



EFILive Testing Guidelines

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EFILive Testing Guidelines

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Prerequisites

Intended Audience

EFILive Software Testers.

Computer Knowledge

It is expected that readers have a basic understanding of:

- The Windows operating system;
- Starting and using Windows applications;
- Navigating folders using Windows Explorer.

And enough common sense to understand the following:

- ***Do not use the test software to tune vehicles if those vehicles must not end up in a “no start” condition. It is possible, even likely that sooner or later the test software will cause one or more “no start” conditions.***

Testing Environment

Please DO NOT install the test system over the top of your production system. It is possible that the test software will fail and your production system may not be recoverable.

If you conduct a tuning business, please take the necessary precautions to protect your business. EFILive recommends testers use a separate FlashScan V2 device and install the EFILive test software on a separate PC, laptop or virtual machine.



Introduction

Main Application Files

The default folder into which the EFILive applications are installed is:

- \Program Files\EFILive\ (on systems with a 32 bit architecture)
- \Program Files (x86)\EFILive\ (on systems with a 64 bit architecture)

Whenever a reference is made to the **Program Files** folder, it should be taken to mean the appropriate folder based on the CPU architecture.

EFILive V8 Software

- \Program Files\EFILive\V8\EFILive_ScanAndTune.exe
- \Program Files\EFILive\V8\EFILive_Explorer.exe
- \Program Files\EFILive\V8\EFILive_HAPI.exe (aka EFILive Control Panel)
- \Program Files\EFILive\V8\EFILive_USBManager.exe
- \Program Files\EFILive\V8\EFILive_VM.dll
- \Program Files\EFILive\V8\Lua5.2.dll

EFILive FlashScan and AutoCal Firmware

- \Program Files\EFILive\V8\Firmware\FSProgV2_07_xx.efw
- \Program Files\EFILive\V8\Firmware\ACProgV2_07_xx.efw

EFILive FlashScan and AutoCal Boot block

- \Program Files\EFILive\V8\Firmware\Boot Block\FSSBootV2_07_xx.efw
- \Program Files\EFILive\V8\Firmware\Boot Block\ACBootV2_07_xx.efw

EFILive V7 Software

- \Program Files\EFILive\V7.5\EFILive_Scan.exe
- \Program Files\EFILive\V7.5\EFILive_Tune.exe
- \Program Files\EFILive\V7.5\EFILive_Firmware.exe
- \Program Files\EFILive\V7.5\obdiiv7.dll



In this document V7 and V7.5 are synonymous, they both refer to V7.5. There is no V7 software anymore.

The Tester's Responsibilities

As a tester we expect you to employ some common sense about when you use the test software. For example, don't attempt to use the test software to re-flash your vehicle on the night before you plan on driving to the airport for a holiday. EFILive will not be liable for you missing the plane because your vehicle won't start.

If the test software causes a controller to fail, do not continue to test additional controllers until the problem has been resolved by EFILive.

If the test firmware causes a FlashScan or AutoCal device to fail, do not continue to test that firmware on additional devices until the problem has been resolved by EFILive.

Ensure that your test environment is suitable, specifically:

- Ensure that your system is virus free;
- Ensure that your laptop's battery is fully charged;
- Ensure that your vehicle's battery is fully charged;
- Do not use a power inverter to power your laptop from the vehicle's battery;
- When using a bench harness, ensure that the power supply is capable of supplying a regulated 12V and 1.0 A.

EFILive's Responsibilities



If a controller fails or a FlashScan or AutoCal device fails, do not continue testing until the cause of the failure has been established by EFILive and EFILive has given permission to restart testing.

EFILive may at its sole discretion, repair or replace the initial engine or transmission controller that is rendered inoperable by the EFILive test software or firmware. Do not retry a test procedure that caused a controller to fail hoping that it will work the second or subsequent times. You'll most likely end up with a pile of useless controllers.



EFILive will not cover any costs over and above replacing or repairing the **initial failed controller or FlashScan/AutoCal device**.

If a VIN license is lost because a controller is replaced, EFILive will also cover the cost of replacing the VIN license.

Before EFILive will consider repairing or replacing a failed controller, the tester must provide the appropriate trace files created during the failed flash process to prove that the test software caused the controller to fail.

See this knowledge base article for more information on providing trace files to EFILive: http://support.efilive.com/kb_article.php?ref=8552-EOAJ-5912.

EFILive will cover the cost of repairing or replacing your FlashScan or AutoCal device if it is rendered inoperable by the EFILive test firmware. Repairing or replacing the failed device may require you to send the failed device to EFILive in New Zealand. The turn-around time can range from 3 to 10 days.

Version Identification

When any EFILive software is distributed it includes a version number. Each version number is split into three or four individual numbers that convey information about the version and compatibility of the application.

For three digit version numbers (as used with the FlashScan and AutoCal Firmware) the three digits have the following meanings:

1. **Hardware Version:**
This value describes the version of the hardware on which the boot block or firmware can be installed.
2. **Firmware Compatibility:**
This value increments whenever an update is released that causes one or more related systems to become incompatible with the new version.
3. **Firmware Build:**
This value increments every time a new version is released. It does not reset back to 0 when values 1 or 2 are updated.

For four digit version numbers (as used with the EFILive Software) the four digits have the following meanings:

1. **Application Version:**
This value describes the application version. I.e. V8 or V7.
2. **Application Compatibility:**
This value increments whenever an update is released that causes one or more related systems to become incompatible with the new version.
3. **File Format Compatibility:**
This value increments whenever an update is released that causes one or more configuration or data file formats to become incompatible with the new version.
4. **Application Build:**
This value increments every time a new version is released. It does not reset back to 0 when values 1, 2 or 3 are updated.



Testing Guidelines

What is a fault?

For the purposes of testing the EFILive software, a fault is something that causes the software or firmware to behave unexpectedly or to produce erroneous results.

What does “behave unexpectedly” really mean?

Expected behavior is what you as the user anticipates the software to do. For example, when you select the menu option File->Open, you expect to see a dialog box allowing you to select a file to open. Or when you click on a [Save] button, you expect your data to be saved and to be available later when you want to re-open that data.

Testing software cannot be simplified into a set of instructions that can be blindly followed. If it could we would build other applications to test the EFILive Software for us. Computers can't test themselves (it has been proven impossible by the Halting Problem http://en.wikipedia.org/wiki/Halting_problem). Testing is a task that only humans can do.



There is a saying: “If you make your software idiot proof, someone will just make a better idiot”.

While that saying is slightly humorous, it can be used as inspiration for software testing methods. Use the software as if you were a novice (idiot) user. Perform unexpected operations, do things that everyone knows you shouldn't do, things that an expert user would not do. Try things that the software designers never intended or possibly never thought about. You will find the most faults by attacking the software with inputs that are at the limits of the software's capabilities.

Try to get the software to fail by testing scenarios that EFILive may not have anticipated when the software was being designed. The more failures you can find (and that we can fix) the more stable the final product will be. How often do you get thanked for breaking stuff?



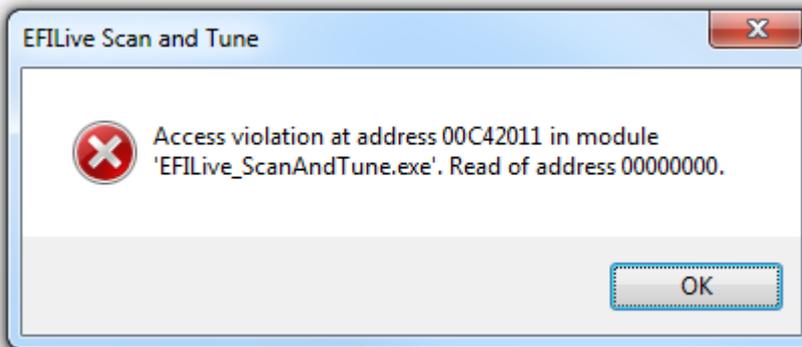
A word of caution, there are limits to what you should try. For example ***do not interrupt a full-flash process*** on controllers that cannot be recovered from a failed full flash.

Fault Types

Reported faults can be broadly categorized as Serious, Trivial or Other. When you report a fault please attempt to categorize it using one of those categories.

A Serious Crash

A serious crash (are there any other sort?) is usually caused by a programming fault in the software that causes the complete failure of the application, for example:



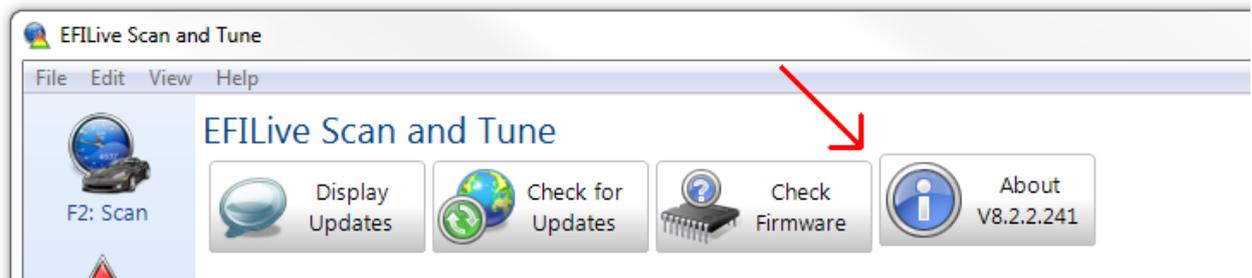
When a dialog box is displayed by the EFILive software, like the example above, you can copy the text from the dialog box by pressing Ctrl+C when the dialog has focus. You can then paste that data into an email/error report. The data will look like this:

```

-----
EFILive Scan and Tune
-----
Access violation at address 00C42011 in module
'EFILive_ScanAndTune.exe'. Read of address 00000000.
-----
OK
-----
    
```

Trivial Problems

Issues with the GUI (Graphical User Interface) are usually (but not always) trivial and cover things like spelling mistakes and visual inconsistencies such as buttons that may not be aligned correctly.



Other Faults

Faults that are neither serious crashes nor trivial problems are all lumped into the Other Faults category. Other Faults include anything that does not appear to work as designed or as intended.

For example, it is considered a fault if, after making modifications to some data, you are not prompted to save it when closing the window, causing your changes to be silently lost.

Making a Report

Please report all faults in the Software Testers' forum here:

<https://forum.efilive.com/forumdisplay.php?94-EFILive-Beta-Software>

Before testing the software please read through the existing problems so that you are aware of and can take action to, avoid existing issues with the test software.

Please start a new thread when reporting a new problem.

Before reporting a new problem, please read through the existing issues to see if that problem has been reported before. If it has, at the least add a comment indicating that you also experience the same fault. If you can provide additional information that may help resolve the issue, please post that information in the existing thread.



When reporting failures with scanning, reading or flashing a controller, please supply the appropriate trace files as explained in this EFILive Knowledge Base article:

http://support.efilive.com/kb_article.php?ref=8552-EOAJ-5912

Expectations

The EFILive V7 Software is no longer being actively developed with new or improved features. Nor has it been designed to the same standards as the EFILive V8 Software. Many of the functional expectations and guidelines that are set out below refer to the EFILive V8 Software. Guidelines that apply to specific versions (V7 or V8) will be noted as such.

Supported Windows Operating Systems

Testing can be carried out on any of the following operating systems:

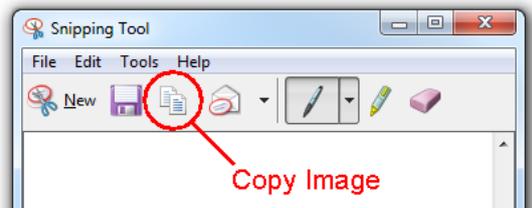
- Windows 7;
- Windows 8;
- Windows 10;

However, we prefer that you use Windows 7 to perform software testing.

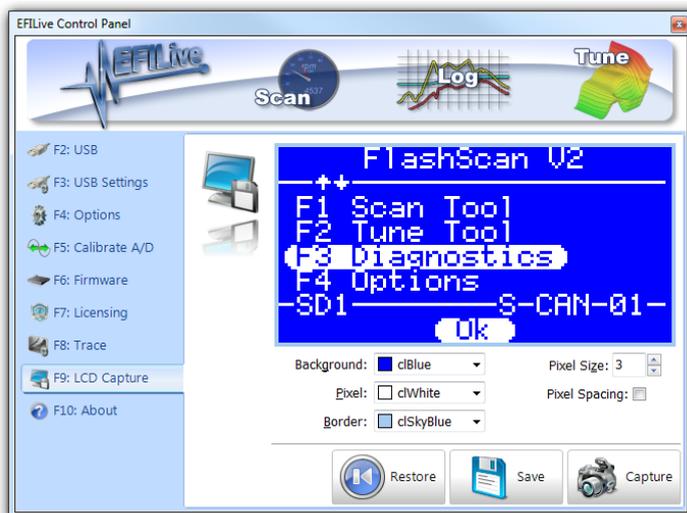
Screen shots, Screen shots, Screen shots!!!

Please send screen shots of the faults that you report. A picture tells a thousand words.

Screen shots can be created very easily in Windows 7 using the **Start->All Programs->Accessories->Snipping Tool**. After grabbing a screen shot in the snipping tool, click the [Copy] option, then paste the image directly into an email.



Screen shots of FlashScan's LCD can be made using the EFILive Control Panel.



Reproducibility

All reported faults must be accompanied by a set of instructions that explain in detail and step by step how to reproduce the conditions that cause the fault to occur.



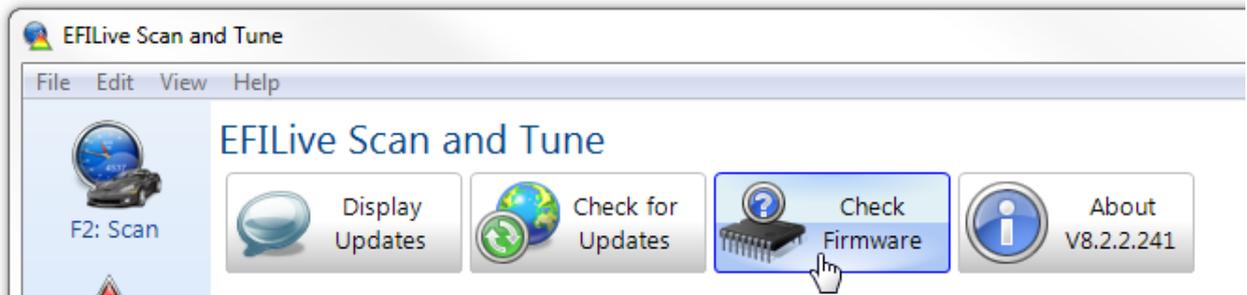
If we can't reproduce the fault we can't fix it.

Sometimes even the most detailed instructions will not be sufficient for us to reproduce the fault. We may ask you to send us one or more of your configuration or data files or even some of your PC's registry settings.

Graphical User Interface

Mouse Cursor (V8 only)

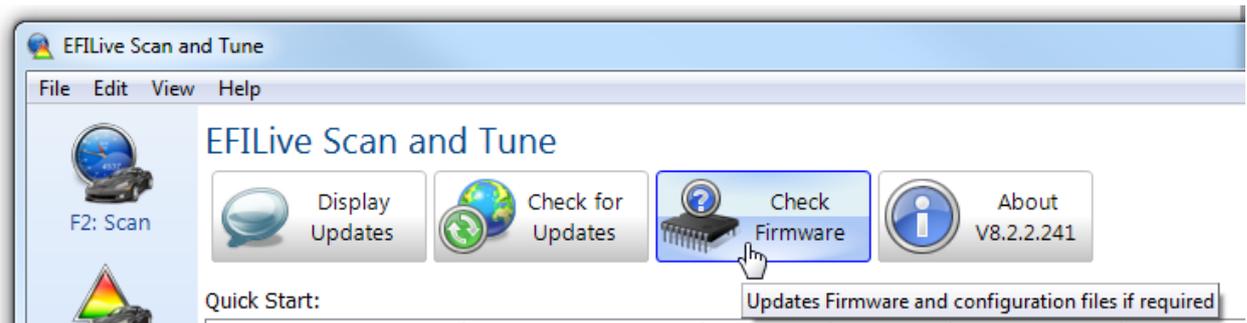
Interactive controls in the software should cause the mouse cursor to display as a hand instead of a pointer. The hand indicates that the control under the mouse pointer can be clicked.



Example of mouse pointer changing to a hand when hovering over a button

Tool Tips (V7 and V8)

Interactive controls in the software should display a tool tip after the mouse has hovered over them for a short period of time. The tool tip should briefly explain the control's purpose.



Example of a too tip when hovering over a button



During development controls get copied/pasted and repurposed but their tool tips may get overlooked. So please report missing tooltips, or tool tips that describe the wrong item.

Spelling and formatting (V7 and V8)

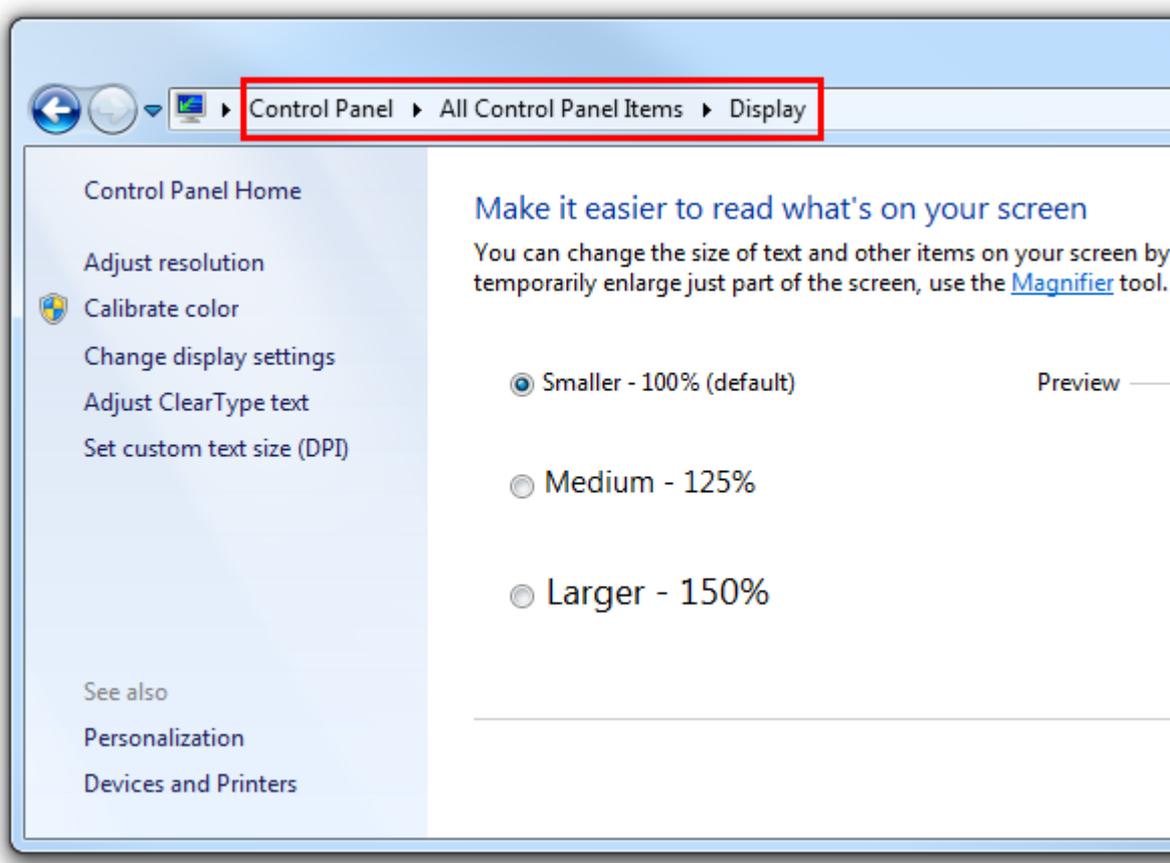
All spelling should be correct US English.



For those comedians among us please don't report "mph": as the correct spelling for "kph", or "psi" as the correct spelling for "kPa" 😊.

Formatting is subjective and will often depend on your Windows screen resolution and font size. Sometimes text that displays correctly on one configuration may appear badly formatted or truncated on a different configuration. If you see formatting that looks incorrect, please send a screen shot and include your system's font setting (small, medium or large) and your screen's resolution (e.g. 1920x1200 pixels).

On Windows 7, you can view/modify your system's default font size here:



Application Operation

Below are some of the types of things that need checking when a new release is being tested.

Windows Position and Size (V8 only)

When you reposition and resize windows, the position and size is remembered across application restarts. So the next time you start the software the windows should appear in the same position and be the same size.

Things to look out for:

- The behavior of this feature is impacted if the number and/or relative positions of multiple monitors are changed between application restarts.
- When you open multiple (scan or tune) files they are opened in separate windows. Each window's size and position is saved and restored the next time the windows are opened. The saving and restoring is done on a sequential basis. That is, the size and position of the first window opened in one session will be used to restore the size and position of the first window opened in the next session. The size and position of the second window opened in one session will be used to restore the size and position of the second window opened in the next session and so on.

Enabled/Disabled Controls (V8 only)

When lengthy tasks are being performed such as reading or flashing a controller, controls in all other windows that would otherwise allow interference with the read or flash process are disabled. So you should not be able to perform two read processes or two flash processes or a read and a flash process at the same time.

Property Settings (V7 and V8)

Make sure property settings are still set correctly after the application has been restarted.

Property settings for the V7 software are stored in the Windows Registry under the key:

`\\HKEY_CURRENT_USER\Software\EFILive\V7.5\Properties.`

To simplify trouble shooting and uninstall options the V8 software does not use the Windows Registry. Instead the V8 property settings are stored in *.ini files in the folder:

`\My Documents\EFILive\V8\Config`

Scan Tool Operation

AutoDetect (V8 only)

Check that your controller(s) can be correctly Auto-Detected by the V8 Scan Tool.

“Rogue” PID Values (V7 and V8)

When logging data, check that the PID values being logged have values that are within the expected range for the conditions.

Look for PIDs that do not change when they should, usually “flat-lining” at zero or some other constant value.

Look for PIDs that swing wildly from small values to large values.

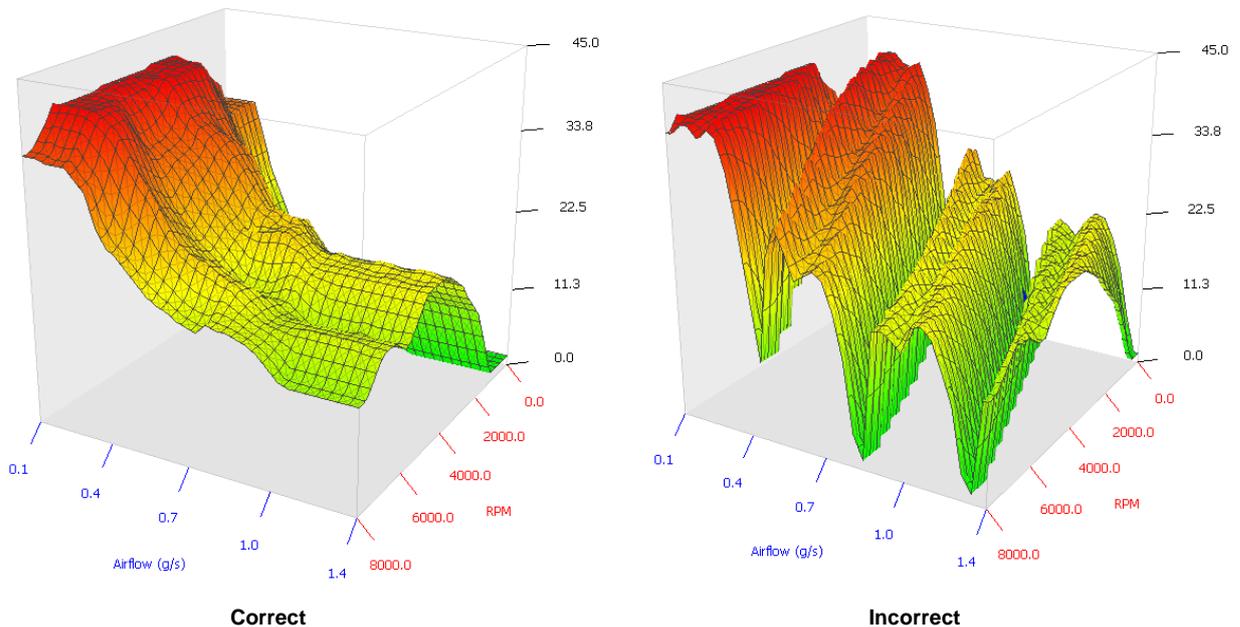
Look for PID values that are wrong by one or more orders of magnitude. For example, a percentage value that ranges from 0 to 1000% instead of 0 to 100%.

Tune Tool Operation (V7 only)

Testing Calibrations

When editing tune files using the EFILive V7 Software, look for calibrations that are reported as “out of range” when the file is loaded.

Look for tables that contain diagonal, jagged valleys, similar to this:



Please note, these images are from the new V8 Tune Tool Editor which is not available yet.

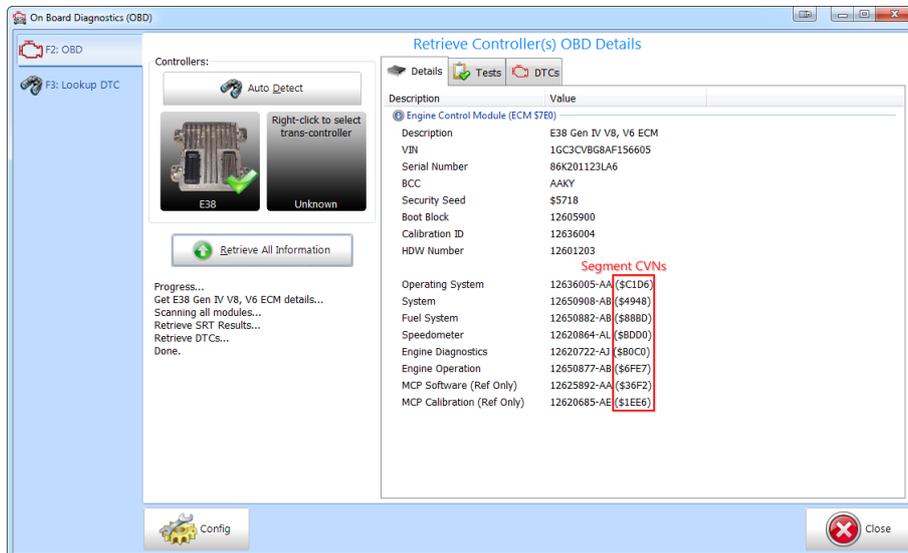
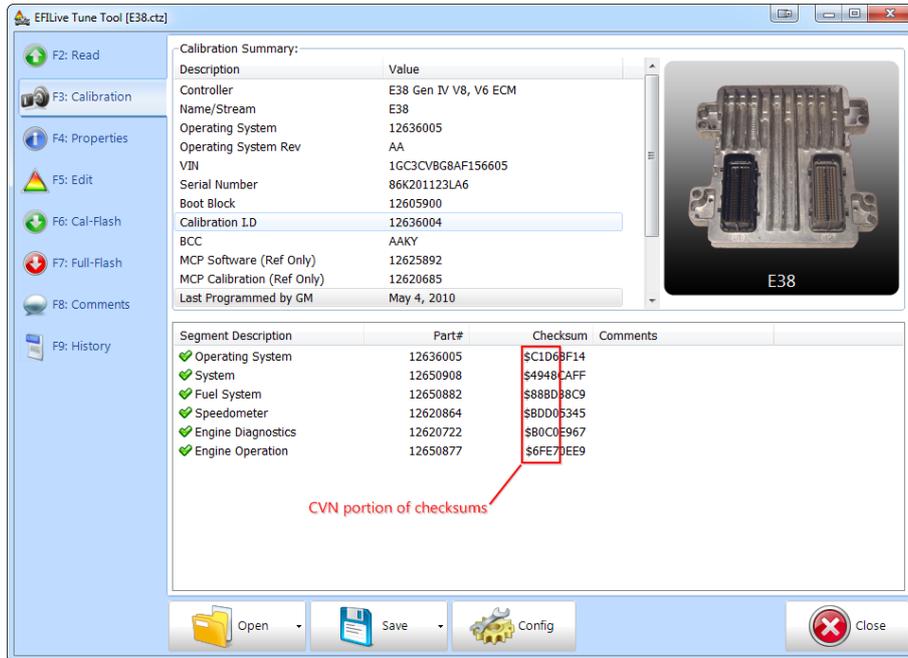
Read/Flash Operation

Auto Detect (V8 only)

Check that your controller(s) can be correctly Auto-Detected by the V8 Tune Tool.

Reading a Controller (V8 only)

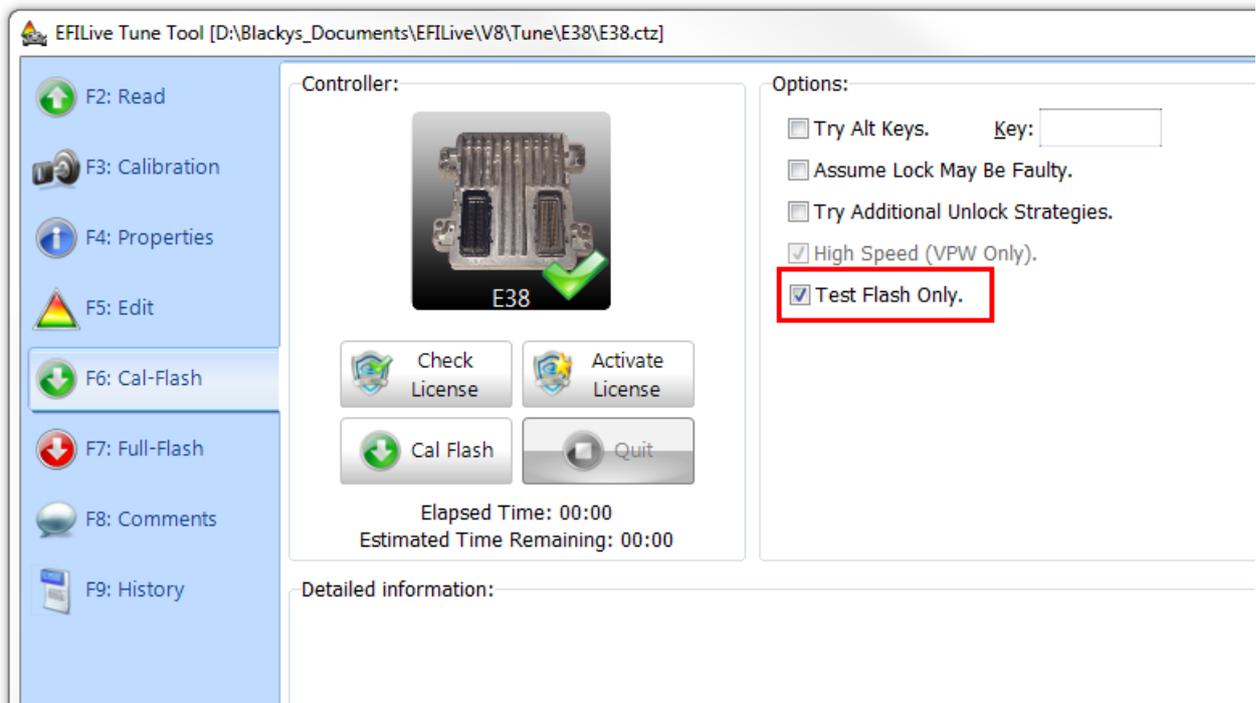
Read the contents of your controller(s) and validate the data displayed on the [F3: Calibration] tab page matches the data retrieved from the controller on the [F4: OBDII]->[F2: Controller] tab page.



Cal-Flashing a Controller (V8 only)

This option is only relevant for controllers that support cal-flashing.

The very first cal-flash attempt after installing a test version of the EFILive software should be made with the Test Flash Only option checked (for controllers that support the test flash option).



If the test flash succeeds, then you should proceed to test a real cal-flash (without the “Test Flash Only” checked).

Full-Flashing a Controller (V8 only)

This option is only relevant for controllers that support full-flashing.



Unless specifically requested to by EFILive, we recommend skipping the full-flash test and only testing the cal-flash option.

Any full-flash attempt after installing a test version of the EFILive software should be made with the Test Flash Only option checked (for controllers that support the test flash option).



During extended periods of testing it is possible that your vehicle’s battery can be drained. Please take precautions to keep the battery fully charged otherwise trouble codes may be set and re-flash processes can fail.

Successful Testing Results

Reporting successful test results are just as important as reporting faults. EFILive uses the positive results to document which processes have been checked for faults and to ultimately determine when each software build is ready to be released publicly.

With each software build released, feedback is required on each controller supported by EFILive for both FlashScan V2 and AutoCal.

The following tests should be performed:

- Read controller(s) with the V8 software (and V7 software if supported) as per guidelines described above section.
- Perform calibration flash for controller(s) with the V8 software (and V7 software if applicable) as per guidelines described in the above section.
- Verify pass-through and black box data logging:
 - Check that valid PID values are displayed on the FlashScan or AutoCal screen.
 - Check that the log file can be opened and displays correctly in both the V7 and V8 scan tool software.
- Verify any new or modified calibration parameter that are listed in the software build notes:
 - Check that the calibrations display valid/sane values.
 - Check that the correct units are displayed for the calibration and where applicable for the calibrations' table axis.
- Test changes made to Custom Operating Systems as listed in the software build notes.

Please report all successful testing results in the Software Testers' forum here:

<https://forum.efilive.com/forumdisplay.php?94-EFILive-Beta-Software>.

Testers should list the hardware used for the test, the controller tested, and detail which tests they performed in the relevant software build thread.

Testing Time Frames

Testers should attempt to install and test each software build during the first two weeks (preferably within the first week) of the software build becoming available. It is possible that during the second week of testing, additional software (that fixes problems found during the first week of testing) will become available. If you're testing more than one week after the initial release, please check for later versions of the software so that you're not testing old (and possibly already fixed) software.

Testers should report their tests results as soon as they are known as described above in the Testing Guidelines.