

# Trimble RealWorks



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**PUBLIC**

## Version 12.0 Release Notes

### Introduction

These release notes describe the features and enhancements that are new in version 12.0 of the Trimble® RealWorks® software. For further information, visit [www.trimble.com/support/](http://www.trimble.com/support/).

### System requirements

- Operating system: Microsoft® Windows® 8.1, 10 - 64 bit
- Processor: minimum 2.8 GHz (Quad-Core) or higher, (additional cores with Hyper-Threading support strongly recommended)
- RAM: minimum 16GB (32GB and higher recommended)
- Graphics card: OpenGL 3.3 compatible with minimum 1GB VRAM (3GB or higher and OpenGL4.4 recommended)
- 3-button mouse

### Other requirements

Solid State Drive (SSD) for maximum performance (pref. 500GB) - strongly recommended.

### Upgrade procedure

Install the software from this location (**Internet connection required during installation and license or subscription verifications**): [Support and Downloads](#)

<http://geospatial.trimble.com>

# New features and enhancements

## Modeling and Surfaces

Description	New or Enhanced	Feature Overview	Benefit/Comments
Pipe creation tool	New	The Model>Piping>Create Pipe tool lets you create full pipe runs with elbows, tee junctions and reducers, from scratch or by connecting pipes from the Auto-Extract Cylinders' command. Pick points on the point cloud to define the sequence of straight elements. The tool creates the full pipe by connecting the straight elements with elbows. The created entities are stored into a pipe group. Elbow angles can be constrained to snap to the closest common angles. The tool can also be used to edit, split or merge existing pipe groups.	Productivity. Easily finalize pipe work when combined with the 'Auto-Extract Cylinders' feature, or quickly create individual pipe runs out of any point cloud.
Convert geometries to pipe group	New	The Model>Piping>Convert Geometries to Pipe Group command converts imported pipes or pipes previously created in the software. This command converts a sequence of cylinder/torus/cone geometries to the new pipe group. Once a pipe group has been created you can then use the new pipe editing tools.	Interoperability: Make older geometries compatible with new modeling tools.
IFC export	Enh	The export of pipe groups to Industry Foundation Classes (IFC) format has been implemented so that elbows are stored as IFCREVOLVEDAREASOLID. Elbows and reducers are mapped to IFCFLOWFITTING entities, while pipe segments are mapped to IFCFLOWSEGMENT entities. All the other geometries are exported as IFCBUILDINGELEMENTPROXY.	Productivity. Export pipe runs directly into your favorite BIM software package with IFC support.

Auto-Extract cylinders	Enh	The 'Auto-Extract Cylinders' command can now generate the new pipe group objects, which can be further edited in the Create Pipe tool. In addition, we have improved the precision of the geometries extracted.	Improved modeling efficiency.
Add Triangles	Enh	Surfaces>Mesh Editing>Add Triangles lets you fill holes or redraw existing triangles by manually adding new line segments.	Enhanced editing capability.

## Imaging

Description	New or Enhanced	Feature Overview	Benefit/Comments
Convert to ortho image	New	Imaging>Ortho-Image>Convert to Ortho-Image tool allows you to position and scale an imported image in the 3D environment.	Interoperability. Workflow. Imported images can be of various types: building floor plan, aerial photograph, sketch, etc.
Ortho-Image transparency	New	New capability to adjust the transparency of Ortho-Images displayed in the 3D view. This way, point cloud data and ortho-images can be viewed more easily.	Improved flexibility for Ortho-Images visualization.

## Feature Extraction and Segmentation

Description	New or Enhanced	Feature Overview	Benefit/Comments
Auto-Segment moving objects	New	Edit>Cloud>Auto-Segment (TZF Based) automatically detects moving objects like cars or people in the point cloud and segments them.	Productivity: Save time with an automated process that improves data cleanliness and scene understanding.
Auto-Segment steel beams	Enh	Edit>Cloud>Auto-Segment Steel Beams is now more efficient and accurate in segmenting steel beams from the point cloud.	Productivity: Save time with an automated process that improves data cleanliness and scene understanding.
Create clouds per scan	Enh	In Sampling>Scan-Based Sampling, the 'Split per Scan' option lets you create a list of clouds, one per each scan in the project.	Quickly create individual stations for visualization and editing in the production mode.

## Inspection and Comparison

Description	New or Enhanced	Feature Overview	Benefit/Comments
Annotate 3D inspection point cloud	New	Picking on a 3D inspection cloud when creating annotation points (in Home>Annotation>Annotate) now creates an annotation point with an additional 'Inspection Distance' field, that stores the distance computed in the 3D inspection cloud at this specific point.	Improved annotation workflow and visualization.
Inspection map empty pixels	New	The color of empty pixels in the map can now be changed (black or white) in the preferences.	Improved visualization of inspection maps.

## Visualization and UI

Description	New or Enhanced	Feature Overview	Benefit/Comments
UI with dark/light themes	Enh	Support>Switch Theme to switch RealWorks between a light or dark themed user interface.	Enhanced user experience: Improves low light confort when using RealWorks.
Start page	Enh	Fully redesigned start and welcome screen.	Enhanced user experience: Quickly access recent projects, tutorials, updates, support and more.
Improved 2D labels	Enh	Improved support of Asian languages, better performance, transparency options and dark/light themes.	Enhanced visualization: 2D labels are more inclusive and easier to read.
Fly to navigation	New	Use shift + left mouse button click to move to an area of interest when using Walkthrough or Examiner mode.	Enhanced navigation: Greater efficiency and better scene understanding.
Point cloud transparency	New	Visualizing point clouds and modeled geometries at the same time can be challenging, because dense point clouds often block the view of the geometries completely. To help with this issue, a new point cloud transparency mode has been introduced. By clicking the Cloud Transparency button, the amount of transparency can be customized to your needs, between fully transparent to opaque. The transparency only applies when close to geometries.	Enhanced visualization. Usability. Productivity.

**Note:** Please note that RealWorks 12 projects containing annotations or pipe groups are not compatible with earlier versions of RealWorks.

## Resolved issues

**JXL Import:** now supporting path names with non-ASCII characters

**JXL Import from Trimble SX12 :** fixed incorrect scan colorization

**LAS Export:** fixed crash when using layer 64 or higher with LAS 1.4

**IFC Import:** fixed crash with some meshes

**IFC export:** improved export - geometries were exported as ifcBeam

**Auto-Segment Steel Beams:** improved estimation of the available VRAM

**Segmentation:** corrected issue - Create button <p> would sometimes not function with very few points

**Sampling:** user can now change the point cloud loading within the tool (useful for spatial sampling or intensity-based)

**Sampling:** a wrong number of points was displayed when cloud had more than 2 billion points

**Limit Box TZF Extraction:** Fixed some cases of missing scans

**Vertical Clearance Measurement :** algorithm made more robust

**Cloud-based registration:** improved behavior of rotation manipulators

**Cloud-based registration:** fixed crash when using Registration Visual Check with active manipulators

**Registration:** fixed Cancel behavior in Refine 'Registration using Scans' and 'Auto-Extract Planes and Register':

**Georeferencing:** fixed issue with annotations - some of them were not modified

**Cloud-based Modeler:** fixed UI issue with 'make secant' and 'use given angle'

**Auto-Extract Cylinders:** the process can now be cancelled

**2D Easy Line:** fixed random crash

**Mesh Editing:** improved stability and quality when filling holes

**Mesh Editing:** fixed 'reduce mesh' issue on planar meshes

**Mesh Editing:** fixed UI issue when using a limit box - 'reduce' and 'fill holes' were disabled

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**3D display:** improved rendering of 'Enhanced Ambient Shading' in parallel projection

**3D Display:** fixed some loading issues with multiple point clouds

**3D Inspection:** fixed some rendering issues on integrated Intel graphics cards

**Image Matching:** Improved transparency slider to make it more visible

**Print:** improved behavior related to ratio of 3D View

## Legal Notices

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## Release notice

This is the November 2021 release of the Release Notes. It applies to version 12.0 of the Trimble® RealWorks® software.

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