



SCENE

Version 6.1

Release Notes
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Introduction

FARO is pleased to announce the Beta Release of

SCENE 6.1

SCENE LT 6.1

SCENE Capture 6.1

SCENE Process 6.1

We would like to thank all users who gave valuable input for the improvement of the former release. With this release, we deliver a new version of the FARO Laser scanner software that will improve your productivity, your mobility and ease of use in many directions.

Differences between the Members of the SCENE Software Family

SCENE

Complete workspace creation and manipulation tool. Contains all functionality of SCENE LT, and in addition the functions required for scan registration and export to SCENE WebShare Cloud.

SCENE LT

Free viewer, enables to view existing FARO scans and workspaces. SCENE LT can import CAD models in VRML format in order to compare them with the scan points. It also allows for exporting scan points into various file formats, and to SCENE WebShare Cloud. SCENE LT does not offer functionalities to filter scans, create objects for scan registration, or to perform scan registration.

SCENE Capture

SCENE Capture provides everything you need to record your scans with the FARO scanner Freestyle^{3D}. It is designed to run on a tablet computer and is pre-installed on the tablet computer included in the Freestyle^{3D} kit. The scan data is stored on a microSD card which makes it easy to transfer the data to another computer.

More features:

- scanner calibration (does not replace factory calibration)
- White balance
- Capturing data
- Easy scan view
- Measure between points

SCENE Process

SCENE Process provides everything you need to process and finalize your entire Freestyle^{3D} scan project. Record your scans with the tablet computer and SCENE Capture, transfer the data and continue working with SCENE Process.

Because processing 3D data is a heavy operation for a computer, we recommend to install SCENE Process on a workstation or on a notebook PC with sufficient performance.

More features:

- Easy registration functionality
- Level functionality
- Split scan functionality

SCENE WebShare Cloud

SCENE WebShare Cloud is a secure cloud-based solution for storing and sharing scanning data with different project partners.

scan data to be published with SCENE WebShare Cloud has to be prepared by the respective SCENE features.

SCENE WebShare 2Go 2.0

WebShare 2Go 2.0 is a portable version of SCENE WebShare Cloud.

64-Bit Support

The amount of data created by 3D laser scanners as well as the processing capacity to achieve a fluent workflow requires a powerful 64-bit computer.

Therefore, SCENE versions from 5.3 on are only available for 64-bit Windows™ systems.

Windows™ XP

SCENE from version 5.3 on does no longer support Windows™ XP.

Online Help and Video Tutorials

FARO's YouTube channel provides a variety of laser scanner hardware and SCENE software tutorials on the web. Access them from the Help menu within SCENE or with the following links:

SCENE tutorials:

<http://www.youtube.com/playlist?list=PL106990C972ED8232>

Focus^{3D} tutorials:

<http://www.youtube.com/playlist?list=PL1F9F3E5175BAE4A1>

Visit the FARO Customer Service area on the Web at www.faro.com to search our technical support database, which is available 24 hours a day, 7 days a week. The link to the technical support database is also accessible from the Help menu in SCENE.

New Features

This is a list of the most important new features of SCENE 6.1. For detailed information, please refer to the SCENE 6.1 or Freestyle^{3D} User Manuals.

SCENE

Target-based Registration

Target-based registration is now part of the new user interface. We have introduced additional settings and updated the automatic registration task. Now, the registration settings can be altered during the workflow. The registration report has been updated to display target registration statistics in addition to point-based statistics.

Printable Registration Report

The Registration Report in the new user interface is updated. It can now be saved as a PDF document.

Meshing

Meshes can now be created from a selection of points in the 3D view.

Additional Processing Settings

With SCENE 6.1, we introduce settings for scan processing in the new user interface. These settings include:

- Point filters
- Colorization option
- Target detection
- scan point cloud creation

Two new filters are available for the batch processing of scans:

- Distance filter
- Edge artifact filter

Processing can be started at project, cluster or scan level. The default settings for processing can be adjusted in the options.

All pictures are now unloaded after scan processing, to save memory and prevent crashes while processing large projects.

Measurements are no longer Global Objects

A measurement will now be placed in a Measurements folder directly below the scan, cluster, or workspace where it is created.

Clipping Boxes are no longer Global Objects

A Clipping Box is now placed in a folder ClippingBoxes directly below the scan, cluster, or workspace where it is created.

SCENE Process

'Clean Up project' Option

'Clean Up project' option is provided to reduce the project size after processing. You can enable this option in the **Options** Menu in SCENE Process.

Support for Freestyle Objects device

SCENE Capture now supports Freestyle Objects device. The most important features of the new Freestyle Objects device is as follows:

- Shorter scanning distance (0.3m – 0.8m)
- Reduced noise
- Improved accuracy (0.5mm in 0.5m scanning distance)

Support for scanning with other sensors

SCENE Capture now supports third-party scanning devices like Kinect and Intel R200.

Improved data capturing

Reduced number of stray points in short distances during scanning.

Processing

SCENE Capture can now process the captured data.

Measurements are no longer Global Objects

A measurement will now be placed in a Measurements folder directly below the scan, cluster, or workspace where it is created.

Clipping Boxes are no longer Global Objects

A Clipping Box will now be placed in a folder ClippingBoxes directly below the scan, cluster, or workspace where it is created.

SCENE WebShare Cloud

Export of Multi-Layer Overview Map

Overview maps can now have several separate layers. The layers can then be toggled on and off separately.

Bug Fixes and Improvements

SCENE

The following improvements are available in SCENE:

- When moving or copying objects in the Structure View they will now retain their global coordinates
- Significantly increased performance when project point clouds are created, especially when the “Full Color Detail” option is activated.
- Improved visual impression and performance of scan Point Clouds in 3D View.
- Clear view stays active during all types of quick camera movements.

Unified 3D Polygon Selector

There is only one button for polygon selection that is able to do selections on both scans and scan point clouds.

Scans

The following improvements are available for the scan data:

- The scans now load faster.
- It is now possible to correctly colorize a full resolution HDR scan.

Known Issues

Freestyle^{3D} Data

Freestyle^{3D} data must be processed with SCENE Process before bringing it into SCENE 6.

SCENE

Full resolution HDR scans

The LDR images that are created after applying pictures can only be exported as original format (.bmp) and not as .jpg or .png

Problems with Intel graphics cards

We recommend to use NVIDIA or AMD graphic cards.

If you use the Intel graphics card, use the belonging-to graphics driver and not the standard Microsoft driver.

project point cloud

If a scan project was processed with pre-SCENE 6.1 versions, all scans must be processed with SCENE 6.1 to create a mesh in this project.

- Recommended workflow for processing in SCENE 6.1:
- Switch to new SCENE 6 User Interface:

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- Process all FARO Laser scans and imported scans by recreating the scan point cloud using the process task in the “Processing” tab
- Ensure “Create scan Point Clouds” is checked.
- Process all Freestyle scans by opening the scan’s context menu and selecting **Operations->Process scan**
- Delete project point cloud
- Build project point cloud

project point clouds of Freestyle^{3D} scans may miss many good points if the “eliminate duplicate points” filter is activated.

Recap export

Freestyle scans are not considered.

Workaround for a whole project: Create virtual scans of the Freestyle^{3D} data and start the recap export.

Workaround for a single scan: Export the Freestyle^{3D} data into e57 format and import those files into recap.

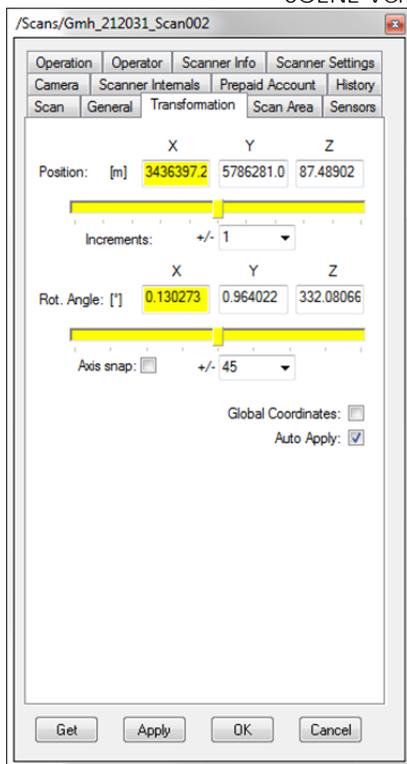
SCENE WebShare Cloud Export

SCENE WebShare Cloud export fails for projects in a path with Unicode characters.

When trying to export a project located at a path that contains special Unicode characters, the export will currently fail with an out of memory error.

Geo Referencing

Geo referencing of scan projects may introduce very large translations for each individual scan of the project. For example, a scan may be translated thousands of kilometers along the x and/or y axis, as shown in the following screen shot.



These translations may lead to problems with 3D visualization. This can also affect SCENE WebShare overview maps and the export of scan points. The export of scan points with very large translations might be inaccurate.

To avoid problems with the 3D visualization, we strongly recommend avoiding such large translations on individual scans.

If you need large translations, the best way is to apply them to the workspace (or at least to a scan cluster which is as far up in the project hierarchy as possible).

To transfer large translations away from individual scans, use Operations ► Registration ► Move clusters to Center of scans from the context menu of the workspace (or a scan cluster that is far up in the project hierarchy). This function computes the barycenter of all scans below the selected object and transfers the translation of the barycenter into the selected object. The global position of the individual scans will stay the same while local translations will be

reduced to a necessary minimum, so visualization problems are also reduced.

3D View

- After switching from SCENE to another Windows Program and back with e.g. Alt + Tab, the frame rate in the 3D View drops by about 50%. The frame rate can be restored by changing the point size in the view options and clicking ok.
- SCENE might suffer from instability issues on systems with some AMD/ATI graphics cards when opening one or more 3D views and the *Advanced Textures* option is enabled:
This option is disabled by default and can be found under Tools ▶ Options ▶ View. You may enable it, but if you experience problems when opening 3D views, disable it again. Stereoscopic view is now working even if Advanced Textures is disabled. NVIDIA users should enable *Advanced Textures* without any problems.
- Rendering performance with NVIDIA Quadro graphics processors: On systems equipped with NVIDIA Quadro graphics processors, rendering performance in 3D view may be slow or intermitted. In order to improve rendering performance, start the NVIDIA Control Panel application (available in the Windows™ Control Panel) and select the global preset 3D App – Game Development under 3D settings ▶ Manage 3D settings ▶ Global Settings.
- When a 3D View is opened out of a Planar View, it is not possible to create a virtual scan.

Point-to-Point Measurements in SCENE

When a scan or scan folder is rotated, existing point-to-point measurement objects are not updated, which might lead to incorrect distance measurements for these measurement objects. We therefore recommend not to make point-to-point measurements until scan registration is complete.

Apps

Installing plugin apps can sometimes cause issues with the SCENE license mechanism. The app installation will be successful after restarting SCENE.

SCENE Process: scans may be lost

If Processing is started on a scan and is stopped before 3D data are shown, this scan may be lost. Workaround: wait until the 3D data is shown, then stop processing.

Computer System Recommendations

Processing scan data is a demanding task for both the software and the computer system. To allow SCENE 6.1 acting as a high performance system, the computer hardware needs to comply with these requirements.

SCENE 6.1 works with Windows™ 7, 8, 8.1, and 10.

FARO recommends the following hardware specifications.

Minimal system specifications

- Processor: 64-bit (x64) with at least 2-gigahertz (GHz) (For example, Intel Core i7)
- Graphics Card: OpenGL 4.1, or higher, at least 2GB Memory
- Main Memory: At least 16GB
- Hard Disk: 256 GB Solid State Drive
- Display: 1366 x 768
- Operating System: 64-bit Windows 7 or higher

Recommended system specifications:

- Processor: Quad-core x64 Intel Core i7/Xeon, 8 physical cores
- Graphics Card: Dedicated graphics card, Open GL 4.1 or higher, at least 4 GB Memory, optional for stereo rendering: Nvidia Quadro
- Main Memory: At least 64GB
- Hard Disk: 512GB Solid State Drive + Regular HDD
- Display: 1920x1080
- Operating System: 64-bit Windows 7 or higher

To make use of the stereoscopic 3D viewing capabilities, a NVIDIA Quadro graphics card, a 3D monitor or 3D projector as well as the suitable 3D goggles are required.

To make use of the SpaceMouse support, a 3DConnexion SpaceMouse device with the latest drivers is required. The User Manual describes how to do the settings.

FARO Technologies, Inc.

250 Technology Park
Lake Mary, FL 32746
Tel. (800)-736-2771 U.S. / +1 407-333-3182 Worldwide
E-Mail: support@faro.com

FARO Europe GmbH & Co. KG

Lingwiesenstrasse 11/2
D-70825 Korntal-Münchingen, Germany
Tel: +49 7150/9797-400 (FREECALL +800 3276 7378)
Fax: +49 7150/9797-9400 (FREEFAX +800 3276 1737)
E-Mail: support@faro.com

FARO Singapore Pte. Ltd.

No. 03 Changi South Street 2
#01-01 Xilin Districentre Building B
SINGAPORE 486548
TEL: +65 6511.1350
E-Mail: supportap@faro.com

FARO Japan, Inc.

716 Kumada, Nagakute-city,
Aichi, 480-1144, Japan
Tel: 0120-922-927, 0561-63-1411
FAX:0561-63-1412
E-Mail: supportjapan@faro.com

FARO (Shanghai) Co., Ltd.

1/F, Building No. 2,
Juxin Information Technology Park
188 Pingfu Road, Xuhui District
Shanghai 200231, China
Tel.: 400.677.6826
Email: supportchina@faro.com

FARO Business Technologies India Pvt. Ltd.

E-12, B-1 Extension,
Moham Cooperative Industrial Estate,
New Delhi-110044
India
Tel.: 1800.1028456
Email: supportindia@faro.com

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