

Change log for version 1.112 EXP1

- Modified EMU CAN protocol. New frame 0x605 added
- VE correction based on Idle valve DC (for Alpha-N)

EMU Client

- EMU files (.emu, .emulog, .emusep) are associated with the application. EMU client will open the files if double clicked
- Divide operator added to cell modify operators (eg. 2/ divides cells by 2)

Change log for version 1.111 EXP1

- Staged injection added
- Full group injection during acceleration enrichment added

EMU Client

- New option to allow user to see the gauges and log, when EMU is password protected

Change log for version 1.104 EXP1

- Ignition outputs are not active after power up
- Ignition outputs can be assigned to Coolant fan, Fuel pump and Check engine functions
- Subaru EJ20 three cam sensors support added (VSS input used for one sensor)
- Afterstart idle DC increase option added
- Polaris RZR CAN stream bug fixed

EMU Client

- Windows XP incompatibility bug fixed
- New electronic throttles added to the wizard

Change log for version 1.102 EXP1

- DBW strategy improved by introducing friction correction
- Polaris RZR CAN stream added

EMU Client

- Application build using the latest Microsoft compiler and latest wxWidgets library
- UI no longer flickers
- The size of paramlist windows and group log windows should be optimal
- Keys assignment may change due to new wxWidgets library (assigning new keys might be required)

Change log for version 1.1 RC1

- TPS Rate log improved

EMU Client

- Bin axis wizard works with non integer numbers

Change log for version 1.1 BETA

- Traction control disable if second table set function works correct

EMU Client

- OpenGL crash fixed
- Desktops could be renamed
- Some speed optimization
- New injectors added to Injectors Wizard
- UI flickering problem improved

Change log for version 1.1 BETA

- WBO Heater support improved

EMU Client

- Clear log crash fixed
- OpenGL support improved
- Next/Previous tab shortcuts added],[keys
- Save / Load desktop layouts
- Help for all EMU options added
- Contributors list added

Change log for version 1.071 EXP1

- New version of rolling antilag strategy
- RX8 Dash CAN protocol RPM fixed
- Citroen C2 CAN protocol improved (speed displayed without ABS computer)

EMU Client

- IDL flag added to status bar
- Close all windows option bug fixed (crash)
- Bug with closing windows fixed (crash)
- TAB key switches between options tree view and child windows

Change log for version 1.070 EXP1

- VSS input frequency divider
- FlexFuel sensor can be connected to VSS input
- Rolling antilag added

EMU Client

- New flags added to status bar
- About box shows device serial number
- Throttle Bosch 0280750030 added to the DBW Wizard

Change log for version 1.069 EXP1

- BMW Z4 CAN dashboard support
- Mazda RX8 CAN dashboard support
- Disable CAM sync above given RPM
- Sensitivity switch strategy for CAM sync improved
- Scope trace for N+1 primary trigger bug fixed

EMU Client

- Customize keys, new shortcuts added
- New option for 3D tables added (automodify cells above cursor)

Change log for version 1.068 EXP1

- Knock sensor channel #2 readings bug fixed
- Ignition event that causes knock is logged (Knock ignition event channel)
- Ignition event trim extended to +/- 15 degrees

IMPORTANT: The engine noise table prepared with the previous software version should be lowered about 0.22V due to change in dynamic range of knock sensor input.

EMU Client

- Customize keys (Tools / Customize keys)
- Bug with Select All fixed

Change log for version 1.066 EXP1

- Spike filter for CAM#1 removed completely
- MAP filtering improved. New filtering modes and filter power table in function of RPM
- Injectors opening time in battery function can be add to cranking and prime pulse fuel dose
- Restore rate for knock sensor action can be lower than 10

Change log for version 1.065 EXP1

- 3 missing tooth primary trigger decoder added
- Cranking time correction table

Change log for version 1.064 EXP1

- Cam trigger advanced filtering rewritten. Need to be tested in real word applications
- External MAP offset can be negative

Change log for version 1.063 EXP1

- Electronic throttle position can be used as TPS
- Idle ignition control without 2D table strategy bug fixed
- Nissan trigger decoder modified. Check your ignition timing after update!

Change log for version 1.062 EXP1

- Mitsubishi Colt 1.5 trigger pattern
- Pectel SQ-6 Omega CAN protocol

Change log for version 1.061 EXP1

- Up to 8 sensors over CAN-BUS support
- Per cylinder EGT fuel correction
- EGT Boost DC correction based on maximum EGT from EMU and CAN sensors
- Each injector correction send to log (Fuel Trim 1-6)

EMU Client

- 20Hz datalogging (previous 10Hz)
- Log window improved:
 - scaling
 - HOME/END keys
 - 0.1 sec bars when scaled up
- Tables configuration bug fixed (color scheme selection)

Change log for version 1.060 EXP1

- Haltech E8 E11v2 CAN data
- VVTi CAM control solenoids frequency base bug fixed
- ALS bug fixed when engine goes outside RPM range
- ALS can disable nitrous activation

Change log for version 1.059 EXP1

- BMW E30 M3 116 tooth support
- New CAM#2 decoder: "Prim trig tooth range"

EMU Client

- Desktops are saved to disc before firmware upgrade

Change log for version 1.055 EXP1

- VTEC Off delay option added
- Support for CAN MODULE analog inputs

EMU Client

- Bugs and crashes from 1.054 corrected
- Bug trap added for easy crash report submission

Change log for version 1.054 EXP3

EMU Client

- Option for square 3D Tables
- Child windows keyboard focus improved

Change log for version 1.054 EXP1

- TFI trigger support
- CAN-DASH output for Shift Light and Check engine light
- Fuel cut above pressure variable max value increased to 700kPa
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EMU Client

- CTRL+A selects all cells in table

Change log for version 1.053 EXP1

- Support for CAM N+1 trigger as primary one (divide real number of tooth by 2, eg. For 12+1 the number of teeth is 6)
- Ignition lock options (primary trigger settings) to lock ignition angle to fixed value
- VVTi for CAM#2 can use CAM#1 angle table (useful for V engines with 2 inlet VVTi cams)
- Vvti valve frequency bug fixed

Change log for version 1.052 EXP1

- 4 extra analog inputs with CAN-MODULE or EMU CAN
- New electronic throttle bodies added: BOSCH 0280750475, SUBARU 16112AA170

Change log for version 1.051 EXP1

- Fuel level sensor support
- Lotus Elise/Exige dashboard support
- MOTEC M800 set 1 CAN protocol support
- Engine protection for low and high coolant temperatures (rev limiters)
- Two symmetrical tooth cam decoder (wasted spark)

Change log for version 1.050 EXP1

- DBW Wizard
- Launch control can be activated by MUX input
- TPS/MAP fuel correction table values expanded from 200% to 255%
- VSS to activation of Flat Shift bug fixed
- VSS to activation of Nitro bug fixed
- Ford Fiesta MK7 CAN messages added

EMU Client

- DBW Wizard
- CSV text file has column time
- 3D tables cross hair display method changed

Change log for version 1.049 EXP1

- MUX Switch support
- Fuel pressure delta is calculated correctly

Change log for version 1.048 EXP1

- 3UZ-fe cam decoder improved
- 1 tooth cam sync bug fixed (bug was introduced in version 1.047)
- FlexFuel readings can be limited to TPS opening

EMU Client

- Export selected log channels to CSV text file (separation character is ;)

Change log for version 1.047 EXP1

- Delta fuel pressure correction
- Delta fuel pressure fail safe with RPM limit
- WBO error detection improved
- 3UZ-fe cam decoder

EMU Client

- Engine status is displayed correctly (Running instead afterstart)
- Windows with parameters have correct height (all parameters are visible without scroll bar)

Change log for version 1.046 EXP1

- Honda J35A8 trigger engine start bug fixed

Change log for version 1.045 EXP1

- Audi trigger 135 teeth

Change log for version 1.044 EXP1

- Honda S2000 dash CLT output big fixed

EMU Client

- UI outlook improved for large system fonts
- Windows with 3D tables splitting strategy improved
- Help for parameters windows introduced (actually only for TPS and Oil pressure cut)
- Log can be scrolled with mouse wheel
- Bug with scrolling log using keys fixed
- User manual is installing with the software
- Error codes are displayed by name not a code number

Change log for version 1.043 EXP1

- Honda S2000 dash CLT output
- Idle DC ref correction in function of RPM error (2D table)
- Boost DC correction in function of boost error (2D table)
- Boost control solenoid DC is 0 if under inactive pressure (not min DC as in previous versions)
- Ids of EMU CAN-BUS protocol can be defined

Change log for version 1.042 EXP1

- Min CLT for Nitrous activation
- Ignition retard for soft rev limiter

EMU Client

- Bug from version 1.041 with gauges fixed
- Honda temperature sensor added to temp. sensors wizard

Change log for version 1.041 EXP1

- CAN BUS Ecumaster stream CLT channel is sent correctly
- First two sparks are at correct angle (before were at TDC)

EMU Client

- Open 3D tables when load is on Y axis bug fixed
- Open / Save file dialogs opens in last visited directory. When device connected directory is changed to device name dir.

Change log for version 1.039 EXP1

- AIM protocol new channels: Oil temp, Oil pressure, Fuel pressure
- VTEC VSS Min parameter added

Change log for version 1.038 EXP1

- Subaru 36-2-2-2 trigger improved

Change log for version 1.037 EXP1

- Synchronization of two engines via extension port

EMU Client

- 3D tables position and size are handled correctly

Change log for version 1.036 EXP1

- Traction control x-axis assigned to TPS not to Load
- Traction control can be disabled under defined speed
- CAN-BUS bug fixed (works with old correctly with old CAN modules)
- Idle DC can be altered by analog input voltage

Change log for version 1.035 EXP1

- Trigger error scope trace

Change log for version 1.034 EXP1

- Traction control

EMU Client

- When loading project 3D tables with load on axis are updated correctly (AlphaN vs Speed density)

Change log for version 1.033 EXP1

- Spike filter for CAM#1 input

Change log for version 1.032 EXP2

- Gear detection based on voltage gearbox sensor
- Gear cut
- N + 1 60% - CAM#1 trigger added

EMU Client

- Load on Y axis bug fixed

Change log for version 1.031 EXP3

EMU Client

- 2D Tables reinterpolation bug fixed

Change log for version 1.031 EXP2

EMU Client

- Log is referenced on tables when tracked

Change log for version 1.031 EXP1

- VW Passat instrument cluster support (RPMs)
- BMW Multitooth CAM#2 trigger added

EMU Client

- Load on Y axis bug fixed (storing tables to EMU)
- Magneti Marelli temperature sensors added (AST04 and WST04)

- Magneti Marelli BAE 801 double coils wizard added

Change log for version 1.030 EXP1

- Nissan trigger improved. Please check ignition angle with timing lamp after upgrade!
- Vehicle speed is transmitted in Ecumaster serial protocol.

Change log for version 1.029 EXP2

- 2JZ VVTi engine start improved (cam decoder bug fixed)
- Citroen C2 CAN BUS support (dashboard, bsi, power steering)
- VANOS solenoid DC set to 50% when not controlled

EMU Client

- Configuration for 3D tables (load axis definition, color scheme)
- Password protected EMU can be reset to factory settings

Change log for version 1.027 EXP1

- Cycle once for parametric outputs
- Idle control internal resolution increased (control by 0.25%DC)
- VANOS solenoid DC set to 50% when not controlled

Change log for version 1.026 EXP1

- DBW support for ALS (Use DBW, BW Throttle opening)

Change log for version 1.025 EXP1

- Flat shift fixed time ignition cut
- Filtering of DBW pos
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Change log for version 1.024 EXP1

- Faster engine start
- BMW E46 CAN-Bus dashboard support
- Cranking gap detection scale – for adjusting gap detection during cranking

Change log for version 1.023 EXP1

- Per cylinder injection trim
- PWM table can be scaled by PWM CLT scale table
- CAN-BUS module support
- CAN Ext. switch introduced for activation functions like LC, Boost Tbl, TBL Set, etc.
- EMU data log could be transmitted over CAN BUS
- WBO error checking sensitivity tuned
- Idle PWM frequency max limit increased to 500Hz

Change log for version 1.022 EXP1

- Race Technology data stream bugs fixed

Change log for version 1.021 EXP1

- FlexFuel sensor temperature readings fixed
- dTPS integrator constant can be defined
- Maximum value of Idle afterstart increase changed to 800
- Ignition correction table in function of CLT for Idle
- DBW opening characteristic changed for 3D table in function of TPS and RPM
- Double Warmup correction tables for FlexFuel use
- Double ASE correction tables for FlexFuel use
- Removed DBW position limit in function of RPM

- Maximum value for ASE table increased to 255%
- Maximum value for Warmup table increased to 255%
- Value ranges in datalog for FlexFuel channels fixed

EMU Client

Change log for version 1.020 EXP1

- TPS value under min voltage and TPS value over max voltage parameters added. **For TPS with inverted max and min value default values should be modified!**

EMU Client

- New operators for table editing added. Numbers with operator * multiply cells value (eg. 0,5*), operator + and – adds and subtracts values (eg. 7+ adds 7 to all selected cells).

Change log for version 1.019 EXP1

- VE, IGN, AFR, BOOST tables are 16x20 now
- VW 1.8T 4 teeth cam trigger type added
- Oil pressure cut function added
- Time cycling function added to parametric outputs
- Oil pressure, Oil temperature and Fuel pressure can be used as argument for parametric output
- IAT ignition correction is not applied if engine is idling.
- Check engine flags are logged now

EMU Client

- CEL (Check engine light) on status bar

Change log for version 1.016 RC1

- Rejection of incorrect pulse form VR sensor amplifier.
- TPS voltage log channel

EMU Client

- Ethanol content gauge

Change log for version 1.015 EXP1

- Ignition cut idle control
- Idle On/Off valve control
- Fire injector twice per cycle for wasted spark applications

EMU Client

Change log for version 1.014 EXP1

- ALS

EMU Client

- 3D tables selection outlook improved
- Temperature sensor wizard improved. Error message for wrong sensor data
- Road dyno

Change log for version 1.012 EXP1

- Characteristic table works for DBW
- Second cranking Fuel table for FlexFuel sensor blend
- Filtering option for secondary trigger

EMU Client

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Change log for version 1.011 EXP2

- WBO controller could be enabled even there is no RPM (enable when no RPM)
- Hysteresis added to VTEC control
- Full Flex Fuel sensor support
- WBO Heater could be used as NBO Heater
- VSS signal filter

EMU Client

- Log groups are sorted in main tree view
- Gauges are sorted in main tree view
- CLT gauge scale overlap fixed

Change log for version 1.010 EXP2

- Multitooth false trigger rejection
- MX-5 two teeth ignore false cam sync

EMU Client

- Paste bug fixed when paste to selected area

Change log for version 1.010 EXP1

- Battery voltage added as variable type for parametric output
- VTEC support
- Dual tables set support (VE, AFR, IGN, VVTi#1, VVTi#2, BOOST) for manual and VTEC switching

EMU Client

- Improved lost log frame support.
- Reduced flickering of text log controls
- Copy / Paste for cells of 2D and 3D tables (CTRL+C, CTRL+V)

Change log for version 1.009 EXP1

- Injection angle delay (for test purpose)
- Two teeth cam sync fals trigger detection (for MX-5 1.8BP)

Change log for version 1.008 EXP1

- Drive by wire (ETC) first release
- Two teeth cam sync modified

Change log for version 1.007 EXP1

- Double VVT tables
- VVT tables size increased from 8x8 to 12x12
- TPSvsMAP correction table size increased from 8x8 to 12x12
- Digital filter control added to MAP sensor input
- Dodge SRT CAS & CAM triggers
- Injectors DC value for low resolution ignition triggers bug fixed

EMU Client

- Sound added for make permanent function.
- Text items in log windows are sorted and colored

Change log for version 1.006 EXP5

EMU Client

- CTR+Arrows bug fixed.

Change log for version 1.006 EXP3

- Idle control for 3 WIRE PWM improved when inactive and DC = 0% or 100%
- Idle RPM Ref DC table is used only when Idle control inactive and TPS > idle active control threshold

EMU Client

- CLT wizard transfers the whole table to EMU

Change log for version 1.005 EXP1

- Idle control for 3 WIRE PWM improved. It could be required to tune DC Ref table
- Reverse option available for all idle valve types ,
- Integral limit for PID control fixed,
- Idle RPM ref table works correctly with PWM and 3 WIRE PWM Valves
- IDLE VALVE control bug fixed. Under some rare condition the valve could open or close for no visible reason,
- Digital filtering for false cam signal for one tooth cam trigger,

EMU Client

- Assigned outputs list

Change log for version 1.004 EXP2

- 2 teeth cam sync (MX5 1.6BP)

EMU Client

- Tables colors recalculate correct if there is no 3D graph

Change log for version 1.004 EXP1

- Double vanos support
- Race Technology dash support

Change log for version 1.003 EXP1

- Idle control: ignition correction in function of target error
- Idle control: idle control active up to max idle RPM parameter
- Idle control: DC Ref in function of RPM when idle control not active
- Boost control: closed loop functionality fixed
- Boost control: PID scaling removed (PID parameters are not compatible with previous version !)
- Boost control: PID debug to log
- Boost control: Logged value of boost target is correct
- Oil pressure, fuel pressure and oil temperature sensors support added

Change log for version 1.002 EXP1

- Subaru 36-2-2-2 primary trigger support
- Subaru 6 teeth primary trigger support
- Subaru 7 teeth cam sync support
- Output for Speedometer bug fixed
- Nitrous min gear

Change log for version 1.001 EXP1

- Lotus Elise engine start improved
- WBO error detection improved (no false check engine light)
- Gear dependent nitrous activation

- TPS vs MAP 3D VE correction table
- TPS vs MAP 3D ignition correction table
- Alpha-N with MAP based ignition
- Alpha-N with MAP based ignition and MAP multiplication
- Max acceleration enrichment limit increased to 250
- Sustain rate for acceleration enrichment increased to 95%

Change log for version 1.000 EXP4

EMU Client

+ 2D tables bug fixed (crash)

Change log for version 1.000 EXP3

EMU Firmware

+ disable spark during overrun fuel cut (to decrease coils and coil driver load)
+ Porsche 132 teeth trigger sec trigger filter added

EMU Client

+ log window scrollbar functionality improved
+ when disconnected you can always scroll log
+ log could be scrolled with keys. Arrows scroll by 2, shift + arrows scroll by 10, page up/ page down scroll by 32
+ space key on log window pause / resume logging
+ cancel button on log preset window works correct
+ autoscale for 3d graphs
+ changing bins correctly re-interpolates all dependent tables
+ x axis bins wizard bug fixed

Change log for version 1.000 EXP2

EMU Firmware

+ Lotus Elise / Rover trigger added
+ fixed speedometer bug when no vss present

EMU Client

+ log file name bug fixed

Change log for version 1.000 EXP1

EMU Firmware

+ CLT range increased to 250C
+ invert output for main relay
+ changing output for main relay disable previous output

EMU Client

+ making permanent feedback on connection status
+ making permanent saves current project into QuickSave directory of current device
+ VW Beetle CLT sensor added
+ Log file name format improved
+ Boost target could be lower than 100kPa

Change log for version 0.999 EXP8

EMU Firmware

+ Porsche trigger (4 cylinder 132 teeth + 1 on cranksahft)

Change log for version 0.999 EXP7

EMU Client

- + colours added to connection status
- + automatic reconnection
- + software doesn't hang when losing USB connection with EMU device.

Change log for version 0.999 EXP6

EMU Firmware

- + ROVER K Series 18-1-18-1 primary trigger decoder added
- both edges for primary trigger

EMU Client

Change log for version 0.999 EXP5

EMU Firmware

- + Honda J35A8
- + missing tooth cam decoder added
- + Fixed dwell bug when low resolution trigger used
- + Both edges for primary trigger
- + Mazda MX-5 3 teeth cam#2 decoder added

EMU Client