EMU PRO CHANGELOG

Client: 99.3 public release
Firmware: 99.3 public release

Notes:

– The firmware "99.3 release candidate RC5" has been renamed to "99.3". It is the exact same firmware.

Client: 99.3 release candidate RC5
Firmware: 99.3 release candidate RC5

Firmware:

Fixes:

- Corrected the dwell time issue during spark cut at high RPM and long base dwell time.
- Resolved ignition intervention problem for Ignition outputs 11 and 12.

Client: 99.2 release candidate RC4
Firmware: 99.2 release candidate RC4

Firmware:

Fixes:

- *Fuel consumption Total volume* is working correctly
- EMU BLACK CAN Stream
  - *Fuel consumption Total volume* sent correctly
  - *Analog input 5 & 6* sent correctly (10-bit, not 12-bit value)
  - *DSG mode*, *EGT1 & EGT2*, *Pit limiter and Traction control torque reduction*, *starter request* flag sent correctly

Client: 99.1.1 release candidate RC3
Firmware: 99.1 release candidate RC3

Firmware:

Fixes:

- VVT Switched: hysteresis is working correctly
- Gearbox: *Blip level* channel is updated correctly in all states
- Gearbox: Cable blipper output duty cycle is correct now

Client:

Fixes:

- Fixed a bug that prevented the firmware from being upgraded on the first attempt.
- Fixed a bug with real-time logging that sometimes didn't start after a firmware upgrade.
- DBW Tuner for BMW S65: Fixed a problem that caused a crash if the tuner window was closed right away without doing the tuning

2023-07-13
Client: 99.0 release candidate RC
Firmware: 99.0 release candidate RC

Firmware:

New features:

- Sequential gearbox – Cylinder cut in the post-shift state

Improvements:

- Gearbox Shiftec – ramping during deactivation improved for Post-blip cylinder cut
- RPM Matching – ramping during deactivation improved

Fixes:

- ALS works correctly with Overrun enabled
- Fuel level sensor – filtered value updated correctly when engine running
- Traction control
  - Integrator reset threshold work correctly
  - Inactive states have values below zero now
- RPM limiter – DBW Target is correct now during hard fuel cut
- Lotus CAN stream - clutch status is correct when the DSG gearbox used
- *Short term trim Lambda Target* value is now working correctly for *Lambda Delay*

values greater than 980 ms

- Channels from the following two groups are updated correctly: *Fuel Lambda target Corrections* and *Fuel Corrections*

Changes:

- DBW Safety – DBW tracking error is triggered only when the DBW Target is lower than the Throttle position

<u>Client:</u>

Fixes:

- The default Y-axis for each 3D table is now correctly initialized (error introduced in version 96.0)

2023-06-16
Client: 98.2 experimental
Firmware: 98.2 experimental

<u>Firmware:</u>

Fixes:

- *Short term trim Lambda Target* value is now correct – it is now delayed *Fuel Lambda target* by the time defined in *Short term trim Lambda Delay* table.
- *Gearbox state* is now correct when using *Shift finished feedback* parameter with the value *Source disengage*.

2023-06-12
Client: 98.1 experimental
Firmware: 98.1 experimental

<u>Firmware:</u>

Fixes:

- Short term trim value is reset to 0% after the strategy is blocked (issue fixed after it was introduced in version 96.0)

2023-06-07
Client: 98.0.1 experimental
Firmware: 98.0 experimental

<u>Firmware:</u>

New features:

- Manual gearbox – Torque reduction (Flat shift) and blip with RPM matching
- Boost – electronic wastegate control using the built-in H-bridge outputs
- CANbus Keyboards support – Project Tree / Add / CANbus Keyboard. Support for up to 2 keyboards:
  - ECUMASTER - 2x2, 3x2, 4x2, 5x2, 6x2 and 5x3
  - Grayhill CANopen – 2x4, 3x4, 4x2, 5x3 and 5x4

Improvements:

- Enumeration channels such as a "Trigger Sync state" has now textual representation in the Data Master software
- Gearbox Shiftec:
  - Torque reduction recovery ramp added
  - Post-blip cylinder cut – experimental (can be changed in the future)

Fixes:

- CANbus Receive Channels: Timeout Value is now handled properly

Changes:

- New log file format V24 – Data Master 2023.4 is required to view new log files.

Client:

Improvements:

- VVT Tuner:
  - VANOS - reversed control direction handling
  - VANOS - PID calculation for dual solenoid
  - Basic results validation
- Documentation updated

Changes:

- Trigger Sync state "Fully synced" renamed to "Synced" to better describe the behavior in case of NOT using a secondary trigger sensor.

Client: 96.1 experimental
Firmware: 96.1 experimental

Firmware:

Fixes:

- Engine RPM Limiter: Strategy activation fix.

Client:

Fixes:

- Sensors Fuel temperature: Source='Flex Fuel sensor' is now correctly handled

- Proper project conversion of "Coolant temperature" bit after changing the name from "Engine coolant temperature".

Client: 96.0 experimental
Firmware: 96.0 experimental

Firmware:

New features:

- 4D tables and scalar tables. The following tables are automatically converted during the upgrade/load process: Ignition Angle Base, Fuel Lambda target Base, Boost Target Base, DBW Accelerator translation.

- Steering angle sensor – *rate* in [°/s] channel added

- VW Specific CAN stream - ABS, Steering position sensor, Airbag and Gateway emulation added

- Lambda target correction added

- Lambda guard strategy added

- Injector duty cycle protection added

Improvements:

- Negative values are allowed for short pulse adder correction

- When using Wasted Spark and secondary trigger is configured the fueling system is working in full sequence

Changes:

- Fuel correction ramping removed

- Secondary trigger "N-1" uses the same minimal factor as in EMU BLACK (150%). A project that uses this trigger is automaticly converted to "Longer than factor 200%".

Fixes:

- Steering angle sensor
  - *Calibration* channel has a correct value
  - *Value* is now correct for defined offset other than 0°

Client:

New features:

- 4D tables and scalar tables implemented (require firmware 96.0 or later)
- VVT Tuner:
  - Added chart of camshaft position vs duty cycle
  - Detection of minimal duty cycle for VVT work (e.g. in ford Coyote)

Improvements:

- VVT Tuner:
  - Modified Relay algorithm
  - New style of duty cycle and position sliders

Changes:

- Scope Graph: TDC/fuel/knock changed for Wasted Spark ignition method

Fixes:

- Improvements in Client application stability

2023-04-27

Client: 93.0.1 experimental
Firmware: 93.0 experimental

Client:

Improvements:

- Tune Display now supports custom user channels from Project Tree
- Improved look and feel of the application menubar.

Fixes:

- The use of sensor wizards no longer results in data corruption and app crashes.
- Correct values are now consistently displayed for channels in both Smart Grid and Text Log

Client: 93.0 experimental
Firmware: 93.0 experimental

Firmware:

New features:

- New vehicle CAN streams:
    - Can-Am Maverick 900 Turbo
    - Can-Am Maverick X3 Turbo RR 2021
    - Polaris RZR

Improvements:

- All outputs are now deactivated at the beginning of the shutdown procedure.

Fixes:

- Ignition lock is working correctly with the Idle strategy

Client:

Improvements:

- All ECU memory limits are now properly handled by the Client
- Memory Report window has been expanded
- CANbus Transmit window: Save .CANX File: symbols are now shortened to a maximum 30 characters limit to allow loading to ADU
- Graph Log and Text Log: improved precision for 32-bit channels

Fixes:

- CANbus Transmit: the types for U16 and S16 channels are no longer swapped
- Log files loaded to the Client and then re-saved are no longer being corrupted
- VVT Tuner: increased number of downloaded scope samples

Client: 92.5 experimental
Firmware: 92.5 experimental

Firmware:

New features:

- Gearbox – Shiftec GCU support

- Evo X (36-2-1) primary trigger decoder

Fixes:

- Project Tree: Numbers: Histeresis operation is now working correctly

Changes:

- Sensors/Gear/Source – *Vehicle Specific CAN Stream* enum value name changed to *Gearbox Strategy* (used for DSG, Shiftec gearbox types)

Client:

Fixes:

- Graph Log: proper range for enumeration channels (e.g. *Fuel Short term trim State*)

2023-03-28

Client: 91.2 Public Release
Firmware: 91.2 Public Release

Firmware:

No changes compared to 91.2

Client:

Fixes:

- Tables / Swap Axes is now moving data corectly
- EMU PRO 8 hardware limitations are now correctly applied in every part of the Client software

2023-03-20

Client: 91.1 release candidate RC
Firmware: 91.1 release candidate RC

Firmware:

Fixes:

- Gearbox – fixed error with not executed torque reduction for up-shift for sequential gearboxes

Client:

New features:

- Limitation for EMU PRO 8 hardware implemented in the Client:
  - A new EMU PRO 8 project can be selected at the start of the application

- Added "File / Change target device" menu command to change between EMU PRO 8 and EMU PRO 16.

Improvements:

- Undo is working again (regression in version 90.x)

- VVT Tuner: duration of collecting scope depends only on RPM

- DPI scalling fully functional

Fixes:

- VVT Tuner no longer accidentally overwrites the "Primary trigger start tooth" and "Initial teeth angles" settings of other camshafts.

- The Client application no longer crashes when a very old version of OpenGL is used.

- The client application no longer crashes when using the Ctrl+V on the axes of a table.

- Fixed the issue with axes in manual mode not responding properly to changing custom channel properties (factor, offset, signedness...)

Known issue:

- The installer and the main executable file are not digitally signed.

2023-03-07
Client: 91.0 beta
Firmware: 91.0 beta

Firmware:

New features:

- *User latching* switch – *Reset to default* functionality added

- *ESP Off* switch added – now used by Vehicle Specific CAN streams for Lotuses instead of *Traction control off* switch

Improvements:

- *Idle* strategy is blocked when a blip from the gear shift is active

- Cranking safety conditions moved from *DSG* and *Starter output* to the *Cranking* strategy
- Scope - added trigger state "Searching" to scope graphs (denoted by "s" letter)
- Engine RPM is now properly calculated in the trigger state "Searching" (no more RPM spikes in cranking)
- Gearbox:
    - *Blip level* may be treated as minimum DBW Target - *Blip level is DBW target min* parameter added
    - *Strategy transition ignition ramping* for blip added
- DSG:
    - *Gearbox torque loses* channel accuracy improved
    - Park gear engagement safety condition improved

Fixes:
- Coolant fans in "2-speed" mode:
    - *Output slow* initialization fixed
    - *State* is displayed correctly
- *Vehicle Speed* limiter: custom activation condition is working correctly

Client:

Improvements:
- Logging frequencies of Custom (Project Tree) elements are now stored in a project file.
- Graph Log: samples are now properly time-aligned even if channels have a different logging frequency
- Smart Grid: CAN IDs are now displayed in hexadecimal notation (e.g. 0x600)
- Scope Graph:
    - added trigger state "Searching" - denoted by "s" letter
    - additional tooth (for N+1 trigger) are now denoted by "A" letter
    - added "Ctrl+X" shortcut to clear the Scope Graph
    - a corrupted line at the bottom of a camshaft signal is no longer displayed

Fixes:
- The application is now properly checking if a newly created custom element has a unique name across an entire project.
- CANbus Transmit Frame dialog is now displayed with high DPI settings.

- Fixed crash when loading log files from different version than the Client application (internal format increased to V23)
- Tables: Axis Wizard: proper validation of Min / Max values for 32-bit channels.

2023-02-24

Client: 90.3 (Public Release)
Firmware: 90.3 (Public Release)

NOTE: Upgrading from beta firmware version (firmware 86.1 and ealier).

During the upgrade from a beta firmware, all settings will be reset to default. You need to have a project file of your tune saved on your PC. The project file can be obtained from your EMU PRO device using an older version of the software.