

BLUEFIRE

Getting Started

The Data Adapter

The BlueFire Data Adapter is an electronic device that connects to your vehicle's on-board computers (ECMs) and transmits information wirelessly to the BlueFire App (Motorhomes or Trucks). The Adapter is constructed of industrial grade materials, will withstand abuse, and is weather resistant. It currently communicates with the following ECMs but has the capability to support others:

- Engine
- Cab (Body)
- Instrument Panel
- ABS Brakes
- Transmission

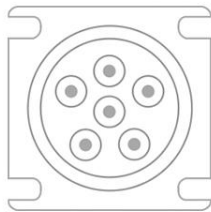
You can purchase your adapter from either Amazon (search for BlueFire Data Adapter) or from our Store at <https://bluefire-llc.com/store>.

There are two styles of adapters - Android/Windows adapters that support Android and Windows 10 and Apple/Android/Windows adapters that support Apple, Android and Windows 10.

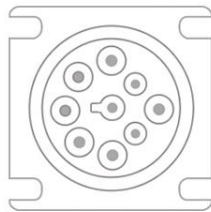
Within each style are two types - 6-pin and 9-pin. They connect to your diagnostic data port usually located under the dash on the driver side. It will look like one of these:

Heavy duty vehicles

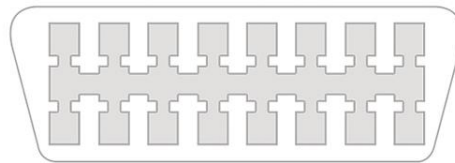
Light and medium duty vehicles



6-pin



9-pin



OBDII

As a general rule of thumb:

- Vehicles (motorhomes, trucks, etc) built from 1995-2001 generally have a gray 6-pin diagnostic port.
- Vehicles manufactured from 2002-2006 may have either a black 9-pin or a gray 6-pin diagnostic port.
- Most Vehicles manufactured from 2007-2016 will have a black 9-pin diagnostic port.
- Vehicles manufactured in 2017 or later will have a green 9-pin diagnostic port.



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- The OBD-II diagnostic port is used by automotive engine manufacturers (Ford, GM, Mercedes, etc) and requires a special OBD-II to 9-pin converter cable. Our Store has a link to manufactures of this cable.
- Please verify what kind of port you have! We have seen a lot of variations out there.
- If you can't find the diagnostic port, look around the steering column and seat. It may also be behind the firewall panel where the electrical wiring is.

Important Note - If you have a Green diagnostic port, you must purchase a Green BlueFire adapter. If you have a Black diagnostic port, you can purchase either the Black or Green BlueFire adapter.

Power Requirements - The Adapter is designed for 12 volt systems and in most vehicles, the diagnostic connector is 12 volts even if the vehicle is 24 volts. If you are unsure, contact BlueFire support as plugging the adapter into a 24 volt system could damage it.

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Mobile Device Requirements

Android Devices - With Android/Windows adapters, you must have an Android device using version 5.0 or newer and with Apple/Android/Windows adapters you must have an Android device using version 6.0 or newer.

Apple Devices - You must have one of the following with iOS version 9.3 or higher:

- iPhone 4s or later
- iPad 3rd gen or later
- iPad Pro all models
- iPad Air all models
- iPad Mini all models
- iPod Touch 5th gen or later

Older Apple devices will not connect with the adapter.

Windows 10 Devices - Either adapter will work but your Windows device must have the following specs and power options:

- 2.0+ GHz processor
- 4+ GB RAM (8 recommended)
- 64-bit OS Windows 10 Latest Version
- Power Option - High Performance

To set a High Performance power option do the following:

1. Go to Settings/System/Power & sleep/Additional power settings (or Control Panel/Power Options)
2. Create a power plan (left hand side)
3. Select the High Performance button.
4. If High Performance is not shown do the following (requires editing the registry)
 - a. Search and start Regedit from the search tab.
 - b. Enter 'HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Power' into the top bar.
 - c. Change the value of the CSEnabled key from 1 to 0.
 - d. Close Regedit.
 - e. Reboot.
 - f. Go back to Power Options and select High Performance.

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5. Name the plan High Performance.
6. Click Next.
7. Change 'Turn Off Display' to your desired settings.
8. Click Create.
9. Select your High Performance power plan.

Exploring the App

Step 1. Download the BlueFire for Vehicles App on a device of your choice from the Apple App store, Goggle Play store, the Microsoft store, or Amazon Apps and Games. The App is free. Just search for 'BlueFire for Vehicles'.

Step 2. Open the BlueFire for Vehicles App on your device. The first time you start the App the following will occur:

- The EULA will be shown. This is the legal agreement between you and us. You're welcome to read it but it is very legalese. Check the appropriate boxes and continue.
- Your home time zone will be set to the local time zone. Change this in the Settings page if it is not correct.
- A prompt will be shown requesting you to enter your email address in the Settings page. This will continue to prompt until you do so.

Step 3. Go to the Settings page and set up the App for your particular use (see the Setting up the App section).

Step 4. Start exploring some of the features. The App will run in a demo mode and give you a look at what functions are available. You can even design your dash in demo mode.

- **Trip Page** - This feature allows you to keep track of fuel usage, distance, etc during a trip. You tap on Start Trip and End Trip which notifies the App when you start and finish your trip. You can choose to email the trip data to the email address you specified in settings.
- **Drive Page** - This shows vehicle information in real time.
- **Repair Page** - This shows information that may help diagnose a problem with your vehicle.
- **Dash Page** - This display your custom dash. See the Customize your Dash section.
- **TPMS Page** - This shows and allows for configuring your axle and tires for TPMS support.
- **Faults Page** -The adapter will read fault codes and show the fault information including the standard fault description. You can tap on the fault to see what was happening in the engine at the time of the fault and you can choose to save or email the fault to yourself for your records.
- **Logging Page** -This page provides the opportunity to select certain data you want to monitor and log. You specify the interval in seconds that the App should check the data and how often it should email the log to you. When you start logging it will record all the data points chosen and keep a record of these in an Excel style spreadsheet. This can be used for fuel economy analysis and might be very helpful in trouble shooting a problem.

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- **Info Page** - This shows the VIN, Make, Model, Serial No, etc. for the vehicle, engine, brakes, and transmission. Note, not all manufacturers will send this information so it could be incomplete. See the Ignore Vehicle Info settings.
- **About Page** - Information about the App, the adapter, and us (BlueFire) is shown here. Please note the What's New button, as it will list what improvements that have been made to the App. This document (Getting Started) is also available to view.
- **Settings Page** - This allows you to set up and configure the App and adapter for your particular use. See Setting up the App below.
- **Connect** - This will initiate the connection to the adapter. It's best to Set up the App first before connecting.

Uninstalling the App

Uninstalling the BlueFire App will delete the App and remove all your settings, custom dashes, saved trips, saved faults, and any log files. You can then reinstall the App and start fresh. You can also reset the App from the Settings page (see below).

Note that on some Android devices only the App is removed. All your other data is still present and will be reused if you re-install the App. To remove all the App's data, use your Android File Manager to locate the BlueFire App folder and delete it manually.

Setting up the App

Below is information and suggestions for setting up the App for your particular use from the Settings page.

- **Metric:** Select this to show data in metric, otherwise it will be shown in standard US measurements.
- **Auto Connect:** This will cause the App to automatically attempt to connect to the adapter when you start the App. Combined with the Customize Dash 'Show your Dash on Startup' option, you can have your dash connected and displayed every time you start the App. It is recommended though that you only select this after you have finished designing your dash and your mobile device is permanently mounted in your vehicle. If Auto Connect is selected and you're not in range of the adapter, the App will continue to retry the connection until it times out or you cancel it which could be an annoyance.
- **App Brightness:** Select this if you want the App to be displayed at maximum brightness.
- **Do Not Show EULA:** Select this if you do not wish to see the End User License Agreement (EULA) every time the App starts up. This will already be checked if you indicated so when the App started and shown the EULA the first time.
- **Do Not Lock Screen:** Select this if you do not want your device to go into screen lock while the App is opened. (This is a good idea!)
- **Do Not Show Demo (Default) Data:** Select this to only show data that comes from your vehicle ECMs after connecting to the adapter. This will prevent the demo data from appearing which might be confusing. Showing demo data can be handy when designing your dash as the data will give you a good idea on the correct size of the gauges. Note that if you have a trip started or you have connected/disconnected from the adapter, showing demo data will be disabled. Note, on Apple devices the word 'Demo' is shown as 'Default'.
- **Do Not Show Logo:** This will remove the BlueFire logo from the Home page. It can be useful if you are running the App on a very small device or in landscape mode.
- **Do Not Use GPS:** Choose this setting if your mobile device does not have GPS or if you do not want the App to use GPS. GPS is used to determine your location for trips, logging, etc.
- **Show Google Maps:** Shows Google Maps on the device's web browser instead of the device's default maps (Apple or Bing maps). This option is only visible if Google Maps is not installed. If Google Maps is installed then Google Maps will be used.
- **Monitor Faults:** Select this if you want the App to constantly be monitoring the adapter for faults. This uses a lot of processing time as it is checking every second for faults. Use it only if necessary, otherwise - it is more efficient to click on the Faults icon on the home page and check it yourself from time to time. If however, you are trying to diagnose an intermittent fault or some other problem, you will want to select this. Note, if you place the Engine Status gauge on your dash, faults will be monitored while you have your custom dash displayed.

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- **Auto Email Faults:** If you select this, the App will send an email to you whenever a fault is detected, even intermittent ones.
- **Show Dash on Startup:** This will open the View Dash page immediately after starting the App.
- **Show Faults on Startup:** This is primarily for mechanics. It will open the Faults page immediately after starting the App.
- **Do Not Show Informational Faults:** This will keep faults that do not cause the check engine light (MIL) to come on from showing on the Faults page.
- **Ignore Vehicle Info:** This will instruct the App not to request the vehicle's VIN, Make, Model, and Serial number from the adapter. This will improve performance and is recommended if you don't need it on your trip and logging reports. Note, that you can still enter your VIN manually (see below).
- **Vehicle VIN:** This allows you to enter your Vehicle's VIN instead of retrieving it from the ECMs. You can enter either the Engine VIN or the Vehicle VIN depending on which one you reference your vehicle with. This will improve performance since the VIN is not being retrieved from the ECM. Note, this is only visible if Ignore Vehicle Info is checked.
- **Show Engine VIN:** Select this if you want to show the Engine VIN instead of your Vehicle VIN in your trip and logging reports. If both Show Engine VIN and Show Vehicle VIN are not selected, Engine VIN will take precedence. Note this is only visible if Ignore Vehicle Info is not checked.
- **Show Vehicle VIN:** Select this if you want to show your Vehicle VIN instead of the Engine VIN in your trip and logging reports. If both Show Engine VIN and Show Vehicle VIN are not selected, Engine VIN will take precedence. Note this is only visible if Ignore Vehicle Info is not checked.
- **Force Portrait Mode:** If you are running the App on a device in portrait mode, selecting this will prevent the device from switching to landscape mode when rotated. Note, that in Windows 10, this option is not available.
- **Force Landscape Mode:** If you are running the App on a device in landscape mode, selecting this will prevent the device from switching to portrait mode when rotated. Note, that in Windows 10, this option is not available.
- **Use Bluetooth Low Energy (BLE):** Select this to always connect to the adapter using Bluetooth Low Energy (BLE). This will not be shown for Apple devices as all Apple devices use BLE. For Android and Windows devices this will automatically be selected when connecting to the adapter but you can speed up the connection time if you have a BLE adapter and you select this first. Note, a BLE adapter is an Apple/Android/Windows adapter and has a square Bluetooth chip under the cap.
- **Use Bluetooth Classic 2.1:** Select this to always connect to the adapter using Bluetooth Classic 2.1. This will not be shown for Apple devices as all Apple devices use Bluetooth Low Energy. For Android and Windows devices this will automatically be selected when connecting to the adapter but you can speed up the connection time if you have a Bluetooth Classic adapter and you select this first. Note, a Bluetooth Classic adapter is a Android/Windows adapter has a rectangular Bluetooth chip under the cap.

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- **Connect to Last Adapter:** Selecting this will instruct the App to only connect to the adapter it last connected to. This will prevent the App from accidentally connecting to another adapter that might be nearby.
- **Adapter Connection Attempts:** Set this to the number of times you want the App to attempt to connect to the Adapter. If your mobile device does not connect to the adapter, try setting this to a value that allows for a consistent connection. The default is 5 attempts.
- **Adapter Reconnection Attempts:** Set this to the number of times you want the App to attempt to reconnect to the adapter after losing connection. The default is 5 attempts.
- **Reconnection Audio Alerts:** Set this to the number of reconnection audio alerts. The default is the number of Adapter Reconnection Attempts (see above).
- **Silent Reconnection:** Selecting this will keep the App from showing any adapter reconnect notifications and from playing the audio alert except if the reconnection fails after the number of retries.
- **Bluetooth Recycle Attempt:** Set this to the Connection Attempt number when Bluetooth will be recycled (stopped and restarted). This may help with reconnecting the adapter but will turn Bluetooth off and back on. The default is on the 2nd attempt. Note, this will not be visible on Apple devices as it's not applicable since the App is not allowed to turn Bluetooth off or on.
- **Adapter Discovery Timeout:** Set this to the timeout value (in seconds) for Bluetooth to discover the adapter. Increase this if you are in a crowded area and the App is not connecting to the adapter. Setting this to 0 will cause the App to automatically set this. Note, this will only be visible with an Apple/Android/Windows (BLE) adapter.
- **Adapter Connection Timeout:** Set this to the timeout value (in seconds) for the App to connect to the adapter. This should be set according to your mobile device's actual time it takes to connect to the adapter. Setting this to 0 will cause the App to automatically set this.
- **Adapter Minimum Interval:** Set this to the adapter's minimum data transmit interval (in milliseconds). Setting this to a low value (less than 300 ms) will increase the Bluetooth data traffic and will improve data response performance. Setting this to a high value (1000 ms or greater) will reduce the Bluetooth data traffic, slow the data response, and may help with adapter connection issues.
- **Allow Adapter to Sleep:** This will turn the adapter LED's off after 2 minutes of no activity. It will automatically wake up once the app connects.
- **Connect to a J1939 Data Bus:** Select this to instruct a 9-pin adapter to connect to the J1939 data bus. This is selected by default unless the adapter is a 6-pin. J1939 refers to the name given to the network standard that the vehicle computers are using. J1939 became the standard around 2004, however there continued to be some manufacturers that used the older J1708 standard for a while after that.
- **Connect to a J1708 Data Bus.** Select this to instruct a 6 or 9-pin adapter to connect to the J1708 data bus. If you're using a 6-pin adapter, this will automatically be selected after you connect for the first time. If you're using a 9-pin adapter, only select this if you must as it places a burden on the adapter to retrieve J1708 data. This standard was adopted when

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computers were first introduced into vehicles and ran until 2004-5 however you may still have J1708 computers in your vehicle with later years.

- **Connect to an OBD-II Data Bus:** Select this if you have a vehicle with an automotive engine (Ford, GM, Mercedes, etc) and an OBD-II diagnostic port (rectangular instead of round). You will also need an OBD-II to J1939 converter cable to use with our J1939 adapters. Most OBD-II vehicles 2015 and newer will work with our adapter. Older vehicles may or may not work. Please note that OBD-II ECMs do not transmit as much information as J1939 or J1708 ECMs. The data items that may be available are RPM, Speed, Odometer (Distance), Oil Temp, Intake Temp, Coolant Temp, Boost Pressure, Fuel Level, Fuel Rate, Total Engine Hours, Engine Load, Engine Torque, Driver Torque, Accelerator Pedal Position, Throttle Position, Battery Voltage, and Faults.
- **Ignore Aftertreatment:** This relates to newer vehicles with diesel exhaust fluid (DEF) and a catalytic converter to significantly reduce harmful emissions. Select this to instruct the App to not request this information from the adapter. This will improve performance if you do not need to see this information.
- **Ignore Transmission Data:** Select this to instruct the App to not request this information from the adapter. This will improve performance if you have a manual transmission or if you do not need to see this information.
- **Ignore Out of Range:** This keeps the App from detecting if your mobile device is getting close to the Bluetooth range (20-30 feet) and requires calibration (located in the [About](#) page). Note, this will only be visible with an Apple/Android/Windows (BLE) adapter.
- **Uses Gaseous Fuel:** Select this if your vehicle uses a gaseous fuel like CNG.
- **Performance:** Improves update times for slower response data. If you're experiencing slow update times for some of your gauges in your dash, try setting one of the options here. See the Dash Customizing Tips for more information on Performance options. Note, this feature is only available with 9-pin J1939 adapters.
 - **Performance 1:** Improves update times for medium speed data such as Boost Pressure, Oil Pressure, and Coolant Pressure.
 - **Performance 2:** Improves update times for slow speed data such as Brake Pressures, Temperatures, and Battery Voltage.
- **RPM Interval:** This is how often RPM is sent from the Adapter to the App (in milliseconds). The default (0) is 50 milliseconds. Setting this to a higher value will reduce the Bluetooth data traffic and may help with Adapter connection issues. It is recommended this be set to 500 ms (.5 sec) or greater if you're having connection issues.
- **Email Address:** Enter the email address you would like the App to send trips, logging, and fault information to you. Email address is required and the App will continue to remind you to enter it.
- **Home Time Zone:** Your home time zone (where you live).
- **Night Mode:** This allows you to have the App change its App Color settings from day to night and visa-versa based on chosen options of using the mobile device's light sensor (Light Sensor); setting begin and end times (Set Times), or manually turning night mode on and off (Manual On).

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The 'Light Sensor' option requires a mobile device that supports retrieving the ambient light level from the sensor. If the mobile device does not have a sensor, this option will not be available. Also, Apple does not allow Apps to access the light sensor so this option is not available on Apple devices. For those devices that do support the light sensor, you can set the 'Night Level' to a value that when the 'Current Level' goes below it night mode will be activated. You can also set the 'Delay Interval' that will keep the App from changing night modes during the delay interval. This can help with night mode fluttering when the 'Current Level' is fluctuating around the set 'Night Level'. Note, when you first select this option, the 'Current Level' will show 'NA'. You must go back to the Home page to activate the sensor and then return to the Settings page to see the 'Current Value'. If the 'Current Value' remains 'NA' then the App is not able to retrieve the ambient light level and you need to choose another option.

The 'Set Times' option allows setting the 'Begin Time' and 'End Time' for turning night mode on and off. These times can be set using either a 12 or 24 hour format and are entered as hh:mm with am/pm for the 12 hour format.

The 'Manual On' option allows you to turn night mode on and off. Night mode will stay on or off until you change it again.

Note, setting or changing a Night Mode option (Light Sensor, Set Times, Manual On) requires you to go back to the Home page to activate the change.

- **Odometer Offset:** Set this if your vehicle dash odometer is different from your custom dash odometer and you want to make them the same. For example, if the vehicle shows 100,000 but the App shows 100,010 set the offset to -10 so the App will show 100,000.
- **Speedometer Offset:** Set this if your vehicle dash speedometer is different from your custom dash speedometer and you want to make them the same. This is most likely caused with oversized tires. Note, this is a ratio that you have to calculate based on your tire size.
- **Fuel Used Offset:** If you need to adjust fuel used for any reason, you can input a positive or negative number to help obtain a more accurate reading.
- **Engine Hours Offset:** The engine hours displayed on your instrument panel may be different from the app reading coming from the engine itself. This is not uncommon when an engine is replaced. This allows to adjust by the difference. (See example in Odometer offset).
- **Outside Temperature Offset:** If you need to adjust the outside temperature because the sensor is off, you can input a positive or negative number to help obtain a more accurate reading.
- **LED Brightness:** This allows you to set the level of brightness by a percentage. 100% down to 1% (Note: please remember that the LED colors are there for a reason so it is not possible to turn them off completely.)
- **TPMS:** This configures your axle/tire configuration for a TPMS installation (see the TPMS section below). Set the number of tires per axle and whether the axle is a trailer (towed) axle. After enabling TPMS, a TPMS icon will appear on the Home page that will show the

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status of your tires. You have to restart the App before the TPMS icon will show. A TPMS Text gauge is also available for your custom dash.

- **Fuel Tanks:** This is where you specify the Fuel Tank Type (single, dual or different) and the primary Fuel Tank Capacity. If your fuel level gauge is not accurate you can also select the Show Calculated Fuel Level Gauge option. This option will calculate your fuel level and fuel remaining based on fuel used from the engine computer, the Fuel Tank Capacity entered above and tapping the Fuel Fill Up button on the Trip page or your custom dash.
- **Custom Dash:** This will show the Customize Dash page which allows you to design your custom dash using Graphic and text gauges. See the Customize your Dash section for more detail.
- **Custom Colors:** This will show the Custom Colors page which allows you to customize any of the colors used by the App. To customize the colors of your dash and gauges use the Custom Colors options in the Customize Dash and Customize Gauges pages.
- **Audio Alert:** Changes the audio alert and volume used by reconnection alerts and your custom gauges alerts. You can choose any valid ringtone or audio file on your mobile device. Note that for Windows devices the volume is associated with the device's system volume. For example if the system volume is at 50% and you choose an alert volume of 50%, your actual alert volume will be 25% of the device's highest volume level.
- **Adapter Security:** Allows you to change the security settings - Secure with Device Id; Secure with Adapter Id, and Secure with User Name and Password. Secure with Device Id will only allow your mobile device to connect to the adapter. Secure with Adapter Id will allow any mobile device that has previously connected to your adapter to connect to the adapter. Secure with User Name and Password will allow any mobile devices with the same User Name and Password to connect to the adapter. You can use the security settings to ensure no one near you accidentally (or on purpose) connects to your adapter. Note, the settings can only be changed after connecting to the adapter.
- **Dealer Search Order:** This allows you to change the order of dealers when searching for a dealer in the Faults page. Note, in Demo mode you can only select one dealer. Once you connect to the adapter you can select more.
- **Language:** Changes your language from English (default) to one of three others (French, Spanish, and Portuguese). Note, the App languages are not fully completed. You will need to restart the App for this change to take effect.
- **Font Size:** This refers to the font size of all text in the App. The options are small, medium, large, and extra-large. You will need to restart the App for this change to take effect.
- **Adjust Font Size:** This allows for a more specific font size adjustment. The value is in pixels and must be between -10 and +20. You will need to restart the App for this change to take effect.
- **Reset ECM Data:** This will reset ECM data used for trip data and for calculating average fuel economy, fuel remaining, and distance remaining when not connected to the adapter. Use this option if your new trip data or your fuel economy data is not correct. No harm will be done, you'll just not see this data when not connected to the adapter.



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- **Reset Hidden Alerts:** This will cause all the hidden alerts (alerts with the 'Got It' button) to be displayed again. This is helpful if you accidentally tapped the 'Got It' button on an alert that contains instructional information and you want to see it again (for example, the alert you see when first showing a custom dash).
- **Reset App:** This will reset the App to its initial factory settings. Please note that resetting the app will delete all Settings, Custom Dashes, Saved Trips and Logging Files.
- **Reset Adapter:** This will reset the adapter to its initial factory settings. If you are having trouble connecting to the adapter, resetting it may help. You must be connected to the adapter before performing a reset. The App will automatically disconnect from the adapter. After the adapter resets (approximately 30 seconds), the LEDs will be blinking red, green and blue. You must then unplug and re-plug in the adapter to complete the reset.
- **Send the Event Log:** This will email the App's Event Log to BlueFire Support. Do this only if requested by BlueFire support. This is used by BlueFire Support to help trouble shoot a problem.
- **Clear the Event Log:** This will clear the App's Event Log. As the Event Log is automatically cleared every two weeks and it does not consume very much storage, you should not need to do this but in the event your mobile device's storage is filling up, you can try this to see if it helps.
- **System:** These are advanced system settings. Please use with caution. You most likely will have no need of these.

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Customize your Dash

Step 1. Open the Customize Dash page by one of the following methods:

- Go to the Settings page scroll down and tap on 'Custom Dash'.
- Or tap on the Dash icon on the Home page. If you do not have a custom dash defined, the Customize Dash page will be shown. If you already have a custom dash defined, double tap any open space in your dash and the Customize Dash page will be shown

Step 2. Familiar yourself with the Text and Graphic gauges.

1. Add one Text gauge. The Odometer is a good one.
2. Note, for iOS users, you must tap 'Done' after selecting a gauge.
3. Add one Graphic gauge such as RPM.
4. Add another Graphic gauge such as Speed.
5. Tap the 'Show Dash' button.
6. Drag the gauges so you can see all three.
7. Become familiar with all the options available with the gauges.
 - a. Double tap the Text gauge (Odometer) to go to the Customize Gauges page.
 - b. Explore all the options available with Text gauges.
 - c. Select the Graphic gauge (RPM).
 - d. Explore all the options available with Circular gauges.
 - e. Spend a lot of time here so you'll know how best to design your dash.
 - f. Select the other Circular gauge (Speed).
 - g. Change it to a Linear gauge.
 - h. Explore all the options available with Linear gauges.
 - i. Note, the 'Gradient Bar' is not available on Windows and the 'Name' and 'Value' are not available on Android in a 'Vertical Orientation'.
 - i. Spend some extra time here so you'll get familiar with Linear gauges.
8. Go back to the Customize Dash page.
9. Add many Text gauges and play with moving them around in the gauges list.
 - a. To quickly add a gauge, tap the 'None' gauge and select your gauge from the dropdown list.
 - b. To insert a gauge above another gauge, tap the gauge you want to insert above from and select your gauge to insert.
 - c. To remove a gauge, tap the gauge you want to remove and select 'None' from the dropdown list.
 - d. Note to iOS users, you must tap 'Done' after selecting a gauge from the dropdown list.

10. Check out the Custom Colors options in the Customize Dash and Customize Gauges pages. Setting a custom color in the Customize Dash page will assign that color to all existing gauges and any new ones. Setting a custom color in the Customize Gauges page assigns that color only to that gauge.
11. Clear your dash and start designing your real custom dash.

Step 3. Design your custom dash.

1. Look at the Dash Customizing Tips first.
2. The 'Lock Orientation and 'Auto Save the Dash' options will automatically be set.
3. Check out the available custom dashes in the BlueFire Dash Repository (see Dash Customizing Tips);
 - a. Tap the 'Download Custom Dash' option.
 - b. Browse and select a custom dash that you like.
 - c. Tap the 'Show Dash' button. Note how well the custom dash fit.
 - d. Go back to the Customize Dash page.
 - e. If the downloaded dash did not fit, you can resize the dash to fit your mobile device. Optionally you could select 'Auto Resize' prior to downloading the dash (see Dash Customizing Tips).
4. If you want a very simple dash just using Graphic gauges and no Text gauges then use the 'Show Simple Dash' option.
 - a. Select 'Show Simple Dash'.
 - b. Scroll down and set the 'Gauges Per Portrait Row' or 'Gauges Per Landscape Row' depending on your mobile device orientation.
 - c. Add your Graphic gauges.
 - d. If you have more gauges than can fit in your mobile device screen, select 'Scroll the Dash Page'.
 - e. Tap the 'Show Dash' button and your gauges will be shown in a row/column grid.
5. Otherwise you want a custom dash with Text and Graphic gauges placed precisely where you want to see them.
 - a. Optionally download a custom dash.
 - b. Use Gauge Templates to help build your dash (see Dash Customizing Tips).
 - c. Add your Text and Graphic gauges.
 - d. Tap the 'Show Dash' button.
 - e. All your added gauges will be stacked on top of each other. Note, you do not have to add all your gauges at the same time.
 - f. Move them to where you want them.
 - g. Double tap a gauge to customize it further.
 - h. Go back to the Customize Dash page.

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6. Save your customize dash.
 - Note, you can create and save sub-dashes that are grouped and then merge those sub-dashed to create a custom dash where the grouped sub-dashes can be moved around as one unit (see Dash Customizing Tips).

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Dash Customizing Tips

Tip 1: Make it Easy and Comfortable

You don't have to be connected to the adapter to build your dash. You can do it from the comfort of your sofa or lounge chair.

Get yourself one of those touch sensitive pens that allow you to touch the display of your device. They make it much easier to drag and drop gauges.

Tip 2: Demo Data vs Connected Data

When the App starts for the first time, it defaults to showing demo data. This is where all the pages show data that simulates connected to an adapter. For designing your dash, this is handy since it helps you define the size of the gauge. It also allows you to see and demonstrate the capabilities of the App without having to have an adapter.

Demo data is turned off automatically if you have connected/disconnected from an adapter or if you have started a trip. If you are connected to an adapter, the data shown is what is being retrieved from your vehicle ECMs. When you disconnect from the adapter, which ever pages that were shown with ECM data will maintain that data until you close the App. To return to showing demo data you must restart the App. ECM data is not persisted when restarting the App.

The exception to showing demo data after starting the App is if you have started a trip and the trip is in progress. In this case the App will start and only show your trip data in all the pages until you connect to the adapter. This allows you to cancel or end the trip without having to connect to the adapter. Likewise you can start a trip without connecting to the adapter but to do this you must first turn off showing demo data.

Once your dash is designed and you're ready to rock-n-roll you might want to turn off demo data so you don't get confused when you start the App and see the demo data especially the trip data.

You can turn demo data on and off with the 'Do Not Show Demo (Default) Data' option in the Settings page.

Note, on Apple devices, 'Demo Data' is shown as 'Default Data'. The reason is because Apple does not allow the word "demo" to be used anywhere in their Apps. Our App got rejected by Apple when we first submitted it so the word demo had to be changed to default.

Tip 3: Z-Order Explained

When the View Dash page is displayed, the gauges are 'stacked' on top of each other, then positioned. This 'stack' is called the Z-Order. It refers to the Z axis which is the 3-D depth of the gauge while the X axis is the 2-D width and the Y axis the 2-D height. So the Z-Order is the order of the gauges as you are looking down at them from the top. A gauge that is underneath another gauge cannot be grabbed for dragging unless a portion of it is sticking

out from the top gauge. When you define your dash and add gauges, Text gauges have a higher Z-Order than Graphic gauges. This allows you to move Text gauges over Graphic gauges. This is the same for gauge visibility. A gauge that is behind another gauge will be obscured by the gauge that's on top of it. Note that if the gauge's background color is the same as the dash's background color, the gauge's background will be transparent to the underneath gauge.

Graphic gauges are square so a circular gauge that is half a gauge still occupies the same Z-Order space as a full gauge. Likewise for Linear gauges, they occupy the same square space if they are horizontal or vertical. You should take this into account when designing your dash.

Text gauges are stacked according to the order they are added. So to move a smaller Text gauge over a larger one, the smaller gauge must be after the larger gauge in the 'Add or Remove Gauges' list. If the smaller gauge is before the larger one you can move the larger gauge to be before the smaller one by tapping the smaller gauge in the list, then select the larger one from the drop down list. The larger gauge will be moved above the smaller one.

A good example is where you have added three gauges, Gauge1, Gauge2, and Gauge3. In the Z-Order, Gauge2 will be above Gauge1 and Gauge 3 will be above both Gauge2 and Gauge3. In the Dash View page, if you move Gauge2 over Gauge1, Gauge2 will obscure Gauge1 and you will not be able to move Gauge1. Likewise for Gauge3. Now if you want Gauge2 to be behind Gauge1, go back to the Dash Customize page and tap 'Add or Remove Gauges'. This brings up your list of Gauge1, Gauge2, and Gauge3. Tap on Gauge1 and select Gauge2 from the drop down list. Tap 'Done' if you're on iOS. Gauge2 will be moved in front of Gauge1 and your list will now be Gauge2, Gauge1, and Gauge3. Go to the View Dash page and move Gauge1 over Gauge2 and you'll see that Gauge1 now obscures Gauge2. If you set the background color of these gauges to something other than the dash's background color, the obscurity becomes more apparent.

Tip 4: Viewing you Dash

Here are ways to interact with your gauges on the View Dash page:

- Double tapping a gauge will show the Customize Gauges page.
- A single tap in open space will return to the previous page.
- A double tap in open space will show the Customize Dash page.
- A single tap on a backdrop image will show the Customize Dash page.
- Single tapping locked Trip gauges or Engine Status will show their respective pages (Trip and Faults).
- Single tapping a locked Dual Time will switch between local and home time. Note, 'Local' or 'Home' will only show if the Gauge Name has not been changed.
- Locking a gauge disables dragging and dropping, enables range alerts, and allows single tapping of Trip gauges, Engine Status, and Dual Time.
- To drag and drop just one gauge while the others are locked, lock the gauges in Customize Dash, then unlock the specific gauge in Customize Gauges.

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- Use Pinch to Zoom, Snap to Grid, and Size to Grid for a quick start in figuring out the right size for your gauges.

Tip 5: Aligning Gauges

To align gauges use the Grid Widths, Snap to Grid, and Size to Grid options in the Customize Dash and Customize Gauges pages. You can also do very fine pixel alignment with the Gauge Location X (vertical), Y (horizontal) values in the Customize Gauges page.

Tip 6 Grouping Gauges

Gauges can be grouped together so that you can move them as a single unit. You can have multiple groups. The best way to create groups of gauges is to do the following:

1. Clear your custom dash.
2. Create your first group of gauges.
3. Assign them a unique group number.
4. Save the group of gauges as a sub-dash (give it a name with the group number).
5. Repeat the above for all your groups.
6. Clear your dash.
7. Create your custom dash.
8. Merge in all your groups and move them to where you want them.
9. Save your custom dash.

Tip 7: Resizing, Moving, and Re-Center your Dash

A dash can be resized and moved as a whole. It can even be centered. Follow these steps to resize, move, and center your dash:

1. Design and create your dash or import/download one.
2. Make sure it has one gauge that will be the center point. You could even place a temporary text gauge for this.
3. Uncheck the Lock All Gauges option.
4. Resize the dash to fit your mobile device (if you imported/downloaded it).
5. Update the dash gauges with a group number.
6. Show your dash.
7. Double tap the center point gauge to go to Customize Gauges.
8. Tap the Location option.
9. Tap the Center Horizontal button.
10. Save the gauge.
11. Go back to the View Dash page.
12. All your grouped dash gauges will be moved and aligned around the center point gauge.

Tip 8: Creating a Graphic Gauge Grid

An easy way to quickly create a grid of your Graphic gauges is to first use the 'Show Only Graphic Gauges' option in the Customize Dash page. When you have the gauges the way you like, turn off the option, and group and lock the gauges. You can then add Text gauges and resize and move the Graphic gauge grid around to fit in your new custom dash.

Tip 9: Graphic Gauge Ranges

For each Graphic gauge you can set the Good, Warning, and Danger ranges. These relate to the Green, Yellow, and Red colors on the gauge (these colors can be changed). There is one Good range and two Warning and Danger ranges. The two Warning/Danger ranges allow for ranges before and after the Good range. You can think of this as minimum and maximum ranges.

For help in setting the Graphic gauge ranges (Good, Warning, Danger) correctly, take a look at the following Graphic gauges for examples:

- Speedometer - shows max ranges after the green range.
- Fuel Level - shows min ranges before the green range.
- Battery Voltage - shows both min and max ranges before and after the green range.

Text gauges that have a corresponding Graphic gauge (e.g. RPM) share their ranges and alerts (warning, danger, etc.). Updating either one will sync with the other.

Tip 10: Gauge Alerts

Many gauges have the ability to show an alert and optionally play an audio alert. For Graphic gauges alerts can be assigned to their Warning and Danger ranges. For Text gauges alerts can be assigned to the Engine Status and TPMS gauges.

There are numerous options associated with gauge alerts as listed below:

- Show Warning/Danger Alert - shows one or both of the alerts.
- Show Gauge Only on Alerts - shows the gauge only when an alert occurs. There is a portrait dash in the Dash Repository that demonstrates this option.
- Show Only Driving Alerts - shows the alerts only while driving (vehicle in motion).
- Alert Count - the number of times to play the audio alert when an alert occurs and the App is in the foreground. If the App is in the background (not visible), the audio alert will sound continuously until the App is displayed.
- Alert Timeout - the time in seconds that the alerts will be shown before automatically dismissed. This is handy if you can't reach the mobile device easily to dismiss the alert yourself.
- Audio Alert - this is set in the Settings page and can be changed to any valid audio file.

If you have simultaneous multiple alerts, they will be showed stacked on top of each other. Alerts will also be shown as a device notification.

Tip 11: Create a Box Gauge

Here's how you can create a Box to use in your custom dash:

1. Add one of the generic Text gauges (Text 1-20).
2. Go to Customize Gauges and select the Text gauge.
3. Clear the Text field.
4. The Gauge Size 'Width' and 'Height' field will automatically be set for a small box.
5. Set the 'Width' and 'Height' to the size box you want.
6. Set the Borders 'Width' to what you want the box to look like.

Tip 12: Create a Vertical Line

Here's how you create a Vertical line to use in your custom dash:

1. Add one of the generic Text gauges (Text 1-20).
2. Go to Customize Gauges and select the Text gauge.
3. Clear the Text field.
4. A box will be created as described above.
5. Set the Gauge Size 'Height' to the vertical line length.
6. Set the Gauge Size 'Width' to the vertical line width.
7. Check either the Borders 'Top' or 'Bottom'. Uncheck the others.
8. Set the Borders 'Width' to the Gauge Size 'Width' (vertical width).

Tip 13: Create a Horizontal Line

Here's how you create a Horizontal line to use in your custom dash:

1. Add one of the generic Text gauges (Text 1-20).
2. Go to Customize Gauges and select the Text gauge.
3. Clear the Text field.
4. A box will be created as described above.
5. Set the Gauge Size 'Width' to the horizontal line length.
6. Set the Gauge Size 'Height' to the horizontal line width.
7. Check either the Borders 'Left' or 'Right'. Uncheck the others.
8. Set the Borders 'Width' to the Gauge Size 'Height' (horizontal line width).

Tip 14: Add a Navigation Map Gauge

You can add a navigation map gauge to your custom dash by following these steps:

1. Add one of the generic Text gauges (Text 1-20).
2. Go to Customize Gauges and select the Text gauge.
3. Check the Navigation Map option.
4. Lock or unlock the map gauge. Note, an unlocked map will not show the map but will allow for moving and resizing using panning and pinch to zoom.
5. A locked map will be shown on your dash using the native mapping service (Apple, Google, Bing).

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6. If you're using an Apple or Windows 10 device and you want to use Google Maps for navigation, go to the Settings page and check the Show Google Maps option.
7. Tapping the locked map on your dash will show the selected navigation page.

Tip 15: Add your own Images

You can add images to your custom dash by following these steps:

1. Add one of the generic Text gauges (Text 1-20).
2. Go to Customize Gauges and select the Text gauge.
3. Scroll down and tap Text Images.
4. Browse and select your image file (png or jpg).
5. Choose to use this image as your night image or browse for your night image.
6. If you want to maintain the aspect ratio of your image within the frame size, check the 'Resize to frame aspect ratio' box. The frame size is determined by either the Gauge Size 'Percent', 'Width and 'Height', or your dash size if the image is a backdrop image.
7. If you want this image to be your custom dash backdrop, check the 'Set as backdrop image' box. If the 'Resize to the frame aspect ratio' option is checked, the image will be resized to fit within your dash. If the image is not set to be resized, it will be cropped to fit within your dash.
8. For a non-backdrop image, borders are recommended because the image is not shown while dragging or zooming. Borders are automatically set for non-backdrop images.
9. You can resize the image to be the size you want. Use Gauge Size 'Percent' to keep the aspect ratio or use 'Width' and 'Height' to size the image manually. To see the maximum width and height for the image's aspect ratio, change the 'Percent' to a very large value (ie. 1000) and then the 'Percent', 'Width', and 'Height' will change to the maximum values that will fit in the dash page.
10. A Backdrop image is locked (can't be moved) and is placed behind all other gauges so that the other gauges can be seen and moved within the backdrop image.
11. Non-backdrop images are located in the z-order according to their placement in the Customize Dash 'Add or Remove Text Gauges' list (see Tip 2 Z-Order Explained). You can move the non-backdrop images so that other gauges appear either in front or behind the image. To place a gauge in front of the image (ie. the gauge on top of the image), move the gauge such that it's after the image in the list. If you want the gauge to be behind the image (ie. the image on top of the gauge), move the gauge such that it's before the image in the list. Note that Graphic gauges are always behind Text gauges except for Backdrop and Box gauges. If you want a non-backdrop image to be behind a Graphic gauge, check the 'Show behind all other gauges' box.

Tip 16: Creating Multiple Page Dashes

You can create a custom dash that contains multiple vertical pages. This is actually a long scrollable dash that add 'Next Page' and 'Prev Page' Text gauges that will scroll between the pages instead of manually scrolling. Note that this feature is only available for Apple and

Windows with Android coming in the future. Follow these steps to create your multi-page dash:

1. Start with a clear dash.
2. From the Customize Dash page, add the 'Next Page' and 'Prev Page' Text gauges (we'll call them buttons).
3. Set your dash to scroll using the 'Scroll the Dash Page' option.
4. From the View Dash page, customize and position the Next/Prev gauges where you want to see them on all pages (typically toward the bottom of the page).
5. 'Lock' the Next/Prev Page gauges. This will allow them to scroll between the pages while you design your dash.
6. Add all your dash gauges.
7. From the View Dash page, move your second page gauges to the second page roughly positioned (you'll design this page later).
8. Tap the 'Prev Page' button to go back to the first page.
9. Position the first page gauges where you want them.
10. Tap the Next Page button. Your second page will show.
11. Now position the second page gauges.
12. Do same for any subsequent pages.
13. From the Customize Dash page, 'Lock' all gauges.
14. On your custom dash, the Next/Prev Page buttons will now navigate between the pages (you can still scroll if you want).

Tip 17: Create Gauge Templates

Use Gauge Templates to clone new gauges (Text and Graphic) and make them look the same. You define Gauge Templates in Customize Gauges and then specify in Customize Dash that you want to use the template for your new gauges. This can be very handy for creating a grid of text gauges or a group of half-moon circular gauges. Combine this with the 'Snap to Grid' and 'Size to Grid' options and you can easily and quickly create your custom dash. Here is a possible scenario for creating a grid of text gauges:

1. Start with a clear dash.
2. Set your 'Snap to Grid Widths' to 80/40.
3. Add your first text gauge.
4. Go to the Customize Gauges page.
5. Select the text gauge.
6. Set (or leave alone) the following:
 - Template Gauge
 - Custom Colors
 - Snap to Grid
 - Size to Grid
 - Group Number (leave 0)
 - Gauge Size (leave Width and Height 0)
 - Show Unit of Measure
 - Font Attributes
 - Font Sizes

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- Spacings
 - Text Alignment
 - Borders
 - Optionally you can set all the Alert options
7. Save the gauge.
 8. You can also 'Backup' the gauge if you want to restore it later in case you accidentally remove it.
 9. Go back to the Customize Dash page.
 10. Show the Dash.
 11. Drag and drop the gauge and verify that the Snap and Size to Grid is placing the gauge like you want it. If not, go back and change the 'Snap to Grid Widths'. Note, if you change the 'Snap to Grid Widths', you must go to Customize Gauges and set the Gauge Size 'Width' and 'Height' of your template gauge to 0 in order to snap and size to the new widths.
 12. Once you have the correct 'Snap to Grid Widths', add your other text gauges and move them to where you want them in your dash.
 13. Group your dash grid so all the gauges can be moved together.
 14. Optionally save your dash grid as a sub-dash (see above). Don't forget to add your group number to the notes section so you don't accidentally re-use the group number somewhere else.

Tip 18: Sharing your Dash

There are two ways you can share your custom dash. You can share it just with a friend or you can share it with everyone. In both cases, you must save your dash first. It is highly recommended that when you save your dash that you provide a good explanation of the dash in the notes section. This allows others to better understand your custom dash when you share it. If you use group numbers in your custom dash, make sure you state in the notes what the group numbers are assigned to.

When you receive a shared dash, you have the option to 'Auto Resize' it when it is shown for the first time. Auto resizing compares the width of the host screen with yours and adjusts the gauges accordingly. If the dash is longer than your screen height, scrolling will be enabled. This is not a perfect science and you may want to try auto resizing and if it doesn't fit your screen very well, you can try receiving the dash again with 'Auto Resize' turned off and then resize the dash yourself.

Tip 19: Sharing your Dash with a Friend

You share your dash with a friend by using the 'Share Custom Dash' option. This option will email your friend your dash. If you have images in your dash, the email will attach up to five of those images.

To receive a dash from a friend, you use the 'Import Custom Dash' option. But first, you must copy the dash you received from your friend's email to either a folder on your device or to iCloud for Apple devices. You'll need to copy any images also. Importing the dash will allow

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you to browse for your friend's dash you just copied and then import it as your current dash. If you select an image file for importing, that image will be included in your dash.

Note, you can also make a backup copy of your dash by sharing it with yourself.

Tip 20: Sharing your Dash with Everyone

You can share your custom dash with everyone by using the 'Upload Custom Dash' option. This option will save your dash first then take a screenshot of it. Your uploaded dash will be stored in the BlueFire Dash Repository and be made available to everyone. Any Text gauge images will also be stored. You will be credited as the author of your dash by your email address so others can contact you about your dash.

To view all shared dashes in the BlueFire Dash Repository you use the 'Download Custom Dash' option. This option will show all shared dashes for the current orientation of your device. You can select a dash by tapping on it and it will be downloaded and installed as your current dash.

Tip 21: Trips and Fuel Fill

You can start a trip from the Trip page and monitor it on your custom dash. The trip Text gauges will update on your dash as you drive.

For the fuel gauge, fuel remaining, and distance remaining gauges, you can either use your fuel gauge reading from the ECM or tell the App when you have filled your tank.

To use the manual fuel fill option you must turn it on in the Fuel Tanks page (from Settings). You can then indicate that you have completely filled your tank ('Fuel Fill Up' button), or you can enter a partial fill in gallons or liters ('Partial Fuel Fill Up' button). The partial fill allows for negative values to either correct a mistake or to initially set the tank level.

To initially set the tank level, first fill the tank full with the 'Fuel Fill Up' button, then enter a negative partial fill value to reduce the tank level to what you want. Complete fuel fill ups can be done from your custom dash with the 'Fuel Fill Up' Text gauge. Partial fill ups must be done from the Trip page.

Tip 22: Performance

J1939 data messages (PGNs) travel at different speeds on the data bus, anywhere from 50 ms (1/20 second) to one second. The engine ECM for example sends RPM every 50 ms, Speed every 100 ms, Boost Pressure every 500 ms, and Brake Pressure every second. The BlueFire adapter reads in these messages and transmits them via Bluetooth to the App. The adapter uses a storage buffer to save new messages while it's transmitting existing messages to the App. This storage buffer has limited space and when it's full, new messages are ignored. So you can see that it's very easy for very fast messages like RPM to fill the buffer and thus slower messages will get ignored and never transmitted to the App.

The Performance setting allows you to specify whether you want to allow medium speed messages (500 ms) to have a little higher priority than fast messages (50-100 ms), or to allow slow speed message (1 second) to have priority over fast and medium speed messages. Depending on your setting, the adapter will allow those medium or slow messages into the buffer even when it is full, replacing faster messages. This ensures the medium or slow messages will get transmitted to the App. You may however notice a slight degradation in the update frequency for faster messages.

Tip 23: The CAN Filter is Full Message

If you get the alert 'The CAN Filter is Full' this means that you have too many gauges defined for your dash and you must remove one or more of them. Each gauge is associated with a J1939 message (PGN) and a PGN can be associated with a number of gauges. The J1939 hardware includes a CAN (Controller Area Network) filter that only retrieves the data requested by the BlueFire App. Being a hardware filter this reduces the burden on the firmware significantly. However there is a limit to the number of PGNs it can filter and when it is full, you get this alert. Due to the nature of PGNs, it's not possible to determine which data did not get into the filter.

The maximum PGNs that the CAN filter can hold is 28. For reference, the Drive page consumes 20 PGNs (18 with Transmission data) and the Repair page 18 PGNs. Setting 'Show Vehicle Info' will consume 8 PGNs and 'Monitor Faults' 10 PGNs.

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Trips

The BlueFire App can record your trips, save them, and email them to you in an Excel csv formatted file. You can see a sample of this by starting and ending a demo trip.

When you first open the Trip page, if you have any previous trips, the last trip will be shown. A list of all your trips is at the bottom of the Trip page. You can select any trip to see the information on that trip. Tap the 'New Trip' button to start a new trip. If you do not have any previous trips, the 'New Trip' page will be shown when you open the Trip page.

Starting a Trip

Before starting a trip you should enter the following information:

1. Trip Name - The name of your trip. This is also the file name for the Excel csv file. The default is a date-time stamp. Once the trip is started, the name cannot be changed.
2. Notes - Any notes about your trip that you want to save. You can add and change these later.
3. Options :
 - Email when Trip is Ended - automatically emails your trip to yourself when you end it.
 - Delete Trip after Emailing - deletes the trip after successfully emailing it. You can use this option if you're short on mobile device storage.
 - Ignore GPS Location - ignores retrieving GPS locations for Start, Current, and End locations. You can manually enter the Start and End locations yourself.
4. Starting Location - Your trip starting location. Unless you have the Ignore GPS Location option turned on, this will pick up your current GPS location. Note, using GPS location will record the GPS coordinates and allow you to map to those coordinates.

You can manually enter locations even if you have GPS locations turned on. As soon as you start entering a manual location, the GPS location is turned off for that specific location. To turn it back on, clear out the manual location. You can enter only the city and optionally the state. The city and state can be entered in lower case and will be automatically formatted with a comma between the city and state and a two letter state code changed to all caps.

You can start a trip anytime but it is advisable to wait until you have connected to the adapter and retrieved the necessary information for your trip. Note that you don't need to have the engine running to retrieve ECM data, just having the key on is sufficient. Warning alerts will be shown if you don't have all the information for a trip.

ECM data used for trips is saved every time you connect and disconnect from the adapter. This allows you to start and end a trip even if you're not connected to the adapter. However if you have travelled while disconnected from the adapter the trip start information will not be correct. A warning alert is shown in this scenario.

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In order for a trip to start recording information, you must be connected to the adapter, the key turned on, and the odometer retrieved from the ECM. Up to this point, you can cancel the trip. After this, you can only end the trip.

The information recorded on a trip is as follows:

1. Trip Name
2. Vehicle Information (VIN)
3. Start Information
 - Date
 - Location (manual or GPS address)
 - Odometer
 - Total Hours
 - Idle Hours
 - Total Fuel Used
 - Idle Fuel Used
 - DEF Fuel Used (if applicable)
4. End Information (same as Start)
5. Trip Summary Information
 - Distance
 - Duration
 - Total Hours
 - Idle Hours
 - Total Fuel Used
 - Idle Fuel Used
 - DEF Used (if applicable)
 - Non-Engine Fuel Used
 - Fuel Economy (from Total Fuel Used)
 - Drive Fuel Economy (excludes Idle Fuel Used)

Fuel Economy is retrieved directly from the ECM. It is either an actual value that is calculated by the ECM or the App calculates it from Distance (odometer) and Total Fuel Used. Drive Fuel Economy is calculated by the App by removing the Idle Fuel Used from Total Fuel Used.

The Trip page also shows Fuel Level, Fuel Remaining and Distance Remaining. Fuel Level is either retrieved from the ECM (from your physical fuel gauge sensor) or is calculated by the App if the 'Show Calculated Fuel Level Gauge' option in the Settings/Fuel Tanks page is set. If you're having the App calculate Fuel Level for you, you must tell it when you fill your tanks. See the 'Trips and Fuel Fill' Dash Customizing Tip for more information on this.

The Non-Engine Fuel used is your estimate from external sources such as generators that will be considered when calculating Fuel Economy, Fuel Remaining and Distance Remaining.

Ending a Trip

You can end the trip at any time, even when you're not connected to the adapter. After ending a trip, depending on the Trip options selected, your trip will be saved and emailed to you. After ending the trip, you can still edit the Start and End Locations and the Notes.

Tire Pressure Monitoring (TPMS)

The BlueFire App supports the PressurePro Pulse TPMS and their LINK modules. It does not support the Pulse FX system. These systems only support the J1939 9-pin BlueFire Adapters. J1708 6-pin Adapters are not supported. You should also ensure that your vehicle supports the J1939 CAN data bus. If your vehicle is 2006 or older, check the diagnostic connector for at least 6 pins. If there are only 4 pins you're out of luck.

Note that a PressurePro LINK module must be configured either by a dealer or with a Pulse unit. If you have a 2020 or newer Tiffin Motorhome, you already have a PressurePro LINK module installed.

To install the PressurePro Pulse, do the following:

1. Purchase the following:
 - A PressurePro Pulse (not the Pulse FX) from a PressurePro dealer. See our website/store for dealers.
 - A Pulse 9-Pin Cable from our website/store.
 - A J1939 Y-Cable. See our website/store for links.
2. Plug the Pulse power cord into a cigarette lighter.
3. Configure the Pulse for your tire configuration. Follow their instructions.
4. Unplug and disconnect the Pulse cigarette lighter power cord.
5. Connect the Pulse 9-Pin Cable to the Pulse unit (both connections).
6. Connect the Y-Cable to your vehicle's diagnostic port.
7. Connect the Pulse 9-Pin Cable and the BlueFire Adapter to the Y-Cable. Note, the Pulse 9-Pin Cable is only 3 feet long. While you don't need the Pulse on your dash, you do have the option of purchasing a 9-Pin Extension cable to extend the reach of the Pulse unit.

To add TPMS to the BlueFire App, do the following:

1. Go to Settings/TPMS.
2. Configure the BlueFire App for your tire configuration. This configuration must match the Pulse configuration.
3. Restart the App (to show the TPMS home page button).
4. Add the TPMS Text gauge to your custom dash.
5. Connect the App to your Adapter.
6. Navigate to the TPMS page to view the status of your tires.
7. Tapping the TPMS icon on your custom dash will show the TPMS page and automatically show the first tire with any TPMS alerts. The TPMS icon will change to yellow for warning alerts and red for danger alerts. You can also configure more alert options by customizing the TPMS gauge.

Connecting your Adapter

Step 1. Plug the Adapter into the data port of your vehicle.

The Adapter is keyed such that you have to rotate it until the male key aligns with the female key in your diagnostic connector. You'll feel it drop in. The Adapter also has a locking ring that has to mate with the diagnostic connector so you may have to rotate this until you can push the Adapter all the way in. Once the Adapter is all the way in, you can lock it by twisting the locking ring until it clicks.

The Adapter sends the data from the vehicle's onboard computers via a wireless Bluetooth connection. Bluetooth has a range of 20 to 30 feet. It cannot transmit through metal so don't use the data port on the engine at the rear of your vehicle.

Step 2. The Adapter will be blinking blue indicating that it is ready for you to connect the App.

The Adapter has three LED colors, Red, Green and Blue. In general, Red is for the Adapter, Green is for the vehicle connection, and Blue is for the Bluetooth connection. The LEDs can either be solid on or they can blink. The red LED can also pulsate. Below is a description of their meanings:

- Solid Red - The Adapter is updating its memory. DO NOT unplug the adapter otherwise undesirable results may occur.
- Blinking Blue - The Adapter is ready and waiting for you to connect the BlueFire App.
- Blinking Green - The Adapter is ready and connected to the BlueFire App but is waiting for you to turn the key on.
- Solid Blue - The Adapter is connected to the BlueFire App and communicating with the on-board computers in your vehicle.

Step 3. Optionally pair your Adapter.

The App is designed to automatically detect the Adapter and connect to it but if you are having difficulties connecting the Adapter you can try manually pairing it first.

Note that for Apple devices there is no pairing and you will not see the Adapter under Bluetooth settings until after the App connects to it.

Pairing the Adapter is different between the two types of Adapters - Bluetooth Classic and Bluetooth Low Energy. You can tell them apart by looking at the circuit board through the opaque cap on the Adapter. Bluetooth Classic will have a rectangular chip on the circuit board and Bluetooth Low Energy will have a square chip.

For Bluetooth Classic Adapters, pairing can be accomplished on Android and Windows 10 platforms. To pair a Bluetooth Classic Adapter follow these steps:

1. Go to your device's Bluetooth Settings
2. Ensure Bluetooth is turned on.
3. Refresh, Search, or Add Devices. Note, on Windows 10 it will take a significant amount of time to find the Adapter.

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4. Select 'BlueFire' under Paired Devices.
5. Wait for pairing to finish.

For Bluetooth Low Energy Adapter, only Windows 10 offers manually pairing. Follow the same steps as above. The only difference is that adding the device is faster and the Adapter name is 'BlueFire LE'.

Note, for Android devices you may see 'BlueFire LE' in the available devices list but pairing will either generate an error or will do nothing.

Step 4. Open the App and tap the Connect icon on the Home page. The App will initiate a connection to the adapter and hopefully successfully connect.

Step 5. If the App does not connect to the adapter, do the following:

- Ensure the adapter is blinking blue.
- Ensure you have Bluetooth turned on in your mobile device.
- Ensure the BlueFire App has the proper permissions in your mobile device.
- Verify you have set the Bluetooth settings in the Settings page correctly. See the Setting up the App section above.
- Try closing and re-opening the App.
- Try resetting the adapter.
 1. Unplug and plug the adapter in.
 2. Wait for it to start blinking Red. This will occur one minute after plugging it in.
 3. Unplug the adapter while it's blinking Red.
 4. Plug the adapter back in. It will start blinking Red right away.
 5. Unplug the adapter again while it's blinking Red.
 6. When you plug the adapter in for the third time, it will perform a Factory Reset. The adapter will go solid Red, then pulse Red, then go solid Red again, and then start blinking Blue.
 7. Note, you can do this by unscrewing the cap and plugging the adapter into a USB powered port. Just be careful of the USB connector and the electronic boards. The adapter will power up and act as if the key is off.
- If all else fails, contact BlueFire Support at support@bluefire-llc.com for assistance.

Step 6. If the App keeps disconnecting and re-connecting try the following:

- Reduce the Bluetooth traffic by changing the following Settings:
 - Uncheck 'Monitor Faults'.
 - Uncheck 'Show Faults on Startup'
 - Check 'Ignore Motorhome/Truck Info'.
 - Check 'Ignore Aftertreatment'.

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- Check 'Ignore Transmission Data'.
- Set 'RPM Interval' to 500 or greater.
- Set 'Adapter Minimum Interval' to 500 or greater.
- Uncheck 'Connect to a J1708 Data Bus' if not needed.
- Check 'Performance 1' and Performance 2' under Performance.
- If the connection improves go back and remove the changes you made above one by one until the connection becomes unstable again then change it back.
- If you're using the Windows App and have a USB drive or SD card inserted, remove them and see if the connection improves. It has been reported that on some Windows computers, the USB and SD ports can affect the Bluetooth connection.

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J1708 6-Pin Adapter

The J1708 6-pin adapter (or a 9-pin adapter that uses the J1708 data pins) was the first electronic adapter to be used in heavy duty vehicles. The Society of Automotive Engineers (SAE) developed a specification that defined the hardware (J1708) and software (J1587) for OEM engineers to program their ECMs. This specification and its implementation improved over time so the newer the vehicle the better chance of having ECMs that adhere to the specification.

Our adapter attempts to cater for the various anomalies in ECM implementations of the specification but it is not always successful. The possible results in an incomplete specification implementation include

- Erratic data
- Incomplete data
- Phantom fault reporting
- Actual engine or other ECM faults.

The BlueFire App tries to moderate the first three but the last one is the most serious as it can cause your vehicle to stop operating. If you get a check engine light (ECM fault) while connected to the adapter it will most likely go off after you disconnect and unplug the adapter. Below are some things you can try to alleviate the problem.

1. Go to the App's Settings page.
2. Uncheck 'Monitor Faults'.
3. Check 'Ignore Vehicle Info'.
4. Check 'Ignore Transmission Data'.
5. Set the Adapter Minimum Interval to 1000.
6. If the above does not solve the problem do the following:
7. Go to the System Settings page.
8. Uncheck Keep J1708 Port Open (this may worsen the situation).
9. Increase the Adapter J1708 Bus Idle Time by 5 ms (eg. 10.4 to 15.4). You can continue to increase this setting. If this fixes the faults then decrease it by 1 ms increments until the faults reappear then go up 1 or 2 ms. Note, this may reduce the response time for some ECM data.

If one or more of these changes fixes your problem please let BlueFire Support know by emailing them with your vehicle configuration and what you did to fix the problem.

If none of these suggestions fixes the issue and you continue to get the check engine light then unfortunately the adapter will not work for you and you can send it back for a full refund.

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Helpful Resources

Documentation: <https://bluefire-llc.com/forum/posts/t13207-Documentation>.

BlueFire FAQ: <https://bluefire-llc.com/faq.html>.

BlueFire Store: <https://bluefire-llc.com/store>.

BlueFire Forum: <https://bluefire-llc.com/forum>.

Vehicle Forum: <http://www.irv2.com/forums/>. Search for BlueFire