

# TCP – MDT

## Digital Terrain Model – V 6.5

### Standard Version

#### Introduction

The Standard version is suitable for all kinds of surveys, terrain profile and volume calculation projects. Its main users include the public authorities, construction companies, engineering firms, architects, town planners, companies dedicated to earthworks, quarries, mining firms, environmental companies as well as independent professionals.

In addition to offering high performance, it is very easy to use. It works on a wide range of CAD systems, and also makes it easier to exchange the information among users via drawings in DWG formats.

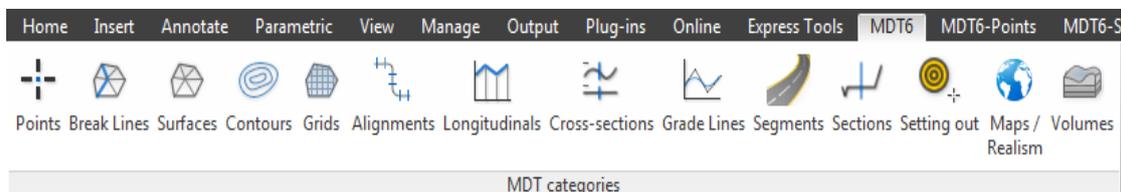
Users have an option to install MDT on different CAD versions, with the preferred version selected via a quick menu.

The versatility is ensured through importing and exporting of conventional ASCII format files and standard LandXML files. Results can also be generated in different formats, such as ASCII, HTML, Word, Excel and PDF.

The software periodically notifies about the available updates, and shows history of changes as well as allowing installation at the time or later.

#### User Interface

In addition to normal option menus and toolbars, MDT6 includes ribbon interface (AutoCAD 2010 onward), allowing fast user-friendly access to all commands, giving quick descriptions and connection to help system.



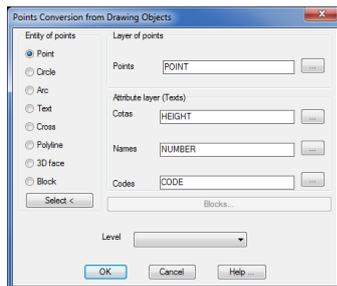
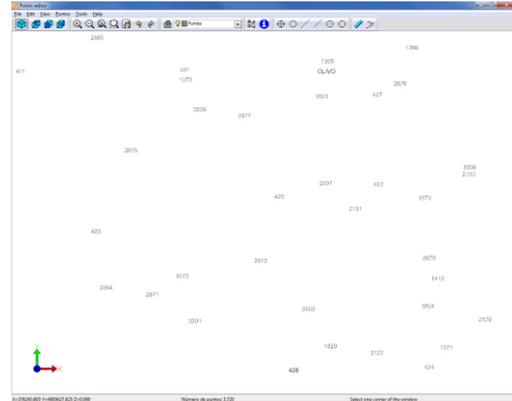
Most files created by the program can be visualized or quickly edited by double clicking them even without opening MDT.

## Surveying Points

The program begins with the coordinates, which are obtained from any total station or GPS, by converting files from data collectors or from other application through a powerful format manager.

It has a CAD-independent point viewer, with viewer controls, 3D orbit etc.

Points are intelligent CAD objects, so that they can be deleted, moved, changed to another layer, by using standard CAD commands, or can be blocks with attributes, making the drawing fully compatible with other CAD applications. In addition, any kind of editing operation can be executed, such as: interpolating, changing heights, sorting by levels, filtering, assigning codes, labeling coordinates, grouping points, changing their visibility, and so on. Coordinates can be changed by using an editor similar to an electronic sheet. Selection can be made by number, level, height, group, code or graphically. Each point can be associated to a document, drawing or photograph via a hyperlink. Points can have alphanumeric names and it is possible to display points with different shapes and colors within the same drawing.



New points can also be converted from CAD objects drawn by other programs (points, circles, crosses, blocks with or without attributes and others), with the option to detect the entity type via graphic designation. The program then automatically draws the break lines using its database, in which layers, colors, line types, thickness and point codes can be defined.

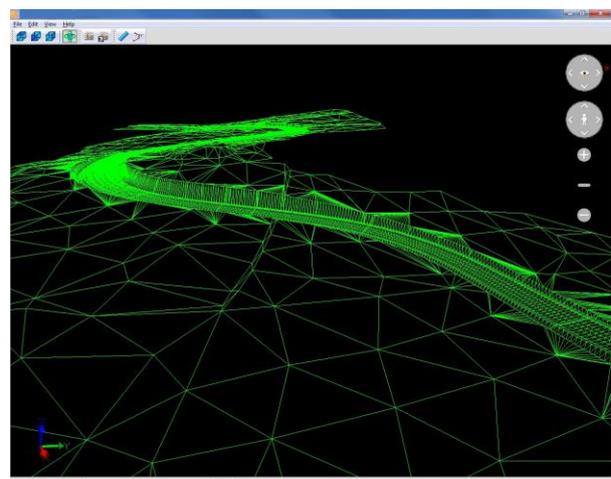
It is possible to assign each code to different blocks for top view, front view and 3D rendering in order to create a realistic view.

## Surfaces

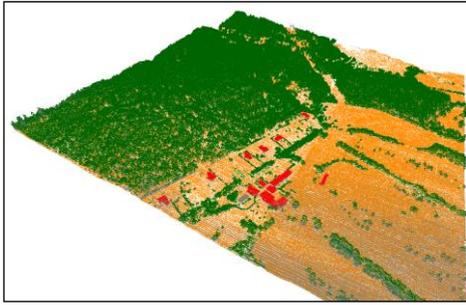
Break lines can be graphically defined through point sequences, codes or by importing files. Tools are available to detect loose vertices, points on a line, crosses and surface inconsistencies. It can also repair mistakes or mark the errors.

Triangulation can be created from points, break lines or contours, with length and angle controls as well as removing of flat triangles.

Surfaces can have multiple boundaries or islands, and they can be drawn as lines, 3D faces or polyfaces. The result can be displayed in a CAD-independent surface viewer.



There are many commands for surface editing, such as insert, delete or invert triangulation lines, remove points or insert new points.



The software includes conversion of most common surface file formats.

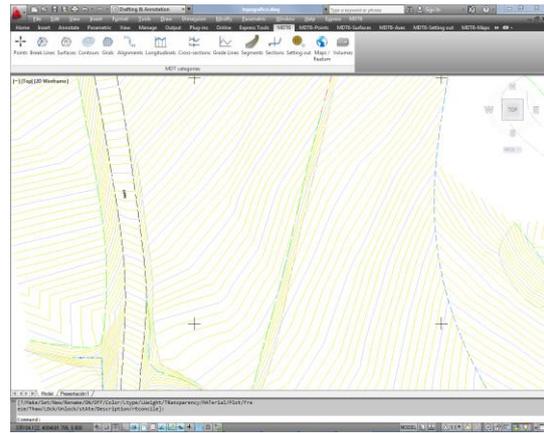
Also it's possible to convert terrain point clouds in LIDAR format to mesh or surface.

## Contour Lines

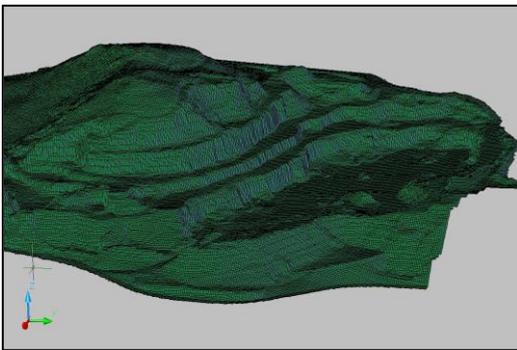
MDT can generate contour lines with a constant interval, or at special heights. They are automatically updated for every change in triangulation.

Contours can be labeled in automatic or manual mode with customization of the style, size and layer. Another command allows to place additional height labels at any location on the surface.

There are also other commands to add vertices, edit contours and discretize polylines and splines.



## Grids



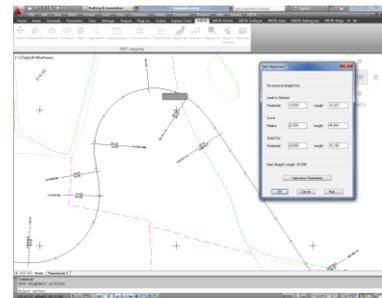
Grids can be created from a surface, contours, 3D entities or grid files in several known formats. They can be represented through 3D faces or polyface grid, which are suitable to export to rendering and animation programs.

There are commands to join, filter and re-sample grids in order to assign orthophotos as a texture on the terrain.

## Horizontal Alignments

Horizontal alignments that will be used in profiles and cross-sections can be defined by polylines, parameters or importing files.

MDT includes tools for dimensioning alignments, editing vertices or creating coordinates reports, calculating intersection or distances between alignments.

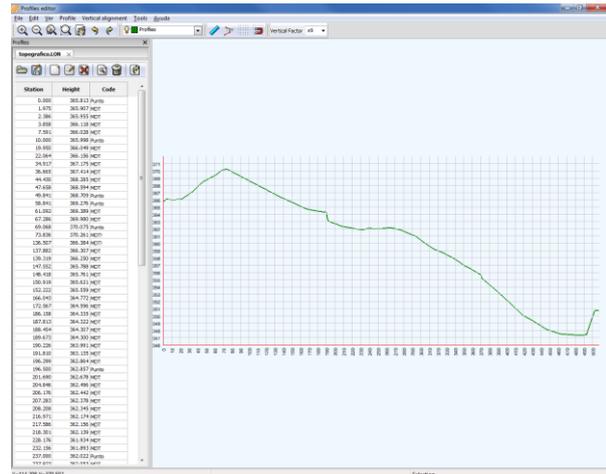
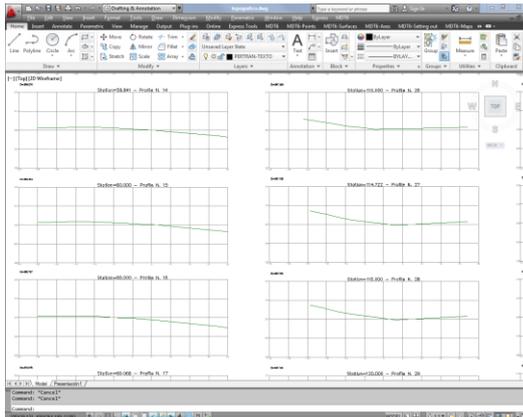


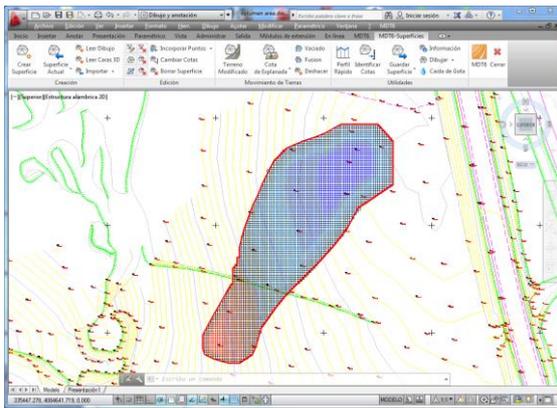
## Profiles

Profiles and cross-sections can be computed from triangulation, CAD 3D entities or points near the alignment.

Quick profile command asks user for a line over the surface and then shows quickly the profile.

Profiles can be modified in a powerful CAD-independent editor.





Station	Cut Surf	Top Surf	Veg Surf	Cut Vol	Top Vol	Veg Vol
0.000	0.025	0.259	0.000	0.000	0.000	0.000
5.000	0.371	1.136	0.000	1.916	3.489	0.000
10.000	0.913	1.163	0.000	3.211	5.762	0.000
15.000	1.256	1.665	0.000	4.237	9.251	0.000
20.000	0.641	0.305	0.000	5.422	7.055	0.000
25.000	0.389	0.480	0.000	6.849	16.326	0.000
30.000	0.319	0.265	0.000	7.797	4.115	0.000
35.000	0.389	0.480	0.000	13.436	20.491	0.000
40.000	0.990	0.791	0.000	0.518	0.448	0.000
45.000	0.282	0.688	0.000	13.954	20.991	0.000
50.000	0.719	1.771	0.000	1.350	1.984	0.000
TOTAL				15.722	22.755	0.000
Cut volume				3.271	25.266	0.000
Fill volume				18.995	2.424	0.000
Organic volume				3.132	2.424	0.000
Difference(Cut - Fill)				22.126	27.628	0.000
Cleared vegetation surface				7.797	2.177	0.000
				29.913	30.006	0.000
				6.837	0.704	0.000
				30.841	30.710	0.000

## Maps - Rendering

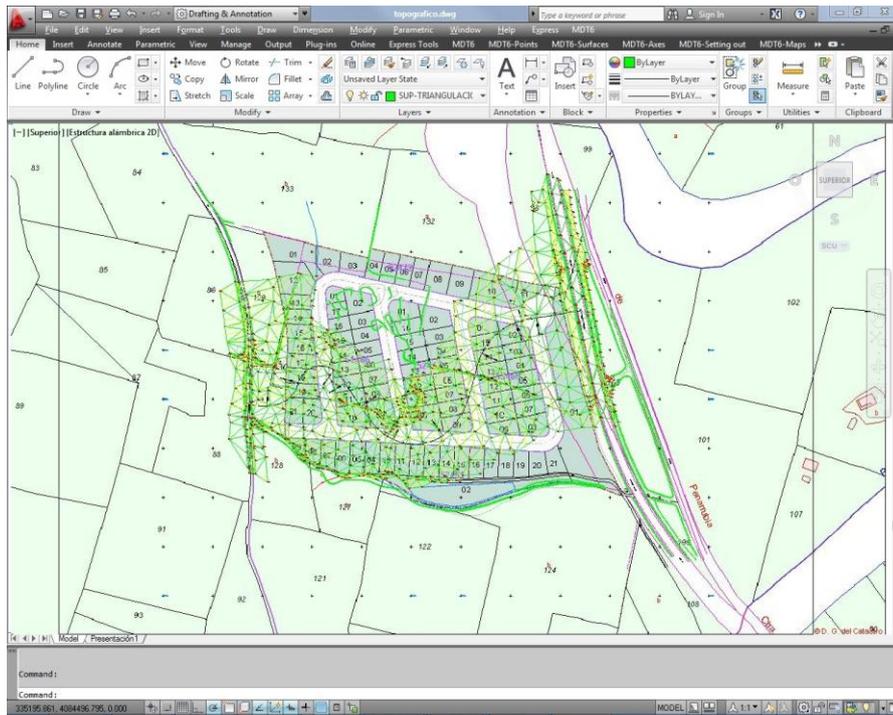
MDT can draw a three-dimensional grid from a surface or contour lines. Also it can generate thematic maps and draw the slope, aspect or height of a surface, or a visibility map from a point.

There are commands to add geo reference images and insert orthophotos at their position, and assign them to a whole surface as a texture or assign textures from the supplied library to a set of triangles. Another library of 3D objects can be used to enhance presentations.

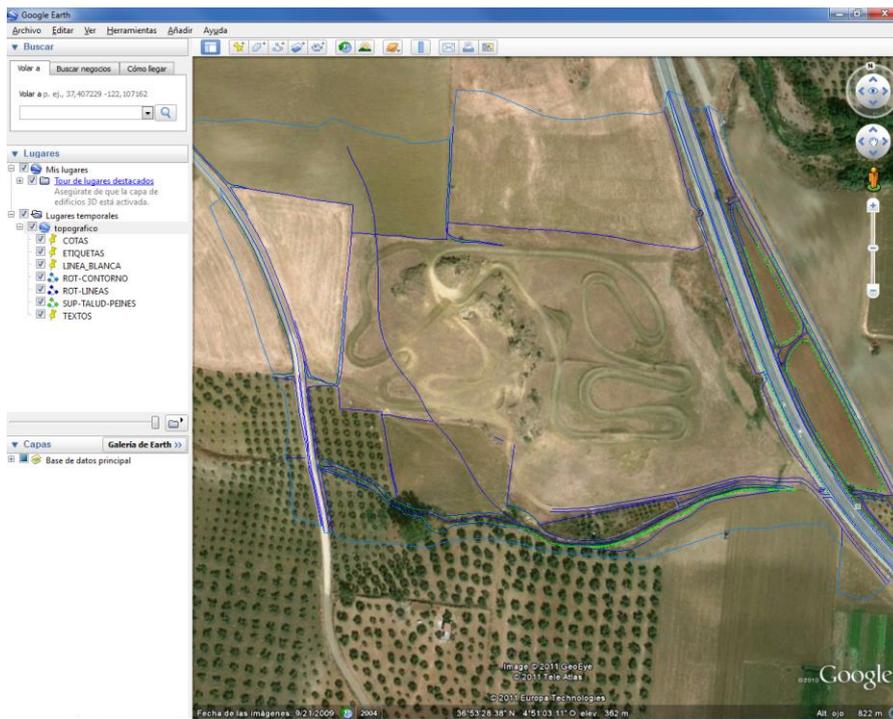
MDT includes a powerful terrain viewer that shows the surface with the textures and 3D objects, with customizable sky and background appearance. It also has options for measuring 3D distances, quick profile, simulate flood or generating a video tour from a polyline.



MDT provides access to Web Map Services such as those offered by public authorities. The user only needs to specify a window on a screen using projected coordinates, choose the service and then the program will automatically insert an image at the appropriate place.



Another utility allows users to export points, surface and drawing layers to Google Earth.

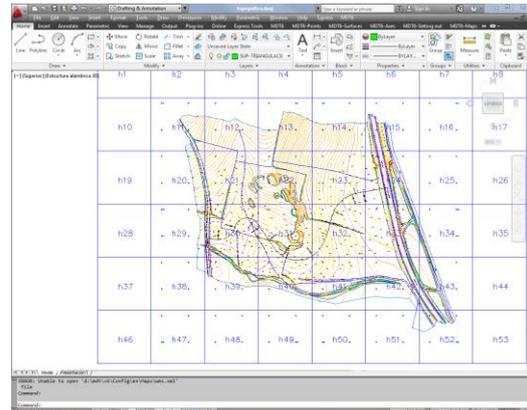
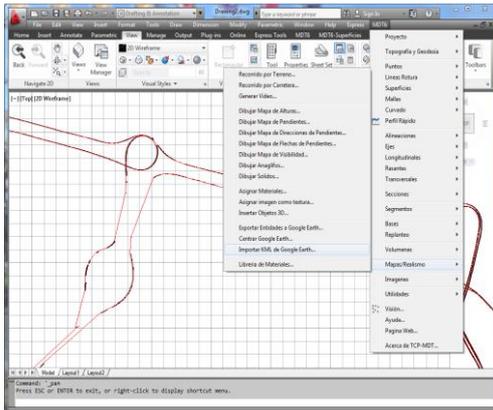


## Utilities

MDT has many additional tools such as number objects, drawing of coordinates, division into sheets, slope lines, coordinate grids, layer control and object elevation.

Plot menu includes options to divide plots in specific areas by moving a line parallel or perpendicular to a side, vertex and rotation and other methods. It also dimensions the area of plots and generate detailed reports.

Also it can import Google Earth KML files.



## Requirements <sup>(1)</sup>

CAD	AutoCAD versions: 14 to 2014 and compatibles BricsCAD 9 to 14 ZWCAD 2009 to 2014+
Operating System	Windows XP / Vista / 7 / 8 in 32 and 64 bits <sup>(2)</sup>
Peripherals	Mouse or pointer CD-ROM reader
Graphics Card	1024x768 pixels, compatible with OpenGL Recommended chipset: Nvidia or ATI
Hard Disk	1 Gb of free disk space
Memory	Minimum 1 Gb
Processor	Dual-core 2 Ghz or better

<sup>(1)</sup> Visit the website for details

<sup>(2)</sup> Operation is not guaranteed through neither remote desktop or similar services nor in virtualization platforms. Write to [support@aplitop.com](mailto:support@aplitop.com) to ask for these special cases.

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