

## catoolRT 17.3 Release Notes

- Fix memory leak
- Fix issue with deferred version update checks
- Added "CANbus Delay" to status messages. This is the time delay between acquiring a cycle of engine data, analysing it and sending a CANbus message.
- Edit CAN channel dialogue shows the minimum and maximum values that can be stored in the signal as well as the resolution
- Support multiplexed CAN signals
- Support minimum pulsewidth filter for low speed frequency input channels
- Converting analogue signals to digital can now use the existing "smart" logic or specifying a high/low switchpoint
- Edit channel title updates correctly when channel is renamed
- Don't copy datalist headers to clipboard if datalist has no items
- Reduce DAQ buffer from 1Mb to 100k to help with 32-bit memory exhaustion
- 720 degree sync logic with an encoder is improved to ensure segments are aligned on 3/5 cylinder engines that starts out-of-sync. This is to improve CAN signal output delay.
- Fix bug that caused encoder DAQ to report an error when finished
- Calculate correct segments per cycle when changing engine's number of cylinders
- Support preconfigured Bosch LT2/LT4 AFR sensors via CAN
- Fix bug converting channel abscissas after changing clock resolution
- CAN output signals now default to 16-bit fixed point rather than 32-bit float
- Add "Edit" CAN signal in "Configure CANbus"
- Cycle classification for knock or mega knock can be configured for knock sensor signals (KBF/KNKBINT thresholds)
- Motored cylinder pressure calculation can be extrapolated back to BDC ("Analysis" -> "Configure" -> "Extrapolate To BDC")
- Cursor and legend colours can now be customised (were always yellow)
- Line style for mean, standard deviation and sum line can be customised
- Envelope colour can be customised
- If a knock parameter is plotted, the plot window can flash if the cycle is classified as knock/mega knock.
- Crank angle plots can have "No TDC correction" to plot them as acquired.
- Added zoom between cursors
- Added axis lock – when selected via toolbar button all diagrams with the same x abscissa will scroll/zoom in harmony.
- Improved Spectrogram drawing speed
- Numerous bugs with waterfall plots corrected
- Waterfall plots can now be plotted with colourmap
- Diagram cursor labels update if moved beyond first channel's limits
- Added ability to plot mean and standard deviation to cycle based plots
- Added mass estimator functions – delta P and trapped mass calculations
- Improved diagram drawing speed at certain screen resolutions/diagram sizes
- Improved 720 degree sync for non-encoder acquisitions
- Fix some crashes in "Format Diagram"/"Format Datalist"
- Removed some unused configuration options in "Format Diagram"
- Add new colourmaps: Viridis, Magma, Inferno, Plasma (R Project) and Parula (MATLAB)
- Attempt to update NI device name based on device serial number

- Add configuration parameters for TDC determination in "Advanced Config"
- Add ATI VISION calculated channels
- Fix issue with slider showing "Cycle 0"
- Add "Save All" menu item that saves current project and DAQ configurations
- Improvements to start/finish of recording
- Crash reports are now compressed and uploaded in the background
- Instantaneous engine speeds are zeroed more quickly below 5 RPM.
- Improvements to encoderless TDC determination
- Fix crash whilst copying crank angle data
- Prevent cursors from being "lost" during window resize
- Crankangle data points were not drawn if line style was transparent
- Make ATI VISION channel selection visible when choosing new channels
- Fix issue with units not appearing when editing cylinder pressure channels