

ProECU Mitsubishi K-Line



Mitsubishi Lancer EVO5-6-7-8-9
ECU Reprogramming Tools
Software Guide

1996/2007 Model Year

v2.3

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Programming an ECU

Programming an ECU is the process of taking a ROM file and placing it into permanent storage inside the ECU.

Minimise Power Drain from the Battery

It is recommended that all non-essential devices are switched off before attempting to program an ECU. This helps to minimise electrical interference to vehicle systems that may interfere with communication between ProECU software and the ECU.

For devices within the car, this includes:

- *Headlights*
- *Interior lights*
- *Air Conditioning, fan cooling & heating*
- *Any devices powered from the cigarette lighter socket, including mains inverters or laptop power supplies.*

For devices that are not part of the car, this includes:

- *Mobile (cell) phones*
- *Nearby industrial equipment, such as welders and high power fans.*

Connecting to the ECU

To program a car's ECU the programming interface must be connected to the vehicles OBD2 socket:

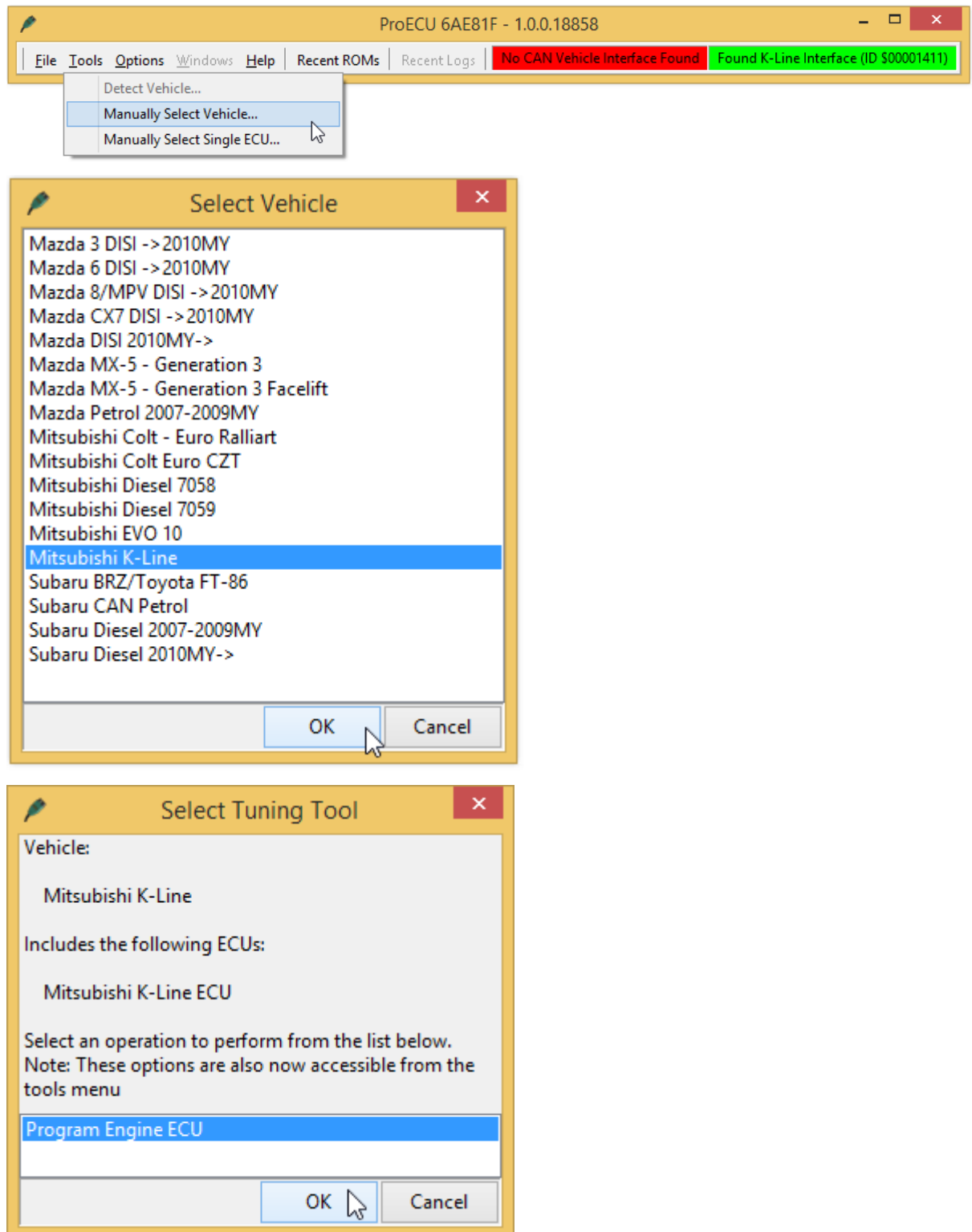
Plug the Mitsubishi K-Line OBD2 programming interface into the vehicles diagnostic socket. This is usually located on the lower section of the dashboard just above the drivers clutch pedal.

DO NOT connect the extra "White" programming connector that comes out of the Black OBD2 connector just yet. This only needs to be connected just before ECU reprogramming and should be disconnected after programming has fully completed.

Connect the other end of the Mitsubishi K-Line programming cable to a USB port on the laptop.

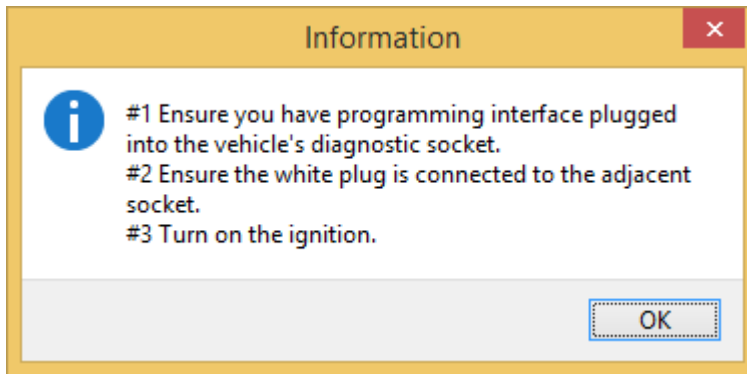


Entering Programming mode



Open ProECU software, from the 'Tools' menu choose 'Manually Select Vehicle...', and choose 'Mitsubishi K-Line' and then 'Program Engine ECU' to enter the EVO ECU Programming Utilities window.

You will be prompted to check for the following:



Ensure the Black OBD2 Interface is connected.

Connect the extra "White" programming connector that comes out of the Black OBD2 connector into the vehicles additional socket located adjacent to the vehicles OBD2 socket.

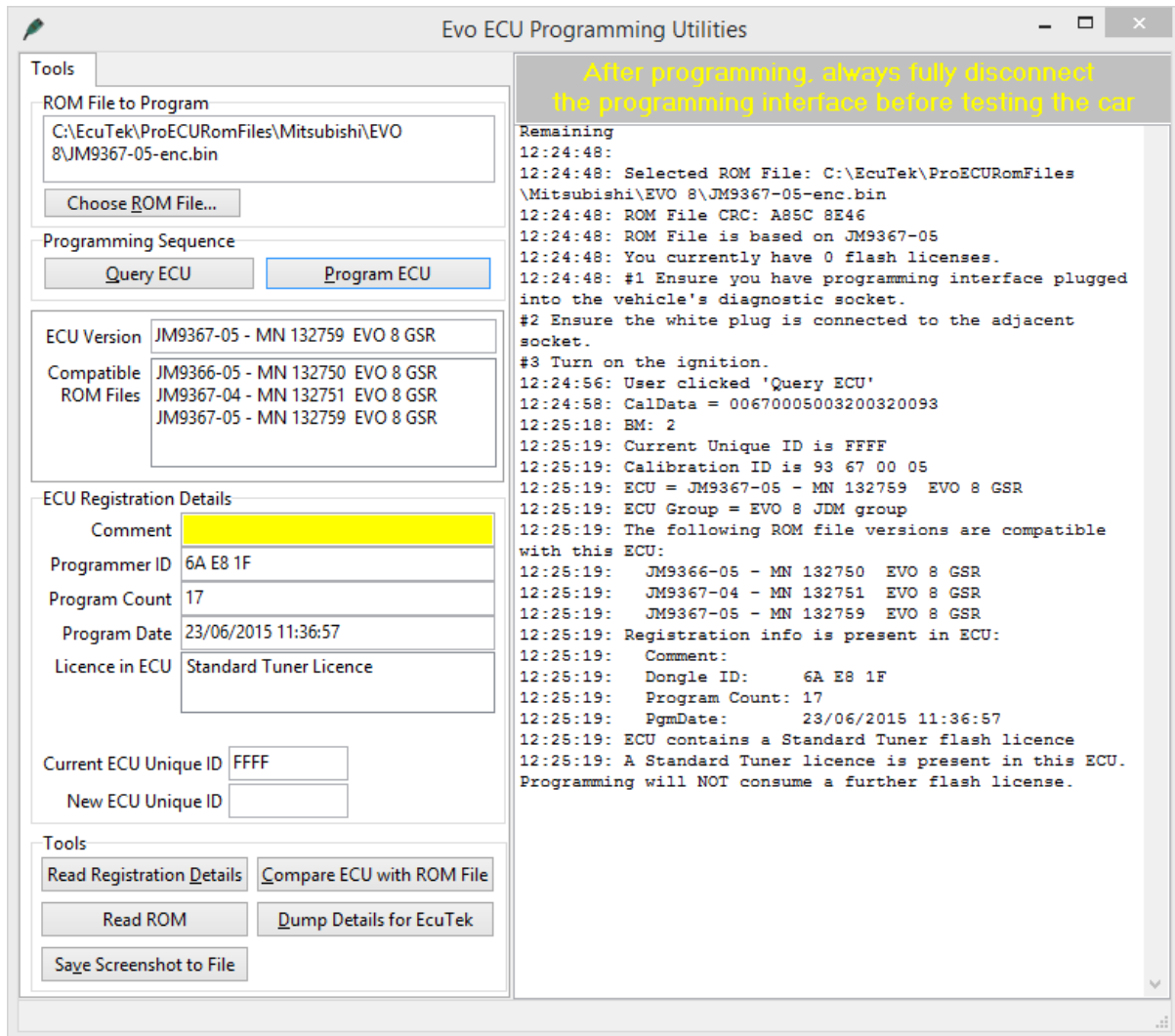
NOTE: on EVO5-6 models this connector is secured under the dashboard and is taped to the vehicles loom. You need to look up above the clutch pedal behind the dashboard.

Turn on the vehicles Ignition, DO NOT START the engine, just Ignition Lights ON.

When all the above is done then click OK or press the ENTER key.



Now you will see the EVO ECU Programming Utilities window below:



ECU Programming Utility Window

Before Programming – Query ECU

Before attempting to reprogram an ECU, first select 'Query ECU' to identify the ECU version fitted to the vehicle. If the ECU to be reprogrammed has not been reprogrammed with EcuTek software before it is best to choose the standard supplied ROM file and choose 'Compare ECU with ROM File' to be sure you have the correct base ROM.

Choose ROM File

Now select your ROM file you wish to reprogram the ECU with. You can only select a modified ROM file that is based on the original ECU ROM.

So you cannot program an EM9865.bin into an ECU which is an EM9864.

Comment Field

After choosing your ROM file it is highly recommended that the file name is entered in the 'Comment' box under 'ECU Registration Details' section. This field should be used to store the name of ROM file used, the brand name, or the version or state of tune. This is stored inside the ECU so if the vehicle returns at a later date you can see exactly what ROM file you used in the ECU from the 'Comment' information. This is limited to 18 characters.

The comment is accessible by any EcuTek tuner. However, this information is not viewable using an OBD2 reader/scanner or Mitsubishi Factory diagnostic tester (MUTII or MUT III Tester).

Registration Details

Various stored information will be retrieved and displayed from the ECU by clicking on the 'Read Registration Details' button. This performs a similar function to 'Query ECU'. This includes:

- This function does not reprogram the ECU, we just question the ECU for information, and this also applies to 'Query ECU'.
- The comment field, described above
- The ID of the user who programmed the ECU – each license key has a unique ID, so the authenticity of an ECU can be confirmed.
- The number of times the ECU has been reprogrammed. The rated life of the memory chip is 100 reprograms. If you are approaching this value, it is recommended that you program this ECU with a suitable map, and then try to exchange the ECU with another fresh ECU. Manufacturers generally quote a low reflash limit though experience has shown no deterioration in the memory chips performance even after 300+ reprograms!
- The ECU version e.g. EM 2443 or JM9653. This will tell you on which base ROM file any tuning must be based on.

Compare ECU with ROM File

This is a very quick way of comparing a ROM file with the current contents of the ECU. This feature compares the checksums of the ROM file with those of the ECU. If they match, there is 99.99% likelihood that the stored data is identical. This allows the ECU data to be checked without actually reprogramming the ECU. This feature should always be used before reprogramming an ECU for the first time to ensure the ECU is exactly the same as the supplied ROM file.

Current ECU Unique ID

THIS IS A VEHICLE SPECIFIC IMMOBILISER CODE AND SHOULD NOT BE CHANGED

If the vehicle that is being queried does not have an immobiliser, the value will be displayed as 'FFFF'. If this code is changed or erased, the vehicle will fail to start until the proper ID is programmed.

*This code is Unique to the ECU you are connected to at present, if you change the code the vehicle will not start. If an error occurs during reprogramming, the ECU 'Unique ID' can be lost. Erasure of this 'Unique ID' is the **most important reason to "Query ECU"** before any reprogramming has been made. By activating the 'Query ECU' command, the 'Unique ID' will be saved in to the FlashEVO.log file. This log file records all activity within the 'Progress Window' on right-hand-side window. The FlashEVO.log file can be found in the same directory as ProECU program (see below). If you have lost the 'Unique ID' for the vehicle being programmed, it will be located in this text file.*

This is the only time the "NEW ECU Unique I.D." box should be used.

Progress Windows Data Box and FlashEVO.log file

On the right of the window, there is a progress display. This area displays information throughout the reprogramming process. It records and stores information like the ROM file name you have used, your Dongle ID the version of software you are using and the UNIQUE I.D. code. All this data is recorded in a "log file" that is continuously updated every time you are in Utilities Mode.

The log file is stored in folder C:\EcuTek\.

Sometimes the file may be hidden by windows, if so then in the EcuTek folder you need to select 'Tools, Folder options, View' and then choose 'Show hidden files and folders', then uncheck the "hide extensions for known file types".

This will now show you the FlashEVO.log file. This file can be opened with MS Word or Notepad if required.

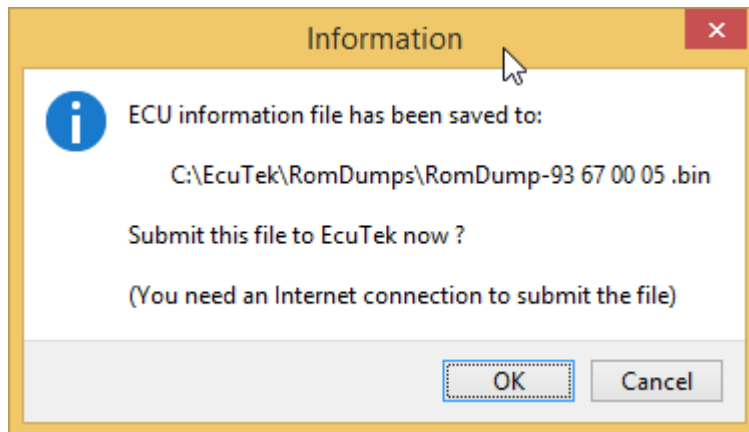
Programming ECU Overview

To reprogram an ECU we need to:

- Choose 'Tools' and 'Program ECU'
- Connect the Black OBD2 connector, 'White' connector and turn ON the Ignition.
- Choose 'Query ECU' to identify the ECU version fitted to the vehicle.
- Select the standard supplied ROM file and choose 'Compare ECU with ROM file'
- Then select 'Choose ROM File' and select your modified ROM file to program the ECU.
- Enter the ROM file name or your unique name for the ROM file in the 'Comments' box, so in the future you know exactly what ROM is in the ECU.
- Ensure all interior lights, Heater blower, Stereo are turned OFF and Mobile Cellular Phones are away from the vehicle.
- Choose 'Program ECU'.
- After reprogramming is complete then turn OFF the Ignition and disconnect the 'White' Programming supply connector.

EcuTek Information Dump

It is possible that you will come across an ECU version that EcuTek have not seen. It will not be possible for you to program this ECU until EcuTek have been supplied with certain information about the ECU. The 'Dump Details for EcuTek' button saves certain information from this ECU. The information is stored in a file that will be saved into the folder C:\EcuTek\RomDumps. The name of the file will be displayed as it is saved.



This information should be uploaded to EcuTek ROM Dump Form on our website, together with a clear photograph of the ECU label and details of the type of car (please include Model Year and Manual or Auto gearbox) from which the ECU originates. EcuTek will then supply an updated version of ProECU software that will be capable of programming the ECU.

Note that it is not something that can be done while-u-wait. Turnaround time is likely to be 3 to 7 days for support of a new ECU. It is therefore important for the tuner to check that the ECU version is supported well before the car is scheduled to be reprogrammed – this will avoid a panic situation for all parties involved.

Protection of Mapping Expertise

After customising the mapping of an ECU and programming it back to the unit, a sensible concern is that the data may fall into the hands of other tuners, who may copy the work. EcuTek have considered this and come up with a simple solution: EcuTek customers have the ability to program an ECU, but not read back its contents with EcuTek software. This means that a map placed in an ECU by 'Tuner A' cannot be copied by 'Tuner B'. Only EcuTek themselves can read the data out of an ECU. However, tuners do have the facility to compare the contents of an ECU with an existing ROM file – this allows verification of the contents of the ECU, so long as the tuner already has the ROM file on their PC.