Reminder: Only senseFly products that have been properly updated to the latest software and firmware are covered by our warranty.

You can find a copy of these Release Notes in your eMotion Data Folder (a folder named *eMotion* within your Windows *Documents* folder).

Release 3.23.1 (Sept 19th, 2023)

eMotion Improvements

- Fixed an issue that occasionally prevented the user to modify the drone behavior in case of link lost.

eMotion Known Limitations

- Emergency climb in case of ground proximity is not active when the drone is loitering at the Home waypoint after an "Abort Landing". Workaround: Click "GO TO HOME" to quit "Abort Landing" flight phase.
- The Flight Data Manager may not be able to process datasets that use accented characters in one of the project's folder names.
  Workaround: Replace accented characters.
- Agisoft project file generated from eMotion are not valid.
  Workaround : Create your project manually in Agisoft
- Flights in the simulator are limited to 59 minutes.
- Landing in the simulator is not as precise as real-world landings. This has no impact on real-world landings.
- Vocal feedback is only available in English.

senseFly eBee Known Limitations

- "Reinitializing autopilot" warning might appear for about 4 seconds after landing.
- "Go To Wpt (direct)" isn't taken into account if drone is already heading to this waypoint.
- The drone may momentarily deviate a little from its flight line in heavy crosswinds of 10 m/s (20 kts) or more.
  Workaround: Plan your mission blocks with their flight lines more parallel to the wind.
- *Steep landing* planning, with respect to the wind and its direction, requires the utmost attention. Hard *Steep landings* may be more common in winds of or below 3 m/s (6 kts). Short *Steep landings* may occur in winds above 10 m/s (20 kts).
  Workaround: If a Linear landing is not possible, align the steep landing approach sector with the wind so that one of the approach directions results in the drone landing directly into the wind. Take care in changing winds conditions.
- The drone may fail to properly measure changes in wind speed after a change in altitude. For example, a *Strong wind* warning triggered at high altitude may persist at a lower calmer altitude.
  Workaround: turn off the safety action *Return to home if strong wind is detected* in the *Mission* panel's *Safety parameters* tab.
- Vocal feedback is only available in English.

senseFly Aeria X Known Limitations

- Transfer of (.bb3) log files used for PPK processing to the drone's SD card may occasionally fail.
  Workaround: First connect the drone's battery, then connect the drone to your computer using the USB cable and use Windows Explorer to retrieve the flight logs (.bb3) directly from the drone.

senseFly Duet T Known Limitations

- **Pix4Dmapper** is unable to colour code in an index map. Some of the pixels that have a very low thermal emissivity value, for example, metal objects. These pixels appear grey.
- A small percentage of thermal images may be blurred.
- Only *Horizontal mapping* mission blocks can be planned based on the thermal camera ground resolution.

MicaSense RedEdge-MX Known Limitations

- The camera may take photos at irregular intervals when the level of longitudinal overlap is set to over 90%.
  Workaround: Lower the overlap to 90%.
- Since this camera's flight logs are not transferred to the camera SD card and the drone can store only approximately 10 flight hours worth of logs, automatic management of drone memory space will delete logs older than this.
  Workaround: Retrieve your flight logs from the drone after each flight (compulsory for PPK processing).

Parrot Sequoia Known Limitations

- Some photos may occasionally be saved in the previous flight's DCIM folder on the SD card, for example, after an aborted take-off.
  Workaround: Create a folder for your flight and move the photos into it, or tell the Flight Data Manager to search in that folder.
- The camera may take photos at irregular intervals when the level of longitudinal overlap is set to over 90%.
  Workaround: Reduce the overlap to 90%.
- The camera may display an incorrect status when a locked SD card is inserted.

Release 3.23.0 (Jun 20th, 2023)

Highlights

- Added support for eBee TAC Public Safety.

eMotion Improvements

- Removed altitude handles for Start and Home waypoints to avoid unexpected waypoint moves.
- "Return home in case of data link lost" safety check is deactivable for non C2 drones.
- Fixed "Search a place or coordinates" functionality.

senseFly eBee Improvements

- Fixed an issue that was causing the drone to emit C2 compliance status when flying in Europe even if the drone is not declared C2 compliant.

Release 3.22.0 (Aug 23th, 2022)

Highlights

- Import eMotion 3.5 missions.
- Added support to load map features from KMZ files.
- EU Open Category regulations update.
- Added support to load custom restricted flight zones.

eMotion Improvements

- Added Polish language support.
- As part of the EU Open Category requirements of the new European Regulation, a notification was added when the planned trajectory of the mission or the flight trajectory intersect a restricted GeoZone.
- Implemented option to import custom no-flight zones KML files to display on the background map.
- Implemented option to display Ground Risk Buffer on eMotion.
- Fixed an issue that occasionally prevented the KML files from being correctly displayed on the map.

senseFly eBee Improvements

- Implemented a fix that could cause the drone to raise an unexpected "defective battery gauging" error before the flight.
- Changed the safety response when the drone breaches the defined working area outer security limit. The drone now cuts its motor and glides in a large descending circle towards the ground, at its current location.
- Implemented an option to limit eBee ground speed to 30.5 m/s to comply with EU Open Category requirements.

Release 3.21.0 (Dec 2nd, 2021)

Highlights

- New *Point of interest* mission block.
- Add new languages: Arabic, Czech and Turkish.
- EU Open Category regulations update.

eMotion Improvements

- New *Point of interest* mission block designed for **senseFly S.O.D.A. 3D** camera. The drone will orbit around an object of interest and take oblique images from all extremities.
- Updated Direct Remote Identification format, default working area ceiling and default emergency manoeuvres visibility to comply with the EU Open Category requirements of the new European Regulation.
- Fixed an issue that causes the drone to make extra circles around the waypoints of the corridor mapping block.
- Display the number of battery cycles in the *Drone information* panel.
- Simplified the RTK/PPK activation for compatible drones. Activating the RTK/PPK trial is now as simple as a single button click on eMotion:
    - RTK/PPK trial available for eBee X and eBee TAC.
    - RTK trial available for eBee Ag and eBee Geo.
- The simplified trial is only available for drones purchased from mid-January 2022.

Release 3.20.0 (Sept 1st, 2021)

Highlights

- *Corridor mapping* is now optimized for **senseFly S.O.D.A. 3D**.

- Pitot safety action robustness.

eMotion Improvements

- Tilt angles can be set when **senseFly S.O.D.A. 3D** is selected for *Corridor mapping* mission block. Only inwards pictures are taken on exterior lines to improve mapping efficiency.
- 3D mapping mission block has been merged with the horizontal mapping mission block, improving mission reusability.
- Added the option to the *Add mission block* menu to generate *Corridor mapping* mission blocks from KML files.
- Improved drone behavior in case of major pitot failure, e.g. clogged pitot in dusty environments. The drone now automatically aborts its mission and flies directly to its Home waypoint.
- Improved the warning message when the drone aborts its take-off when the pitot is faulty.

Release 3.19.2 (July 12th, 2021)

eMotion Improvements

- Updated Portuguese language support.
- Fix an issue that could decrease GNSS accuracy.

Release 3.19.1 (June 8th, 2021)

eMotion Improvements

- Fix an issue that could cause the data link quality to degrade when connecting to internet.

Release 3.19.0 (April 22th, 2021)

Highlights

- Major landing update – Change of the descent and touchdown phases for smoother landings. Improvement of landing accuracy and adaptation of the trajectory to the wind speed.
- The efficiency of Horizontal Mapping and 3D Mapping mission blocks has been improved. On standard mappings, flight time is reduced by 10% and the number of out-of-block pictures has been significantly reduced.
- Mission blocks can now be hidden to improve general map usability.

eMotion Improvements

- The boot time of the drone has been significantly reduced.
- Now checking Rinex base/reference station files integrity before processing in *Flight Data Manager*.
- Updater panel has been redesigned to improve usability.
- Improved "save as default" mission block feature. Configuration related to camera's are now shared across all mission blocks.
- Improved GUI of preferences panel.
- Fixed an issue that was causing the drone to temporarily cut its motor while in flight when the LiDAR ground sensor was dusty, dirty or obstructed. The take-off is aborted and ground sensor must be cleaned.
- Fixed an issue that could cause the drone to fly with bad RTK/PPK permission when the license file has expired.
- Fixed an issue that could cause the landing and home altitudes from being refreshed when landing block configuration changed.
- Fixed an issue that was causing the drone to fly extra-circles when flying corridor mappings.
- Fixed an issue that prevents the **Sequoias** from taking pictures when the SD card is nearly full. The mission now aborts and the drone comes back to its home location.
- Fixed an issue that was causing the drone to engage emergency landing when a shock was detected by the autopilot after leaving the mission.
- Fixed an issue that was causing the hold handle to disappear after switching between 2D and 3D modes.
- Fixed an issue that was causing the *Flight Data Manager* not to generate Pix4D projects for **Sequoia** with RGB enabled.
- Fixed an issue that could cause **eMotion** to crash when opening logbook panel.

Release 3.18.0 (January 28th, 2021)

Highlights

- If your **eBee X** series drone is equipped with a Remote ID broadcast module, the system is now compatible with the EASA rules for Unmanned Aircraft Systems regarding Direct Remote Identification (Delegated Regulation (EU) 2020/1058 amending (EU) 2019/945)).

eMotion Improvements

- Improved mission interface UI for **senseFly Duet T**.
- Fixed an issue that could cause **senseFly S.O.D.A. 3D**, **senseFly S.O.D.A.**, **senseFly S.O.D.A. Corridor** cameras
- to shutdown without notice in hot conditions. The drone now aborts its mission and goes back to home waypoint.
- Fixed an issue that could cause the *Flight Data Manager* to hang indefinitely during the *Processing Calculation* step.
- Fixed an issue that was causing the drone to engage unexpected circular landing after several *Ground proximity* warnings.

Release 3.17.0 (December 3rd, 2020)

Highlights

- Update to *senseFly* map layers.
- User interface improvements.

eMotion Improvements

- Updated senseFly maps are now available. Existing map cache will be kept. To make use of the latest map data, flush you local map cache (see eMotion's user manual)
- Digital Globe Satellite map tiles is no longer supported and have been removed.
- Fixed an issue that could cause the drone to make extra turns at the end of a flight line when flying an **Aeria X** camera.
- Added a warning preventing the drone to takeoff in case of temporary memory corruption.
  Workaround: Reboot your drone.
- Mission thumbnails on the welcome page can now be clicked to resume a favourite or recent mission.
- Visualisation of weather data has been improved.
- Visualisation of drone settings and data has been improved.
- Detection of clogged pitot has been improved.

Release 3.16.0 (October 22, 2020)

Highlights

- User interface improvements.

eMotion Improvements

- *Drone* name and colour can now easily be updated from the *Drone settings* panel's.
- Improved camera storage status in the *Drone status* panel's. New ‘phone-style icons warns the user when :
  - No SD is inserted in the payload.
  - The SD is locked.
  - The SD is almost full.
- Ease the selection of RTK correction source in the *RTK configuration* dialog.
- Improved user interface with new tooltips.
- Improved usability of the *Flight Data Manager*.
- Improved user interface of drone licensing section in the *Drone settings* panel's.
- Fixed an issue that could cause the *Flight Data Manager* to hang indefinitely during the *Processing Calculation* step.
- Fixed an issue that was displaying a wrong wind indicator when using imperial system.
- Fixed an issue that was causing imprecise AMSL altitude to be displayed in the *Drone status* panel's.

Release 3.15.0 (September 10, 2020)

Highlights

- Easier mission block creation

eMotion Improvements

- Simplified the planning of Horizontal Mapping and 3D Mapping mission blocks. The polygonal mapping area is now defined by placing the corners directly on the map.
  Note: At least 3 points are required to create a valid polygon!
- Improved compatibility with RTCM3.2 format for RTK corrections.
- Improved security of the automatic eMotion updater.
- Improved user interface with new tooltips.
- In Drone's Flight Monitoring Tab, the camera section has been moved up for easier access.
- Improved look and feel of the Flight Data Manager.

- Moving Home waypoint on the map is not displaying anymore a misleading 1m ATO value.
- Improved GUI of drone licensing section.

Release 3.14.0 (July 28, 2020)

Highlights

- Redesigned Icons
- Spanish Language Beta

eMotion Improvements

- The *GNSS mode*, *Centre map on drone*, *Auto-centre on drone*, *Centre Working Area on drone*, *Position landing above drone* or *Position Start above drone* icons have been redesigned.
- **eMotion** is now available, at beta-level quality, in Spanish.
- The general number of write operations to the drone's internal memory has been reduced to improve robustness.
- Fixed an issue that was preventing the chosen RTK solution from being retained after drone reboot.
- Fixed an issue that prevented VRS correction streams from one of Qianxun's servers (203.107.45.154) from being available.
- Fixed an issue that could have caused **eMotion** to crash if a drone on the ground had its camera changed several times while assigned to a block which was subsequently deleted.
- Fixed an issue that prevented some pre-flight internal drone memory errors from being raised as warnings in **eMotion**.
- Fixed an issue that could cause some camera and other settings to unexpectedly change while scrolling a panel in **eMotion**.
- Fixed an issue that prevented the *Lock status panel* user interface option from taking effect immediately.
- Fixed an issue that could cause the *Connect* and Apply buttons in some RTK configuration dialogs from being pushed off a low-resolution screen in some circumstances.
- Fixed an issue that was preventing the option to plan a *Corridor mapping* block above a *Fixed altitude* after re-opening a mission.
- Simplified the user interface by combining the in-flight and on-ground *Take photo now* buttons.
- Fixed an issue that was preventing a second, RTK-licensed drone from taking off if the first drone was not licensed.

Release 3.13.0 (June 23, 2020)

Highlights

- Flight log memory space management
- Support for night flights
- Flexible battery voltage display
- Redesigned installer
- Optional attitude indicator

eMotion Improvements

- The *Drone* panel's attitude indicator can now be hidden using a new *User Interface Option*.
- Management of the memory space on the drone has been automated, removing the need to regularly connect the drone and manually delete drone flight logs.
- The *Drone* panel's battery display has been updated:
    - A wait animation appears if the measured battery level temporarily fluctuates and no longer represents the true level. This can occur, for example, during high-thrust manoeuvres such as a landing .
    - Battery voltage is hidden by default.
    - A *User Interface Option* is now available to show overall battery voltage or individual cell voltage.
- Fixed an issue that could prevent a drone with an unresponsive camera from recovering a lost connection to **eMotion**.
- The *Low light* warning can now be disabled without needing to disable all other camera warnings in the *Safety and Security* tab. This preserves the automatic return to Home if the camera malfunctions while allowing flights in low-light conditions or at night with a thermal camera.
- It is no longer possible to unintentionally fly an RTK mission with an expired RTK license that cannot then be processed.
- The design of the **eMotion** installer has been updated.
- The order of the items in the *User Interface Options* has been updated.
- Fixed an issue that could allow the drone to take off with its pitot tube disconnected.
- Fixed an issue that was causing the drone to make extra turns between *Corridor mapping* block sections.
- Fixed an issue that could cause the ailerons to abruptly flip upwards while the drone was starting up on the ground.

- Fixed an issue that occasionally prevented flight logs from being zipped into bbz files after a flight.
- Fixed an issue that could cause the Flight Data Manager to stop working if the *Previous* button had been clicked.
- The ground sensor firmware on older drones has been upgraded.

Release 3.12.0 (May 18, 2020)

Highlights

- User interface improvements
- Improved memory robustness
- Portuguese language Beta

eMotion Improvements

- Further improvements have been made to the user interface:
    - 'Phone-style icons, indicating key drone parameters such as battery level, number of photos, link encryption and RTK status have been added to the *Drone* panel.
    - Users can now choose, using a *User Interface* option, to lock the *Status* panel or have it scroll with the rest of the *Drone* panel.
    - The *Drone* panel's tabs now have a clearer design.
    - Improvements have been made to the alignment of fields and buttons on the *Mission* panel.
    - Pull-down menus to select only one drone, the **eBee X**, have been removed from the *Welcome* screen and *Drone/camera selection* (renamed to *Camera selection*) tab in the *Mission* panel.
    - The seldom-used 'tablet mode' has been removed from the *User interface* panel in the *Options*.
    - The battery charge levels that the blocks on the battery icon represent have been adjusted to improve the user experience. See the user manual for details.
- The drone now automatically recovers from internal memory corruption.
- Added improvements to on-drone logging that allow diagnostic logs generated before flight to be sent if requested by senseFly support.
- **eMotion** is now available, at beta-level quality, in Portuguese.
- The quality of the Chinese beta version of **eMotion** has been improved.
- A *Too much/too little wind for Steep Landing* message now appears in the *Status* panel in winds below 3 m/s (6 kts) or above 10 m/s (20 kts). Users should consider a Linear landing in these conditions.
- The thresholds at which a camera's SD card is considered full have been changed to allow full use of the card's space. A message in the *Status* panel now appears when the SD card is 90% full. The *Camera storage full* warning is now raised when there is only enough space to write the final flight logs.
- Fixed an issue that could prevent the motor from stopping when blocked by the ground in the event of a failed take-off.
- Fixed an issue that was preventing the *HOLD*, *FAST CLIMB* and *FAST DESCENT* buttons from being clickable after a *GO LAND*.
- Fixed an issue that was preventing some VRS streams with undefined RTCM version from being configured.
- Added support for the RTK GNSS antenna's latest firmware.
- Fixed an issue that was causing the drone to fly to a temporary waypoint that may not be in line with the landing approach if a landing is aborted with the drone's battery below 10%, or when returning Home after the 59 minute flight time limit has been reached.
- The mechanism that controls whether support information is uploaded to senseFly has been changed. Users that had flight information upload disabled are now invited to contact privacy@sensefly.com.
- Fixed an issue that caused **eMotion** to stay for some time on the splash screen after launch if a feature layer that itself contains external references has been loaded.
- Added support for 24-character drone serial numbers, in readiness for EU regulations.
- Fixed an issue that was preventing camera and camera firmware version from being shown in the *drone* panel's *Parameters* tab after an update.
- Fixed an issue that prevented off-nadir footprints from being shown when simulating a flight with the **senseFly S.O.D.A. 3D**.
- Fixed an issue that was preventing the *Refresh* icon on the **AirMap** tool from displaying correctly.
- Fixed an issue that was causing more requests than necessary to be made to **AirMap**'s servers.
- Instructions for obtaining flight logs off the drone after flying the **RedEdge-MX** in an **eBee X** have been added to the **RedEdge-MX** user manual.

Release 3.11.0 (March 9, 2020)

Highlights

- New design
- Faster **Pix4Dmapper** processing

- 3D Mapping block from KML
- **Google Earth** mission visualisation
- Flight trajectory in the *Logbook*

eMotion Improvements

- **eMotion** has been redesigned with a new colour scheme and clearer icons to improve usability and on-screen visibility.
- If RTK or PPK processing was used, the precise angle relative to the ground of the **senseFly S.O.D.A. 3D** and **Aeria X** cameras at the moment each photo was taken is now passed through to photogrammetry applications.
  In **Pix4Dmapper**, choosing *Accurate Geolocation and Orientation Initial Processing* option can reduce initial processing time by up to 40%, improve matching for better management of challenging and repetitive textures and increase overall point cloud quality and accuracy for a sharper orthomosaic result.
- Added the option to the *Add mission block* menu to generate *3D Mapping* mission blocks from KML and **ESRI** Shape files.
- Added button on the Toolbar that opens the computer's default KML viewing application (**Google Earth** is recommended) and displays the mission blocks relative to that application's elevation data.
- The trajectory of each flight flown using the computer on which **eMotion** is installed can now be viewed by clicking the flight's entry in the *Logbook*.
- Improvements have been made to the *Logbook*: The payload flown in the drone is shown, the obsolete *GPS info* column and *Replay* button have been removed and column names have been shortened to reduce their size.
- Added support for VRS RTCM streams of version 3.2 or above.
- Fixed an issue that was causing *Airspeed overestimation* and *Airspeed underestimation* warnings to be erroneously raised if the drone climbed constantly for 500 m (1600 ft) or more.
- Fixed an issue that was causing incorrect camera parameters to be passed via JXL files to **Trimble Business Center**.
- Fixed an issue that could cause photos to appear with incorrect orientation in **Trimble Business Center**.
- Fixed an issue that occasionally prevented the **Aeria X** from focusing correctly.
- The **senseFly S.O.D.A. 3D** will now turn itself up if an internal communication issue within the camera occurs.
- Fixed an issue that could cause the drone to abort a take-off and cut the motor if the drone was held still.
- Fixed an issue that would occasionally cause **eMotion** to crash on deletion of a very large mission block.
- Fixed an issue that allowed the drone to return Home without raising a warning if the **senseFly S.O.D.A. 3D** gimbal turned upwards after heavy buffeting or IMU malfunction and failed to turn back down again.
- Fixed an issue that was very occasionally preventing the drone from detecting that a take-off had failed and it was back on the ground.
- Fixed an issue that was occasionally causing a change in Working Area ceiling height when there was no elevation data.
- Fixed an issue that was causing the *Exposure Bias* setting in the *Camera parameters* tab to be saved with the wrong value.
- Fixed an issue that was causing the incorrect white balance (*Automatic*) to be displayed in **eMotion**. *Daylight* white balance is now shown in **eMotion** and written into the photos metadata (EXIF).
- Fixed an issue that prevented the drone from flying to an alternative, freshly assigned Home if the landing at initial Home was aborted.
- Fixed an issue that was preventing the GNSS status from being correctly displayed when the RTK correction stream was RTCM version 3.2 or later.
- Further upgraded the PPK processing engine in the Flight Data Manager to improve PPK processing robustness.
- Fixed an issue that was preventing the *Low light* warning (for example, when the lens cap was left on) from being acknowledged when flying some **senseFly S.O.D.A. 3D**s.
- Fixed an issue that could cause a *Ground avoidance* manoeuvre to push a waypoint's altitude above the working area ceiling, making it impossible for the drone to reach.

Release 3.10.0 (January 27, 2020)

Note: The Drone panel has been redesigned. For details see this Knowledge Base article: https://sensefly.zendesk.com/hc/en-us/articles/360011239419

Highlights

- **MicaSense RedEdge-MX** PPK
- New Drone panel
- Pitot robustness

eMotion Improvements

- Added the ability to process images collected by the **MicaSense RedEdge-MX** with PPK-levels of precision.
- Redesigned *Drone* panel and *Control Bar* with a new, clear layout, white background and simplified user experience. Changes to note:

    - The *Control Bar* has been moved into the *Drone* panel.
    - The artificial horizon has been simplified.
    - The panel can no longer be minimised. Scroll down the lower part of the panel to view more items.
- The drone now actively compensates for pitot tubes that are becoming blocked or degrading and continues to fly normally. A warning is raised if pitot tube performance risks dropping below the drone's ability to compensate.
    - If the pitot tube causes the drone to underestimate its airspeed and fly too fast, an *Airspeed underestimation* warning is raised.
    - If flying too slow, a *Airspeed overestimation* warning is raised.
    - In either case a pitot replacement must be considered and landing precision will decrease.
    - The safety action *Return to Home in case of airspeed malfunction* is now off by default. Enable it if flying in very dusty environments.
    - For further information, see our Knowledge Base: https://sensefly.zendesk.com/hc/en-us/articles/360010810379.
- Fixed a series of issues that were preventing production of valid JXL files by the Flight Data Manager. Datasets generated with the **senseFly S.O.D.A. 3D**, **senseFly S.O.D.A.**, **senseFly S.O.D.A. Corridor** and **senseFly Aeria X** can now be exported via JXL into Trimble Business Center. Note that for this release, camera parameters may need correcting—see our Knowledge Base: https://sensefly.zendesk.com/hc/en-us/articles/360011565859.
- Redesigned *Notifications* align with other user interface changes.
- Fixed an issue that was preventing **senseFly S.O.D.A Corridor** and **Duet T** users from setting camera parameters.
- The **Duet T**'s thermal images are now geotagged during PPK processing with with PPK-levels of precision (using the RGB image geotags).
- **MicaSense RedEdge-MX** camera attitude is now included in the photo geotags.
- Added a *Calibrate* button to the *Camera* tab for on-ground **senseFly S.O.D.A. 3D** (re)calibration.
- Fixed an issue that was preventing **Sequoia** and **MicaSense RedEdge-MX** users from generating Pix4D projects with the Flight Data Manager.
- Fixed an issue that was causing the drone to very occasionally return to Home unexpectedly without raising a warning.
- Improved the wording of the warnings related to unresponsive drone components.
- Fixed an issue that was preventing the **senseFly S.O.D.A. 3D** from settling at exactly 0°.
- The **senseFly S.O.D.A. 3D** will now turn itself upwards if there is an in-flight camera stabilisation issue.
- Fixed an issue that was preventing **eMotion** from launching if a map data download was interrupted by closing the application.
- When flying a simulated drone with the **Duet T**, a *File transfer error* warning no longer appears and the simulated drone no longer returns to Home.
- Upgraded the PPK processing engine in the Flight Data Manager. This improves PPK precision and robustness to missing geotags.
- A new *Photo not geotagged* warning is now raised if the drone/camera system fails to record a geotag for a photo (which can lead to inefficient or failed photogrammetric processing).
- Fixed an issue that was causing PPK processing precision calculations to be too optimistic.
- Fixed an issue that was preventing photos taken with a simulated drone carrying a **senseFly S.O.D.A. 3D** from appearing tilted.

Release 3.9.0 (November 25, 2019)

Highlights

- AES-256 data link encryption
- **MicaSense RedEdge-MX** RTK

eMotion Improvements

- Added the ability to fly with an AES-256 encrypted Data link.
- Images captured by the **MicaSense RedEdge-MX** can be geotagged with RTK-levels of precision.
- Added a warning in **eMotion** when the **senseFly S.O.D.A. 3D** fails to initialise and calibrate its gimbal position.
- Fixed an issue that was preventing the **senseFly S.O.D.A. 3D** from taking photos in flight if a photo had been taken on the ground.
- Added the ability to detect when the **senseFly S.O.D.A. 3D**'s tilting mechanism's magnet is out of place, and add these incidents to the logs used for technical support.
- Fixed an issue that was occasionally preventing PPK processing of some datasets with the Flight Data Manager.
- Fixed an issue that was causing all **eMotion** versions to be installed in a Program Files folder called **eMotion** 3.7.
- Updated those drones that have the latest ground sensor (lidar) to the latest firmware.
- Fixed an issue that was causing an error in calculating the **Duet T**'s thermal camera's estimated overlap.
- Fixed issues that were preventing the **Duet T** and **MicaSense RedEdge-MX** from being flown in the simulator.
- Fixed an issue that was preventing a change of camera in the simulator.

Release 3.8.0 (October 14, 2019)

Note: On take-off, if the drone is not launched, the motor now cuts out automatically 15 s after it has reached full thrust (the LED is green) and cannot be launched again for 2 minutes. Don't wait too long before taking off. If you need to abort, just shake the drone 3 times. Always leave at least 2 minutes between each take-off attempt to allow the motor to cool.

Highlights

- Fly several drones simultaneously
- 2-minute timed-out take-off veto
- Improved **senseFly S.O.D.A. 3D** gimbal reliability

Note: Updating the drone's firmware may take a minute longer than previous releases. Wait for the drone's LED to stop blinking yellow. This release will not automatically remove the shortcut to previous version of **eMotion** from the Windows Start Menu.

eMotion Improvements

- Added the ability to fly several drones simultaneously with the same computer.
  Important: No automatic collision avoidance.
  - You must pay close attention to the positions, relative altitudes and trajectories of your drones and carry out your own drone air traffic control.
  - Do not send several drones into the same section of airspace. Do not, for example, send drones to overlapping mission blocks at the same altitude or to the same waypoint simultaneously.
  - Use, for example, the *HOLD* button on the Control bar to prevent collisions between drones.
  - Flying several drones simultaneously may affect **eMotion**'s performance. Do not attempt to fly more than 4 real or simulated drones simultaneously.
- Fixed issues that were occasionally preventing the **senseFly S.O.D.A. 3D** from initialising and calibrating its gimbal position.
- Added a 2-minute take-off veto after the 15 s cut-off if the drone is held on the ground for too long at full power before take-off.
- Added a notification that warns when a landing approach sends the drone outside the working area, potentially causing an unexpected emergency landing.
- Fixed an issue that was preventing connection to the drone over USB if the cable was disconnected then reconnected.
- Fixed an issue that occasionally prevented the **senseFly S.O.D.A.** and **S.O.D.A. 3D** cameras from taking photos if a folder on the SD card had been deleted.
- Fixed an issue that prevented some waypoints from being given a 50 m (164 ft) default radius.
- The *Safety actions* tab has been renamed *Safety and security*.

Release 3.7.9 (August 29, 2019)

Note: On take-off, if the drone is not launched, the motor now cuts out automatically 15 s after it has reached full thrust (the LED is green). Don't wait too long before taking off. If you need to abort, just shake the drone 3 times. Wait 2 minutes for the motor to cool before trying again.

Highlights

- Improved motor robustness
- 15 s delayed take-off motor cut-out
- Improved flight control
- Improved **Duet T** performance

eMotion Improvements

- In order to improve motor robustness, reduce temperature and with zero impact on flight performance:
  - If held on the ground for too long before take-off, the motor automatically cuts off 15 s after it has reached full power (the LED is green).
  - The algorithm that controls the drone's climb-out profile has been retuned. Note that the drone now lowers its climb rate at the transition waypoint.
  - The maximum climb rate has been reduced without impacting overall mission performance.
  - Full thrust is reserved to the initial climb-out, aborted landings, *FAST CLIMB* and ground avoidance manoeuvres.
- In order to improve flight control, the default radius of all waypoints is now 50 m (164 ft).
- Fixed an issue that was causing the minimum possible **Duet T** image overlap to increase with time.
- Fixed an issue that was causing the Working Area ceiling altitude to drop when there was no elevation data.
- Fixed an issue that was causing the drone to climb more than expected during a *FAST CLIMB* manoeuvre.

- Fixed an issue that was preventing **eMotion** from raising a warning when the ground was not detected during landing approach.
- Fixed an issue that was preventing the drone from flying straight to a waypoint if asked to *GO LAND* while climbing to another. It would instead complete the climb and redescend.
- Fixed an issue that was preventing **eMotion** from warning the user that light levels were too low.
- Fixed an issue that was preventing the drone from engaging an emergency landing in the rare case that internal components reached a critical temperature.
- Fixed an issue that was preventing the flight direction of a Corridor mission block from being reversed.
- Fixed an issue that prevented the Flight Data Manager from processing **Duet T** images if the user selected the folder containing the images rather than the parent folder.
- Fixed an issue that was preventing drone flight log files from being compressed if the drone's battery was disconnected during the process (after landing). Compression is now completed the next time the drone is powered on.
- Fixed an issue that was delaying the availability of the *GO LAND* button after a landing abort.
- Fixed an issue that caused lateral and longitudinal **Duet T** photo dimensions to be switched in the user interface.

Release 3.7.8 (July 16, 2019)

Highlights

- Improved motor control
- Geotagged **Duet T** thermal images
- Better camera reliability

eMotion Improvements

- Fixed issues that were occasionally causing a small number of motors to unexpectedly stop spinning during the mission and landing approach.
- Fixed issues that may have caused unexpected motor temperature warnings.
- The **Duet T** camera now directly geotags its thermal images, allowing thermal-only photogrammetric processing and, with an RTK-capable drone, improved thermal geotag precision (not to full RTK-levels of accuracy).
- Fixed an issue that was causing photos to be taken as the drone was entering the turns at the ends of flight lines.
- Fixed an issue that was causing higher than expected numbers of **Duet T** photos to have missing geotags.
- Fixed an issue that was causing the **Aeria X** camera to occasionally raise a *Camera internal error* and stop taking photos.
- **senseFly S.O.D.A. 3D** tilt control has been made more precise and robust to reduce incidences of the camera turning upwards.
- Fixed an issue that was preventing JPG and raw DNG photos from being taken together using the **Aeria X**.
- Fixed an issue that was causing the drone to return to Home in an emergency instead of going straight to a landing approach, for example, when the battery level was critically low.
- Improved the autopilot's synchronisation of GNSS signals for more robust flight control.
- Fixed an issue that was causing requests for Bing maps to be made over HTTP instead of HTTPS as expected.
- Fixed an issue that was causing Corridor mission blocks' progress to be reset if the computer running **eMotion** was restarted.
- Fixed an issue that was occasionally preventing the drone from detecting that it had landed when the pitot tube was blocked or had malfunctioned.
- Fixed an issue that was causing an erroneous motor-related error to be raised when the battery level was low.
- The seldom-used and occasionally unstable *ROLL Emergency Manoeuvre* has been removed.

Release 3.7.7 (June 11, 2019)

Highlights

- Improved flight control
- Improved motor control
- New robust *Updater*
- Better GNSS robustness
- Encrypted map tile requests

eMotion Improvements (release 3.7.7)

- Improved flight control to protect the motor.
- Fixed an issue that was causing higher than expected current flow during drone update in certain limited conditions, blowing a fuse in the drone.

- Fixed an issue that was causing higher than expected current flow, motor malfunction and in-flight damage to the motor.
- Updated the messages that appear when a motor issue is detected to improve user experience.
- Removed the Motor Off feature (deactivated by default) to align with drone legislation and simplify the user experience.
- Fixed an issue that was preventing changes in the display order of custom elevation datasets to take effect.

eMotion Improvements brought forward from release 3.7.6

- In order to improve flight control, the default radius of these key waypoints is now 50 m (164 ft): Home, Start, the end of the downwind landing leg, the temporary waypoint the drone flies to after a landing abort. The radius can be reduced to 30 m (98 ft).
- In order to reduce the risk of malfunction and improve reactivity of the manoeuvre, the motor no longer slows before ramping back up when a landing abort is requested.
- The *Updater* function tab has been redesigned and the drone updating (flashing) mechanism has been made more robust. New firmware is now transferred up-front to the drone, which then carries out the update without the need to communicate with eMotion. During the update the drone's LED blinks yellow. When finished, the LED shines white if the update was successful, red if not.
- In order to guarantee a GNSS fix every time and prepare the ground for future flight control improvements, the GNSS receiver now cold starts every time without significant impact on the user experience.
- All communication with external map tile services is now encrypted (using HTTPS), improving operator security.
- The way that drone agitates its ailerons after having been shaken 3 times for take-off has changed to improve the user experience.
- Fixed an issue that was causing eMotion to crash when a VRS flight with the **Sequoia** camera was processed using the Flight Data Manager.
- Fixed an issue that was causing the drone to climb to a raised virtual waypoint before redescending to home then climbing again if it had been forced to carry out a ground avoidance manoeuvre on the way back to Home before landing.
- Fixed an issue that was distorting photo footprints because the drone unnecessarily uploaded duplicate footprints after disconnection then reconnection of the battery.
- Fixed an issue that was causing eMotion to occasionally crash when treating photos taken with the **Sequoia** camera.
- Fixed an issue that was preventing a simulated drone from being positioned, by default, in the centre of the map.
- Removed a deprecated feature that sets the *Horizontal Mapping* block's altitude to the current altitude of the flying drone.
- Fixed an issue that was preventing flights with a **senseFly S.O.D.A. 3D** from being simulated.
- Fixed an issue that was causing the simulator to reset the Working Area's dimensions.

Release 3.7.6 (April 17, 2019)

Limited release only.

eMotion Improvements

- In order to improve flight control, the default radius of these key waypoints is now 50 m (164 ft): Home, Start, the end of the downwind landing leg, the temporary waypoint the drone flies to after a landing abort. The radius can be reduced to 30 m (98 ft).
- In order to reduce the risk of malfunction and improve reactivity of the manoeuvre, the motor no longer slows before ramping back up when a landing abort is requested.
- The *Updater* function tab has been redesigned and the drone updating (flashing) mechanism has been made more robust. New firmware is now transferred up-front to the drone, which then carries out the update without the need to communicate with eMotion. During the update the drone's LED blinks yellow. When finished, the LED shines white if the update was successful, red if not.
- In order to guarantee a GNSS fix every time and prepare the ground for future flight control improvements, the GNSS receiver now cold starts every time without significant impact on the user experience.
- All communication with external map tile services is now encrypted (using HTTPS), improving operator security.
- The drone now agitates its ailerons twice after having been shaken 3 times for take-off.
- Fixed an issue that was causing eMotion to crash when a VRS flight with the **Sequoia** camera was processed using the Flight Data Manager.
- Fixed an issue that was causing the drone to climb to a raised virtual waypoint before redescending to home then climbing again if it had been forced to carry out a ground avoidance manoeuvre on the way back to Home before landing.
- Fixed an issue that was distorting photo footprints because the drone unnecessarily uploaded duplicate footprints after disconnection then reconnection of the battery.
- Fixed an issue that was causing eMotion to occasionally crash when treating photos taken with the **Sequoia** camera.
- Fixed an issue that was preventing a simulated drone from being positioned, by default, in the centre of the map.

- Removed a deprecated feature that sets the *Horizontal Mapping* block's altitude to the current altitude of the flying drone.
- Fixed an issue that was preventing flights with a **senseFly S.O.D.A. 3D** from being simulated.

Release 3.7.5 (March 11, 2019)

Highlights

- **Duet T** camera support
- **RedEdge-MX** camera support
- Improved flight control
- Improved **senseFly S.O.D.A. 3D** tilt control
- Improved motor control

eMotion Improvements

- Changed the default landing type to Linear landing.
- Added support for the new **Duet T** combined RGB and IR camera rig for highly-efficient geo-accurate thermal map creation.
  Duet T photos are indexed in such a way that photos taken on the ground before flight can be exploited.
  The *Number of photos* counter in the *Drone* tab's *Payload information* panel is now reset to zero on landing. To view, after landing, the number of photos taken during a flight, use the *Logbook*.
- Added eMotion support for the new **MicaSense RedEdge-MX** integration and created new custom firmware that allows the **RedEdge-MX** to reach unbeaten levels of multispectral coverage with the **eBee X**.
  RedEdge-MX images are geotagged by the camera and do not need post-processing with the Flight Data Manager.
- Improved LiDAR ground sensor performance.
- Fixed an issue that was causing the drone to carry out multiple turns at the ends of flight lines in high wind.
- Fixed an issue that was causing the **senseFly S.O.D.A. 3D** tilt angle to gradually drift during flight. The camera now tilts at the correct angles indefinitely.
- Improved motor control further to significantly reduce incidences of *Motor malfunction* warnings and subsequent loss of power. In the rare event that this occurs during landing approach, the drone continues gliding towards the landing point.
- Made mission block workflow more flexible: they can now be aligned perpendicular to the wind up until the moment the drone starts the block.
- Changed the message that appears after a firmware update has touched the drone's read-only memory. The message now asks you to *Restart your drone*.

Release 3.7.4 (January 22, 2019)

- Enhanced the motor control and autopilot algorithms to improve motor performance and reduce the number of in-flight and on-ground *Motor malfunction* warnings.
- Added support for the new endurance battery. These batteries can be used with or without unlocking the 1 hour flight endurance limit. To unlock the ability to fly for more than 1 hour, please contact our sales team (info@sensefly.com).
- Added user advice to keep the drone still in the message that appears during **S.O.D.A. 3D** camera initialisation. This is so that the camera's IMU can successfully set its orientation reference.
- Added a help message for flights in the heavy fog/rain conditions that can cause a false *Ground proximity* warning and repeated *Ground avoidance* manoeuvres.
- Fixed a bug that was preventing the drone from returning to home 30 seconds after the connection to **eMotion** was lost (*DATA UPLINK LOST*).
- Fixed a bug that was causing landings without the ground sensor to be dangerous in foggy or rainy weather.
- Fixed a bug that was causing the ground sensor to be active at landing even if the user had deactivated it.

Release 3.7.3 (November 19, 2018)

Minor release to support new internal components.
eBee Xs produced after 19 November will be loaded with this release and will not be compatible with previous firmware versions.
Downgrading any **eBee X** from release 3.7.3 to a previous firmware version is discouraged and not supported.

Release 3.7.2 (October 24, 2018)

- Linear Landing:
  - The Linear landing's descent and final touchdown phases in headwind and crosswind situations have been re-tuned to significantly improve landing accuracy.

    - Fixed a bug that was causing the **eBee X** to land very short if it found itself descending too fast; it could not climb back to its proper glide path.
- Parrot **Sequoia+** and **Sequoia** improvements:
    - Modified **Sequoia**'s data management. Photos are now stored only the SD card (*External storage*). The option to use the camera's *Internal storage* is no longer offered.
    - Fixed multiple minor bugs that precluded **Sequoia** users from a seamless workflow.
- Fixed a critical bug that was causing an irreversible drone modem hardware failure if the USB cable from computer to drone was disconnected during the firmware update procedure.
- Fixed a bug that was preventing **eMotion** from automatically re-assigning mission blocks after drone batteries had been swapped.
- Fixed a bug that was causing a misalignment between the firmware updater's progress bar in **eMotion** and the actual progress of the update.
- Fixed a bug that was erroneously raising a *Ground proximity* warning when the ground sensor reported invalid values.
- Fixed a bug that was erroneously allowing the user to adjust a steep landing sector's span angle parameter in the Home *Mission* panel's *Take-off and landing* tab.
- Fixed a bug that stopped the camera from automatically taking photos after use of the *Take photo now* button.

Release 3.7.1 (September 28, 2018)

Minor release with one bug fix: Improved **eBee X** update procedure to support new internal components.

Release 3.7.0 (September 5, 2018)

First release with support for (only) the new senseFly **eBee X** with its payloads.

- senseFly **S.O.D.A. 3D**, the only fixed-wing payload that seamlessly provides both **oblique and nadir photos** for enhanced 3D modeling, with the ability to tilt and take 3 photos in sequence: left, nadir and right. A new **3D mapping** block has been introduced to support this payload and allow control of the tilt angles.
- senseFly **Aeria X**, the new 24 Mpx RGB APS-C sensor with high-stability optics, and built-in dust and splash protection, that provides extremely accurate images and features.
- senseFly **S.O.D.A.**
- senseFly **S.O.D.A. Corridor**
- Parrot **Sequoia** and Parrot **Sequoia+**