1.0 RELEASE SNAPSHOT

FIELD	INFORMATION
Platform(s)	Black Widow sUAS™ / Warfighter Electronic Bridge™ (WEB)
Software Version	2.11.0
Release Date	September 18, 2026
Components Updated	Aircraft Firmware 2.11.0 and WEB Control (formerly Teal Settings) 2.11.0

2.0 RELEASE SUMMARY

Version 2.11.0 is a cumulative release that incorporates enhancements and fixes introduced since version 2.10.5.

This release expands Black Widow capabilities with the new Teal Ocellus-3CP three-camera payload and three-axis gimbal stabilization, enhanced GPS-denied navigation, improved battery performance and state estimation, and updates to WEB Control (formerly Teal Settings).

The release also includes reliability, usability, and system performance improvements across the aircraft, imaging system, and ground control experience.

3.0 APPROVED THIRD-PARTY SOFTWARE VERSIONS

The following software versions are the currently approved and validated configurations for use with version 2.11.0 of the Black Widow system. Operators should remain on these approved versions and should not independently update Android Team Awareness Kit (ATAK) applications or third-party software through the ATAK App Store unless directed through an official Teal software release.

Third Party Software	Version
ATAK	5.7.0.11 (ACADB7B5)
UAS Tool	13.0.4 (2FCEA3D5)
Network Monitor	7.8.4 (24D9060)

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4.0 NEW FEATURES AND IMPROVEMENTS

Feature	User Benefit
Teal Ocellus-3CP Three-Camera Payload	• Provides two 64-megapixel electro-optical (EO) cameras and one 640 × 512 infrared (IR) sensor in a single payload. • Provides continuous zoom with automatic switching between wide and telephoto EO cameras. • Makes it easier to observe and identify objects at different distances. • Supports quick payload changes with a quick-swap design.
Three-Axis Gimbal and Image Stabilization	• Combines three-axis gimbal stabilization with Optical Image Stabilization (OIS) and Electronic Image Stabilization (EIS). • Provides clearer, steadier video during flight. • Improves image stability during turns, high-speed flight, crosswinds, and other aircraft movement. • Makes objects easier to observe and track.
Grand Central Video Processing Pipeline	• Improves how video is processed and managed throughout the system. • Coordinates stabilization, artificial intelligence (AI), overlays, streaming, and recording. • Provides more consistent video performance. • Better supports different cameras and mission needs.
Improved Battery State Estimation	• Provides more reliable battery percentage and Flight Time Remaining (FTR) information. • Detects invalid or stuck State of Charge (SOC) values reported by the Battery Management System (BMS). • Automatically uses battery voltage to estimate remaining charge when needed.

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5.0 RESOLVED ISSUES AND IMPROVEMENTS

ID	Area	Classification	Release Note
1289	Gimbal / UAS Tool	Resolved Issue	Improved gimbal pan step behavior when zoomed in using UAS Tool.
1532	Video Stabilization	Resolved Issue	Eliminated edge effects caused by video stabilization.
1634	Follow Target	Enhancement	Improved Follow Target performance.
1689	Camera Manager / EIS	Enhancement	Added EIS controls to Camera Manager.
1734	Camera Zoom / EO	Enhancement	Added continuous zoom support for the EO camera using MAV_CMD_SET_CAMERA_ZOOM.
1852	EIS	Enhancement	Optimized EIS.
2022	AI Detection	Enhancement	Improved AI detection.
2032	Gimbal Calibration	Enhancement	Added gimbal calibration commands.
2034	Firmware / FOC	Implementation	Implemented the full Field-Oriented Control (FOC) calibration routine in firmware.
2056	AI Models / Performance	Implementation	Added performance tracking for intra-model timing.
2066	Camera Zoom / IR	Enhancement	Added continuous zoom support for the IR camera using MAV_CMD_SET_CAMERA_ZOOM.
2085	Messaging	Implementation	Added a dedicated messaging protocol submodule.
2132	Gimbal Control	Enhancement	Added three-axis control.
2214	Conman	Resolved Issue	Resolved a Conman reinitialization issue.
2217	Gimbal Controller	Resolved Issue	Resolved a NaN condition in the gimbal controller motor control library.
2334	Motor / Gimbal	Resolved Issue	Resolved an issue causing unusual motor vibration during startup.
2372	Gimbal Control	Enhancement	Added rate control mode.

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2406	UAS Tool / Zoom	Resolved Issue	Resolved inconsistent zoom behavior in UAS Tool.
2459	3CP	Implementation	Added initial support for 3CP switching.
2476	Control System	Implementation	Implemented a disturbance observer.
2693	Firmware Update / USB	Enhancement	Added firmware update support via USB.
2694	Firmware Update / OTA	Enhancement	Added firmware update support via over-the-air (OTA) updates.
2736	3CP / 2CP	Enhancement	Added 3CP support with 2CP backward compatibility.
2739	3CP	Enhancement	Added 3CP autodetection.
2746	3CP / Zoom	Enhancement	Fine-tuned the 3CP zoom-switch threshold.
2747	3CP / Imaging	Enhancement	Updated binning behavior when 3CP is connected.
2806	Metadata / EXIF	Resolved Issue	Restored EXIF metadata functionality in Grand Central.
2816	Status Messaging	Enhancement	Improved consistency of 1 Hz status messages.
2819	WEB / RTSP	Resolved Issue	Resolved increased RTSP latency on WEB.
2820	IR / AI	Resolved Issue	Resolved an issue where IR AI was not working.
2849	Camera Manager	Resolved Issue	Resolved an issue with Camera Manager active-camera initialization.
2864	EIS / Grand Central	Enhancement	Updated EIS crop and scale functionality in Grand Central and implemented RSC.
2865	Camera Manager / Video	Resolved Issue	Resolved an issue where Camera Manager did not send STARTVIDEOCAPTURE to the 2K video writer context.
2868	Teal Settings / Radio	Resolved Issue	Resolved an occasional error in the Teal Settings Radio Configurator.
2870	3CP / Imaging	Enhancement	Updated 3CP automatic exposure/white balance (AE/WB) warm-start behavior.

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2880	AI / Bounding Boxes	Enhancement	Adjusted bounding-box aspect ratio after AI/ODM reinitialization.
2904	Position Control	Implementation	Developed local position compensation functionality.
2910	DCM / Grand Central	Enhancement	Added a Grand Central API version check in DCM.
2912	Camera / Zoom	Resolved Issue	Resolved an issue where camera zoom level values were reported in the wrong range.
2913	Camera / MAVLink	Resolved Issue	Resolved an issue where camera components did not respond to PARAM_EXT_REQUEST_LIST.
2918	EIS	Enhancement	Updated EIS crop and upscale behavior.
2932	Visualization / EIS	Enhancement	Updated the visualizer to account for EIS when drawing on frames.
2951	Stability	Resolved Issue	Addressed stability failures observed during prolonged testing.
2964	3CP / IR	Resolved Issue	Addressed 3CP IR concurrency issues.
3055	EIS / Zoom	Resolved Issue	Resolved an issue where EIS could cause the image to drift slightly when zooming in steps.
3056	EIS / Camera Settings	Enhancement	Added an EIS amount slider to Camera Settings.
3057	Metadata / KLV	Resolved Issue	Resolved missing KLV data.
3058	3CP	Resolved Issue	Addressed 3CP bring-up consistency issues.
3075	Target Tracking / KCF	Enhancement	Improved KCF reinitialization using the detected object's class.
3080	EIS	Enhancement	Added a user-selectable EIS backend.
3081	Gimbal	Enhancement	Tuned the torque limiter for the V0.5 three-axis gimbal.
3089	3CP / EIS	Enhancement	Tuned EIS for the 3CP telephoto lens and high zoom levels.
3115	3CP / Zoom	Enhancement	Completed continuous zoom support for 3CP.

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3116	3CP / IR	Resolved Issue	Resolved an issue preventing zoom and palette changes on the IR camera.
3118	Tracker / Logging	Enhancement	Improved Tracker logging.
3159	Gimbal Control	Enhancement	Improved operator gimbal control responsiveness.
3162	Gimbal / Boot	Resolved Issue	Resolved an issue where gimbal control could turn off and back on during boot.
3168	DCM / Zoom	Enhancement	Completed continuous zoom support in DCM.
3169	EO Cameras / GCS	Enhancement	Updated support for tracking both EO cameras separately and reporting the correct camera information to the GCS.
3170	Metadata / 3CP / 2CP	Enhancement	Updated KLV and EXIF metadata to match the active 3CP or 2CP lens.
3187	Position Control	Implementation	Implemented feed-forward position control with a deadband.
3193	Metadata / KLV	Enhancement	Added MISB 0903 data to KLV metadata.
3259	WEB Control / Radio	Resolved Issue	Resolved an issue where WEB Control could not retrieve radio information when Wi-Fi was enabled during boot.
3285	Gimbal / Conman	Enhancement	Added GIMBAL_MANAGER_SET_PITCHYAW support in Conman for zoom-scaled gimbal rate.
3287	Gimbal / Boot	Resolved Issue	Resolved slow estimator convergence during boot that could cause the gimbal to start skewed and slowly point forward.
3289	Gimbal / Firmware	Resolved Issue	Resolved an issue where the gimbal did not flash during a full reflash.
3310	FLIR Prism	Enhancement	Updated FLIR Prism to version 1.1.2.
3362	Gimbal	Resolved Issue	Resolved a stall occurring at the end of ROM.
3415	WEB Control / Radio	Resolved Issue	Resolved the WEB Control Drone Sync TUNK001 radio-disconnected error message issue.

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ID	Area	Classification	Release Note
3416	WEB Control / Radio	Resolved Issue	Resolved an issue where the radio would not connect in WEB Control.
3519	IR / EXIF	Resolved Issue	Resolved missing EXIF information in IR images.
3529	3CP / Gimbal Provisioning	Enhancement	Added autonomous fixtureless provisioning of 3CP gimbals in firmware.
3566	WEB Control / Radio Profiles	Resolved Issue	Resolved an issue where WEB Control could crash if Radio Profiles was opened immediately after losing the radio connection.
3586	WEB Control / VideoCore	Enhancement	Added VideoCore profile support to WEB Control and DManD.
3592	3CP / Gimbal	Resolved Issue	Resolved an issue where the 3CP gimbal could momentarily disengage when reaching its maximum tilt.
3596	WEB Control / Gimbal	Resolved Issue	Resolved an issue that could cause loss of gimbal control from WEB Control.
3599	Pairing	Resolved Issue	Resolved an issue where pairing could incorrectly report a failure when the video bitrate setting failed.
3600	Storage	Resolved Issue	Resolved an issue where aircraft storage could incorrectly be reported as full.
3601	ATAK / Gimbal	Resolved Issue	Resolved an issue involving a new ATAK gimbal control request pop-up.
3615	ATAK / Target Tracking	Resolved Issue	Resolved an issue where ATAK Target Tracking could immediately return to Position mode.
3617	ATAK / Follow Me	Resolved Issue	Resolved an issue where ATAK Follow Me overrode left yaw input but not right yaw input.
3649	ATAK / Arming	Resolved Issue	Resolved an issue where ATAK could fail to arm the aircraft after the aircraft was restarted without restarting ATAK.
3650	Image Capture / Metadata	Resolved Issue	Resolved an issue where image captures did not update with new metadata, including GPS location, model, and make.

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3688	WEB Control / Video	Enhancement	Removed the video bitrate setting from WEB Control.
3689	WEB Control / Firmware Update	Enhancement	Updated the WEB Control firmware update user interface.
3696	Gimbal	Resolved Issue	Resolved an issue where the gimbal could stall at its soft limits.
3731	RTL / Gimbal	Resolved Issue	Resolved an issue where Return to Launch (RTL) could disable the gimbal during flight.
3741	Target Tracking / Gimbal	Resolved Issue	Resolved an issue where Target Tracking or Orbit could lock the gimbal at its pitch limit.
3745	Gimbal Stability	Resolved Issue	Improved gimbal stability during strong yaw and pitch changes.
3748	WEB Control / Radio	Resolved Issue	Resolved an issue where a radio connection error could remain displayed after the radio was activated in WEB Control.
3761	Target Tracking	Resolved Issue	Improved Target Tracking's ability to remain on the target.
3763	EIS / GCS	Resolved Issue	Resolved an issue where EIS controls did not work on the GCS.
3765	Target Tracking / Gimbal	Resolved Issue	Resolved an issue where gimbal rate mode did not reset correctly when Target Tracking lost GPS.
3766	Target Tracking / Gimbal	Resolved Issue	Resolved an issue where the gimbal could point straight down and become unresponsive to rocker input during Target Tracking.
3792	UAS Tool / Image Capture	Resolved Issue	Resolved an issue where UAS Tool displayed “Image captured to” without stating the location of the captured photo.

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6.0 KNOWN ISSUES

ID	Known Issue	Status	Workaround / Additional Information
3828	Target Tracking may continue to report an active track after tracking has stopped.	Open	Use the gimbal rocker to regain manual control of the gimbal.
3824	The ATAK video recording timer may continue running during a mission.	Open	Manually tap the **Record** button to stop recording.
3821	2CP zoom may occasionally display a repeated zoom-in or zoom-out action while zooming.	Open	The desired zoom level can still be reached. The repeated zoom behavior is visual only.
3775	Some image distortion may remain after rolling shutter correction is applied.	Open	Turn off rolling shutter correction to determine whether this reduces the distortion.
3595	The 3CP gimbal may exhibit subtle side-to-side movement while the aircraft is stationary.	Open	The movement is not noticeable during flight.
3593	The 3CP maximum upward tilt range differs from the 2CP tilt range.	Open	The 3CP has a maximum upward tilt of 45 degrees, compared with 90 degrees for the 2CP. This is a limitation of the three-axis gimbal.
3576	A camera that is not enabled through JSON configuration and is unavailable during VideoCore startup may result in an unusable VideoCore state.	Open	The aircraft needs a firmware update.

ID	Known Issue	Status	Workaround / Additional Information
3649	Physical buttons or rockers may stop responding, resulting in loss of gimbal or zoom control.	Open	Force close all applications, reopen ATAK and UAS Tool, start the video feed, and test the rockers again after the camera feed appears.
2185	A video feed may not appear even when the aircraft has a good connection to the GCS.	Open	Power-cycle both the GCS and aircraft. Reopen ATAK and UAS Tool, select **Play**, and wait for the video feed to come online.
2920	The radio may not become active in WEB Control.	Open	In Network Monitor, verify that **eth0** is active and that its IP address begins with **10.223**. If eth0 is yellow or the IP address is incorrect, delete the configuration, wait approximately 5 seconds, reopen WEB Control, and attempt to activate the radio again.
3450	WEB Control may be unable to locate the active radio, preventing UAS Tool from establishing a connection.	Open	In WEB Control, go to **Settings** → **Radio** and select **Activate** for the Internal Radio. Wait approximately 30 seconds for WEB Control to reconnect. If activation does not complete, close and reopen WEB Control and try again.
3400	WEB Control may be unable to communicate with the radio.	Open	In Network Monitor, verify that **eth0** is active, green, and has an IP address beginning with **10.223.x.x**. If it is unconfigured or has an incorrect IP address, delete the configuration and reactivate the Internal Radio in WEB Control. If the connection is still not established, reboot the GCS and retry.

ID	Known Issue	Status	Workaround / Additional Information
3649	UAS Tool may be connected while the aircraft refuses to arm or start the motors.	Open	Close and reopen ATAK and UAS Tool. Verify the GPS connection and button/stick mappings. If necessary, reset UAS Tool to WEB defaults, repeat stick calibration, and attempt to arm again.
3858	ATAK may display an "Updates Available" pop-up.	Open	Select **OK**, verify that UAS Tool is marked as loaded, and then return using the **Back** arrow.
2479	The UAS Tool icon may not be visible in the ATAK toolbar.	Open	Open the ATAK menu and select **UAS Tool**. If it is not listed, go to **Settings** → **Plugins** and verify that UAS Tool is present and marked as **Loaded**.
2073	A "Switch Video Processor" pop-up may appear.	Open	Select **Do Not Ask Again**, then select **Switch to GStreamer**.
3694	Sensor calibration may fail.	Open	Exit and reopen the sensor calibration page and retry. If the issue continues, force close and reopen ATAK. If it persists, power-cycle the aircraft and WEB/GCS, reopen ATAK, and retry the calibration.
3415	The pairing process may fail or display an error code.	Open	Exit and restart the pairing process. If the issue persists, power-cycle the GCS and aircraft and retry. If an error code continues to occur, record the error code for further troubleshooting.
3860	The pairing process may fail or display an error code.	Open	Exit and restart the pairing process. If the issue persists, power-cycle the GCS and aircraft and retry. If an error code continues to occur, record the error code for further troubleshooting.

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ID	Known Issue	Status	Workaround / Additional Information
3859	Required aircraft telemetry may not be available or updating correctly before arming.	Open	Verify battery information, GPS data, Local and Remote RSSI values, horizon/attitude response, and compass heading before attempting to arm.
3753	The default mapped Capture Image button also performs the Mapshot function.	Functions as designed per BAH	No workaround is currently available.
3596	The left rocker may stop controlling gimbal movement up and down.	BAH bug; reported as fixed in ATAK 5.8	Power-cycle the aircraft and force close ATAK. Waiting before retrying has also helped in some cases.
3601	ATAK may request gimbal control during startup. If the request is dismissed or denied, the operator may lose access to gimbal movement and may not receive the prompt again.	Known issue reported to BAH; reported as fixed in ATAK 5.8	Clear the cache and try again. When prompted, accept the gimbal control permission.

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