MDT Version 9
Summary of News

Supported CAD versions

MDT 9 works with various versions of CAD systems, facilitating the exchange of information between users through drawings in DWG format. They are as follows:

- AutoCAD®. Versions 2010 to 2023 (64-bit)
- BricsCAD® Pro/Platinum. Versions V.17 to V. 22 (64-bit)
- GStarCAD® Professional. Versions 2021 through 2022 (64-bit)
- LusoCAD® Professional. Version 2022 (64-bit)
- ZWCAD® Professional/Enterprise. Versions 2017 to 2023 (64 bits)

Supported Operating Systems

MDT 9 supports the following operating systems, 64-bit only:

- Windows 8/8.1
- Windows 10
- Windows 11

General

Unicode

Menus and dialogs are now available in Unicode encoding, for operation in languages that require it.

Units

For linear units you can choose between meters, feet, American feet and inches. Additionally, for the measurement of areas and volumes you can choose between square and cubic feet and yards.

Ribbons

Ribbon-type menus are supported in AutoCAD, BricsCAD, and ZWCAD.
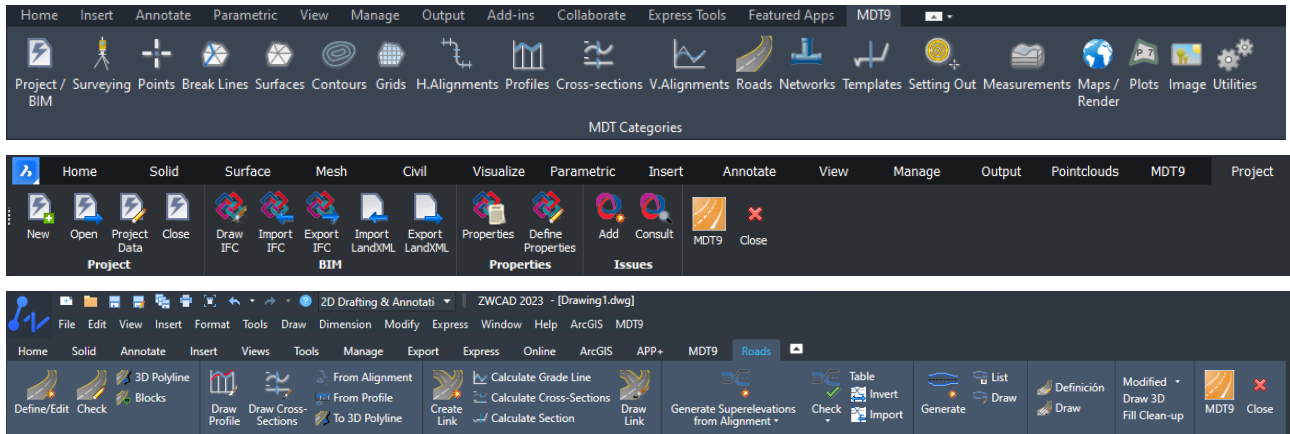
Reports

Exporting a list to Word, Excel, or text opens the exported file directly, instead of asking for confirmation.

Proxy server

For Internet connections from updates and web services, it is now possible to specify the Proxy server settings.

Vision

In addition to the existing categories (points, break lines, surfaces, contour lines, profiles) the Control points and Alignment options have been added.

Project

IFC or LandXML import

When you import IFC or LandXML files, the imported items are added to the current project.

BIM Properties

The possibility to consult the BIM properties of the selected object has been integrated into the context menus.

Geodesy

New coordinate systems engine

The coordinate system transformation engine has been updated to version 9 of the powerful PROJ library, which transforms geospatial coordinates from one SRC to another. In practice, this makes it possible to use more than 8,000 reference systems used around the world, including the most recent ones.
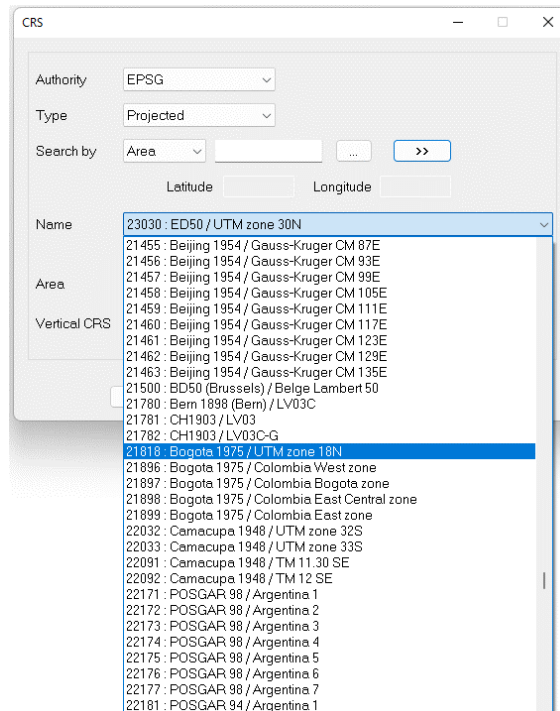
These can be projected, geographic 2D, geographic 3D and geocentric. In addition to the EPSG, other authorities such as ESRI and IGN France have been included. The installation also contains multiple grids and geoids from different countries.

In addition, if there are several conversion alternatives, the most accurate option is automatically chosen, without the need to manually select the transformation.

**New selection of coordinate systems**

The selection of the source or destination SRC can be made by name, region, code or latitude and longitude.
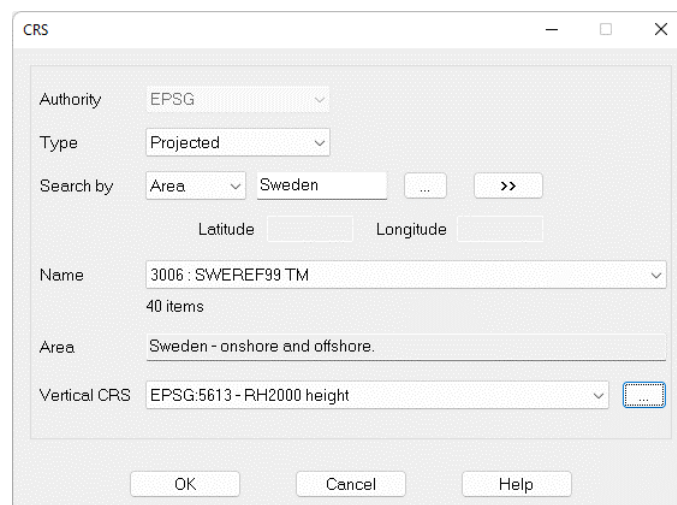
BIM

Issue management using BCF files

MDT 9 allows you to create and edit issues in OpenBIM workflows, managing their details, the associated image and the point of view in files with the standard BCF format, compatible with applications in this sector.
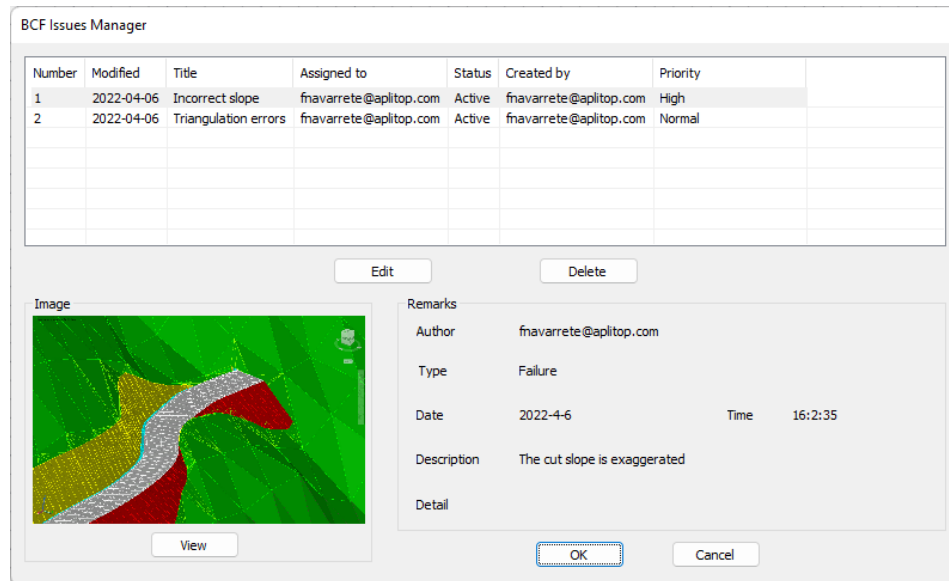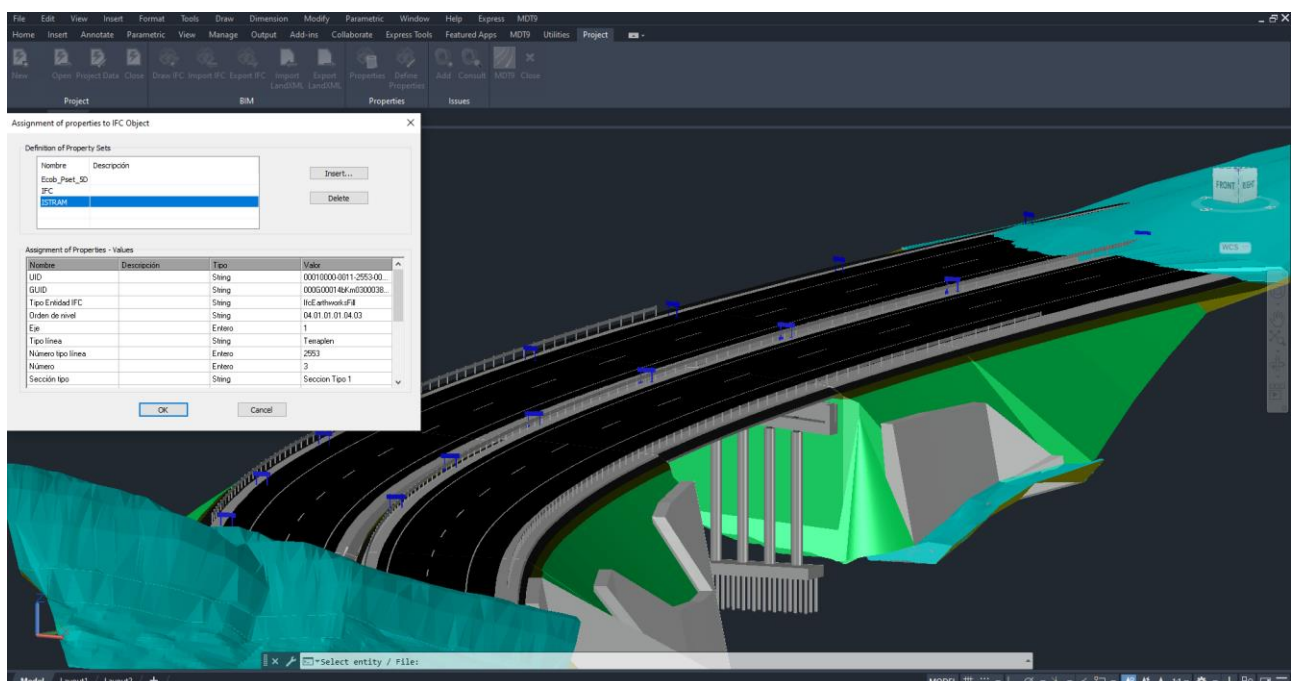

Defining Properties

Several improvements have been made to improve usability and offer more options.

Property Query

You can now query the BIM properties of the objects in the drawing, after you have imported an IFC file.

Export of meshes

In addition to surfaces, binary meshes can also be exported to IFC.

Export of ditches

In the export to IFC of the roads, the ditches are modeled in the event that they are assigned a coating.

Export of horizontal signage

The possibility of exporting drawing objects defined by closed polylines to IFC has been implemented, such as the horizontal signage generated by the *Get Modified Terrain* command.

Export of 3D objects and vertical signage

3D objects inserted with the corresponding commands, such as vertical signage, luminaires and street furniture are also exported to IFC.
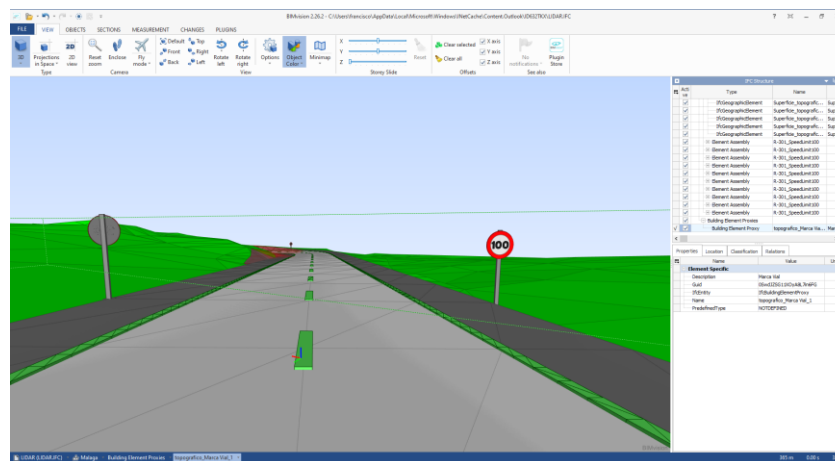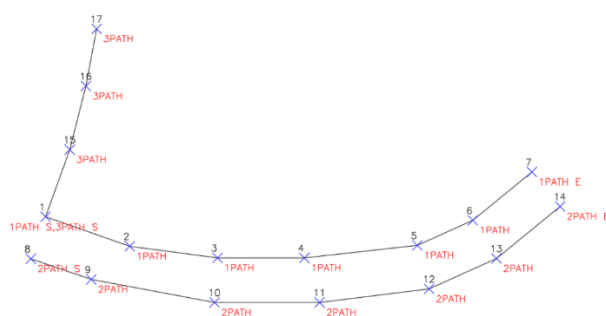

Points

Creating codes

In the code database, a new button facilitates the creation of new codes, graphically selecting blocks or polylines.

New prefixes in point codes

In addition to suffixes in point codes, it is now also allowed to consider numeric prefixes, which facilitate the capture of vertices of multiple entities simultaneously.

Importing Voice Memos from TcpGPS

In importing point files exported by TcpGPS in MDT format, now in addition to importing the images associated with points, your voice memos are also imported.

Insert points on slope

This command now allows a selection of points, which are projected against a polyline.

Filter points

You can now apply the filter to a selection.

Export of points

Added semicolon separator, suitable for CSV format. You can also choose the number of decimal places from the coordinates.

Surfaces and Meshes

BricsCAD Civil Surfaces

In BricsCAD 20 and above, you enable the ability to represent surfaces as TIN Surface objects and use BricsCAD editing commands in addition to MDT.
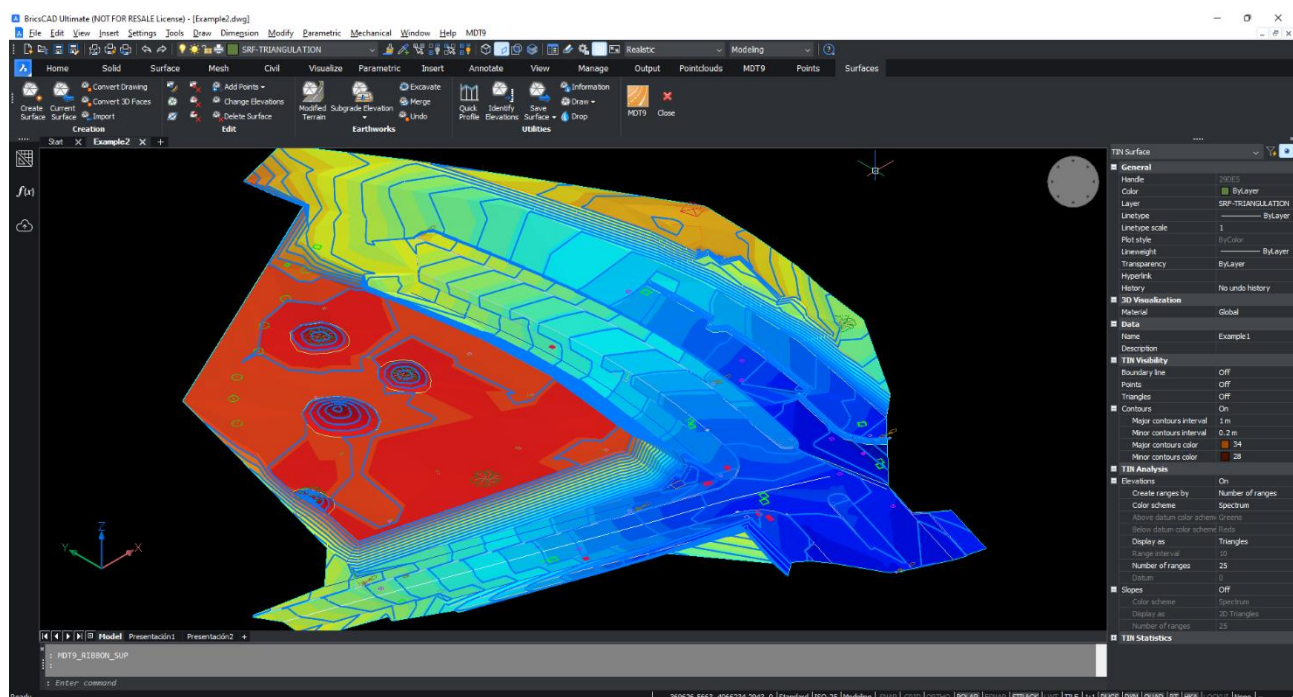
Representation with 3D faces

Now assign colors to the different faces, depending on the type of triangle.

Import of meshes

This version allows the import of multiple mesh files, with the possibility of unifying them into one.

In addition, you can also import mesh files in ASC format in geographical coordinates.

Move meshes

This new command allows you to create a new mesh by applying a offset in X, Y or Z using a topographic point or a designated point as the source.

New option in parallel displacement

The elevations of the created points, in addition to the existing options of repeat, displace, constant and variable, an option has been added that allows you to specify a slope value.

Cartography and Contour Lines
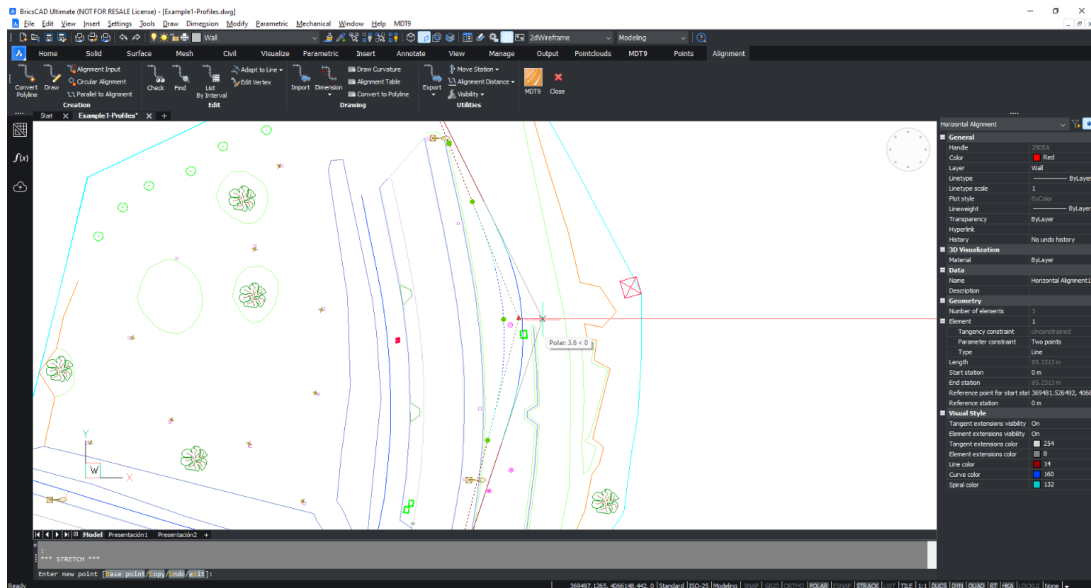
Identification of high and low areas

In the generation of contour lines, it is now possible to highlight the high and low areas, detecting concentric contours with the indicated equidistance.
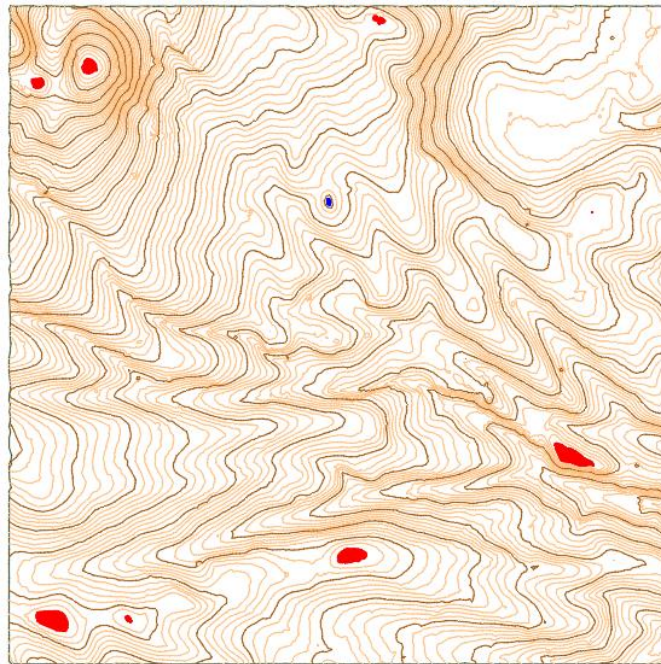
Horizontal Alignments

BricsCAD Civil Alignments

For all commands that request an alignment, BricsCAD Civil 22 alignments can also be designated.

BIM Properties

Listing the alignment indicates its name and you can edit its BIM properties.

Find Alignment

Several improvements have been made, to facilitate the search when there are many alignments in a drawing.

Trim alignment

This new command allows you to extract a span of an existing alignment, specifying its initial and final stations graphically or numerically.

Dimensioning

The dimensioning of alignments now also allows to label its name.

Longitudinal Profiles

Parallel profiling

In obtaining longitudinal profiles, in addition to the profile by the alignment, several files of parallel profiles can be generated at the desired distances.

Automatic update

When updating the surface or horizontal alignment, the profiles drawn in model space can be automatically updated if the user wishes.

Longitudinal profile properties

This new command allows you to query the properties of the drawn longitudinal profile (length, minimum and maximum elevations, etc.) in addition to controlling whether or not to want the automatic update.

Creation of cartography sheets

A new command has been implemented to create a mapping sheet layout from an alignment, with the size and overlaps specified by the user.
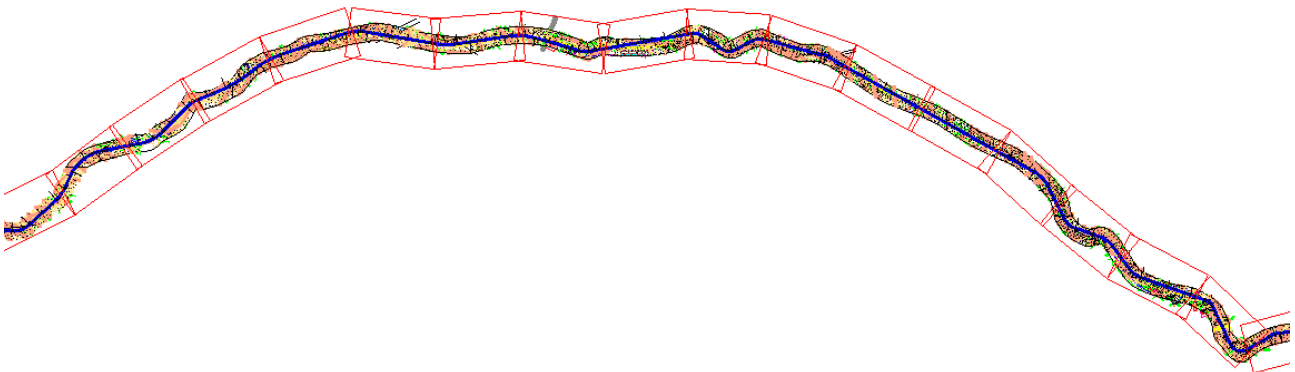
Cartography drawing in longitudinal profile

From the sheets created by the previous utility, longitudinal profiles can be generated that include the corresponding cartography of each sheet.
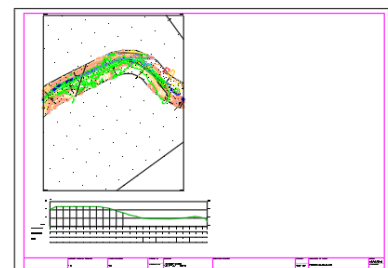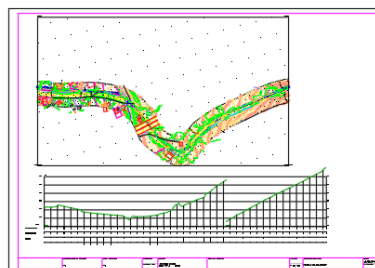
Longitudinal profile drawing from cross-sections

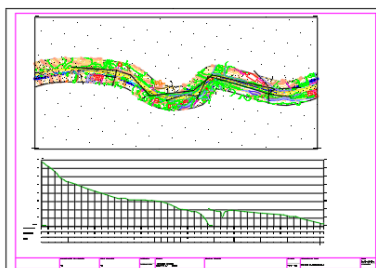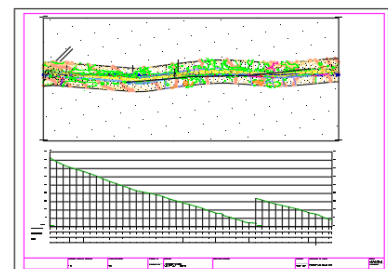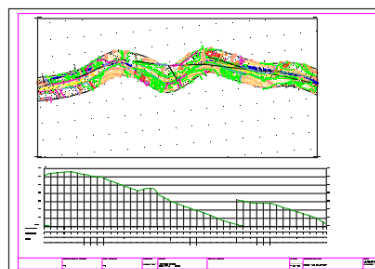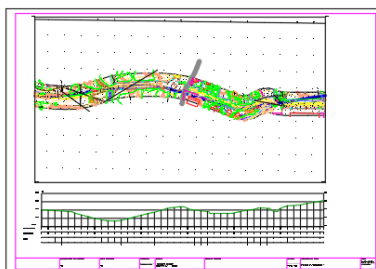In the *Simple Profile Drawing*, you now allow you to select a file of cross-sections, automatically calculating the profile from these.

Labeling of stations determined in the drawing

In the representation of vertices, in addition to the options to label all the cuts or apply a constant distance or codes, a new possibility has been implemented that allows to enter the distances to be labeled.

Projection of points in profiles

You can now select MDT or drawing points. It also allows you to represent blocks or marks on the drawing, as well as the optional labeling of number, displacement, elevation and code.

Projection of longitudinal profile in plan

This new command requests the designation of a drawn longitudinal profile and the horizontal alignment if necessary, drawing a 3D polyline using the elevations of the vertices of the profile.

Longitudinal profile list

The list shows the partial and slope distance between vertices as additional columns.

Cross-sections

Automatic update

When updating the surface or horizontal alignment, the profiles drawn in model space can be updated automatically if the user wishes.

Properties of cross-sections

This new command allows you to query the properties of the drawn cross-sections, as well as edit whether or not to want automatic updating.

Graphical designation of stations and distance to alignment

In profiling, the initial and final stations and left and right lengths fields can be defined graphically.

Generation from a surface region

In obtaining cross-sections, if a digital model is selected as the source, an option has been added to select an outline defined by a polyline.

Viewing cross-sections from road segment

From the *Review Cross-sections* command, selecting the segment, it is now allowed not only to modify the profile of the current stations, but all profiles.

Projection of polylines on profiles

This command allows you to select multiple polylines, by layers or graphic designation, selecting a block to insert in its position on the profile.

Labeling of the slopes in plan

The *Draw profiles in plan* tool now allows you to optionally label the slopes of each section of the cross-sections.

Vertical Alignments

Parabolic and circular vertical curves

It is possible that vertical curves of the two types coexist on the same alignment.

New options in grade editing

More options for editing vertices have been added to the *Vertical Curve* command, such as: insert vertex, delete vertex, raise or lower elevation, preview and center on the current vertex.

Labeling of the slopes in plan

The *Draw grade line in plan* command has a new option that allows you to label the values of the slopes.

Road Sections

Easier section definition

The definition of sections has been simplified from the predefined catalog, so that the platform vectors are automatically assigned to the final station. The values of the cut and fill slopes and the thickness of the roadbed are also assigned.
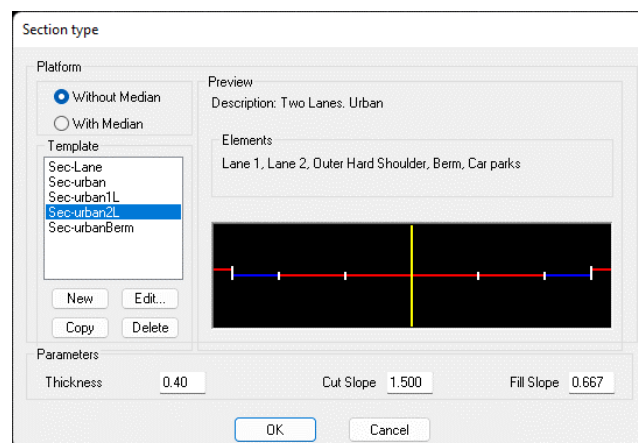
Import and export of platforms from Excel file

To facilitate the definition of complex type sections, it is now possible to import this data from an electronic sheet in XLS format.

### Graphical designation of stations in section assignment

By double-clicking on the cell of the corresponding station, you can graphically designate the point on the drawing. This has been implemented for the definition of: platforms, ditches, cut and fill slopes and road markings.

Pivot vertex for each platform assignment

The ability to designate a pivot vertex for each platform assignment has been included.

Drawing walls with thickness

When drawing the segment, if the walls are thick, they are represented by the thickness of them.
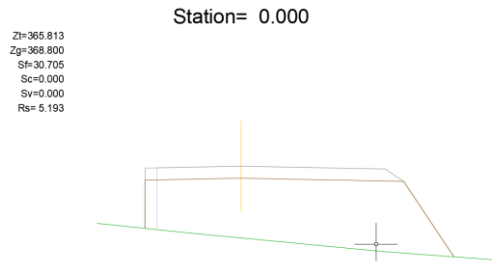
Definition of reinforcements

Added a button to copy the layers of the assigned firm. In addition, in the case in which the option of "Adapt to Terrain" is selected, in the event that the ground is above the section and the reinforcement is applied, a minimum reinforcement thickness has been included, to insert a possible layer, for example chipboard.

Overlaps in the roadbed layers

In the definition of roadbed layers, the possibility of measuring the distance with respect to the start of the hard shoulder or with respect to the upper vector has been included.

Roads and highways

New intersection commands

New utilities have been developed for road intersections, which allow the whole process to be carried out in several steps in a simpler way and with more control on the part of the user.
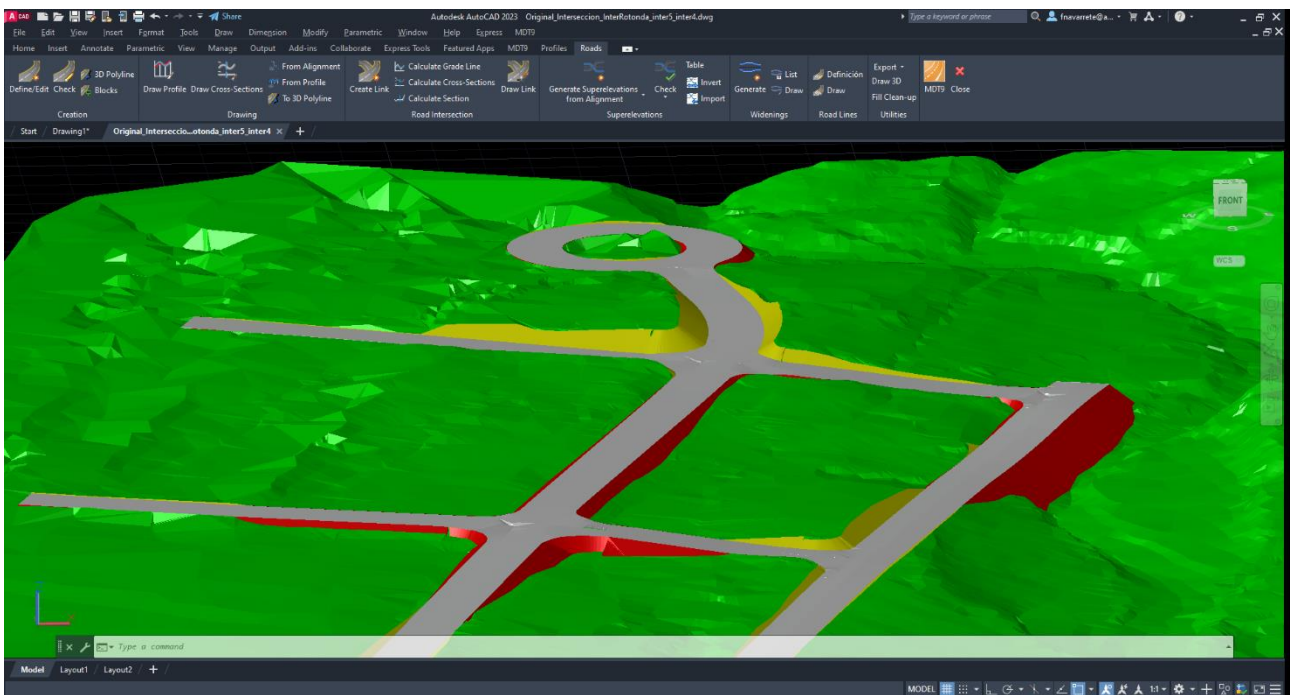
Road segment file organization

Files that belong to a road segment file are stored in a separate folder, for better organization of project files.

Extract segment file

This new command has been implemented, which allows you to create a new segment file by introducing new initial and final stations.

Horizontal signage

In the *Get Modified Terrain* command, the drawing of the horizontal signage is done in 3D and represented as polylines.

Pipe Networks

Creation of a section from 3D polylines

This new command allows you to create a pipe span from an alignment and a polyline drawn as a profile, which can include jumps.

Pipe Section Vertices Report

This utility generates a report with the data of the vertices of the selected section, with the possibility of additionally indicating an optional interval.

Calculation of vertices of Pipe Sections

Calculation of vertices of Pipe Sections

| Station ▼	X Coordinate ▼	Y Coordinate ▼	Terrain Elevation ▼	Well/Pipe Elevation ▼	Shoulder Elevation ▼	Depth ▼	Well Name ▼	
0.000	402418.389	4487935.165	956.948	954.000			P1	
44.299	402433.625	4487976.762	958.191	953.114	952.864	0.250	P2	
79.821	402443.963	4488010.746	959.244	952.404	951.654	0.750	P3	
104.769	402451.037	4488034.670	959.956	951.905	951.405	0.500	P4	
127.610	402454.573	4488057.236	960.700	951.448			P5	
152.459	402444.779	4488080.073	961.123	950.951			P6	
185.543	402433.553	4488111.195	962.171	950.289			P7	
218.628	402422.327	4488142.317	963.391	949.627			P8	

OK   Help   Print...

Pipeline-to-segment conversion

This new option in the *Networks command > Export* allows you to create a segment file from the selected pipe span.
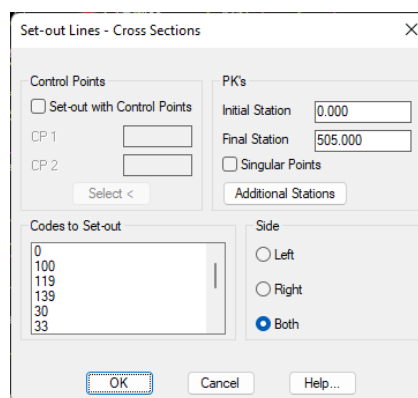
Setting out

Analyze points with respect to road

This command displays a report with the elevation differences of a set of points provided by file, selection, or designation with respect to a road. The reference elevations are obtained from a surface, the grade or the standard section of the road.
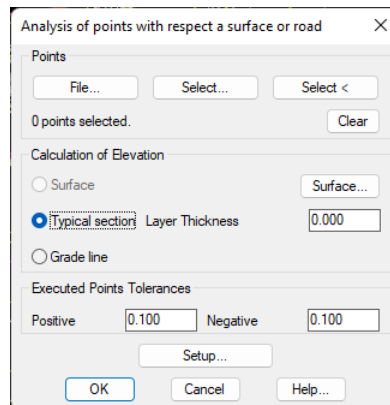
Stake out cross sections

This new command is similar to line staking, but instead of a road segment file, it allows you to work from an alignment and a cross-sections file. It is especially useful for using projects converted from LandXML and other formats.

Point labeling on alignment

The new *Label Points on Alignment* command allows you to designate points and label their station, offset, projected or geographic coordinates, elevation and optional description.

Creation of points in setting out commands

The *Analyze Points* command now allows you to draw the points that have been designated graphically, as well as label the calculation information of each point in the drawing.

Quantity take-off

Work executed by cross-sections

This new command allows to analyze the surfaces and volumes between several states, from the existing ground to the theoretical section and a given measurement. It offers the possibility of generating area and volume reports.

Volume calculation

In the calculation of volumes by difference of meshes or surfaces, different layers of cut and fill can be defined by dimension ranges.

In addition, the names of the selected files are displayed.

Frontier lines in volume measurements

In the calculation of volumes by difference of transverse profiles, polylines can be designated to delimit the calculation.
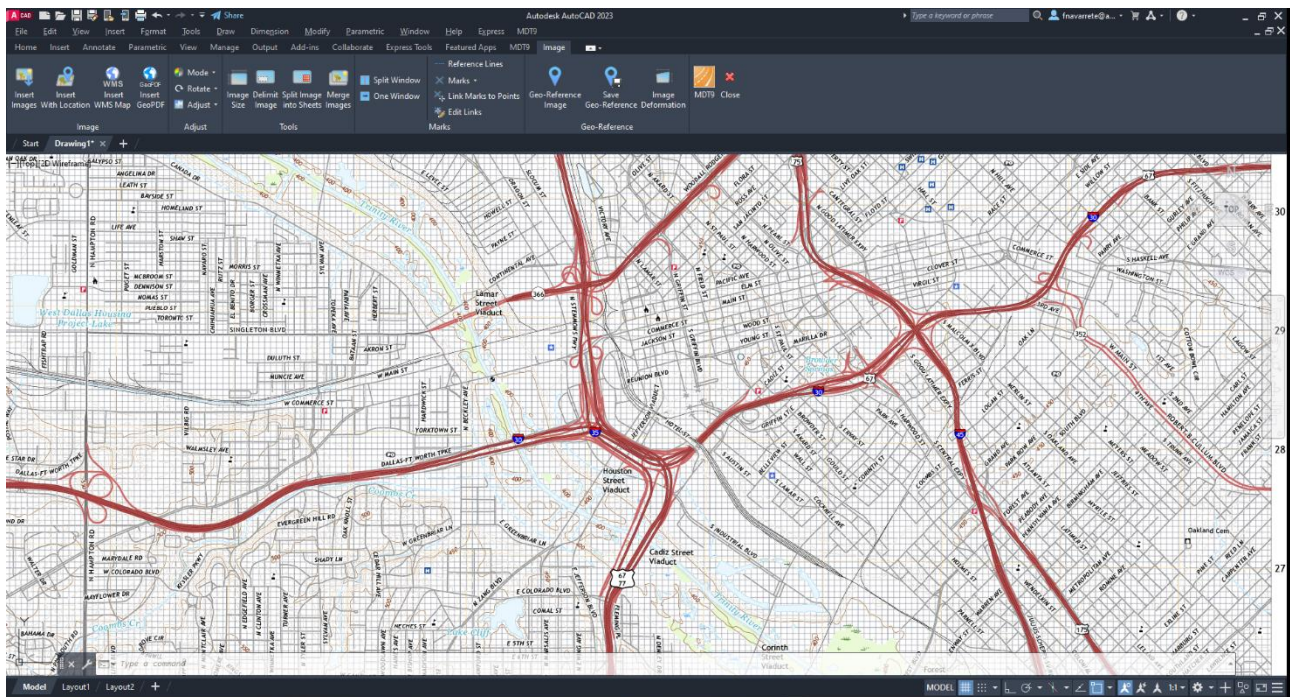
Assignment of work units to walls

From the definition of sections can be assigned to the walls units of works, which are reflected in the quantity take-off reports.

Imagery

Importing files in GeoPDF format

A new command allows you to insert a georeferenced PDF file into the drawing in its original location.

WMS/WMTS Service Management

The implementation has been revised to make it more compatible, and more services, organized by countries, have been added to the default list.

Maps/Render

New Viewer

MDT 9 includes a powerful new viewfinder that is used in the *Route by Terrain* and *Tour by Road* commands, with among others the following features:

- Display in orthographic and perspective modes, orthogonal views, zoom, free and restricted orbit, mini-map, etc.

- Username-selectable wallpapers (skyboxes)

- General and ambient lighting controls, allowing you to modify its direction, intensity and color. Quality settings and other shading parameters.

- Measurement of 2D/3D distances and areas

- Image capture
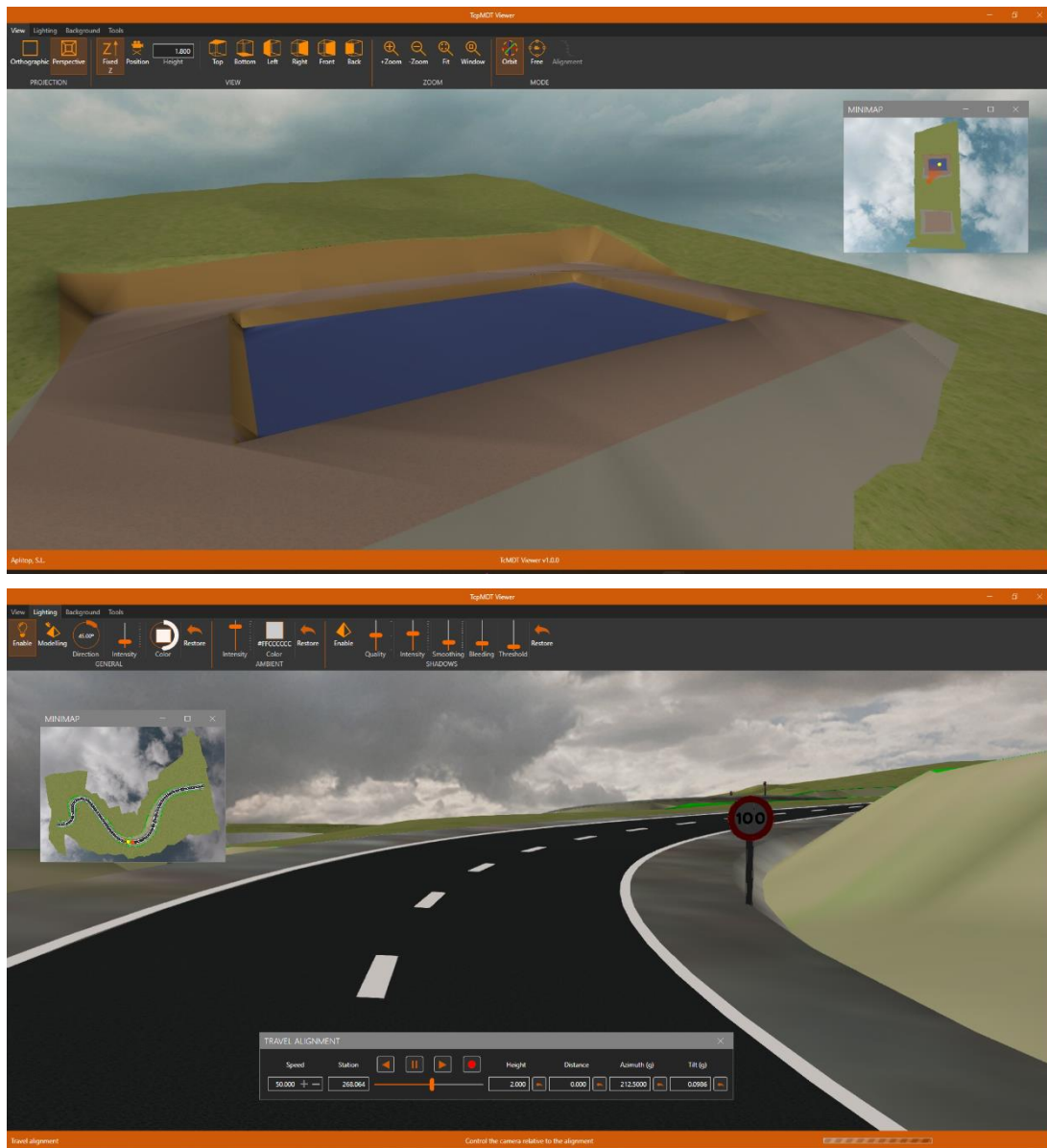
Video generation

Now you can choose a resolution of up to 4K, as well as the number of frames per second.

New 3D Object Importer

This application facilitates the import of 3D objects of different origins to incorporate into the project and be represented by the viewer or exported to IFC. It has tools to modify the position, rotation and scale of objects, as well as manage normal vectors, etc.
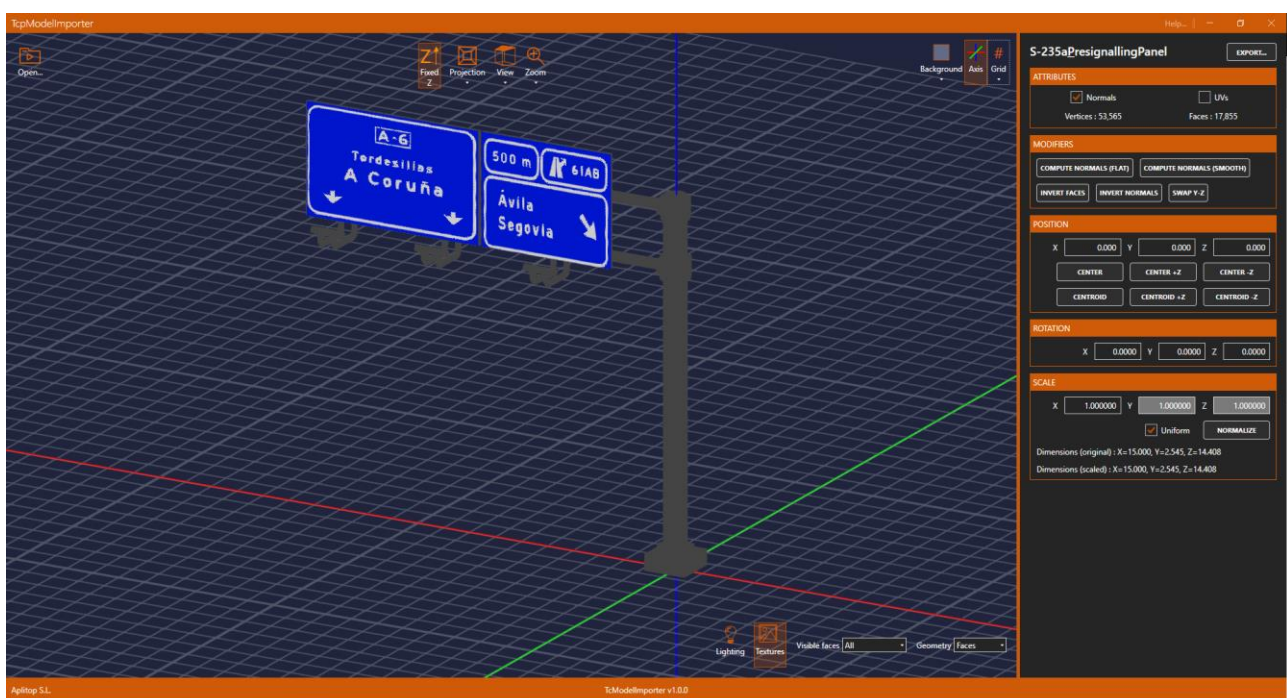
Importing GPX files

A new command allows you to import files in GPS Exchange Format, widely used by navigation applications. Waypoints are converted to points and each path to a polyline in independent layers.

Slope map

New options to represent the map according to the maximum slope or North-South or East-West orientation, especially useful to study the ideal location for photovoltaic plant projects.
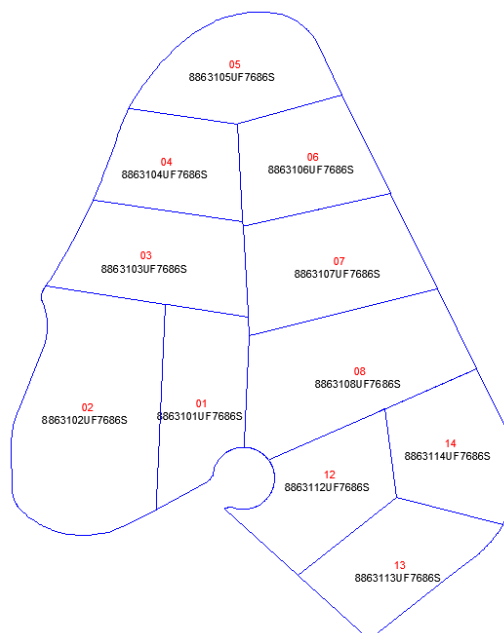
Plots

Generation of 3D constructions

This new command generates a representation of the constructions in 3D from cadastral data, such as the number of floors above ground of each enclosure. The representation can be as solids or 3D faces, and optionally the current surface is used as a base elevation.
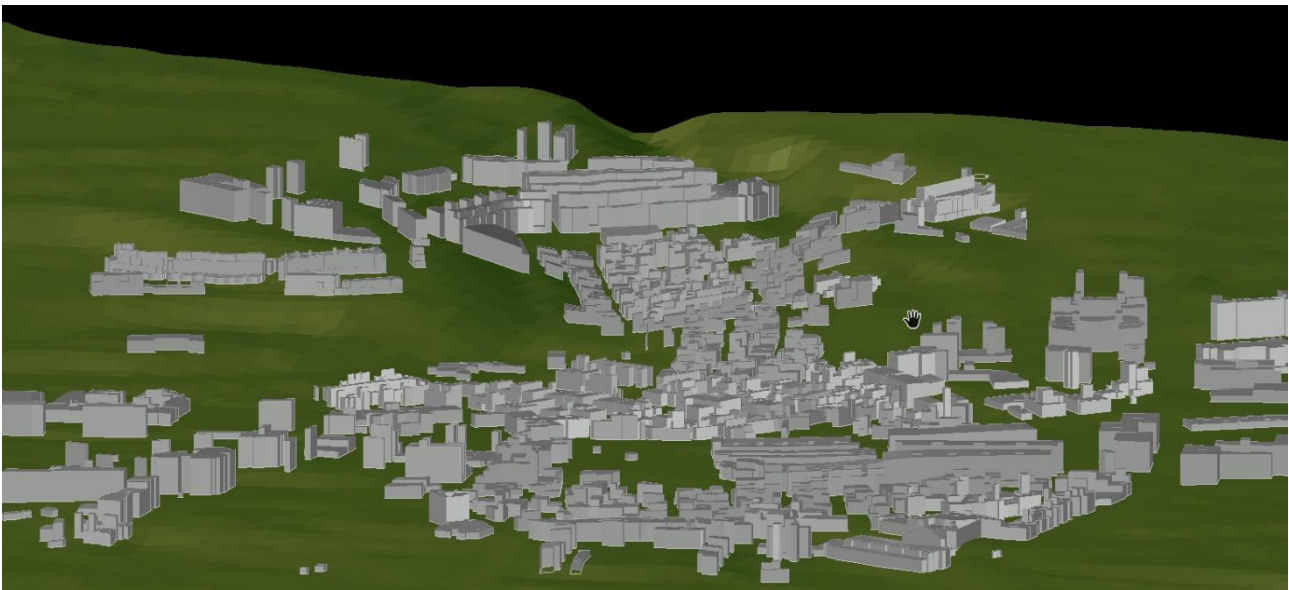
Conversion of plots from drawing

The possibility of recognizing not only the geometry and names of the plots, but also their identifiers or cadastral references has been added.

Export of swimming pools

In the export of plots to GML, possibility of exporting the pools annexed to the buildings to be exported.

Utilities

Save sheets in paper space

A new command has been created that allows you to create a paper-space presentation for each of the sheets created.

Drawing crosses and labeling frame

A number of changes have been made to improve usability and make them more versatile.