



## Problem Flashing a Controller

EFILive Support - 2023-02-24 - Comments (0) - Dodge Cummins Help

### Trouble Shooting

Should users encounter problems with the EFILive software, FlashScan or AutoCal

hardware they should:

1. Confirm software, firmware and boot block versions are up to date.  
<https://www.efilive.com/download-efilive>
2. Check the fitment of the SGM Bypass cable (required for 2018+ vehicles).
3. Check RSA Digital Signature has been removed (required for all 2009+ vehicles).
4. Check that checksums are valid.
5. Check the base file matches the calibration for your vehicle.
6. Check Dodge Cummins Fast CAN Mode settings.
7. Remove/isolate all after-market devices including mobile phone adapters, after-market equipment (audio systems, security, remote start etc.) and any devices wired into the OBD port that may interfere with vehicle communications.
8. DO NOT operate any vehicle feature that may communicate on the data bus. This includes opening or closing of hood, doors, windows, as well as changing settings on radio, HVAC, connecting/removing charging devices etc.

### Error Codes

If an error occurs while using EFILive hardware or software, users can look up the error code description in the EFILive V8 Scan and Tune software.

The [F8: Tools] -> [F8: Error Codes] menu item provides an error code lookup function, and the "EFILive Error Codes.pdf" document accessed by selecting the Windows Start Icon and navigating to Program Files->EFILive->V8->Documents->EFILive Error Codes.pdf is also available. Both options provide error code descriptions, causes and actions.

Should the issue not be resolved after reviewing the Error code list, end users should contact their Tuner for support.

### Check Available Licenses

The first time a user flashes a controller using EFILive, licensing requirements must be met to facilitate a successful flash. The following licensing requirements must be met:

**FlashScan V3** - The Tuning Licence Option must be valid, and there must be an available VIN License.

**FlashScan V2** - The **Tuning License** option must be valid, and there must be an available

**VIN License** or active **Stream License**.

**AutoCal V3/AutoCal V2** - There must be an available VIN License.

#### RSA Digital Signature

In early 2009 Cummins ECMs were manufactured with higher levels of security consisting of an [RSA Digital Signature](#) on the calibrations. The RSA Digital Signature does not prevent the flashing of stock tunes, it ONLY prevents the flashing of modified tunes, so to flash a modified tune the Digital Signature must be switched off.

The EFLive ECM flash process manages the removal of the Digital Signature via OBD-II flashing in the following circumstances:

Controller	Flash Method
CM2450B (CMF)	In vehicle and <a href="#">bench harness</a> flashing.
CM2350B (CME)	In vehicle and <a href="#">bench harness</a> flashing.
CM2200 (CMD)	<a href="#">Bench flashing</a> only.
CM2100 (CMC)	<a href="#">Bench flashing</a> only.

**In vehicle flashing** for CMC and CMD requires customers to follow the instructions in the the [Cummins BootRSA Patch User Guide](#).

NOTE: The ECM must be fully operational and not in boot mode as a result of a failed flash (error \$0340) or forced boot mode. Where the ECM is in boot mode, the unlock process is bypassed and two-step flash process is required to remove the digital signature.

1. Recover the ECM by flashing a stock tune to restore the ECM to operational mode.
2. Flash the ECM to remove the digital signature.

#### Security Gateway Module

In 2018 Cummins implemented an additional anti-tuning security measure via the security gateway module. Customers will need to bypass this module by installing a Security Gateway Module bypass cable (SGM bypass cable).

The SGM bypass cable requires users to replace the two CAN wires in the factory OBD-II port and connect the bypass cable into the large white connector just above the OBD-II port in any of the available slots. This cable remains permanently in the truck and does not need to be removed after flashing.

The OBD-II port will retain all normal functionality, and only bypasses the SGM to allow flashing to the ECM.

#### Checksums

Checksums perform a vital role in ensuring the integrity of the data in the tune file. There

are two main reasons that checksums display as invalid:

1. The data in the file is corrupt and **MUST NOT** be flashed into a controller.
2. The data in the file has been modified with a software package that did not update the checksums – such as a hex editor.

Do not correct the checksums unless you know the tune file was modified outside of the EFILive software and that the modifications are correct and accurate.

If you correct the checksums of a file with corrupt data you are merely masking corruption. If you flash a corrupt file into a controller, you risk damaging the controller and/or causing the vehicle to operate incorrectly.

Dodge Cummins Fast CAN Mode – CMD, CME, CMF

Three flash speeds exist for Dodge Cummins controllers;

1. **Unlimited Fast CAN** delivers the fastest possible flash time and is approx. 50% faster than standard flash routines.
2. **Fast CAN** is a little faster than standard, but more robust than Unlimited.
3. **Standard** can be used if you experience flash failures when using Unlimited Fast Can or Fast CAN, try unchecking that option and retry the flash.

Cummins Fast CAN Mode can be adjusted the following ways:

1. During Pass-Thru flashing by adjusting the options on the [F3: Tune] -> [F7: Full Flash] tab.
2. For BBF by adjusting the options on;
  1. [F6: Devices] -> [F5: Options] tab and programming the device.
  2. Via FlashScan and AutoCal hardware by editing the device options.

Cummins 5.9L ECM VIN Issues

The VIN in the .ctz tune file should always match the VIN in the vehicle prior to flashing the ECM.

As part of the normal re-flash process for the 5.9L CM849B Cummins ECM, a section of the flash memory is written that contains vehicle specific values, including VIN and SKIM code. This part of the ECM is flashed every time the ECM is programmed.

Flashing a tune from a different vehicle will cause a no start condition until the VIN in the ECM is corrected to match the vehicle. If an attempt is made to start the vehicle prior to correcting the VIN, other modules on the truck will detect the non-matching VIN details setting C2206 "Vehicle Configuration Mismatch" DTC in several modules. **Once set, EFILive is UNABLE to correct this code and MIL, resulting in a dealer visit.**

To change the VIN in the .ctz tune file open the tune file and:

1. Navigate to [F4: Properties] -> [Controller Information] tab.
2. Enter the VIN.

3. Save the file prior to programming the ECM.

#### Failed Flash Recovery Methods

In the event that an ECM fails during the flashing process, recovery methods exist to restore the ECM.

#### **Flash Base with without tune file security restrictions.**

In most instances, simply retrying the flash process will return the ECM to working order.

In the instance where tuners apply security restrictions to a tune file, including locking to the controller serial number, and the flash fails, you must try to recover the ECM with a file that has no security restrictions in place (e.g. stock tune) before attempting to reflash a file with security restrictions.

#### **ROM Boot Recovery**

In some flash failure instances the ECM may stop responding and cannot be recovered to normal operation by simply retrying the flash.

Such situations may occur if the ECM was flashed with a non-compatible operating system, or where the failed flash occurred right at the end of the process but the ECM thinks it completed.

In these situations the ECM is usually only recoverable by forcing the ECM into ROM Boot Recovery mode. Specialized bench programming equipment, such as the BenchForce PowerBlock IV with ROM Boot Switch is required to perform this task.

Tips to recover the ECM using this equipment includes:

1. The ECM must be powered down. (IGN switch off but battery power connected.)
2. Hold the ROM Boot switch on.
3. Power the ECM and bench equipment.
4. Attempt to flash the ECM with your recovery file.
5. Once the flash is under way you can turn off the ROM Boot switch.

#### Test for Rogue Modules

For Customers with FlashScan/AutoCal V3 a range of test modes to check the network for rogue modules that may cause read or flash operations to abort are available.

Navigate to the Tune Tool -> F1: Tuning -> F4: Test OBD Network menu.

Select the Test CAN J1979 option for CAN based controllers.

#### Further Support

If all of the above have been attempted and issues still persist; please create a [Support Ticket](#) and include as much information as possible. Be sure to locate and attach your Trace Files.