

# Simpleware ScanIP Medical

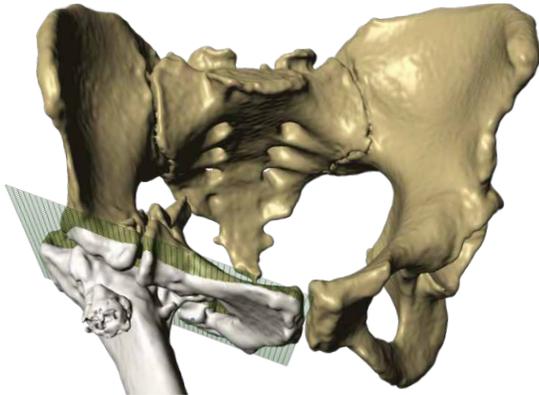
Software Solutions for Clinical Applications



FDA 510(k) cleared  
CE marked  
ISO 13485:2016 certified

# Software Solutions for Clinical Applications

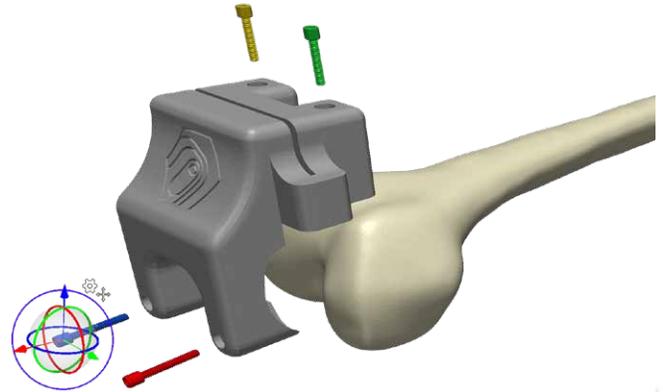
## Patient-Specific Pre-Surgical Planning



### Improve Informed Clinical Decision-Making

- Generate models from 3D image data to visualize treatment options
- Landmark and perform measurements on anatomical data to assess surgical strategies
- Export models for simulating clinical procedures

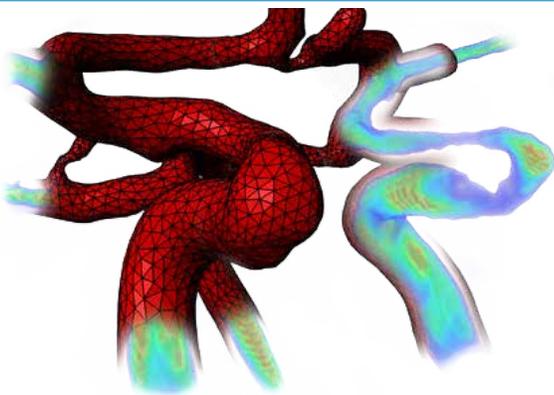
## Patient-Specific Design



### Accelerate New Product Development

- Import, position and integrate CAD devices into patient image data
- Reverse engineer and analyze patient-specific device designs
- Generate simulation-ready models for evaluating device performance
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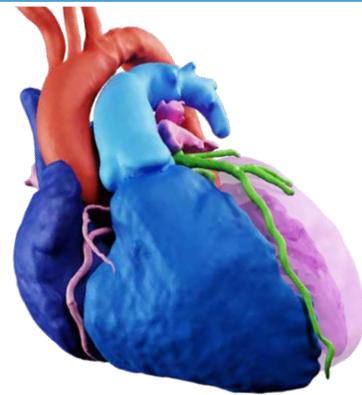
## *In Silico* Clinical Trials



### Increase Confidence in Your Solution

- Explore post-op outcomes or implant positioning or device performance
- Fast and accurate image processing environment for creating computational models
- Streamline repeatable workflows with scripting, automation, or customization

## Point-of-Care 3D Printing



### Anatomical 3D Printing for Better Patient Intervention Outcomes

- Print accurate, patient-specific anatomic models to practice and plan complex surgical procedures
- Prepare models using the dedicated 3D printing toolkit, and use analysis and inspection tools to get the perfect print first time
- Use 3D printed models for communication, training, and to inform diagnostic decisions

# 3D Image Data Processing for Pre-Clinical Workflows with Simpleware ScanIP Medical

## Intuitive and Powerful Software

### Tackle Clinical Imaging Challenges with Confidence

When working in a clinical setting, Simpleware ScanIP Medical is the ideal choice for those using 3D imaging to create medical devices for pre-clinical workflows such as implant design and patient-specific surgical planning.

- Improve understanding of individual patient anatomies by combining different image modalities (MRI, CT, X-ray...) to design unique medical devices
- Obtain reliable data for complex anatomical analysis using measurement and statistics tools
- Achieve ideal surgical outcomes based on insights from imaging data, by building and exporting geometrically accurate models for pre-surgical planning
- Take advantage of exclusive features designed specifically for clinical applications based on feedback from our users and market needs
- Compliant with privacy standards for handling patient data
- Streamline software resources with a complete medical image processing platform for your R&D workstation, radiology department, or other clinical work environments

## FDA, CE, and ISO Certified

### Exceptional Software with Regulatory Compliance

Simpleware ScanIP Medical comes with FDA 510(k) clearance, CE marking and ISO 13485:2016 certification as a medical device. Use Simpleware ScanIP Medical to import clinical MRI and CT scans over PACS and other systems for all your image processing requirements.

- Ideal for 3D printing labs, radiology departments, and medical device R&D teams
- Speed up compliance processes by integrating certified software into your workflows
- Accelerate time-to-market for new devices and patient-specific solutions

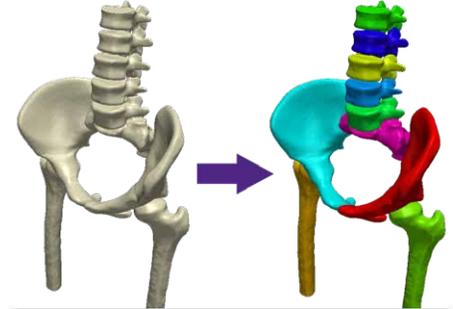
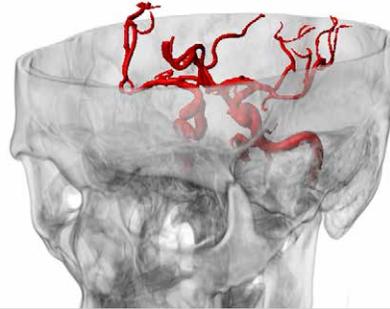
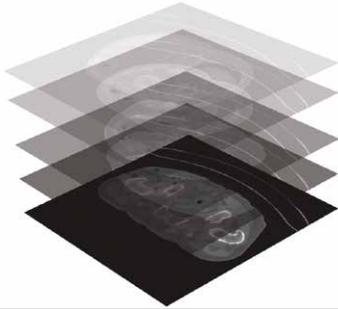
## Complete Medical Image Processing Toolkit

### Explore Patient Anatomies to Optimize Outcomes

Simpleware ScanIP Medical enables extensive processing of patient-specific medical imaging, from visualization and segmentation of anatomies, to straightforward and advanced measurement and statistics options. Ideal for working with even the most complex clinical scans, Simpleware ScanIP Medical provides accurate, repeatable results.

- Easy-to-use unified interface developed with medical professionals
- Presets and semi-automated tools available to speed up segmentation time
- Comprehensive tutorials, integrated help and expert technical support

# From Image Processing through to Model Generation



## Import & Registration

### Modalities

- MRI
- CT
- Micro-CT
- Ultrasound
- Confocal microscopy
- 2D X-ray images

### Formats

- 3D & 4D DICOM
- 2D image stacks (BMP, JPEG, TIFF...)
- Raw image data (RAW, VOL...)

### Options

- Co-registration of multiple 2D and/or 3D datasets
- Store and manage DICOM tags
- Anonymization
- Compatible with PACS

## Visualization

### Volume rendering

- GPU rendered
- Combine with surface/mask/mesh renderings

### Object visualization

- 3D live mode for instant updates
- Range of 2D and 3D visualization options
- Overlay surface contours in 2D
- Interactive image reslicing with multiplanar reconstruction mode

### Animations

- Rotate, clip and fly-through
- 4D cine modes

### Exports

- Generate and share 3D PDFs
- Generate virtual X-rays
- DICOM, screenshots & videos

## Image Processing

### Image and mask filters

- Noise reduction
- Smoothing/morphological filters
- Align, rescale and resample
- Robust Boolean operations

### Segmentation

- Threshold, floodfill and painting
- Interactive 3D editing tools
- Advanced region-growing tool
- Contour-based magnetic lasso
- Tools for handling poor contrast, artefacts and low quality data
- 3D wrap tool for scaffold-based segmentation
- Split tool to separate parts automatically
- Greyscale-based slide-to-slice propagation and interpolation
- Local surface correction to compensate for artefacts

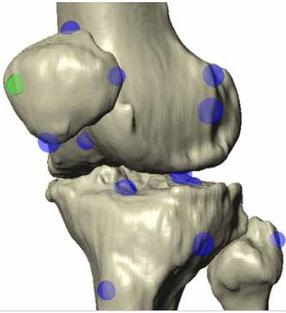
## Have Confidence in your Product Designs

Simpleware software is ideal for testing different design iterations involving medical and consumer products and the human body. Achieve reliable results every time with straightforward image processing, measurements, and export of robust STL and NURBS CAD files. Generate guaranteed high-quality FE meshes to evaluate biomechanical performance under real-world conditions.

## Customize your Workflow with Scripting

All functionality within Simpleware products is accessible from a fully documented API with bindings available for Python, C# and Java. Use this API to automate repeatable workflows, build wizards and integrate custom plugins. By using our macro recording functionality, you can generate code without needing any prior experience.

# From Image Processing through to Model Generation



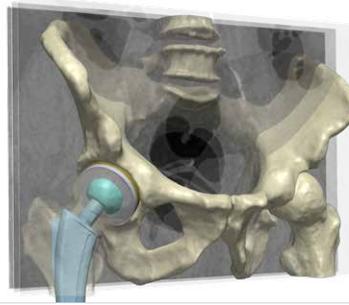
## Measurements & Statistics

### Interactive tools

- Simple quick statistics and measurements
- Generate and probe centerlines networks
- 2D & 3D shape fitting and statistics
- Wall thickness analysis

### Statistics framework

- Thoroughly interrogate image data, generated models, or centerlines
- Extensive range of metrics
- Highly flexible for creating custom statistics templates
- Generate PDF reports describing your data



## Accurate Models for Design & 3D Printing

### 3D design and image integration

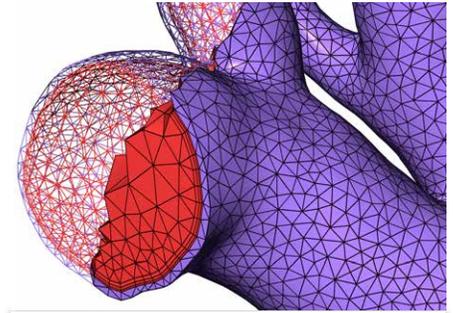
- Fast and easy-to-use tools to combine design and image data
- Import design files (STL, IGES, STEP...)
- Automatic snap or landmark-based registration

### 3D printing toolkit

- Prepare models using dedicated tools to cut, hollow, emboss...
- Check models before export
- Multiple export formats designed for 3D printing

### Models for design

- Automatic NURBS patch fitting
- Highly accurate conversion for further design work or simulation
- Export as STEP or IGES



## Simulation-Ready Models

- Conforming multi-part volume meshes
- Feature-based and user-defined mesh refinement
- Per-part meshing controls
- Define contacts and node sets
- Hounsfield material mapping for FE exports
- Boundary layer meshing
- Dedicated native exports for all major solvers
- Optimize element qualities against a choice of metrics
- Import existing meshes and assign material properties
- Segmentation checker to identify and fix problematic regions before meshing
- Mesh quality histogram to inspect generated mesh

## Integrate Image and Design Data

Unique capabilities allow you to combine computer-aided design (CAD) models within 3D image data to capture realistic anatomical details whilst accurately maintaining the design features of the CAD data. Avoid the difficulties associated with combining multiple sources of data in different formats by working directly with powerful image and CAD tools within the Simpleware software environment.

## From Image to Mesh

Simpleware software offers a direct route from image data to simulation. Generated meshes are ready to use in the FE/CFD solver of your choice, with extensive options for tailoring your models to different simulation requirements. Rely on software that generates simulation-ready models, with no need for post-processing or fixing. Export directly to all major solver formats.



## State-of-the Art Technology

Our industry-leading 3D image processing platform leverages patented technology and enables comprehensive analysis of even the most complex anatomical scans. Increase confidence in clinical decision-making through reliable, repeatable software workflows.

## Expert Support and Customization

All licenses come with full support from our team of experts. Our engineers can help you develop your unique and customized workflows, ensuring your use of the software is as efficient as possible, and your final output matches your requirements. Learn how to get the most out of the software with one-to-one sessions, web meetings and tailor-made training courses.

## Ease-of-Use

Simpleware software is accessible to both beginners and more advanced users who need insights from medical image data. Streamline your software resources with a complete medical image processing platform for your R&D workstations, radiology departments, or other clinical environments.

## Try Simpleware Software

Try the software for yourself with a free evaluation version, available on our website. The trial is fully functional and gives you access to the complete Simpleware software suite, full range of tutorials and technical support.



## Simpleware Software Solutions

The Simpleware product group at Synopsys develops an industry-leading 3D image processing platform for the visualization, quantification and conversion of 3D scan data (MRI, CT, micro-CT...) into high quality design, simulation and 3D printing models. Simpleware software is used in the Life Sciences, Clinical Applications, and Materials & Manufacturing. Easy-to-learn and use, the software offers a robust bridge between the latest imaging technologies and multiple design and simulation applications.

For more information, go to [www.synopsys.com/simpleware](http://www.synopsys.com/simpleware)

Email: [simpleware@synopsys.com](mailto:simpleware@synopsys.com)

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