REALITYCAPTURE

Reality Capture 1.4
Data Sheet

Power | Speed | Accuracy

EPIC GAMES

Capturing data
Imports

- images in various JPEG, PNG, TIFF, EXR, WEBP, BMP, DNG, and HEIC format
- RAW images for all cameras with the corresponding drivers
- frame captures from video import in MPEG, AVI, ASF, QT, MOV, and VMW format
- laser scans in PTX, E57, PLY, ZFS, and ZFPRJ format
- 3D models in OBJ, FBX, DXF, DAE and PLY format
- stereoscopic images from Leica BLK3D Image Group
- flights logs and ground control points, support of PPK/RTK data with accuracy information
- support of masked images and different layers for texture or for AI segmentation

Aligning

- automatic registration of different inputs
- combination of images and laser scans
- georeferenced or scaled scenes
- re-use camera registrations using XMP metadata for fixed camera setups
- detection of misaligned cameras

Meshing

- watertight meshes with custom detail
- mesh editing tools: smoothing, simplification, closing holes, mesh cleaning
- topology repairing tools
- dense point cloud AI classification

Texturing

- unwrap tool for generating UV maps
- different unwrapping and texturing styles
- calculating vertex color
- reprojecting textures from one model to another
- generating normal and displacement maps

Sharing and exports

- direct upload to Sketchfab, Cesium Ion and Nira
- export sparse or dense point clouds in XYZ, LAS and PTX format
- model export in OBJ, FBX, PLY, ABC, GLB, STL, 3MF, DXF, and DAE format
- export Level of Detail model and Cesium 3D Tiles
- pre-defined or custom reports
- export camera registrations, textured, ortho projections, digital surface and terrain model, contours, cross-sections and other

Measuring and inspecting

- automatic detection of coded targets
- automatic conversion between different coordinate systems
- distance, area and volume measurements
- custom height profiles
- sparse point cloud inspection - camera relations and scene structure uncertainty

Automation and integration

- command-line processing and scripting
- batch processing outside the command line using RealityCapture commands
- sending command-line commands to an already opened RealityCapture instance
- automated workflow for transferring large datasets to Unreal Engine
- exports optimized for Unreal Engine
- automated CLI pipeline for large datasets

Orthophoto, DSM, DTM

- georeferenced orthographic projections and maps
- creating side and arbitrary orthographic projections
- digital surface and terrain model (DSM and DTM)
- sampling tool for projections
- enhanceable ortho mosaic

Industries
Where to use
RealityCapture?

Surveying and aerial mapping

Using aerial photos and ground control points or PPK flight logs to create an accurate georeferenced model or a point cloud for mapping purposes. Exporting orthophoto map, DSM/DTM, and quality report, as well as any cut/fill measurements. Tools such as Map Wizard make the process simple so that even a beginner should be able to get a solid output without too much effort or having a steep learning curve.

VFX / Game industry

Hyper realistic assets created quickly and optimized well directly in RealityCapture using tools as filtering, simplifying, smoothing, reprojection tool, clean model, and others. This can be automated with CLI scripting to produce assets fast enough; you produce easy integration in your pipeline.

Full body and product scanning

Best results in the fastest time for 3D models created using camera rigs. Using CLI automation and camera registration XMP files to make things even faster and very cost-effective.

Cultural heritage conservation

Producing very detailed, 1:1 real-world scale and proportionally correct models that suit as a perfect solution for preserving historical subjects.

Research and education

There are many possible ways of use in science. For medical purposes all the way to creating 3D models of tiny bacteria. Capturing Reality supports education with tailored licensing models.

BIM and AEC

Create digital twins of building for planning reconstruction, new installation, or for visual inspection of structural defects. The 3D Tiles export allows using the result in any online inspection tool.

Manufacturing and 3D printing

Printing replacement parts easily by scanning the not documented original.

Simulation

Capturing physical objects and environments help professionals prepare for real-world scenarios. Photogrammetry enables the creation of immersive and sub-millimeter accurate simulations in several ways: terrain mapping, mission planning & targeting with the highest precision, training & simulation (VR/XR/AR/MR) exercises in a safe and controlled environment, furthermore, reconnaissance and evidence gathering for event reconstructions in forensics.

Hardware Requirements and Compatibility

- local processing without size limitation, no cloud needed
- 64-bit PC with at least 8GB of RAM
- 64-bit Microsoft Windows version 7 / 8 / 8.1 / 10 / 11 or Windows Server version 2008
- NVIDIA graphics card with CUDA 3.0+ capabilities and 1GB RAM

We recommend using a machine with at least 4 CPU cores, 16GB of RAM, and 1024 CUDA cores. To leverage the latest RealityCapture 1.3 improvements in model creation and texturing, we recommend using fast NVMe solid-state drives and NVIDIA graphics cards with CUDA 6.1 to use the new depth map algorithm.

If you do not have the NVIDIA graphic card, you will still be able to run RealityCapture and register images, but you will not be able to create a textured mesh.

Useful links

Help
Download
Community
Sample datasets