



UPGRADING EMESENT CORTEX

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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
PHONE: +61 7 3548 9494





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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 and other platforms. We therefore recommended that you 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.

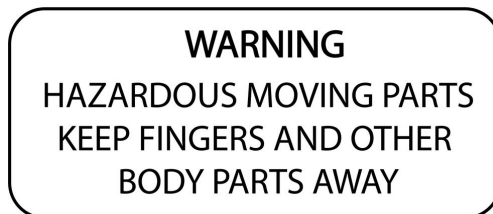
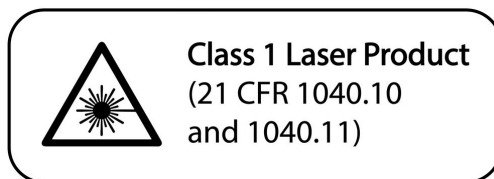
By using this product, you hereby agree that you are solely responsible for your own conduct while using it, and for any consequences thereof. You also agree to use this product only for purposes that are in accordance with all applicable laws, rules and regulations.

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.



Warnings

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- Do not attempt to disassemble, repair, tamper with, or modify the this product. This product contains no user-serviceable parts inside. Any disassembly of the product enclosure will invalidate the IP65 rating and disrupt the factory calibration of LiDAR. Contact Emesent for any repairs or modifications.
- 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.





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1. Overview

To operate correctly, Hovermap requires the appropriate software and firmware. From time to time, Emesent Cortex needs to be updated to take advantage of system improvements and new features.



Important

For DJI-based systems, start and test the system within Wi-Fi range following an upgrade in case the DJI SDK requires registration.

The following instructions explain how to apply a firmware upgrade to your Hovermap. Upgrading the BSP and the Hovermap image will take 20 to 30 minutes to complete.

2. Download and prepare files

There are two separate firmware files required to be updated:

- Board support package (BSP) firmware
- Hovermap image firmware

The process is similar for both upgrades and can be conducted with both files saved onto a USB flash drive.

1. Go to Emesent's [Software Downloads](#) page.
2. Download the correct firmware package for your Hovermap.

Hovermap	Firmware
Hovermap ST / ST-X	hvm_x.x.x_st.zip
Hovermap 100	hvm_x.x.x_hvm100.h.1.zip
Hovermap 100 MK 2	hvm_x.x.x_hvm100.h.2.zip



3. Decompress the ZIP file.
4. This will result in the following files:
 - BSP image file (e.g., bsp_st_x.x.x.img)
 - Hovermap image file (e.g., hvm_st_x.x.x.img)
5. Insert a *blank* USB flash drive and copy these files onto it.

**Note**

- Do not connect the USB flash drive to Hovermap yet.
- Ensure that the files have been completely copied before removing the USB flash drive.

3. Start up and connect to Hovermap

1. Before installing the USB flash drive, connect the fully charged battery and start up Hovermap.
2. Wait for the status LED startup sequence to complete and enter the slow pulsing Emesent blue mode.
3. Plug the USB flash drive into Hovermap, and wait for the status LEDs to return to a slow pulsing blue.
4. Using a computer, connect Hovermap to a Wi-Fi network. The network SSID will appear as **st_XXXX**, where **XXXX** is the Hovermap unit serial number (located on the compliance plate).
5. The network password is **hovermap**.
6. Using a web browser, go to **hover.map**. The Hovermap Web UI will appear.
7. If this is the first time you have upgraded your payload:
 - a. If the time field is orange, set the time.
 - b. Using the Web UI, clear all data from your Hovermap.
8. The system is now ready to complete the BSP and image upgrades.



4. BSP firmware upgrade

Upgrade the BSP as follows:

1. In the Web UI, select **Upgrade Firmware**.
2. Ensure that the USB flash drive is connected to your Hovermap and that the status LEDs are a slow, pulsing blue.
3. The **Hovermap Upgrade** dialog box will appear. Click **Next**.
4. On the **Board Support Package** page, check that a BSP image has been found. Click **Next**.
5. When the **Ready to start upgrade** page appears, remove the USB flash drive.
6. Once the USB flash drive has been removed, select **Install**.
7. Once the BSP upgrade is complete, Hovermap will restart automatically and the status LEDs will return to the slow, pulsing Emesent blue.



Note

Any scans on the Hovermap that have not been transferred yet will automatically be copied to the USB Flash drive upon insertion. To avoid issues during the upgrade process, ensure the LEDs are a slow, pulsing blue before proceeding. If there are multiple scans on the Hovermap, it may take some time for them to offload before the upgrade process can continue. Therefore, it is recommended to transfer the scans before upgrading to avoid any delays.



5. Hovermap image firmware upgrade

Upgrade the Hovermap image firmware as follows:

1. Attach the USB flash drive and wait for the status LEDs to return to a slow, pulsing Emesent blue.
2. On your computer, connect to Hovermap's Wi-Fi network. The network SSID will appear as **st_XXXX**, where **XXXX** is Hovermap's serial number (located on the compliance plate).
3. The network password is **hovermap**.
4. In a web browser, go to **hover.map**. The Web UI will appear.
5. Select **Upgrade Firmware**.
6. The **Hovermap Upgrade** dialog box will appear. Click **Next**.
7. Hovermap will confirm that no BSP is found. Click **Next**.
8. Hovermap will confirm that a Hovermap image has been found. Click **Next**.
The system will now spend 2 to 3 minutes checking the integrity of the Hovermap image.
9. When the **Ready to start upgrade** page appears, remove the USB flash drive.
10. Once the USB flash drive has been removed, click **Install**.
11. Once the Hovermap upgrade is complete, Hovermap will restart automatically and the status LEDs will return to the slow, pulsing Emesent blue.



Note

During the upgrade process, it is normal for the LEDs to be off for up to a few minutes. It is important not to remove the power during the upgrade and wait for status LEDs to return to a slow, pulsing Emesent blue.

Congratulations! Your Hovermap is now running upgraded firmware and features. If you require any further support, please contact [Technical Support Services](#).



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