

GEODICT QUANTIFY PRODUCT FAQ

GeoDict Quantify combines 3D image processing, segmentation, quantitative analysis, visualization, reporting, automation, and geometry export in one software package. This FAQ summarizes its capabilities, system requirements, purchasing options, and relationship to the wider GeoDict platform.

PRODUCT OVERVIEW

What is GeoDict Quantify?

GeoDict Quantify is a professional software package for processing and quantitatively analyzing 3D image data. It is designed for engineers, researchers, imaging laboratories, and industrial users working with Micro-CT, FIB-SEM, and related high-resolution datasets.

The software combines image preparation, conventional and AI-assisted segmentation, advanced quantitative characterization, visualization, reporting, reproducible workflows, automation, and geometry export in one engineering software environment.

[GeoDict Quantify webpage](#)

Which modules are included?

GeoDict Quantify is supplied as a fixed package containing the following GeoDict modules:

- GeoDict-Base
- ImportGeo-Vol
- PoroDict
- MatDict
- FiberFind
- GrainFind
- GeoDict-AI
- ImportGeo-CAD
- MeshGeo
- ExportGeo-CAD

Together, these modules cover image import and preprocessing, conventional and AI-assisted segmentation, porosity, fiber, particle and geometric analysis, mesh generation, and geometry export.

The package is fixed and cannot be extended directly with individual GeoDict simulation modules.

IMAGE PROCESSING AND ANALYSIS

Which image-data formats can be imported?

GeoDict Quantify supports common volumetric formats used for reconstructed micro-CT, FIB-SEM, and similar datasets. These include TIFF or JPG image stacks and voxel-based RAW data processed in ImportGeo-Vol.

ImportGeo-CAD can also import suitable surface geometries and reference data, typically in STL or OBJ format.

Which image processing tools are available?

ImportGeo-Vol provides tools for preparing micro-CT and FIB-SEM data, including:

- CT ring-artifact removal
- Advanced denoising, including non-local means filtering
- Cropping, resampling, and down-sampling
- Grayscale contrast and image brightness adjustment
- FIB-SEM slice alignment
- FIB-SEM curtaining-artifact correction
- Image preparation for segmentation and quantitative analysis

Image preparation, segmentation, and analysis can therefore be performed in the same software environment.

Does GeoDict Quantify include AI segmentation?

Yes. ImportGeo-Vol includes conventional threshold-based segmentation as well as machine-learning and deep-learning methods such as U-Net. Users can label representative image regions, train a model, and apply it to the complete dataset.

For advanced workflows, GeoDict-AI provides additional control over training data, model configuration, validation, and application.

AI-assisted segmentation is particularly useful when phases have overlapping grayscale values or boundaries cannot be separated reliably by thresholding alone.

What can be quantified?

GeoDict Quantify can characterize a wide range of structural features, including:

- Porosity: volume, diameter, sphericity and much more
- Open vs closed porosity
- Pore size distributions among other statistical metrics
- Fiber diameter, length, orientation, and related descriptors

- Grains, particles, powders, and inclusions
- Wall thickness and local thickness variations
- Internal defects (e.g. cracks) and manufacturing flaws
- Feature Connectivity & Anisotropy
- Geodesic tortuosity
- Deviations from reference or nominal geometry
- And much more

WORKFLOWS AND RESULTS

Can analyses be automated?

Yes. GeoDict records image-processing and analysis in a session macro containing the commands and parameter settings used. Macros can be saved, edited, shared, and reused for the same or similar datasets. Integrated Python scripting supports further customization, such as input parameters, decision logic, file handling, and tailored user interfaces.

GeoDict Quantify does not include Job Queue, which manages multiple independent GeoDict jobs. This capability requires a regular GeoDict license configured with the Job Queue module.

Can GeoDict Quantify generate reports?

Yes. Reports can combine numerical results, statistical distributions, analysis parameters, plots, images, 3D visualizations, and information about the analyzed microstructure. Dedicated report outputs are available for key workflows such as porosity, and fiber, and grain analysis.

Can GeoDict Quantify create images and videos?

Yes. GeoDict Quantify can create high-quality images, color-coded 3D visualizations, graphs, and animations to present and communicate analysis results.

Can results be exported to other software?

Yes. Voxelized structures and 3D image data can be exported as RAW or VOL files, or as image stacks. MeshGeo and ExportGeo-CAD can convert voxelized or analytical microstructures into surface meshes and exported them as STL, VRML, or OBJ files.

HARDWARE REQUIREMENTS

What computer hardware is required?

GeoDict Quantify follows the system requirements of the current GeoDict release.

Minimum requirements

- 64-bit Intel or AMD processor with AVX2 support
- Graphics card and operating system supporting OpenGL 2.0 or newer
- Windows 10 or 11, or a supported 64-bit Linux system
- At least 5 GB of free disk space for installation
- More RAM than the size of the image dataset being processed

Recommended workstation configuration

- Modern 64-bit Intel or AMD multi-core processor
- 32 GB RAM or more
- Recent NVIDIA graphics card with at least 8 GB VRAM
- Approximately 1 TB of storage for datasets and result files

GeoDict's advanced AI functions, including U-Net segmentation, FiberFind-AI, GrainFind-AI, and neural network training in GeoDict-AI, require an NVIDIA GPU with CUDA compute capability 7.5 or higher. An NVIDIA RTX 2060 or newer meets this minimum GPU requirement. Larger datasets may require substantially more RAM, GPU memory, and storage.

Current [System requirements](#)

GEO_DICT QUANTIFY AND THE GEO_DICT PLATFORM

Does GeoDict Quantify include simulation?

No. GeoDict Quantify focuses on 3D image processing and quantitative image analysis. It does not include GeoDict's physics-based simulation modules for calculating and predicting material properties. Geometric descriptors, such as geodesic tortuosity do not constitute physics-based simulation and should not be confused with effective transport properties calculated numerically.

What is the difference between GeoDict Quantify and a regular GeoDict license?

GeoDict Quantify is a fixed package of GeoDict modules for 3D image processing and quantitative analysis, offered through selected OEM partners. A regular GeoDict license can provide the same core image-analysis functionality while offering greater flexibility to add modules for digital material generation and physics-based simulation.

Can GeoDict Quantify be upgraded later?

Yes. If requirements expand beyond image analysis, GeoDict Quantify can be replaced by a suitable regular GeoDict configuration. Math2Market or the relevant sales partner can recommend an upgrade path based on the intended applications.

Will existing workflows remain useful after an upgrade?

Yes. GeoDict Quantify is part of the wider GeoDict environment. Existing image data, segmentation approaches, analysis experience, and established workflows support the transition to a regular GeoDict configuration.

PURCHASING AND EVALUATION

How can GeoDict Quantify be purchased?

GeoDict Quantify is currently available through selected micro-CT and FIB-SEM OEM partners, typically together with a new imaging system. Customers planning an instrument purchase should ask their sales representative whether GeoDict Quantify can be included.

Can I purchase it if I already own an instrument?

Existing instrument users can contact Math2Market. The same image-processing and analysis functionality can be supplied as a regular GeoDict configuration, which may also provide greater flexibility for future expansion. Math2Market can arrange a demonstration with representative data and recommend the most suitable option for the application, instrument, location, and future needs.

Is GeoDict Quantify suitable only for materials research?

No. It supports scientific and industrial work in materials research, quality assurance, non-destructive inspection, defect and failure analysis, root-cause investigation, additive-manufacturing quality control, porous materials characterization, composites and fibers analysis, grain, particle, and powder analysis, battery material characterization, geological materials, biomedical and biological microstructure characterization, reverse engineering and digital post-processing.

How can I evaluate GeoDict Quantify?

A trial license is available on request. When applying for a GeoDict trial, specify that you would like to evaluate GEODICT QUANTIFY. Math2Market or a participating OEM partner can also arrange a demonstration using representative data.

Request a trial license: [GeoDict trial license](#)