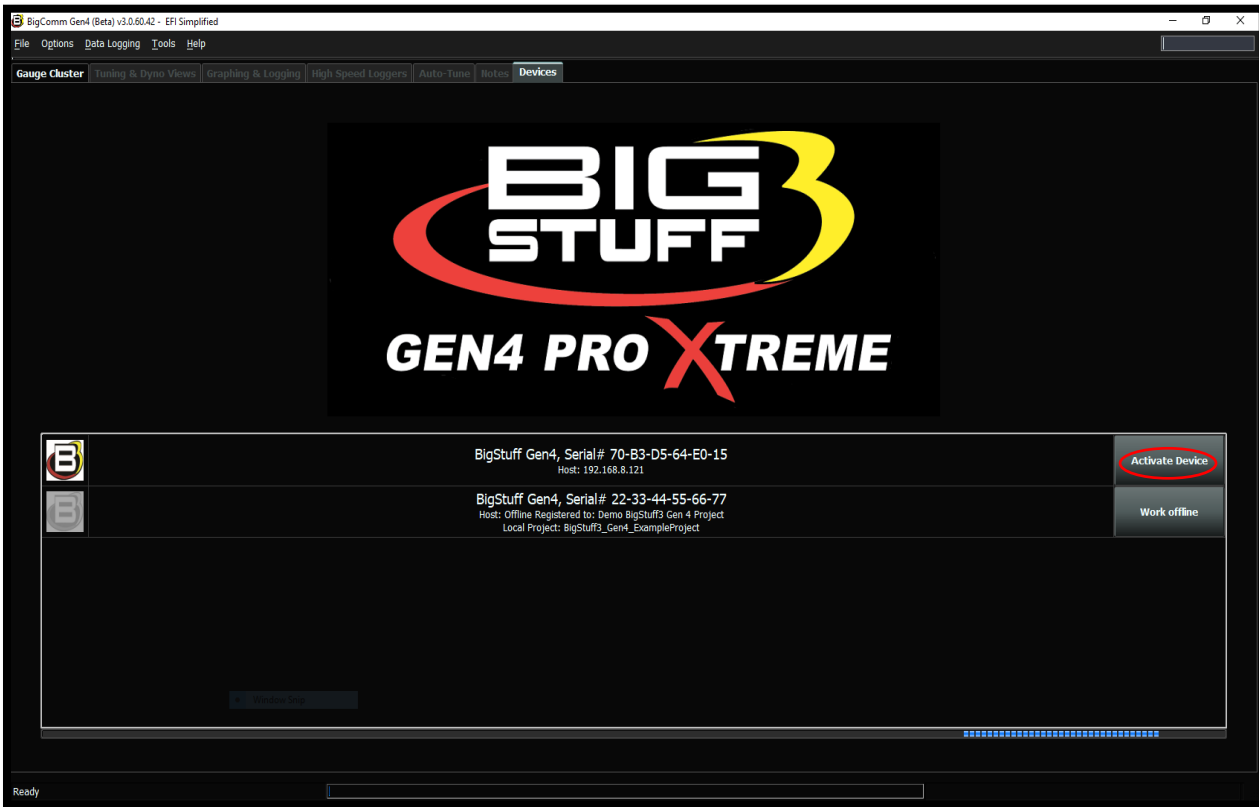


Step 3.3 - After a momentary pause, the following BCP software window will open. As you can see, there are two possible selections to choose from;

The first is: **Bigstuff Gen4, Serial# 70-B3-D5-64-E0-15**. This is the Serial Number (MAC ID) of the GEN4 PRO XTREME ECU that will be communicating with the PC running the BCP software once it's activated.

The second is: **Bigstuff Gen4, Serial# 22-33-44-55-66-77**. This is the default serial number associated with the example Local Project: **Bigstuff3_GEN4_ExampleProject** running offline on the PC. The example Local Project: **Bigstuff3_GEN4_ExampleProject** was included as part of the BCP software download package and contains a demo calibration, preconfigure dashboards and tuning tabs and is only meant to be **used offline** to navigate and get acquainted with the BCP software.

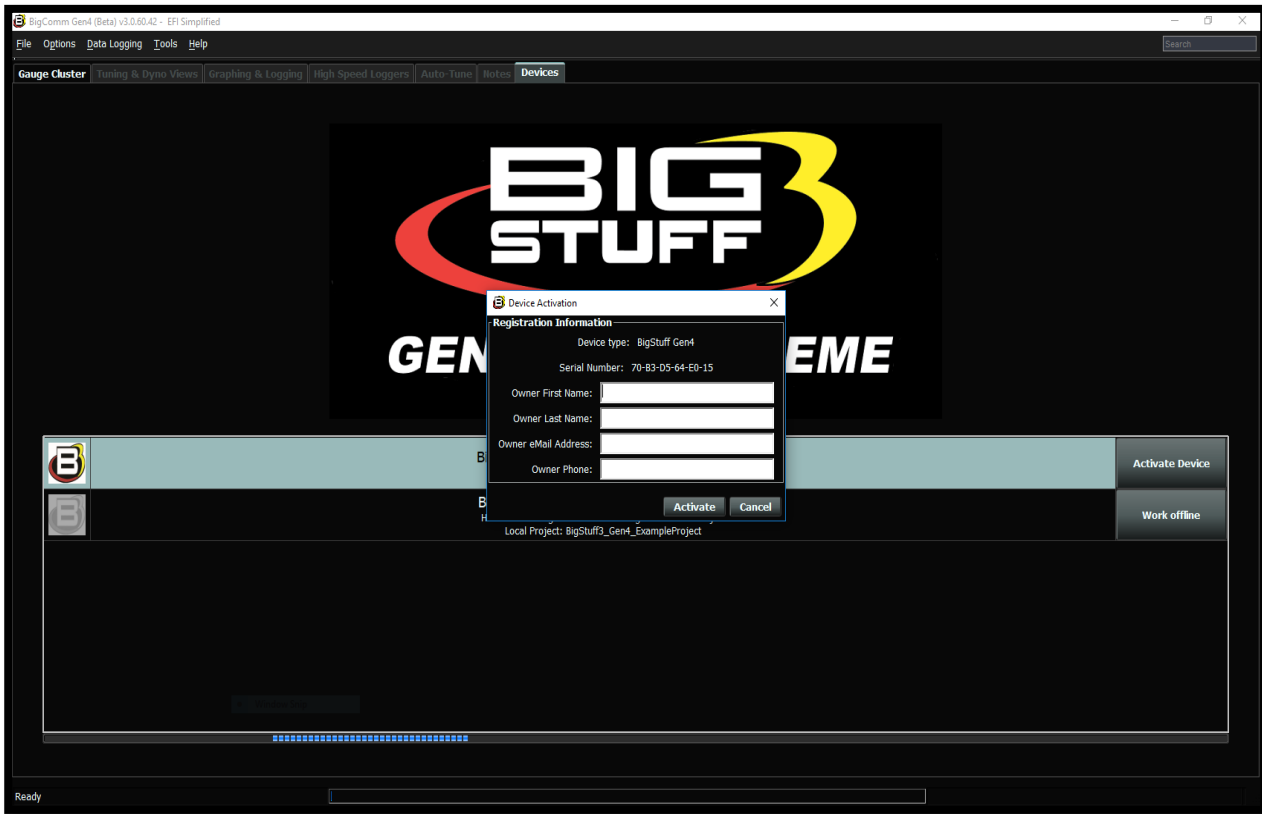
Before an initial Project can be created, the BCP software & GEN4 PRO XTREME ECU interface needs to be activated. This is initiated by single clicking on **Activate Device**.



There are a couple of key things that occur when **Activate Device** is selected;

- The BCP software & GEN4 PRO XTREME ECU interface is activated by entering the end user name and contact information.
- The BCP software creates an initial Project using the Serial Number (MAC ID) of the GEN4 PRO XTREME ECU connected to the PC running the BCP software and activation information. The initial Project contains preconfigured Gauge Clusters; aka “Dashboards”, Tuning & Dyno Views; aka “Tuning Tabs” and “Datalog Tabs” with predefined measurement variables.

Step 3.4 - Once **Activate Device** is selected in Step 3.3, the following BCP dialogue window will open.



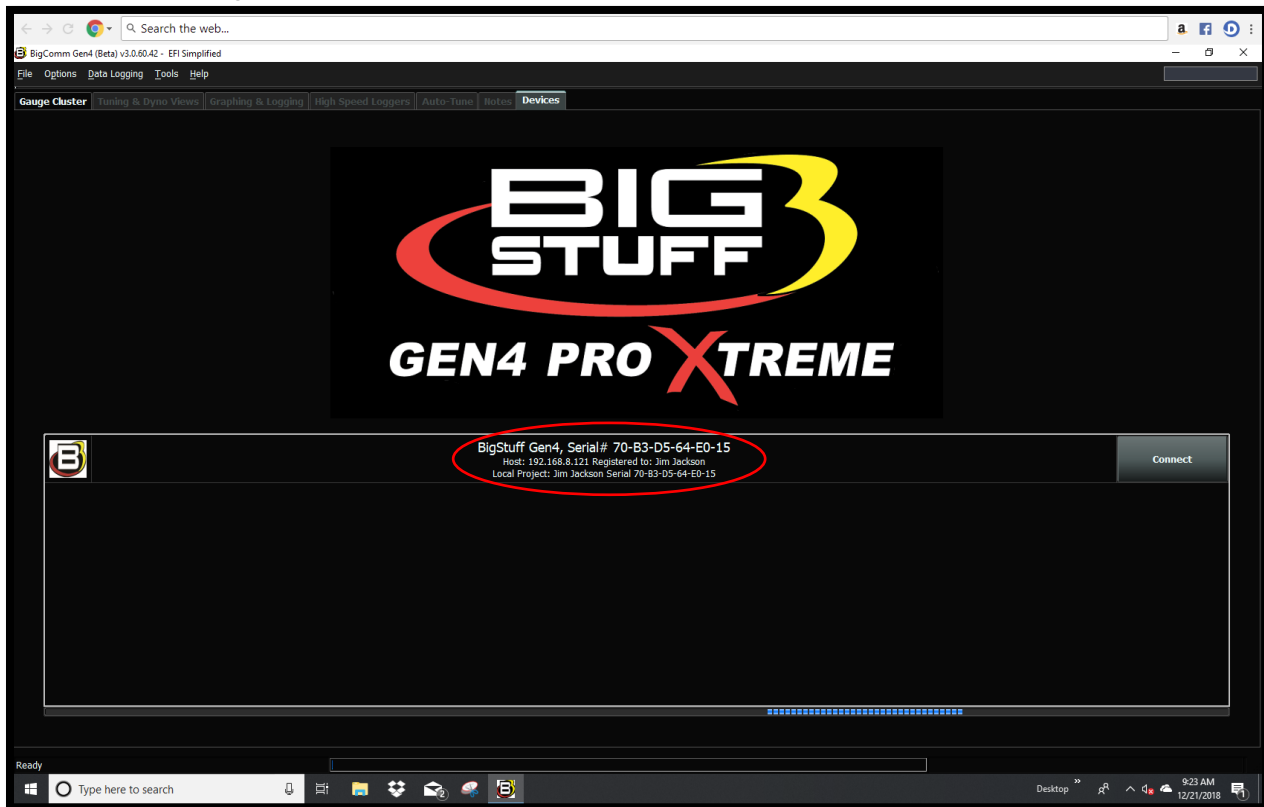
Step 3.5 - Fill in the requested activation information and single click on **Activate**.



Step 3.6 – Once **Activate** is selected in Step 3.5, the following BCP software window will open. As you can see, there is now only one selection to choose from;

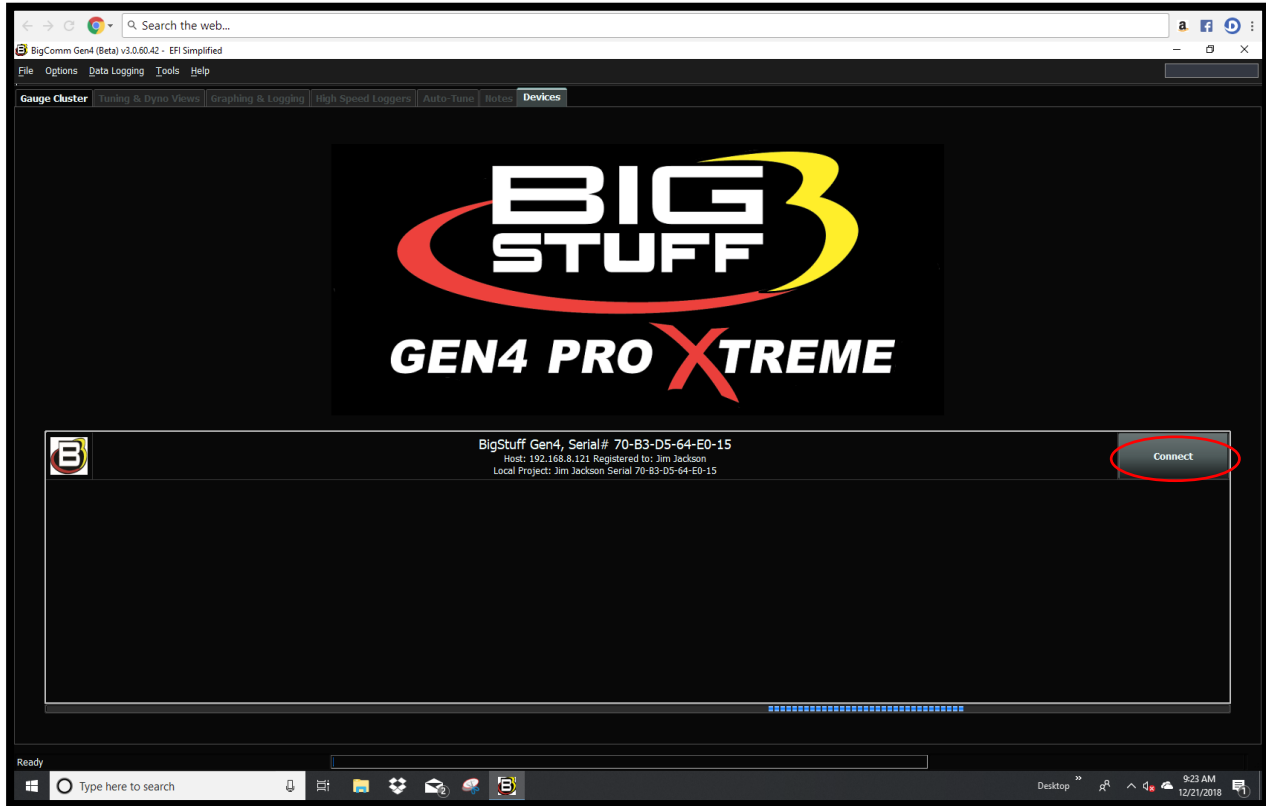
The **Bigstuff Gen4, Serial# 70-B3-D5-64-E0-15** is the Serial Number (MAC ID) of the GEN4 PRO XTREME ECU connected to the PC running the BCP software. Please note the Device Activation information (i.e. the owner's name, Jim Jackson for this example) filled out in Step 3.5 is now associated with the initial **Bigstuff Gen4, Serial# 70-B3-D5-64-E0-15** Project that will be uploaded into the BCP software running on the PC.

The previous default **Bigstuff Gen4, Serial# 22-33-44-55-66-77** serial number that had the example Local Project: **Bigstuff3_GEN4_ExampleProject** associated with it has been removed. It was only intended to provide an example Project **Bigstuff3_GEN4_ExampleProject** as part of the BCP software download package to navigate and get acquainted with the BCP software before establishing online communication.

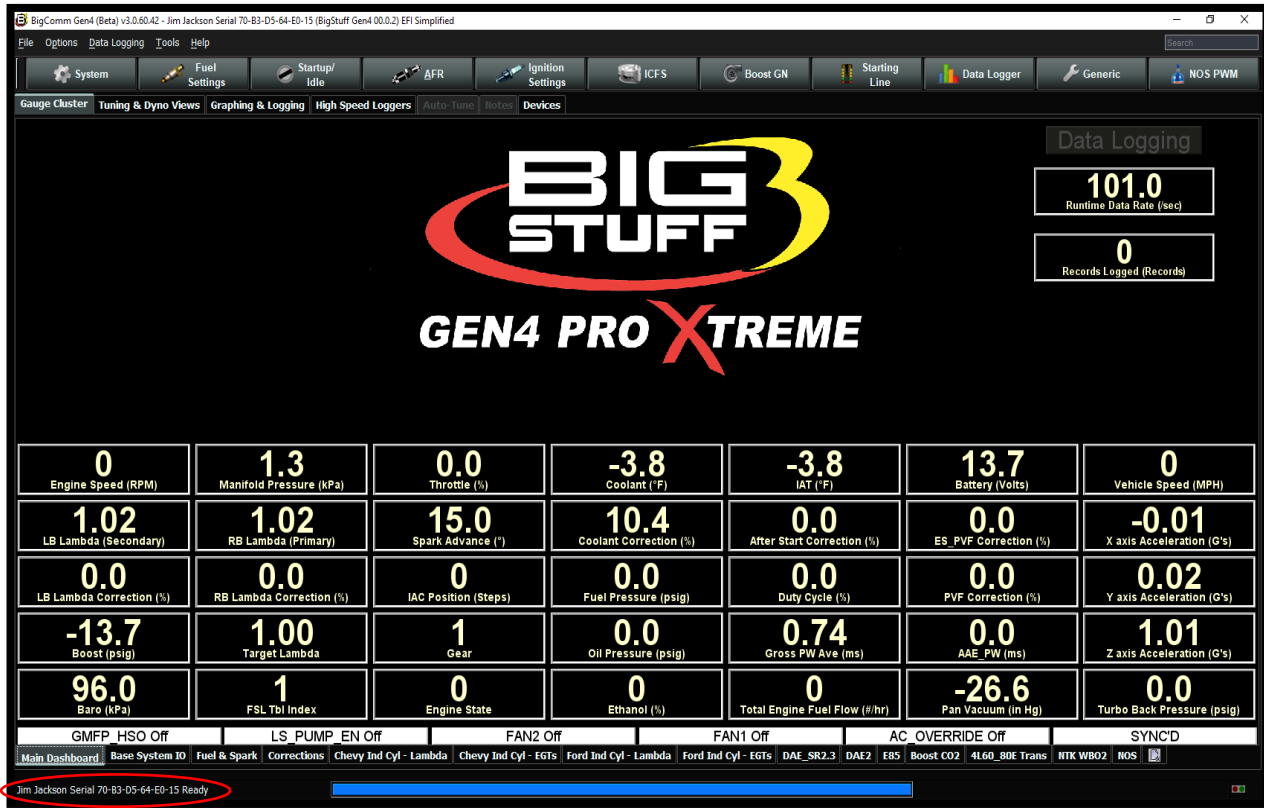


Step 4.0 - Connect to the GEN4 PRO XTREME ECU to establish online wired Ethernet communication

Step 4.1 - To establish online wired Ethernet communication between the BCP software running on the PC and GEN4 PRO XTREME ECU single click on **Connect**.



Step 4.2 – Below, is the BCP default **Main Dashboard** window that opens after selecting **Connect** in Step 4.1. For this example, **Jim Jackson Serial 70-B3-D5-64-E0-15** is the Project running in the BCP software on the PC. For your application, **Your Name Serial 70-B3-D5-64-XX-XX** will be the Project running in the BCP software on the PC.



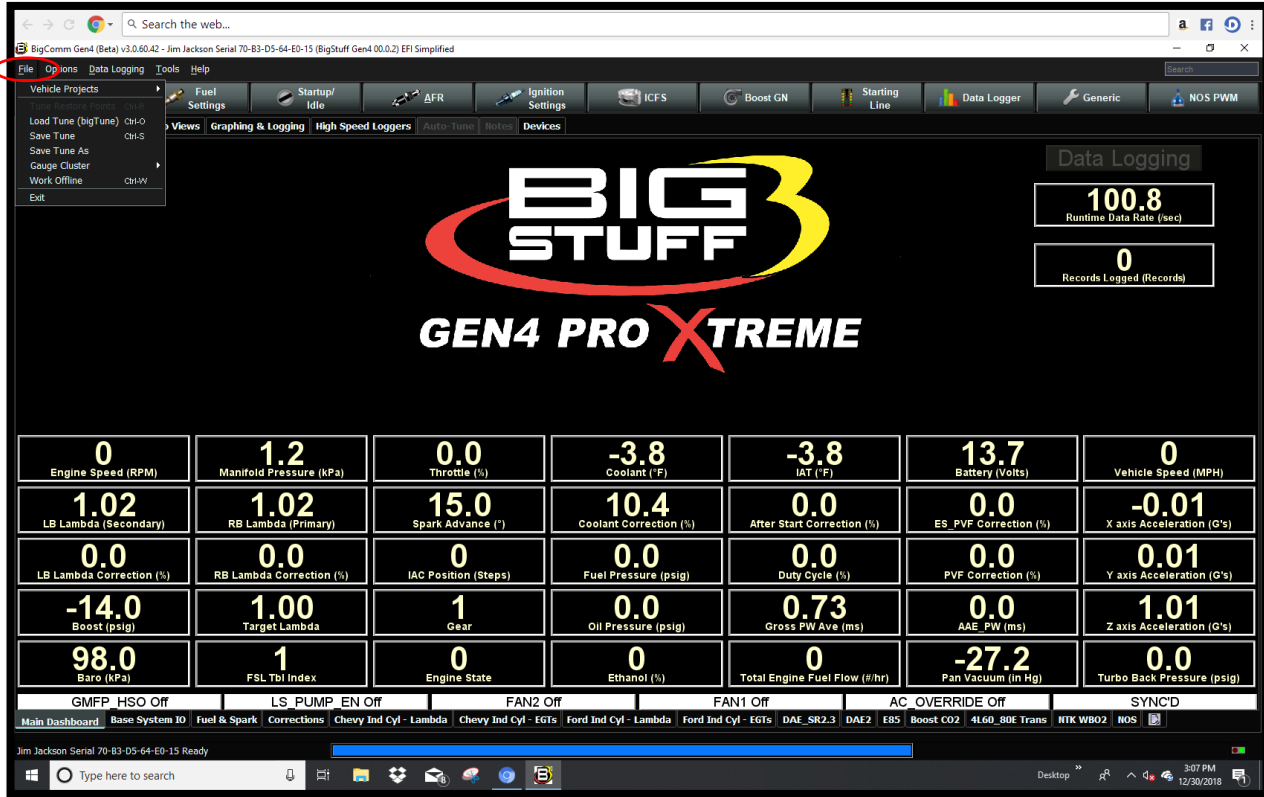
There are several key things that occur when **Connect** is selected;

- Online wired Ethernet communication is established between the BCP software running on the PC and GEN4 PRO XTREME ECU.
- The calibration file included with the GEN4 PRO XTREME ECU is uploaded into the BCP software running on the PC.

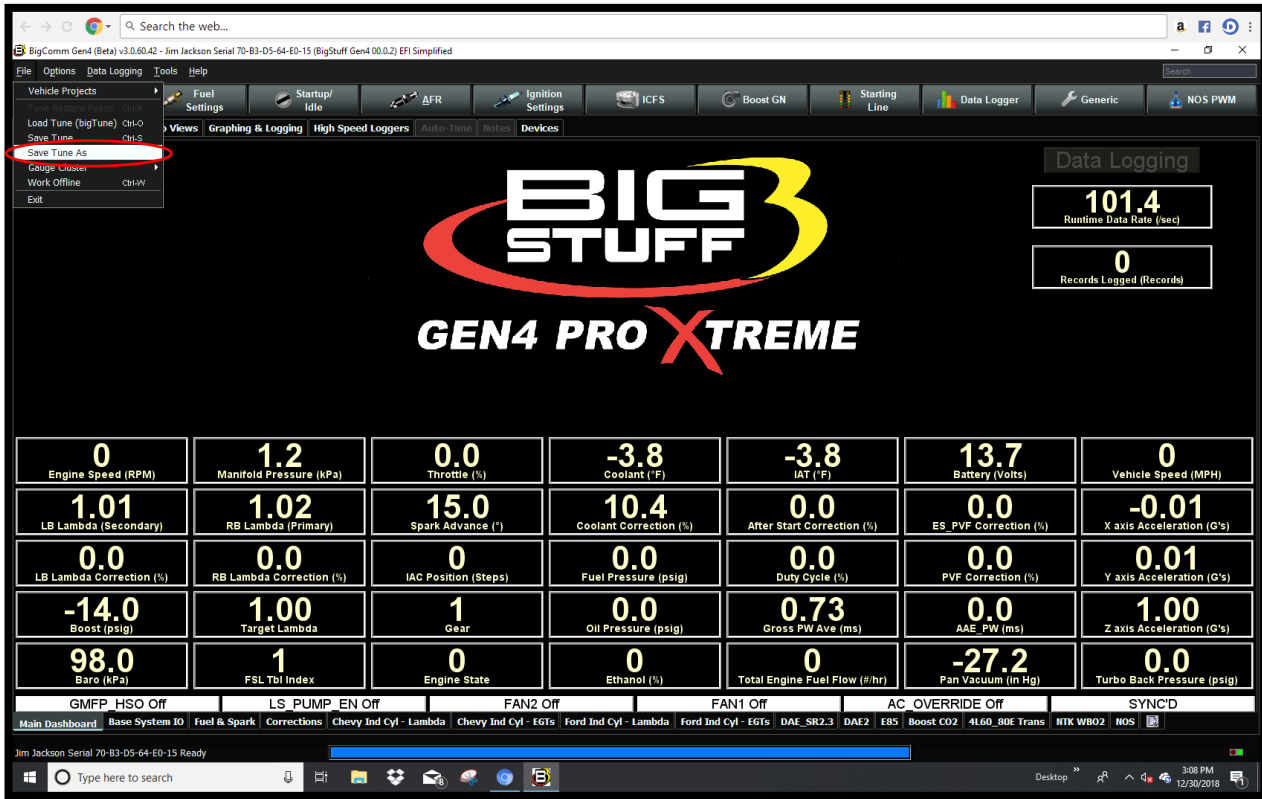
The next necessary step is to save the calibration file, also known as “Tune”, included with the GEN4 PRO XTREME ECU, into the initial Project. This is covered in Steps 5.0 thru 5.5 below.

STEP 5.0 - Save the calibration file, also known as “Tune”, included with the GEN4 PRO XTREME ECU into the initial Project

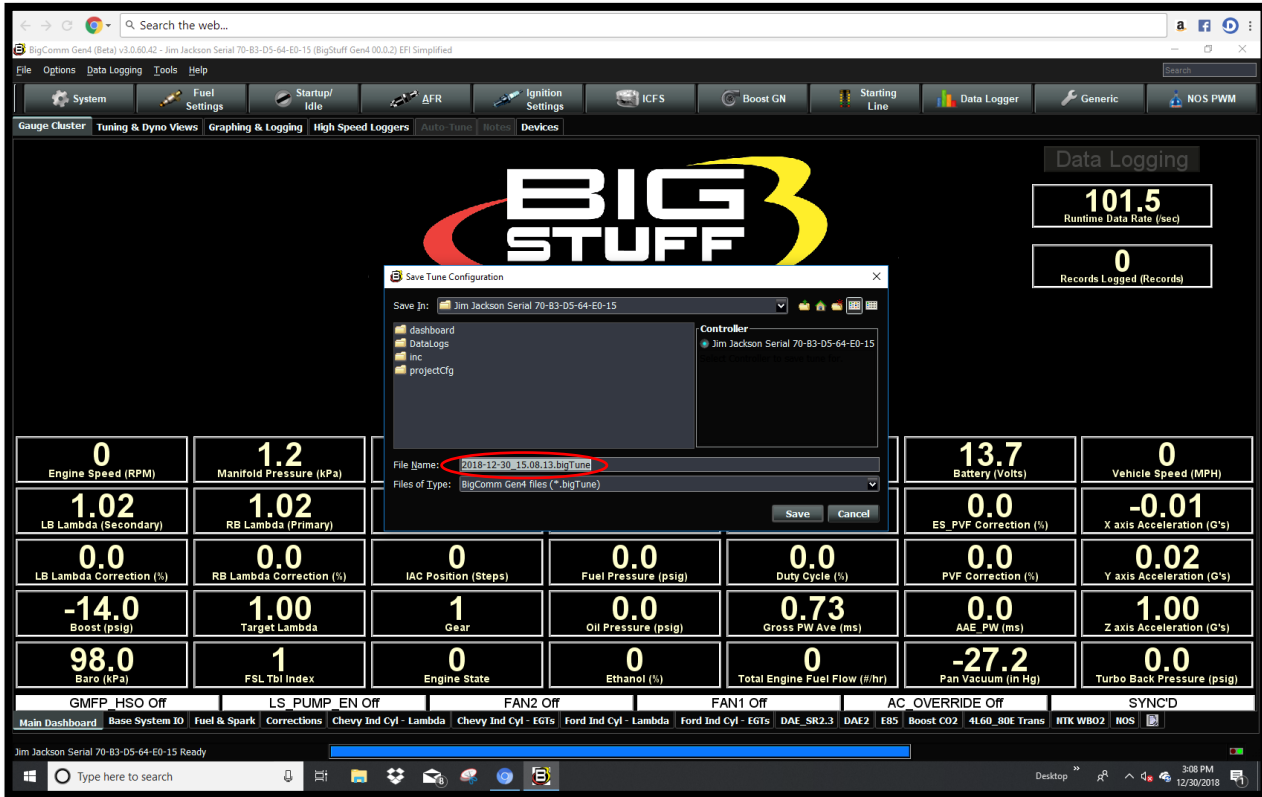
Step 5.1 - It is necessary to save the calibration file, also known as “Tune”, included with the GEN4 PRO XTREME ECU into the initial Project. This is straight forward and initiated by highlighting and left mouse clicking on File in the upper left hand-hand corner of the BCP software tool bar as shown below.



Step 5.2 - Once **File** is selected in Step 5.1, a drop-down window will open. Once opened, highlight and left mouse click on **Save Tune As** as shown below.

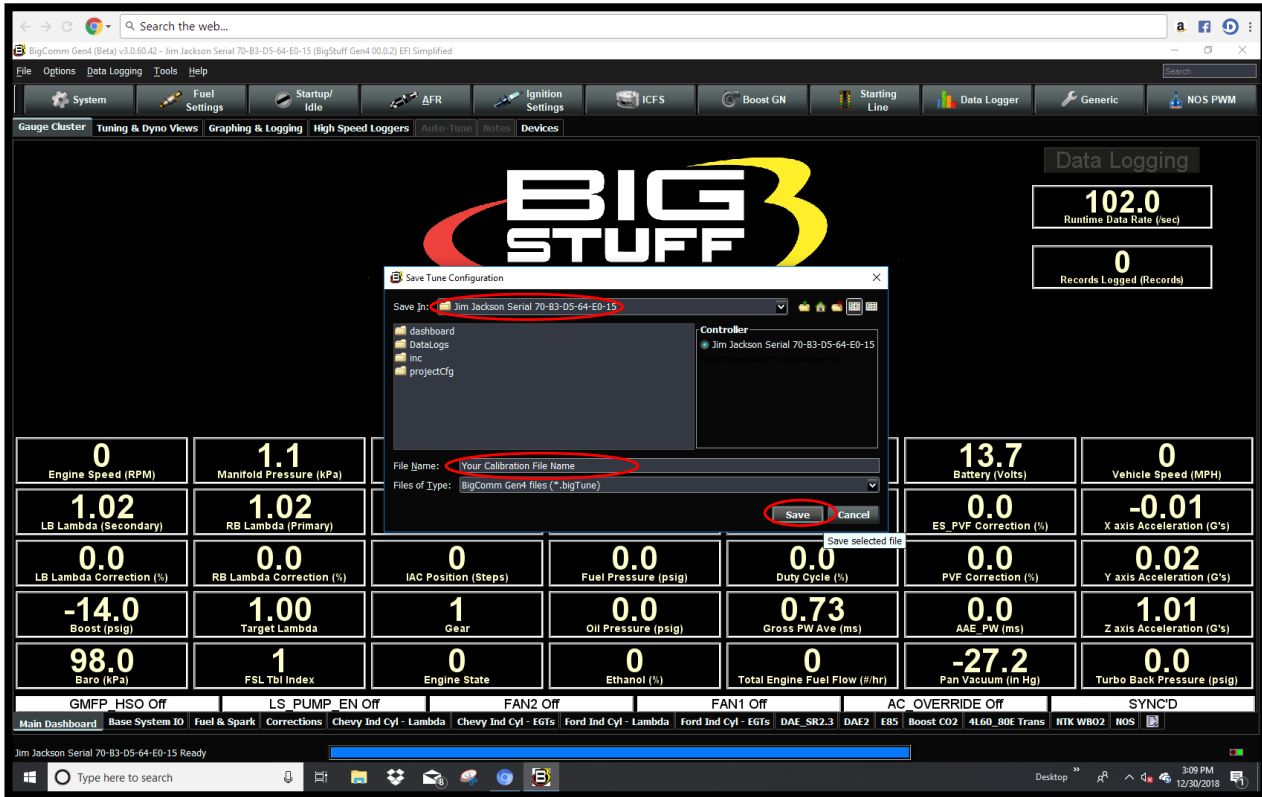


Step 5.3 - Once **Save Tune As** is selected in Step 5.2, a **Save Tune Configuration** dialogue window will open as shown below. Once opened, you will see a BCP File Name automatically assigned to the calibration file as shown below. The automatically assigned calibration file name for this example is **2018-12-30_15.08.13.bigTune**, which is the date and time the calibration file is saved.

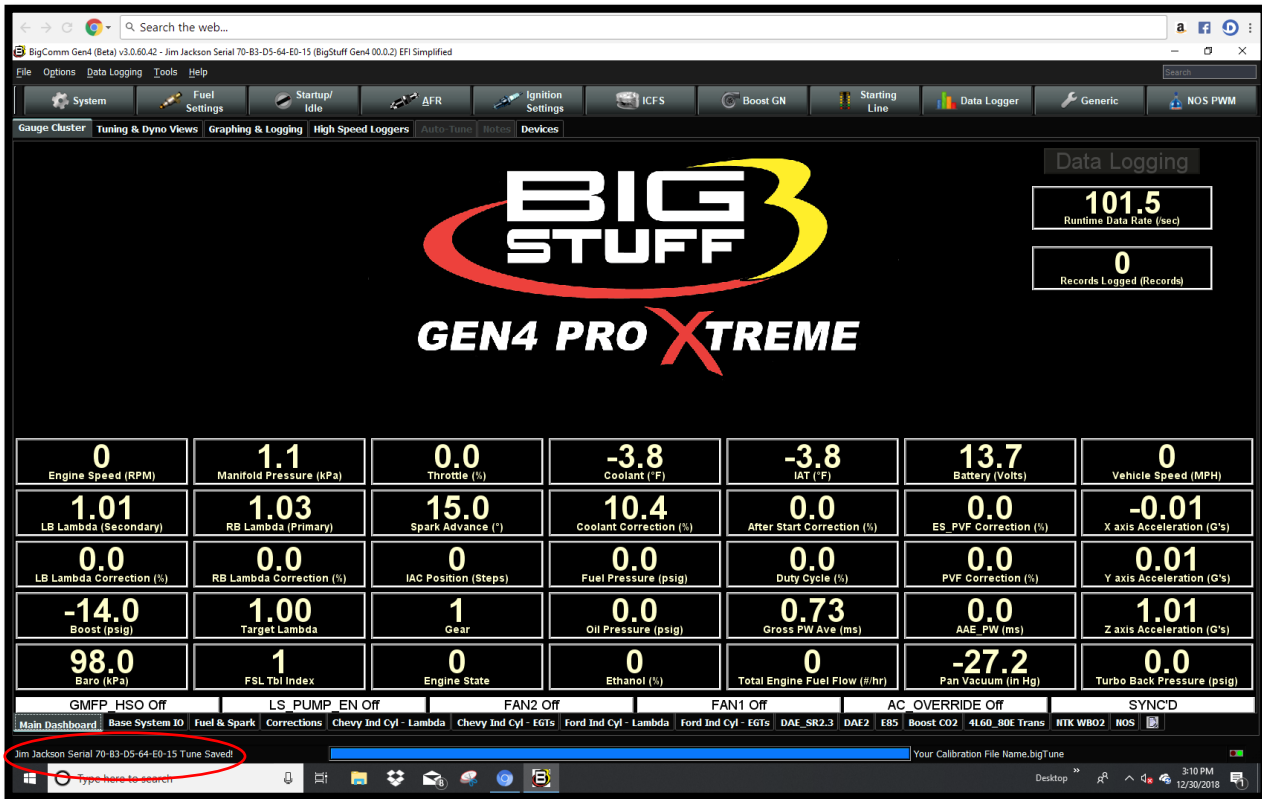


Step 5.4 - You can overwrite the automatically assigned calibration File Name with a naming convention of your choice by highlighting and typing a file name over the automatically assigned BCP software File Name. For this example, the calibration File Name is **Your Calibration File Name**.

Once the new calibration File Name is typed in, left mouse click on Save. Once Save is selected the BCP software will automatically add the **.bigTune** suffix to the file name while saving the calibration file into the Project file associated with the GEN4 PRO XTREME ECU currently connected to the PC running the BCP software. For this example, the calibration file will be saved into the **Jim Jackson Serial 70-B3-D5-64-E0-15** Project File.



Step 5.5 – Once **Save** is selected in Step 5.4, the following BCP window will open showing the **Jim Jackson Serial 70-B3-D5-64-E0-15 Tune Saved!** message in the lower left-hand corner of the BCP window as shown below.



That’s it... You’re now communicating online via a wired Ethernet connection between the PC running the BCP software and GEN4 PRO XTREME ECU with the initial Project loaded and calibration saved into the GEN4 ECU.

Granted, the GEN4 PRO XTREME “Initial Setup” for Wired Ethernet seems to take quite a few steps. Fortunately, subsequent connections are straight forward and only require the following steps;

1. Make sure the CAT6a shielded Ethernet cable is connected between the GEN4 PRO XTREME ECU’s RJ45 Ethernet port and the RJ45 Ethernet port on the PC running the BCP software.
 - a. If using the MikroTik hAP ac lite wireless router as a Wired Ethernet Network, make sure the CAT6a shielded Ethernet cables are connected between;
 - i. One of the MikroTik hAP ac lite’s RJ45 Ethernet LAN ports and the GEN4 PRO XTREME ECU’s RJ45 Ethernet port.
 - ii. One of the MikroTik hAP ac lite’s RJ45 Ethernet LAN ports and the RJ45 Ethernet port on the PC running the BCP software.
2. Power up GEN4 PRO XTREME ECU (+12V Switch Ignition and VBATT (+) & (-)).
3. Once GEN4 PRO XTREME ECU’s Orange LED begins flashing, open the BCP software and select Connect to establish online communication with the appropriate GEN4 PRO XTREME ECU.

Key Note: You must go through a +12V switched ignition key cycle (key on/off/on) in order to establish online communication with a different GEN4 PRO XTREME ECU!

13. BigComm Pro Software Download & “Wireless Ethernet” Connection Overview

[Back to BigComm Pro Software Download & Wireless Ethernet Connection](#)

The GEN4 PRO XTREME system can be configured to operate on almost any engine configuration, normally aspirated; nitrous oxide injected, supercharged and turbocharged applications! The BigComm Pro software is designed to measure, calibrate and record the engine parameters and acts as the graphical user interface between the GEN4 PRO XTREME ECU and the engine it is installed on. The BigComm Pro software allows the user extraordinary fuel, ignition and power management system tunability for improved performance and drivability.

The BigComm Pro software allows full user access to all of the tables needed to calibrate the GEN4 PRO XTREME system. Calibrations can be modified both “on-line” and “off-line”. The engine control tables in the GEN4 PRO XTREME ECU are stored in non-volatile memory, allowing for the stored information not to be lost when power to the ECU is removed.

As already mentioned, the GEN4 PRO XTREME system implements an industry first high-speed Ethernet communication and topology to enable wired and wireless communication and real-time closed loop WBO2 feedback on a per cylinder basis. This section of the instructions will detail how to download the BigComm Pro software and establish a “Wireless Ethernet” connection with the GEN4 PRO XTREME ECU or a WiFi connection.

NOTE: Many of the Section 13 instruction are being repeated relative to the Section 12 for the purposes of continuity between this instruction manual and the individual GEN4 PRO XTREME Initial Setup Instructions for “Wired Ethernet” and “Wireless Ethernet” instructions located on the BigStuff3 website.

The following Instructions explain how to;

- (1) Download the GEN4 PRO XTREME BigComm Pro (BCP) software onto a PC
- (2) Establish a wireless Ethernet connection between PC running the BCP software and GEN4 PRO XTREME ECU
- (3) Activate the BCP and GEN4 PRO XTREME ECU interface to enable BCP software to create an initial Project
- (4) Connect to the GEN4 PRO XTREME ECU to establish online wireless Ethernet communication
- (5) Save the calibration file, included with the GEN4 PRO XTREME ECU, into the initial Project

Once these 5 steps are completed you will be communicating online via a wireless Ethernet connection between the PC running the BCP software and GEN4 PRO XTREME ECU with the initial Project loaded and calibration saved into the GEN4 ECU.

Below are key considerations for each of the GEN4 PRO XTREME Initial Setup Instruction steps.

Step 1.0 - Download the GEN4 PRO XTREME (BCP) software from www.bigcommpro.com website onto a PC

- An internet connection needs to be established with the PC that the BCP software will be downloaded onto.
- **Step 1 assumes “offline” communication i.e. PC is not connected to the GEN4 PRO XTREME wireless Ethernet network.**
- The BCP software download package includes an example Project containing a demo calibration and preconfigured Dashboards and Tuning Tabs to help get you acquainted with the PCB software offline.

The minimum computer requirements to run the BigComm Pro software are:

- Microsoft Windows XP, Vista, 7, 8, 10, OSX 10.6+, & Linux
- 1.6 GHz Intel Core i5
- 8GB of RAM. Ideally, 16+ GB RAM
- RJ45 Ethernet port recommended. A USB port can also be used with a USB-to-RJ45 Ethernet adapter (not included).

Step 2.0 - Establish a wireless connection between PC running BCP software & GEN4 wireless network

- **The GEN4 PRO XTREME ECU can be connected directly to a PC by Wired Ethernet Networks OR by optional Wireless Ethernet Networks using Wireless Routers. The optional Wireless Ethernet Network configurations are covered in these instructions. The Wired Ethernet Networks are the default configurations and are covered in a separate GEN4 PRO XTREME Initial Setup Instructions for “Wired Ethernet”.**
- There are (2) GEN4 Wireless Ethernet Network options to choose from:
 - The GEN4 PRO XTREME “**In-Vehicle**” Wireless Ethernet Network uses a GLiNet router powered by a 5V/1A DC source. The In-Vehicle Wireless Ethernet Network provides a flexible, portable solution and is intended for “non-Race Car” GEN4 PRO XTREME applications. (See Wireless Ethernet Network 1 configuration for “In-Vehicle” applications on page 92).
 - The GEN4 PRO XTREME “**Race Car**” Wireless Ethernet Network uses a MikroTik hAP ac lite router powered by a 10-28V DC source. The Race Car Wireless Ethernet Network provides a flexible, permanently installed solution and is intended for Race

Car and Dyno GEN4 PRO XTREME applications. (See Wireless Ethernet Network 2 configuration for “Race Car” & Dyno applications on page 93).

- Please note, the GEN4 PRO XTREME “Race Car” Wireless Ethernet Network, using the MikroTik hAP ac lite router, can be converted to a Wired Ethernet Network by connecting a CAT6a Shielded Ethernet cable between one of the NETGEAR router’s RJ45 LAN ports and the GEN4 PRO XTREME ECU’s RJ45 port. Further details are covered in Section 12.
- Once a wireless connection has been established between the PC running the BCP software and either of the above Wireless Ethernet Network options, the 5’ CAT6a shielded Ethernet cable needs to be connected between the wireless router’s RJ45 LAN port and GEN4 ECU’s RJ45 port. Once connected, the GEN4 ECU needs to be powered on (VBATT & +12V switched Ignition) in order to establish online communication.

STEP 3.0 - Activate the BCP and GEN4 PRO XTREME ECU interface to enable BCP software to create an initial Project

- Step 3 assumes Steps 1 & 2 have been completed.
- The first step of Step 3 is to open the BCP software from the PC’s desktop.
- The BCP software & GEN4 PRO XTREME ECU interface needs to be activated by entering the end user name and contact information.
- The BCP software uses the activation information along with the Serial Number (MAC ID) of the GEN4 PRO XTREME ECU connected to the PC running the BCP software to create an initial Project*.
- **STEP 3.0 is only required when connecting between a PC running the BCP software and GEN4 PRO XTREME ECU for the first time.**

* A Project is a universal BCP file that contains all pertinent calibration data & files as well as preconfigured Dashboards, Tuner Tabs and Datalog Tabs associated with a particle GEN4 PRO XTREME ECU application.

STEP 4.0 - Connect to the GEN4 PRO XTREME ECU to establish online wireless Ethernet communication

- Online wireless Ethernet communication is established between the BCP software running on the PC and GEN4 PRO XTREME ECU.
- The calibration file included with the GEN4 PRO XTREME ECU is uploaded into the BCP software.

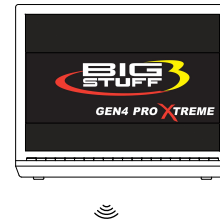
STEP 5.0 - Save the calibration file, also known as “Tune”, included with the GEN4 PRO XTREME ECU, into the initial Project

- **It is necessary to save the calibration file, also known as “Tune”, included with the GEN4 PRO XTREME ECU, into the initial Project.**

Wireless Ethernet Network 1 configuration for “In-Vehicle” applications

Step 1:

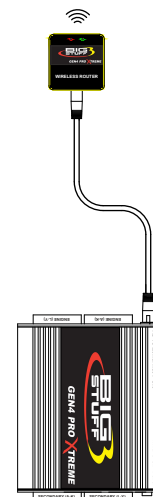
Step 1.0 thru 1.18 - Download GEN4 PRO XTREME BigComm Pro (BCP) software from the www.bigcommpro.com website onto a PC.
 (Step 1 Assumes offline communication)



Step 2:

Step 2.0 thru 2.9 - Establish wireless connection between PC running BCP software & GEN4 Wireless Network using yellow GLiNet wireless router for “**In-Vehicle**” applications.

Note: See detailed [GEN4 PRO XTREME Wireless Ethernet Network 1 configuration for “In-Vehicle” applications on page 92.](#)

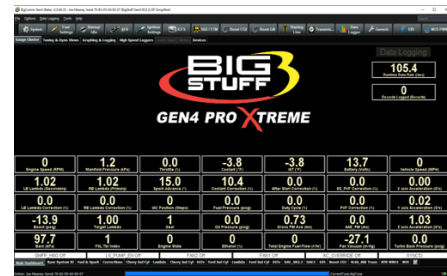


Step 3:

Step 3.0 thru 3.6 - Activate BCP and GEN4 PRO XTREME ECU interface to enable BCP software to create an initial Project.

Step 4:

Step 4.0 thru 4.2 - Connect to the GEN4 PRO XTREME ECU to establish online wireless Ethernet communication.



Step 5:

Step 5.0 thru 5.5 - Save calibration, aka “Tune”, provided with the GEN4 PRO XTREME ECU into the initial Project.

Wireless Ethernet Network 2 configuration for “Race Car” & Dyno applications

Step 1:

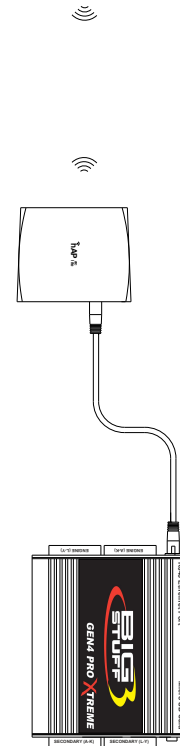
Step 1.0 thru 1.18 - Download GEN4 PRO XTREME BigComm Pro (BCP) software from the www.bigcommpro.com website on a PC. (Step 1 Assumes offline communication)



Step 2:

Step 2.0 thru 2.9 - Establish wireless connection between PC running BCP software & GEN4 Wireless Network BCP using MikroTik hAP ac lite wireless router for “**Race Car**” and **Dyno** applications.

Note: See detailed [GEN4 PRO XTREME Wireless Ethernet Network 2 configuration for “Race Car” and Dyno applications on page 93.](#)



Step 3:

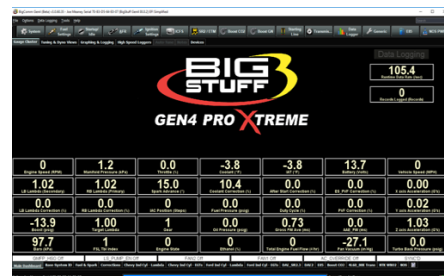
Step 3.0 thru 3.6 - Activate BCP and GEN4 PRO XTREME ECU interface to enable BCP software to create an initial Project.

Step 4:

Step 4.0 thru 4.2 - Connect to the GEN4 PRO XTREME ECU to establish an online wireless communication.

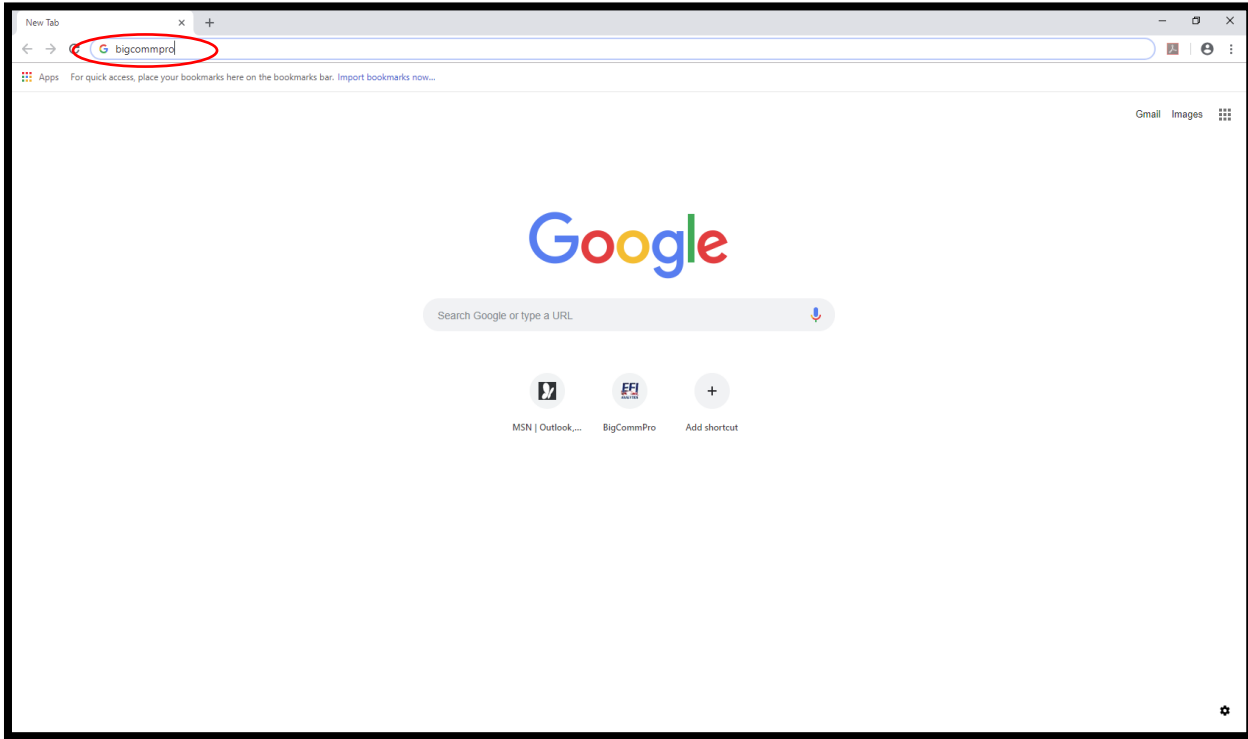
Step 5:

Step 5.0 thru 5.5 - Save calibration, aka “Tune”, provided with the GEN4 PRO XTREME ECU into the initial Project.

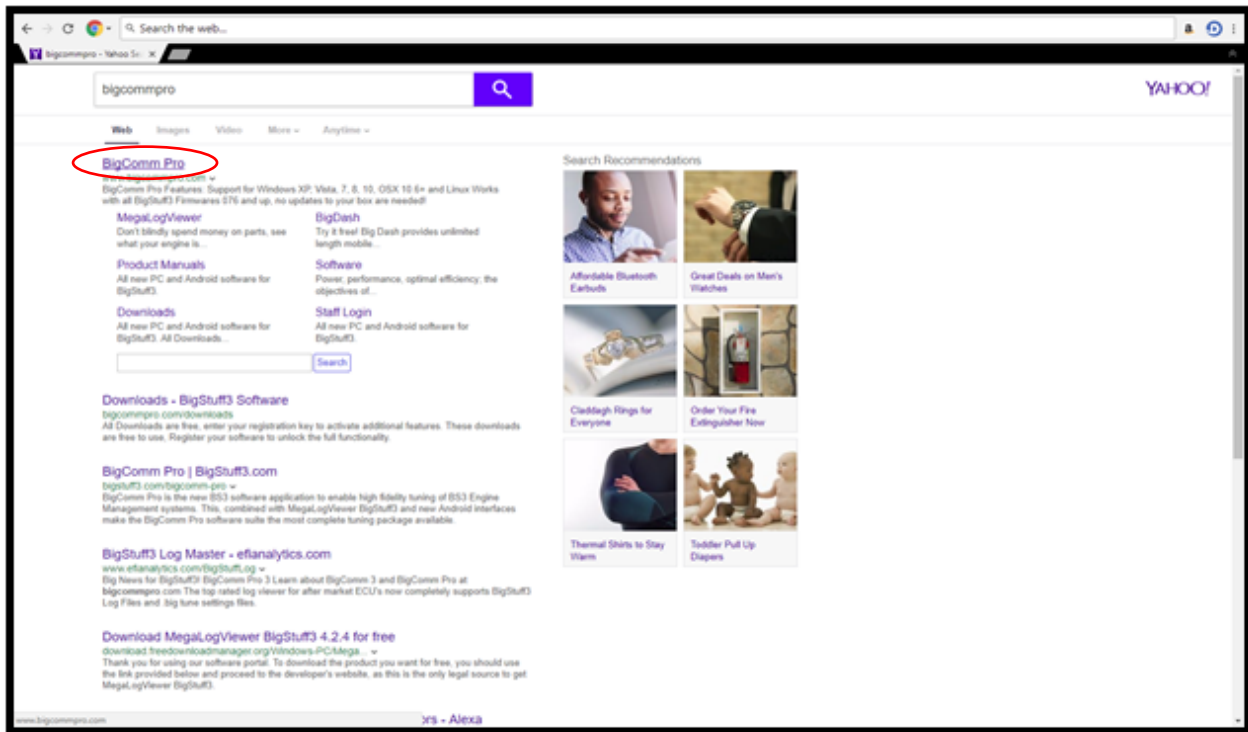


Step 1.0 - Download GEN4 PRO XTREME BigComm PRO (BCP) Software from the www.bigcommpro.com website onto a PC

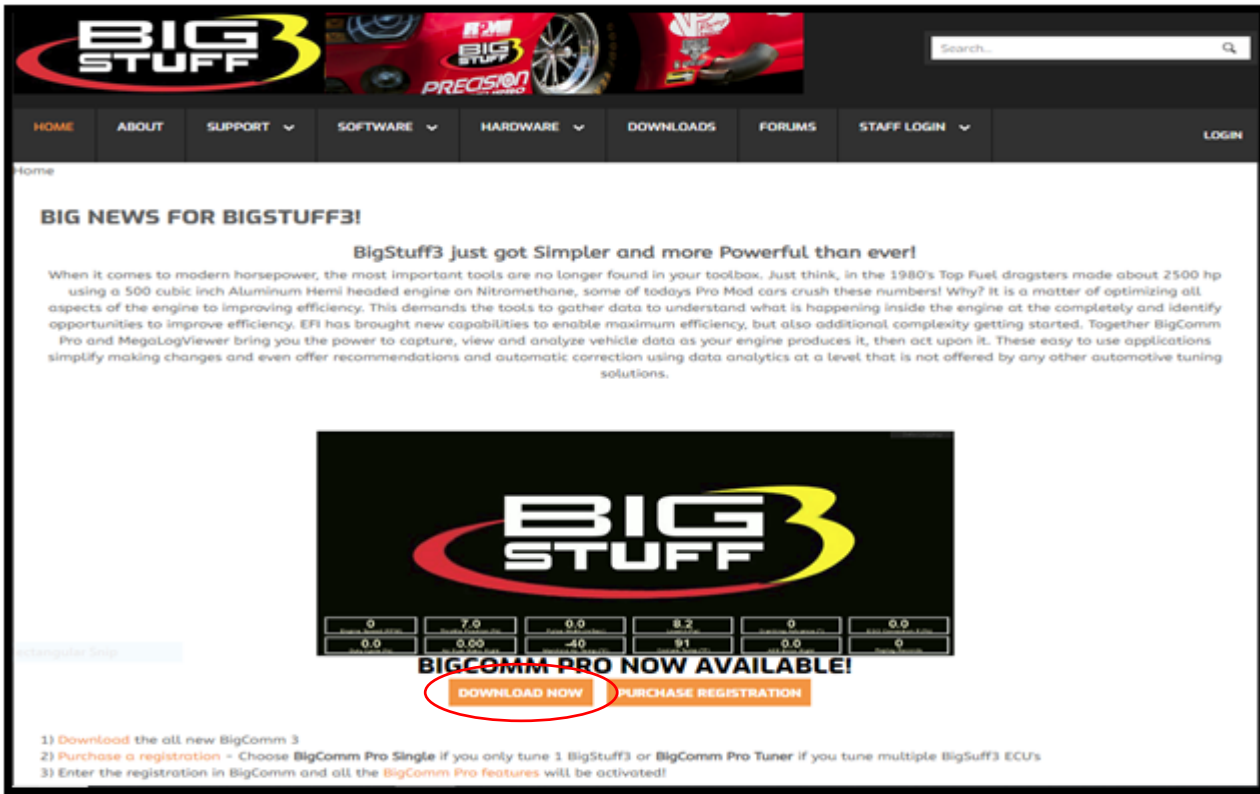
Step 1.1 - With the PC connected to the internet, type **bigcommpro into the web browser and hit enter. At this point, the PC should not be connected to the GEN4 PRO XTREME wireless network.**



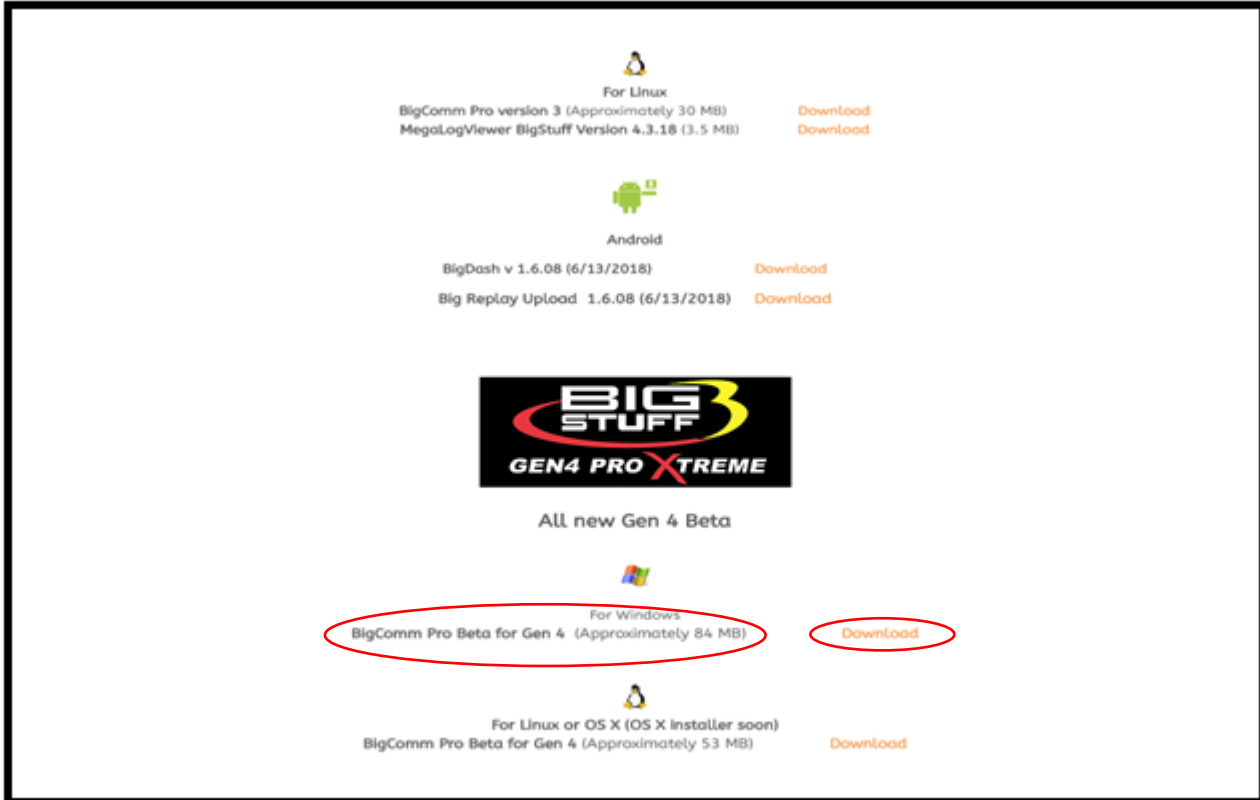
Step 1.2 - Select BigComm Pro.



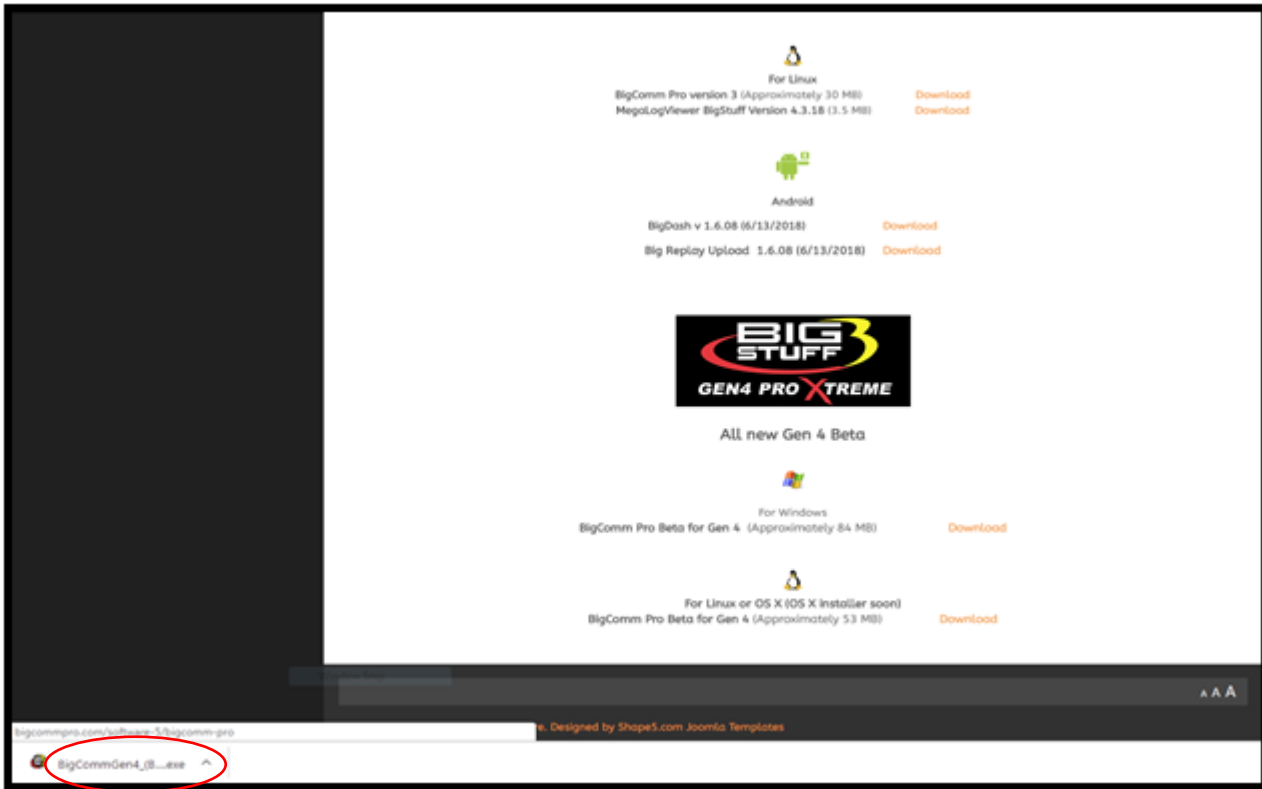
Step 1.3 - Once the www.bigcommpro.com home page opens, select **DOWNLOAD NOW**.



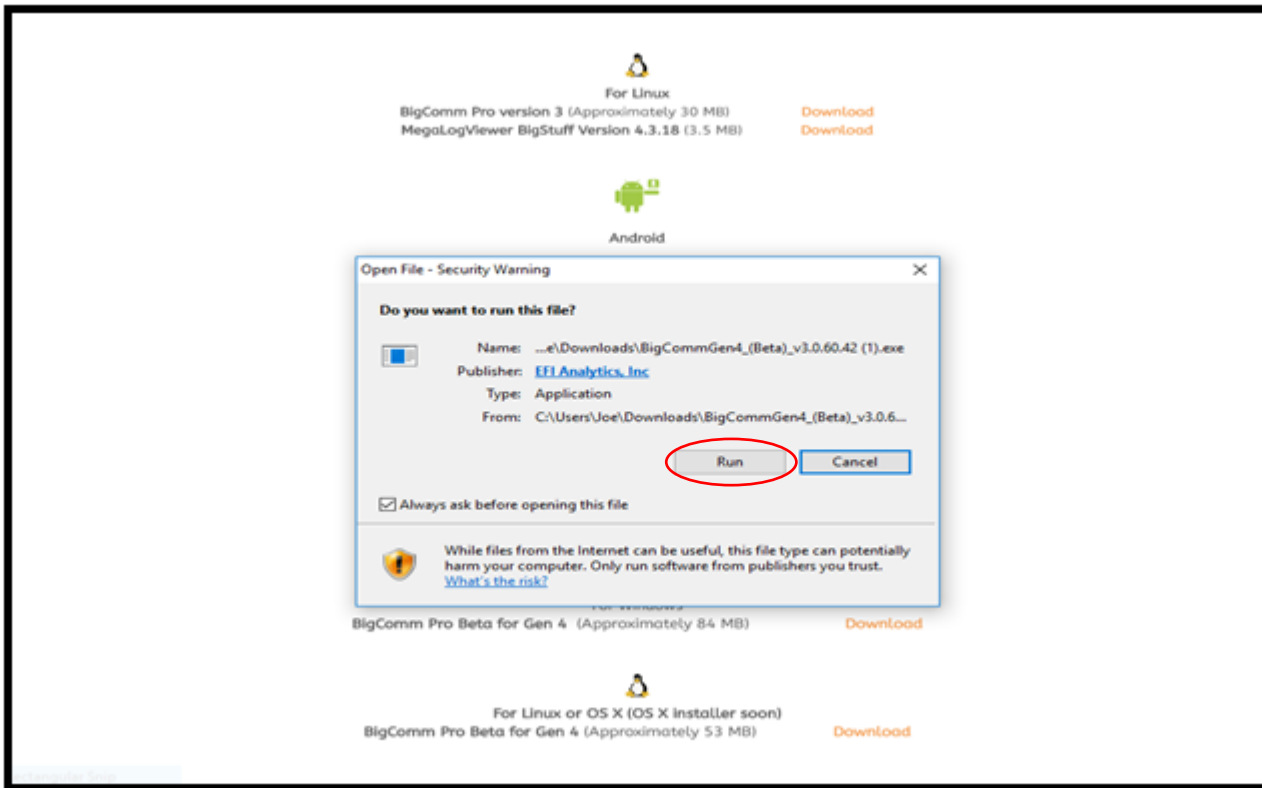
Step 1.4 - Download the **BigComm Pro Beta for Gen 4** by selecting **Download**.



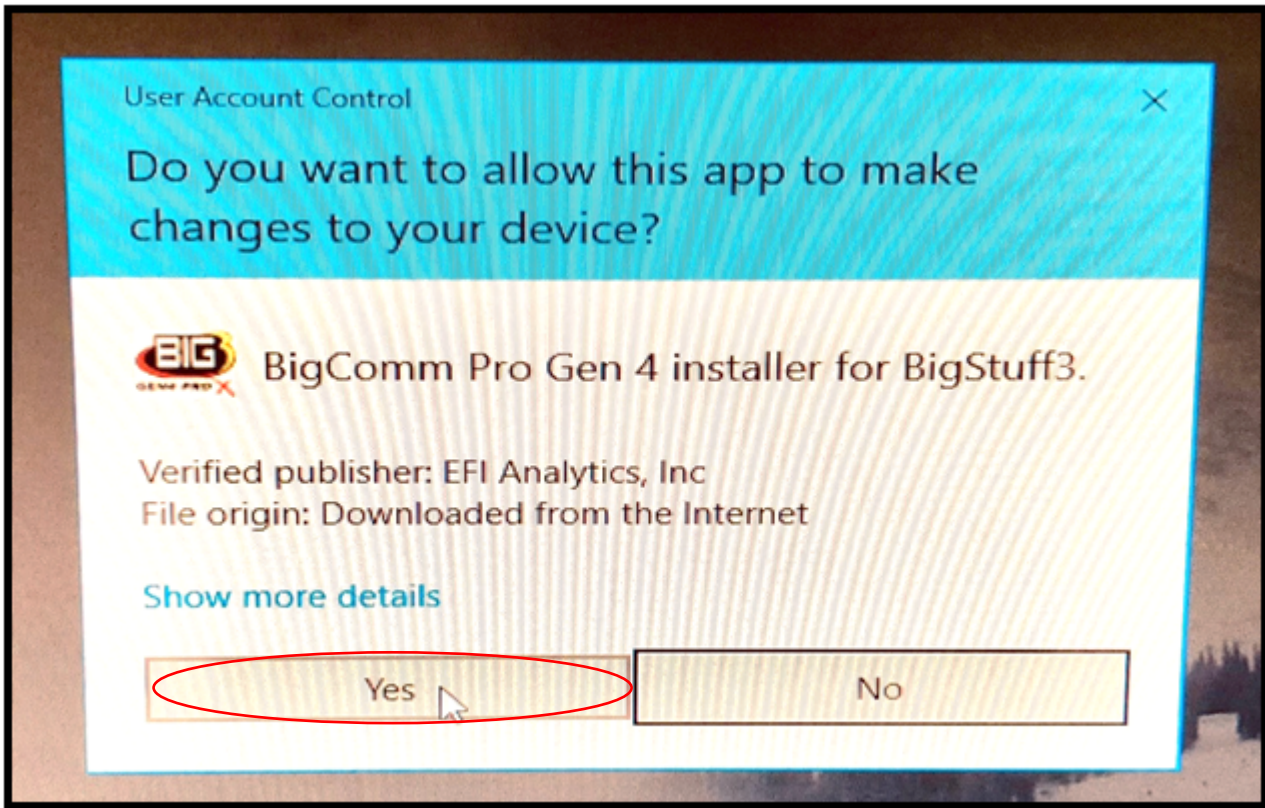
Step 1.5 - Once the **BigCommGen4** executable has completed downloading (84 MB), select it from the lower left-hand corner of the screen.



Step 1.6 - Select Run.



Step 1.7 - Select Yes.



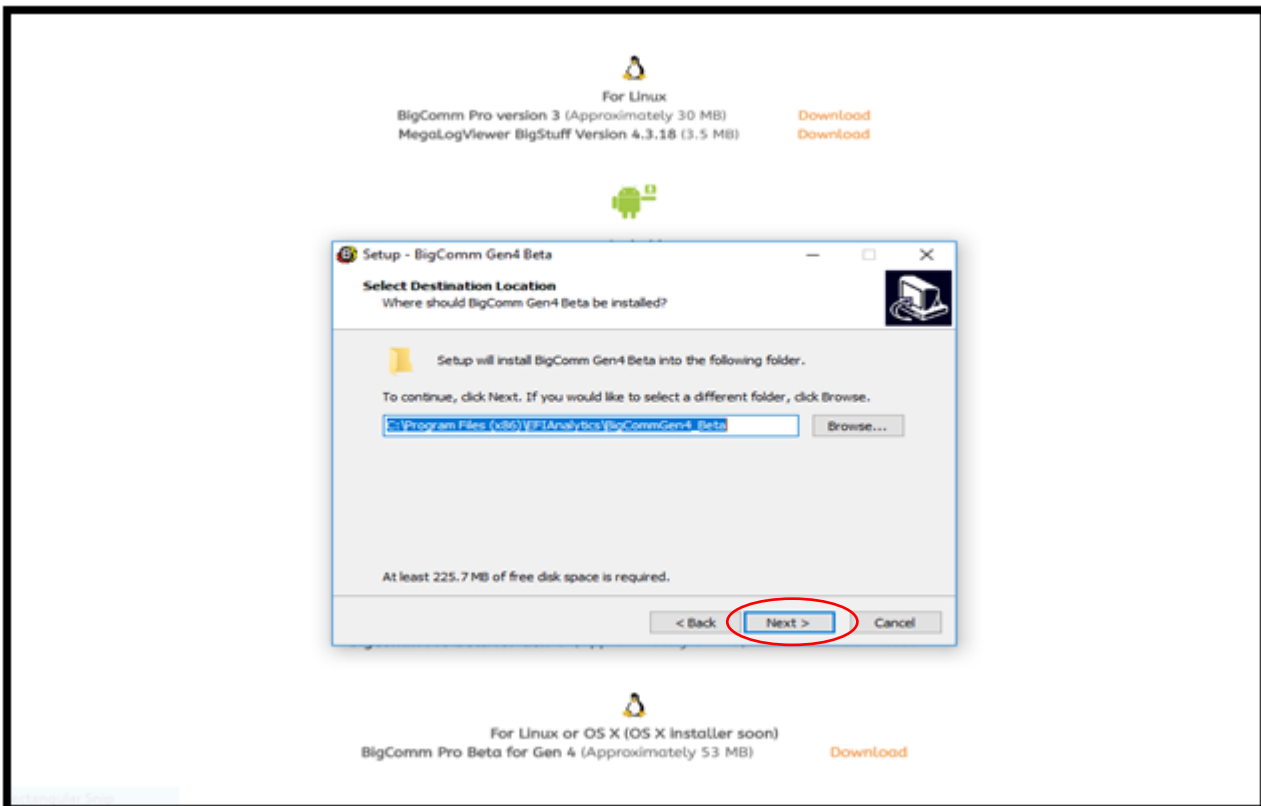
Step 1.8 - Select Next >.



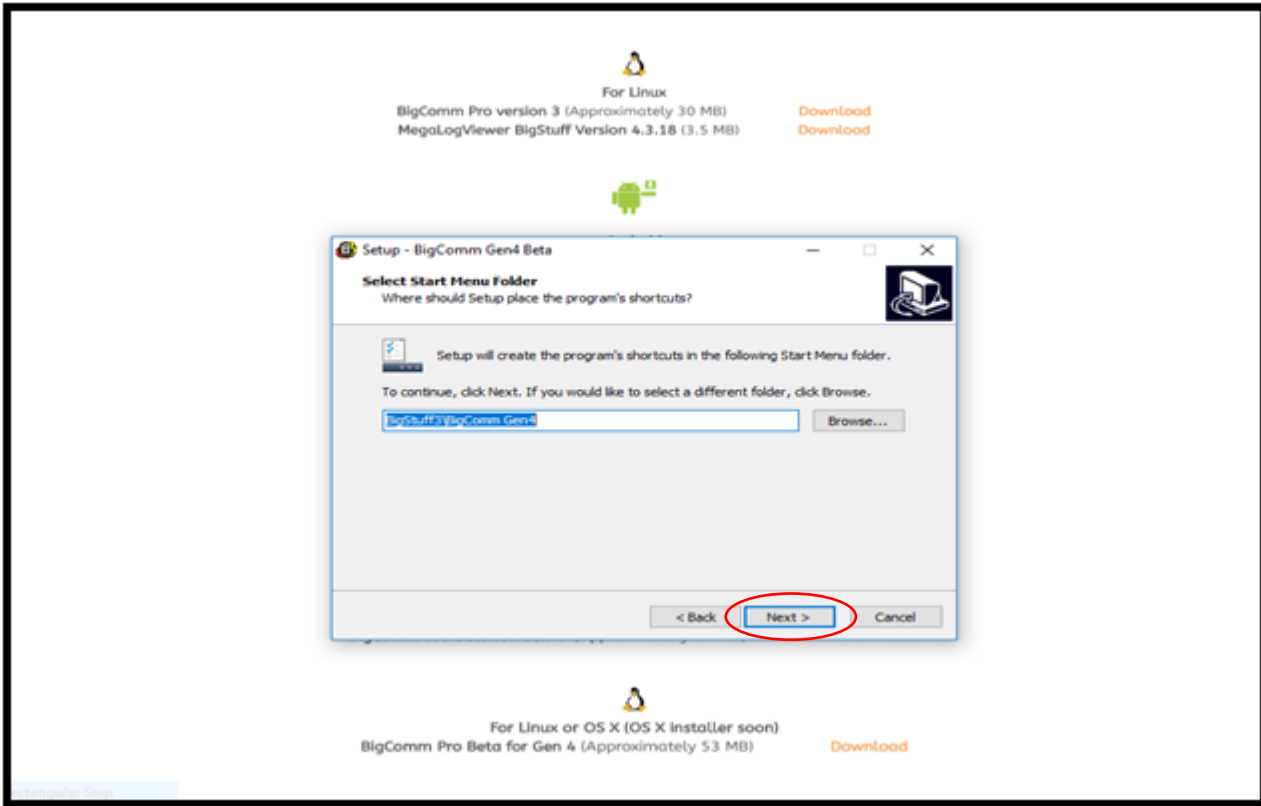
Step 1.9 - Select "I accept the agreement" and then select Next >.



Step 1.10 - Select Next >



Step 1.11 - Select Next >.



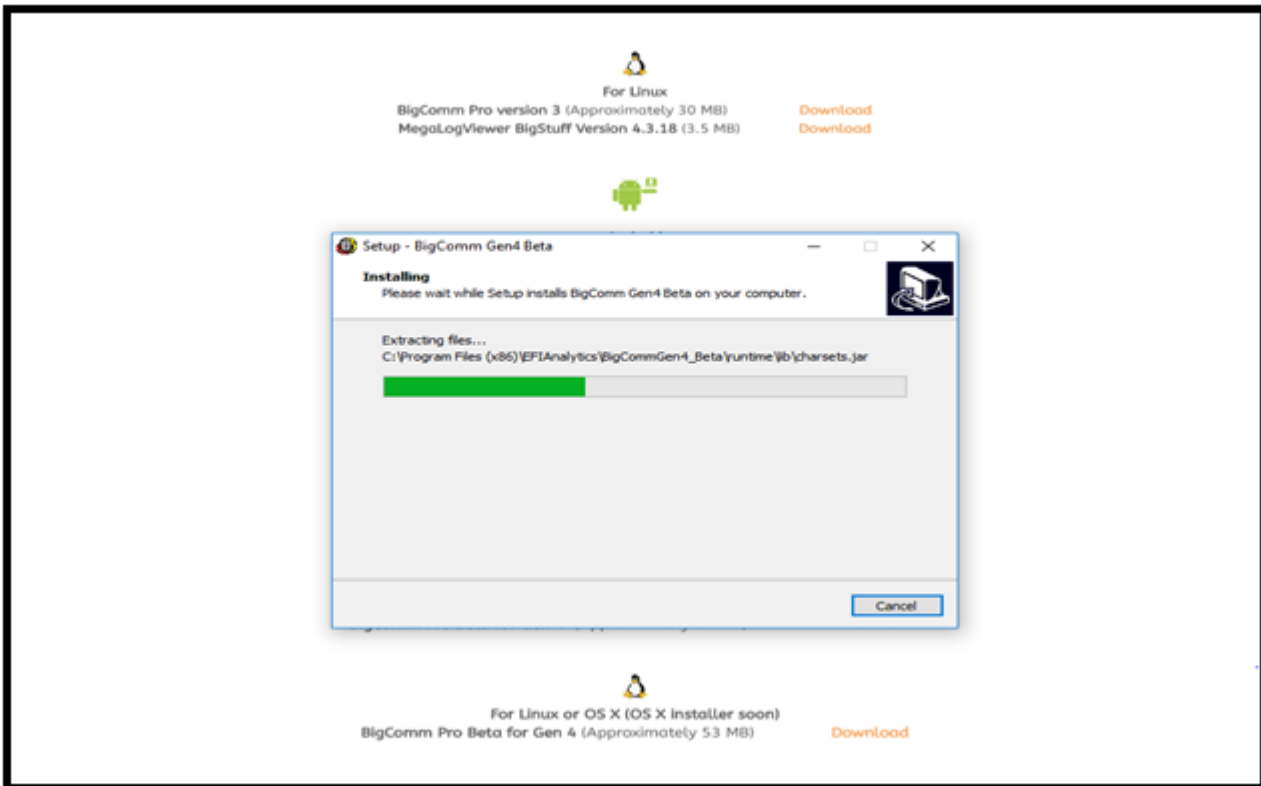
Step 1.12 - Check the "Create a desktop icon" box and then select Next >.



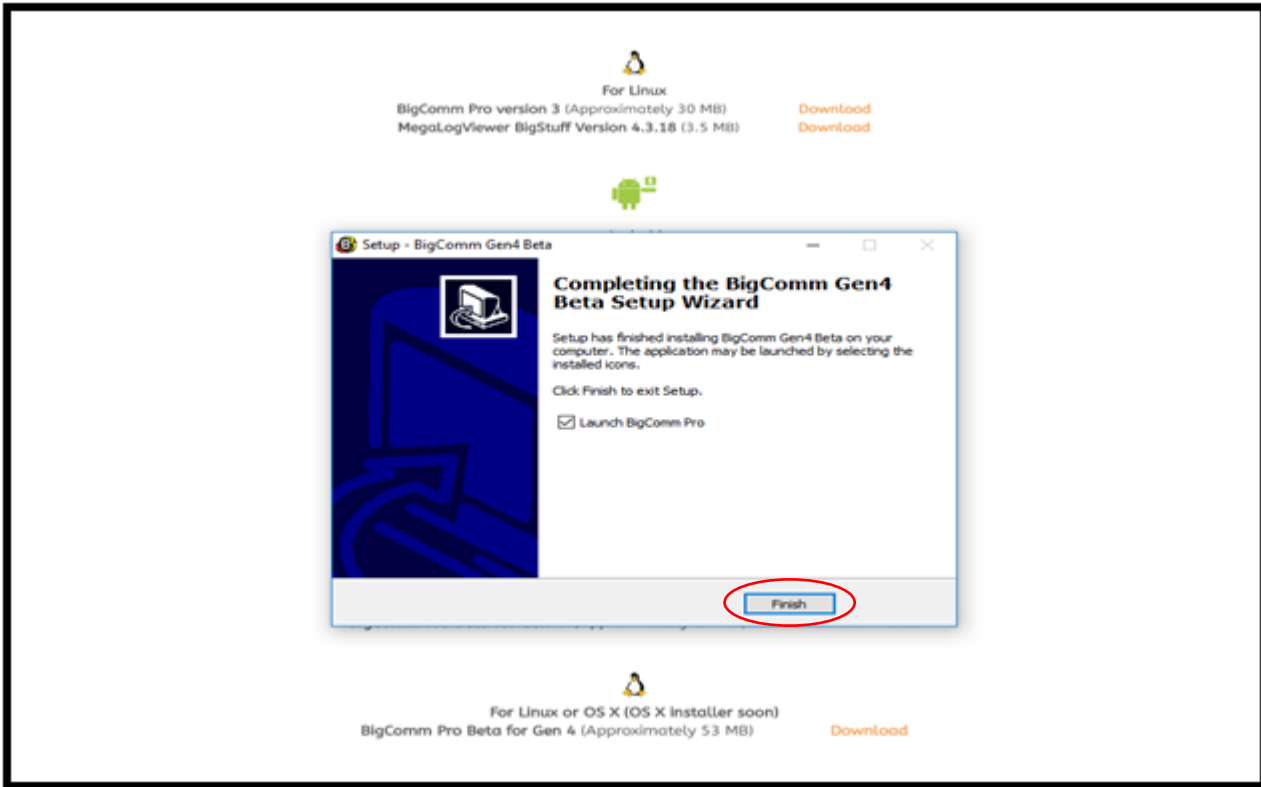
Step 1.13 - Select Install.



Step 1.14 - After selecting **Install from Step 1.13, a status bar will appear showing the progress of the BigComm Pro (BCP) GEN4 software download to your PC.**



Step 1.15 - Select Finish.



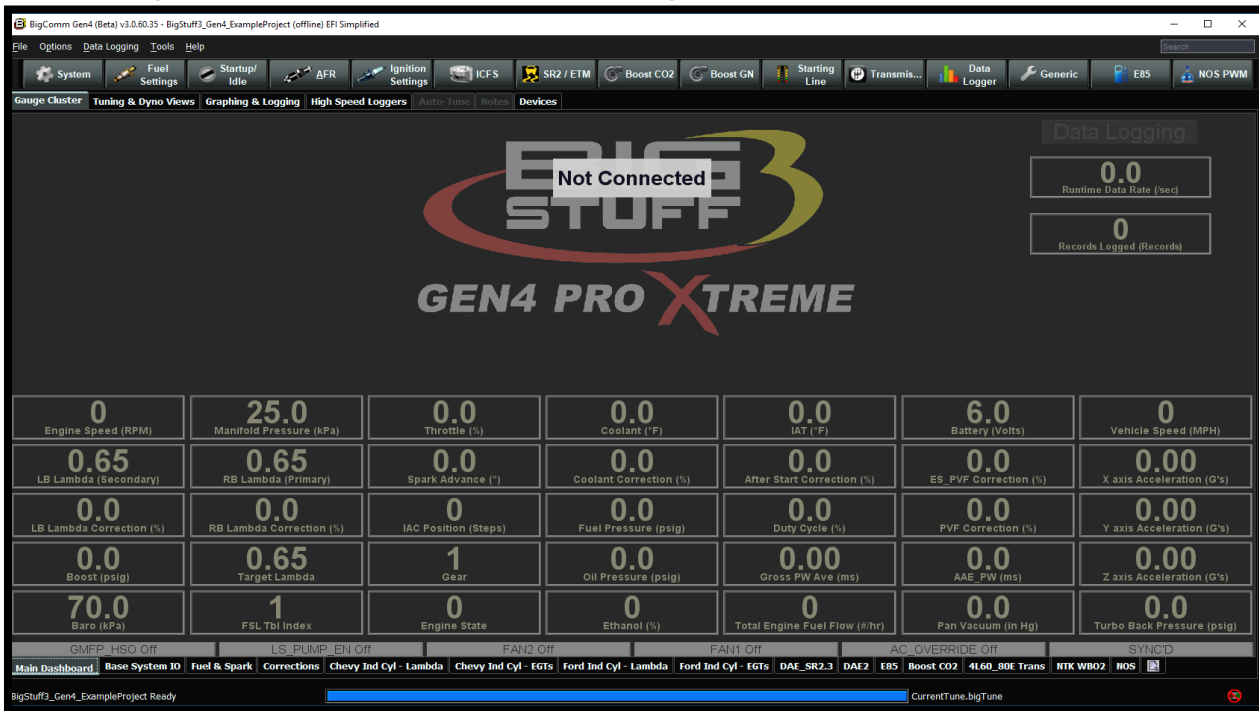
Step 1.16 - After selecting **Finish** from Step 1.15, after a slight pause, the GEN4 PRO XTREME graphic screen will appear momentarily.



Step 1.17 - After another slight pause, the following GEN4 PRO XTREME software window will open. At this point, the software is running on your PC and you can work offline with an example Local Project: **BigStuff3_Gen4_ExampleProject** by selecting **Work offline**. The example Local Project contains a demo calibration, preconfigure dashboards and tuning tabs and **should only be used offline**.



Step 1.18 - After selecting **Work offline** from Step 1.17, the following **Main Dashboard** window will open. Now would be a great time to navigate the GEN4 PRO XTREME BigComm Pro software to get acquainted with it before establishing an “online” connection.



Step 2.0 - Establish a wireless connection between PC running BCP software & GEN4 wireless network

The communication between the BigComm Pro (BCP) GEN4 software running on a PC and GEN4 PRO XTREME ECU is based on a Wireless Ethernet connection. Online wireless Ethernet communication between the PC running the BCP software and GEN4 PRO XTREME ECU can be established once the following Wireless Ethernet Network connections are made:

For the **Wireless Ethernet Network 1 Configuration for “In-Vehicle” applications:**

- The Micro USB/USB2.0 Power Cable is connected between the GEN4 PRO XTREME GLiNet In-Vehicle Wireless Router’s Micro USB Power port and either;
 - the USB2.0 port on the PC **or**
 - the Dual 5V/2.4A USB2.0 Car Charger installed into the vehicle’s 12 VDC power accessory port (“cigarette lighter”) **or**
 - the stand-alone universal 5V/1A power pack.
- The 5’ CAT6a Ethernet cable is connected between the GEN4 PRO XTREME Wireless Router’s RJ45 Ethernet LAN port and GEN4 PRO XTREME ECU’s RJ45 Ethernet port. (See the GEN4 PRO XTREME Wired Ethernet Network 1 Configuration for “In-Vehicle” applications on page 92).
- Once the GEN4 PRO XTREME GLiNET wireless router is connected to a 5VDC power source, the right-side green LED (above the “G” in BIG) will illuminate to indicate it is powered on. After a short period of time, the left-side red LED (above the “B” in BIG) will illuminate to indicate a wireless connection can now be established. Once a wireless connection is established the red LED will begin to flicker. Once the Wireless Ethernet online communication between the PC running the BCP software and GEN4 PRO XTREME ECU is established the red LED will begin to flash.

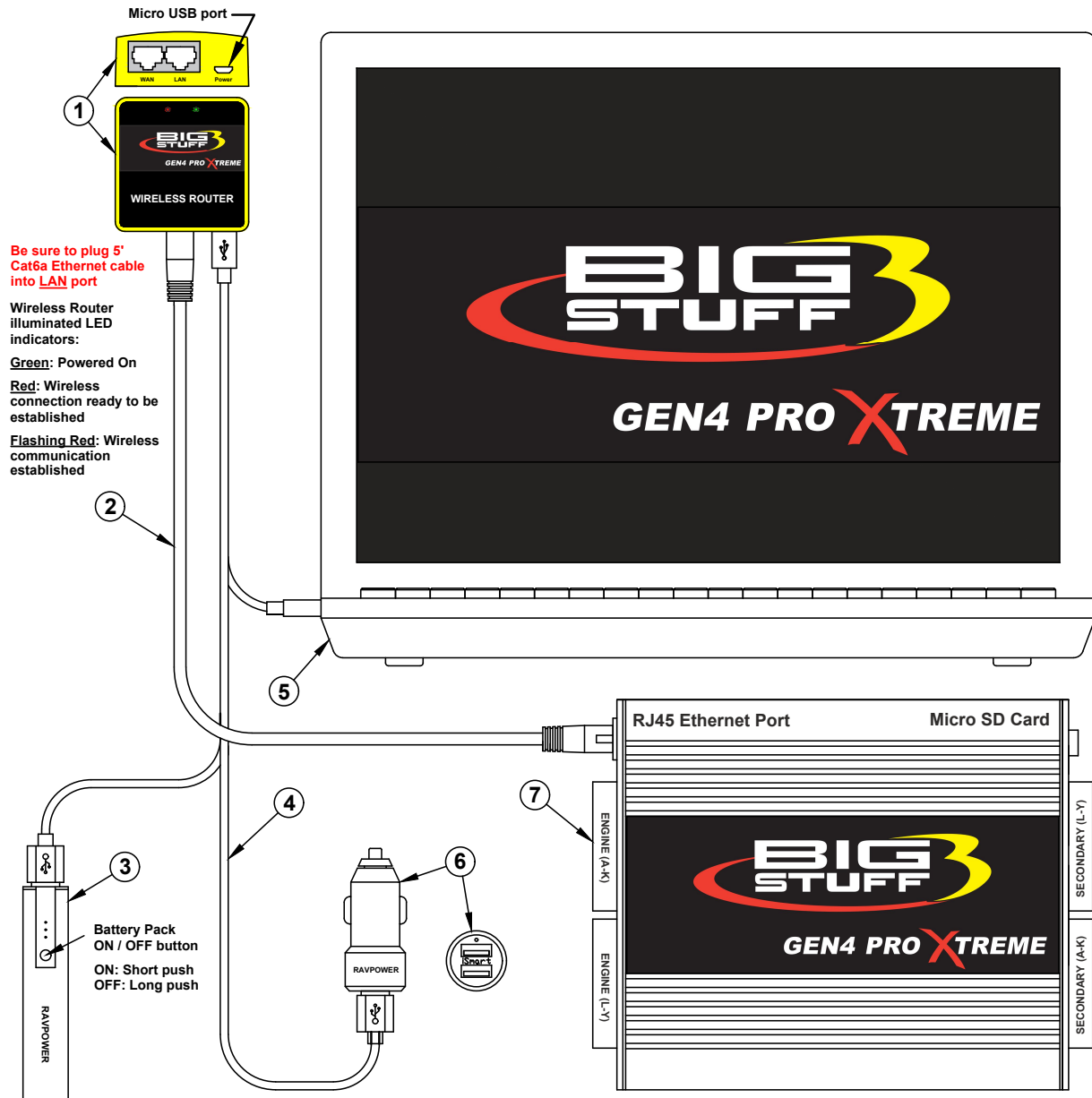
For the **Wireless Ethernet Network 2 Configuration for “Race Car” and Dyno applications:**

- The “Race Car” Wireless Router Battery Power Interface Harness is connected between the MikroTik hAP ac lite Race Car Wireless Router’s 10-28V DC plug and Battery (+) & (-).
- The 5’ CAT6a shielded Ethernet cable is connected between one of the MikroTik hAP ac lite router’s (4) RJ45 LAN ports and GEN4 ECU’s RJ45 Ethernet port. (See the GEN4 PRO XTREME Wired Ethernet Network 2 Configuration for “Race Car” & Dyno applications on page 93).
- Once the above connections are made the GEN4 PRO XTREME MikroTik hAP ac lite wireless router’s green LED will illuminate to indicate it is powered on. The MikroTik hAP ac lite wireless router’s LAN channel LED, located on the backside of the MikroTik hAP ac lite wireless router, that the 5’ CAT6a shielded Ethernet cable is connected to will also illuminate to indicate a wireless connection can now be established.

Once either the above Wireless Ethernet Network connections have been made, the GEN4 PRO XTREME ECU needs to be powered on (VBATT & +12V switched Ignition) in order to establish online communication with the PC running the BCP software. The ECU’s RJ45 green LED will illuminate when it is powered on and the ECU’s RJ45 orange LED will illuminate and begin flashing when a wireless Ethernet connection is established. Once the wireless Ethernet connection is established, instruction Steps 3.0 & 4.0 will detail how to establish online communication between the PC running the BCP software and GEN4 PRO XTREME ECU.

Wireless Ethernet Network 1 configuration for “In-Vehicle” applications

GEN4 PRO XTREME ECU / PC / In-Vehicle Wireless Router Network Configuration



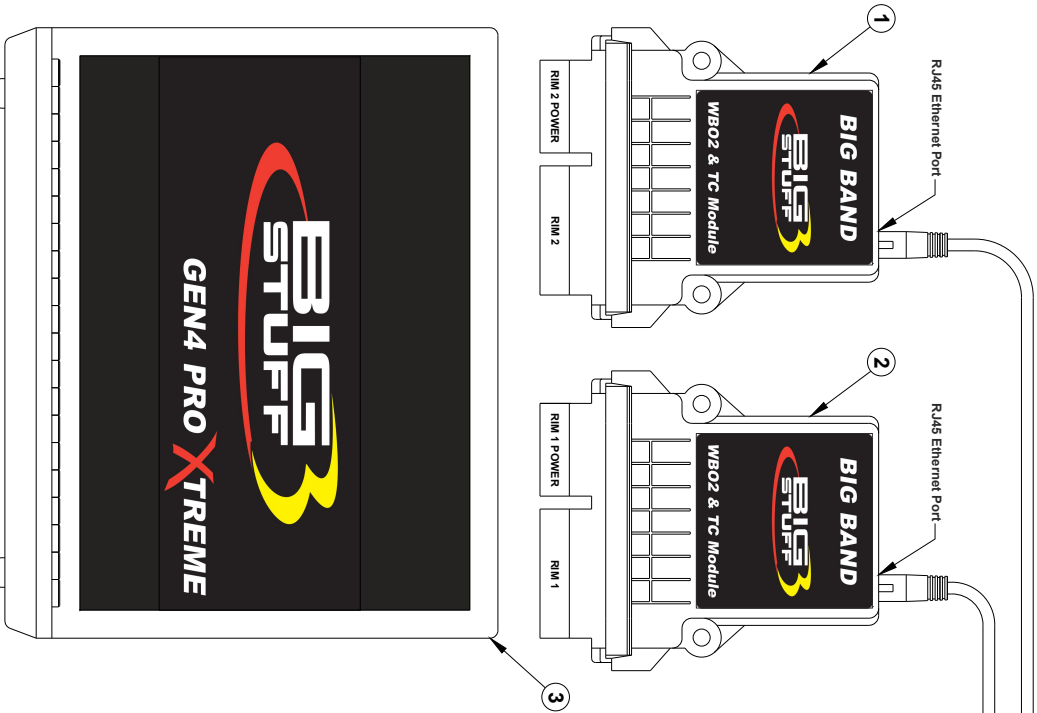
- ① GEN4 PRO XTREME GLiNET In-Vehicle Wireless Router
- ② 5' CAT6a Shielded Ethernet Cable
- ③ Universal 5V / 1A Battery Pack
- ④ Micro USB / USB 2.0 Power Cable
- ⑤ PC running BIGCOMM PRO Software
- ⑥ Dual 5V / 2.4A USB 2.0 Car Charger
- ⑦ GEN4 PRO XTREME ECU

Connection Instructions

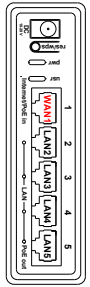
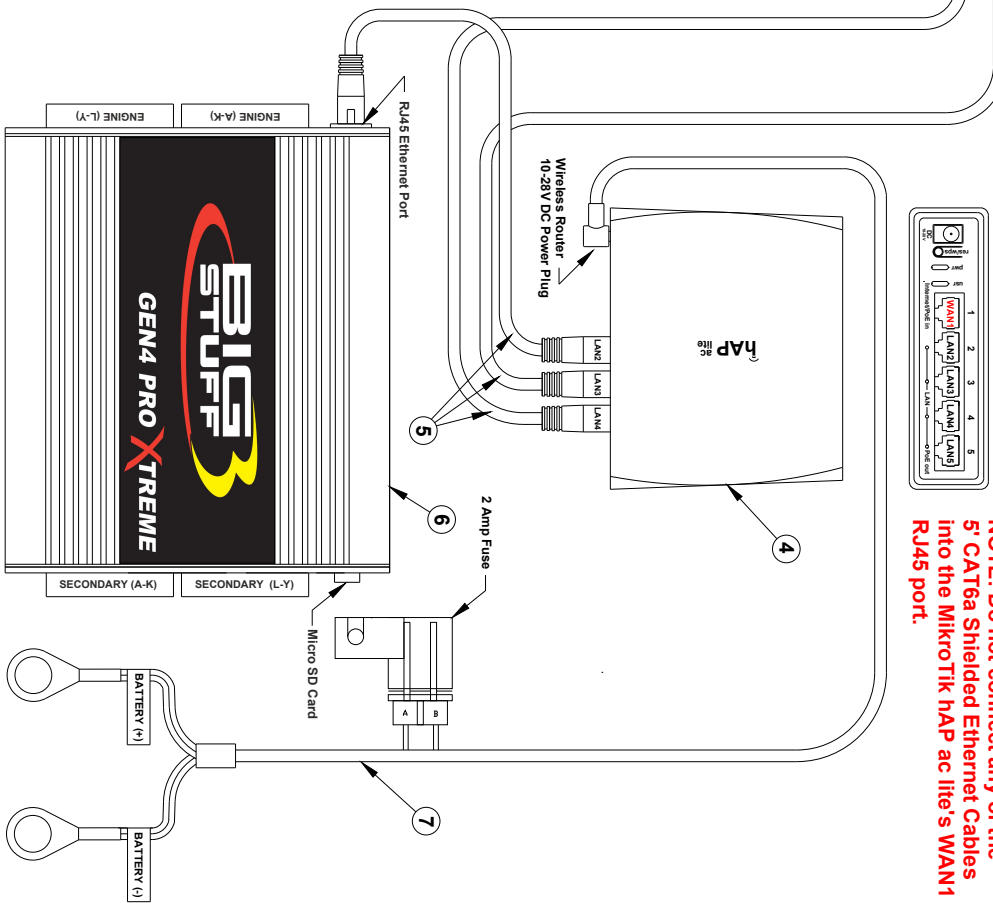
1. Connect one end of the 5' CAT6a Shielded Ethernet Cable to the Wireless Router's RJ45 LAN port and the other end to the GEN4 PRO XTREME ECU's RJ45 Ethernet port.
2. There are (3) options to provide the required 5V/1A power to the GLiNET In-Vehicle Wireless Router. In each case, one end of the Micro USB / USB 2.0 Power Cable connects to the GLiNET In-Vehicle Wireless Router's Micro USB port and the USB 2.0 end of the cable can connect to the PC's USB port or one of the Car Charger Adapters's USB ports or the Universal 5V/1A Battery Pack's USB port.

Wireless Ethernet Network 2 configuration for "Race Car" & Dyno applications

GEN4 PRO XTREME ECU / BIG BAND / PC / MikroTik hAP ac lite Race Car Wireless Router Network Configuration



- 1 BIG BAND Module 1
- 2 BIG BAND Module 2
- 3 PC running BIGCOMM Pro Software
- 4 MikroTik hAP ac lite Race Car Wireless Router
- 5 5' CAT6a Shielded Ethernet Cable
- 6 GEN4 PRO XTREME ECU
- 7 Wireless Router Battery Power Interface Harness



NOTE: Do not connect any of the 5' CAT6a Shielded Ethernet Cables into the MikroTik hAP ac lite's WAN1 RJ45 port.

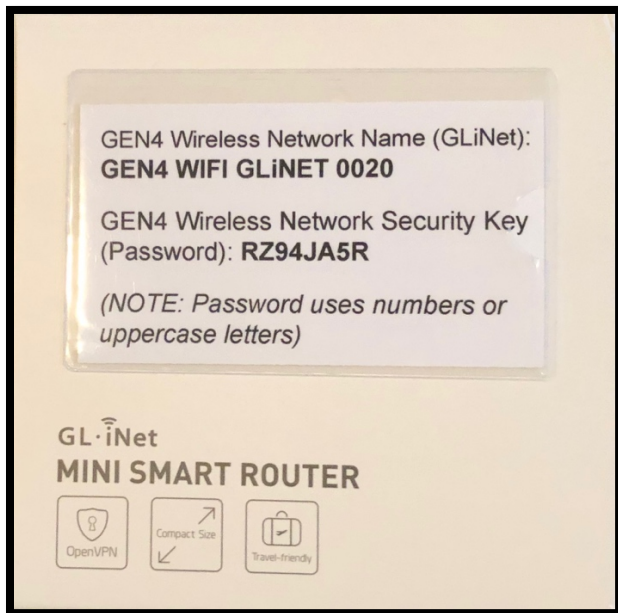
Connection Instructions

1. Connect Battery (+) & Negative (-) leads directly to 16V battery.
2. Connect 10-28V DC Power Plug into Wireless Router DC Power Plug Receptacle.
3. Connect (1 of 4) 5' CAT6a Shielded Ethernet Cable between GEN4 PRO XTREME ECU RJ45 Ethernet port and MikroTik hAP ac lite Wireless Router RJ45 LAN2 port.
4. Connect (2 of 4) 5' CAT6a Shielded Ethernet Cable between BIG BAND Module 1 RJ45 port and MikroTik hAP ac lite Wireless Router RJ45 LAN3 port.
5. Connect (3 of 4) 5' CAT6a Shielded Ethernet Cable between BIG BAND Module 2 RJ45 port and MikroTik hAP ac lite Wireless Router RJ45 LAN4 port.

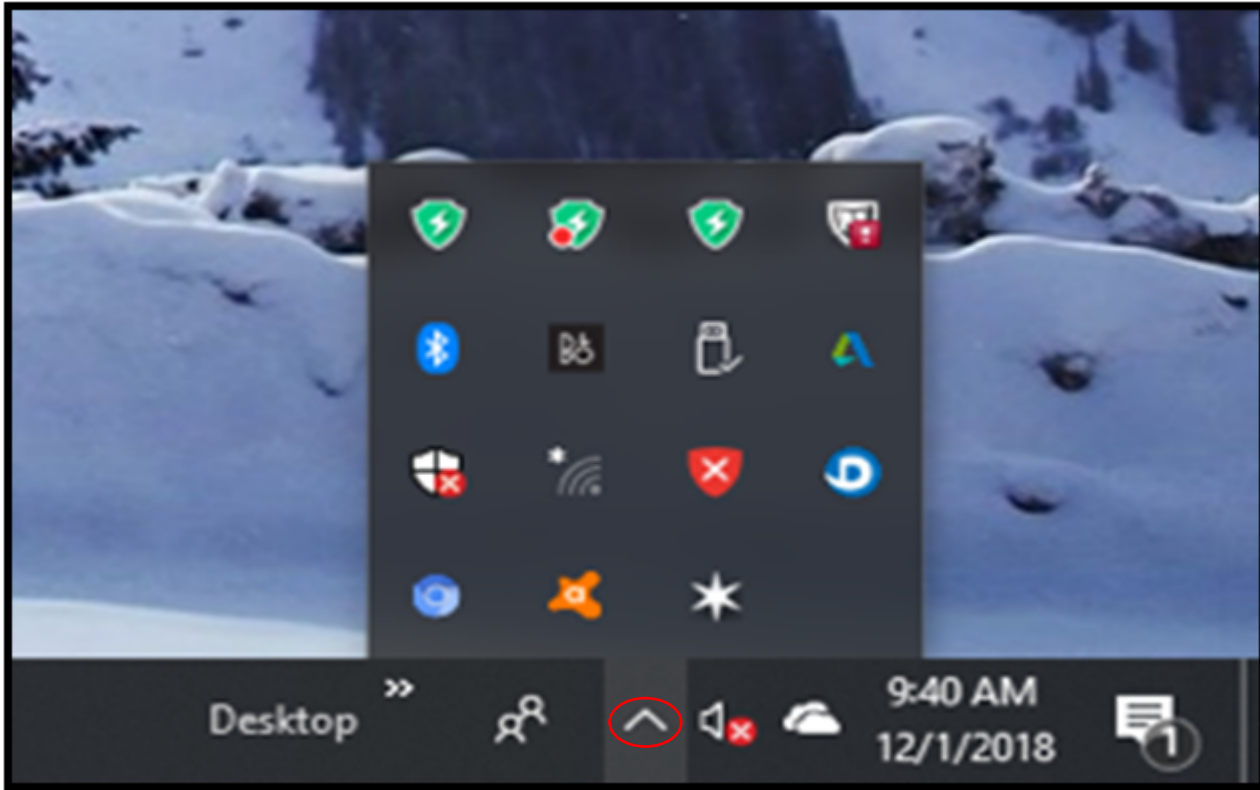


The following steps detail how to establish a Wireless Ethernet Connection between a PC with the BigComm Pro GEN4 software installed and GEN4 Wireless Network using the yellow GLiNet Wireless Router for In-Vehicle applications or the MikroTik hAP ac lite Wireless Router for Race Car applications. It assumes the In-Vehicle or Race Car Wireless Router Network connections detailed on page 92 or 93 have been established.

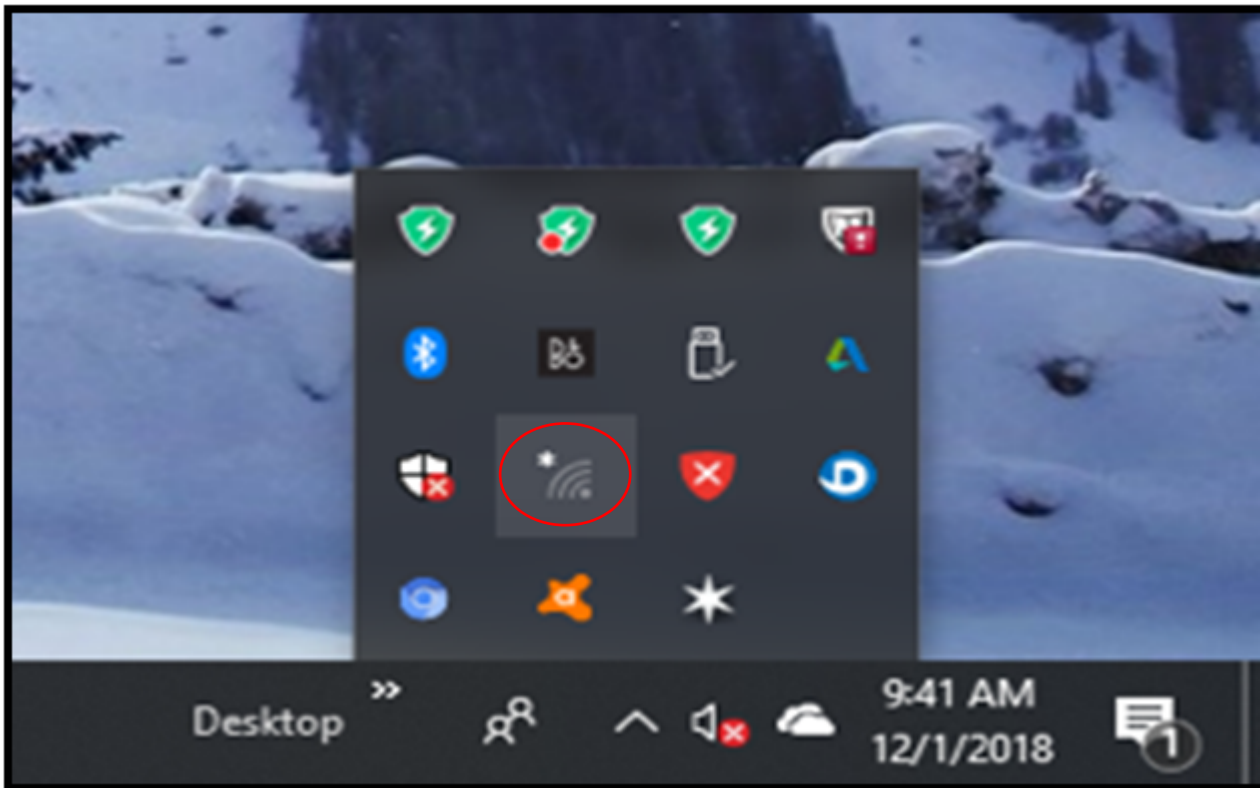
Note: The GEN4 PRO XTREME system includes an ID card that identifies the GEN4 Wireless Network Name (GLiNet or MikroTik) and Security Key (Password) as shown below. The ID card is located in the sleeve attached to the GLiNET Mini Smart Router box or MikroTik hAP ac lite Router box. The GEN4 Wireless Network Name (GLiNet or MikroTik) and Security Key (Password) are required to establish the initial wireless connection between the BigComm Pro software running on a PC and GEN4 PRO XTREME ECU. Be sure not to misplace the GEN4 Wireless Network Name and Security Key (Password) ID card and do not share it with others.



Step 2.1 – Once the PC is powered on, left mouse click on the **up arrow** in the lower right-hand corner of the tool bar as shown below.



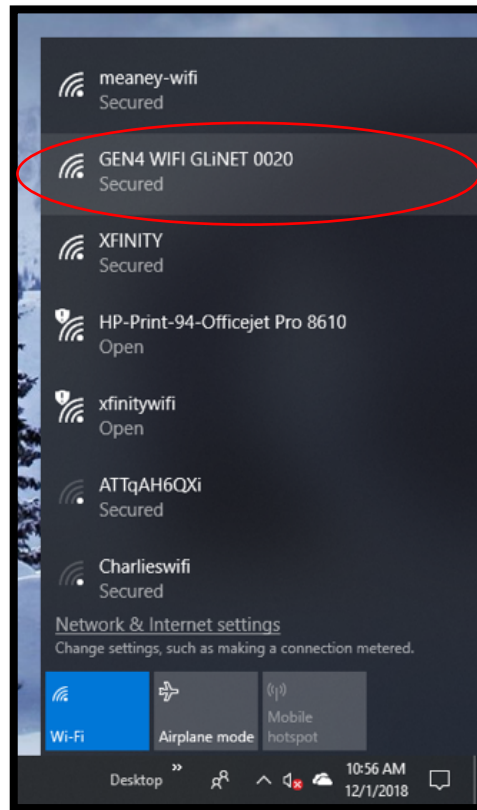
Step 2.2 - Left mouse click on the **Wireless Network** icon as shown below.



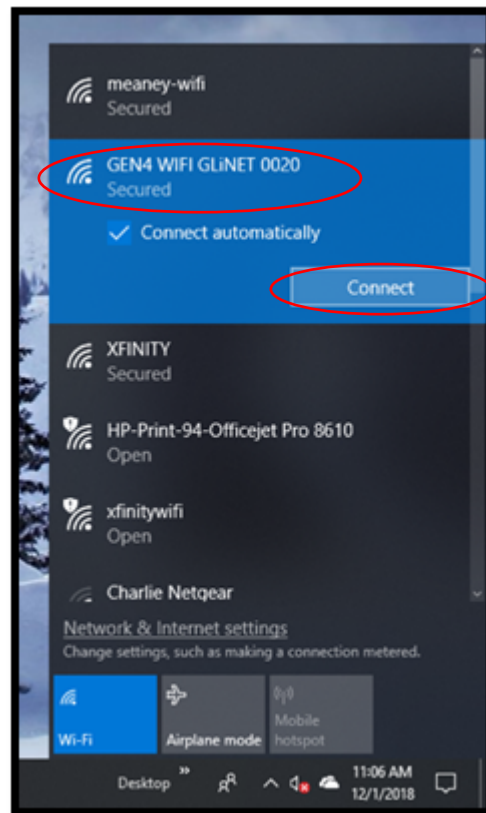
Step 2.3 - Once the **Wireless Network** window opens, highlight and left mouse click on the GEN4 Wireless Network name as shown below. For this example, the GEN4 Wireless Network Name is; **GEN4 WIFI GLiNET 0020**, per the above GEN4 Wireless Network Name (GLiNet or MikroTik) and Security Key (Password) ID card.

Always be sure to highlight and left mouse click on the GEN4 Wireless Network Name (GLiNet or MikroTik) that appears on the ID card included with your GEN4 PRO XTREME system.

Note: The GEN4 Wireless Network uses two naming conventions dependent on which wireless router is being used. If the yellow GLiNet “In-Vehicle” wireless router is being used, the GEN4 Wireless Network naming convention is “**GEN4 WIFI GLiNET 0001 thru 9999**”. If the MikroTik hAP ac lite “Race Car” wireless router is being used, the GEN4 Wireless Network naming convention is “**GEN4 WIFI MikroKit 0001 thru 9999**”.



Step 2.4 - Once the GEN4 WIFI GLiNET Wireless Network dialogue window opens as shown below, check the **Connect automatically** box and then left mouse click on **Connect**.

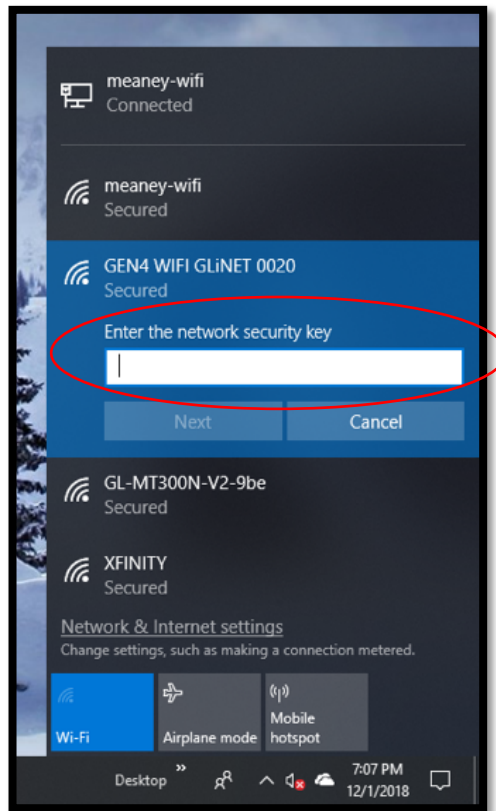


Step 2.5 - Once **Connect** is selected from Step 2.4, the following dialogue window will open. It has a blank dialogue box under the **Enter the network security key** text. This is where the network security key needs to be entered.

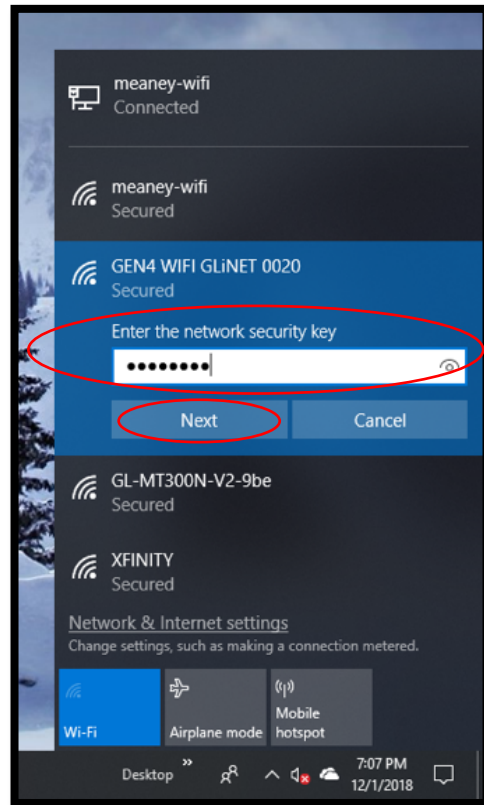
Key Point!!! The **Network Security Key** is also referred to as the **GEN4 Wireless Network Security Key (Password)**.

For this example, the GEN4 Wireless Network Security Key (Password) is; **RZ94JA5R**, per the above GEN4 Wireless Network Name (GLiNet) and Security Key (Password) ID card.

Note: Be sure to use the **GEN4 Wireless Network Security Key (Password)** as it appears on the GEN4 Wireless Network Name (GLiNet or MikroTik) and Security Key (Password) ID card included with your GEN4 PRO XTREME system. All GEN4 Wireless Network Security Keys (Passwords) use numbers and/or uppercase letters.



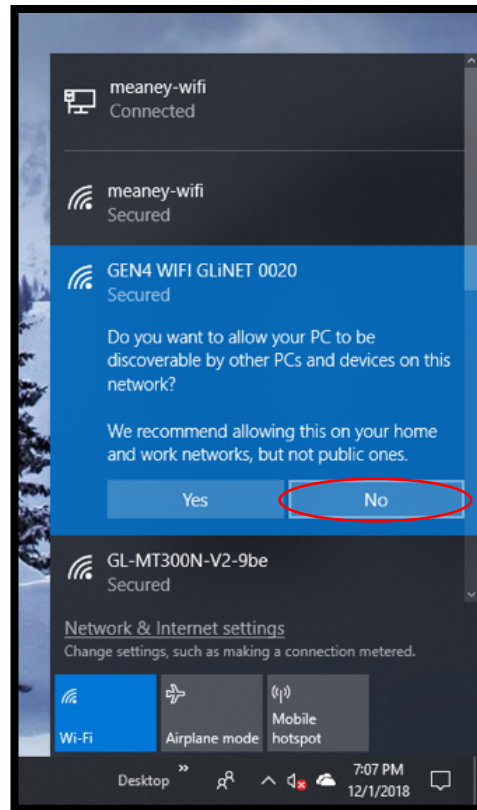
Step 2.6 - Type the **GEN4 Wireless Network Security Key (Password)** under the **Enter the network security key** dialog box as shown below and highlight and left mouse click on **Next**.



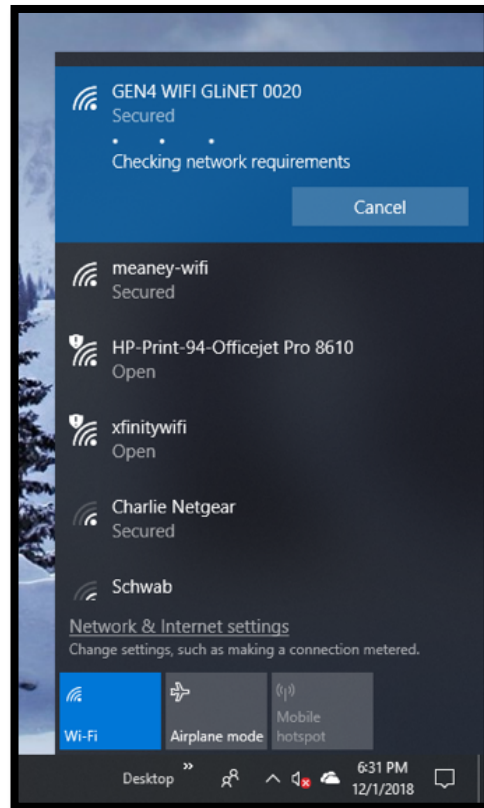
Note: The provided GEN4 Wireless Network Security Key (Password) is not required to be entered again after the initial wireless connection between a specific PC & GEN4 Wireless Network has been established. The only time the provided Wireless Network Password is required to be entered again is to establish a new wireless connection between a different PC running the BigComm Pro software and GEN4 PRO XTREME ECU.

Note: You can change the GEN4 Wireless Network Name and/or Password. You may want to change the GEN4 Wireless Network Name to easily associate it to a specific vehicle if running multiple vehicles with multiple GEN4 PRO XTREME Wireless Networks. Instructions on how to change the GEN4 Wireless Network Name and/or Password are located on the BS3 website under the GEN4 PRO XTREME section.

Step 2.7 - After left mouse clicking on **Next** from Step 2.6, the following dialogue window will open asking; **“Do you want to allow your PC to be discoverable by other PCs and devices on this network?”**, Highlight and left mouse click on **No**.

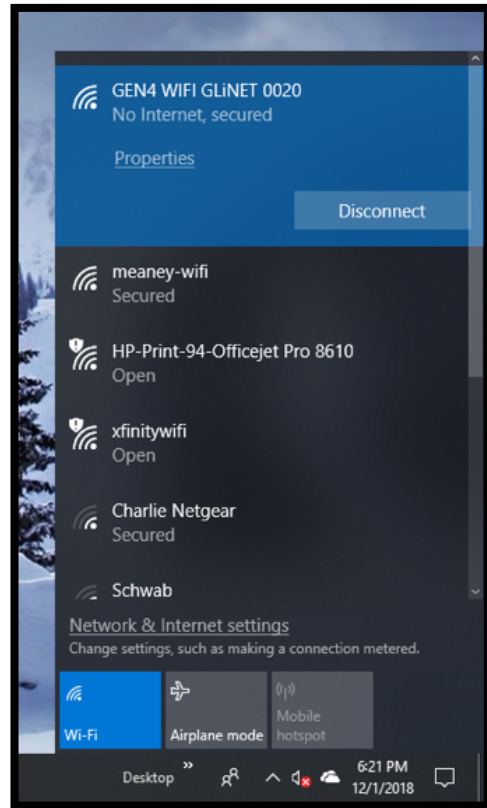


Step 2.8 - Once **No** is selected from Step 2.7, the following window will open showing your specific GEN4 WIFI GLiNET (0001 thru 9999) network is **Checking network requirements** and is attempting to establish a wireless connection with the PC.



Step 2.9 - After a brief period of time, the following window will open to indicate the wireless network connection has been established between the PC and your specific GEN4 WIFI GLiNET (0001 thru 9999) or GEN4 WIFI MikroTik (0001 thru 9999) wireless router.

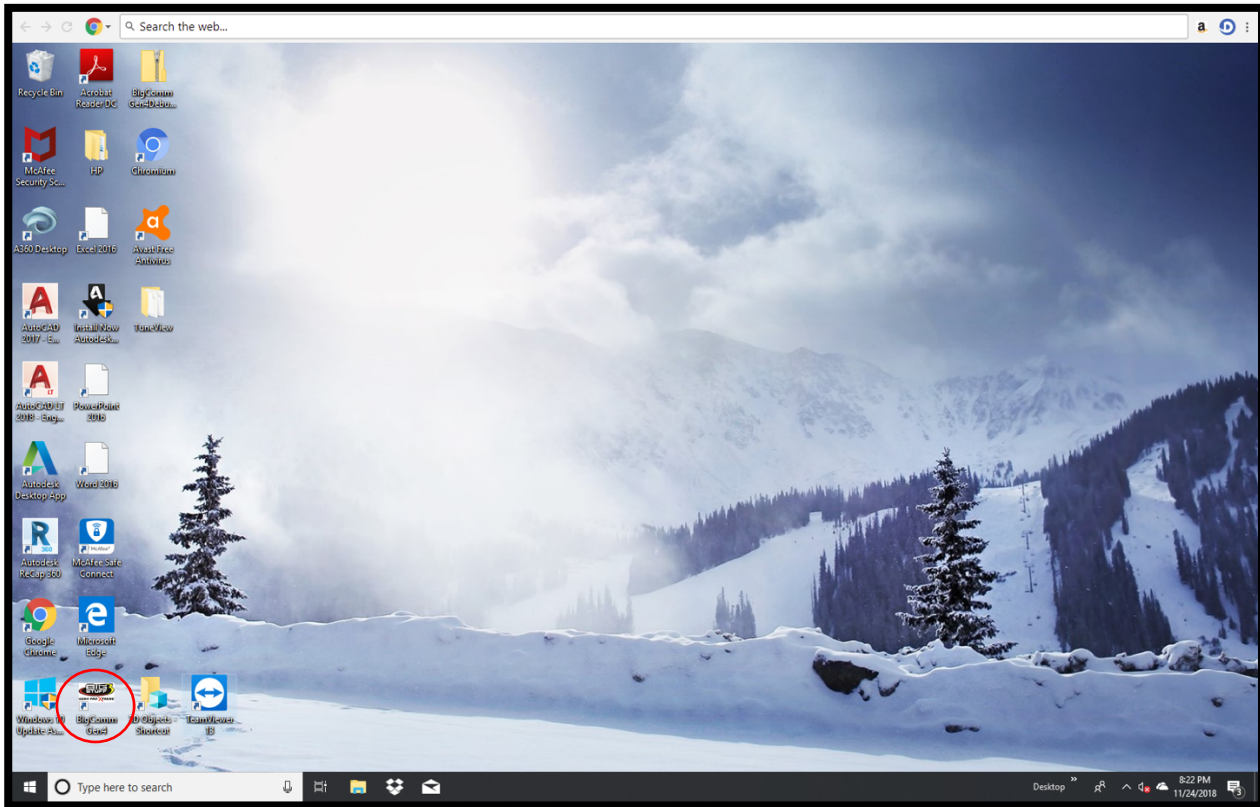
Reminder: The GEN4 Wireless Network name will be GEN4 WIFI GLiNET (0001 thru 9999) if using the yellow GLiNET “In-Vehicle” wireless router. The GEN4 Wireless Network name will be GEN4 WIFI MikroTik (0001 thru 9999) if using the MikroTik hAP ac lite “Race Car” wireless router.



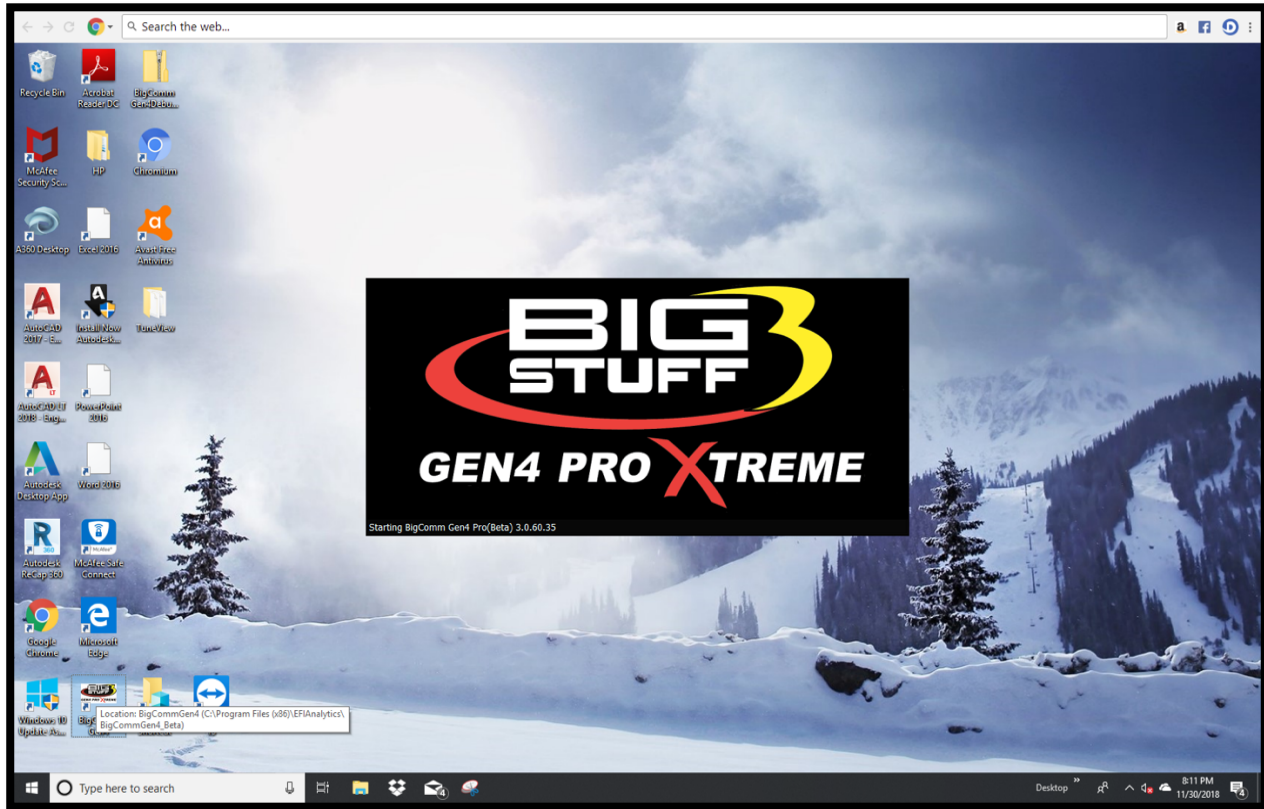
Once the Wireless Network Connection has been established as detailed in Steps 2.0 thru 2.9, an initial online communication can be established between the PC running the BCP software and GEN4 PRO XTREME ECU connected to the GEN4 WIFI GLiNET (0001 thru 9999) or GEN4 WIFI MikroTik (0001 thru 9999) wireless router.

STEP 3.0 - Activate the BCP software and GEN4 PRO XTREME ECU interface to enable BCP software to create initial Project (STEP 3.0 only occurs when connecting between a PC running the BCP software and GEN4 PRO XTREME ECU for the first time)

Step 3.1 - Once a Wireless Ethernet connection is established, as detailed on page 15 for In-Vehicle applications or page 16 for Race Car applications, and the GEN4 PRO XTREME ECU is powered on (VBATT & +12V switched Ignition), open the GEN4 PRO XTREME BCP software from the PC's desktop by double clicking on the **GEN4 PRO XTREME BCP icon** located in the lower left-hand corner of screen.



Step 3.2 - Once the **BCP icon** is selected, the following GEN4 PRO XTREME graphic will momentarily appear on the screen.

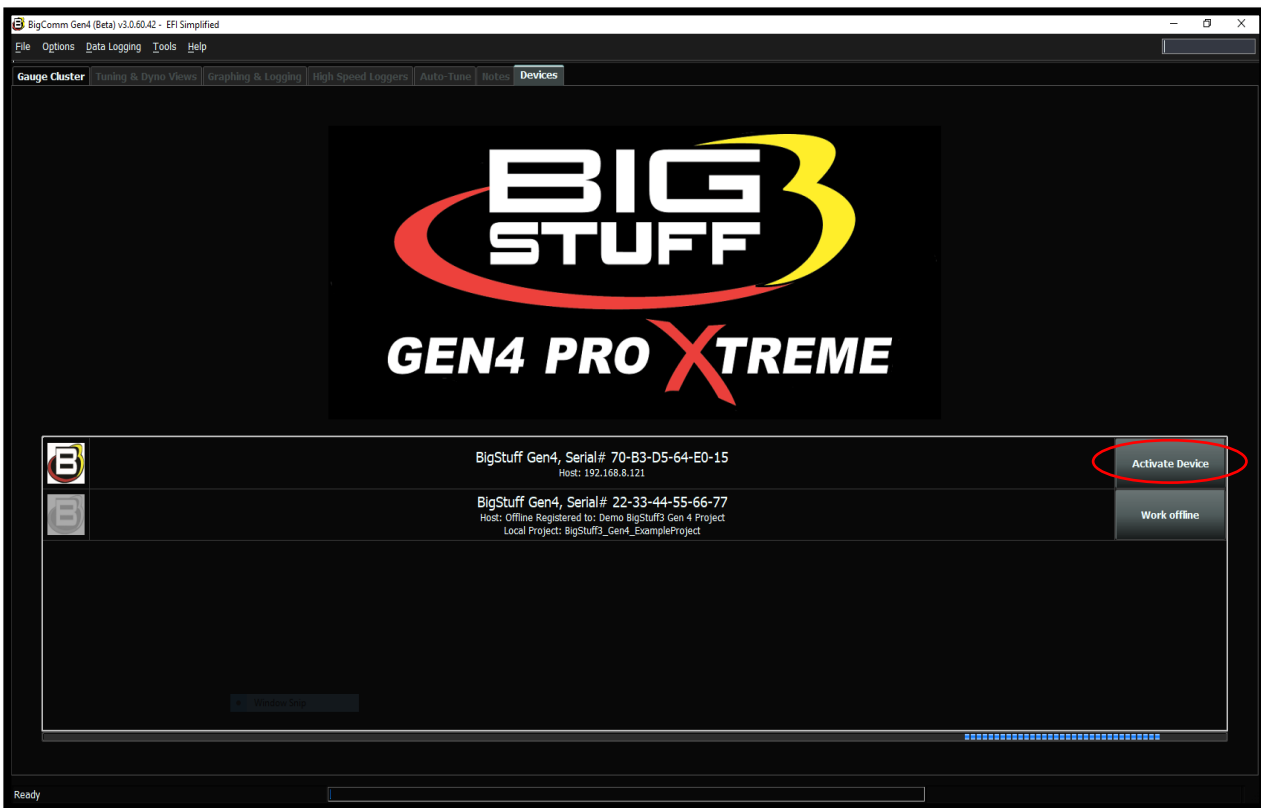


Step 3.3 - After a momentary pause, the following BCP software window will open. As you can see, there are two possible selections to choose from;

The first is: **Bigstuff Gen4, Serial# 70-B3-D5-64-E0-15**. This is the Serial Number (MAC ID) of the GEN4 PRO XTREME ECU that will be communicating with the PC running the BCP software once it's activated.

The second is: **Bigstuff Gen4, Serial# 22-33-44-55-66-77**. This is the default serial number associated with the example Local Project: **Bigstuff3_GEN4_ExampleProject** running offline on the PC. The example Local Project: **Bigstuff3_GEN4_ExampleProject** was included as part of the BCP software download package and contains a demo calibration, preconfigure dashboards and tuning tabs and is only meant to be **used offline** to navigate and get acquainted with the BCP software.

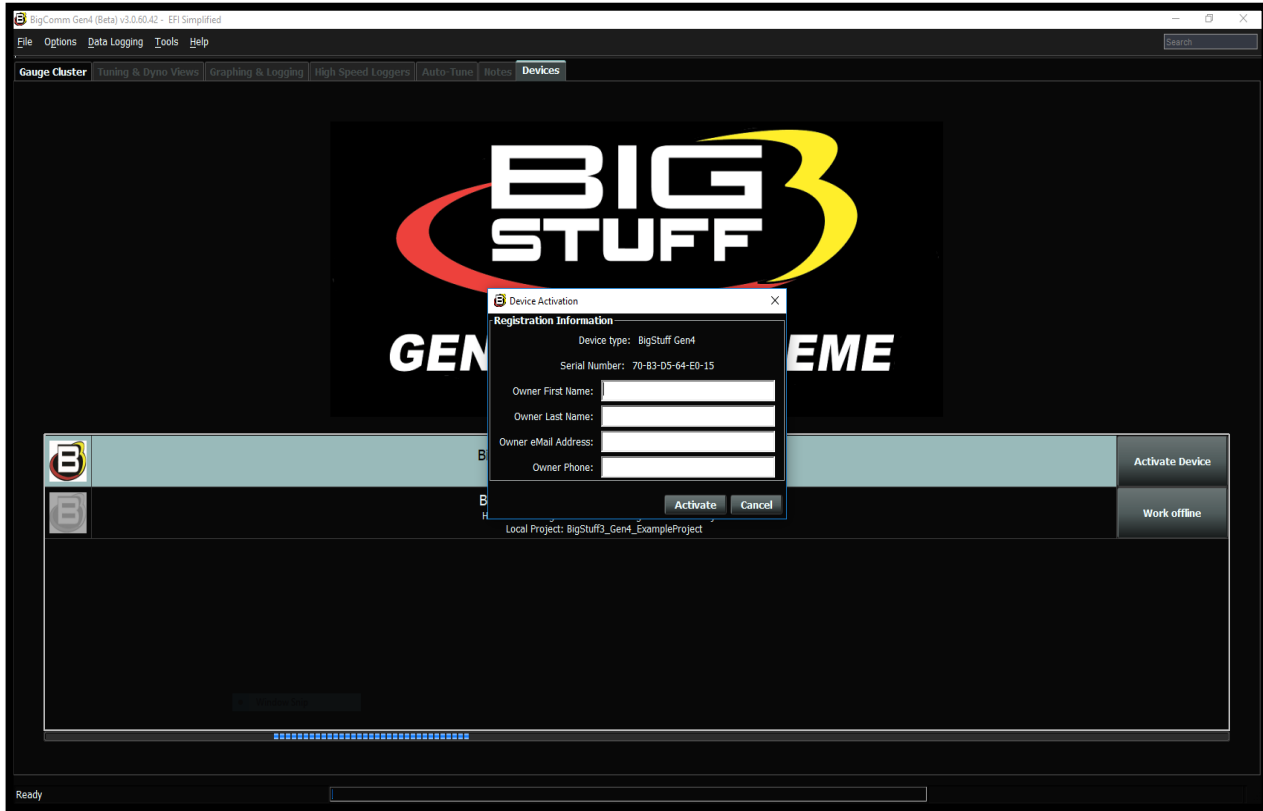
Before an initial Project can be created, the BCP software & GEN4 PRO XTREME ECU interface needs to be activated. This is initiated by single clicking on **Activate Device**.



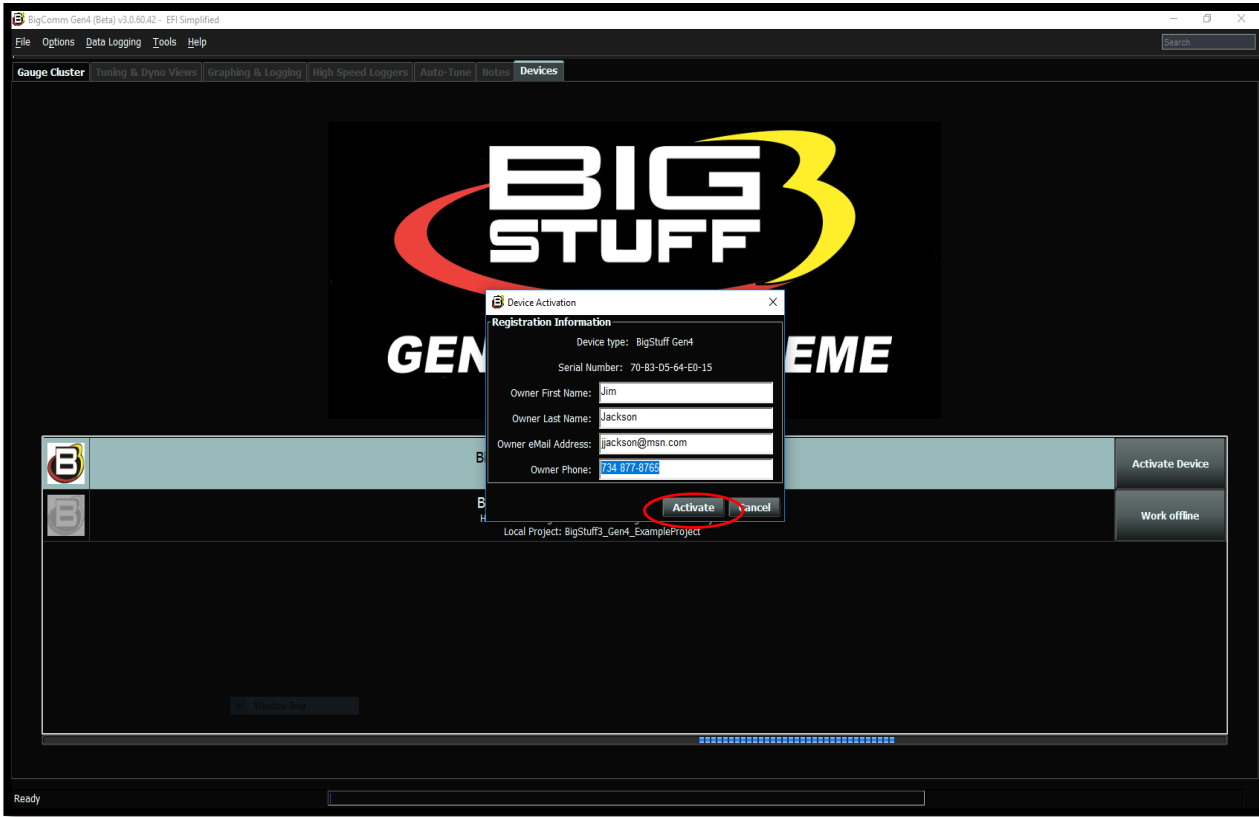
There are a couple of key things that occur when **Activate Device** is selected;

- The BCP software & GEN4 PRO XTREME ECU interface is activated by entering the end user name and contact information.
- The BCP software creates an initial Project using the Serial Number (MAC ID) of the GEN4 PRO XTREME ECU connected to the PC running the BCP software and activation information. The initial Project contains preconfigured Gauge Clusters; aka “Dashboards”, Tuning & Dyno Views; aka “Tuning Tabs” and “Datalog Tabs” with predefined measurement variables.

Step 3.4 - Once **Activate Device** is selected in Step 3.3, the following BCP dialogue window will open.



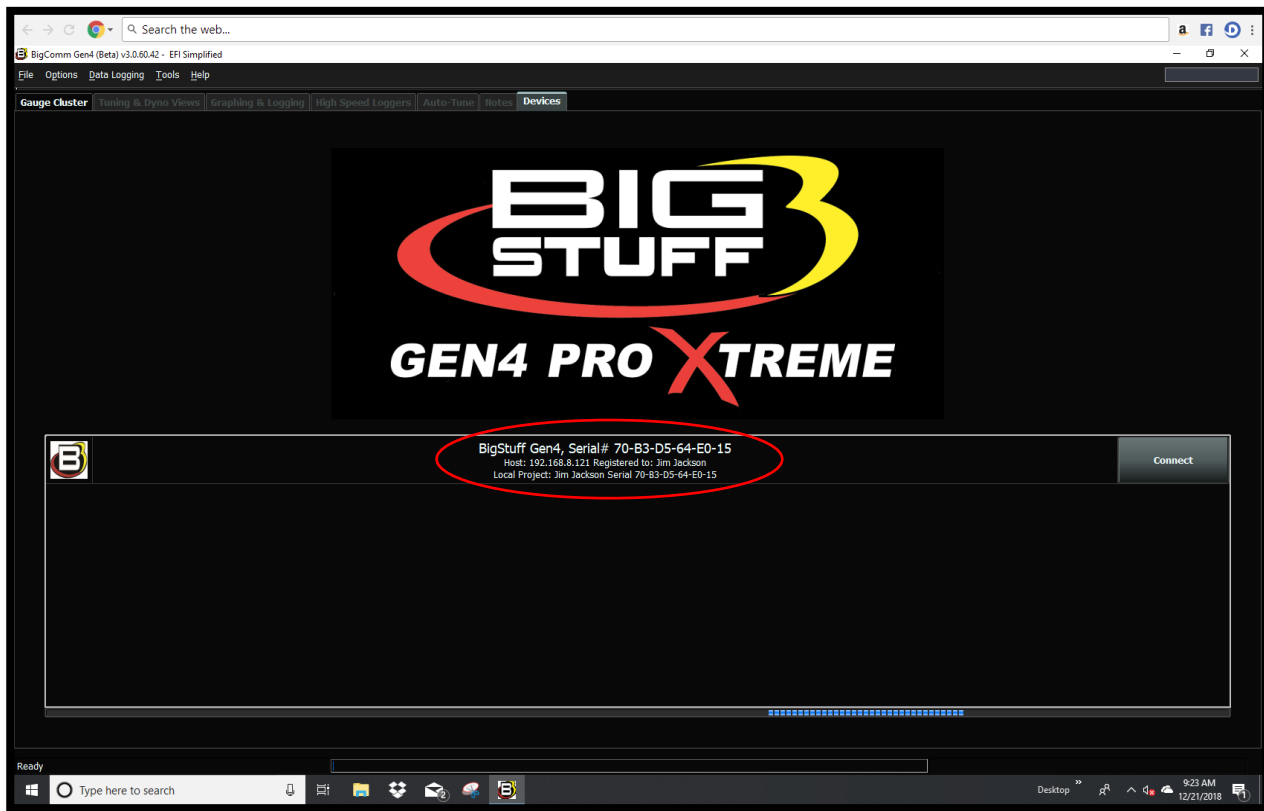
Step 3.5 - Fill in the requested activation information and single click on **Activate**.



Step 3.6 – Once **Activate** is selected in Step 3.5, the following BCP software window will open. As you can see, there is now only one selection to choose from;

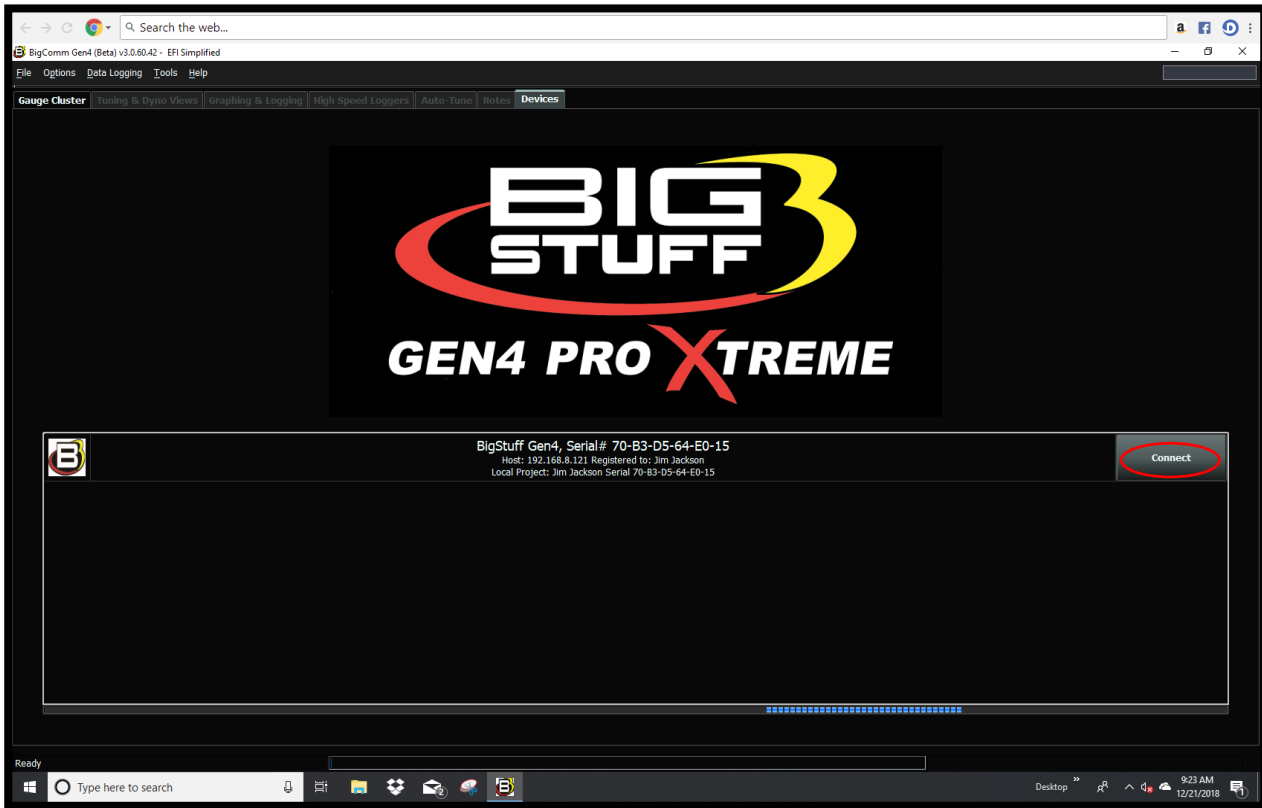
The **Bigstuff Gen4, Serial# 70-B3-D5-64-E0-15** is the Serial Number (MAC ID) of the GEN4 PRO XTREME ECU connected to the PC running the BCP software. Please note the Device Activation information (i.e. the owner's name, Jim Jackson for this example) filled out in Step 3.5 is now associated with the initial **Bigstuff Gen4, Serial# 70-B3-D5-64-E0-15** Project that will be uploaded into the BCP software running on the PC.

The previous default **Bigstuff Gen4, Serial# 22-33-44-55-66-77** serial number that had the example Local Project: **Bigstuff3_GEN4_ExampleProject** associated with it has been removed. It was only intended to provide an example Project **Bigstuff3_GEN4_ExampleProject** as part of the BCP software download package to navigate and get acquainted with the BCP software before establishing online communication.

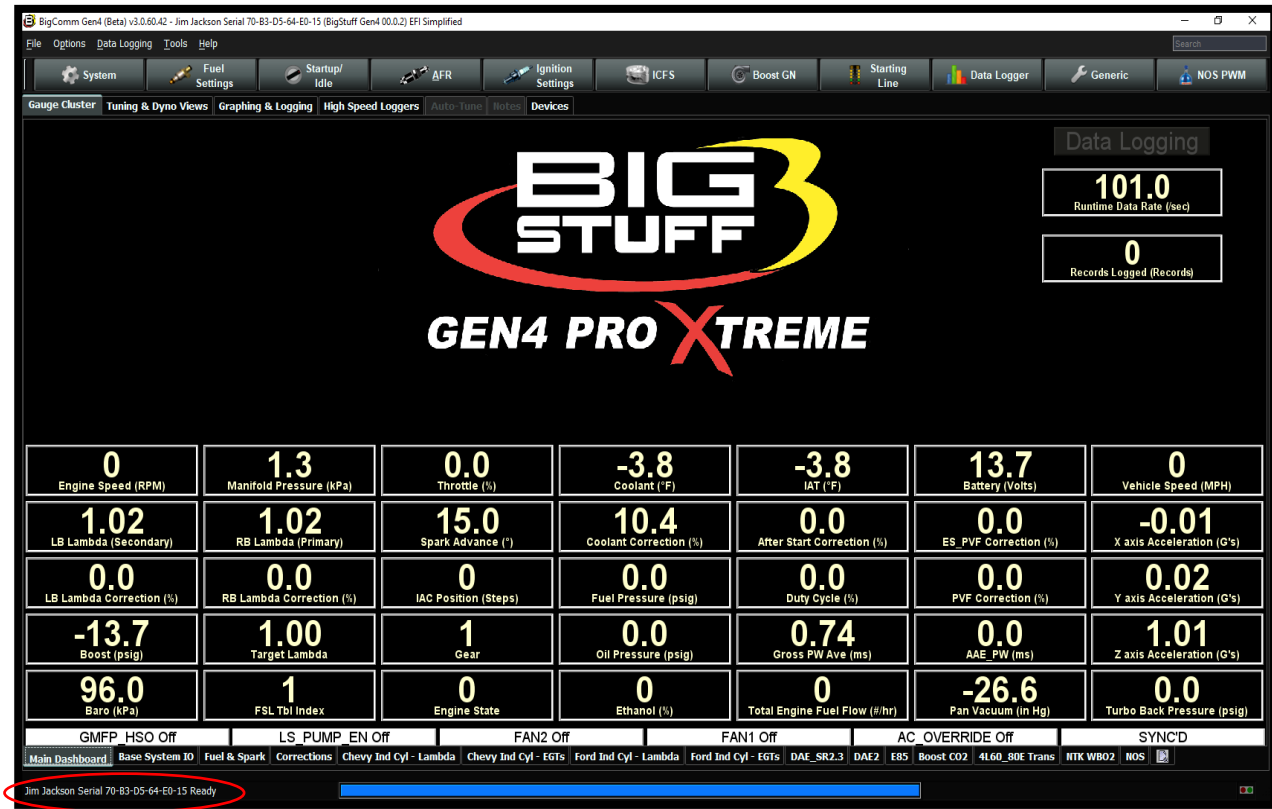


Step 4.0 - Connect to the GEN4 PRO XTREME ECU to establish online wireless Ethernet communication

Step 4.1 - To establish online wireless Ethernet communication between the BCP software running on the PC and GEN4 PRO XTREME ECU single click on **Connect**.



Step 4.2 – Below, is the BCP default **Main Dashboard** window that opens after selecting **Connect** in Step 4.1. For this example, **Jim Jackson Serial 70-B3-D5-64-E0-15** is the Project running in the BCP software on the PC. For your application, **Your Name Serial 70-B3-D5-64-XX-XX** will be the Project running in the BCP software on the PC.



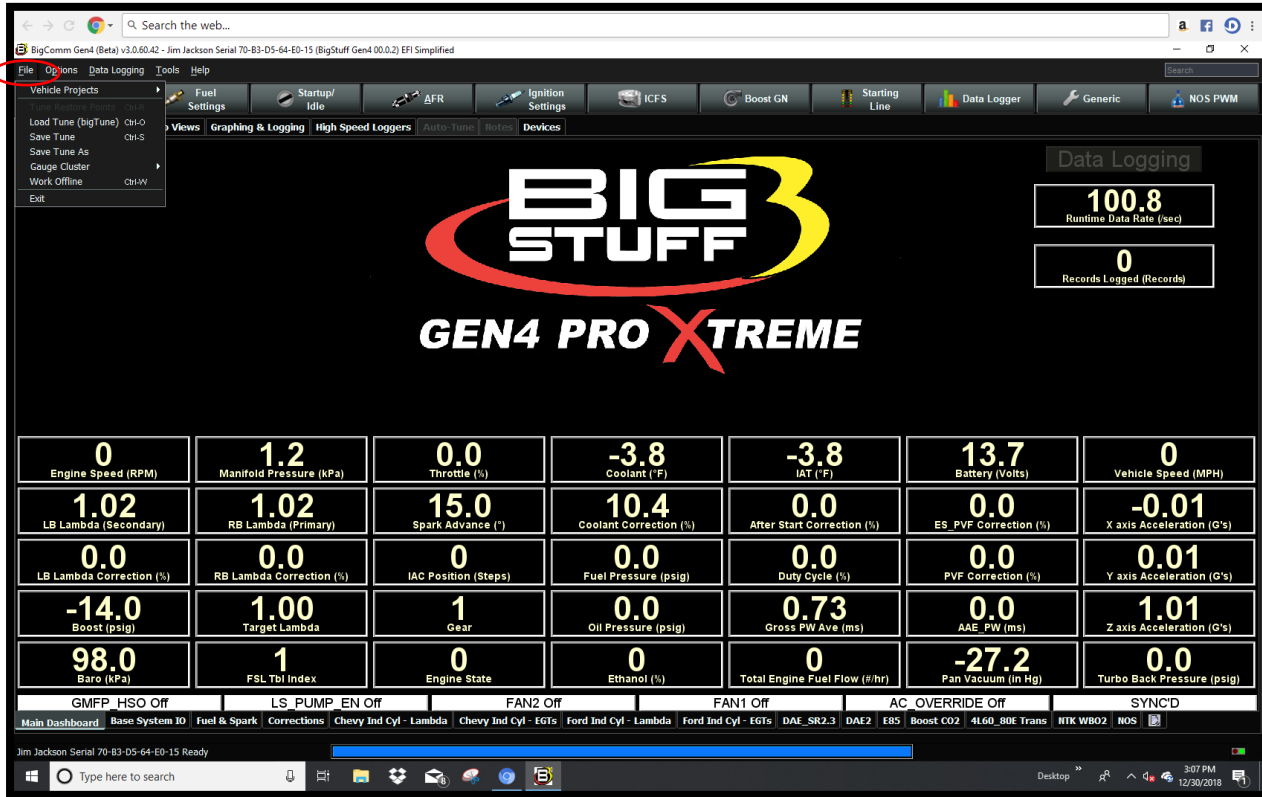
There are couple key things that occur when **Connect** is selected;

- Online wireless Ethernet communication is established between the PC running the BCP software and GEN4 PRO XTREME ECU.
- The calibration file included with the GEN4 PRO XTREME ECU is uploaded into the BCP software running on the PC.

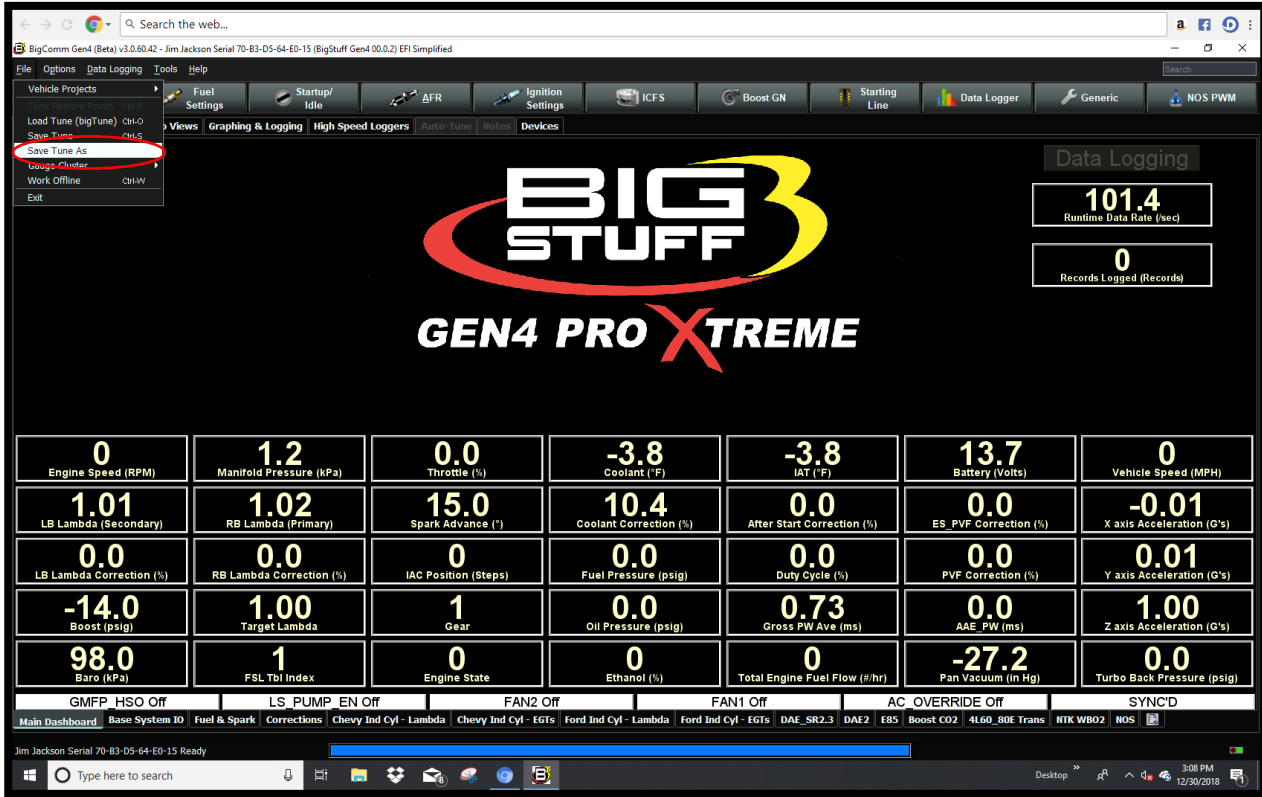
The next necessary step is to save the calibration file, also known as “Tune”, included with the GEN4 PRO XTREME ECU, into the initial Project. This is covered in Steps 5.0 thru 5.5 below.

STEP 5.0 - Save the calibration file, also known as “Tune”, included with the GEN4 PRO XTREME ECU into the initial Project

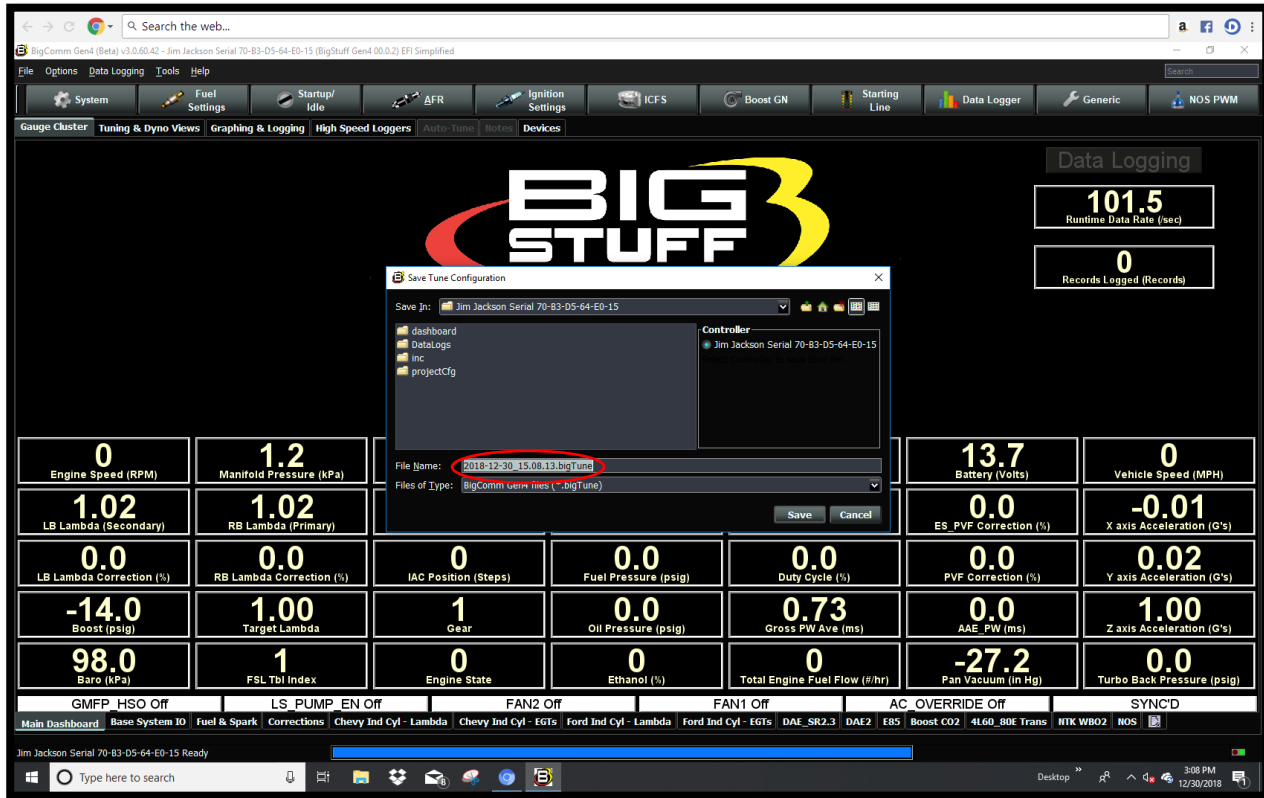
Step 5.1 - It is necessary to save the calibration file, also known as “Tune”, included with the GEN4 PRO XTREME ECU into the initial Project. This is straight forward and initiated by highlighting and left mouse clicking on **File** in the upper left hand-hand corner of the BCP software tool bar as shown below.



Step 5.2 - Once **File** is selected in Step 5.1, a drop-down window will open. Once opened, highlight and left mouse click on **Save Tune As** as shown below.

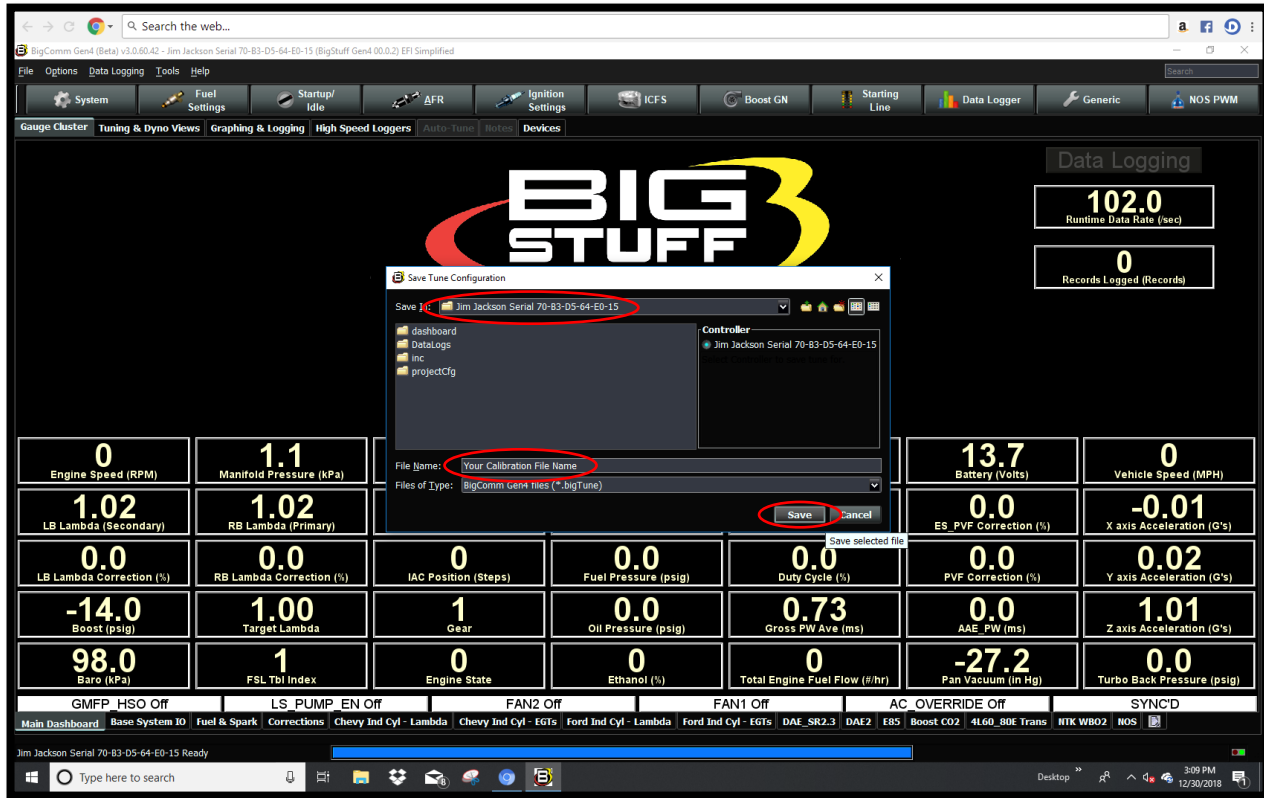


Step 5.3 - Once **Save Tune As** is selected in Step 5.2, a **Save Tune Configuration** dialogue window will open as shown below. Once opened, you will see a BCP File Name automatically assigned to the calibration file as shown below. The automatically assigned calibration file name for this example is **2018-12-30_15.08.13.bigTune**, which is the date and time the calibration file is saved.

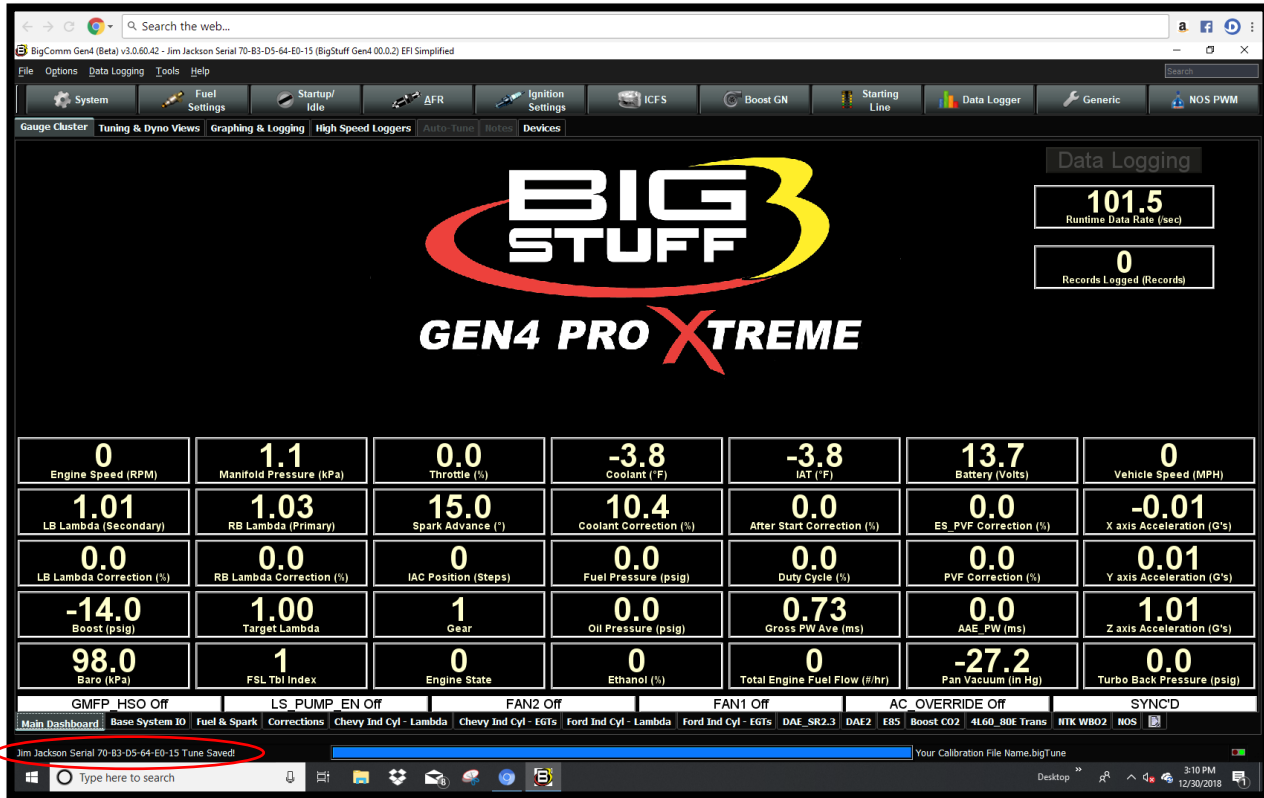


Step 5.4 - You can overwrite the automatically assigned calibration File Name with a naming convention of your choice by highlighting and typing a file name over the automatically assigned BCP software File Name. For this example, the calibration File Name is **Your Calibration File Name**.

Once the new calibration File Name is typed in, left mouse click on **Save**. Once Save is selected the BCP software will automatically add the **.bigTune** suffix to the file name while saving the calibration file into the Project file associated with the GEN4 PRO XTREME ECU currently connected to the PC running the BCP software. For this example, the calibration file will be saved into the **Jim Jackson Serial 70-B3-D5-64-E0-15** Project File.



Step 5.5 – Once **Save** is selected in Step 5.4, the following BCP window will open showing the **Jim Jackson Serial 70-B3-D5-64-E0-15 Tune Saved!** message in the lower left-hand corner of the BCP window as shown below.



That’s it... You’re now communicating online via a wireless Ethernet connection between the PC running the BCP software and GEN4 PRO XTREME ECU with the initial Project loaded and calibration saved into the GEN4 ECU.

Granted, the GEN4 PRO XTREME “Initial Setup” for Wireless Ethernet seems to take quite a few steps. Fortunately, subsequent connections are straight forward and only require the following steps;

1. Power up wireless router network and make sure the CAT6a shielded Ethernet cable is connected between the wireless router’s RJ45 Ethernet LAN port and the GEN4 PRO XTREME ECU’s RJ45 Ethernet port.
2. Select the GEN4 Wireless Network from the PC’s wireless network selection window.
3. Power up the GEN4 PRO XTREME ECU (+12V Switch Ignition and VBATT (+) & (-).
4. Once the GEN4 PRO XTREME ECU’s Orange LED begins flashing, open the BCP software and select Connect to establish online communication with the appropriate GEN4 PRO XTREME ECU.

Key Note: You must go through a +12V switched ignition key cycle (key on/off/on) in order to establish online communication with a different GEN4 PRO XTREME ECU!