



TcpMDT

Summary of new features

Supported CAD versions

TcpMDT 8 works with different versions of CAD systems, simplifying the exchange of information among users through drawings in DWG format. They are the following:

- AutoCAD® 2010 up to 2021 (32 and 64 bit)
- BricsCAD® Pro/Platinum. Versions V.15 up to V.19 (32 and 64 bit)
- ZWCAD® Professional/Enterprise. Versions 2012+ up to 2020+ and ZWCAD Classic



Supported operating systems

MDT 8 is compatible with the following operating systems, in 32 and 64 bits:

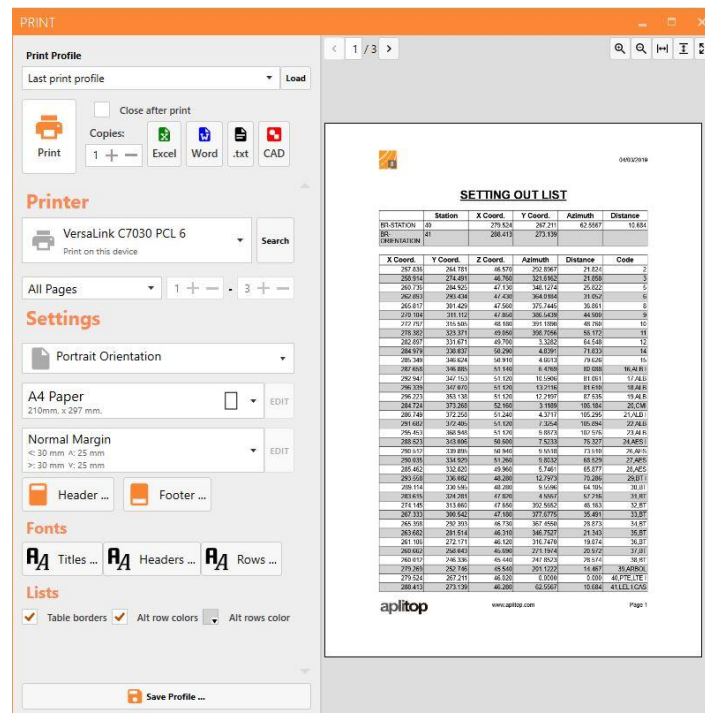
- Windows 7
- Windows 8/8.1
- Windows 10

General

New reports

A new system has been designed that allows you to dynamically define the header and footer formats, font types, sizes and colors, add a company logo, configure margins, line spacing, etc.

Generating reports in Word, Excel, text, PDF and drawing as a table in the CAD itself has also been updated with faster generation and more attractive presentation.



Menu reorganization

The structure of the menus has been revised, grouping and sorting commands and helping locate the most frequently used.

Integrated remote assistance

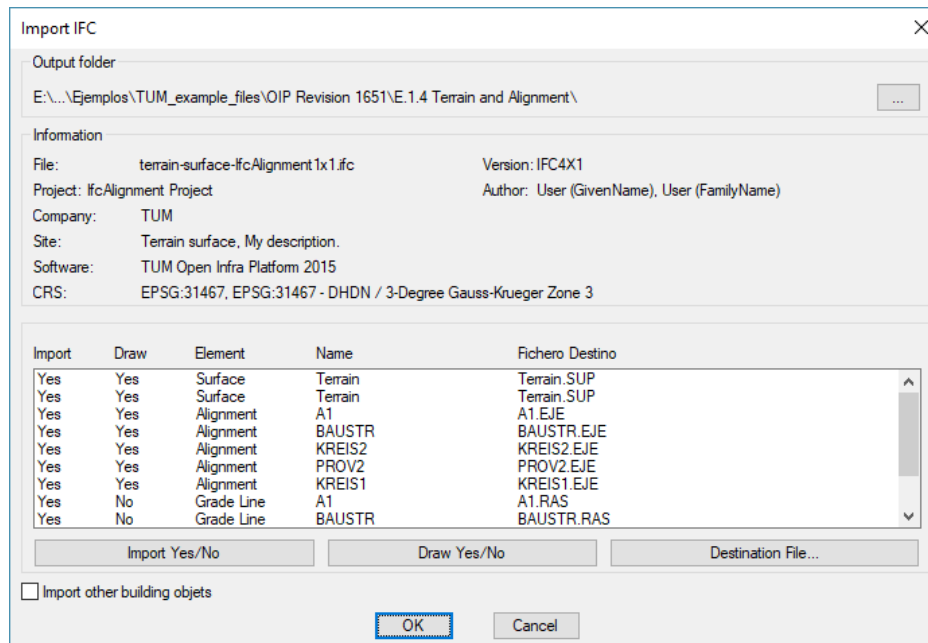
A new command has been created that allows you to connect to a technical support chat when necessary (only available for users with maintenance support).

BIM

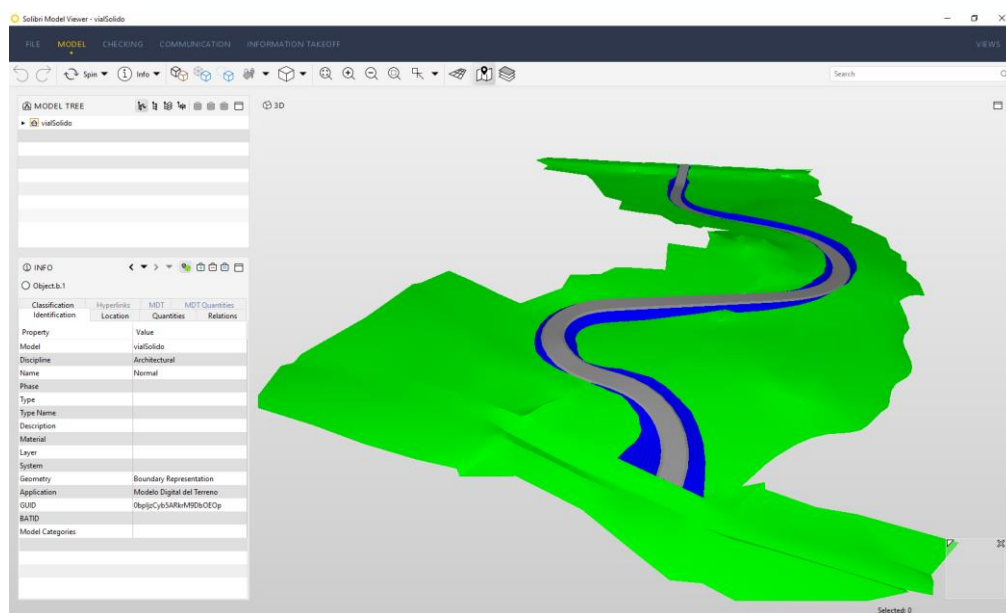
IFC import and export

APLITOP is actively collaborating with buildingSMART International for the development and implementation of IFC Alignment and IFC Road formats, which aim to facilitate the exchange of data on roads and other infrastructure projects using the BIM method.

For this reason, MDT 8 can import files in IFC format (Industry Foundation Classes), of different versions, which may contain topographic surfaces, horizontal and vertical road alignments (only professional version).



Export makes it possible to use data generated by MDT in applications such as BIM Vision, Solibri Model Checker, Revit, ArchiCAD, Navisworks, etc.



Assignment of properties

Not only are you able to export the geometric definition of the project, but also the property sets (Psets).

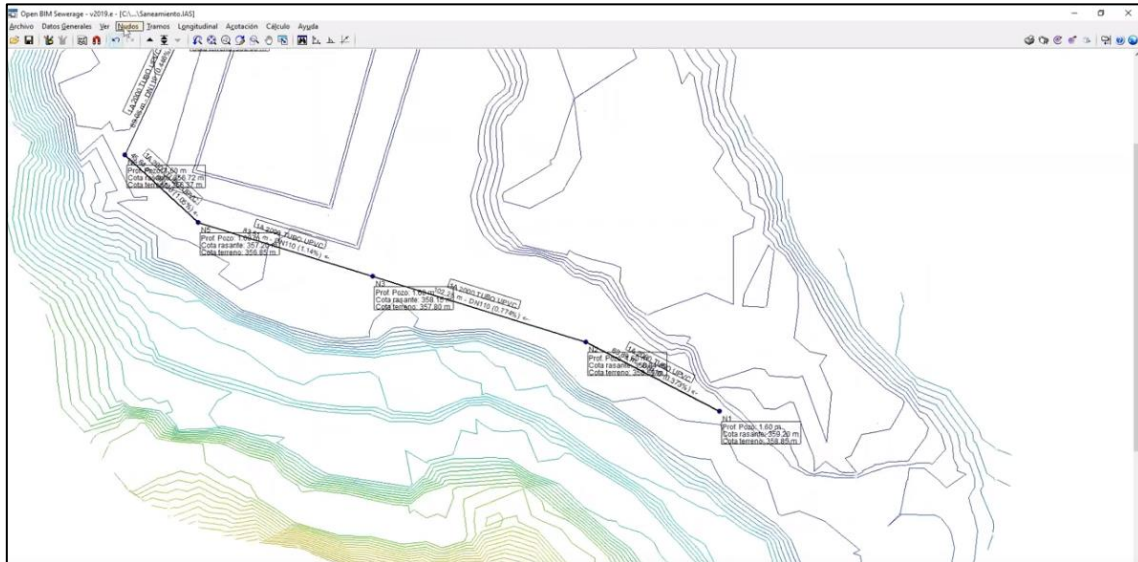
To do this, new commands have been created that allow you to define these properties, associate them with MDT objects and assign the corresponding values.

Connection to BIMserver.center from CYPE

Through BIMserver.center, there is direct communication between all users and applications that participate in a project developed through the Open BIM workflow.

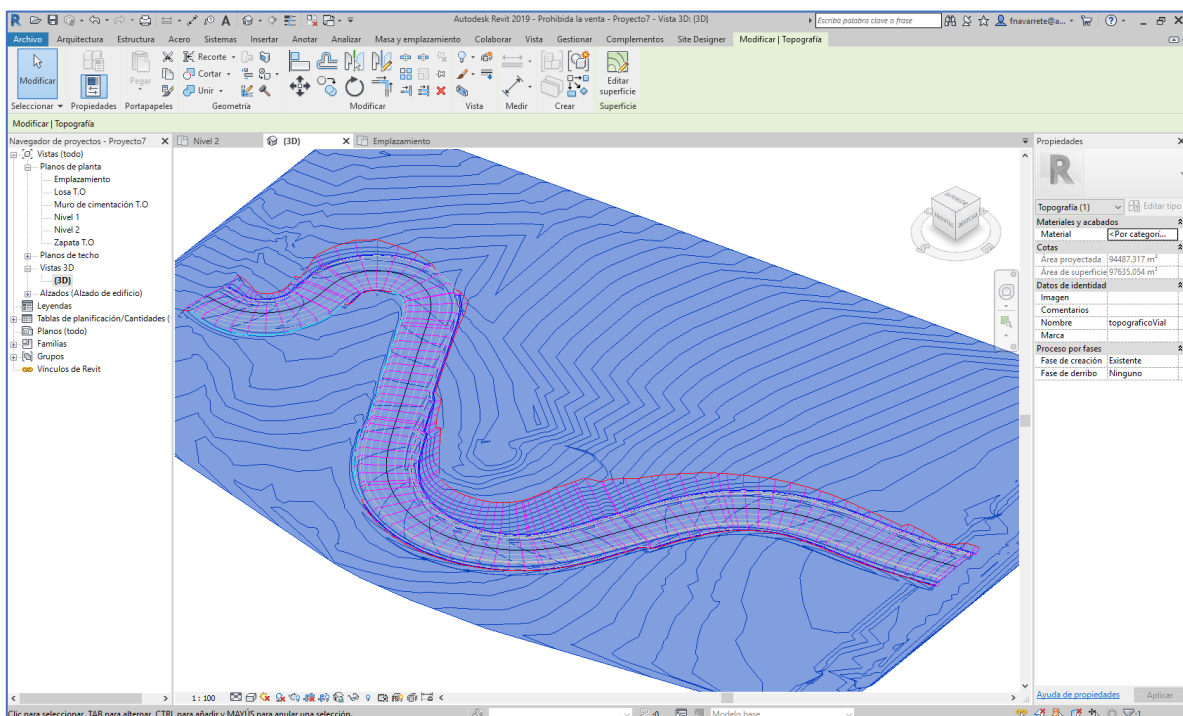
Through an cloud service, with BIMserver.center it is possible to manage and share all BIM project files, facilitating the organization and communication between authorized users involved in the project.

In this way, the integration of land modelling processes in projects with OpenBIM methods is made much easier and allows topographic data to be easily connected with computing applications for networks, structures and other applications integrated in the BIMserver.center ecosystem.



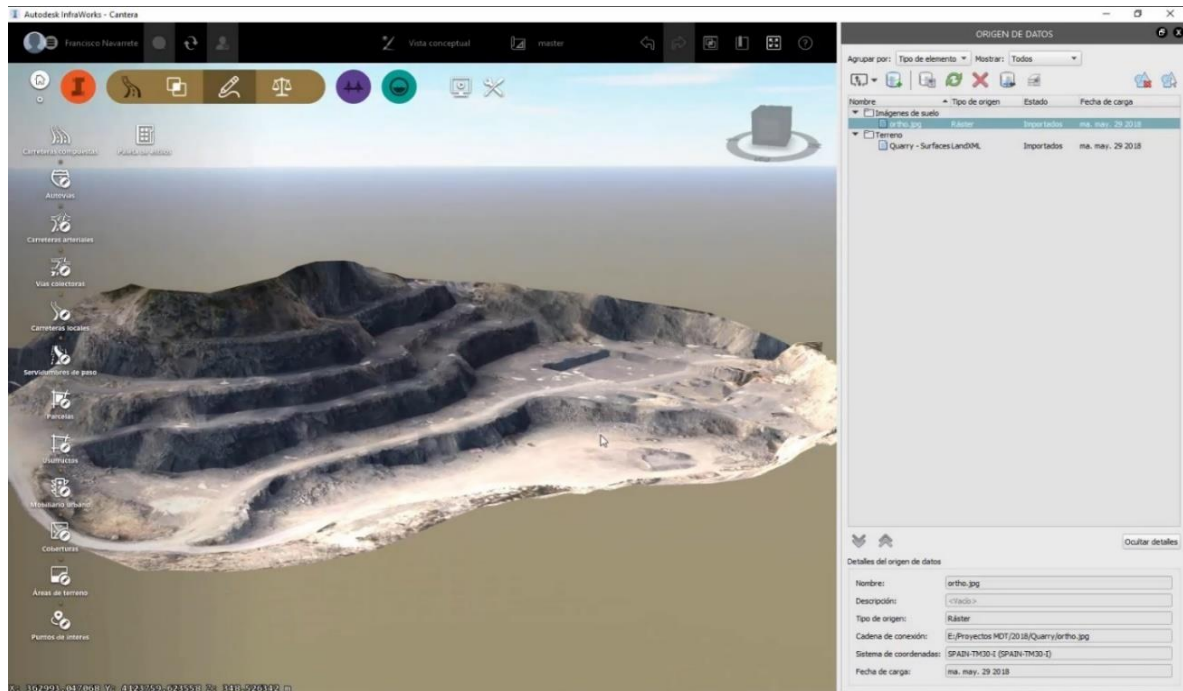
Revit integration

Improvements have been made that offer alternatives to use terrains generated with MDT in Revit, points, contour lines or file exchange in LandXML or IFC formats. Also, direct export of lanes greatly simplifies the creation of roads and urbanizations (only professional version).



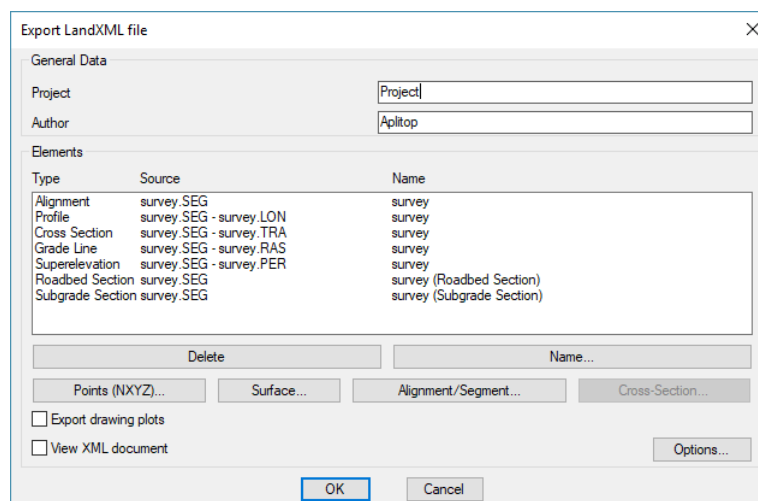
Infraworks integration

MDT 8 can import roads designed by Infraworks and export modelled land as surfaces or meshes to be integrated into the project.



Exchange of data in LandXML format

This format is still regularly used, so improvements have been made in the import and automatic creation of segments, import of superelevations, etc. (only professional version). When exporting you can choose versions 1.0, 1.1 or 1.2 as well as the style (generic, Topcon Magnet, Leica GeoOffice, Revit, etc.).

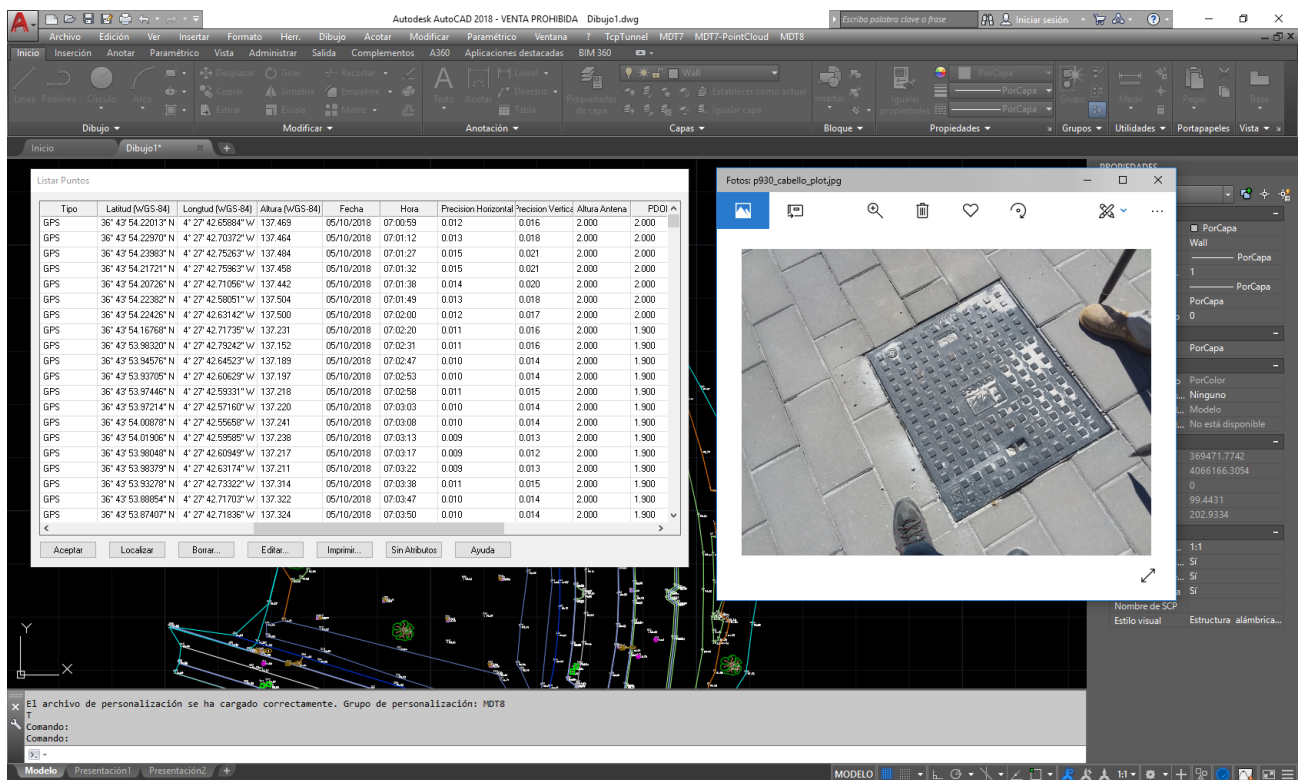


Points

TcpGPS compatibility for Windows and Android

MDT can import survey data made with [TcpGPS](#), such as date and time, position type, horizontal and vertical precision, number of satellites, etc.

The Android version can also link points to pictures and voice notes, synchronizing files through Google Drive.



Geotechnical surveys

Geotechnical prospecting or surveys can be represented by points that store layer thicknesses of geotechnical units (only professional version).

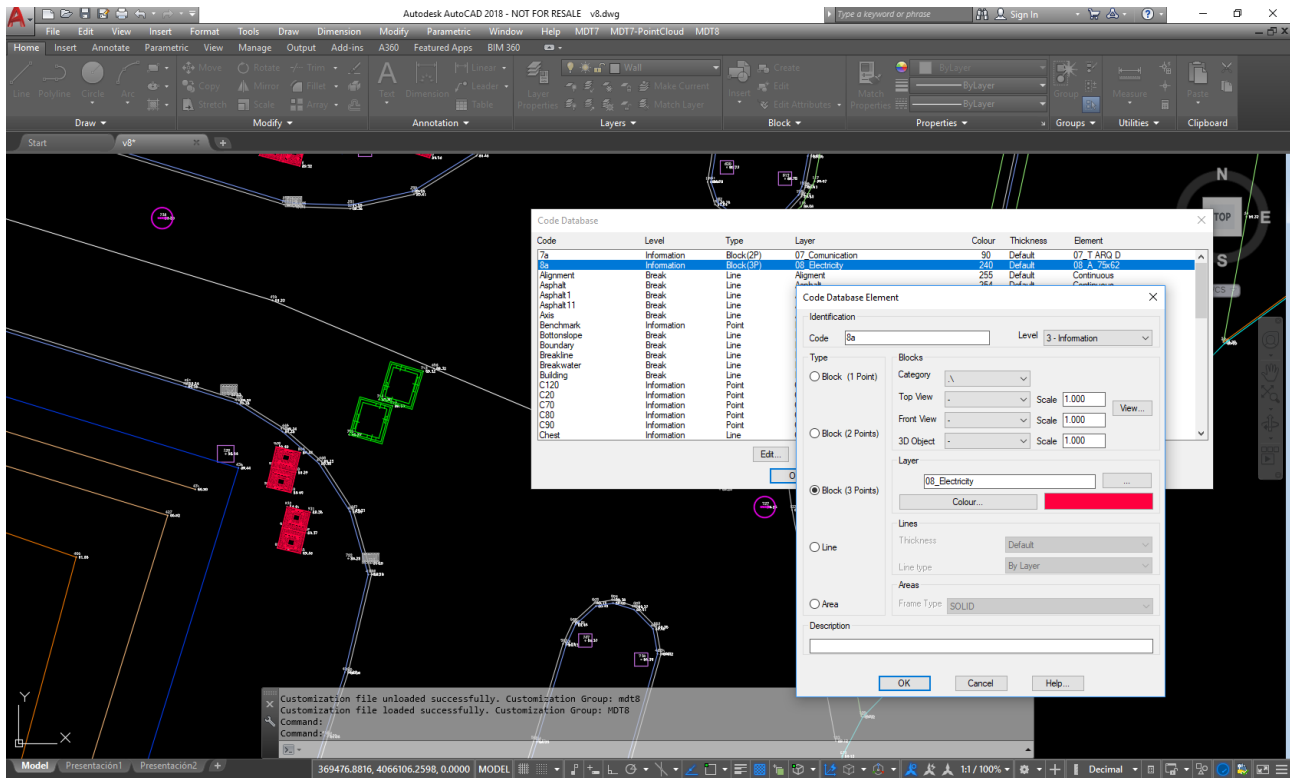
Importing points

The semicolon separator, the CSV format and others have been added.

Point codes

New types of codes have been created, so that blocks with their size and orientation can be automatically inserted from 2 or 3 points taken in the field.

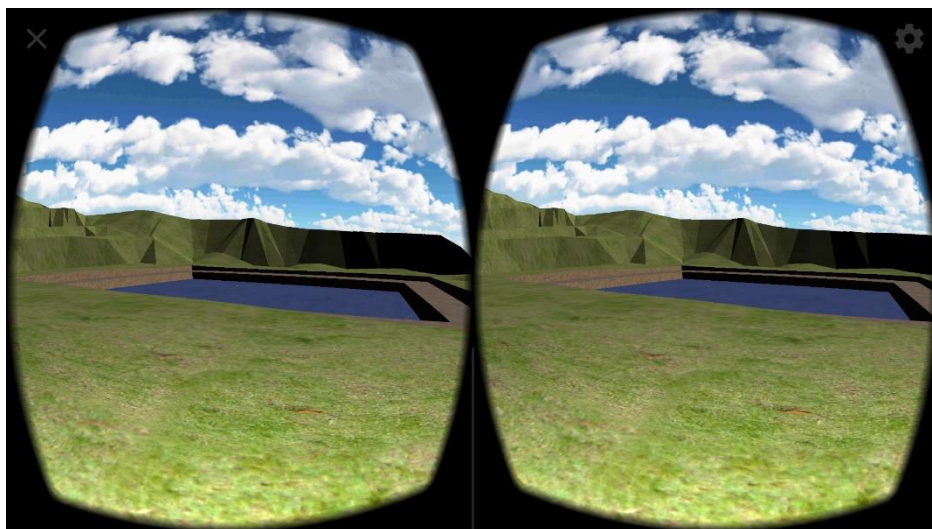
The management of codes has also been improved, facilitating the detection of those used in the survey so they can be incorporated into the database.



Surfaces

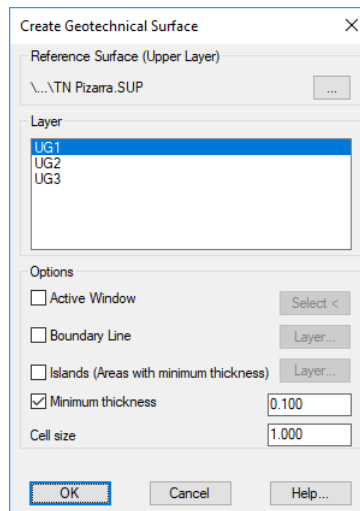
Virtual Reality Exporting

Surfaces can be exported to the cloud from MDT and you can take a virtual tour using a free application available on Google Play Store for Samsung Gear VR or similar.



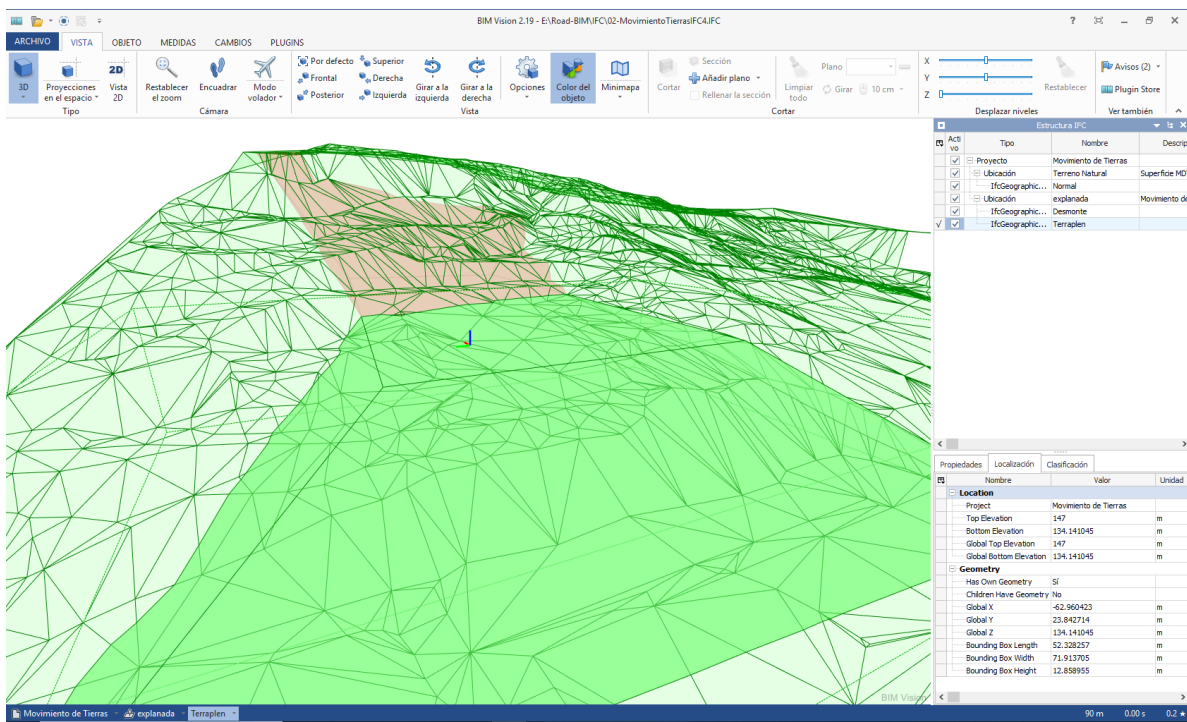
Geotechnics

You can create geotechnical surfaces from a current surface and thicknesses of layers stored in surveys, seismic profiles or data entered manually (only professional version).



Solids in earthworks

Earthwork commands accurately and quickly calculate intersections of slopes on the terrain and generate files of solids that can be exported to BIM applications (only professional version).



New triangulation

A new, faster triangulation engine has been incorporated that allow you to create a surface that can contain millions of points.

Shift elevation

This command now lets you specify the name of a new surface, in the same way as all earthwork commands.

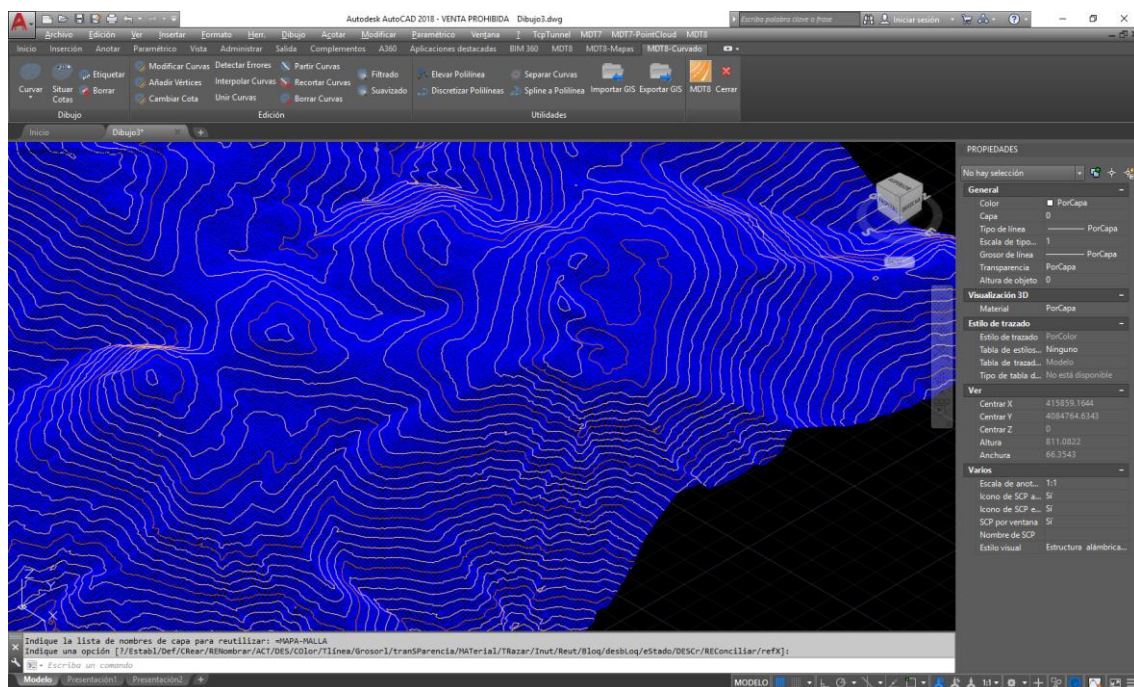
Cartography and Contours

GIS exporting

Exporting to shape format offers several options to export 3D entities as constant dimensions, variables or attributes.

Contours from meshes

A new contour algorithm has been designed using meshes to allow the processing of large digital elevation models such as those generated by photogrammetry applications, increasing their speed and improving their appearance.



Longitudinal Profiles

Automatic update

If the surface or horizontal alignment that has been used to calculate the profile is modified, the drawing update is done automatically.

Obtaining multiple profiles

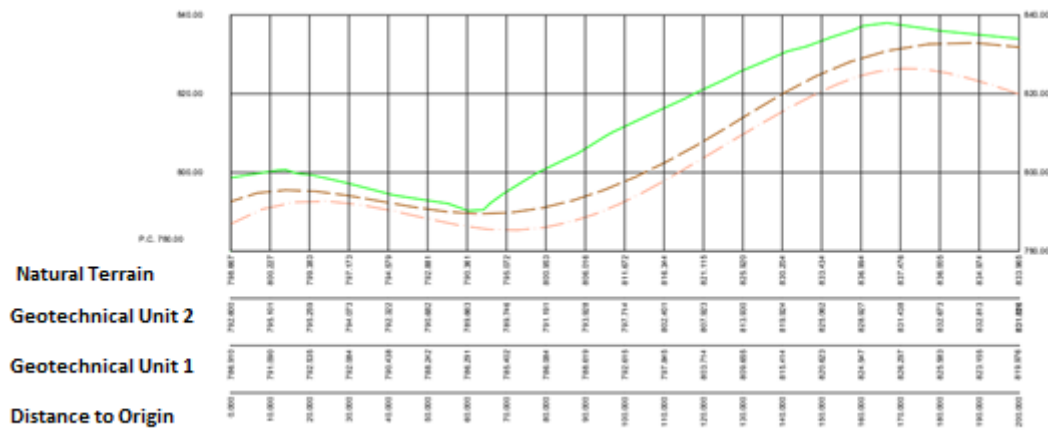
A new tool has been implemented to simultaneously obtain longitudinal profiles from multiple horizontal alignments, and another to calculate them from a horizontal alignment and multiple surfaces.

Drawing customization

In addition to the color, you can now configure the line type and profile thickness.

Drawing profiles in phases

A new command has been created to let you draw several longitudinal profiles with the same comparison plane, allowing you to represent, for example, geotechnical layers, etc.



Erasing profiles from a horizontal alignment

This tool deletes the drawing of the longitudinal profile associated with a horizontal alignment by simply designating it graphically.

Vertical alignments (professional version)

Manual entry

This command facilitates the creation of a new vertical alignment by entering its numerical parameters, very useful when they provide us with a list on paper or PDF.

Listing vertical alignments

Now, apart from unique points, user intervals and distances, the input and output tangents can appear in the list.

Cross sections

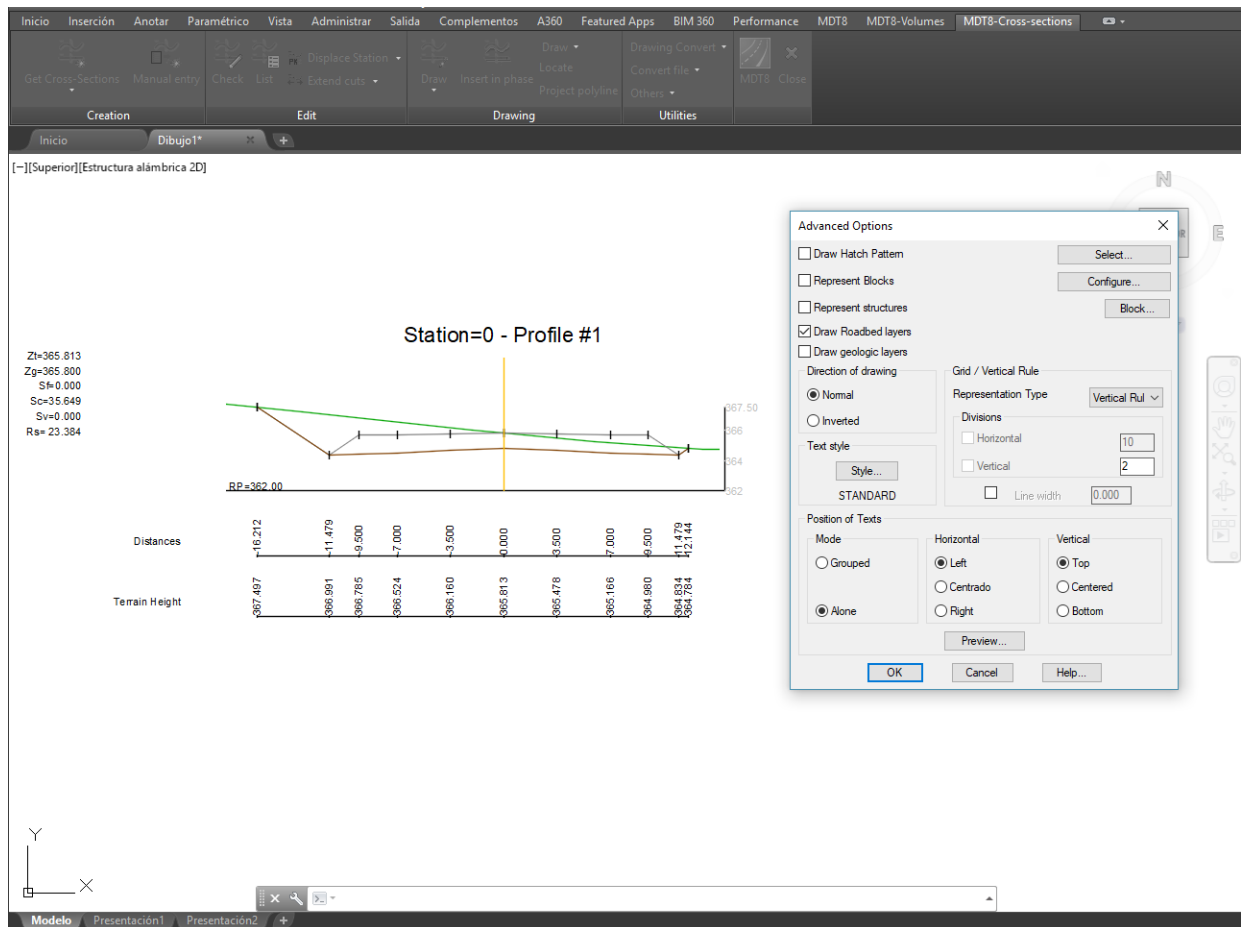
Automatic update

If the surface or horizontal alignment that has been used to calculate profiles is modified, the drawing update is performed automatically.

Customizing the drawing

In the advanced options you can select three types of representations, including a grid and vertical scale.

The ways to position text has also been changed, and now it is possible to align texts both horizontally and vertically, as well as representing them in groups or individually.



Legend in drawing profiles by phases

In this command a legend has been inserted to clearly identify the correspondence of layers and colors and the meaning of the variables calculated for each profile. It is also possible to indicate the type of line to be used for each layer.

Erasing profiles from a horizontal alignment

This tool deletes the drawing of the cross sections associated with a horizontal alignment by simply designating it graphically.

Road Sections (professional version)

Geology from cross sections

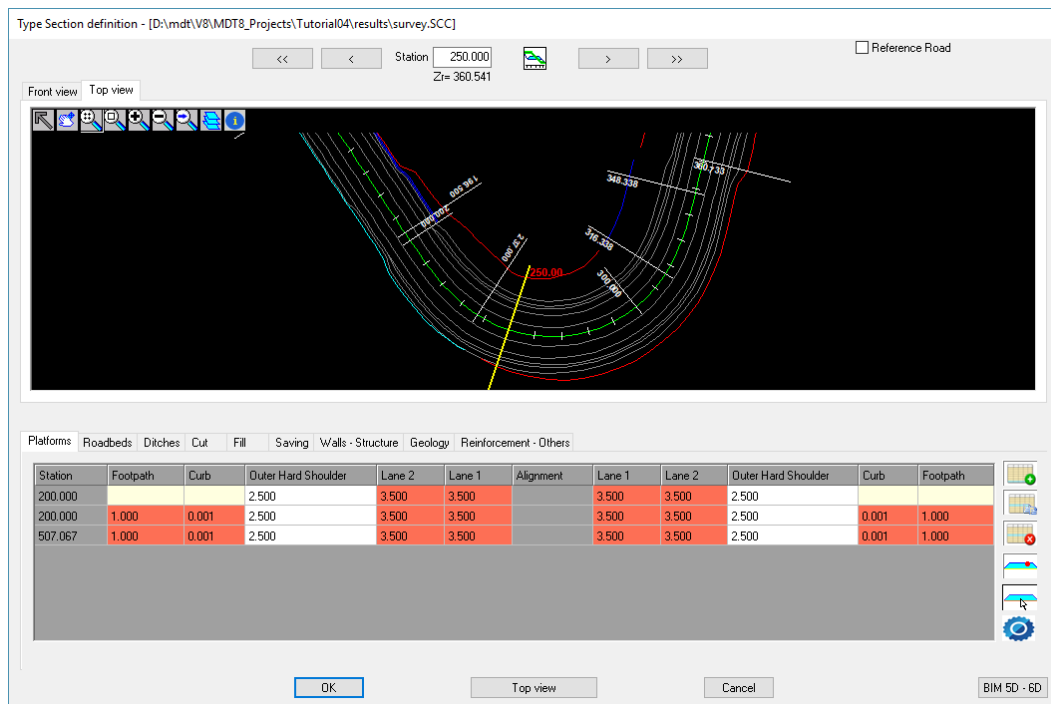
In the type sections, the possibility of including cross sections as geology has been implemented, as an alternative to a given thickness as in the previous version.

Assigning sections

In the assignment of platforms, ditches, cuttings and embankment the possibility of graphically designating chainages has been added. A new button has also been added to make eliminating all assignments for slopes and ditches much easier.

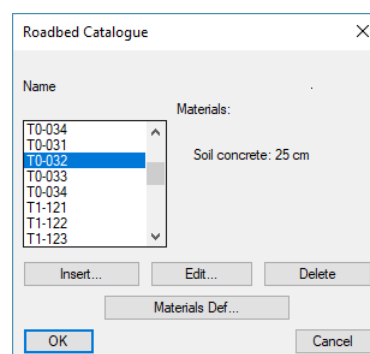
Type section display on the ground plan

In the definition of sections, another tab has been added that allows you to view the section that is being defined on the top view.



Defining roadbeds based on catalogues

Roadbed layers can now be defined with the help of a catalogue organized into categories and groups and customizable by the user. In addition, the application checks if regulations for the selected roadbed have been met.



Selected land

A new button has been added that lets you easily edit the properties of the selected land associated with the roadbed.

Pipe sections

In addition to the surfaces and volumes for each material and layer, the 3D length of pipe sections has been included.

Horizontal Alignments and Roads (professional version)

Automatic creation of road segments

This version facilitates the automatic creation of the segment and its components from the creation of the horizontal alignment, either by converting them from polyline, importing from files or fitting alignments.

Checking regulations

The possibilities have been expanded in terms of checking geometrical layout design regulations, incorporating, amongst other things, AASHTO, the new 3.1-IC of Spain (2016) and others in progress.

Station	Description	Section	Value	Ref. value
49.841	Clothoid parameter does not meet minimum setback	4.4.3.3	20.831	15.000
49.841	Clothoid with angular development less than 1/5 of whole curve	4.4.3.3	15.000	25.000
58.841	Clothoid parameter does not meet minimum setback	4.4.3.3	18.930	15.000
58.841	Clothoid with angular development less than 1/5 of whole curve	4.4.3.3	15.000	25.000
69.068	Circular curve with non-symmetrical clothoids	4.3.4	15.000	20.000
114.722	Clothoid with angular development less than 1/5 of whole curve	4.4.3.3	20.000	25.000
132.904	Straight section below the minimum length	4.2	63.596	111.200
196.500	Clothoid with angular development less than 1/5 of whole curve	4.4.3.3	45.000	50.000
237.000	Circular curve with non-symmetrical clothoids	4.3.4	45.000	40.000
316.338	Clothoid with angular development less than 1/5 of whole curve	4.4.3.3	40.000	50.000
348.338	Straight section below the minimum length	4.2	12.395	111.200

OK Print... Help... Error settings Horizontal... Vertical...

Deleting horizontal alignments

A new command has been created that allows you to delete a horizontal alignment as well as its dimension by simply designating it.

Utilities

Page labelling

New customization options have been added to cover the usual standards according to each country.

Information takeoff (professional version)

Platform measurements

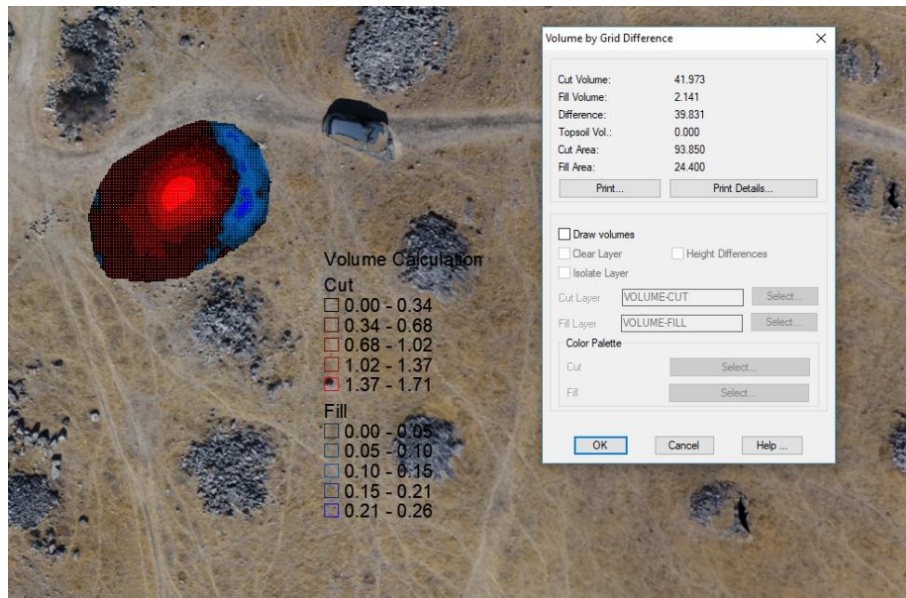
A new command has been created to measure the surface of different platform elements, such as lanes, roadsides, curbs, pavements, etc.

Integration with measurement and budget software

MDT 8 can connect to databases of work units in the BC3 standard format, as well as associate said units with objects and generate measurements that can be imported in such applications.

Material volumes

This new command allows you to quickly calculate material volumes defined by polylines drawn on a surface.

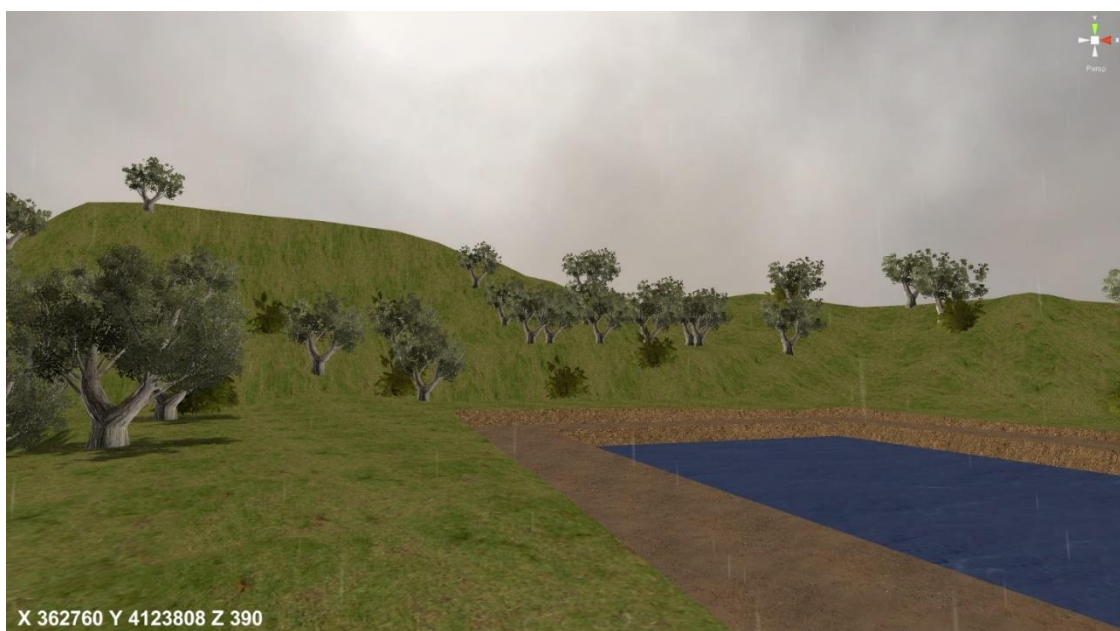


Maps

New viewer

A new viewer based on videogame technology has been designed, which makes terrain routes and road routes (professional version) more versatile, allowing you to use the keyboard, mouse or joystick to move around.

In addition, you can also change lighting conditions and simulate phenomena such as fog, rain, wind, etc.



New textures

The installation now includes more than 300 new textures ready to apply to models, such as asphalt, cement, grass, earth, stones and other materials.

Inserting 3D Objects

Likewise, new 3D objects of trees and vegetation, rocks, signs, urban fixtures, etc. have been included. The user can also add other files in FBX format, which can be inserted automatically from point codes, randomly or interactively in the viewer itself. You can also insert aligned objects with a polyline or horizontal alignment.



Virtual reality with Oculus Rift

Another interesting feature is the total immersion in the terrain through Virtual Reality technology, using the Oculus Rift and moving freely with the X-Box controls.



WMS and WMTS services

MDT allows you to insert images into your actual location from Web Map Services (WMS) and now also Web Map Tile Services (WMTS), offered by companies and public administrations in different countries and regions.

Plots

Automatic creation from drawing

A new command has been created that automatically creates plots of land from closed polylines in the drawing.

Buildings

These plots can include other constructions, building or swimming pools for example. For the former, you can associate data about its status, use, number of properties and homes, owner, start and end dates for the work, etc.

Exporting

Plots can be exported to ArcView, LandXML and GML shape formats.

The GML format exports both plots and buildings, and versions 3.0 and 4.0 (Cadaster of Spain) and others in preparation are included.