Leica Geosystems – Mobile Mapping Release Notes

Product	**Version 2024.2.1.116 Leica Pegasus OFFICE**
Installer	**LeicaPegasusOffice-v2024.2.zip**
Date	**6 December 2024**
From	**Mobile Mapping Software Product Management Team**

Content

1   Introduction

1.1   Availability

The new **2024.2.1.116 release of Leica Pegasus OFFICE will be available for download in myWorld from the second** week of December 2024 onwards.

Users with active Customer Care Package maintenance as of 30 September 2024 can install and run the new software release for free.

1.2   What's New

Leica Pegasus OFFICE 2024.2.1.116 is a major release that includes new features and improvements to the product.

The main new features and improvements are:

- New Link Measurement algorithm for more precise and automated cloud-to-cloud multipass adjustment
- New optimisation workflow for GCP alignment for point cloud superposition over control points
- Advanced export functionality for image decimation to provide users with the flexibility to reduce the data size according to the project needs during export
- New exports available: NMEA trajectory, for example, for the combined use of Pegasus TRK with IDS Stream UP
- Extended Ground Control Points information in CSV export and report for complete GCP data submission

# 2   New features

2.1   New Optimisation Workflow

2.1.1   General

The optimisation workflow has been restructured to provide more flexible adjustments tailored to various datasets and regional requirements. The user interface has also been updated to support a more intuitive workflow. Actions related to control points will become available when the Control Point table is selected, and the same applies to cloud-to-cloud actions.

Additionally, the solution can be accepted without any further adjustments if the offsets to the GCPs are already within acceptable limits.

2.1.2   Align to Ground Control Point (GCP)

The Align to GCP tool adjusts the point cloud to match a precise Control Point position, achieving a superposition of both. However, this process modifies the point cloud data and may result in deformations. Aligning the point cloud to GCPs can also cause image misalignment due to these deformations. It is important to note that image misalignment does not impact RGB colourisation.
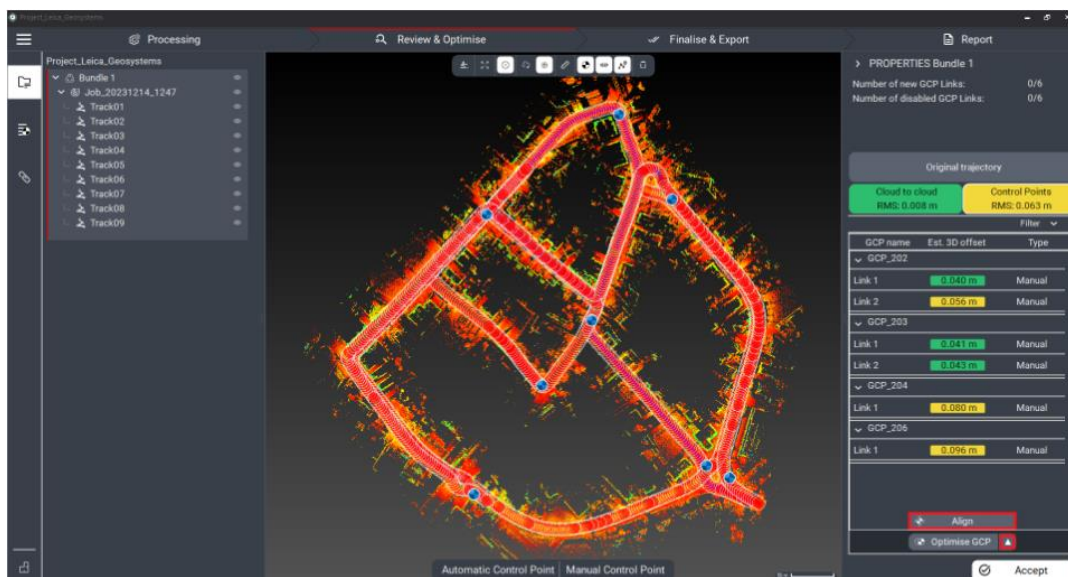
The associated Bundle will be locked after the point cloud has been adjusted to align with control points. This means no further processing or optimisation can be performed until it is unlocked. If any modifications are made, the point cloud will revert to its previous state before the alignment.
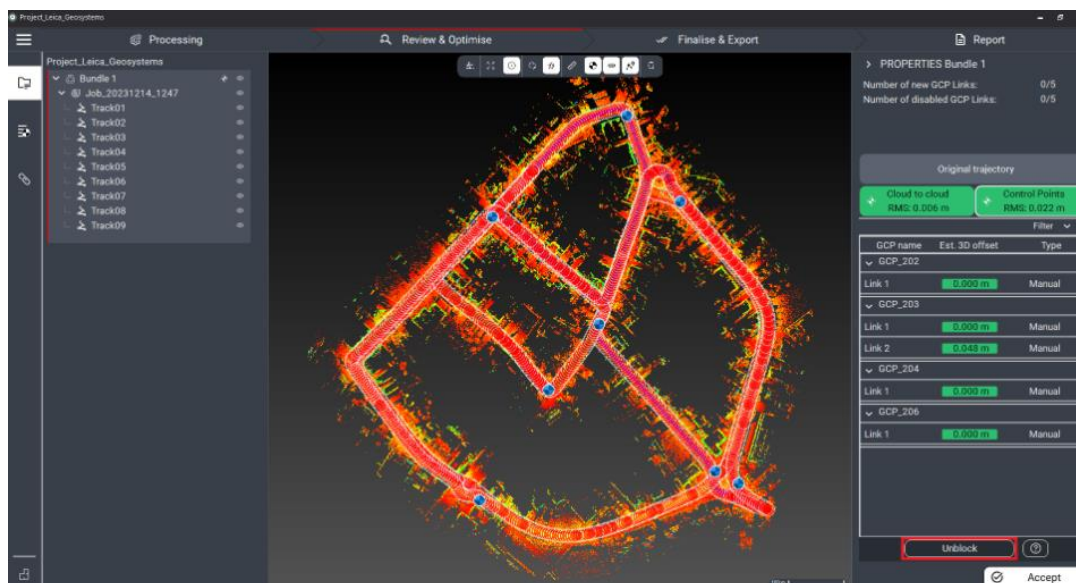
2.1.3   Optimise Ground Control Points (GCP)

The Optimize to GCP tool is designed to align the trajectory and point cloud with Ground Control Points (GCPs). It ensures that the point cloud remains free from deformation, though the GCPs may not perfectly overlap with the point cloud. This tool is recommended before the C2C Adjustment, particularly when the trajectory quality and uncertainty levels are suboptimal.

2.2   Advanced Export Functionality

This feature allows users to reduce the size of their exports, which can sometimes be quite large. With this tool, users can select specific cameras for export and reduce the number of frames (e.g., exporting one frame out of every ten frames). Additionally, image quality can be reduced by applying an increased compression rate to the images.

Furthermore, the tool estimates the size of the deliverables. Note that the estimations do not include point cloud decimation, image enhancement, and class selection options.
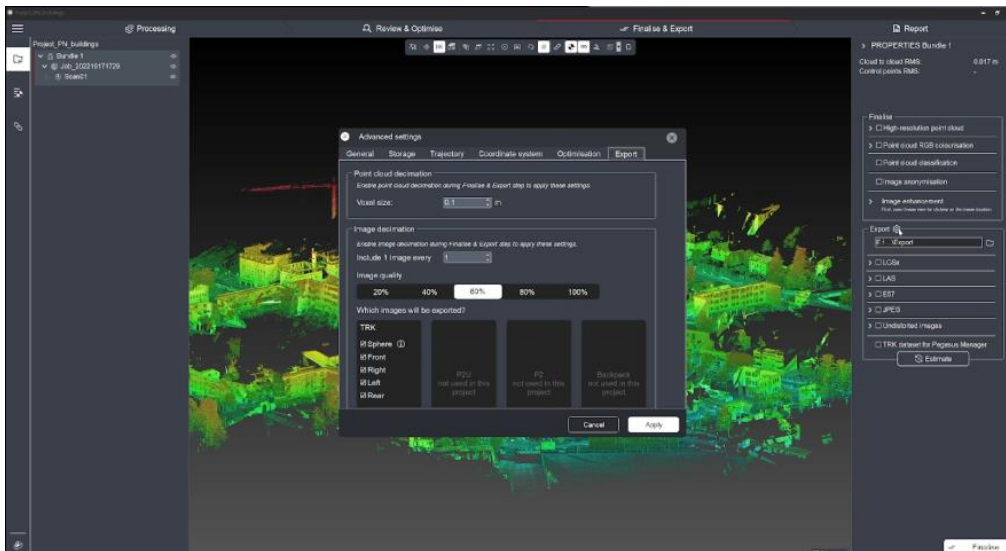
2.3   Automatic notification if a newer version is available for download and installation

Pegasus OFFICE now offers the possibility to update the software without the need to visit the myWorld portal.

Users can view the latest version and its changelog upon starting the software. If an update is available, it can be downloaded and installed directly through the notification.

Additionally, users can choose whether to display the latest version information. For those who need to check the latest version at any time, a dedicated License & Software Update page is available for easy access.

2.4   Export of the adjusted trajectory in a shape file

This new software version now includes the option to export the adjusted trajectory as a shapefile. A shapefile will automatically be created for further use in external software platforms whenever a trajectory optimisation occurs.

2.5   NMEA trajectory export for IDS Stream UP trajectory calculation

The latest release supports the export of NMEA trajectories for IDS Stream UP Ground Penetrating Radar trajectory calculation. This enhancement allows users to seamlessly integrate their trajectory data with IDS Stream UP, facilitating more accurate and efficient trajectory calculations.
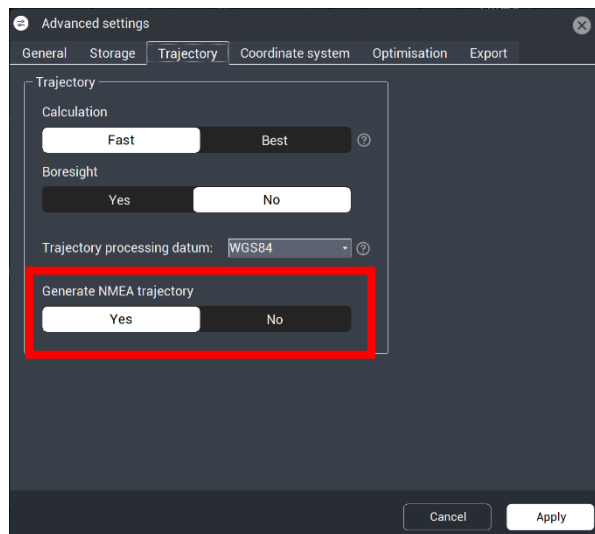
2.6 Zoom to track

From this release onwards, the "Zoom to track" feature is enabled, allowing customers to visualise the desired track directly.
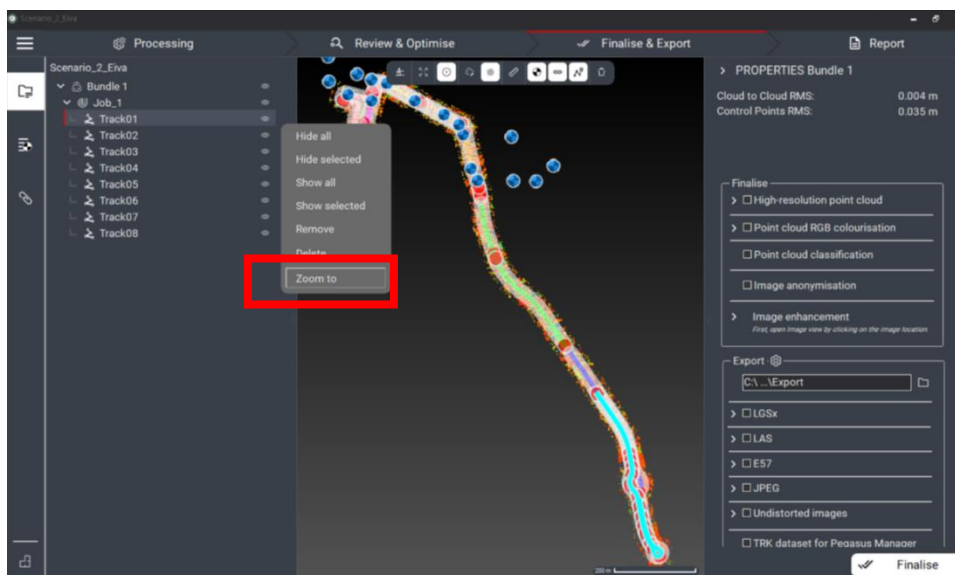
3 Improvements

3.1 New link measurement algorithm

The link measurement algorithm allows users to register and optimise different tracks in the same area between themselves, resulting in a single point cloud rather than several passes.
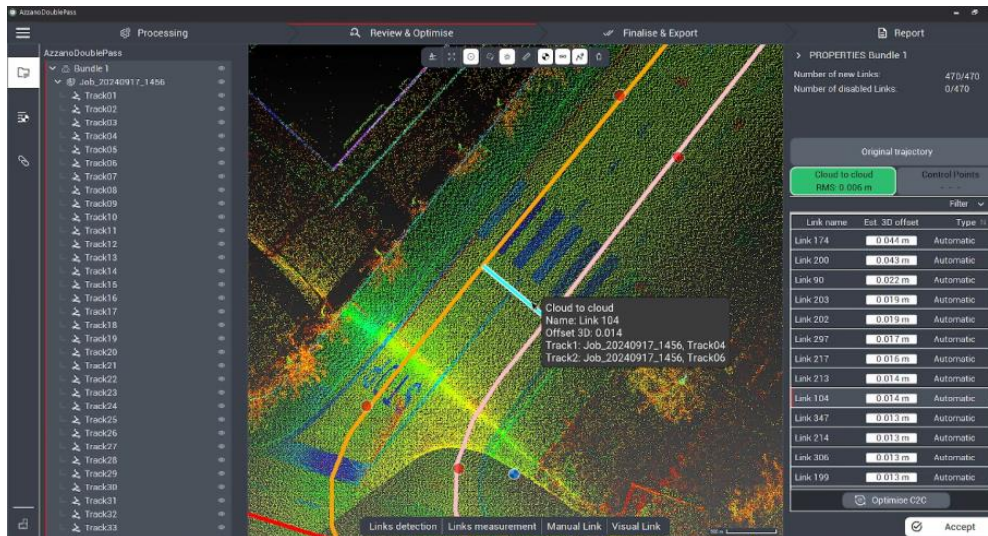
The new algorithm provides a considerable improvement, reducing to a minimum the need for manual links for proper adjustment and quality control.

Improvement has been recognised in all scenarios but specifically in homogeneous environments such as highways, tunnels or roads with minimal features.

3.2 Automatic link re-measurement after adjustment

After re-importing a new trajectory or any optimisation, the automatic link measurement feature now provides an update of remeasured values of previously measured links.

3.3 Several speed performance improvements

- Point Cloud Classification performance has improved by an average of 20-30%
- Import of Ground Control Points
- Ghost filter processing

3.4 Extended GCP information in CSV export and report

Starting with this release, exporting GCP information to a CSV file or report now includes the GCP name, coordinates, and the previously available offsets to the point clouds.

3.5 Possibility to import and export .ort files for Pegasus: Two, Pegasus: Two Ultimate and Pegasus: Backpack

Calibration files (*.ort) for the side, multi-directional and pavement cameras manually calibrated can now be imported and exported directly in Pegasus OFFICE for the Pegasus: Two, Pegasus: Two Ultimate and Pegasus: Backpack.

3.6   Image stitching can be finalised in Pegasus OFFICE

In situations where the 360° panoramic camera's image stitching cannot be completed in the field due to GPU overload, Pegasus OFFICE will now display a warning message and allow users to process the images directly in the office without needing to reinsert the disk into the Pegasus Control Unit.

3.7   Distance can be measured from the 360° panoramic -image view

Starting with this release, distances can be measured directly from the image view by selecting cloud points behind the image without needing to switch views.

3.8   Leica Pegasus OFFICE supports the new Client License Management (CLM) version

Pegasus OFFICE updated the support of CLM to version 2.19.

3.9   Fixed TruSlicer bug

The TruSlicer tool did not follow the trajectory when the site location bar was used. This problem has been fixed in this release.

3.10   Fixed bugs in the split tracks tool

- "Split too small" error when tracks were overlapping is now fixed
- Split track tool is available for Pegasus: Two, Pegasus: Two Ultimate and Pegasus: Backpack datasets

3.11   Fixed the failed optimisation when the trajectory was imported from Inertial Explorer (IE)

This bug has been fixed with the latest release. If the relative paths of the Inertial Explorer project are not mapped correctly, the processing will stop and show a warning for the user to fix it.

3.12   Impossibility to export LGSx when different Flexera Services were running in the background

This bug has been fixed with the latest release.

3.13   Several other minor user experience improvements, interface, and bugs were fixed

This release included several minor bug fixes, user experience improvements, and interface improvements, such as text enhancements.

4   Important Notes

4.1   Note on PC-GPU requirements

Image anonymisation and point cloud classification depend entirely on the hardware used on the PC. If the graphic card requirement does not match, the process is stopped with a notification:
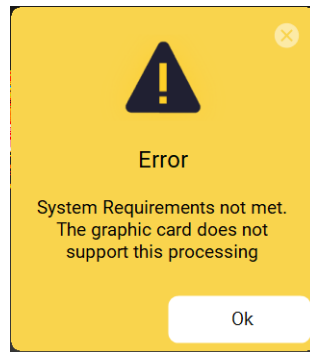
The graphic card computing capability needs to be 7.5, 8.6 and 8.8.

Compare the listed computing capabilities for each Nvidia chipset here:

https://developer.nvidia.com/cuda-gpus

Computation capabilities, other than those listed above, must be checked by the Leica Geosystems R&D department to ensure the image anonymisation works according to the expectations. Suppose the graphic cards should be used with higher computation capabilities. In that case, the users should contact the Leica Mobile Mapping support team to verify if the hardware can function accordingly.

4.2   Compatibility

With the 2024.2.1.116 release, Leica Pegasus OFFICE is supporting these versions of the following Hexagon/Leica Geosystems software products:

- Leica Infinity v4.1.1.45440
- Inertial Explorer SDK 9.0
- Leica CLM 2.19.0

4.3   Support of virtual machines

Please note that running the software on virtual machines is not supported.