History of BLHeliSuiteTest32 Revisions

Changes in 31.10.0.1:
General:
- Fixed firmware detection bug.

Changes in 31.10.0.0:
General:
- Fixed problems with the screenshot function.
- Version number adapted to the current BLHeli_32 firmware rev.
- Added current BLHeli_32 manual.

Changes in 31.9.0.6:
General:
- Added the ability to edit and flash coming BLHeli_32 test rev. 31.10x.
- Minor fixes and improvements in the UI.

Interface "L":
- Fixed FVT-Linker read/write failure, if log is enabled.

External 4way-Interface (Arduino):
- Fix for 8Mhz interfaces not connecting the ESC bootloader.
  Updated to interface version 2.0.0.0.7.

Changes in 31.9.0.3:
General:
- Minor fixes and improvements.

Interface "L":
- Fixed write/flash/verify inability with interface "L" using cp2104 based adapters.

External 4way-Interfaces:
- Fix for not working "Reboot F7 FC on disconnect"
- Improved handling of FCs with only one motor output (Fixed-Wing)
- Temporary fix for Bluetooth LE hang under Win 11 (connection keeps being slow though)**.**

Changes in 31.9.0.2:
General:
- Reduced, clearer menu display for beginners.
- Various fixes and improvements.

External 4way-Interfaces:
- Again fixes for Bluetooth LE with older BLE versions.

Changes in 31.9.0.1:
General:
- Fixed hex file selection.

Changes in 31.9.0.0:
General:
- Improved stability of flash read and write operations, including resuming flashing after a temporary power failure on the ESC.
- Improved handling of corrupted setup section.
- Added Unicode character support for ESC name field.
- Reworked Heartbeat handling.
- Various improvements.

External 4way-Interfaces:

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- Improved support for Bluetooth LE devices.

Changes in 31.8.7.4:
General:
- internal optimizations.

Changes in 31.8.7.3:
General:
- Various fixes and improvements.

External 4way-Interface:
- Added option "automatic" for wait time after connect interface (automatic 0, minimum 260ms, default 5000ms).

Changes in 31.8.7.2:
General:
- Added ability to Eep Layout rev. 48.
- Various minor Improvements.

Changes in 31.8.7.1:
General:
- Added support for AT32F413 MCU.
- Added support for GD32E230 MCU.
- Fixed auto scrolling in log window.
- Bug fix for hanging start up music and making ESC unresponsive when playing note "C(#)" (related to AT32F413/415 and firmware <= 32.8). (Replacing notes "C", "C#", "Db" with note "D").

Changes in 31.8.7.0:
General:
- Added improvement for AT32F421 MCU flashing procedure.

External 4way-Interface:
- Added simple RPM noise test to "Motors" tab in "Expert Mode".
- Added option for stetting wait time after connect interface to facilitate detecting of the ESCs (minimum 260ms, default 5000ms).

Changes in 31.8.6.9:
General:
- Fixed partial wrong language in dialog headings and buttons.

Changes in 31.8.6.8:
General:
- Improved Verify ESC handling (removed "ESC Tools… Verify flash memory" menu item, added "Verify BLHeli" button, added suggestion to verify ESC before reflashing with the same revision).
- Added ability to Eep Layout rev. 47.

Changes in 31.8.6.7:
General:
- Various minor Improvements.

External 4way-Interface (BF):
- Added warning, if motor output protocol is set to disabled.

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Changes in 31.8.6.6:
General:
- Improved bootloader connection handshaking for interface "L". Fixes: sometimes connection fails if ESC is power cycled.

External 4way-Interface:
- Added warning for not recent 4way-if versions, if no ESC found.

Changes in 31.8.6.5:
External 4way-Interfaces:
- Improved wait time for ESC connection after reset.
- Added parameter "Options… Connect ESC Retries …" to improve reliable bootloader connections.

Changes in 31.8.6.4:
General:
- Added support for AT32F421 MCU.
- Added "Cancel" option to verify process.
- Various fixes and improvements.

External 4way-Interfaces:
- Added support for Bluetooth LE devices under Win10 1709 and later, like flight controller with BLE chip or BLE/USB adapter (please consider as beta state). Enable under "Options… Enable BluetoothLE".

Changes in 31.8.6.3:
External 4way-Interface:
- Fix for: establishing connection with Ardupilot hangs, if Ardupilot parameters are not configured appropriate.
- Increased wait time to 2.5 sec after connect interface to facilitate detecting of the ESCs (optional off).

Changes in 31.8.6.2:
General:
- Removed support for obsolete EagleTree MicroVector
- Minor improvements.

Changes in 31.8.6.1:
General:
- Added checking for valid bootloader version number.

External 4way-Interface:
- For better information, now showing up 4way-if version number in the Application title bar.
- Improved connection establishment to FCs with Ardupilot.

Changes in 31.8.6.0:
General:
- Added more upcoming MCU devices.

External 4way-Interface (Arduino):
- Added device id range in order support further upcoming MCU devices.
- Increased 4way-if version number to rev20.0.0.5 to indicate changes.
  Please ensure to use Arduino/CF/BF interface versions which contains 4way-if code of rev20.0.0.5 or higher in order to connect to upcoming MCU devices. (BF 4.2.5 and CF 4.2.2 contain 4way-if version 20.0.0.4)

Changes in 31.8.5.9:

General:
- fixed bug: "write failed" on Write Setup with different value than default for PWM Frequency.

Changes in 31.8.5.8:

General:
- Added workaround in "Motor" tab for Ardupilot (FC_VERSION < 3.3.1) missing response on MSP_SET_MOTOR command.
- Added warning message in "Motor" tab, if motor outputs are disabled.
- Added the ability to edit and flash BLHeli_31 next beta rev.
- Further minor fixes and improvements.

Changes in 31.8.5.7:

General:
- fixed bug: Flashing or writing setup results in "Error writing flash" when using interface "L".

Changes in 31.8.5.6:

General:
- fixed: improvement of re-connection using FVT USB link worked only if logging was enabled.
- Improved: Detection and handling of future, not yet supported, MCU types.
- Further minor fixes and improvements.

Changes in 31.8.5.5:

General:
- improved re-connection using FVT USB link after unplugging.
- Minor internal improvements.

"Make interfaces" tab:
- Added differentiation for Arduino Nano with old and new bootloader baud rate.

Changes in 31.8.5.4:

General:
- Minor fixes and improvements.

Changes in 31.8.5.3:

External 4way-Interface (iNavFlight):
- Added fix for unable to connect due to MSP_MOTOR_CONFIG not available in inav.

Changes in 31.8.5.2:

General:
- Minor fixes and improvements.
- Added detection for BLHeli/_S 8 bit ESCs.

External 4way-Interface (Betaflight/et al.):
- Adapted MSP_API level 1.42
- Reworked functions in "Motors" tab.
- Added telemetry data support in "Motors" tab.
- Added simple throttle linearity test to "Motors" tab in "Expert Mode".

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Changes in 31.8.5.1:
General:
- Various minor fixes in GUI.

External 4way-Interface (Betaflight/et al.):
- Added workaround fix for flooding MSP port with MSP_DISPLAYPORT under specific circumstances.

Changes in 31.8.5.0:
General:
- Fixes for handling PWM frequency defaults > 48khz.

Changes in 31.8.4.9:
General:
- Fixed: Com port device failures while write/verify flash. Mostly discovered with CH340 USB/UART (Arduino Nano) devices on specific systems (OS and/or USB hardware dependent).

Changes in 31.8.4.8:
General:
- Some fixes in "ESC flash" tab.
- Added ESC verification feature to "ESC flash" tab.

Changes in 31.8.4.7:
General:
- Fix: Added SBUS to valid input protocols.

External 4way-Interface (Arduino/Cleanflight/Betaflight/et al.):
- Added repeating of commands after ACK_I_UNKNOWN_ERROR response to improve workaround for USB connection issues.

Changes in 31.8.4.6:
General:
- Added the ability to edit and flash BLHeli_32 test rev. layout 45 (test version for 37.1).
- Improved reaction for ESC disconnection/reconnection from power supply.

Changes in 31.8.4.5:
External 4way-Interface (Arduino):
- Fix "Arduino Mega unable to connect" by limiting DTR and RTS active for FC interfaces only.

Changes in 31.8.4.4:
General:
- Fix in "ESC overview" for parameter last row: data not displayed.
- Improved flash handling for ESCs.
- Setting DTR and RTS active whenever opening a com port.

Changes in 31.8.4.3:
External 4way-Interface (Arduino):
- Bugfix for overly tight timeout, especially with regard to the use of the Arduino UNO.

Changes in 31.8.4.2:

<p style="text-align:center;">**History of BLHeliSuiteTest32 Revisions**</p>

General:
- Improved detection of com port device removal from USB.
- Fixed wrong high DPI awareness setting.

Changes in 31.8.4.1:
General:
- first modernized GUI version.
- Added new "ESC Flash" tab.
- Various fixes and improvements.

Changes in 31.8.4.0:
General:
- Added the ability to edit and flash BLHeli_32 test rev. 31.84.
- Minor fixes and improvements.

Changes in 31.8.1.6:
General:
- Minor fixes and improvements.

Changes in 31.8.1.5:
General:
- Fixed false warning about corrupted memory content in version 31.8.1.4.

External 4way-Interface (Ardupilot only):
- Added workaround fix for usage with interface "K" and "M".
  - Removed warning about outdated interface version for interface "K".
  - Removed heartbeat connection check for interface "K".
  - Removed cmd_DeviceInitFlash after "general error" answer on cmd_DeviceReset for ESC presence checking for interface "K", to speed up skipping of unused channels.
  - Excluded unsupported MSP_BOXIDS command usage for interface "M".
  - Added 2 sec timeout for cmd_DeviceReset and cmd_DeviceInitFlash to compensate excessive first ESC command delay after Connect.

Changes in 31.8.1.4:
General:
- Minor visual improvements in "ESC Setup" page.
- Added capability to handle rev. 31.84.
  - Programmable "Stall Protection".

Changes in 31.8.1.3:
General:
- Improved parameter layout revision check.
- Improved handling of "invalid" or "flash failed" marked ESC in "Read Setup" and "Check" procedures.

Changes in 31.8.1.2:
General:
- Improved handling of ESC write/verify errors by repeating block operations.
- Improved handling of ESC "Read Setup" and "Check" procedures.

Changes in 31.8.1.1:
External 4way-Interface (Cleanflight/Betaflight/et al.):

- Added workaround for Betaflight VCP multiple of 64 byte read failure bug with F7 FC boards.
- Added basic compatibility verification of FC variants with Motor tab functions.
- Added Error handling for msp error sign ("|") currently used by dRonin.

Changes in 31.8.0.9:
General:
- Added support for STM32G071 MCU.
- Added handling for falsely added BOM UTF-8 in external hex files.

External 4way-Interface (Arduino):
- Added STM32L431 and STM32G071 to device id match and increased timeout for flash erase.
- Increased 4way-if version number to rev20.0.0.3 to indicate changes. Please ensure to use Arduino/CF/BF interface versions which contains 4way-if code of rev20.0.0.3 or higher in order to connect to STM32L431 and STM32G071. (BF 3.56 and CF 2.50 contain 4way-if version 20.0.0.2)

Changes in 31.8.0.8:
General:
- Added support for STM32L431 MCU (beta state).

External 4way-Interface (Cleanflight/Betaflight):
- Fixed connection issues (first ESCs sometimes missed).
- Added optional FC reboot on disconnect for F7 boards, to ensure reactivation of motor outputs.

Changes in 31.8.0.6:
External 4way-Interface (Arduino/Cleanflight/Betaflight):
- Bugfix for readout of BLHeli_32 ESC, if BLHeli 8 bit is by chance mixed into arrangement.

Changes in 31.8.0.5:
General:
- Adapted different parameter default values for:
  - sFrESC_80A
  - HAKRC_E45A
  - HAKRC_E50A
  - RF1

Changes in 31.8.0.4:
External 4way-Interface (Arduino/Cleanflight/Betaflight):
- ESC connection handling optimized; fixes particular problem (connection for ESC#1 fails after "check" scanning succeeded & "Write Setup" needs to be done in single mode) with GD350 based ESC.
- Optimized parameter comparison between different firmware revisions and LED arrangements.
- Fixed bug in multiple flashing of different ESC-Brands in multi-ESC arrangements

Changes in 31.8.0.3:
External 4way-Interface (Cleanflight/Betaflight):
- Fixed small bug in readingMSP_3D (no practical relevance).

Changes in 31.8.0.2:
General:

- Minor visual changes in "ESC Setup" page.
- Fix for LED color assignment at FrESC_80A.

Changes in 31.8.0.1:
General:
- Minor visual changes in "ESC Setup" page.
- Minor fix: "Brake On Stop" parameter handling. (Disabled showing of brake force percentage for ESC, which are not capable of nondamped mode).
- Added hint on transformation of "Motor Direction" between different revisions.

Changes in 31.8.0.0:
General:
- Added the ability to edit and flash BLHeli_32 rev. 31.8. test samples (functionally the same as release rev. 32.5).
- Minor visual changes for rev. >=31.71 in "ESC Setup" page.

Changes in 31.7.0.7:
General:
- Fix for interface "L" failure on "Flash BLHeli", when logging was enabled.
- Removed obsolete control in Flash Assistant (check box "Show Favorites only").

Changes in 31.7.0.6:
General:
- Improved automatic reflash handling for ESCs where prior the activation failed.
- Minor fix in the MusicEditor (play back function plays wrong notes, if music is disabled).

Changes in 31.7.0.5:
General:
- Minor fixes for FVT USB link/HID tool detection.
- Fix for EagleTree MicroVector interface connection failure.
- Added capability to handle BLHeli_32 rev. 31.71 Beta.
  - Programmable "Sine Modulation Mode".
  - Programmable autonomous Telemetry output every 32ms ("Auto Telemetry").
  - Expanded Programmable "Motor Direction" to "Bidirectional Soft" and "Bidirectional Soft Rev.".

Changes in 31.7.0.4:
General:
- Fix for flash issue with
  - Hobbywing_XRotor_BLHeli32
  - iFlight_Force32
External 4way-Interface (Cleanflight/Betaflight):
- Fixed "Initialization of flight controller denied" issue, when FC is setup for DShot or ProShot and Minimum Command is set lower the 1000 or 3D Mode is enabled.

Changes in 31.7.0.3:
General:
- Fixed "ESC Tools… Verify flash memory" issue, where equal parameter areas are falsely signaled as unequal.
- Added updated Operation manual for BLHeli_32 ARM Rev32.x

Changes in 31.7.0.1:
General:

- Added the ability to edit and flash BLHeli_32 rev. 31.7. test samples (functionally the same as release rev. 32.4).

Changes in 31.6.0.5 Beta:
General:
- Music Editor improved: Simulation, store and load Music script now handles up to 8 channel polyphonic music (“Sync Startup Music to Multiple ESC” needs to be disabled).

External 4way-Interface (Arduino/Cleanflight/Betaflight)
- Added additional 2 sec wait time for CF/BF interface to complete FC reboot after failed connection.
- Improved re-flash assistance for ESCs marked as “u” (unknown) or “i” (invalid).

Changes in 31.6.0.4d Beta:
General:
- Added support for user programmable ESC startup Music.
- Adapted column width for “ESC Overview” with regard to shown number of ESCs.
- Fixed issues in reading setup from ini/ixi files.
- Minor improvement of screenshot dialog window visibility.
- Added readout for input good/bad frame statistics.
- Added readout for input protocol detection
- Slightly improved recognition of corrupted layout revisions.

External Interface
- Added hint for USB/COM (“L”) and Arduino 4way-interface(“K”) on hitting “Disconnect” to restart a recently flashed ESC by disconnecting and reconnecting the power connection before use.

Changes in 31.6.0.1:
General:
- No functional changes.

Changes in 31.6.0.0:
General:
- Added support for GD32F350x6 MCU.

External 4way-Interface (Arduino/Cleanflight/Betaflight)
- Added hint for CF/BF interface on hitting “Disconnect” to restart a recently flashed ESC by disconnecting and reconnecting the power connection before use.
- Added GD32F350x6 to device id match.
- Increased 4way-if version number to rev20.0.0.2 to indicate changes. Please ensure to use Arduino/CF/BF interface versions which contains 4way-if code of rev20.0.0.2 or higher. (BF 3.20 and CF 2.10 contain 4way-if version 20.0.0.1)

Changes in 31.5.0.1:
General:
- Renamed parameter “Beep Strength” to “Startup Beep Volume” and “Beacon Strength” to “Beacon/Signal Volume” and added functionality clarification in the hint text.

Changes in 31.5.0.0:
General:
- Fixed: not recognizing com port, if registry entry contains non ANSI characters.

- Added save/read Setup parameters to/from (*.ini or *.ixi) file.
- Fixed: unable to select an ESC with left mouse button into Multiple ESC arrangement.
- Fixed: falsely showing current sensor presence for Spedix_GS30A_V1_1.
- Added indication of ESC activation state.
- Fixed: ESC name not stored with write Setup.
- Various minor fixed and improvements.

External 4way-Interface (Arduino/Cleanflight/Betaflight)
- Fixed: ESC name did not show up in ESC Overview.
- Fixed: lost indication for the last ESC in a Multiple ESC arrangement, after writing setup to a prior ESC failed.

Changes in 31.4.0.1:
General:
- Added support for STM32F031 MCU.
- Enhanced recognition for unknown (future) MCU types and revisions.
- Increased timeout for server connection to 30s.
- Various other improvements of GUI.

External 4way-Interface (Arduino/Cleanflight/Betaflight)
- Increased timeouts for flashing and writing setup to GigaDevice MCU's.
- Added STM32F031 to device id match.
- Increased 4way-if version number to rev20.0.0.1 to indicate changes. Please ensure to use Arduino interfaces/CF/BF versions which contains 4way-if code of rev20.0.0.1 or higher.

Changes in 31.4.0.0:
General:
- Fixed bug in saving screenshots of message dialogues.
- A lot tidying up and optimizing speed of application.

External 4way-Interface (Cleanflight/Betaflight)
- "Motors" tab: Disabled "Calibrate ESCs" if DSHOT is enabled.
- Added identification for BLHeli32 rev 32.x release versions.
- Added fix for ESC with corrupted settings area, showing up as "u" (Unknown).
- Added support for coming bootloader rev. f.
- MultipleESC sync function now allows optional exclusion of "LED setting". Check or uncheck sync in menu "Options... Sync….".

Changes in 31.3.0.1:

External USB/COM (FVT-Linker) and 4way-Interfaces(Arduino/Cleanflight/Betaflight)
- Fixed timing bug, which leaded to flash failures.

Initial release 31.3.0.0

Initial pre-release 31.0.0.0