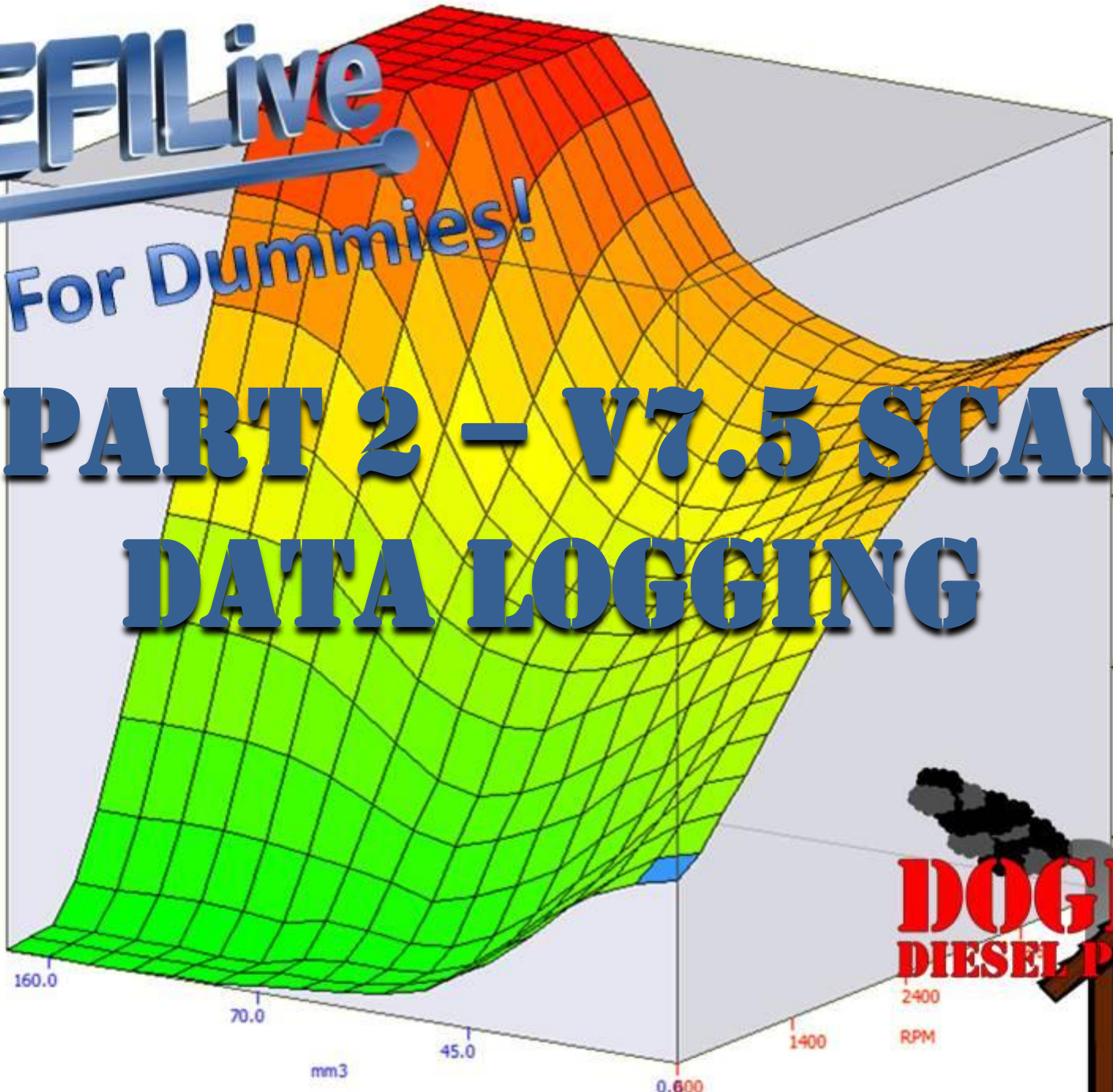




For Dummies!

# PART 2 – V7.5 SCAN DATA LOGGING



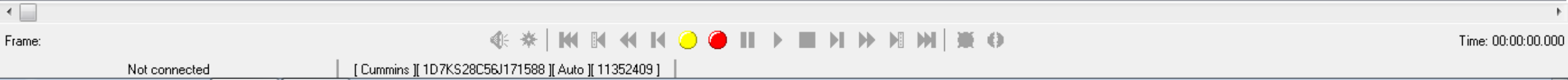


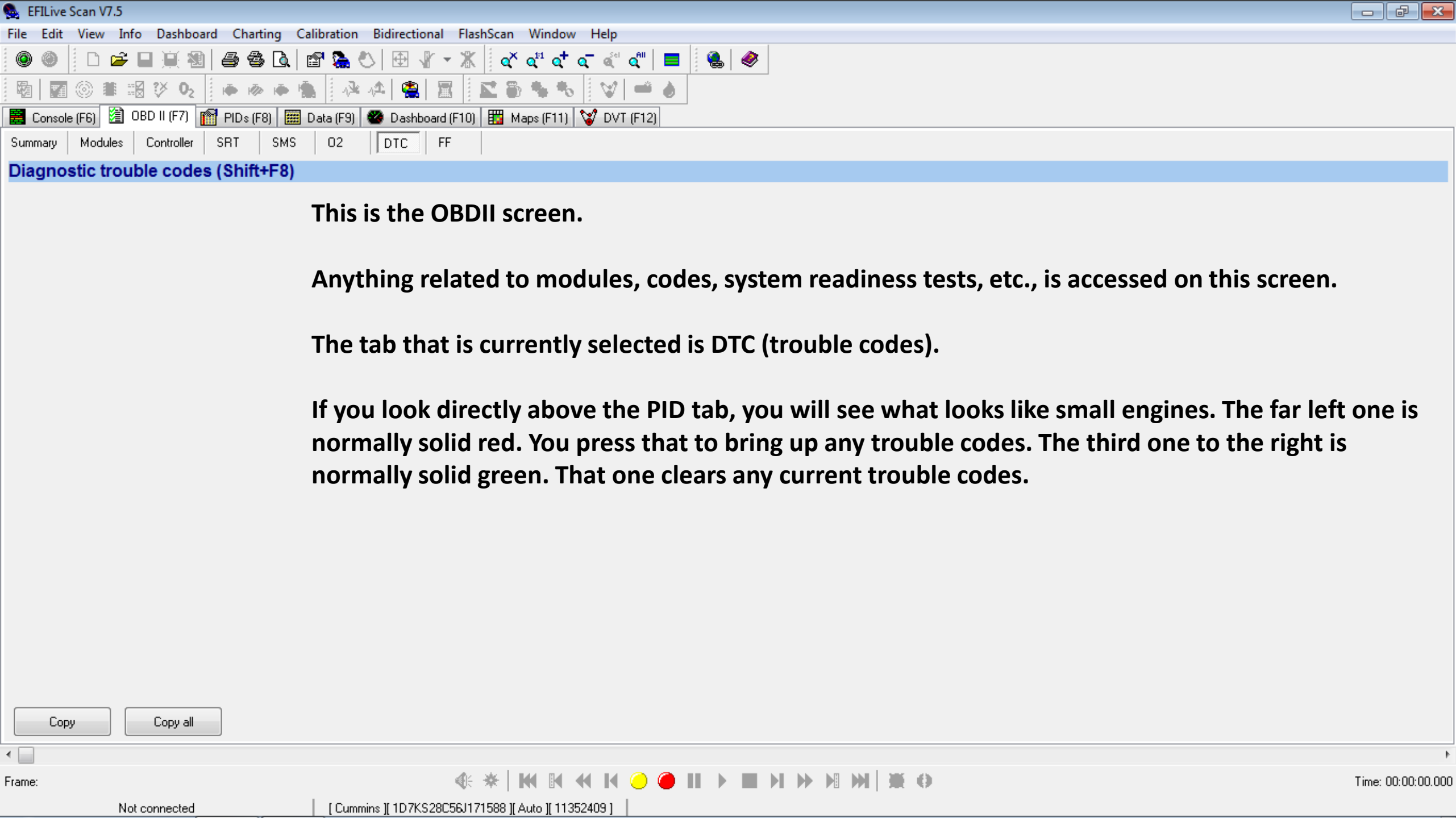
18:24:45.464: EFILive V7.5 Version V7.5.7 (Build 190)  
18:24:46.025: Ready.

**This is the console screen.**

**This does nothing more than keep a chronological record of everything that goes on.**

**Any errors, issues, connection problems, etc., will be logged here and, if needed, can be sent to your tuner or EFILive to try and resolve the problem.**





**This is the OBDII screen.**

**Anything related to modules, codes, system readiness tests, etc., is accessed on this screen.**

**The tab that is currently selected is DTC (trouble codes).**

**If you look directly above the PID tab, you will see what looks like small engines. The far left one is normally solid red. You press that to bring up any trouble codes. The third one to the right is normally solid green. That one clears any current trouble codes.**

Copy

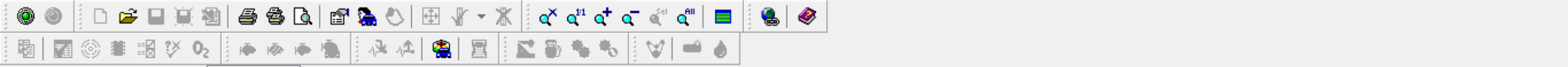
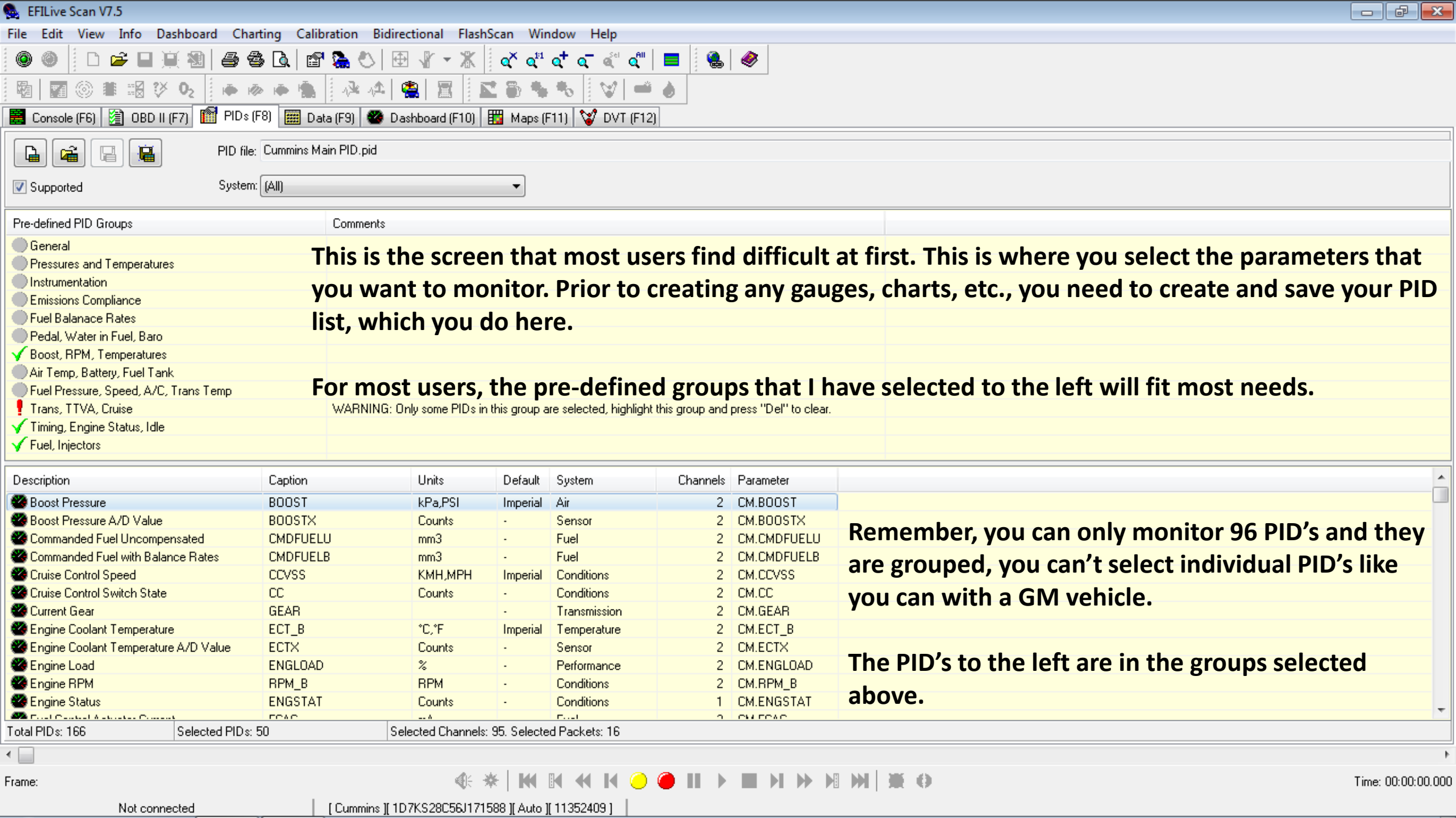
Copy all

Frame:

Not connected

[ Cummins ] [ 1D7KS28C56J171588 ] [ Auto ] [ 11352409 ]

Time: 00:00:00.000



PID file: Cummins Main PID.pid

System: (All)

Supported

Pre-defined PID Groups	Comments
<input type="radio"/> General	<p><b>This is the screen that most users find difficult at first. This is where you select the parameters that you want to monitor. Prior to creating any gauges, charts, etc., you need to create and save your PID list, which you do here.</b></p> <p><b>For most users, the pre-defined groups that I have selected to the left will fit most needs.</b></p> <p>WARNING: Only some PIDs in this group are selected, highlight this group and press "Del" to clear.</p>
<input type="radio"/> Pressures and Temperatures	
<input type="radio"/> Instrumentation	
<input type="radio"/> Emissions Compliance	
<input type="radio"/> Fuel Balance Rates	
<input type="radio"/> Pedal, Water in Fuel, Baro	
<input checked="" type="radio"/> Boost, RPM, Temperatures	
<input type="radio"/> Air Temp, Battery, Fuel Tank	
<input type="radio"/> Fuel Pressure, Speed, A/C, Trans Temp	
<input type="radio"/> Trans, TTVA, Cruise	
<input checked="" type="radio"/> Timing, Engine Status, Idle	
<input checked="" type="radio"/> Fuel, Injectors	

Description	Caption	Units	Default	System	Channels	Parameter
<input checked="" type="checkbox"/> Boost Pressure	BOOST	kPa,PSI	Imperial	Air	2	CM.BOOST
<input checked="" type="checkbox"/> Boost Pressure A/D Value	BOOSTX	Counts	-	Sensor	2	CM.BOOSTX
<input checked="" type="checkbox"/> Commanded Fuel Uncompensated	CMDFUELU	mm3	-	Fuel	2	CM.CMDFUELU
<input checked="" type="checkbox"/> Commanded Fuel with Balance Rates	CMDFUELB	mm3	-	Fuel	2	CM.CMDFUELB
<input checked="" type="checkbox"/> Cruise Control Speed	CCVSS	KMH,MPH	Imperial	Conditions	2	CM.CCVSS
<input checked="" type="checkbox"/> Cruise Control Switch State	CC	Counts	-	Conditions	2	CM.CC
<input checked="" type="checkbox"/> Current Gear	GEAR		-	Transmission	2	CM.GEAR
<input checked="" type="checkbox"/> Engine Coolant Temperature	ECT_B	°C,°F	Imperial	Temperature	2	CM.ECT_B
<input checked="" type="checkbox"/> Engine Coolant Temperature A/D Value	ECTX	Counts	-	Sensor	2	CM.ECTX
<input checked="" type="checkbox"/> Engine Load	ENGLoad	%	-	Performance	2	CM.ENGLoad
<input checked="" type="checkbox"/> Engine RPM	RPM_B	RPM	-	Conditions	2	CM.RPM_B
<input checked="" type="checkbox"/> Engine Status	ENGSTAT	Counts	-	Conditions	1	CM.ENGSTAT
<input checked="" type="checkbox"/> Fuel Control Actuator Command	FCAC	Counts	-	Fuel	2	CM.FCAC

Total PIDs: 166 Selected PIDs: 50 Selected Channels: 95 Selected Packets: 16

EFILive Scan V7.5

File Edit View Info Dashboard Charting Calibration Bidirectional FlashScan Window Help

Console (F6) | OBD II (F7) | PID's (F8) | Data (F9) | Dashboard (F10) | Maps (F11) | DVT (F12)

Pri	Caption	Description	Value	Units	Min	Avg	Max	Paramtr	System
1	BOOST	Boost Pressure	0.0	PSI	0.0	0.0	0.0	CM.BOO	Air
1	BOOSTX	Boost Pressure A/D Value	0	Counts	0	0	0	CM.BOO	Sensor
1	CMDFUELU	Commanded Fuel Uncompensated	0.0	mm3	0.0	0.0	0.0	CM.CMD	Fuel
1	CMDFUELB	Commanded Fuel with Balance Rate	0.0	mm3	0.0	0.0	0.0	CM.CMD	Fuel
1	CCVSS	Cruise Control Speed	0.0	MPH	0.0	0.0	0.0	CM.CCV	Conditions
1	CC	Cruise Control Switch State	0	Counts	0	0	0	CM.CC	Conditions
1	GEAR	Current Gear	N	.	N	N	N	CM.GEA	Transmission
1	ECT_B	Engine Coolant Temperature	0.0	*F	-40.0	0.0	0.0	CM.ECT	Temperature
1	ECTX	Engine Coolant Temperature A/D Va	0	Counts	0	0	0	CM.ECT	Sensor
1	ENGLDAD	Engine Load	0.0	%	0.0	0.0	0.0	CM.ENG	Performance
1	RPM_B	Engine RPM	0	RPM	0	0	0	CM.RPM	Conditions
1	ENGSTAT	Engine Status	0	Counts	0	0	0	CM.ENG	Conditions
1	FCAC	Fuel Control Actuator Current	0.0	mA	0.0	0.0	0.0	CM.FCA	Fuel
1	FCADCA	Fuel Control Actuator Duty Cycle Act	0.0	%	-100.0	0.0	0.0	CM.FCA	Fuel
1	FCADCC	Fuel Control Actuator Duty Cycle Cor	0.0	%	-100.0	0.0	0.0	CM.FCA	Fuel
1	FPA	Fuel Pressure Actual	0	PSI	-30000	0	0	CM.FPA	Fuel
1	FPCS	Fuel Pressure Control State	0	Counts	0	0	0	CM.FPC	Fuel
1	FPD	Fuel Pressure Desired	0	PSI	-30000	0	0	CM.FPD	Fuel
1	FPERRPOS	Fuel Pressure High Total Error	0	PSI	0	0	0	CM.FPE	Fuel
1	FPERRNEG	Fuel Pressure Low Total Error	0	PSI	0	0	0	CM.FPE	Fuel
1	FPSS	Fuel Pressure Sensor State	0	Counts	0	0	0	CM.FPS	Fuel
1	FPSV	Fuel Pressure Sensor Voltage	0.0	V	0.0	0.0	0.0	CM.FPS	Fuel
1	FUELSCL	Fueling Scaler	0.0	Counts	0.0	0.0	0.0	CM.FUE	Conditions
1	IDLEDES	Idle Speed Desired	0	RPM	0	0	0	CM.IDLE	Conditions
1	IDLEDES	Idle Speed Desired	0	RPM	0	0	0	CM.IDLE	Conditions
1	INJTIM	Injection Timing	-20.0	Degrees	-60.0	-20.0	-20.0	CM.INJT	Conditions
1	INJCCV1	Injector Charge Capacitor 1 Voltage	0.0	V	0.0	0.0	0.0	CM.INJC	Fuel
1	INJCCV2	Injector Charge Capacitor 2 Voltage	0.0	V	0.0	0.0	0.0	CM.INJC	Fuel

Once we've selected our PID's and saved our PID list, the next tab over is the Data tab.

This is the raw information as it's happening.

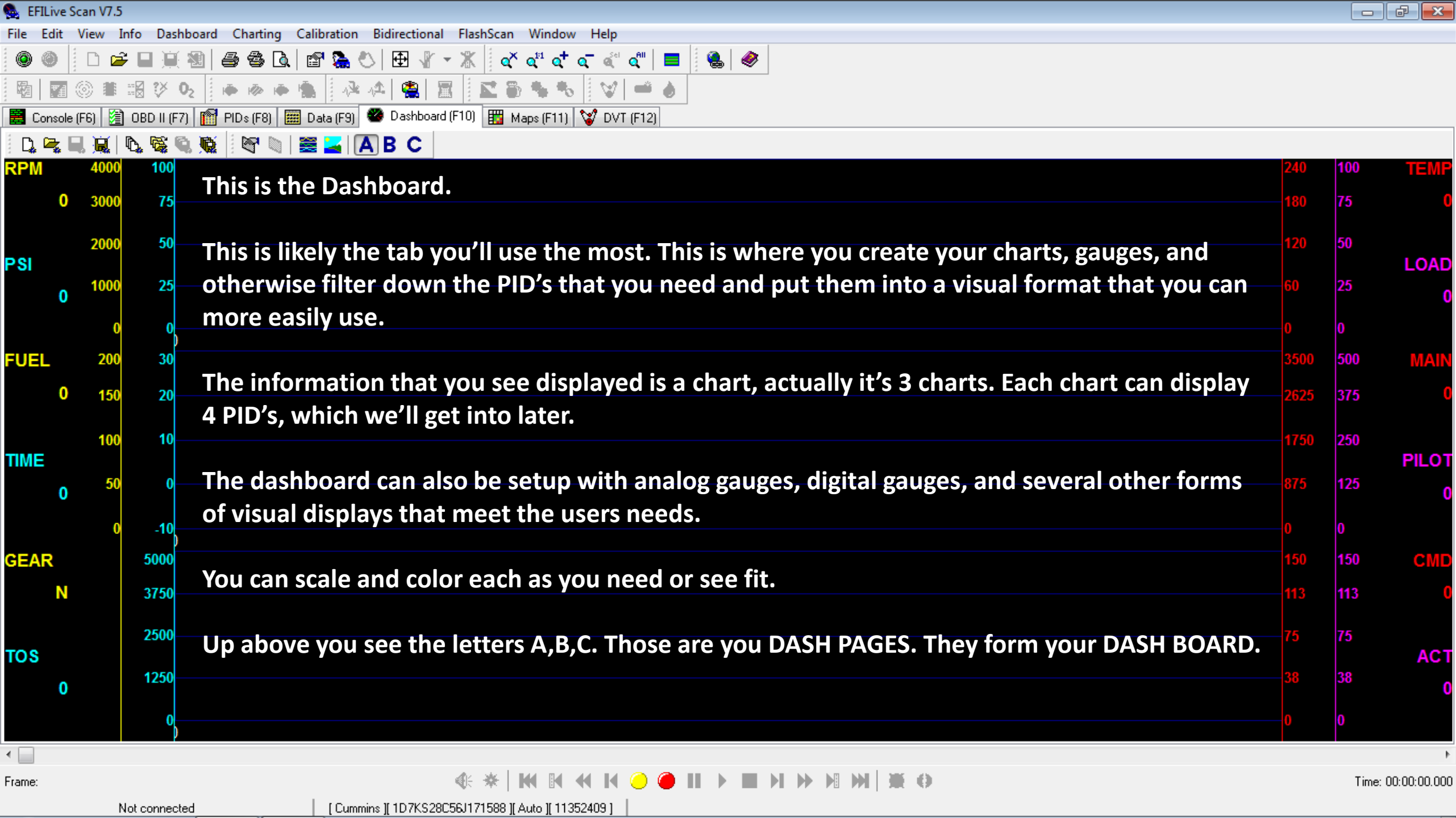
As you can see, there is a lot going on and it's simply too much to absorb and much of it isn't critical or even what you are really looking for, but because we are forced to use the pre-determined PID groups (Cummins not EFILive's doing), that information is there.

So, what we need to do is take the PID's we want and put it into a format we can use. That takes us to the next tab.

Scan mode: Unknown | PID's: | Channels:

Frame: [ Cummins ] [ 1D7KS28C56J171588 ] [ Auto ] [ 11352409 ]

Time: 00:00:00.000



**This is the Dashboard.**

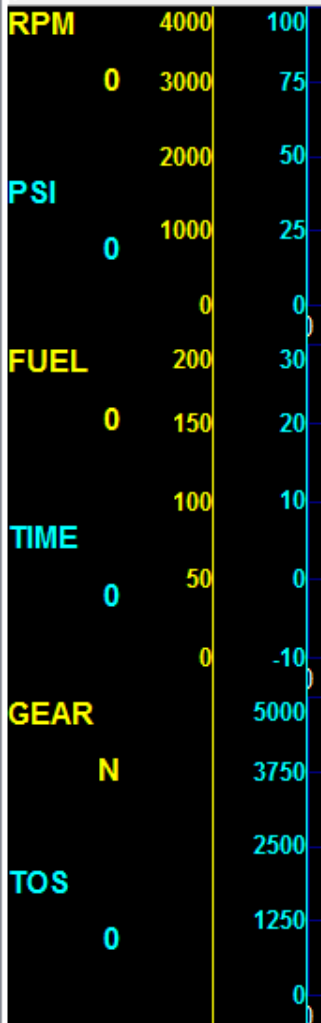
**This is likely the tab you'll use the most. This is where you create your charts, gauges, and otherwise filter down the PID's that you need and put them into a visual format that you can more easily use.**

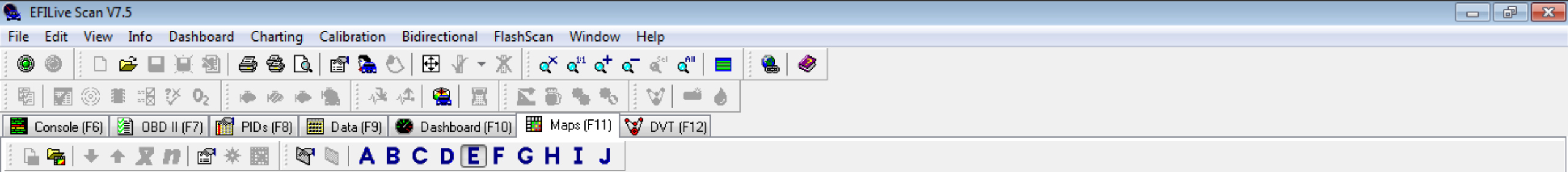
**The information that you see displayed is a chart, actually it's 3 charts. Each chart can display 4 PID's, which we'll get into later.**

**The dashboard can also be setup with analog gauges, digital gauges, and several other forms of visual displays that meet the users needs.**

**You can scale and color each as you need or see fit.**

**Up above you see the letters A,B,C. Those are you DASH PAGES. They form your DASH BOARD.**





Select "Open Map" (Shift+Ctrl+M) to load a preconfigured map.

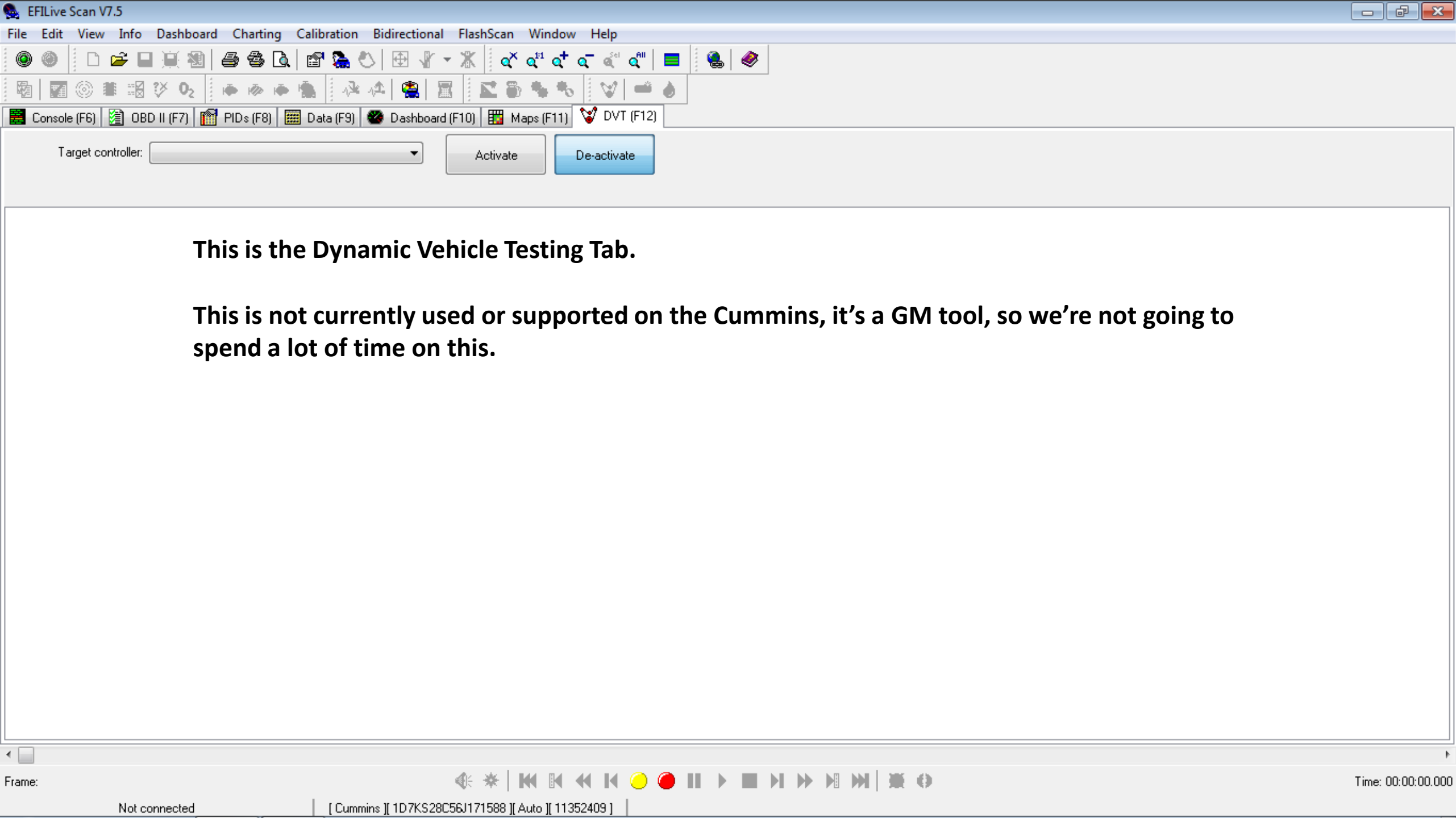
Select "Map Properties" (Ctrl+Enter) to create a new map

## **This is the Maps tab.**

**For the new or casual user, you may not ever use this tab, but if don't you're missing out on an incredible tuning tool.**

**This allows you to create custom maps that, much like the maps you see in the Tune tool, have data with 2 axis'. The difference is, you select the data displayed AND you select the 2 axis' that you want it referenced against.**

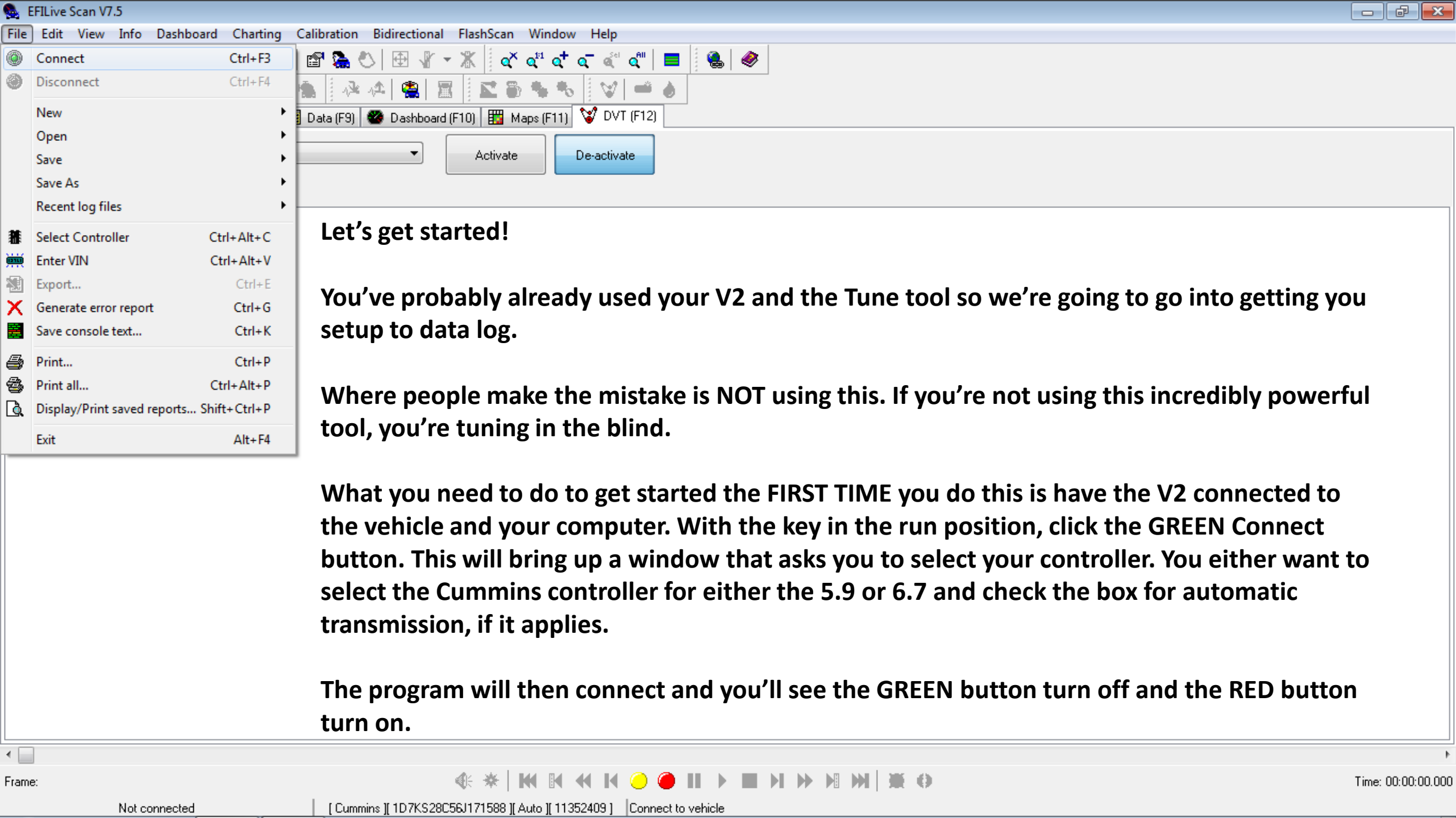
**It sounds more difficult than it is, but I'll show you how to do this later.**



**This is the Dynamic Vehicle Testing Tab.**

**This is not currently used or supported on the Cummins, it's a GM tool, so we're not going to spend a lot of time on this.**





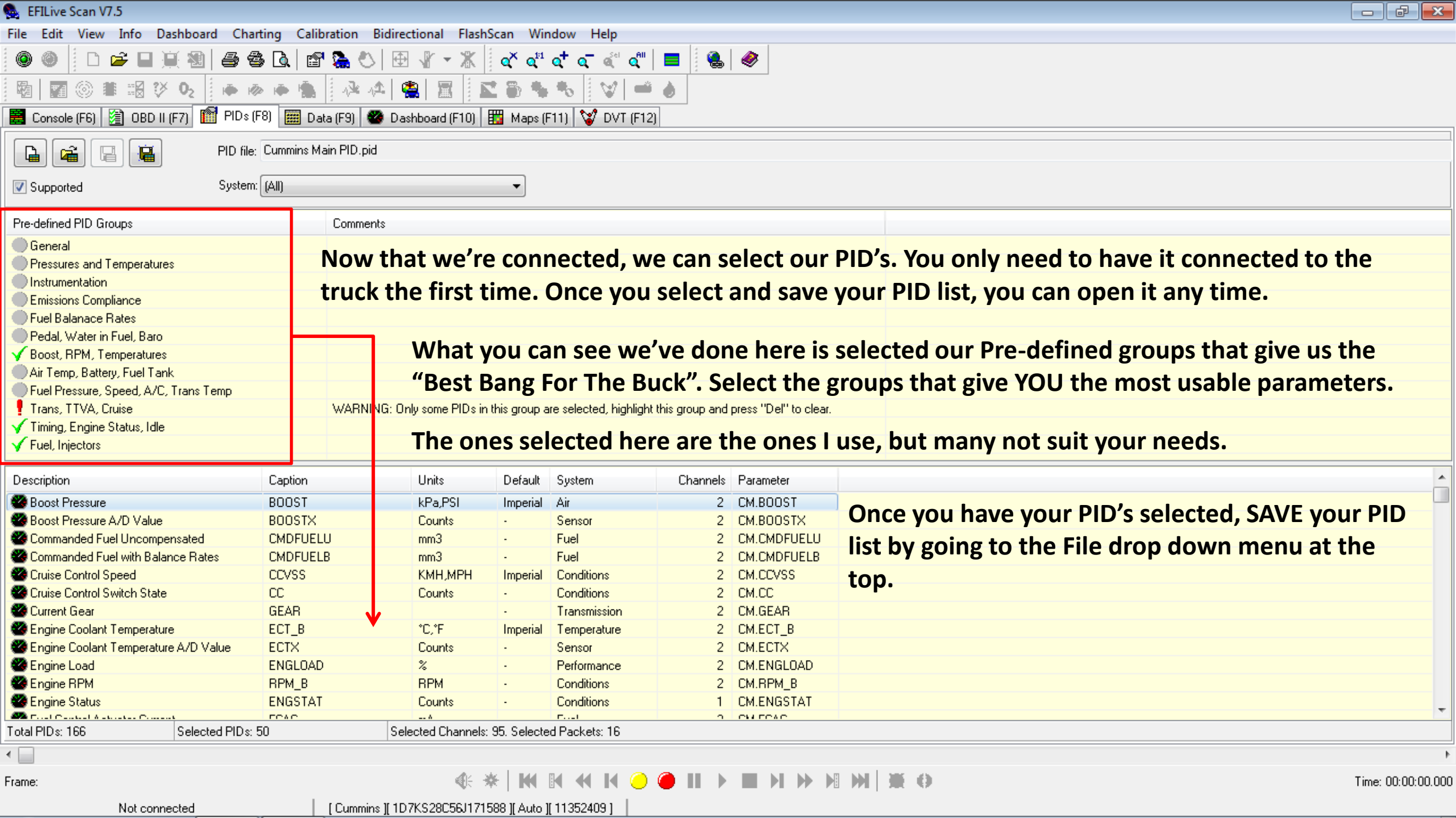
## Let's get started!

**You've probably already used your V2 and the Tune tool so we're going to go into getting you setup to data log.**

**Where people make the mistake is NOT using this. If you're not using this incredibly powerful tool, you're tuning in the blind.**

**What you need to do to get started the FIRST TIME you do this is have the V2 connected to the vehicle and your computer. With the key in the run position, click the GREEN Connect button. This will bring up a window that asks you to select your controller. You either want to select the Cummins controller for either the 5.9 or 6.7 and check the box for automatic transmission, if it applies.**

**The program will then connect and you'll see the GREEN button turn off and the RED button turn on.**



Now that we're connected, we can select our PID's. You only need to have it connected to the truck the first time. Once you select and save your PID list, you can open it any time.

What you can see we've done here is selected our Pre-defined groups that give us the "Best Bang For The Buck". Select the groups that give YOU the most usable parameters.

WARNING: Only some PID's in this group are selected, highlight this group and press "Del" to clear.

The ones selected here are the ones I use, but many not suit your needs.

Once you have your PID's selected, SAVE your PID list by going to the File drop down menu at the top.

Description	Caption	Units	Default	System	Channels	Parameter
Boost Pressure	BOOST	kPa,PSI	Imperial	Air	2	CM.BOOST
Boost Pressure A/D Value	BOOSTX	Counts	-	Sensor	2	CM.BOOSTX
Commanded Fuel Uncompensated	CMDFUELU	mm3	-	Fuel	2	CM.CMDFUELU
Commanded Fuel with Balance Rates	CMDFUELB	mm3	-	Fuel	2	CM.CMDFUELB
Cruise Control Speed	CCVSS	KMH,MPH	Imperial	Conditions	2	CM.CCVSS
Cruise Control Switch State	CC	Counts	-	Conditions	2	CM.CC
Current Gear	GEAR	-	-	Transmission	2	CM.GEAR
Engine Coolant Temperature	ECT_B	°C,°F	Imperial	Temperature	2	CM.ECT_B
Engine Coolant Temperature A/D Value	ECTX	Counts	-	Sensor	2	CM.ECTX
Engine Load	ENGLoad	%	-	Performance	2	CM.ENGLoad
Engine RPM	RPM_B	RPM	-	Conditions	2	CM.RPM_B
Engine Status	ENGSTAT	Counts	-	Conditions	1	CM.ENGSTAT
Fuel Control Actuator Command	FCAC	Counts	-	Fuel	2	CM.FCAC

EFILive Scan V7.5

File Edit View Info Dashboard Charting Calibration Bidirectional FlashScan Window Help

Console (F6) | OBD II (F7) | PID's (F8) | Data (F9) | Dashboard (F10) | Maps (F11) | DVT (F12)

Pri	Caption	Description	Value	Units	Min	Avg	Max	Paramtr	System
1	BOOBT	Boost Pressure	0.0	PSI	0.0	0.0	0.0	CM.BOO	Air
1	BOOBTX	Boost Pressure A/D Value	0	Counts	0	0	0	CM.BOO	Sensor
1	CMDFUELU	Commanded Fuel Uncompensated	0.0	mm3	0.0	0.0	0.0	CM.CMD	Fuel
1	CMDFUELB	Commanded Fuel with Balance Rate	0.0	mm3	0.0	0.0	0.0	CM.CMD	Fuel
1	CCVSS	Cruise Control Speed	0.0	MPH	0.0	0.0	0.0	CM.CCV	Conditions
1	CC	Cruise Control Switch State	0	Counts	0	0	0	CM.CC	Conditions
1	GEAR	Current Gear	N	.	N	N	N	CM.GEA	Transmission
1	ECT_B	Engine Coolant Temperature	0.0	*F	-40.0	0.0	0.0	CM.ECT	Temperature
1	ECTX	Engine Coolant Temperature A/D Va	0	Counts	0	0	0	CM.ECT	Sensor
1	ENGLDAD	Engine Load	0.0	%	0.0	0.0	0.0	CM.ENG	Performance
1	RPM_B	Engine RPM	0	RPM	0	0	0	CM.RPM	Conditions
1	ENGSTAT	Engine Status	0	Counts	0	0	0	CM.ENG	Conditions
1	FCAC	Fuel Control Actuator Current	0.0	mA	0.0	0.0	0.0	CM.FCA	Fuel
1	FCADCA	Fuel Control Actuator Duty Cycle Act	0.0	%	-100.0	0.0	0.0	CM.FCA	Fuel
1	FCADCC	Fuel Control Actuator Duty Cycle Cor	0.0	%	-100.0	0.0	0.0	CM.FCA	Fuel
1	FPA	Fuel Pressure Actual	0	PSI	-30000	0	0	CM.FPA	Fuel
1	FPCS	Fuel Pressure Control State	0	Counts	0	0	0	CM.FPC	Fuel
1	FPD	Fuel Pressure Desired	0	PSI	-30000	0	0	CM.FPD	Fuel
1	FPERRPOS	Fuel Pressure High Total Error	0	PSI	0	0	0	CM.FPE	Fuel
1	FPERRNEG	Fuel Pressure Low Total Error	0	PSI	0	0	0	CM.FPE	Fuel
1	FPSS	Fuel Pressure Sensor State	0	Counts	0	0	0	CM.FPS	Fuel
1	FPSV	Fuel Pressure Sensor Voltage	0.0	V	0.0	0.0	0.0	CM.FPS	Fuel
1	FUELSCL	Fueling Scaler	0.0	Counts	0.0	0.0	0.0	CM.FUE	Conditions
1	IDLEDES	Idle Speed Desired	0	RPM	0	0	0	CM.IDLE	Conditions
1	IDLEDES	Idle Speed Desired	0	RPM	0	0	0	CM.IDLE	Conditions
1	INJTIM	Injection Timing	-20.0	Degrees	-60.0	-20.0	-20.0	CM.INJT	Conditions
1	INJCCV1	Injector Charge Capacitor 1 Voltage	0.0	V	0.0	0.0	0.0	CM.INJC	Fuel
1	INJCCV2	Injector Charge Capacitor 2 Voltage	0.0	V	0.0	0.0	0.0	CM.INJC	Fuel

Now that we have our PID's selected and saved, we're ready to actually see some data.

At this point we could see the raw data if we wanted to. All you have to do at this point is go down to the bottom of the screen where those YELLOW and RED buttons are.

The YELLOW button is to MONITOR parameters and the RED button is to start RECORDING them.

Either way, when you chose to stop, you'll be given the option to save the data log.

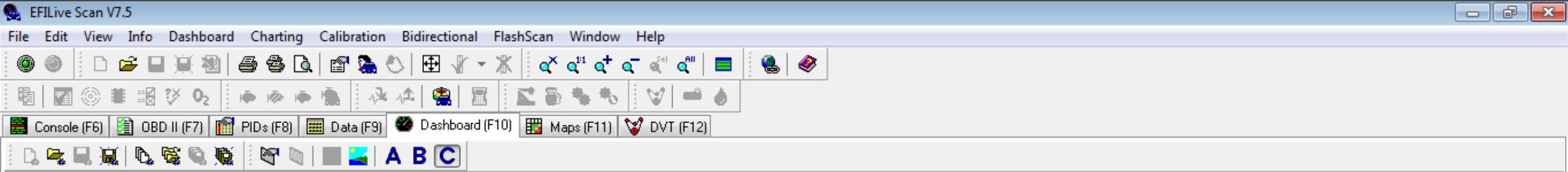
Scan mode: Unknown | PID's: | Channels:

Frame: [ Cummins ] [ 1D7KS28C56J171588 ] [ Auto ] [ 11352409 ]

Time: 00:00:00.000

Not connected

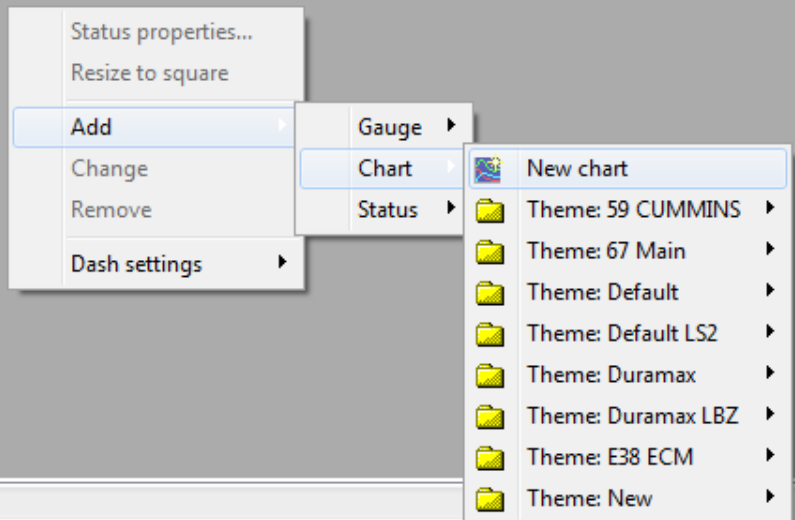


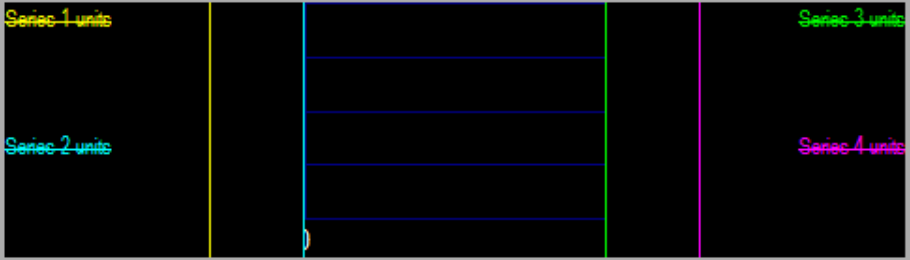
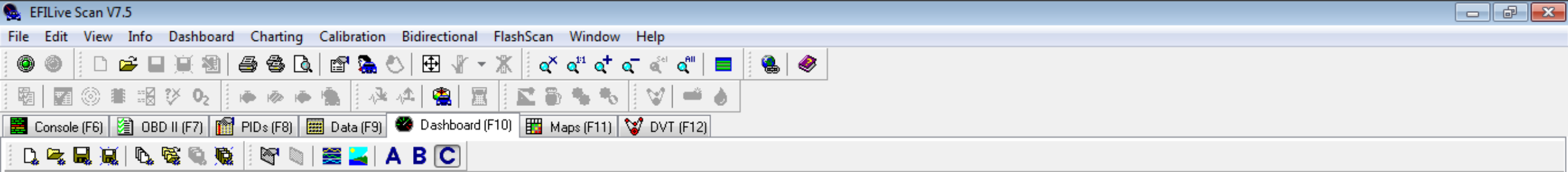


**No, let's create one of these charts.**

**First, we need to clear the page. On the same row as the A,B,C, all the way to the left there is an icon that looks like a blank page, push that. Now, right click on the main page area, select Remove background image. Now we're ready.**

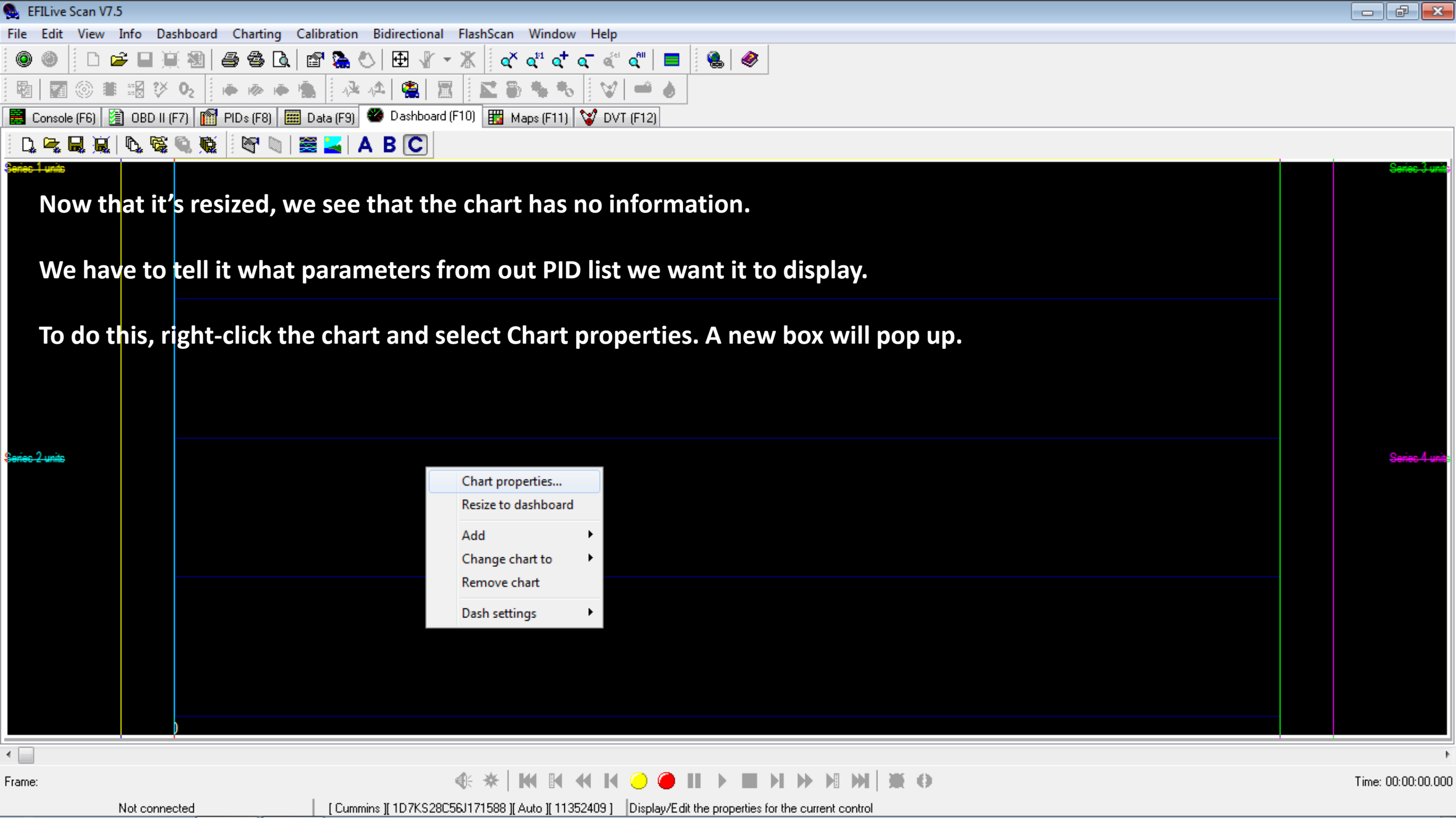
**To add a chart or gauge, look at the pop-ups below. Right click the main page area, select Add – Chart – New chart.**





This will give us what we have here.

This is too small to work with and demonstrate, so I'm going to resize it (just like anything else windows based) so you can see it.

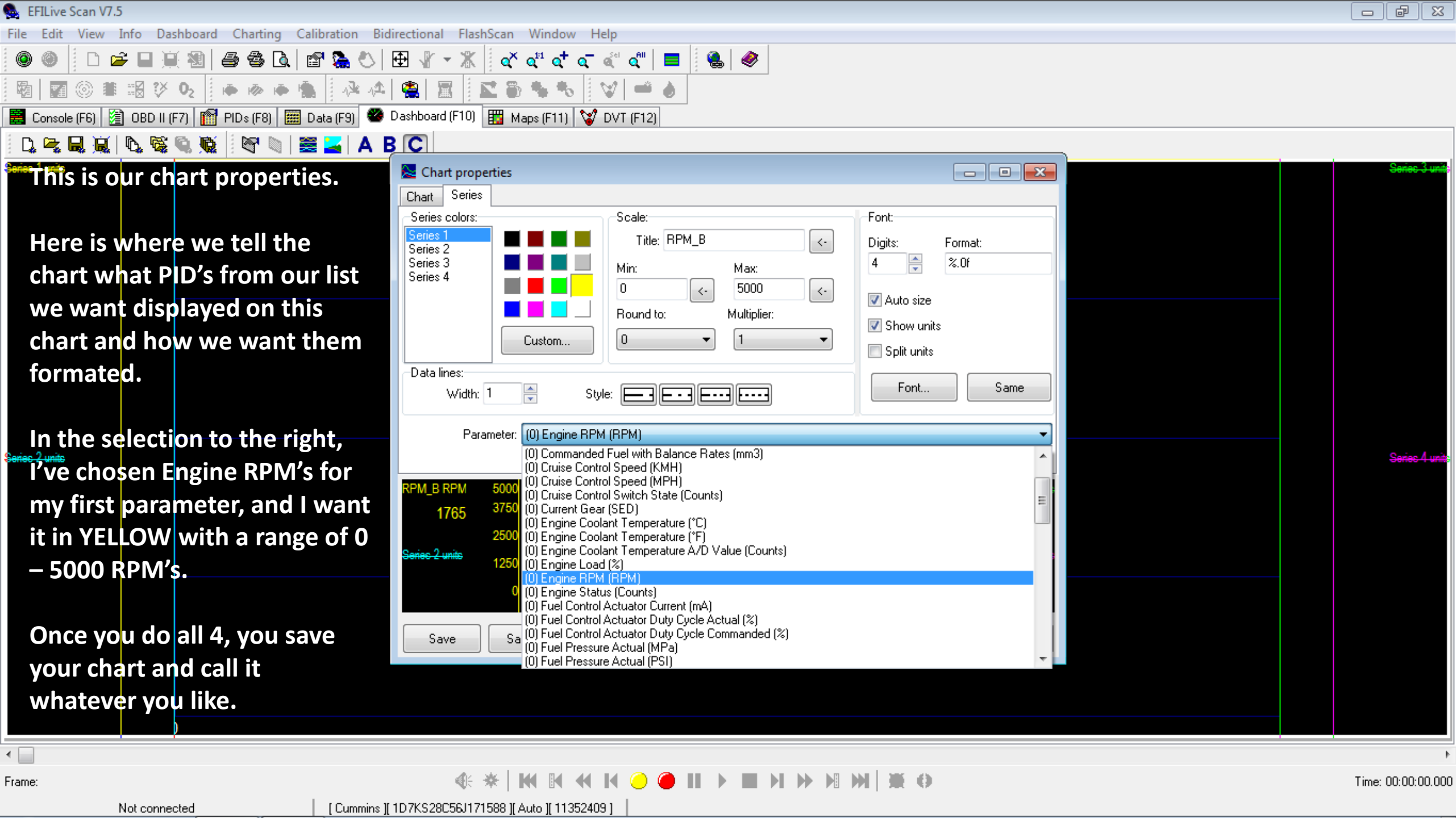


Now that it's resized, we see that the chart has no information.

We have to tell it what parameters from our PID list we want it to display.

To do this, right-click the chart and select Chart properties. A new box will pop up.

- Chart properties...
- Resize to dashboard
- Add ▶
- Change chart to ▶
- Remove chart
- Dash settings ▶



This is our chart properties.

Here is where we tell the chart what PID's from our list we want displayed on this chart and how we want them formatted.

In the selection to the right, I've chosen Engine RPM's for my first parameter, and I want it in YELLOW with a range of 0 – 5000 RPM's.

Once you do all 4, you save your chart and call it whatever you like.

**Chart properties**

Chart Series

Series colors:

Series 1	Black	Red	Green	Yellow
Series 2	Blue	Purple	Cyan	Grey
Series 3	Grey	Red	Green	Yellow
Series 4	Blue	Magenta	Cyan	White

Custom...

Scale:

Title: RPM\_B

Min: 0 Max: 5000

Round to: 0 Multiplier: 1

Data lines:

Width: 1 Style: [Line styles]

Parameter: (0) Engine RPM (RPM)

(0) Commanded Fuel with Balance Rates (mm3)  
(0) Cruise Control Speed (KMH)  
(0) Cruise Control Speed (MPH)  
(0) Cruise Control Switch State (Counts)  
(0) Current Gear (SED)  
(0) Engine Coolant Temperature (\*C)  
(0) Engine Coolant Temperature (\*F)  
(0) Engine Coolant Temperature A/D Value (Counts)  
(0) Engine Load (%)  
(0) Engine RPM (RPM)  
(0) Engine Status (Counts)  
(0) Fuel Control Actuator Current (mA)  
(0) Fuel Control Actuator Duty Cycle Actual (%)  
(0) Fuel Control Actuator Duty Cycle Commanded (%)  
(0) Fuel Pressure Actual (MPa)  
(0) Fuel Pressure Actual (PSI)

Font:

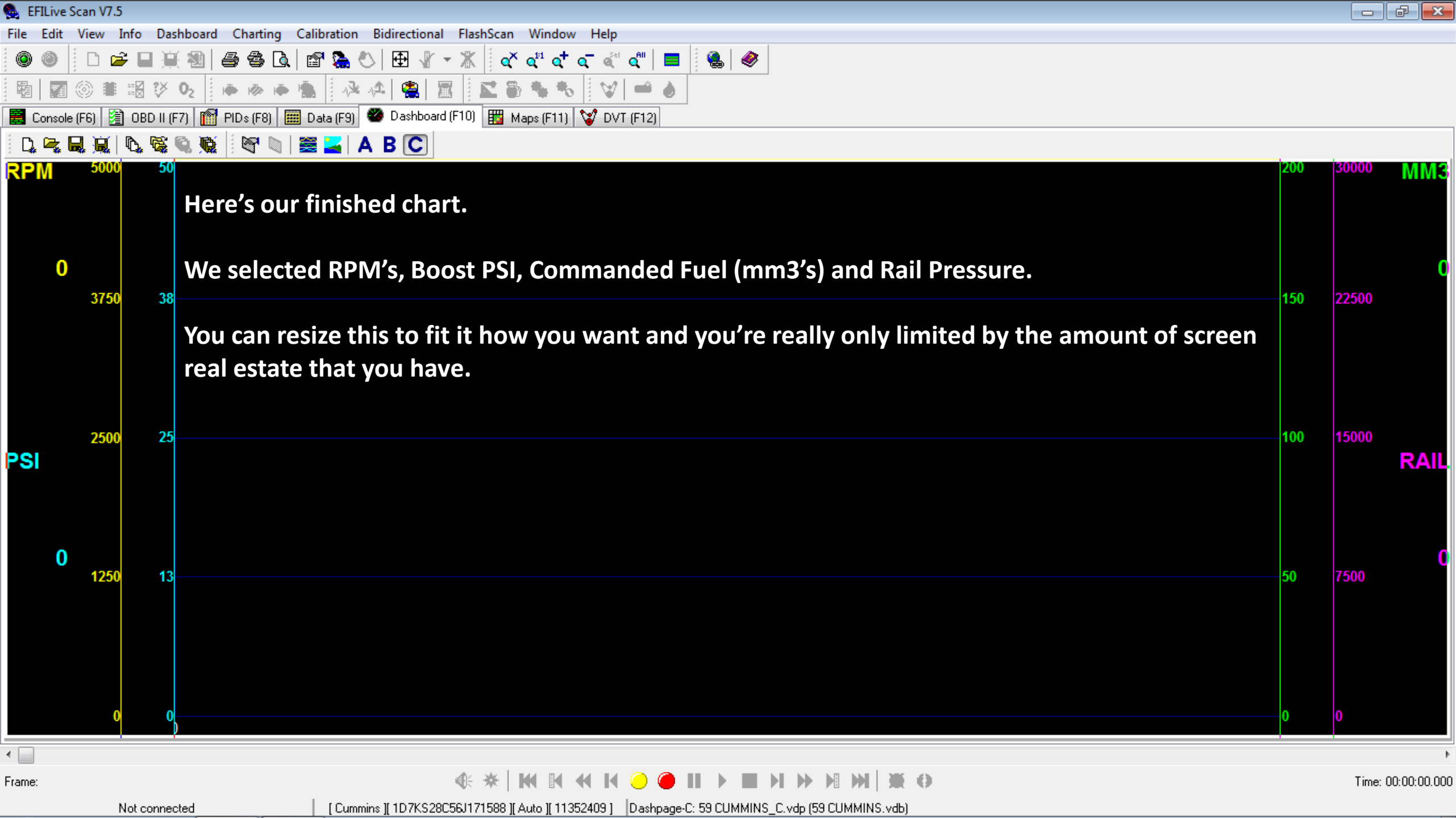
Digits: 4 Format: %Of

Auto size  
Show units  
Split units

Font... Same

Save Save

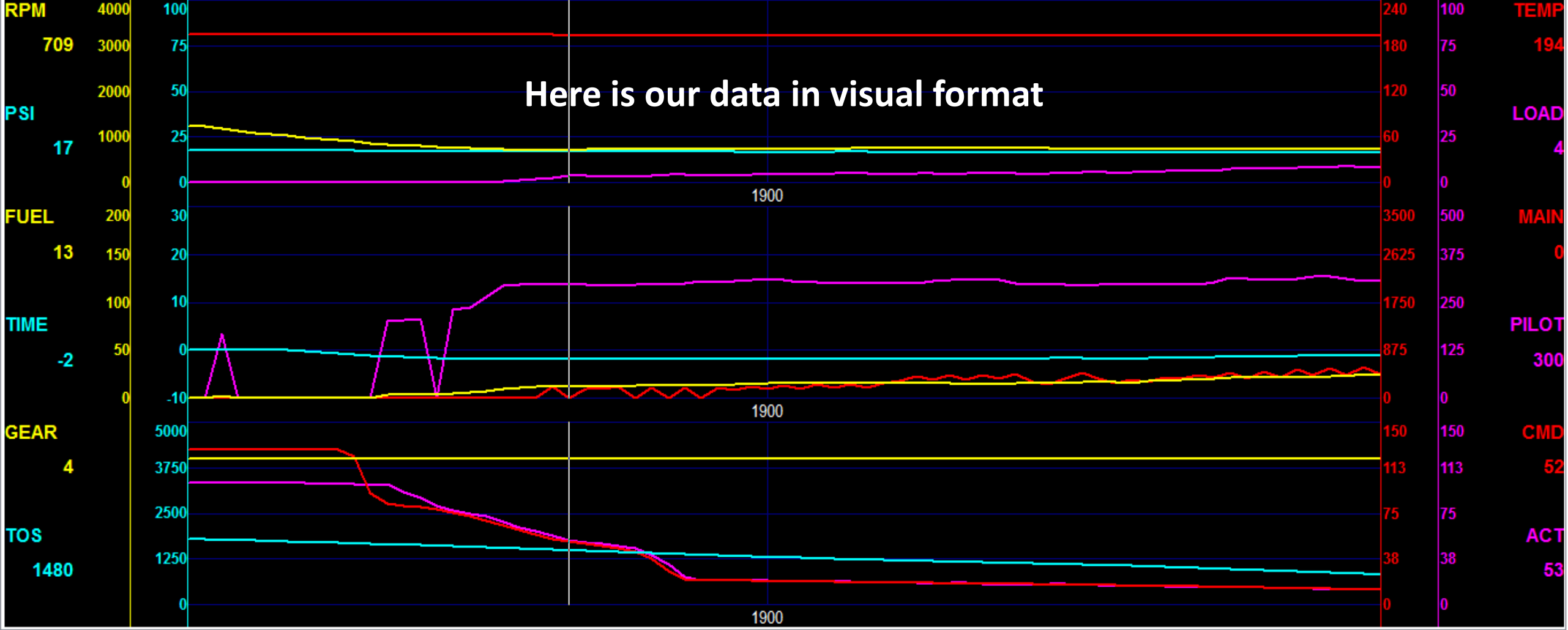
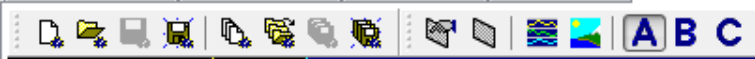
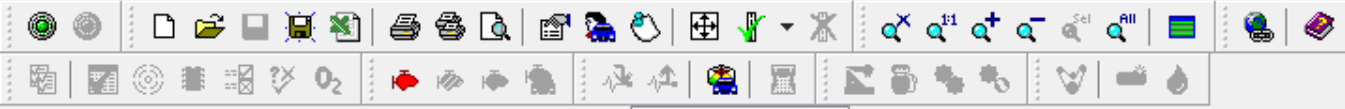


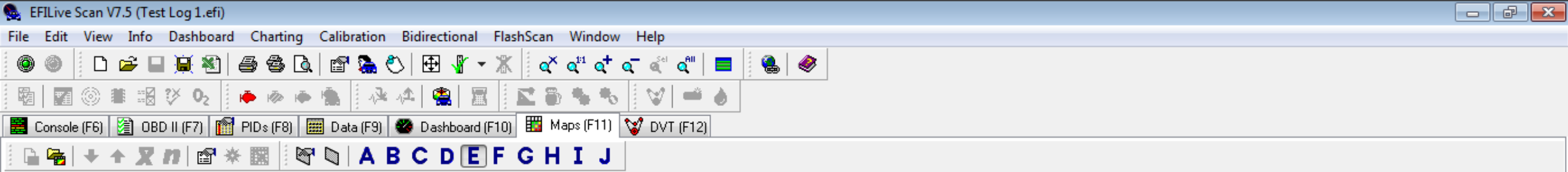


Here's our finished chart.

We selected RPM's, Boost PSI, Commanded Fuel (mm3's) and Rail Pressure.

You can resize this to fit it how you want and you're really only limited by the amount of screen real estate that you have.





Select "Open Map" (Shift+Ctrl+M) to load a preconfigured map.

Select "Map Properties" (Ctrl+Enter) to create a new map

**Now that we've used most of the basic functions, lets look at one that not everyone uses...the Custom Maps.**

**When used correctly, this is one of THE most powerful tools you have to tune your truck.**

**The reason this is so powerful is YOU determine WHAT you want to see and HOW you want to see it.**

**You select everything from the main data displayed to the parameters used to display it.**

**BUT, it's not as hard as it seems to set up. It's actually quite easy.**

**If you already have maps created, you just press SHIFT+CTRL+M to load a map.**

**If you want to create a new map, you press CTRL+ENTER.**



Select "Open Map" (Shift+Ctrl+M) to load a preconfigured map.

Select "Map Properties" (Ctrl+Enter) to create a new map

**When you press CTRL+ENTER, this is what you'll see.**

**Much like the charts, you pick the parameter and you name it. This is for the data INSIDE the map. For our map, lets say it's Main Duration.**

**You then do the same for the Column, the Rows, select cell colors and decide if you want cells with no data empty and what determines an empty cell.**

**Map properties**

Data | Column | Row | Cells | Color | Empty

Parameter:

Names  Selected Rename

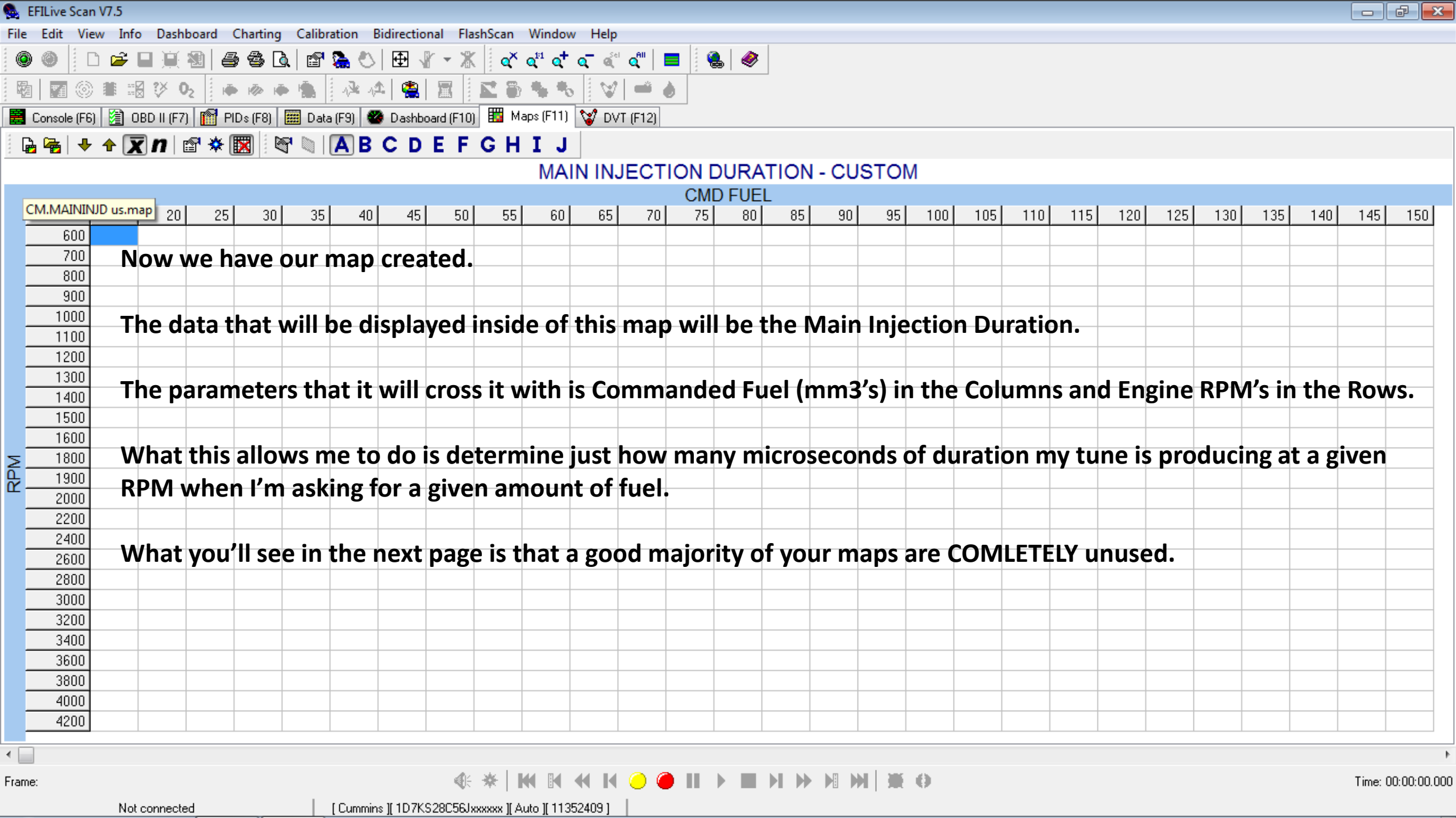
Title:    Show units

Precision:

Display type

?	?	?	?	?	?	?	?	?	?	?	?
?											
?		11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0		
?		21.0	22.0	23.0	24.0	25.0	26.0	27.0	28.0		
?		31.0	32.0	33.0	34.0	35.0	36.0	37.0	38.0		
?		41.0	42.0	43.0	44.0	45.0	46.0	47.0	48.0		
?		51.0	52.0	53.0	54.0	55.0	56.0	57.0	58.0		
?		61.0	62.0	63.0	64.0	65.0	66.0	67.0	68.0		
?		71.0	72.0	73.0	74.0	75.0	76.0	77.0	78.0		

Save Save as  Ok Cancel



### MAIN INJECTION DURATION - CUSTOM

CMD FUEL

CM.MAININJD us.map

20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150

600  
700  
800  
900  
1000  
1100  
1200  
1300  
1400  
1500  
1600  
1800  
1900  
2000  
2200  
2400  
2600  
2800  
3000  
3200  
3400  
3600  
3800  
4000  
4200

RPM

Now we have our map created.

The data that will be displayed inside of this map will be the Main Injection Duration.

The parameters that it will cross it with is Commanded Fuel (mm3's) in the Columns and Engine RPM's in the Rows.

What this allows me to do is determine just how many microseconds of duration my tune is producing at a given RPM when I'm asking for a given amount of fuel.

What you'll see in the next page is that a good majority of your maps are COMPLETELY unused.

### MAIN INJECTION DURATION - CUSTOM

	CMD FUEL																											
	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150
600																												
700	244	370	592	684																								
800	276	354	578	684	833	820																						
900	0				717		750																					
1000	85						707																					
1100	82		446				687	713																				
1200	11	267	365			594																						
1300	11	262	370		550	593	618																					
1400	79	321	420	485	547	587	645	712	759	914	1137																	
1500	116	333	425	494	555	586	661	732	775	996																		
1600	135	379	461	507	557	609	682	735	809	950																		
1800			521			625	696	753	833	985																		
1900						632	702	742	875																			
2000								754																				

RPM

**What you see here is the average number of microseconds (uS) that this tune produced over a in the given cells over a 12 mile route from our shop to a store.**

**This was just normal driving, nothing aggressive, just as I would on any given day.**

**As you can see, very little of the map is being used. What this does is allows YOU to focus your efforts on the parts of your tune that actually get used and not waste time on things that are generally irrelevant.**

# MEFILive

For Dummies!

