

C2 Field Firmware v10.016 Release Notes

Release information | Details |

Firmware version | v10.016 |

Release date | September 8, 2026 |

Package | Not provided |

Change range summarized | v10.001 through v10.016 |

Overview

Firmware v10.016 represents the latest release in the provided v10.x development history and incorporates a substantial set of improvements made since v10.001. The primary focus areas were frequency-hopping reliability, pairing and binding, radio and band selection, OTA configuration and update behavior, telemetry-disabled operation, link recovery, LoRa configuration, CLI reporting, and overall connection stability.

Highlights

Frequency hopping

- Added hopping during pairing and configuration states.
- Expanded hopping support to Band 2, including scanning and connection behavior.
- Added hopping during radio initialization.
- Improved preservation of the hopping-enabled state across pairing and power-on reset.
- Corrected Band 1 and Band 2 asymmetry in initial hopping behavior.
- Improved hopping recovery after changing LoRa parameters.
- Added `maxMissedHops` initialization to radio configuration.
- Modified forced-frequency handling so forcing a frequency does not automatically disable hopping.

Pairing and binding

- Improved pairing while frequency hopping.
- Improved pairing and configuration behavior across both radio bands.
- Defaulted `wasLongButtonPressed` to true so binding can operate correctly when used with the bind setting.
- Improved address validation during pairing and configuration.
- Prevented arm/disarm system-control messages from interfering with pairing.
- Updated `set\_defaults` behavior so the drone requires rebinding after defaults are restored.
- Tuned pairing timeout behavior during reliability testing.
- Reduced the transition into flight from the previous timeout-based delay to approximately 500 ms.

Radio and band selection

- Corrected radio selection so Band 1 uses the appropriate radio, Band 2 uses the appropriate radio, and the unused radio is placed into sleep mode.
- Improved radio and band selection when entering flight mode.
- Updated radio-control initialization to use the active local radio-selection parameter.
- Synchronized active radio selection with saved configuration before entering the main control loop.
- Improved `get\_cur\_settings` radio-selection handling.
- Saved newly assigned radio selection so it is correctly reinitialized after configuration changes.
- Saved AU band-selection changes to flash when the received configuration differs from the stored value.
- Corrected CLI reporting for the currently selected band.

OTA and configuration

- Added OTA update support on a static frequency to preserve the link during the update, then return to hopping afterward.
- Reduced unnecessary flash writes by saving configuration only when values actually change.
- Further restricted flash writes during OTA configuration to protect timing-sensitive radio operation.
- Added configuration and acknowledgment support with telemetry disabled.
- Added GCU configuration support through Lua without requiring an active AU connection.
- Delayed configuration saving until the full handshake reaches in-flight state to prevent flash operations from disrupting the radio state machines.

Link recovery and interference handling

- Improved recovery when a static-frequency packet is missed because of interference.
- Added flight-state qualification to packet-miss handling to prevent AU failsafe during the pairing-to-flight transition.
- Returned the radio to RX mode after receiving a packet from an interferer.
- Increased unlink timeout from 3 seconds to 4 seconds during link-reliability work.
- Expanded flight-mode checks to account for `ota\_CONFIG\_STATE`.
- Restricted non-pairing and non-configuration system-control messages to flight mode.
- Improved address checking during pairing and configuration to reduce unlink conditions.

Telemetry, acknowledgments, and link statistics

- Added ACK handling when telemetry is disabled.
- Removed the requirement to temporarily re-enable telemetry for configuration commands that require acknowledgments.
- Cleared stale link statistics for the inactive radio when switching to single-radio operation.
- Changed uplink-quality reporting to use a rolling average.

LoRa parameter handling

- Added configuration handling to keep LoRa modulation parameters synchronized between both radios.
- Added a system reset after changing LoRa parameters so the system can reconnect automatically.
- Corrected hopping behavior after LoRa parameter changes.

CLI and configuration reporting

- Improved ``get_cur_settings`` output timing so all settings can print reliably.
- Corrected CLI reporting of whether the AU is operating in hopping mode.
- Corrected ``get_band_select`` and related current-settings band reporting.
- Fixed getter and setter handling for range parameters.

Boot and startup behavior

- Changed the default boot target from ``PROG`` to ``BTL``.
- Limited both-radio initialization during pairing to the GCU.
- Added hopping during initialization.

AU kill-state and LED behavior

- Added configuration for the AU kill system-control message.
- Corrected AU LED handling associated with kill behavior.
- Added a blinking red LED indication while the AU/drone is in the killed state.

Power-detect behavior

- Reintroduced ``PD_CHECK`` logic after periods where it had been temporarily removed during development and testing.

Important fixes

Hopping synchronization and reconnection

- Fixed hopping-state retention across power-on reset.
- Corrected initial hopping asymmetry between Band 1 and Band 2.
- Corrected hopping behavior after LoRa parameter changes.
- Improved behavior after receiving interference while in RX mode.
- Improved static-mode recovery after a missed packet.
- Prevented timing-sensitive flash writes from disrupting the pairing/configuration handshake.

Pairing and binding reliability

- Improved pairing while hopping across both radio bands.
- Expanded address validation into pairing and configuration states.
- Prevented system-control traffic from interfering with pairing.
- Corrected default-state behavior needed for binding.

- Reduced unnecessary delay when transitioning from pairing/configuration into flight.

Dual-radio and band-selection reliability

- Corrected Band 1/Band 2 radio selection.
- Corrected inactive-radio sleep behavior.
- Corrected persistence of newly selected radio configuration.
- Corrected AU band-selection persistence to flash.
- Improved consistency between saved configuration and active radio state.

OTA and configuration reliability

- Added static-frequency OTA operation to maintain the connection during updates.
- Reduced unnecessary flash saves during OTA configuration.
- Delayed configuration saving until after the handshake is complete.
- Added configuration support when telemetry is disabled.
- Added GCU-side configuration changes without requiring AU connectivity.

Telemetry and ACK reliability

- Added best-TX handling for pending ACKs when telemetry is disabled.
- Removed the requirement to re-enable telemetry for ACK-based configuration traffic.
- Cleared stale link statistics from inactive radios in single-radio mode.
- Improved uplink-quality reporting with a rolling average.

CLI and configuration persistence

- Fixed range-parameter getters and setters.
- Corrected band-selection reporting.
- Corrected hopping-mode reporting on the AU.
- Improved current-settings output timing.
- Improved persistence of radio-selection and hopping configuration.

Known issues

No formal known-issues list was provided in the supplied Git history.

Compatibility, rollback, and support

If updating from v9.XXX or 10.001 to v10.016, consult with NextGen RF Design, Inc. before proceeding as this requires a separate process.