RPS Core Tools

Included in all Toolboxes

Icon	Command Name	Command Description
	**TML Status**	Provides a fast and effective way to manage your TML library inside Trmble Business Center. The command connects with the Rockpile Solutions TML Server, checks available TMLs and their versions against those installed on your computer and provides tools to download, install, maintain and update your library in an automated way. TML Status monitors the TMLs as they are used and if it identifies that you have out of date commands, it prompts to run TML Status to update the commands.
	**Menu Manager**	Provides a simple and easy way to switch menu configurations from a light theme to a dark theme. The dark theme is easier on the eyes for those long days of clicking and pointing.
	**Show Line Direction**	Provides the ability to display the direction of a selected line. The tool establishes the type, colors and size of the direction indicators and whether they are static or dynamic in nature. The Show Direction setup is then used by other TML commands including Nudge, Place Aligned Blocks etc. where knowing the line direction is important to determine Left or Right offsets or location.
	**Voice Command**	Provides the ability to use voice input to execute any TBC command. This improves productivity and allows the commands to execute as well as the command dialog to be navigated without mouse movement.

RPS Modeling Toolbox

Provides a powerful toolset to supplement TBC surface, cross section and corridor modeling capabilities. Tools that manipulate and correct surface models, imported PDF or CAD cross section data and corridor models. Tools to enhance model or takeoff drawings and provide enhanced reporting and data output capabilities

Icon	Command Name	Command Description
	**Add Isopach**	Provides the ability to add back or subtract a percentage of the difference in volume between two surfaces in order to surcharge a surface to allow for settlement or to remove additional material as a percentage of cut depth to allow for over excavation for example.
	**Best Fit Linestring**	Creates a best fit horizontal and or vertical alignment geometry to a selected 3D linestring. Can be used to define a new alignment and profile for a pavement or regrading surface based on surveyed data along the centerline for example.
	**Combine Surfaces**	Combines multiple TIN surfaces from a design into a single TIN surface model comprising multiple islands. For example where an over excavation surface on a corridor model comes and goes along the alignment, or where the left embankment and right embankment were designed as separate components and you want to combine them into a single surface for TBC corridor or machine control purposes
	**Corridor Cut Sheet Report**	Generates a Cut Sheet Report for Project Supervisors that shows full cross section details of slope, elevation, offset, delta elevation and cut/fill for user selected nodes of a corridor cross section material layer surface e.g. Finished Grade. The report generates a section at every defined interval plus all critical locations (PC, PT, VPI etc.) as well as every table and superelevation instruction location.
	**Define Extra Stations**	Add additional modeling and reporting stations into corridor models outside of the corridor model and template definition.
	**Edit Alignment as Spreadsheet**	Capture alignment details in a spreadsheet and then import it into Trimble Business Center using this command. Command also allows the user to open an imported or hand entered alignment in a spreadsheet for checking and analysis.

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	**Elevation Difference to Corridor**	Creates a profile in the alignment profile view for a corridor that shows the difference in elevation between a selected 3D line and the selected corridor material surface layer e.g. Finished Grade. Used as a check between survey data and a selected corridor model or to determine the variance of cross slope along an alignment based on survey information.
	**Explode Lines**	Provides the ability to explode any linework into ether all segment elements or into top, bottom and side elements on separated layers (with a break angle control). Perfect for cross section takeoff from CAD or PDF files where e.g. material layers are drawn as closed polygon areas and you need to extract top or bottom of the layer onto separate layers to create models after section conversion.
	**Explode Surface**	Explodes a selected TIN surface model into 3D lines and points. The explode process eliminates duplicate lines. The exploded surface can then be edited to remove erroneous data e.g. erroneous triangle sides or to be combined with other data to create a new surface model.
	**Find Surface Area**	Provides a fast and easy way to determine the surface and plan areas of bounded areas on surface models. The surface areas can be defined by collections of 3D breaklines in the surface with the "Sharp and Texture" property, or areas of the surface where surface textures have been defined. The computed areas can be labeled on the drawing using this command.
	**Grid Volume From Boundaries**	Computes the volumes between two selected surfaces and within multiple selected boundaries using the grid volume method. The computations are extremely fast, even with a small defined grid interval. This tool is ideal to rapidly compute volumes on projects as an interim step prior to final results using the TIN surface method.
	**Increment Text**	This command creates text that automatically increments between each text placement e.g. for labeling pads, parking bays or for adding station labels to PDF cross sections that have no text to use for section conversion.
	**Nudge**	This command provides two main abilities, Nudge Line and Nudge Node. Nudge Line moves a selected line laterally by a defined amount in order to fix a surface model where two lines that define the top and bottom of a vertical wall or face lie on top of each other but separated vertically. Nudge Node is for cross sections where two or more nodes in the cross section lie in the same XY location but are separated vertically.
	**Offset Surface**	Provides the ability to offset an entire surface or an area of a surface within a clipping boundary to create a new surface model. This is a quick and easy tool to create e.g. Topsoil Strip surfaces from an Existing Ground surface model.
	**Offset Slope**	Create a new 3D line at an offset and elevation difference to a selected pair of lines where the elevation of the new line is computed by extending the slope defined by the selected pair of lines and applying the elevation difference required. This tool is great for extending pavement or subgrade surfaces where the pavement surface is defined by imported 3D string (lines) data.
	**Perpendicular Distance to Surface**	Compares a selection of 3D measured points to a 3D surface model and determines the shortest perpendicular distance between each point and the surface model. This is a great tool to check measured point data against a design surface for cuttings where the walls of the cutting are steep or near vertical. Generates an Excel report and 3D vector linework showing the computed distances.
	**Points to Cloud Report**	Compares a selection of points to a point cloud region or scan to determine the nearest scan point to the selected points, and provides a comparison between the derived point pairs. This is a useful tool to compare measured ground check points with computed point clouds from drone surveys to validate drone survey accuracy.
	**Points to CSV**	Creates a CSV output that reports a selection of points and compares them to a surface and optional alignment and incorporates the points description, layer, point name and attribute information. The cut and fill between the points and surface is also reported.

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	**Points to Grid**	Created to support production data from Leica machine control systems, this command allows the user to find the first, last, highest and lowest points in each grid cell from imported data files based on a defined grid pattern (origin, orientation, row and column spacing). The selected data is layered into separate layers so that it can be used to create different surface models.
	**Site Improvement Legend**	This command creates a legend of site improvements applied to surfaces within the project either for takeoff or data modeling purposes. The legend shows the color of the site improvement and the material layer stack and defined material thicknesses for each site improvement used. This automates the creation of drawings for submittals or for use by site personnel to understand a project.
	**Slope Slope Intersect**	This command provides the ability to compute 3D lines at the intersection of two slopes defined by two pairs of lines, with or without vertical or perpendicular offsets. The command is ideal for the computations of subgrade and topsoil adjusted embankment surfaces. All necessary offset lines are computed to facilitate rapid creation of the adjusted surface model.
	**Geometric Selection**	This powerful tool provides geometric selection properties for imported CAD or PDF linework. Initially conceived for the cross section takeoff workflows, this tool provides geometric controls that can be combined for extremely rapid selection and relayering of objects using length, aspect ratio and node count. The tool has been extended to recognize polyline representations of text and turn them into text strings using RPS Polyline Character Recognition (PCR) technology.
	**Fix Surface Flags**	Surface flags appear in surface models where two or more lines or points occur in the same XY location with different elevation values. This tool provides a fast and easy way to resolve surface flags in a model through automated identification and resolution of typical problems at each flag. User can select the highest, lowest, mean or a user defined elevation for the resultant point in the model, and adjust all objects that occur at that location to the defined elevation.
	**Surface to Grid**	Point clouds can be used to create surface models. The resulting surfaces can be large and are hard to report for QA / QC purposes. This command converts a TIN surface, optionally clipped to a boundary into a grid of points based on a regular or alignment based grid, and computes cut / fill values to a reference surface with applied high and low tolerances for reporting purposes.
	**Surface Area by Slope Ranges**	Reports the plan and slope areas for cut and fill broken down by specified slope ranges on each of two surfaces. The report uses the isopach computed between the two surfaces (e.g. Existing and Subgrade Adjusted Finished Grade) to determine cut and fill areas and then sums the areas of triangles of both surfaces that fall within the defined slope ranges within the computed cut and fill areas. Ideal for the determination of surface finishing / trim areas in fill scenarios.
	**Surface Intersection Linestring**	Creates a line along the zero cut/fill line between two selected surface models. The lines created are set to sharp and texture boundary and can be optionally included in either or both of the source surface models.
	**Surface to Points**	Surface models provided by Engineers for Existing Ground are often derived from point clouds. The imported TINs often cover large areas and have extremely dense triangulation. For modeling purposes the imported TIN and CAD points derived from the TIN are inefficient in TBC. This command provides the ability to convert the TIN back into a point cloud so that it can be more easily and faster handled in TBC. It can also be reduced in size and point density for faster volume computations.
	**Track Line Edge**	This command allows you to pick an alignment and a selection of linework e.g. for road pavement section lines in order to create the edge lines (pavement edge lines) in the direction of increasing station and / or a boundary around the selected lines. Part of the CAD / PDF cross sections takeoff workflow, this facilitates rapid 3D modeling from converted PDF or CAD cross sections.
	**View Filter Override**	This command provides the ability to override object colors for plotting purposes. If you want to create a black and white, grey scale or highlighted print or PDF output then this is your tool

For More Information

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To order TML Toolboxes go to www.RockpileSolutions.com/Toolbox or
Contact your local SITECH Dealer