

Vision-RTK 2 Release Notes

Release v2.123.6

DECEMBER, 2025

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1 Overview

This release consists of the following artifact:

Image: fp_vrtk2-release-vr2_2.123.6-537

At the time of release, the following support documents and code are valid:

- Documentation
 - Release notes (this document): VRTK2_v2.123.6_release notes_v2.pdf
 - Integration manual: VRTK2_integration_manual_v2.3.4.pdf
 - Datasheet: VRTK2_Datasheet_v1.1.pdf
- Support software
 - Fixposition-driver-8.1.0 or later https://github.com/fixposition/fixposition_driver
 - Fixposition_gnss_tf-3.0.1: https://github.com/fixposition/fixposition_gnss_tf/tree/3.0.1
 - Fixposition SDK: <https://github.com/fixposition/fixposition-sdk>

For any questions or issues, please contact Fixposition support at support@fixposition.com.

2 Release notes

The changes described here are with respect to the release 2.102.7.

When updating from any other release than 2.102.7 or before, please run a factory reset after updating to 2.123.6. This is to prevent any unexpected behavior. For more information, see 'Known Limitations' below.

Note: a few "Data interface" changes may have limited backwards compatibility. Please review these carefully.

2.1. Positioning

- Improved performance and stability in GNSS degraded conditions.
- Improved covariance estimation in certain conditions, namely in RTK Float scenarios and when stationary
- Added smooth refix feature and set as default. See Section 3.1 of this document for more information. If enabled, the position slowly moves to the refixed position (at max. 5 metres per second), unless the refix distance is more than 50 metres.
- Improve heading stability in refix after outages
- Improve performance in correction data outage

2.2. GNSS

- Improved signal tracking and selection in multipath scenarios
- Improved accuracy in open sky when experiencing temporary correction loss
- Improve refix decision if only a single GNSS RTK Fix is available

2.3. Web interface

- Added UI to enable or disable Smooth Refix
- Add button to prevent phone sleep on Menu > System for phone users
- Reload the page after config reset (on click of the ok button)
- Fusion output filtering: Removed "Medium". The "High" option filters more aggressively and is useful when a smoother trajectory is desired
- Fusion output filtering: Set new "Low" as default
- When changes to multiple fields across different sub-sections are made on the "Configuration > I/O" page, the changes of other sub-sections are no longer lost after saving the changes of one section. However, to save and apply those changes you must save the changes to each sub-section independently.
- "System > Info" page: System state shows concretely which component is failing if system is in "warning" state
- Improved behavior of the use of the GNSS extrinsics form on the "Configuration > Fusion" page

2.4. Data interface

- Messages:
 - Added new fields to FP_A-CORRIMU: 'imu_status', and 'bias_comp'
 - Added new fields to FP_A-RAWIMU: 'imu_status', and 'bias_comp'
 - FP_A-CORRIMU has continuous output now. If there is no bias available yet, this message outputs the same values as the FP_A-RAWIMU message.
 - NMEA-GN-GST: Set 'rms_range' to always null
 - Restrict PTPv2 E2E profile to be run in PTP master mode (do not allow slave mode)
 - Maintain PTP time across service restarts and link failures to prevent time jumps
 - Fix random resets of ENU0 when set to automatic mode
 - Add wheel measurements checker: detect bad wheelspeed measurements and automatically reset the wheelspeed related estimates and status flags.
 - API: Multiple changes, removals, and additions. See the [updated API documentation page](#).
- All changes:
- **Added:** The /api/v2/params/\$db/get API now provides a hash of the configuration, which can be (recommended) supplied to the /api/v2/params/\$db/set API to do more deterministic transactions (e.g. to prevent multiple clients setting config to interfere with each other), while \$db is a placeholder for "config" for example.
 - Implemented stricter checks of API commands before accepting invalid configuration.
 - Camera Calibration:
 - **Deprecated:** The /camera/{calib_check,calib_upl} API is replaced with the /params/calib API. Note that the webinterface still supports uploading the old calibration data format. See the API documentation for full details on this command.
 - **Deprecated:** The /camera/{get, set} API are deprecated
 - **Deprecated:** The /params/hw/get API are deprecated. Find the information now under /params/config/get
 - The calibration data is now handled like the regular configuration. Users can read and write the camera calibration params via the /params/calib API.
 - To check the calibration, use the /params/calib/get API and look at the .IMU1_CAM1.valid and .IMU1_CAM1.uid fields.
 - **Changed:** The /ctrl/status API now reports "failed" instead of "stopped" when a service is in a bad state, and it reports more individual services (e.g. "gnss1", "gnss2" and "ntrip" instead of an overall "gnss" service status). This also affects the state info from the /ctrl/fusion and /remote/ctrl API responses.
 - **Deprecated:** The action=enable or action=disable is removed from the /fusion/ctrl API. Instead, a new configuration .config.autostart.fusion=true|false is available (/params/config API). The action=status and action=reset are still available and unchanged in the /fusion/ctrl API.

- **Changed:** The name of the correction data stream has changed from “rtk” to “corr”. For some backwards compatibility, the API request still accepts “rtk” in a command (that is, {“rtk”: “restart”} restarts the “corr” service). The response, however, always and only reports a “corr” status.
- **Changed:** Contents and structure of /api/v2/params/config/
 1. Get the current configuration (e.g. GET /params/config/get)
 2. Modify the values as necessary
 3. Set the changed config (e.g. POST /params/config/set), ideally also providing the “hash” received in 1.

2.5. Other

- Fixed occasional “bad state” occurrence of system at boot-up
- Added a Nav2 tutorial for Waypoint Navigation based only on the Vision-RTK 2: https://github.com/fixposition/nav2_tutorial
- Fixposition SDK: Added the ability to run the SDK as pre-built apps
- Fixposition SDK: Extracted rosbag from .fpl file has changed structure
- Fixposition SDK: Allows extraction of ROS2 bags from .fpl file
- Improve robustness to tackle config loss issue
- After the FW upgrade from 2.102.7 or before, the Fusion autostart is reset to ‘disabled’ by default.
- Removed the “fusion” section from the config backup
- Fix Fusion timing out when saving or loading pose

2.6. Known limitations

- Upon updating, the priorly saved biases are deleted and users need to converge the IMU (and if enabled wheel odometry) by moving for around 80-100 meters while receiving RTK Fix signals. **Only then**, it is possible to use the **load position** feature. Please note that this process is only necessary at first time use or after factory resets when no IMU bias data is available.
- **Downgrading:** As a precaution downgrading the firmware is not recommended anymore, and if needed, it requires some instructions from us. Contact support@fixposition.com. Please do not downgrade after updating to 2.123.6. Not following the recommended use and instructions may cause unexpected behavior or damage.
- **Note:** Upgrading to this version from any other version than the [last customer releases](#) (2.85.3, 2.102.2, 2.102.4, 2.102.5, 2.102.6, or 2.102.7), such as other “Beta” versions, may require a factory reset. If you see anything funny, do a factory reset and inform us.
- Users of the beta versions 2.123.3 and 2.123.5 may lose their configuration when updating to 2.123.6. This does not apply to users of the last customer releases 2.102.7 etc. A recommended update procedure for these beta users is: create a config backup (System > Tools), update to 2.123.6, verify the configuration and fix whatever is missing.
- The Save/Load feature is still in an experimental state. Kindly share any bad experience with us. Generally, it is only possible to use this feature if the last position of the platform is saved and the platform shuts off and is not moved anymore. We only support reliable initialization of Fusion by loading this last position if the platform has not moved from its original last position.
- As described in [our documentation](#), the altitude of the NMEA-GN-GGA refers to the altitude above the respective ellipsoid instead of the orthometric height according to the NMEA standard
- Fusion does not detect bad warmstart parameters (after changing config or platform). Reset data on the ‘System > Tools’ page if config or mount has been changed.
- When recording (to external disk) powering off (by cutting power) or unplugging the USB disk too early may lead to data loss in the recording. Use the web interface or API to download the recordings, unmount the disk or shutdown the sensor in order to prevent the data loss.

- Only one FP_B-MEASUREMENTS can be handled "per epoch". That means, all wheelspeed measurements at a certain time must be sent in one FP_B-MEASUREMENT message. This also applies to sending wheel measurement measurements via ROS Driver. Each message published on the /fixposition/speed topic has to contain the complete information of all enabled sensors.

3 Highlights

3.1 Smooth Refix

As many applications require a continuous, smooth trajectory output, we have added the Smooth Refix feature in this release. The refix is the point after an outage, where the Vision-RTK 2 recorrects its exact position and heading once reliable RTK Fix signals are available again.

Note: The Smooth Refix feature is enabled by default upon updating to this firmware.

Output generators

Fusion output frequency ⓘ	<input type="text" value="10"/>
Fusion output offset ⓘ	<input type="text" value="0.000"/>
Fusion output filtering ⓘ	<input type="text" value="Low"/>
Smooth refixing ⓘ	<input type="text" value="Enabled"/> ←
NMEA format ⓘ	<input type="text" value="High-precision"/>
Output translation ⓘ	<input type="text" value="x 0.0000"/> <input type="text" value="y 0.0000"/> <input type="text" value="z 0.0000"/>
Output rotation ⓘ	<input type="text" value="yaw (z) 0.00"/> <input type="text" value="pitch (y) 0.00"/> <input type="text" value="roll (x) 0.00"/>
ENU output ⓘ	<input type="text" value="Automatic"/>
User defined ENU ⓘ	<input type="text" value="x 4278382.0000"/> <input type="text" value="y 635621.0000"/> <input type="text" value="z 4672345.0000"/>
	<input type="button" value="Use current ⓘ"/>

