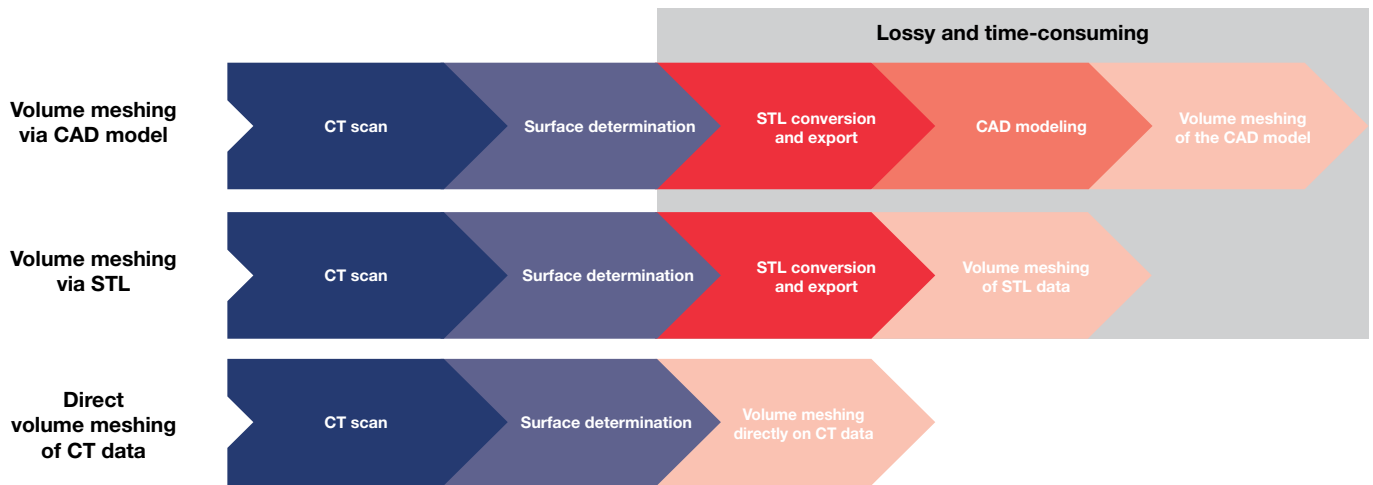


Volume Meshing with VGSTUDIO MAX

Create Volume Meshes with Virtually No Loss of Time or Quality

Volume Graphics Streamlines Your Workflow for Volume Meshing Real-World Data



Volume Graphics software allows you to create tetrahedral volume meshes of your parts directly from the voxel data of a CT scan at the push of a button with virtually no loss of time or quality. The Volume Meshing Module for VGSTUDIO MAX can save you up to 80% of the calculation time compared to the traditional method of STL conversion with subsequent optional CAD modeling.

The trend towards working with highly optimized and more complex component geometries has led to an increasing interest in simulating the effects of manufacturing tolerances on part performance. This requires the volume meshing of prototypes.

Since pre-series components are being increasingly scanned using computed tomography (CT), voxel models are available in most cases. There are two ways to generate volume meshes from these models:

A widely used approach is performing an intermediate step via STL conversion with subsequent modeling in a CAD system (as a preliminary stage for volume mesh generation), if necessary. However, this method has two disadvantages:

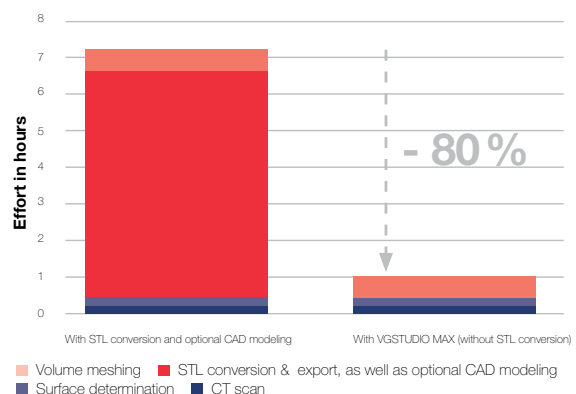
1. The STL conversion reduces the data quality.
2. CAD modeling consumes an enormous amount of time because it involves a great deal of manual effort.

VGSTUDIO MAX, a CT analysis software, provides a more elegant and cost-efficient approach with its Volume Meshing Module, which was developed specifically to prepare CT data for use in third-party simulation software. The module generates volume meshes directly from CT scans, thus using the original voxel data as a basis. This eliminates lossy and time-consuming intermediate steps.

Benefits of volume meshing with VGSTUDIO MAX:

- > Sharp reduction in calculation time by meshing the volume directly on CT data.
- > High data and mesh quality, no losses due to STL/CAD conversions.
- > Accurate and efficient meshing of sharp edges and small details, reproducing the part geometry with the smallest possible number of tetrahedral elements.
- > Various different export formats such as .bdf (Nastran), .pat (Patran), or .inp (Abaqus) for use with common FEM solvers.
- > In detail: For single-component parts, as much as one workday might be required just for CAD modeling and subsequent meshing. For multi-component parts, the same effort is required for each single component, so the time required can multiply accordingly. With the volume meshing module for VGSTUDIO MAX, you only need a few minutes for meshing the voxel data, regardless of the number of components how many components a part consists of. This can save up to 80% of the time required for the workflow.

The volume meshing workflow streamlined using Volume Graphics can reduce the time required by up to 80%*



*based on model calculations; actual efficiency gains are highly individual and may vary from case to case



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