

BFF CL Loader

V beta9.88 (from V beta9.87)

- Added experimental breakout force component. This is active only for fly-by-wire type configurations such as those in heavy jets. The breakout component magnitude is controlled by a new setting in the .cfg file. Use the Setup Application Vbeta108 or later – the setting is in the “Feel” tab. The functionality also needs recent BLDRV-12/24 card programming (beta19+ on the 20X2 chip, and beta22+ on the dsPIC chip if you don't have this on the dsPIC chip it will need to be replaced).

The breakout component will only become active if, A. a non-zero minimum spring stiffness has been set, B. Alpha or Beta gain is set to zero, and C. “balanced” ie no weight effects are set on the control axis.

The zero force position from which the breakout occurs moves with trim adjustment and is not fixed. The above conditions are required to allow the zero force position to be calculated reliably.

Background BFF_Pry process

V beta4.96 (from V beta 4.93)

- Corrected bug in communication of I and D terms for Rudder axis for position following mode.
- Added x10 resolution on exported fixed force component data to support the new breakout force feature. This provides higher resolution output for trim force adjustments to allow accurate calculation of the breakout force neutral position. To activate the x10 resolution add a new line (line 62) to the Pry_S.cfg file with the value 1 (one) – see example in zip archive.

DO NOT activate this x10 resolution unless you have BLEDRV-12/24 20X2 chip programming at beta19 or later.

- Added other data processing for the breakout force feature implementation.
- Adjusted data output to BLDRV-12/24 cards to qualify torque ripple compensation and breakout force settings – so that cards will only accept data from valid CL recent software versions.
- Improved PING return data handling.

Config File Setup Application

V beta108 (from V beta 107)

- Added breakout setting to Feel tab.

- Removed some older settings valid only for non-brushless drive systems.

18/4/12

BFF CL Loader

V beta9.86 (from V beta9.85)

- Corrected error in stormy weather propwash behaviour, and generally improved the propwash behaviour in FS9/X version. This may require you to re-tune the propwash settings in your configuration file – they may need to be increased to give the same net effect as before.
- In X-Plane version corrected propwash disable bug – disable check-boxes in the setup application weren't effective in disabling propwash effects.
- Confirmed function of X-Plane version with X-Plane V10. Note XPUIPC_offsets.cfg file has been updated.
- Added preliminary Cessna 176 configuration file to zip package.

31/1/12

Background BFF_Pry process

V beta4.89 (from V beta 4.86)

- RC Servo type output to drive trim indicators – added support for Pololu Maestro Servo cards.
- Support for propwash behaviour improvements made in the above CL software revisions.
- Added motor cogging torque elimination capability – requires beta10+ card firmware and matching dsPIC controller chip programming. Useful feature for non-standard brushless motors.

31/12/11

BFF CL Loader

V beta9.85 (from V beta9.83)

- Corrected demo mode runtime message error.
- Improved event logging to show safety related auto-release events more clearly in the log files.

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Background BFF_Pry process

V beta4.85 (from V beta 4.83)

- Added RC Servo type output to drive trim indicators. The serial output is in Pololu format to drive Pololu Servo cards – servos 1, 2 and 3 on the card are elevator, aileron and rudder trim indicators. The set up is in the Pry_S.cfg file – lines 58 to 61 – please read the notes in the Pry_S.cfg file in the zip package. The COM port, baud rate, output frequency and output scaling settings are made in the file.

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V beta4.86 (from V beta 4.85)

- Improved event logging to show safety related auto-release events more clearly in the log files.

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BFF CL Loader

V beta9.83 (from V beta9.82)

- Corrected bug which disengages AP when FFB is already in RELEASED state.
- Disable Show_* buttons when their associated details window is open.

Background BFF_Pry process

V beta4.81 (from V beta 4.80)

- Corrected LED window initial position bug.

4/10/11

V beta4.83 (from V beta 4.81)

- Updated BLDRV-12/24 card “Ping” data handling for newer card firmware versions. Ping data now reports additional card data for debugging for Firmware Beta7 or later card programming.
- Implemented feature for mixing the trim input methods. Previously the choice was either all trims from potentiometer input, or all trims from button inputs. Now potentiometer or button input method can be specified for each control axis separately. See notes in the Pry_S.cfg file (lines 55 to 57) or the Trim section of the on-line user guide.

9/12/11

BFF CL Loader

V beta9.82 (from V beta9.81)

- Added LED indicator lights window. This can be displayed and used during card power-up calibration to inspect the card calibration status in circumstances in which the card LED can not be seen from the pilot position.
- The software now remembers its last screen position when closed.
- -ve values for overall force gains are ignored - the absolute value will be used.

Background BFF_Pry process

V beta4.80 (from V beta 4.79)

- Implemented LED window functionality.

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BFF CL Loader

V beta9.81 (from V beta9.79)

- Added warning and automatic RELEASE if the Ping data reports that the motor +ve drive direction and the joystick +ve displacement direction do not match on any active axis. See BFF_Pry.log file for details of which axis is affected. This should protect against unstable drive away from centre during system initial setup.
- -ve Lift Gains not now permitted – to ensure the main control surface aerodynamic force always drives towards center not away from center.
- Added background process running checks.
- Added further settings config file integrity checking.
- Added items to status logging.

Background BFF_Pry process

V beta4.79 (from V beta 4.77)

- Added brushless motor drive sense to joystick sense reporting variable to Ping data – Grad_Sign = 1 for sense match, = 2 for sense opposed. If =2 then the system will drive away from centre rather than towards centre. Added warning message to instruct user to reverse the feedback sense on the affected axis. Details shown in the BFF_Pry.log file in the Logs folder.
- Added Pry_S.cfg file integrity checking
- Added items to status logging
- Corrected bug in Aileron stall vibration frequency settings

Config File Setup Application

V beta107 (from V beta 106)

- -ve Lift Gains no longer permitted. Now +ve lift gains with Grad_Sign = 1 (see above) conditions are required for drive to be engaged. This is to reduce possibility of drive away from rather than towards center when system initially set up.

BFF CL Loader

V beta9.79 (from V beta9.78)

- Added registration requirement – two options available: home use and commercial use. In unregistered mode the FFB is released after 10 minute running time.
- Added parameter APF_Enable to .cfg file in AP_Gains section. When = 0 this disables AP following. Needs to be changed manually in .cfg file as doesn't appear in the settings application.
- Improved FS9/X Alpha & Beta data at very low airspeeds.
- Added AS_Exp parameter in .cfg file to allow adjustment of airspeed exponent used for control surface lift calcs. Normally =2, however can be adjusted for fly-by-wire systems in heavy jets for example.
- Improved **Zero** button UI.
- Other minor code tidies...
- Added XPUIPCOffsets.cfg file for X-Plane version (to be saved to X-Plane plugins folder. This sets up custom data items...
- X-Plane version reads stall warning AoA from X-Plane.

Background BFF_Pry process

V beta4.77 (from V beta 4.74)

- Removed quadratic curve extrapolation on Alpha, Beta and Air_Speed data for brushless driver output mode – this is because the sim FPS and the Force calc CPS are very similar. Is retained for other fast looping output modes.
- Changes required for **Zero** button UI changes.
- Tidies on RELEASE coding.

BFF CL Loader

V beta9.78 (from V beta9.75)

- Corrected bugs in Rudder axis which disabled Beta and lateral acceleration effects.
- Added status logging....
- Disabled drive on entering Slew mode
- Added trim by buttons as alternative to trim by pots (set in Pry_S.cfg file)
- Added minimum soft spring return setting (set in setup application)
- LAN operation now not recommended – AP disengage by control movement requires CL software to run locally to the flight sim.

Background BFF_Pry process

V beta4.74 (from V beta 4.70)

- Added status logging.....
- Trim button implemented
- Minimum spring rate implemented
- General tidy...

23/8/11

BFF CL Loader

V beta9.75 (from V beta9.69)

- GUI more efficient to reduce CPU use. Now should run better when in same PC as flight sim software.
- Ping button added – forces check & display of brushless driver card status.
- Zero button added – to initiate automatic zeroing procedure to get more accurate AP following, and more sensitive movement induced AP disengage.
- Added axis position checking – sustained (10 secs) max deflection (> 90%) at high loads (> 40%) will cause automatic disengage. To protect driver card from overheating due to high current load from non-rotating motor.
- -ve airspeeds disabled.
- AP following works over LAN – with up to date CL Bridge software only. However more efficient GUI should make the software run better on the flight sim PC.
- Added stick movement induced AP disengage. Sensitivities set in PRY_S.cfg file. Should be used with Zero button function.
- Added adjustable AP following gains – in main .cfg file.
- Improved close-down coding.

Background BFF_Pry process

V beta4.70 (from V beta 4.65)

- Ping and Zero function implemented
- AP disengage movement thresholds implemented
- AP following adjustable trim scaling implemented
- Improved AP on/off transitioning
- Improved force disengage at close-down.