



# X-PAD Ultimate

**Service Pack #2 2021**

Fall 2021





# MISC

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# General improvements

X-PAD Ultimate is continuously improved and updated on a daily basis. Minor improvements and bug fixes are not listed in this presentation but can be found in the release notes for this release.



# Licence rehosting

The life of a field controller, for many reasons, can be short it may be necessary to transfer an X-PAD license from one controller to a new one.

This operation has been difficult, time consuming and has required manual intervention from the support team.

With this new service pack, the license transfer process has been greatly simplified.

It can be done in two easy steps: remove the license from the old controller and activate the same license number on the new controller.



# Select points by rules

In X-PAD, several activities allow a set of points to be selected from a list. Until now, the selection had to be done manually, point by point.

With the new 'selection by rules', available in the **List of points**, it is now possible to define a rule that automatically selects all matching points.

For example: it is possible to select all points that start with a certain letter or have a certain survey code, but it is also possible to select a set of points by name or date.

Exporting to an ASCII file, creating surfaces and defining the stakeout list are some of the commands where these selection rules can be used.

**Selection rule**

Attribute: Name ▼

Rule:

Interval: ☐

**Point attributes**

- Name ☒
- Code ☐
- Layer ☐
- Type ☐
- Creation date ☐
- Elevation ☐

CANCEL APPLY
















# SURVEY

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# Sets of angles

The **Sets of angles** command has been improved and now allows repeating the measurements for a single point in the list. If a point cannot be measured completely or with the right accuracy, it can be measured again without having to repeat the measurements for all the points.

In addition, it is now also possible to explore and access the single measurements (face 1 and face 2) and decide to exclude one of them from the calculation.

Sets of angles				
Results - Δ from Average				
	100	ΔHA	0°00'01"	   
		ΔVA	0°00'02"	
		ΔSD	0.000m	
	101	ΔHA		 Details  Repeat measurement  Delete
		ΔVA		
		ΔSD		
	102	ΔHA		
		ΔVA		
		ΔSD	0.000m	
Points:3				
<div>  Tools  End</div>				

# Topographic points list – Sort by point code

Topographic points can be listed in the table by ascending or descending order based on the survey code.

## Sort

Date ascending

Date descending

Point name ascending

Point name descending

Point code ascending

Point code descending

CANCEL



## Free station – Just measure

Until now, the free station setup required specifying the name of the reference point before proceeding with the measurement.


Free station setup, with at least 3 points, is now much faster because it is no longer necessary to specify the name of the reference point; just aim at it and measure.


X-PAD will automatically identify the reference points from the list of reference points stored in the job and will provide the results of the free station.


# X-PAD Ultimate BUILD – Measurements list


X-PAD Ultimate Build now offers the ability to edit measurements stored in the field.


With this option, users can edit bad target heights and get corrected elevations.

**320**  
21-09-21 11:32:37  
UNTERKANTE  
Prc.H:0.024 V:0.030

**319**  
21-09-21 11:32:26  
UNTERKANTE  
Prc.H:0.024 V:0.030

**318**  
21-09-21 11:32:15  
UNTERKANTE  
Prc.H:0.024 V:0.030

**317**  
21-09-21 11:32:02  
UNTERKANTE  
Prc.H:0.024 V:0.030

**316**  
Measurements: 285

◀

Points/Measurements/Codes

POINTS

REFERENCE...

CODES

MEASUREM...

Ant.H:2.000m

RTK Fixed

Ant.H:2.000m

Measure GNSS [320]

POINT

CODE&D...

BASE

QUALITY

SKETCH

Point

320

Rover Antenna height

2.000m

Date/Time

21-09-2021 11:32:37

O

-4.078m

N

13.389m

Z

0.057m

Geodetic coords

Latitude-Longitude-Height

Latitude

N 53°49'27.3541"

Longitude

E 8°54'03.2551"

◀

✓ Prev

^ Next

✓ Accept

# STAKEOUT

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# Stakeout & Reference line from CAD

It has always been possible to select a drawing element and start from the main CAD view in X-PAD Ultimate.

A new option allows specifying the if the preferred command is a Stakeout or Reference line.

With this option, users who choose to use the Reference line stakeout will have a new simple shortcut.

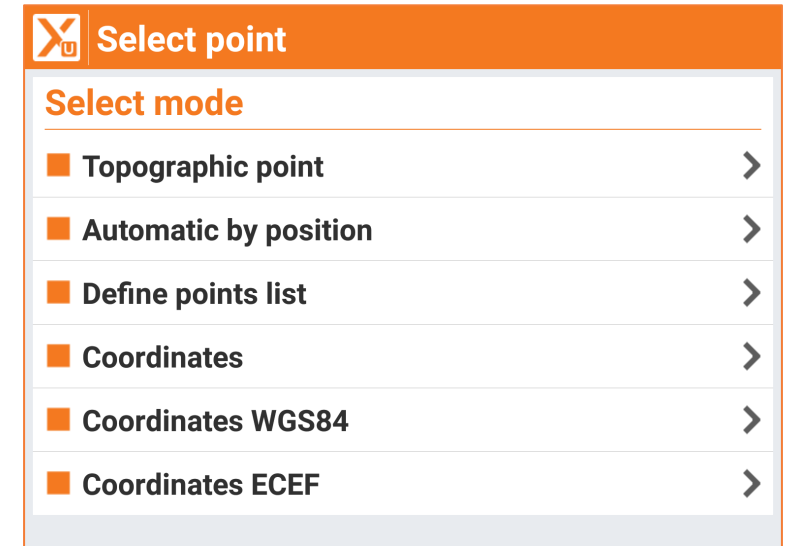
**Stakeout from CAD**

None	<input checked="" type="radio"/>
Stakeout object	<input type="radio"/>
Reference line	<input type="radio"/>

CANCEL

# Stakeout point – new mode & last point stored

The stakeout point menu has been simplified and allows you to switch directly to the main stakeout command. In addition, the name of the last staked point is saved and automatically displayed when you enter the command again. This means that you do not have to select the point to be staked out again when entering and exiting the stakeout command.






# COGO

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# New Inverse (Quick distance)

This new command allows you to quickly calculate the distance between two points. In case you only need the distance information between two points, this command is much faster and more direct than the existing CAD based **Distance** command which also allows you to get distances in several ways (two points, points and an object, distance from current position...).

This command can be also executed directly from the **Survey** and **Stakeout** commands.

 Quick distance

Point 1

▼

101

▲

➤

Point 2

▼

103

▲

➤

Progressive OFF

Not extended

Distance unit: Feet (US)


101 - 102


Distanc...(Grid) 2D	12.386ft
3D	16.480ft
Height diff.	-0.247ft
Azimuth	250.1801d
Slope	-2.00%

101 - 103

Distanc...(Grid) 2D	41.512ft
3D	34.343ft
Height diff.	32.538ft
Azimuth	349.2143d
Slope	78.38%

◀

 Clear

 Report



# SURFACES

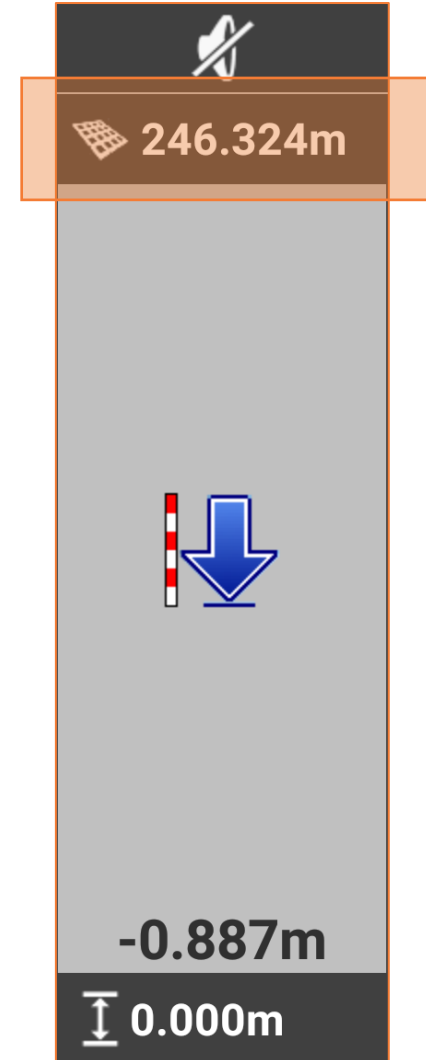
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# Surface stakeout

In **Surface stakeout**, only the offset difference between the current measured elevation and target surface elevation has been displayed.

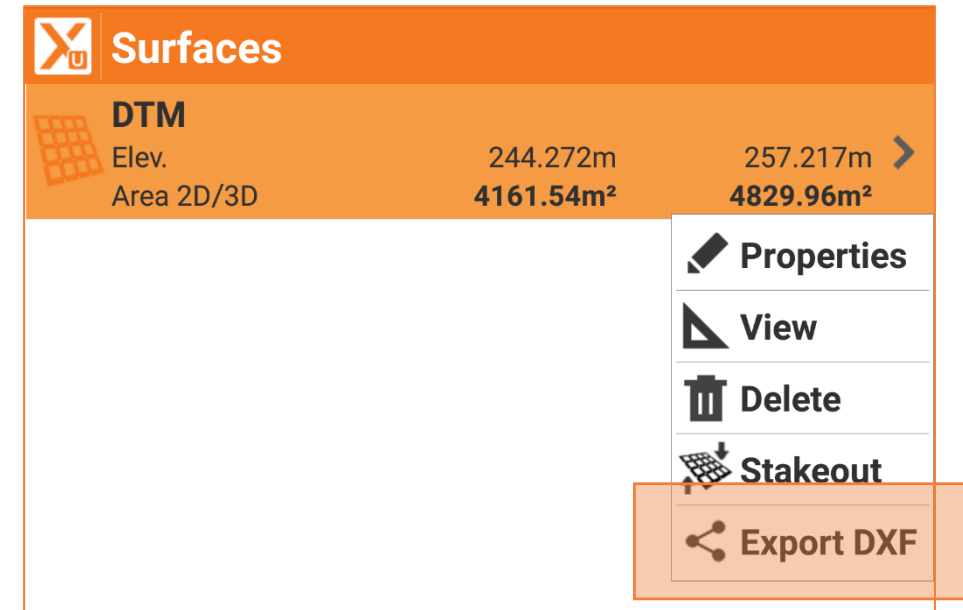
X-PAD now also displays the target value at the current location.



# Direct DXF export

From the list of surfaces, it is now possible to export a DXF file that contains the selected surface.

This makes sharing the surfaces with other teams and software tools in the field (like excavators) simpler and faster.





# ROAD

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# ROAD – Store point

In **Axis stakeout** it is possible to define the station and the offset of the points to stakeout which are necessary to find the point in the field.

Sometimes it is necessary to create a new topographic point at this calculated position in order to perform additional operations and calculations.

A new 'Store point' button adds this option to the Axis stakeout command.


The screenshot displays the 'Road Stakeout' software interface. The main panel is titled 'Offset' and contains the following input fields:

Field	Value	Unit
Offset	-42.498m	m
Offset	-42.498m	+ 8.000m
Elev.	89.717m	+ 0.000m
Slope from segment	No	

The 'Preview' window on the right shows a graphical representation of the stakeout. It includes a scale bar indicating 18m and labels for 'Polyline131' and 'Polyline132'. At the bottom of the interface, there is a navigation bar with a back arrow, a 'Store point' button (highlighted with an orange border), and a 'Next' button.

# ROAD – Starting coordinates

The starting coordinate of a road axis can now be selected from an existing topographic point, it is no longer necessary to manually enter.

 Road

ROADHORIZONTAL AL...VERTICAL ALIGN...CRO

Road

NamePolyline108

Start Station.0.000m

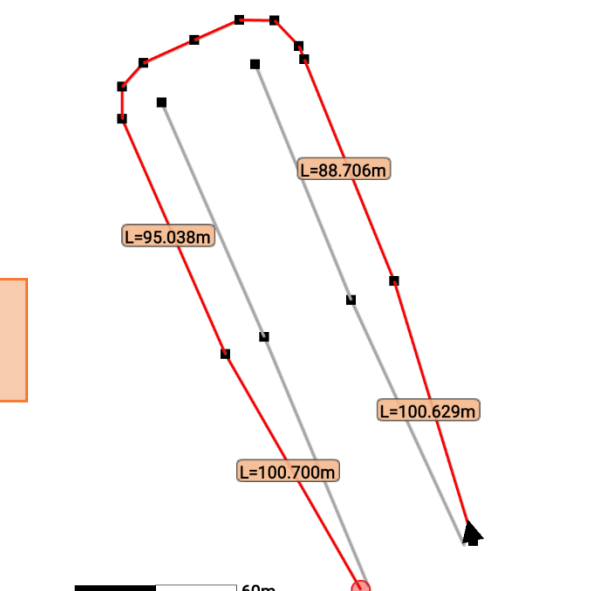
E185636.266m



N392262.442m

Point

Cross section width200.000m

Preview



 Tools

# ROAD – Station equations

Forward and backward station equations are available to adjust stations along an alignment.

These equations are mainly used to specify a new starting station along an alignment while maintaining an existing chainage after changes have been made to parts of the alignment.

Within the ROAD module it is now possible to specify these rules and work in the field with the adjusted stations in each part of the alignment.

Road			
O...	WIDENINGS	ROAD EDGES	STATION EQUATI...
Original	Station back	Station ahead	Description
1000.000m	1000.000m	0.000m	A
2000.000m	1000.000m	0.000m	B
3000.000m	1000.000m	0.000m	C
4000.000m	1000.000m	0.000m	D

## Select station equation

Original	EQ applied	EQ description
0.000m	400.000m	
1000.000m	400.000m	1000.000m to 0.000m
2000.000m	400.000m	1000.000m to 0.000m
3000.000m	400.000m	1000.000m to 0.000m
4000.000m	400.000m	1000.000m to 0.000m

BACK

# IMPORT & EXPORT

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# DWG Import\*

Many problems related to DWG import (circle and arcs imported as polylines and unsupported cartographic coordinates) are now solved with new DWG import functionalities.

X-PAD Ultimate is now fully capable of importing DWG files without any limitations.



(\*)This feature is available only on controllers with architecture ARM64-v8A; all latest generation controllers support this architecture.

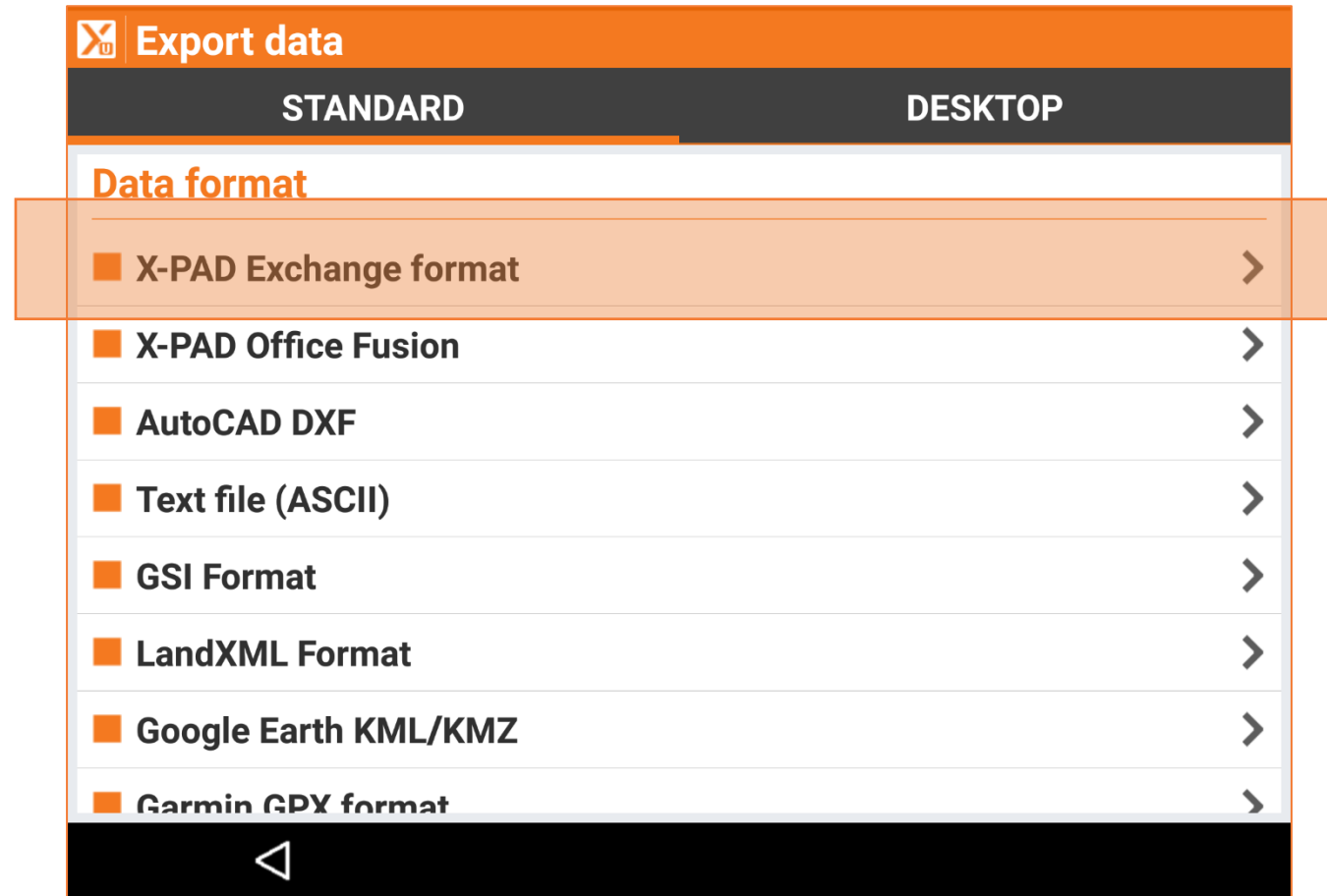


# X-PAD Exchange format

The new **X-PAD Exchange format** ensures better data transfer and collaboration between office and field software. This new format can be generated, imported and utilised by all X-PAD suite software:

- X-PAD Survey WM
- X-PAD Ultimate
- X-PAD Office Fusion

This new format consolidates all information stored in the field including photos and raw data.



# Google Drive

Access to and navigation in Google Drive folders and files has been significantly improved.



# Import points from ASCII - Layer

Points can be imported in different ways from different data formats. When importing points from an ASCII file, it is now possible to specify the layer in which the points will be saved.

This allows better organisation of the points into logical layers.

**Import ASCII**

**Parameters**

Data	Topographic points	▼
Scheme	AA	▼
Separator	,	▼
Heading rows	1	
Overwrite points	<input type="checkbox"/>	
Layer	POINTS	>

**Latitude/longitude format**

Lat.de/Long.de	DD°MM'SS.ssss	▼
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◀ Next ▶

# Novatron X-SITE

X-PAD Ultimate now provides a direct connection with the Novatron X-SITE cloud platform.

Novatron is a manufacturer of machine control systems, and X-SITE is their cloud platform to ensure connectivity and collaboration between the machines, the office and all teams.

Within X-PAD Ultimate, it is possible to log in to the system and access the different projects. Data exported from Ultimate can be uploaded to the platform and be immediately available to the machine. Downloading data from X-SITE to Ultimate is also possible.



# GNSS Vector Exchange File Format (GVX) – for US

X-PAD Ultimate is now able to export GNSS measurement data in the new GVX format.

This NGS (National Geodetic Survey, USA) defined format allows users to integrate RTK Vectors into OPUS-Projects along with static data for combined network least squares adjustment.

<https://www.ngs.noaa.gov/data/formats/GVX/index.shtml>