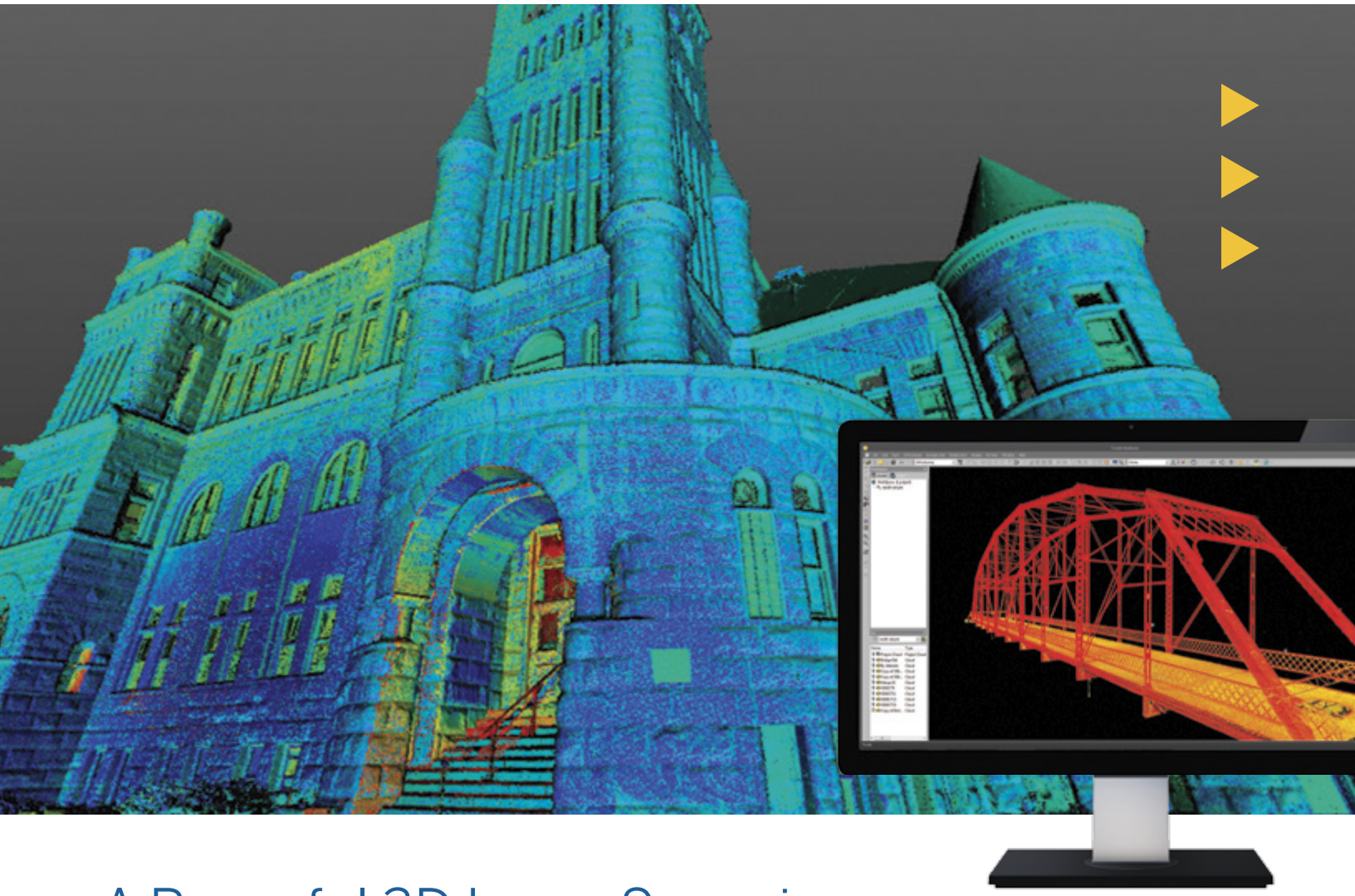
TECHNICAL NOTES

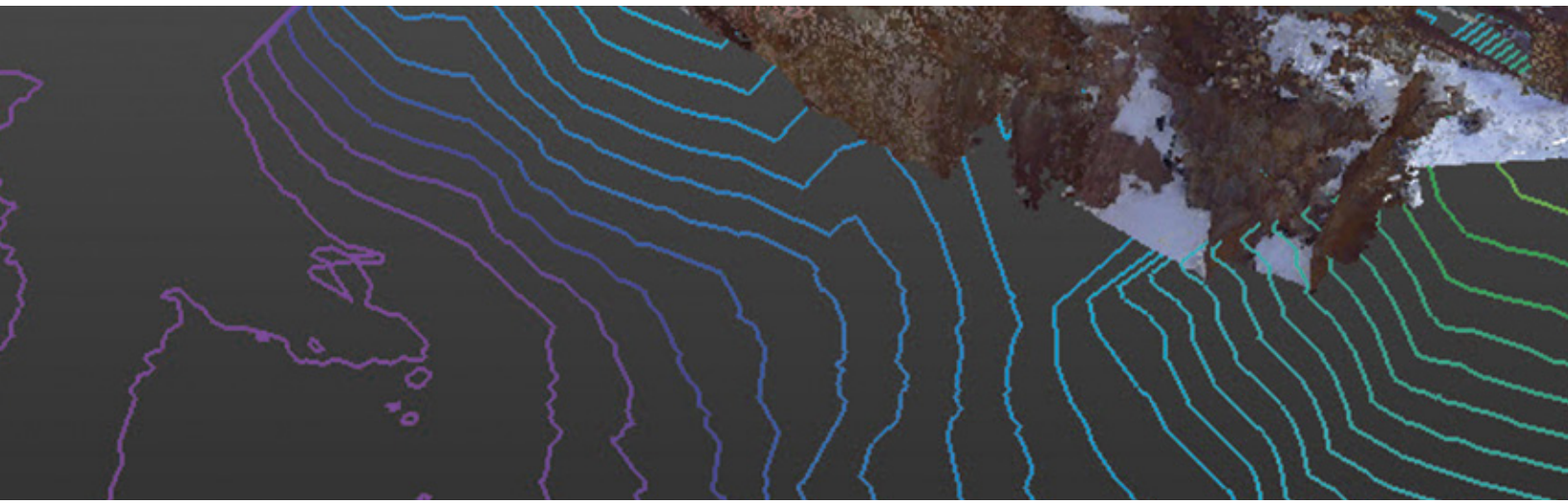
RealWorks Software



A Powerful 3D Laser Scanning Office Software Suite

Trimble RealWorks is a powerful office software that imports rich data from your 3D laser scanning instrument and transforms it into compelling 3D deliverables. As the desktop component of Trimble's suite of 3D scanning solutions, Trimble RealWorks provides you with the capability to efficiently manage, process, and analyze large data sets with confidence.

RealWorks Software



What's Inside Trimble RealWorks?

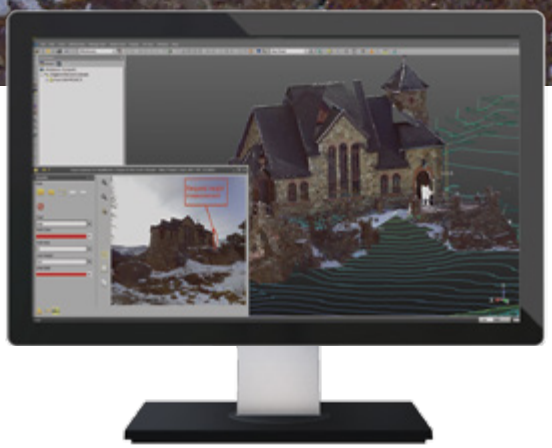
Trimble® RealWorks® software enables you to register, visualize, explore and manipulate as-built or scene point cloud data collected with virtually any laser scanner. Advanced, but very easy to use. While Trimble RealWorks is powerful enough to handle large datasets with ease, it is also very easy to use. The software guides you through sophisticated data management and manipulation tasks step-by-step to ensure you always reach your objectives and those of your customers.

RealWorks allows you to:

- Manage, process and analyze large datasets
- Perform smart measurement – semi-auto clearance, projected vertical and horizontal
- Communicate your results via video generation and Google Earth export (kml format)
- Perform automatic registration with or without targets
- Quickly check the quality of the targets
- Generate registration reports
- Easily export to the CAD design package of your choice
- Publish self-contained project packages for standalone viewing, exploration, measuring and annotating

Supported Workflows.

Trimble RealWorks supports a broad range of workflows so you can edit, process, and adjust data collected with your 3D laser scanning instruments with efficiency and confidence.



DATA IMPORT AND BASIC MANAGEMENT

Perform standard data management tasks such as importing and exporting common data formats.

- Additionally, Trimble RealWorks provides a strong set of standard tools which allows for data visualization and preparation for export into common CAD applications

DATA REGISTRATION / 3D POINT CLOUD

A broad range of registration tools within Trimble RealWorks allow you to quickly register projects and analyze the results.

- Auto-Extract Targets and Register: Automatically detect and create sphere and flat black and white targets then register
- Quickly analyze and edit targets using the Target Analyzer Tool

RealWorks Software

ADVANCED REGISTRATION

Scan the way you want. The advanced registration tools in Trimble RealWorks are easy to use providing you the confidence that registration will be accurate.

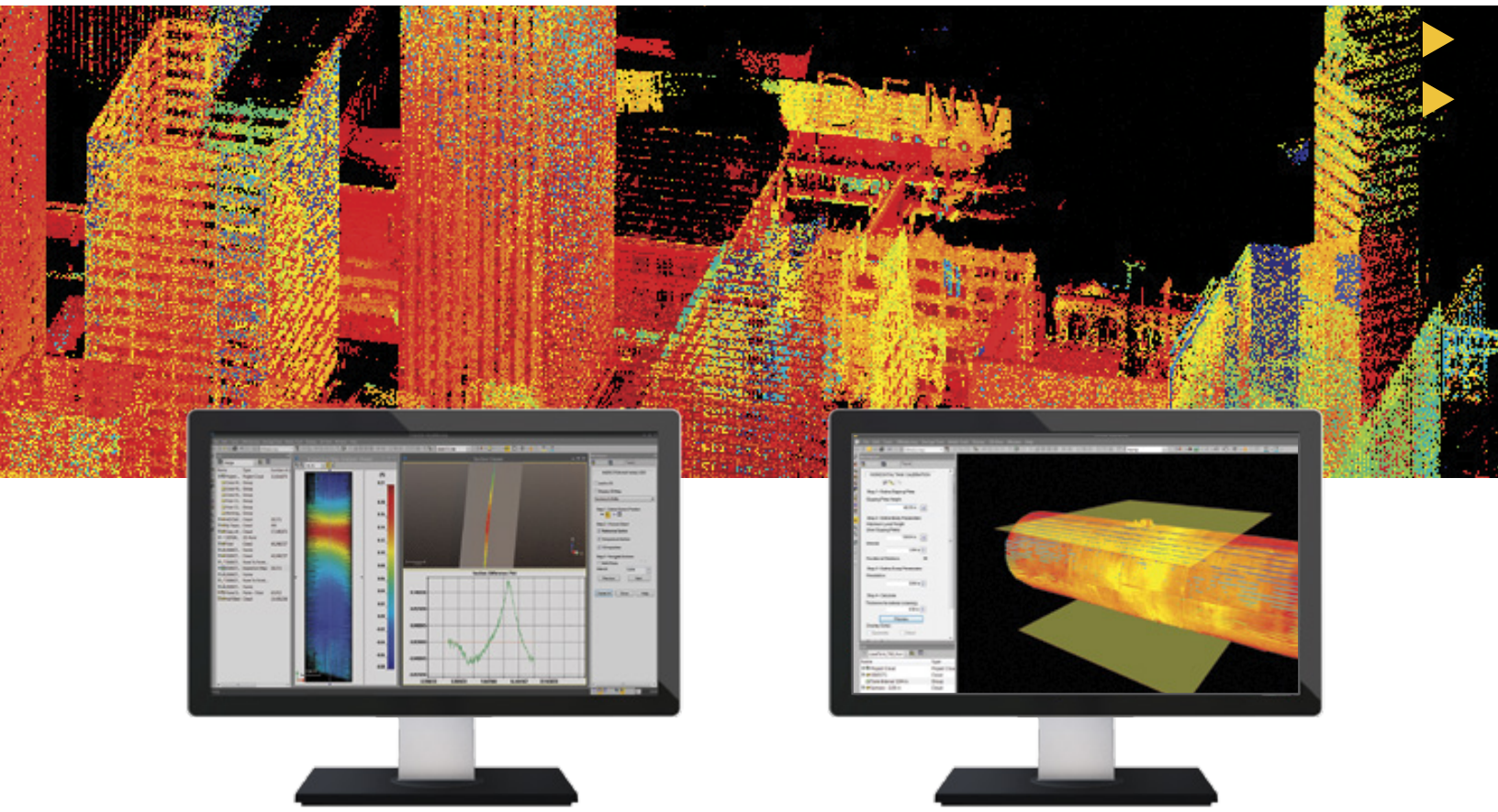
- Feature based target-less registration enables you to automatically register scans without having to place targets or manually pick common points
- Refine registration allows you to enhance the registration of a project by performing a best fit of the point cloud of the individual scans stations

2D AND 3D DELIVERABLES

Create many types of intermediate or final deliverables.

The broad range of basic 2D and 3D tools available in Trimble Realworks allow you to create:

- Cross sections
- Meshes
- Contours
- Volumes
- Line work
- Ortho-photos
- Models
- Floor flatness and levelness analysis



ADVANCED 3D DELIVERABLES AND INSPECTION

Compare as-built to design, pre-event to post-event, and more.

The advanced inspection tools in Trimble RealWorks are ideal for monitoring applications such as civil engineering (roads and bridges) and mining. The resulting deliverables provide richer, more detailed, and more helpful information for your clients.

- Inspect as-built data, comparing it to the actual design
- Generate and visualize inspection, detecting any variation
- Obtain 2D & 3D graphic visualizations of gaps and deformations for easy analysis
- Import profiles and geometric primitives from a CAD design file in .dxf or .dwg, and export graphic files in .dxf and .dgn.
- Share information by printing results directly using the RealWorks integrated print-out interface

ADVANCED-TANK EDITION

Highly Automated storage tank inspection and calibration.

The Advanced-Tank edition contains tools specific to the storage tank calibration and inspection industry. Using tools and work flows tailored to the industry, service providers can save valuable time creating volume filling tables and detailed inspection reports from point cloud data.

RealWorks Software

3D CAD MODEL GENERATION

Create 3D forms and geometries for rendering, computation, and other finite element usage.

The Trimble RealWorks Modeling module allows you to create partial or full models very quickly and is particularly suited to applications where modeled geometries enhance or complete the impact and scope of intermediate and final deliverables.

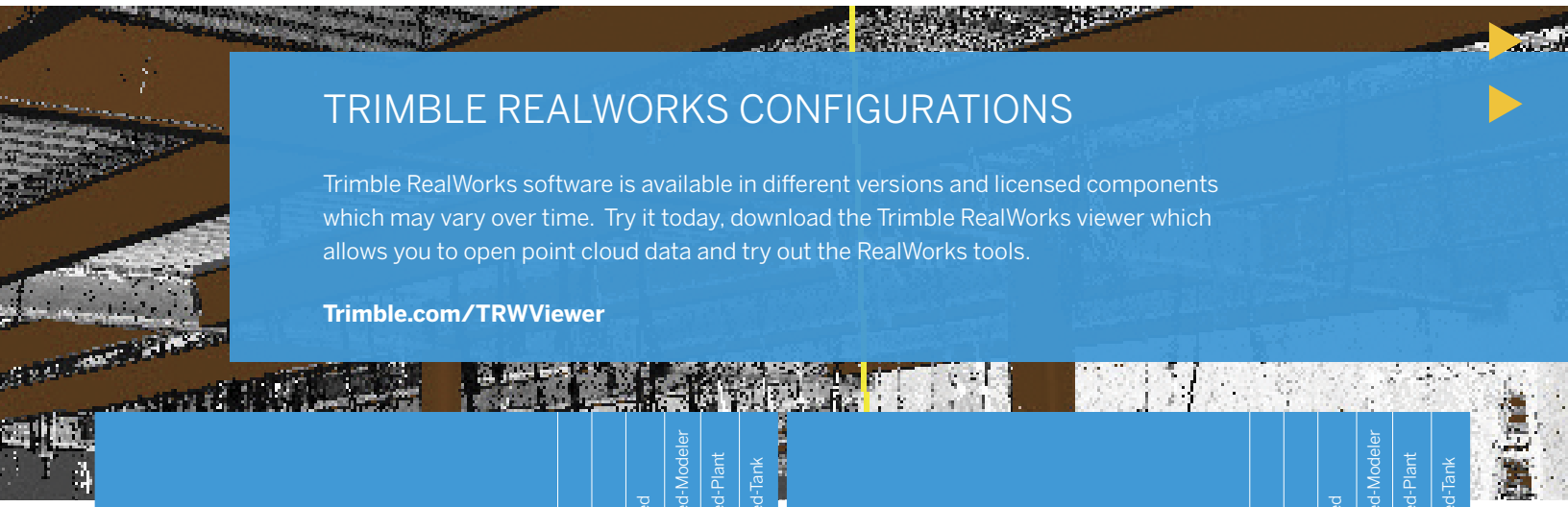
Trimble RealWorks can model diverse shapes to represent the as-built environment using simple CAD compliant geometrics

- Data modeling makes the transfer of data for analysis packages faster
- 3D models based on reality are the most efficient way to run simulations

COLLABORATE AND SHARE

Conveniently share data with customers in a customizable and professional format using publisher.

With Publisher, you can publish a project for viewing in Internet Explorer. The published project allows for viewing of the project in a 2.5D view with the ability to take measurements and add annotations. The publication can include media such as images and video, as well as links to documents and web sites. When creating the published project you can choose between enabling or disabling the ability for the recipient to extract data from the project.



TRIMBLE REALWORKS CONFIGURATIONS

Trimble RealWorks software is available in different versions and licensed components which may vary over time. Try it today, download the Trimble RealWorks viewer which allows you to open point cloud data and try out the RealWorks tools.

Trimble.com/TRWViewer

	Viewer	Base	Advanced	Advanced-Modeler	Advanced-Plant	Advanced-Tank
Data Import and Basic Management						
Imports / Exports of data		✓	✓	✓	✓	✓
Coordinate frame (UCS) creation tool		✓	✓	✓	✓	✓
Scan Explorer	✓	✓	✓	✓	✓	✓
Visualization tools (examination, etc)	✓	✓	✓	✓	✓	✓
Sampling		✓	✓	✓	✓	✓
Segmentation		✓	✓	✓	✓	✓
Measurement	✓	✓	✓	✓	✓	✓
Clipping box extraction tool		✓	✓	✓	✓	✓
RealColor (panoramic image matching tool)		✓	✓	✓	✓	✓
Data Registration/3D Point Cloud						
Registration incl. target extraction & analysis		✓	✓	✓	✓	✓
Bundle adjustment		✓	✓	✓	✓	✓
Orientation tool		✓	✓	✓	✓	✓
Geo-referencing		✓	✓	✓	✓	✓
Registration reporting and station visualization		✓	✓	✓	✓	✓
Registration Visual Check	✓	✓	✓	✓	✓	✓
Generate Registration Report	✓	✓	✓	✓	✓	✓
2D and 3D Deliverables						
Cutting plane	✓	✓	✓	✓	✓	✓
Feature coding		✓	✓	✓	✓	✓
Contouring		✓	✓	✓	✓	✓
2D Easy line		✓	✓	✓	✓	✓
Polyline drawing tool		✓	✓	✓	✓	✓
Basic geometry fitting tool		✓	✓	✓	✓	✓
Image Matching		✓	✓	✓	✓	✓
Key plan creation		✓	✓	✓	✓	✓
Image rectification tool		✓	✓	✓	✓	✓
Ortho projection tool		✓	✓	✓	✓	✓
Mesh Creation / Editing		✓	✓	✓	✓	✓
Volume calculation tool		✓	✓	✓	✓	✓
Media tools		✓	✓	✓	✓	✓

	Viewer	Base	Advanced	Advanced-Modeler	Advanced-Plant	Advanced-Tank
Advanced Registration						
Target-less registration			✓	✓	✓	✓
Auto-register using planes			✓	✓	✓	✓
Refine Registration using TZF scans		✓	✓	✓	✓	✓
Advanced 3D Deliverables and Inspection						
Profile / Cross section			✓	✓	✓	✓
Multi ortho projection			✓	✓	✓	✓
Easy Profile			✓	✓	✓	✓
Profile matcher tool			✓	✓	✓	✓
2D Inspection tool			✓	✓	✓	✓
Inspection map analyzer			✓	✓	✓	✓
Surface to model Inspection tool			✓	✓	✓	✓
Twin surface Inspection			✓	✓	✓	✓
3D Inspection tool			✓	✓	✓	✓
3D Inspection analyzer			✓	✓	✓	✓
Catenary drawing tool			✓	✓	✓	✓
Floor flatness and levelness			✓			
Vertical applications						
Vertical Storage Tank Calibration			✓	✓	✓	✓
Vertical Storage Tank Inspection						✓
Horizontal Storage Tank Calibration						✓
3D CAD Model Generation						
Modeling tools				✓	✓	✓
Easy Pipe				✓	✓	✓
Steel Beam Modeling				✓	✓	✓
Steel Catalog Modeling				✓	✓	✓
PDMS Export					✓	✓
Center lines export					✓	✓
SketchUp® Pro integration			✓	✓	✓	✓
Collaborate and Share						
Publisher			✓	✓	✓	✓

Trimble

SYSTEM REQUIREMENTS

Operating System

- Microsoft® Windows® 7, 8 or 10 – 64-bit
- **Processor:** minimum 2.8 Ghz (Quad-Core) or higher, (Intel quad core with Hyper-Threading support strongly recommended)
- **RAM:** minimum 8GB (16 GB and higher recommended)*
- **VGA card:** OpenGL 3.2 compatible with minimum 1GB VRAM (3GB or higher recommended)
- 3-button mouse

Other Requirements

- Solid State Drive (SSD) for maximum performance (pref. 256 GB) – strongly recommended.

SUPPORTED LANGUAGES

- Chinese Simplified
- German
- Russian (optional)
- English
- Italian
- Spanish
- Finnish
- Japanese
- French
- Korean

** The amount of available RAM will directly affect your ability to open all points of a large data-set in a reasonable amount of time. See the following suggested maximum point load limits acc. to available RAM:*
8 GB – 250 million
16 GB – 500 million
24 GB – 750 million
32 GB – 1 billion
64 GB – 2 billion
Note: larger amounts of data may take progressively longer to open.

LICENSING OPTIONS

No matter what you need, Trimble RealWorks software is available in a selection of formats ranging from a base edition, which includes registration and contouring functionalities, to a full function edition including all features.

- **Trimble RealWorks Base:** Perform typical data processing tasks like importing and exporting of common data formats, basic registration of scans, viewing and exploring, segmentation and sampling of point clouds, and production of basic 2D and 3D deliverables
- **Trimble RealWorks Advanced:** Leverage the powerful 2D/3D inspection tools as well as cross-section, ortho-projection and profiling features to produce compelling deliverables. Advanced registration features allow you greater scanning options in the field as well
- **Trimble RealWorks Advanced-Modeler:** The Modeler module, in addition to the Advanced features, provides a fast and intuitive 3D modeling capability. It is particularly suited to civil engineering surveys and industrial applications such as site refurbishments where modeled and textured structures enhance or complete the impact and scope of a surveyors' or engineers' final deliverable. Publisher is also available with this licensing option
- **Trimble RealWorks Viewer utility:** Provides visualization of RWP files. Available from trimble.com
- **Advanced-Tank:** Includes tools and work flows specific to the storage tank calibration and inspection industry

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