POWER, PROCESS & PLANT

INTRODUCTION

Trimble® RealWorks® software enables you to visualize, explore, manipulate and register as-built or scene data collected with Trimble Spatial Imaging and Industrial Environment instruments. Now, with the addition of a powerful office software registration module, rich data acquired with industrial environment instruments, such as the Trimble CX™ and FX™ scanners, can be efficiently registered.

Powerful tools are available in the Trimble RealWorks software to process and analyze large data files containing millions of points, enabling you to realize accurate registration that will impress your clients. This software can also be used with data acquired with spatial imaging instruments such as the Trimble GX™ 3D scanner and Trimble VX™ Spatial Station.

ADVANCED AND EASY TO USE; TRIMBLE REALWORKS SOFTWARE CAPABILITIES INCLUDE:

- Manage, process and analyze large datasets
- Effectively manage large data sets by using partial loading techniques
- Perform smart measurement – semi-auto clearance, projected vertical and horizontal
- Easily extract targets from scanned data
- Perform fully automatic registration
- Quickly check the quality of the targets
- Generate registration reports
- Efficiently integrate data from Trimble GNSS, Optical, and Spatial Imaging for plant lifecycle management
- Seamlessly interface with other Trimble software such as Trimble RealWorks and LASERGen™

While the Trimble RealWorks software is powerful enough to handle large datasets with ease, at the same time it is 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.

REGISTRATION – ALIGNMENT

Using Trimble RealWorks' registration tools, you can seamlessly integrate the data acquired from different stations. Scans can easily be registered together using one of several methods: cloud-based, target-based or geo-referencing.

To further increase productivity, registration of Trimble CX and FX datasets can be achieved in unattended full auto mode. "Checker" flat targets, as well as spherical targets, are auto-detected and automatically matched after extraction. Stations are then registered in batch mode.

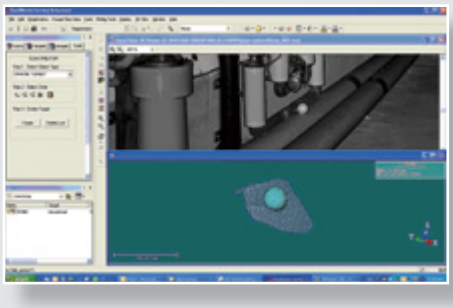
For registration via the geo-referencing tool, you can assign known coordinates to various points in all scans to be registered. For example, the points can be target centers, known points, or survey points from other instruments.

For cloud-based registration, pick the same points in two different scans with the option of automatically refining the registration in a second stage.

In target-based registration (when appropriate) you can benefit from fully automatic station-to-station registration with quality control reporting. Target-based registration applies to traverse/station setup and free stationing/resection, as well as un-leveled stationing.

If you used Trimble Spatial Imaging instruments with a traversing method to capture the data, the alignment is performed automatically.

For quality assurance purposes, the Target Analyzer tool can be used to check if there are enough targets or survey points, to modify or delete those that are incorrectly fitted, and to create additional targets in the point cloud where such a target is identified visually as it is scanned.



Sphere extraction from the Trimble FX scanner data in the Trimble RealWorks software

For results reporting, use the Entity-Based Registration Report tool to generate a full quality control report in .rtf format.

The collection of data for plant lifecycle management (PLM) requires the integration of many positioning technologies. The efficient integration of these technologies into compelling solutions is a key component of the Trimble Connected Plant.

Gathering the data is the first step. Managing it within powerful software related specifically to PLM is next. This analyzing of true 3D data provides the accurate reference necessary to visualize and make decisions with up to date data.

Through the Trimble Connected Plant, complex data can be efficiently collected, managed and analyzed; helping your plant to be managed properly and profitably.

TRIMBLE FX DATA MANAGEMENT

Using Trimble RealWorks' registration tools, you can easily manage the Trimble CX and FX photorealistic data. You can select the data you want to load by drawing a fence over the data. It is very simple to create flat targets and spherical targets by using the same fence technique.

Only a small percentage of the points in a data set needs to be loaded in order to carry out registration. In addition, you can extract specific parts of the point cloud (by station, by zone) and use filters to extract pertinent data. Excess points are rejected and kept points present homogenous spatial resolution. Therefore huge datasets can be registered much more productively with a streamlined process. And processin g of data in batch mode means that computers can run for extended periods without human interaction.

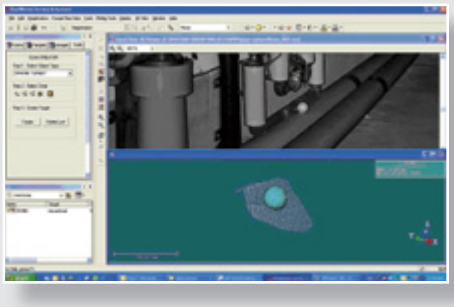
When registered, the data can be converted into the LASERGen .bsf format. The conversion can be performed offline directly from the raw TZS data without any need to transfer the data through the Trimble RealWorks database. Again, the process remains fast and fluid.

ADVANCED INSPECTION TOOLS

Compare as-built to design, pre-event to post-event, and more. The advanced inspection tools in Trimble RealWorks allow you to produce deliverables that are richer, more detailed, and more helpful for your clients.

USE THE TRIMBLE REALWORKS TOOLS TO:

- Inspect as-built data, comparing it to the actual design.
- Generate and visualize inspection, detecting any variation.
- Obtain 2D and 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 Trimble RealWorks integrated print-out interface.

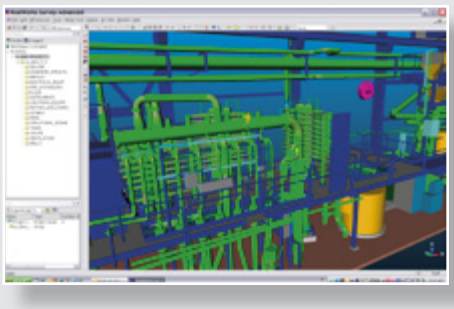


Planar target extraction form the Trimble FX scanner data in the Trimble RealWorks software

PLANT ENGINEERING

Trimble RealWorks now includes a Plant module that brings the benefits of streamlined workflow to the world of engineering. This module already includes the Modeling tools and provides in addition:

- The EasyPipe™ tool allows automatic modeling of pipes by extracting points and fitting cylinders and elbows. Models are perfectly aligned and connected.
- Interactive steelworks tools that allow highly intuitive modeling of various beam types (H, I, U, T L). In addition, constraints can be applied based on pre-defined catalogs.
- Export of modeled objects to PDMS for integration to AVEVA and other software solutions.
- Export of pipe centerlines



3D plant modeling in the Trimble RealWorks software environment

- **VISUALIZE EXISTING CONDITIONS IN FULL 3D**
- **MANAGE PLANT FACILITIES THROUGHOUT THE LIFECYCLE**
- **MAKE DECISIONS BASED ON UP-TO-DATE DATA**

MODELING TOOLS

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

Trimble RealWorks enables 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 final deliverables.

EASILY PRODUCE THE RESULTS YOU NEED WITH THE EASY GUIDED STEP SYSTEM

The Easy Guided Step™ system will bring you the results you need from your data sets. This Trimble-exclusive workflow is based on a step-by-step approach for each stage of the process.

When you begin a task on a data set, you first select what information you would like to extract. Then, the Easy Guided Step system displays the results, prompting you to adjust parameters if necessary.

You can then preview the results before saving them. The Easy Guided Step system will virtually guarantee that your customers will get the results they need from the data set. The Easy Guided Step system is unique to the Trimble RealWorks software. Not only does it offer a convenient workflow; it also brings productivity in Spatial Imaging data management to an unsurpassed level.

IN-FIELD CHECKS AND QA

Compelling, graphic deliverables available on paper in minutes ... or for export to a CAD package.

DIRECT PRINT-OUTS, EXPORT TO CAD, TEXT AND SPREADSHEET REPORTS:

All graphic results are available for printing and exporting directly from Trimble RealWorks using the print-out interface, including legend, title, map scale and inset. Results are also exportable to major CAD packages, such as AutoCAD and MicroStation. Written reports in text, Word and Excel formats can also be generated. Trimble RealWorks offers maximum flexibility in your reporting requirements.

Trimble RealWorks also includes powerful communication tools such as movie generation and Google Earth export, which enable you to be more productive when sharing information. You can also provide value-added services to the decision makers or project stakeholders.

Trimble RealWorks software is available in different versions and licensed components which may vary over time. To provide customers with advanced deliverables, to familiarize new users with the Trimble RealWorks suite of products, and/or to share the data from a 3D scanner or spatial station, a Viewer version of Trimble RealWorks is available.

SYSTEM REQUIREMENTS

- Intel® Pentium® 4 or later processor or compatible, 2 GHz (3 GHz or higher recommended)
- Microsoft Windows XP (Professional or Home Edition with SP1 or SP2) or Microsoft Vista
- 2 GB RAM (4 GB or higher recommended)
- 256 MB 3D Open GL graphics board
- CD-ROM drive
- 3-button mouse

NORTH AMERICA
Trimble Navigation Limited
Power, Process and Plant
10355 Westmoor Drive
Westminster, CO 80021
USA
+1-800-545-5972 Phone
+1-720-887-6101 Fax

EUROPE
Trimble Germany GmbH
Am Prime Parc 11
65479 Raunheim • GERMANY
+49-6142-2100-0 Phone
+49-6142-2100-550 Fax

Trimble®
www.trimble.com