



# EMESENT AURA RELEASE NOTES

**DOCUMENT NUMBER: RN-005**  
**REVISION NUMBER: 1.8.1**  
**RELEASE DATE: 03 DEC 2024**

**PREPARED BY:**  
**EMESENT PTY LTD**  
**LEVEL G, BUILDING 4, KINGS ROW OFFICE PARK**  
**40-52 MCDUGALL ST, MILTON, QLD, 4064 AUSTRALIA**

**EMAIL: [CUSTOMER-SUCCESS@EMESENT.IO](mailto:CUSTOMER-SUCCESS@EMESENT.IO)**  
**PHONE: +61 7 3548 9494**





## Copyright

The content of this document is confidential and intended for reading only by the addressee. All rights including Intellectual Property Rights flowing from, incidental to or contained in this document irrevocably vest in Emesent unless otherwise agreed to in writing.

©Emesent 2024

## Using this manual

Hovermap is a powerful system that can be used as a Lidar mapping payload but also as an advanced autopilot for drones. It is therefore recommended to read the user manual thoroughly to make use of all its capabilities in a safe and productive way.

## Disclaimer and safety guidelines

This product is not a toy and must not be used by any person under the age of 18. It must be operated with caution, common sense, and in accordance with the instructions in the user manual. Failure to operate it in a safe and responsible manner could result in product loss or injury.

By using this product, you hereby agree that you are solely responsible for your own conduct while using it, and for any consequences thereof. You also agree to use this product only for purposes that are in accordance with all applicable laws, rules and regulations.

The use of Remotely Piloted Aircraft Systems (RPAS) may result in serious injury, death, or property damage if operated without proper training and due care. Before using an RPAS, you must ensure that you are suitably qualified, have received all necessary training, and read all relevant instructions, including the user manual. When using an RPAS, you must adopt safe practices and procedures at all times.

## Warning

Always be aware of moving objects that may cause serious injury, such as spinning propellers or other components. *Never* approach a drone while the propellers are spinning or attempt to catch an airborne drone.



## Version 1.8.1

**Release date:** 03 Dec 2024

### Minor changes

- Added links in the Aura top menu bar to Knowledge Base, Release Notes, Software downloads and Support to simplify access to product information.
- Added option to submit a support ticket if processing fails, to streamline the investigation of user issues and help lead to improving processing reliability of future releases.
- Optimized Backpack RTK calibration to improve accuracy.

### Resolved issues

- Improved handling of heartbeat processing errors to reduce occurrences.
- Fixed issue with Merge and Convergence where output quality can degrade.
- Fixed potential point cloud misalignment issue when removing the first loaded point cloud.
- Fixed crash when loading very small point clouds.
- Fixed crash when interacting with deleted entities.
- Fixed potential crash when loading ground control point (GCP) constellations.
- Fixed potential crash when loading a file after loading an .aura project.
- Fixed potential crash during drag-and-drop of files from the open file dialog window.

### Known issues

- Hovermap 100 and ST units that have been powered on for more than 60 minutes are able to capture and save scan data but not process it successfully. To avoid this issue when scanning sessions longer than 60 minutes are necessary, power cycle the units before continuing. This issue will be addressed in the release of Aura version 1.9, which will allow you to reprocess any scan data previously affected by the issue.



## Known limitations

- Merging georeferenced or reprojected data
- Colorization of E57 files

## Version 1.8

**Release date:** 14 Oct 2024

### Major changes

- Reproject your data during the processing workflow by selecting a target coordinate reference system in Processing Settings.
- Apply a geoid by selecting a target Vertical coordinate reference system to convert from ellipsoidal height to orthometric height as part of Processing Settings or via Export reprojection.
- Trimble R10, R12, and R12i GNSS receiver support (cable required separately) for Vehicle and Backpack RTK.

### Minor changes

- Optimized Low Features built-in profile for improved results in challenging environments.
- Workflow improvement that defaults to the most recent georeferenced scan for Colorization or Extract 360 images and to the most recent scan for Merge.

### Bug fixes

- Fixed an issue where GCP processing settings could not be saved.



## Version 1.7

**Release date:** 30 Aug 2024



**Aura 1.7 or higher is required when updating to Cortex 3.3, as earlier Aura versions do not support processing scans from a Hovermap with Cortex version 3.3 (or later).**

### Major changes

- Backpack Real-time Kinematics (RTK) integration to improve point cloud accuracy and georeference walking scans using the Backpack RTK kit.
- The size and offload time for raw scan data (captured with Hovermap using Cortex 3.3) have been reduced by up to 80%.
- Improved colorization results for outdoor scans with a new Reduce blue sky bleeding optimization setting available in Processing Settings.

### Minor changes

- Merge and Convergence monitoring workflow scans are automatically colored solid to help streamline the rough alignment process.
- Introduced additional keyboard shortcuts and implemented a new keyboard shortcut overlay, available via the F1 key.

### Bug fixes

- Various bug fixes relating to reprojection, processing settings, and visualizing data.



## Version 1.6.1

**Release date:** 19 Jun 2024

### Minor changes

- You can now define a base coordinate reference system in Processing Settings when processing RTK data so that the output LAZ metadata and PRJ files have the correct base CRS for later reprojection via export.
- General settings, including Exclusion Zones, are now available for the Convergence monitoring workflow.

### Bug fixes

- Various bug fixes relating to convergence monitoring, mesh creation, projection handling, and point cloud loading.



## Version 1.6

**Release date:** 21 May 2024

### Major changes

- Vehicle Real-time Kinematics (RTK) integration to improve point cloud accuracy and georeference large scans using the Vehicle RTK kit.
- Reproject data to a desired horizontal coordinate reference system on export.

### Minor changes

- Option to choose image extraction frequency by Distance and Angle to avoid multiple images being extracted for the same location.
- The advanced feature-matching phase of SLAM processing now supports complex indoor environments.
- View the Vehicle RTK Accuracy Report to understand georeferencing quality.
- M300 RTK calibration optimization delivers improved horizontal and vertical accuracy.

### Bug fixes

- Various bug fixes relating to mesh rendering, mesh navigation, point cloud properties, point budgeting, SLAM processing parameters, and projection files.



## Version 1.5

**Release date:** 10 Apr 2024

### Major changes

- 360 Colorization with the GoPro MAX 360 camera offers accelerated capture while enabling colorization on more platforms such as backpacks or vehicles.
- Moving object filtering to accelerate the removal of unwanted moving objects such as people or vehicles.
- Change detection and Convergence monitoring (BETA) leverages Emesent's SLAM algorithm for streamlined alignment of two enclosed tunnel scans delivering a faster and easier workflow to identify changes.
- Colorize or extract 360 images for merged datasets.
- Simplified output folder structure.
- Apply changes to processing settings without having to save a new profile.

### Minor changes

- Performance optimizations for point selection and filtering tools.
- Mask out unwanted objects for both GoPro Hero and GoPro MAX colorization.
- Review and remove unwanted frames from being used for both GoPro Hero and GoPro MAX colorization.
- Option to adjust filtering parameters in Processing Settings.
- Processing stage shown in processing tray as additional context on processing progress.
- Drag and drop zone presented in the viewport for supported file formats.
- Option to constrain a reference scan in place as part of the Merge workflow.

### Bug fixes

- Various bug fixes relating to landmark visibility toggles, interactive point cloud filters within Aura and toolbar display.





## Version 1.4.1

**Release date:** 23 Feb 2024

### Major changes

- DJI M350 Real-time Kinematics (RTK) integration to significantly improve point cloud accuracy and georeference large scans.

### Bug fixes

- Fixed an issue with large dataset processing, enabling lower-spec machines to process larger datasets.

## Version 1.4

**Release date:** 18 January 2024

### Major changes

- Automated registration and export of 360 panoramic photography that has been captured with the GoPro MAX 360 camera alongside Hovermap.

### Minor changes

- Significantly optimized processing time when merging multiple Hovermap scans.

### Bug fixes

- Various bug fixes relating to notification messages, GCP CSV file validation, origin offset values, and GCP processing when zero target candidates are assigned.



## Version 1.3

**Release date:** 8 December 2023

### Major changes

- DJI M300 Real-time Kinematics (RTK) integration to significantly improve point cloud accuracy & georeference large scans.
- New point cloud properties panel containing the number of points and georeferencing information.

### Minor changes

- Improved workflow for Merge and GCP with the rough alignment and load constellation steps moved to the start of the processing rather than waiting for initial SLAM processing stages to run.
- Option to disable the “Advanced feature matching” phase of SLAM processing to get better output for RTK datasets, repeating environments, or complex indoor environments.
- Option to retry if an error occurs during processing due to the machine sleeping, hibernating, running out of resources, or if the license dongle is accidentally removed.
- Elevation and Return attributes can now be filtered in the scale filters.
- The coordinate reference system is now included in LAZ output metadata.

### Bug fixes

- Various bug fixes including fixes relating to merge processing, scrolling sidebars, deleting profiles, viewports windowing, and colorizing with multiple video files.



## Version 1.2.2

**Release date:** 28 September 2023

### Major changes

- Automated noise filters can be optionally applied at default settings during the processing workflow reducing the need to filter as another step after processing.

### Minor changes

- Enhancements to more accurately match real-world colors to rendered colors when viewing colorized Point Clouds.
- Improvements to the richness of point cloud color applied by Color Scales.

### Bug fixes

- Fix where the colorization processing progress either reported 100% when not done, or reported as not done when it was complete.
- Fix where points were not being excluded from the user's desired bounding box parameters.



## Version 1.2

**Release date:** 27 July 2023

### Major changes

- New, easy-to-use, SOR filters to accelerate data cleaning
- New Save and Save As functions, including the ability to save and load project files
- Redesigned processing interface to simplify workflow
- Support for georeferenced point clouds with colorization
- Improved SLAM feature matching
- Improved display of measurements and annotations
- Significantly improved GCP target detection
- Scale filters can now be combined
- Improvements to orthographic view



## Version 1.1.1

**Release date:** 18 April 2023

### Minor changes

- Enabled users to apply cleaning filters multiple times
- The ST-X GCP output now correctly displays 300m
- Improved stability when a dataset with corrupt bag files is selected

## Version 1.1.0

**Release date:** 31 January 2023

### Major changes

- A new job queue feature allows users to batch-process multiple scans consecutively with no manual input
- Faster scan processing and more responsive point cloud visualization
- Lower power consumption with reduced CPU and GPU usage.

### Minor changes

- Custom Hovermap ST-X profile to support long-range, high-density scans
- Licensing change to enable the viewer to visualize scans without a dongle
- GoPro 11 colourisation support



## Version 1.0.2

**Release date:** 15 November 2022

### Minor changes

- Performance improvements

## Version 1.0.1

**Release date:** 20 October 2022

### Major changes

- Integrated viewing and processing software into a single platform.
- All merge workflow steps are now possible within Aura, removing the need to switch platforms.
- Hovermap Automated Ground Control (GCP) feature to remove SLAM drift and improve accuracy
- GCP accuracy reporting
- Point filters and color gradients
- Basic undo and redo for translations, rotations, and view settings
- Advanced point cloud rendering for rapid manipulation of large datasets

### Minor changes

- Color scale based on returns
- Custom zoom settings



PREPARED BY:  
EMESENT PTY LTD  
LEVEL G, BUILDING 4, KINGS ROW OFFICE PARK  
40-52 MCDOUGALL ST, MILTON, QLD, 4064 AUSTRALIA

EMAIL: [CUSTOMER-SUCCESS@EMESENT.IO](mailto:CUSTOMER-SUCCESS@EMESENT.IO)  
PHONE: +61 7 3548 9494

