



ScanIP Technical Datasheet

ScanIP offers an intuitive and interactive environment to assist the user in segmenting 3D data into masks, ready for surface and volume meshing.

Import formats

- » DICOM (Version 3.0 and 2D Stacks)
 - » ACR-NEMA (Versions 1 and 2)
 - » Interfile
 - » Analyze
 - » Meta-Image
 - » Raw Image Data
- » 2D Image Stacks:
 - › BMP
 - › GIF
 - › TIFF
 - › JPEG
 - › PCX
 - › PNG
 - › PNM
 - › TIFF
 - › XPM

Export formats

- » Segmented image:
 - › RAW image
 - » Surface model:
 - › STL
 - › IGES
 - › ACIS (SAT)
 - › ANSYS Surface
 - › ABAQUS Surface
 - › OPEN INVENTOR
 - › POINT CLOUD
- » 3D screenshot:
 - › JPEG
 - › PNG
 - › VRML
 - › EPS
 - › BMP
 - › PNM
 - › PDF

General User Interface

- » User defined interface: dockable tool boxes, range of 2D/3D view options
- » Undo/Redo operation support
- » Independent part visibility control in 2D and 3D
- » Ability to import multiple image sets into the workspace to aid segmentation
- » Histogram and Profile Line utilities assist in finding optimal threshold values
- » Automatic logging and timestamp of filters and tools applied since the creation of a project

2D User Interface

- » 3x 2D views
- » Ability to work on single slice, selection of slices or whole volume
- » Markers to identify the position of 2D slices
- » Mask transparency

3D User Interface

- » Interactive cropping using 3D view
- » Clipping box: unconstrained, interactive sectioning of 3D rendering
- » Fast 3D preview mode for rapid visualisation of segmentation
- » Mask transparency
- » 3D stereoscopic visualisation with selected hardware
- » Wireframe mode
- » Vertex lines superimposed over surfaces mode
- » Lighting and 3D rendering adjustments
- » Background gradient adjustments

Measurement tools

- » 3D distances
- » 2D distances
- » Centre of mass
- » Profile line
- » Histogram
- » Number of pixels
- » Volumes
- » Face area
- » Mean greyscale
- » Standard deviation greyscale
- » Region centre
- » Moment of inertia

Image Processing Tools

- » Data Processing:
 - › Crop
 - › Pad
 - › Rescale
 - › Shrinkwrap
 - › Resampling/Reslice
 - › Flip
 - › Shear
 - › Align
- » Basic Filters (most commonly used):
 - › Smoothing Recursive Gaussian
 - › Noise filtering Bi-lateral Gradient Filter
 - › Mean Filter
 - › Median Filter
 - › Binarisation Filter
 - › Cavity Fill
 - › Island Removal Filter

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- » Advanced Filters (more specialist applications):
 - › Gradient Magnitude Filter
 - › Anisotropic Diffusion
 - › Curvature Anisotropic Diffusion
 - › Curvature Flow
 - › Discrete Gaussian Filter
 - › Min/Max Curvature Flow
 - › Skeletonisation
 - › Metal Artefact Reduction
 - » Morphological Filters (can be applied to both images and masks):
 - › Erode
 - › Dilate
 - › Open
 - › Close
 - » Level Set Methods: allow segmentation based on implicit surfaces. Contour specific features can therefore be controlled during the region growing/surface adjusting process.
 - » Lattice Factory: allows masks to be filled with a user defined internal structure.
- Other**
- » Seamless integration with Simpleware's +CAD module for interactive CAD/STL object integration and positioning.
 - » Segmentation Tools:
 - › Paint/Unpaint
 - › Paint with Threshold
 - › Confidence Connect Region Growing
 - › Floodfill
 - › Thresholding
 - › Automated generation of masks for pre-segmented images
 - » Boolean Operations (applied to/between masks):
 - › Union
 - › Intersect
 - › Subtract
 - › Invert
 - » Overlap Check: display/generate mask to check overlap volume in active masks.
 - » Topology and volume preserving smoothing
 - » Aggressive smoothing
 - » Decimation
 - » Multipart surface creation
 - » Surface element quality control (for volume meshing in third party software)
 - » So-called 'sub-pixel accuracy' through the use of partial volume effects data
 - » Seamless integration with Simpleware's +FE module for direct volume element generation suitable for FE and CFD simulations.

Visit our website to download a fully functional 30-day free trial. Trial versions are fully supported by our technical team.



www.simpleware.com

About Simpleware Ltd.

Simpleware develops world-leading software solutions for the conversion of 3D image data into high-quality CAD, Rapid Prototype, CFD and Finite Element models. Simpleware customers range from international blue chip corporations to research institutes and universities world-wide.