Release 2.3.3

Release Notes

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SCANTRA 2.3.3.131

Table of Content

1 Import

1.1 Import vertical axes: Optional During Station Import or Plane Detection

When importing vertical axes, you can decide in the *Options* dialogue whether this should be done or not when importing stations or during plane detection. The third option is particularly recommended for fls files, as these require extra time for decompression.
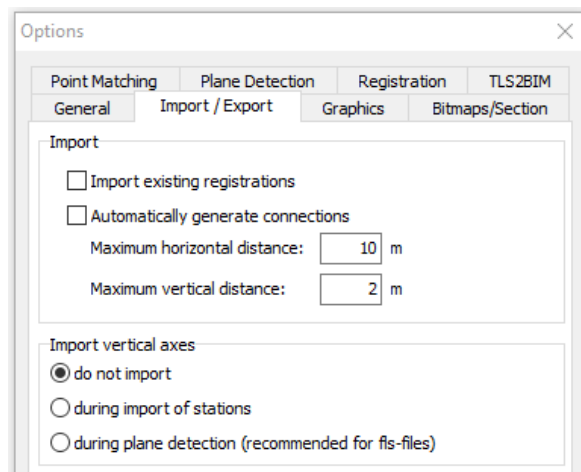

Figure 1: Import vertical axes in the Options dialogue box

1.2 Import Function for Existing Registrations and Vertical Axes

The import of existing registrations and vertical axes from the scan files is available as a separate function under *File > Import > Existing registrations / vertical axes....* Existing registrations and/or standing axes of all **activated** stations are imported.
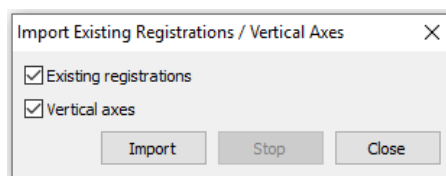
Figure 2: Import dialogue for existing registrations and vertical axes

2 Export

2.1 Selection of Stations for the Export

When exporting registered scans or registration parameters, the stations to be exported are not selected in a separate check list as before. Instead, all **activated** stations are exported. The criterion switched on/off for stations is no longer just used as a selection criterion for the block adjustment but also for the export.

2.2 Voxel Sampling

In the export dialogue for registered scans you can choose between simple sub-sampling and voxel sampling.
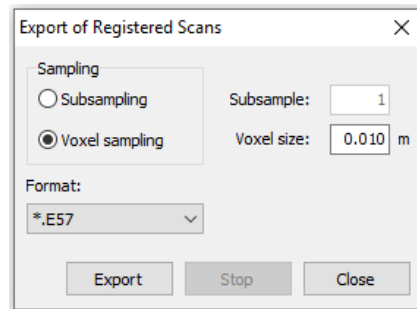
Figure 3: Export dialogue for registered scans

In sub-sampling, only every *i*-th point of each scan is written to the exported point cloud, regardless of how densely points are distributed in a particular area.

Voxel sampling divides the space into voxels of a predefined size (e.g. 1 cm). For each voxel, only one point, the one closest to the voxel centre, is written into the export point cloud. In this way, the amount of data required can be significantly reduced without any loss of information.

The voxel size can be set in the export dialogue (see Figure 3). In the options dialogue the maximum measuring range and the maximum usable memory are set (see Figure 4).
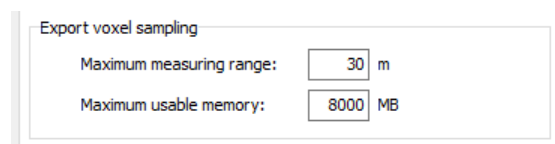
Figure 4: Options for voxel sampling

Maximum measuring distance: Distance of the bounding box from the outer stations. Points further away are ignored. Figure 5 shows how the bounding box is defined. Circles depict stations within the project while the dashed arrows represent the *Maximum measuring distance.*

Maximum usable memory: Memory for the structure of the octree. If the memory is full, the export will not continue from the next station. Recommendation: 50% of the working memory.
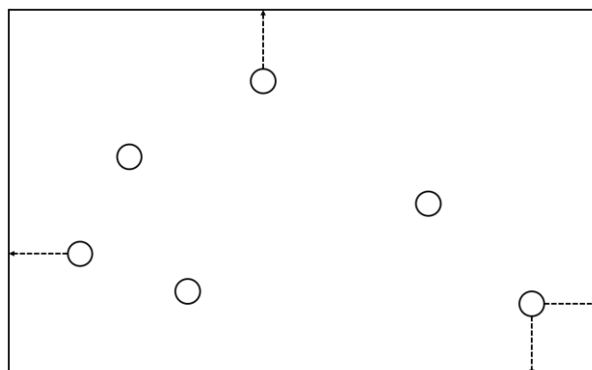
Figure 5: Definition of a bounding box

3 Plane Detection and Plane Matching

3.1 Direction-dependent Colouring

Colouring of the detected planes can either be monochrome or direction-dependent. The corresponding settings can be found in the options dialogue.
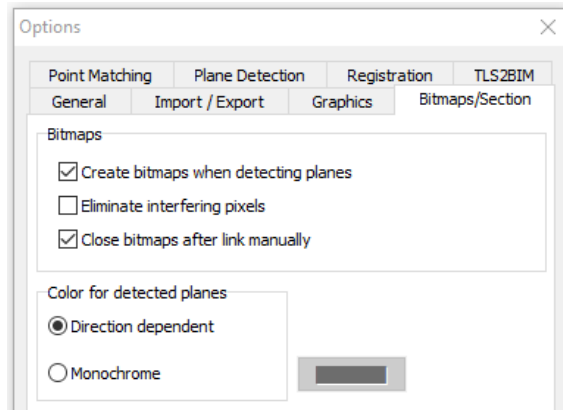
Figure 6: Colour for detected layers in the options dialog

With direction-dependent colouring, the colour of the plane depends on the direction of its normal vector. This representation facilitates the orientation in the processed scans during manual linking.

Figure 7: Direction-dependent (left) and monochrome colouring (right)

3.2 Displaying Selected Planes

When manually linking scans, the selected planes are displayed in the graph (see Figure 8).

Figure 8: Displaying selected planes in the graphic

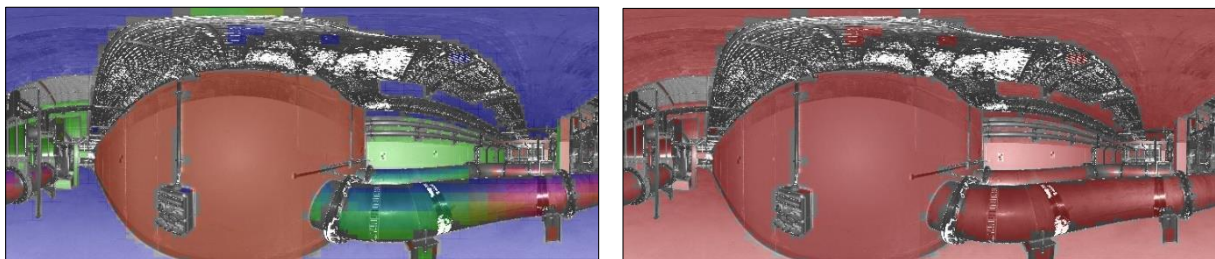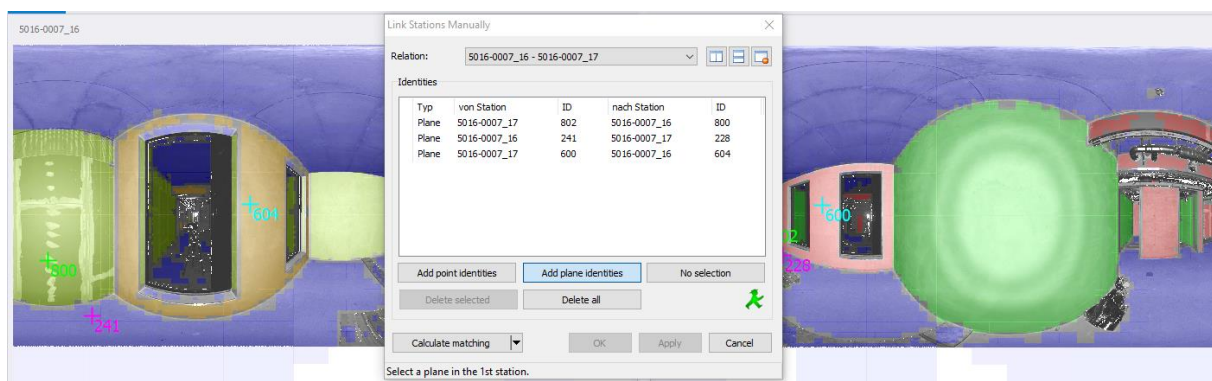# 4   Operating Convenience

4.1   Plane-based cross section

For a quick visual plausibility check, a plane-based cross-sectional view was implemented. With this function, detected planes can be loaded from hundreds of scans and interactively intersected with a defined section plane. The advantage of this approach compared to the use of point clouds is a significant increase in performance as the data volumes required for this are significantly lower. The planes detected in individual scans can be displayed in an individual station colour or in black. With the help of a measuring tool, distances within a section can be determined.
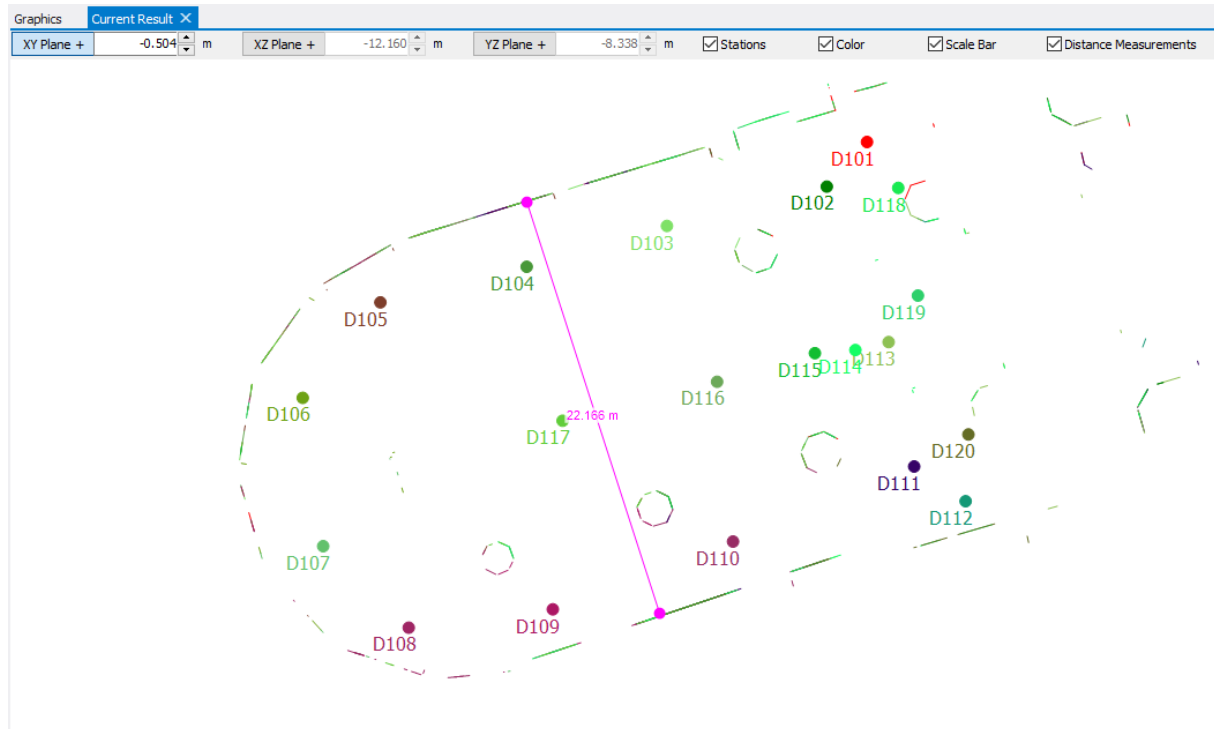

Figure 9: Sectional view with a measured distance

4.2   Connecting Stations without Double Clicking

The manual connection of stations can be done by simultaneously pressing the *Ctrl* key or the *Alt* key without double-clicking.

Ctrl key: The relation is radial (star-shaped) around the first station.

Alt key: The relation is made polygonally one after the other.

4.3   Database Access Accelerated when Deleting Stations

For very large projects, deleting stations sometimes took a very long time. This deletion has been accelerated considerably by the introduction of indices.

4.4   Keyboard Shortcuts

Important functions can now be executed with shortcuts.

Ctrl + P: Plane detection

Ctrl + M: Plane matching

Ctrl + D: Delete relation

Ctrl + B: Global block adjustment deploying the last defined settings

Ctrl + R: Opens the registration dialogue

Ctrl + S: Select station or relation

Ctrl + L: Local block adjustment

Ctrl + N: Define new relation

Ctrl + O: Open options dialogue

F5: Adjacency Graph

F6: Adjacency Graph (draw to scale)

F7: Result

F9: Link stations manually

> *F10:* Add plane identities
>
> *F11:* Add point identities
>
> *F12:* Calculate matching

4.5 Moving Stations to Another Group

Moving stations to other groups is now also possible with stations selected in the adjacency graph or in the station browser.

4.6 Saving the Positions of Non-Modal Dialogues

The position of non-modal dialogues is saved when they are closed. When such a dialogue is opened, it is at the same position as when it was closed before.

4.7 Display of the Station ID Extended to 30 Characters

The representation of station names in protocols and dialogues has been extended to 30 characters.

4.8 Selection of Multiple Relations

Several relations can now be selected simultaneously in the adjacency graph. Functions such as *switching on and off*, *deleting parameters*, etc. are executed for all selected relations. In order to quickly select relations in the graphics section hold the ALT-key an draw a fence over the stations / relations of interest.

4.9 Number of Lines Configurable in the Inspector Browser

The number of lines in the Inspector Browser can be set in the Options dialogue.
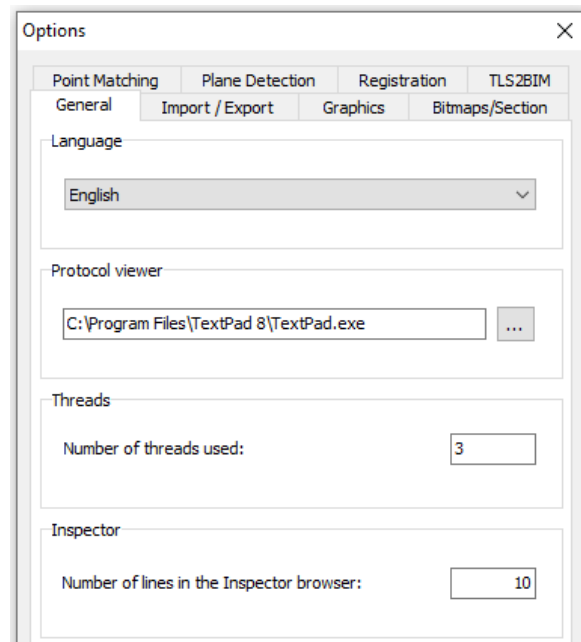
Figure 10: Number of lines in inspector browser in options dialogue

4.10 Enhanced Focus Function

Until now, when focusing, the object in question was only centred in the graphic, which was sometimes confusing especially in large projects. In the present version, in addition to centring, the object is zoomed to its immediate neighbours.

4.11 Approximate Orientation from Existing Result or Global Stations

When manually connecting stations, an approximate orientation is calculated immediately if registrations with the same reference system are available for the participating stations.