

MotronicSuite user manual

User manual matching software version 1.1.1

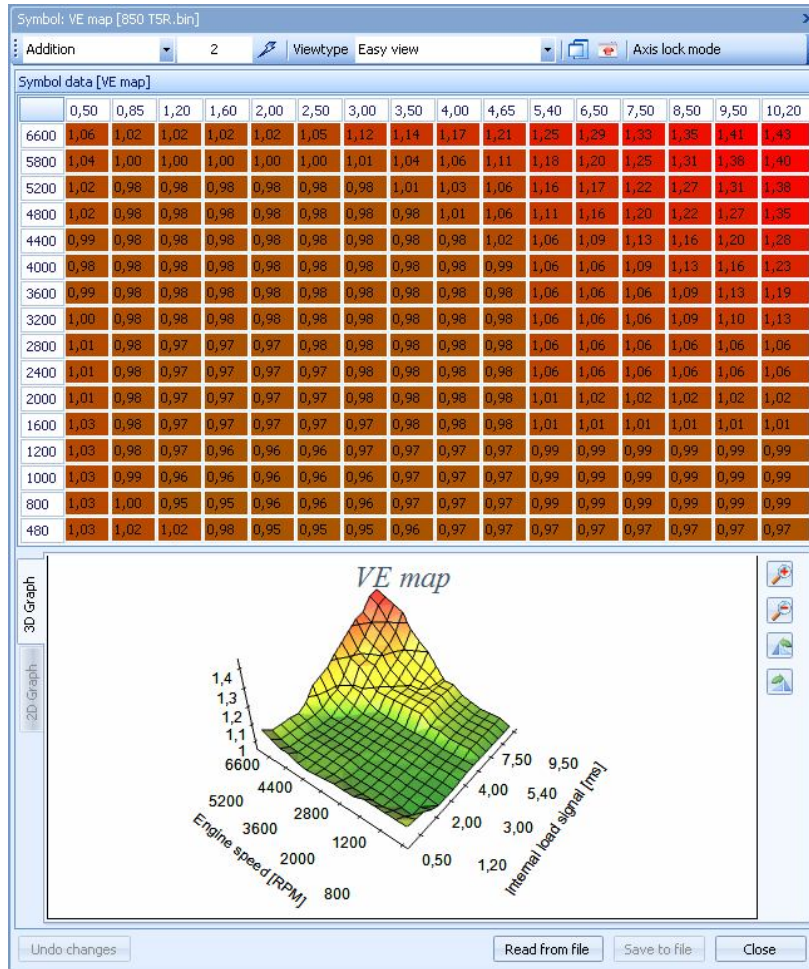


Table of content

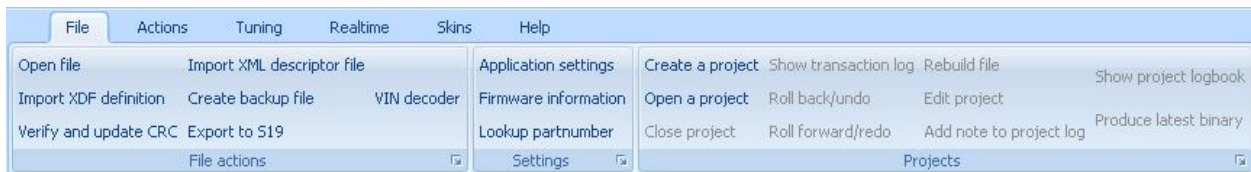
- File menu - 5 -
 - File actions - 5 -
 - File actions – Open file..... - 5 -
 - File actions – Import XDF definition - 5 -
 - File actions – Verify and update CRC - 5 -
 - File actions – Import XML descriptor file - 5 -
 - File actions – Create backup file..... - 5 -
 - File actions – Export to S19 - 5 -
 - File actions – VIN decoder..... - 5 -
- Settings - 6 -
 - Settings – Application settings - 6 -
 - Settings – Firmware information..... - 8 -
 - Settings – Lookup partnumber - 8 -
- Projects - 9 -
 - File projects – Create a project..... - 9 -
 - File projects – Open a project - 9 -
 - File projects – Close project - 9 -
 - File projects – Show transaction log..... - 10 -
 - File projects – Roll back/undo - 10 -
 - File projects – Roll forward/redo..... - 10 -
 - File projects – Rebuild file..... - 10 -
 - File projects – Edit project - 10 -
 - File projects – Add note to project - 10 -
 - File projects – Show project logbook..... - 10 -
 - File projects – Produce latest binary - 11 -
- Actions menu - 12 -
 - Standard actions..... - 12 -
 - Standard actions – Show detected axis information - 12 -
 - Standard actions – Extract symbols from binary..... - 12 -
 - Standard actions – Compare to another binary - 12 -

| | |
|--|--------|
| Advanced actions | - 14 - |
| Advanced actions – Disassemble file | - 14 - |
| Advanced actions – View in hex | - 14 - |
| Advanced actions – Binary compare files | - 14 - |
| Advanced actions – Show compressor map..... | - 15 - |
| Advanced actions – Search map content..... | - 15 - |
| Programming – Flash ECU | - 16 - |
| Tuning menu | - 16 - |
| Realtme menu | - 17 - |
| Realtme – Actions – Connect ECU | - 17 - |
| Realtme – Actions – Show/hide realtime panel | - 18 - |
| Realtme – Actions – Read DTC codes..... | - 18 - |
| Realtme – Actions – Clear DTC codes | - 19 - |
| Realtme – Actions – Create SRAM snapshot | - 19 - |

Introduction

This document describes the functionality of MotronicSuite. This software can edit and explore Motronic 4.3 ECU files.

File menu



File actions

In the file actions submenu, you can choose files to open, import auxiliary file and update/verify checksum.

File actions – Open file

Allows you to browse your harddrive for binary files that you can open with MotronicSuite.

File actions – Import XDF definition

Only applicable to M4.4 which is still very experimental.

File actions – Verify and update CRC

Allows you to have the software verify and update the checksum values in the opened file.

File actions – Import XML descriptor file

Lets you choose a XML descriptor file which links map addresses to mapnames.

File actions – Create backup file

Lets you create a backup binary file for the opened one. Use this when you are about to make major changes in your working file.

File actions – Export to S19

If you are in need of a Motorola S19/S2 formatted file of your working binary file, you can use this to generate it.

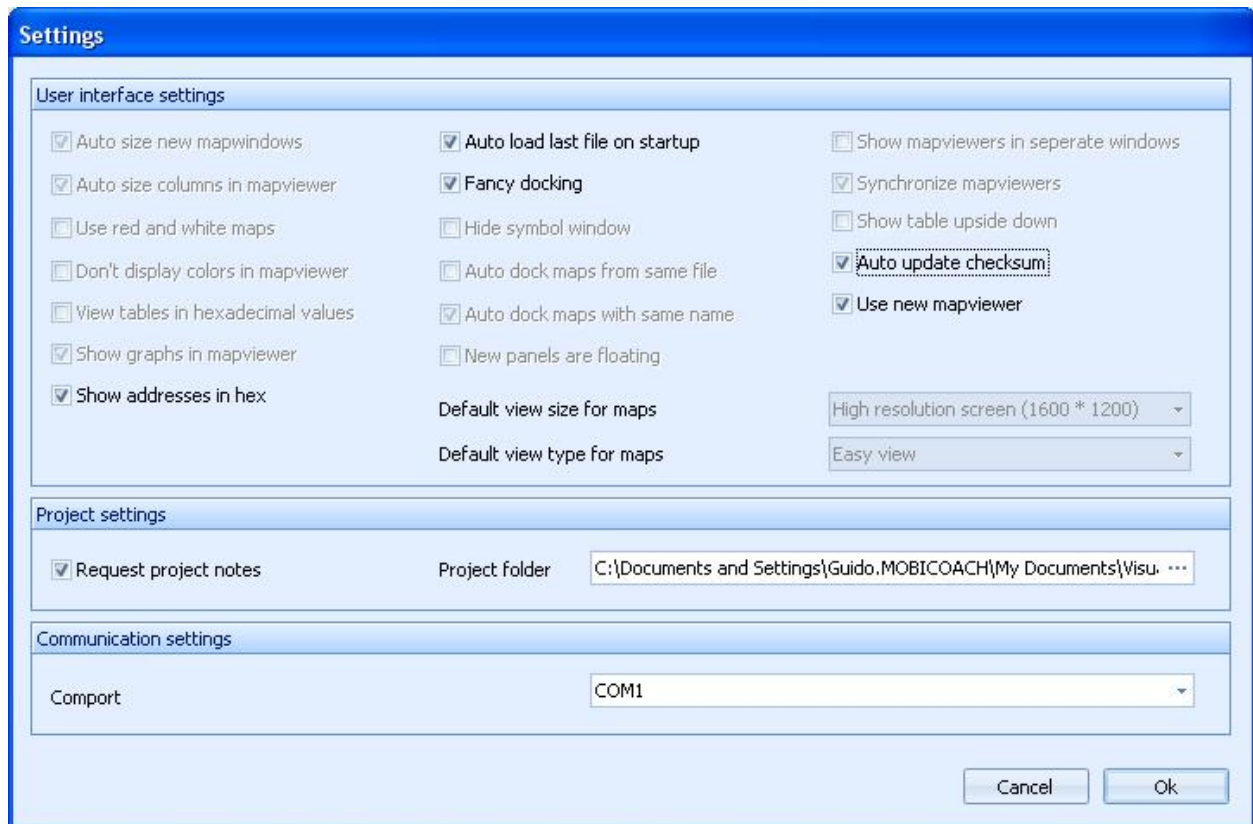
File actions – VIN decoder

Allows you to enter a Volvo VIN number and have MotronicSuite decode it for you. The detailed information about that particular VIN number will be displayed.

Settings

Settings – Application settings

Allows you to configure MotronicSuite.



Settings – Application settings – Show addresses in hex

Allows you to have MotronicSuite display addresses and length for symbols in hex or in decimal format.

Settings – Application settings – Auto load last file on startup

When checked, MotronicSuite will automatically load the previously loaded file (or project) when you start the application.

Settings – Application settings – Fancy docking

Reserved for future use.

Settings – Application settings – Auto update checksum

When checked, MotronicSuite will automatically update the checksum in the binary file every time you make changes to it. If you don't have this checked, you will need to verify and update the checksum by manually clicking the *Verify and Update CRC* button.

Settings – Application settings – Use new mapviewer

Keep this turned on for best operation. It lets you choose between the old mapviewer (faster) and the new mapviewer which looks better and supports Motronic files better.

Settings – Application settings – Request project notes

When checked and working in a project, MotronicSuite will prompt you for a note (text input) that will be saved in the project logbook. This allows you to keep track of the changes you make in your project.

Settings – Application settings – Project folder

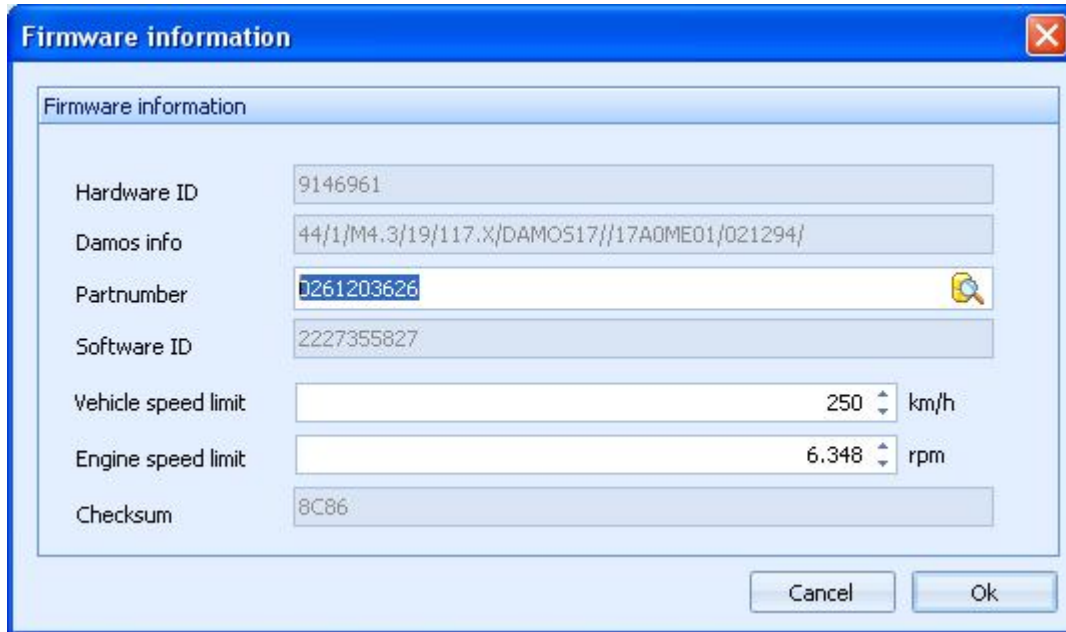
If you want to keep your projects in a different location you can choose an alternate location here.

Settings – Application settings – Comport

The comport number for communicating with the ECU. This should be a K-line interface (RS232 or USB, in which the latter version will generate a virtual comport). This correct comportnumber must be entered here.

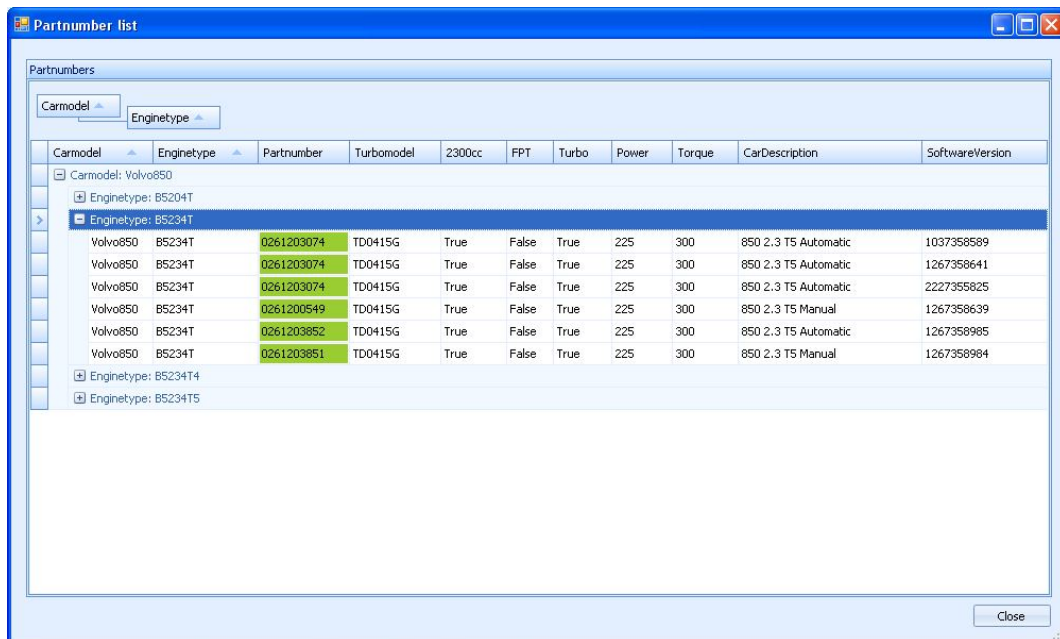
Settings – Firmware information

This will show you detailed information about the binary file you have opened.



Settings – Lookup partnumber

This option will start a library browser that will allow you to easily lookup a certain partnumber. MotronicSuite has several M4.3 binaries on-board. If you want to add your own binaries in the library make sure you format the filename the same as the others.



Projects

File projects – Create a project

MotronicSuite allows you to work on your tune in a project based fashion. This option lets you create a new project. Projects have the advantage of having roll-back and roll-forward functions, having versioning and keeping things tidy and together. You are advised to work in a project if you do more than simple easy-tune your binary file.

Motronic project properties

Car settings

Car make: Volvo

Car model: Volvo 0261203626

Car MY:

Car VIN:

File settings

Project name: 9146961 2227355827

Version: 1.00.000

Binary file: C:\Documents and Settings\My Documents\Prive\Volvo\Motronic 4.3\1: ...

Cancel Ok

File projects – Open a project

Lets you select and open a previously created project. If no projects are available (none were created before) MotronicSuite will notify you with a message box.

Select a project to open

Select a project

| Projectname | NumberBackups | NumberTransactions | DateTimeModified | Version |
|--------------------|---------------|--------------------|--------------------|----------|
| TSR tuning project | 43 | 2 | 28-2-2011 16:15:44 | 1.00.000 |

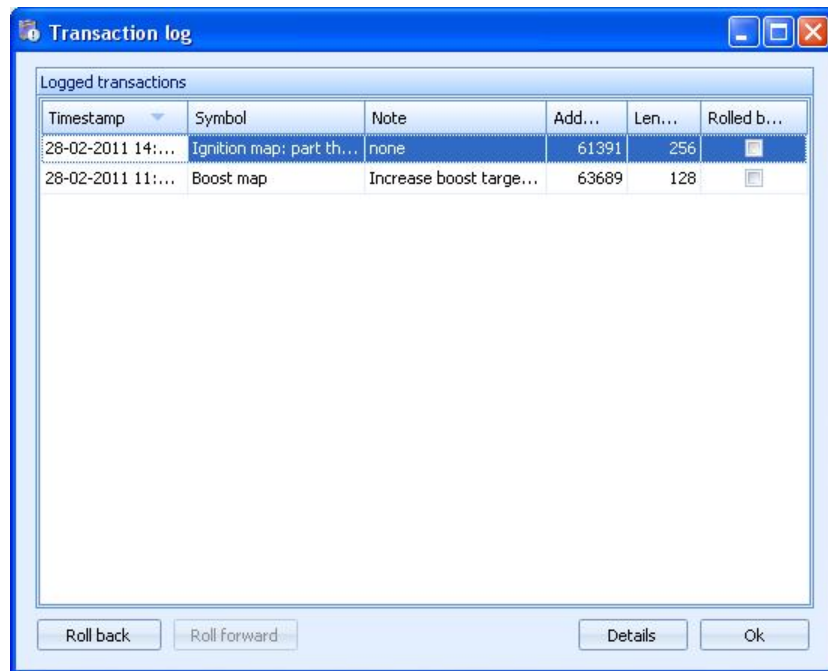
Cancel Ok

File projects – Close project

Closed the project and allows you to work on single files again.

File projects – Show transaction log

Shows the transaction log for the current project. Since a project contains only one binary file, you could see this as an undo/redo list for the project binary file.



File projects – Roll back/undo

Lets you rollback the last transaction made to the binary file. If no transactions are available to rollback, the button will be disabled.

File projects – Roll forward/redo

Lets you roll forward (redo) the last transaction that was undone/rolled back. If no transaction are available to roll forward, the button will be disabled.

File projects – Rebuild file

This enables you to rebuild a project file (binary) up to a certain point in time. MotronicSuite will ask you for a date and it will restore – if possible – the file that you had at that specific date.

File projects – Edit project

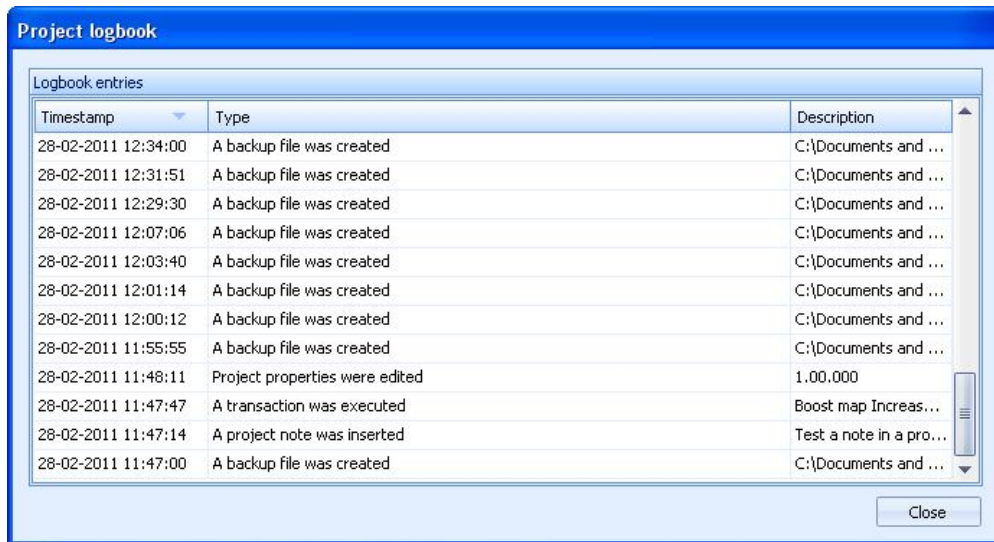
Lets you edit the project properties for any project. This enables you to manage your version numbering yourself. Version numbers are stored, together with all other project properties, in the xml file in the project folder.

File projects – Add note to project

You can add a note to you project with a timestamp attached to it, so you can keep track of changes you made in your setup. For example, if you start using different injectors or mount a bigger intercooler, you can enter a note of this into the project log for later reference.

File projects – Show project logbook

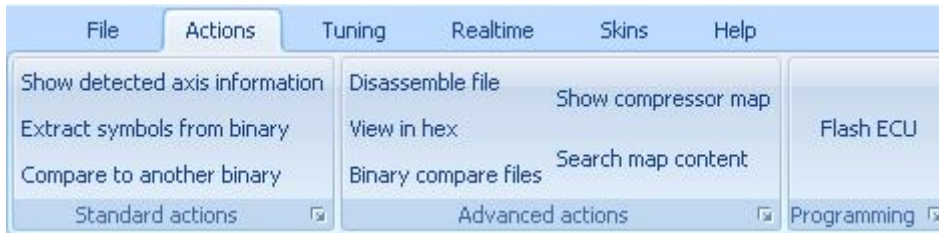
Shows you in details what has happened in your project.



File projects – Produce latest binary

Lets you export the project binary in its current state so you can save it in another location easily.

Actions menu



Standard actions

Standard actions – Show detected axis information

Allows you to browse, select and open maps and axis symbols in the opened binary file.

| Symbol | Description | X-axis | X-axis description | Y-axis | Y-axis description | X-axis address | Y-axis address |
|--------------------------|--------------------------|----------------------------|------------------------|--------------------|------------------------|----------------|----------------|
| Ignition map: part th... | Ignition map: part th... | Internal load signal [...] | 0,50 0,85 1,20 1,60... | Engine speed [RPM] | 480,00 800,00 1000... | EFBD | EFAB |
| VE map | VE map | Internal load signal [...] | 0,50 0,85 1,20 1,60... | Engine speed [RPM] | 480,00 800,00 1000... | EC50 | EC3E |
| Ignition map: wide o... | Ignition map: wide o... | Internal load signal [...] | 0,50 0,85 1,20 1,60... | Engine speed [RPM] | 480,00 800,00 1000... | EE99 | EE87 |
| Ignition map: knock/l... | Ignition map: knock/l... | Internal load signal [...] | 0,50 0,85 1,20 1,60... | Engine speed [RPM] | 480,00 800,00 1000... | F0E1 | F0CF |
| Warmup fuel correct... | Warmup fuel correct... | Injection duration [ms] | 0,01 0,01 0,01 0,02... | Engine speed [RPM] | 720,00 1200,00 152... | EA5D | EA4F |
| Boost map | Boost map | Engine speed [RPM] | 1480,00 1720,00 19... | Unknown: 31 | 16,00 28,00 40,00 5... | F8B7 | F8AD |
| Dwell angle characte... | Dwell angle characte... | Battery voltage [Volt] | 5,98 7,96 10,00 11,... | Engine speed [RPM] | 40,00 160,00 320,0... | EDEE | EDE0 |
| Cylinder compensati... | Cylinder compensati... | Internal load signal [...] | 3,00 4,00 5,00 6,00... | Engine speed [RPM] | 480,00 800,00 1000... | F620 | F60E |
| Cylinder compensati... | Cylinder compensati... | Internal load signal [...] | 3,00 4,00 5,00 6,00... | Engine speed [RPM] | 480,00 800,00 1000... | F5B7 | F5A5 |
| Cylinder compensati... | Cylinder compensati... | Internal load signal [...] | 3,00 4,00 5,00 6,00... | Engine speed [RPM] | 480,00 800,00 1000... | F75B | F749 |
| Cylinder compensati... | Cylinder compensati... | Internal load signal [...] | 3,00 4,00 5,00 6,00... | Engine speed [RPM] | 480,00 800,00 1000... | F689 | F677 |

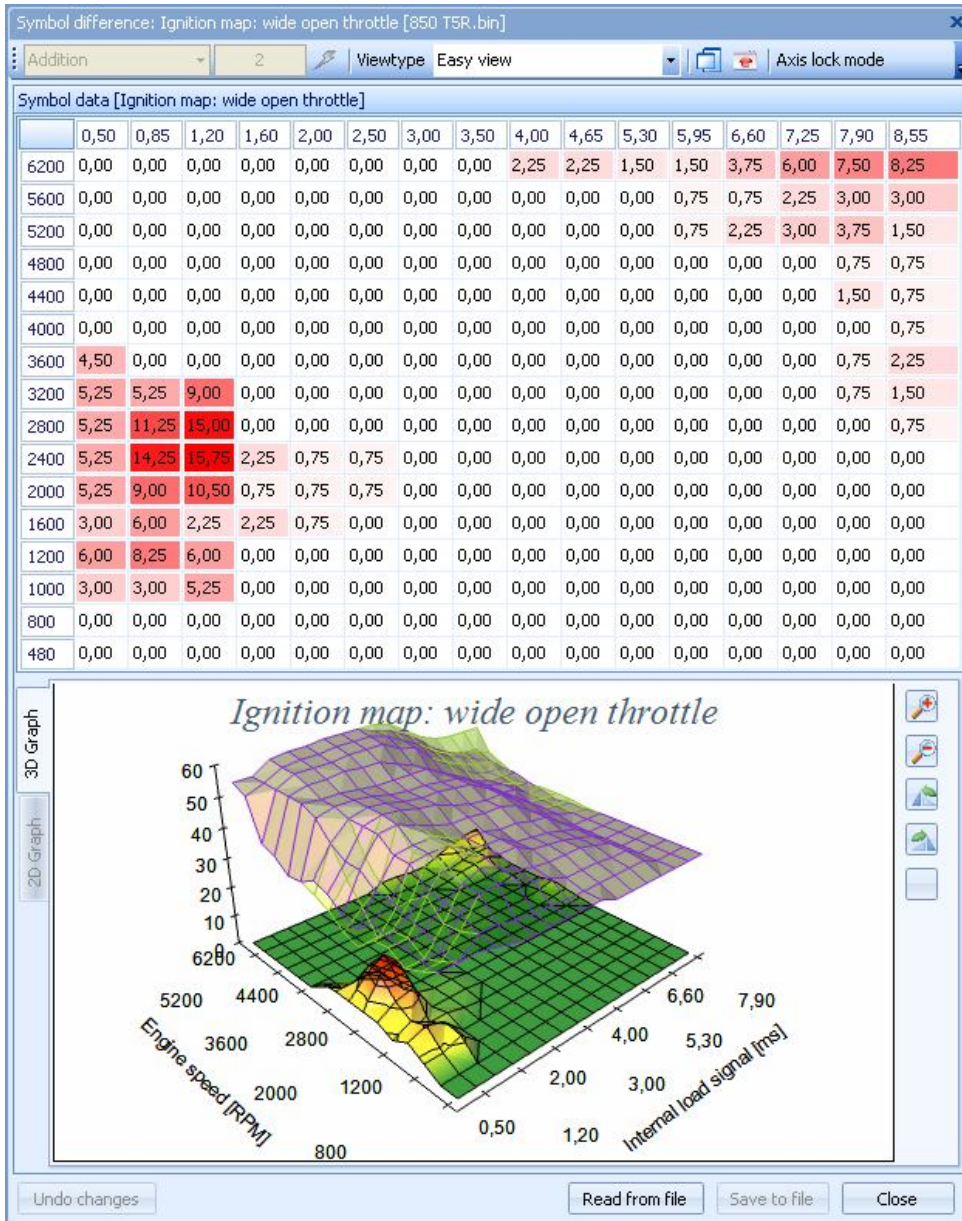
Double clicking the symbol cells will open a mapviewer for that map, while double clicking an axis symbol or the axis address will open an axis editor for that axis.

Standard actions – Extract symbols from binary

Allows you to re-extract the symbols from the binary file. Normally this will not be needed because MotronicSuite already extracts the symbolic information from the file once it is opened.

Standard actions – Compare to another binary

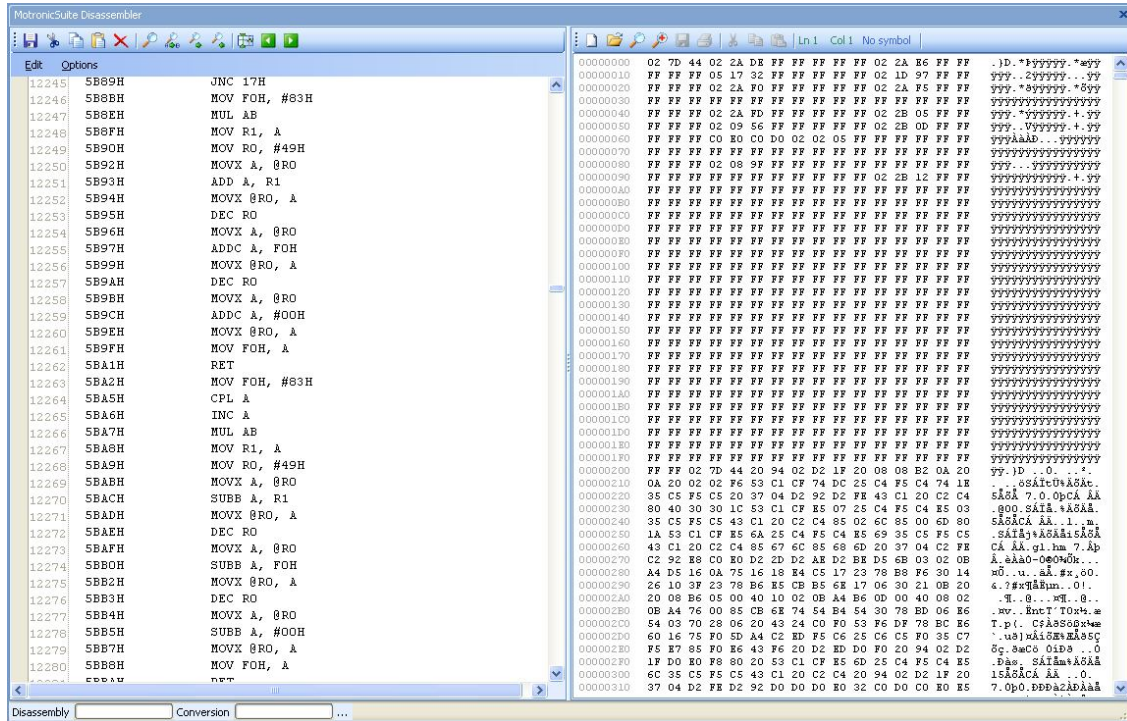
Allows you to compare the content of the maps of the current binary file to those of another binary. Very useful when comparing stock and tuned files. It will result in a difference viewer in which the differences are listed. Double clicking on of the listed entries will open two mapviewers, one for each file. Right-clicking will open a context-menu which will show, "Show differences map" which will show one mapviewer in which both maps are overlaid.



Advanced actions

Advanced actions – Disassemble file

Advanced user option. This will run a disassembler and show you the disassembly and a hexview of the opened binary file.



Advanced actions – View in hex

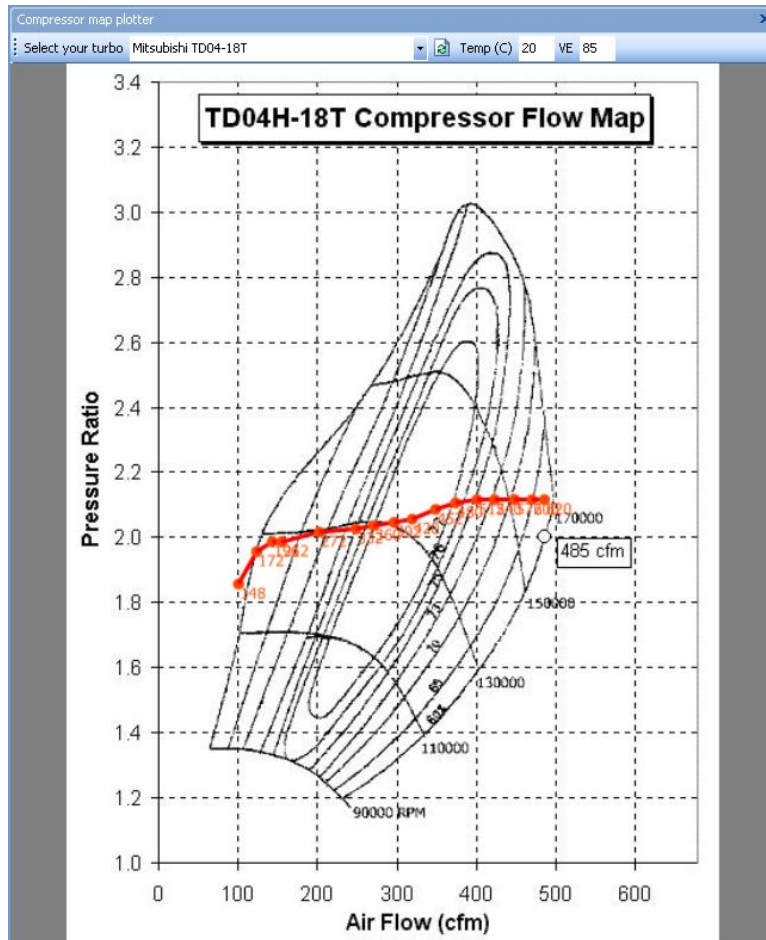
Shows you the currently opened binary file in hex format.

Advanced actions – Binary compare files

Compares the currently opened binary file with another one that you can select in a browser. The differences between the files are listed. Good to have function to verify a flash session.

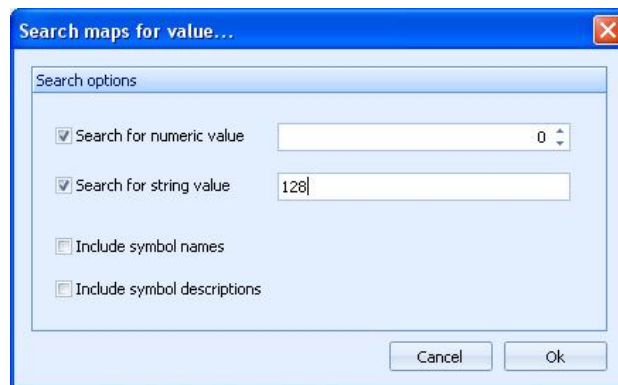
Advanced actions – Show compressor map

Using this function MotronicSuite will try to estimate the correct figures into a compressor map. Please note that this is a preliminary function!



Advanced actions – Search map content

Allows you to search for specific data in the currently opened binary file.



Running this function will result in a list of matches from which you can choose.

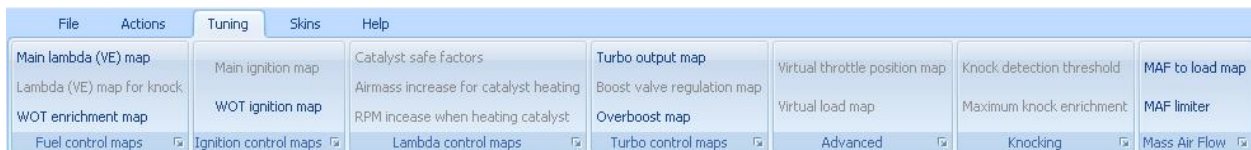
Programming – Flash ECU

This function allows you to flash the M4.3 ECU with a new firmware version. To be able to do this the ECU must be started in Bootmode and all wiring for power, ground and K-line interface should be correct.

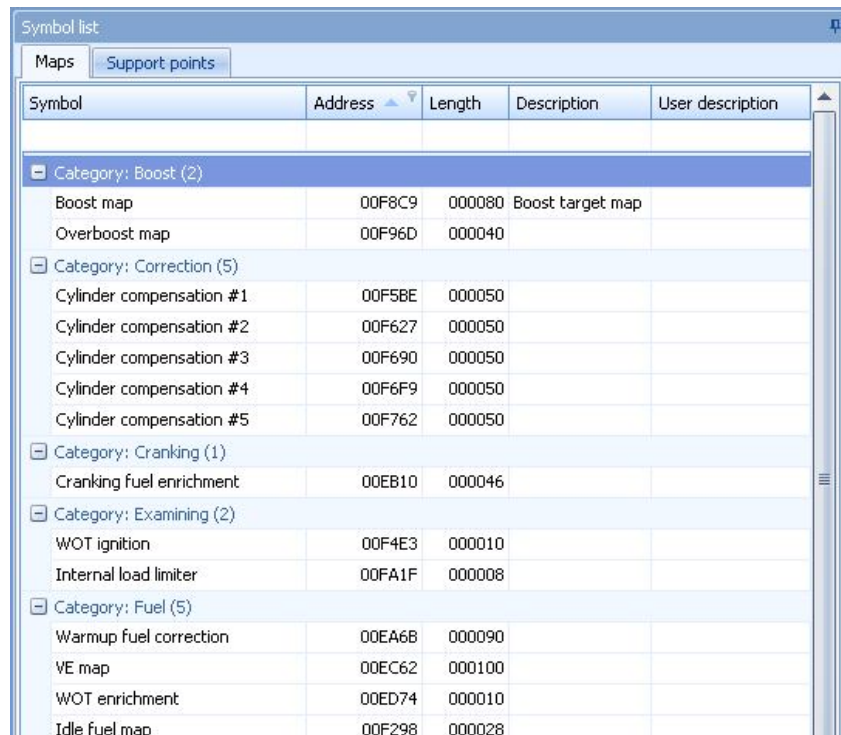
Please also read the Volvo Motronic 4.3 documentation chapter “Communicating with the ECU”. This document is also installed with MotronicSuite.

Tuning menu

The tuning menu offers several shortcuts to maps in the binary file for you convenience.

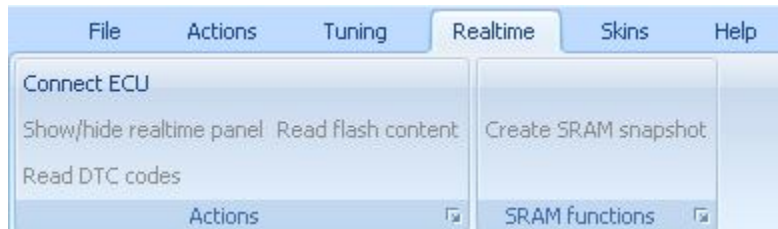


The alternate procedure is to select (double click or <ENTER>) the desired map in the symbolist view on the left hand side of the screen.



Realtime menu

The realtime menu gives access to the realtime functions of MotronicSuite. Currently only M4.3 communication is supported.

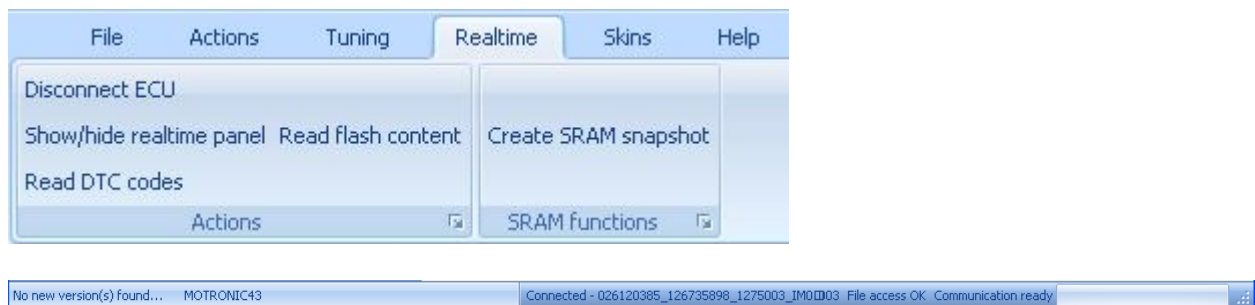


Realtime – Actions – Connect ECU

If all wiring is connected properly this allows you to start a communication session with the ECU using the KWP71 protocol.

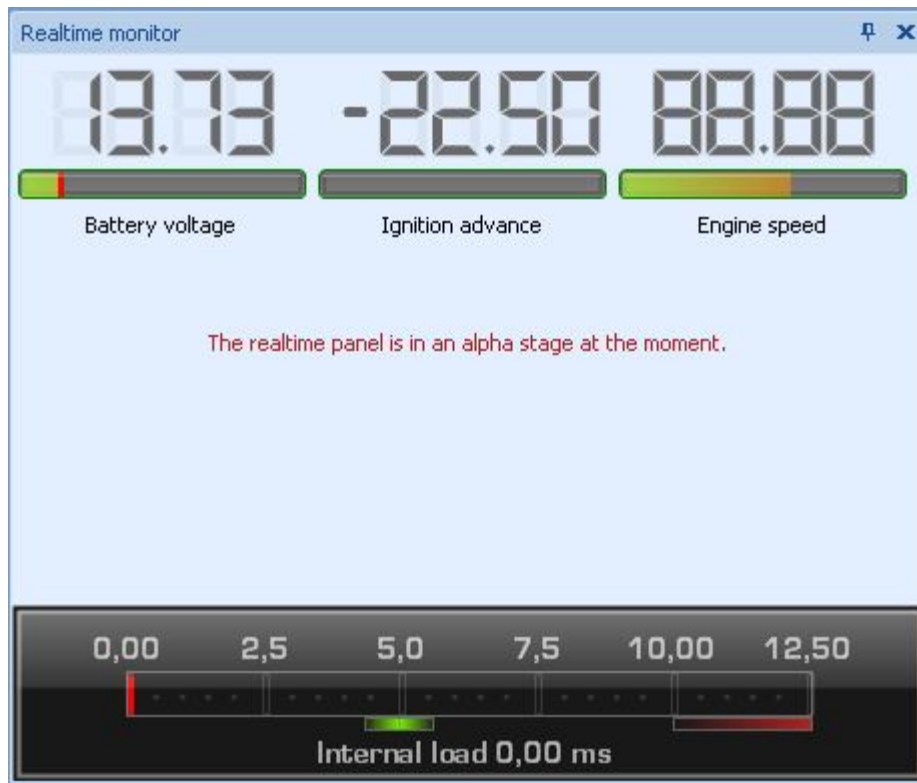
Please also read the [Volvo Motronic 4.3 documentation chapter “Communicating with the ECU”](#). This document is also installed with MotronicSuite.

Once connected, the other buttons in the realtime menu will be enabled and the ECUs identification numbers will be displayed in the status bar.



Realtime – Actions – Show/hide realtime panel

This will toggle the realtime panel – alpha functionality – to be able to view realtime data from the ECU.



Realtime – Actions – Read DTC codes

Allows you to retrieve active DTC codes from the ECU. A list will be shown containing the DTC code.

The screenshot shows a software window titled "Fault codes". It contains a table with two columns: "Code" and "Description". The table has one row with the following data:

| Code | Description |
|------|-------------------------|
| 123 | 1-2-3 ECT sensor signal |

At the bottom of the window, there are two buttons: "Clear" and "Close".

Realtime – Actions – Clear DTC codes

This allows you to send a “Clear DTCs” command to the ECU, removing all active DTC codes.

Realtime – Actions – Create SRAM snapshot

This will retrieve the current SRAM values from the ECU and store them in a .RAM file for later analysis.