

# SCENE 2019

The Most Intuitive & Efficient Software for Scan Data Processing & Registration

## Tools for Managing High-Quality 3D Data for Informed Project Decisions

FARO® SCENE software is specifically designed for all Focus and third-party laser scanners. Process and manage scan data efficiently and easily by using real time, on-site registration, automatic object recognition, scan registration, and positioning. Generate high-quality data in full color quickly and conveniently by incorporating images from automated targetless and target-based scan positioning.

Users can begin the evaluation and processing immediately by performing simple measurements, creating stunning 3D visualizations or exporting to various point cloud and CAD formats once SCENE has prepared the scan data. In addition, SCENE features an impressive Virtual Reality (VR) View, allowing users to experience and evaluate captured data in the VR environment.



### Explore Scan Data in 2D, 3D and Virtual Reality (VR)

Explore scan data in unmatched clarity and visual quality due to solid surface rendering and HDR colorization. Visualization of data in 2D, 3D and VR gives an immersive experience in viewing project point clouds in full detail in the 3D Virtual Reality.

### Efficient Data Processing

Various tools for scan data filtering improve the cleanliness and color balancing of each scan data set. The automatic filter for moving objects significantly reduces the need for manual cleaning. Batch-Processing allows automated marker detection, scan optimization and scan registration with minimized effort.

### Easy Data Registration

SCENE features professional and automatic workflows for target based and targetless (Cloud2Cloud) scan registration. The powerful on-site registration functionality allows complete scan project processing and registration directly on the measurement site in real time.

### Intuitive Data Organization

SCENE features a very intuitive and easy to learn user interface. Features such as hierarchical data structure or project history management allow efficient handling of large projects. A seamless integration of scan data is secured through the support of various import and export formats.

### Plug-Ins and Apps for Extended Functionality

Extend the SCENE functionality with various plug-ins and apps to obtain added value for special workflows and applications.

## Benefits

- Minimize project costs by utilizing automated data processing/ registration workflows, fast / versatile scan data export, and a simplified software user interface
- Recreate project results using advanced workflow driven validation tools
- Intuitive and easy to understand reality representation providing immersive viewing capabilities to explore and evaluate scan data
- Leave the project site with confidence through the power of real time, on-site registration and the ability to retake photos
- Use the unique FARO Laser-HDR™ function to create images in HDR quality from normal scanner photos
- Share and collaborate worldwide anytime, anywhere with SCENE WebShare Cloud – a hosted web-based service from FARO for easy and secure sharing of scan project data

# Key Features

## Processing Scan Data

- Automatic search for artificial (spheres, checkerboards, coded markers) or natural references (corner points, planes etc.)
- Diverse registration methods to place the scans automatically by detected targets, cloud-to-cloud or top view based
- Improved registration results through intelligent fine registration and additive verification
- Combined target based registration: Automatic marker detection in both Freestyle and Focus scans during data processing
- Online correspondence search for the automatic assignment of reference points. Now even faster through parallelization
- Automatic coloring of the scans with the high-resolution color photographs of the FARO color option
- Laser-HDR combines scanner images with scan information and generates HDR quality images. It is backward compatible with previous scanner generations including non-HDR laser scanners
- Filters (including “dark points”, and “stray points”), optional Edge Artifact filter for additional noise reduction
- Supports creation of fully textured meshes that can be brought into other applications as color, 3D models
- On-site compensation: verification and adjustment of the scanner’s compensation, available for the new Focus<sup>S</sup> devices
- On-site registration; processing and registration of scans during scanning on site, function applies only to FARO Focus<sup>S</sup> Series Laser Scanners
- Moving Objects Filter automatically removes unwanted objects from registered scan data that moved through a scene while it was being scanned, such as people or vehicles
- Fast and versatile exporting of scan data as a project, cluster, single scan, or sections of scans into Autodesk<sup>®</sup> RCP/RCS point cloud format

## Data Management of Extensive Projects

- Project database with project history
- Graphical project view to manage all existing scan projects
- Bundling of an unlimited number of scans to one project
- Printable registration reports (PDF)

## Data Sharing

- Fully integrates with the SCENE WebShare Cloud service
- Utilize the SCENE 2go App from a USB flash drive to share projects with clients for data exploration

## Navigation

- 3D navigation supports 3Dconnexion Space Mouse devices
- Intuitive navigation in 3D with predefined or customized viewpoints
- 3D navigation via an overview map live in the Virtual Reality environment

## Import & Export

- Control points for geo-referencing (.cor, .csv)
- Scan points (FARO Scan, FARO Cloud, ASTM E57, .dxf, .igs, .txt, .xyz, .xyb, .pts, .ptx, .ptz, .pod)
- CAD objects (import and export .wrl, only export .igs, .dxf)
- Import digital photos (.jpg, .png, .bmp, .tif)
- Export panoramic images (.jpg), export orthophotos (.tiff, .png, .jpg, .bmp and .dxf)
- Export meshes in standard formats (.stl, .obj, .ply and .wrl (VRML))
- Direct data transfer to: AutoCAD<sup>®</sup>, Autodesk<sup>®</sup> ReCap<sup>™</sup>, Revit<sup>®</sup>, Microstation<sup>®</sup>, Geomagic<sup>®</sup>, Polyworks<sup>®</sup>, Rapidform, Pointools<sup>™</sup>, JRC 3D Reconstructor<sup>®</sup>, AVEVA<sup>®</sup>, Intergraph<sup>®</sup>, LFM<sup>™</sup>, FARO As-Built, PointCab<sup>™</sup>, Carlson and more than 100 others

## Project Exploration

- Project Point Cloud for efficient navigation in 3D data
- Object fitting with visual quality indicators for spheres/tubes/planes (including automatic border detection)
- The ability to take measurements
- Documentation objects to add notes and attach external documents via hyperlink technology
- Extended capabilities using FARO or 3rd party apps

## Views

- Closed 3D surfaces rendering with full-color detail
- 3D View, Planar View & Quick View
- Virtual Reality View with exploration tools, such as measurements, annotations, screenshots, CAD visualization
- Stereoscopic visualization with suitable graphics board and 3D capable device
- Correspondence view to control scan placement on the screen
- Multiple clipping boxes to control the visible parts of point clouds in 3D View
- Translate and rotate meshes easily with Mesh Manipulators
- Overview Map includes colorization of foreground, background and scan points with window dialog to modify its property

## Technical Requirements

Hardware	Quad-core X64, Intel Core i7/i9/Xeon, 8 physical cores, 64 GB RAM , OpenGL 4.1 or higher, 1 TB Solid State Drive + Regular HDD, screen resolution 1920 x 1080 px
Graphics Card	Dedicated graphics card, OpenGL 4.1 or higher, at least 16 GB Memory; For Stereo Rendering and Viewing: NVIDIA Quadro; For VR Rendering and Viewing: NVIDIA 1080GTX or similar, SteamVR must be installed Supported VR 3D Headsets: Oculus Rift or HTC Vive with Touch Controllers, StreamVR
Operating System	64-bit Windows <sup>®</sup> 10
Accessories	3D Connexion Space Mouse with latest drivers (settings described in the User Manual), Network card is required for licensing SCENE

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