



TUTORIAL From GFD to Surfaces, Sections and Plot

From GFD to Surfaces, Sections

DESCRIPTION

Use Survey data to create surfaces, sections and plot
 GOAL

- How to use survey data to create surfaces
- How to use survey data to create sections
- How to create plot

DATA

Terracina.gfd





Import SURVEY data

FILE	HOME	VIEW	DRAW	EDIT	SURVEY	SUR	FACES	X-SECTIONS		ASTRAL	CLOUD	X•LIVE	OUTPUT		
Project	Scanner	TPS	Controller	S canner	X-PAD	Text	DWG/DXF		LE Survey	+ x Y Z ID point	Annotation	H→H Distance	Distance	Area	Angle
				data	Survey				data				object		_
Settin	Transfer					Im	port file					Info			

IMPORT FILE bar are the toolbar where find all the features related to data importation

Select **X-PAD Survey** to import survey file recorded in field with X-PAD Field software and select the job from the relative folder.





Survey data FILTERS

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From the **PROJECT MANAGER** select **FILTERS**, from entities deselect GNSS Bases and Measurements GNSS to hide this entities





New Surface



From the **SURFACES** menu select New empty surface and insert the name of the new surface.

New surface	×
Surface name	
surface	
	OK Cancel





New Surface – BREAK LINES



From **SURFACES** menu it is possibile to select Breakline or Boundary line to be used in creating a surface.

It is possible to use an existing polyline or create new elements directly on the points of the current survey.

Select **Boundary external** to draw a contour line directly on the points of the current survey.





New Surface – Break Line

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Build a new SURFACE

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Add Transformer Removes Peaks	nove gth Max side len Peak angle	yes No gth: 100.00 (°): 80 No	> 0m

From **BUILD SURFACE** menu it is possible to select:

- Survey data to be used, in this case only the current survey *Terracina* will be visible.
- Breaklines or Boundary lines
- Check for the maximum triangles side lenght
- Remove peaks
- Smooth surface

Select boundary lies and **BUILD**





New Surface









New SURFACE - View

By elevation	Triangle sides			X	1	Build surface Style	& colors	
		H				Color options		
Fixed color	🞸 Slope symbols	Calculate *	Calculated volumes	Tools	Delete data	Style:	Fixed color	
V	iew	Volu	umes	Util	ities	Color:	Green	



From the *VIEW* panel of the *SURFACES* menu it is possible to select:

- Color options of the surface, the option can also be selected during the built of the surface
- Triangle sides, to show the sides of the triangles of the surface
- Slop symbols





New SURFACE - View

By elevation		Slope direction symbols
Fixed color 🛛 🖉 Slope symbols	Calculate Calculated	Slope direction symbols
View	Volumes	I Surface: surface
	Q Q ∷ (@	Symbol length (mm):
	N. P. Law	Display slope value On
		Display direction value On
		Text size (mm):
L.		Text style:

Selecting **Slope symbols** it is possible to show the value of the slopes of the surface with the relative slope direction



Cross section

- New X-Sections group: creates a new group of cross sections in the project manager
- **Insert**: Create the cross sections (topographic, horizontal, vertical, by 3 points or long profile)

Select TOPOGRAPHIC sections

Section

Once the section has been selected, it is necessary to insert the name of the single section and to graphically define the two initial and final points.

The points do not necessarily belong to the survey, but you can also set two graphically external points

Sections Settings - Settings

SETTINGS: Define the parameters for the group of sections (Settings, Lines codes, Calculation rules, and Layout style)

It is possible to select **SETTINGS** and **RULES** both before and after the graphically selection of the section

Sections Settings – Lines code

Settings	Li	nes codes									
Sectings	Code Descripti		Description	Layer (main)	Layer sections	Symbol	Vertical				
Lines codes	►	TER	TERRENO	SEZIONI-TERRENO	LINEA-TERRENO		Continu				
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MISURE				- Layer (main)							
PARTICELLE				 Laver sections 							
			Ť	Vortical lines							
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Sections Settings – Calculation rules

Rules: used to define the sections rules. It is possible to create sections from:

- Surface
- Point cloud
- Punts
- Survey Drawing

Select:

- Subproject
- Line code
- Vertexes reduction

Tolerance

w X-Sections group	Settings	Open view	Ħ Topographic 好 Horizontal ☐ Vertical	く By 3 points A boints ハイ Long profile	Offset	All	Rules	
Cros	s-Sections			Insert		Calo	culate	

Calculation rule		×
Calculation from	Options	
I Surface	Subproject:	surface
O Point clouds	Line code:	TER
O Point clouds Group		
C Points		
Survey drawing (line, polyline	Vertexes reduction:	No
⊞ ○ Breaklines	Tolerance:	0.025
		OK Cancel

Sections Settings– Layout styles

Layout styles: used to define the drawing layout settings and the layout

Sections Settings– Layout styles

Drawing layout	La	yout row	s											
Layout rows	rows Visible Code				Type Description			abel sition	Row h (mi	eight m)	Description height (mm)	Label height (mm)	Code 2	Color
	Ø.	\checkmark	TER	Ту	/pe				×	20.0	10.0	2.0		Default
	*													
					Point number			Label p	osition				×	
					Point name									1
					Coordinates X			Horizontal						
					Coordinates Y	ordinates Y			ical					
					Elevation									
					Station									
					Station sloped									
					Partial									

Layout rows: used to define the information for the sections calculation, each line corresponds to an information

Sections

Calculate: Once the settings and the calculation rules have been established, click on *ALL* pto generate the sections

Open View: Allow to have a trasversal view of the calculated cross-sections

Sections

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Section [SECTION1] ×	
	Q Q 23
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PART.SLO	

Sections Offset

Offset: it is the function used to generate sections offset related to a reference section.

Once the reference section has been selected, it is necessary to insert:

- Offset distance
- Direction
- Parts

Click on **ALL** to generate the sections with the same calculation rules

10 000m	
Parts 18.000m	

Sections Offset

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Export

Info	Export			Export	<
New Open	Field formats Create X-PAD Survey file	Create E	DWG/DXF file for AutoCAD wing in DWG/DXF format to be able to loaded in AutoCAD or in any other software.	Document35-SECTIONS 179 Kbytes	08/01/2018 16:28:31
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Reports Close	Create Text file document (ASCII)	Export	Create DWG/DXF file for AutoCAD with orthophotos Export orthophotos in single or multiples AutoCAD DWG/DXF files.	∥ 🖆 📋 ĝ↓ - 🗹 	
Options About X-PAD Office Fusion	Create Google Earth KML file Points cloud Create Point cloud data file			 Project Manager Layers Survey codes 	
Exit	3D formats Create OBJ file Create WebGL file			 Filters Report Export 	

From *FILE* menu it is possible to select *EXPORT* to create a *DWG/DXF* file with the calculated sections.

The export data are always visible from *EXPORT* in the Project Manager.

From the *OUTPUT* menu it is possible to select *ADD PLOT BOX* to create print area selecting:

- Name
- Scale
- Sheet type
- External margin
- Rotation
- Project informations

Add plot box		д
Plot box paramete	ers	
Name:	PlotBox 2	
Scale:		1000
Sheet type:	A3 (297mm x 42	20mm) 🗸
Width:		297mm
Height:		420mm
External margin:		10mm
Rotation:		225.0000g ⊣ ⊾
Plot options		
Draw border		Yes
Print project name	2	Yes
Print date time		Yes

Plot

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