



New Features In TerraScan

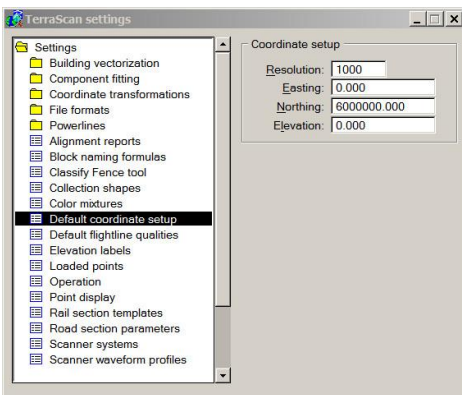
What's New in Terrasolid v015?
Webinar
18 February 2015

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Default Coordinate Setup


- **Default coordinate setup** category added to **Settings**
- Defines coordinate setup to use if you open a design file which contains no coordinate setup information




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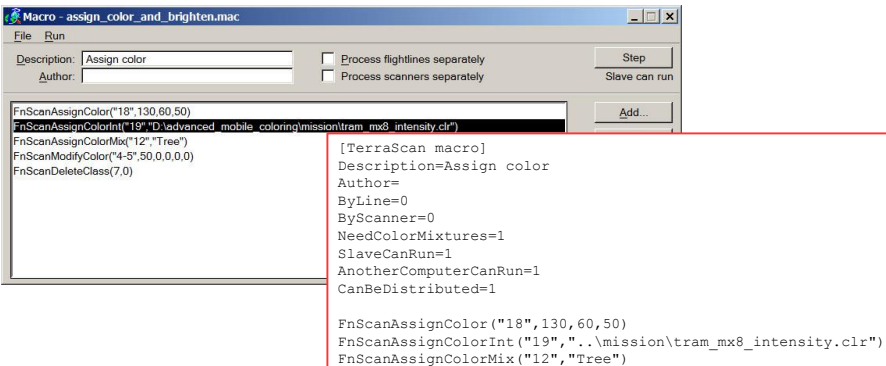
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Relative Paths in Macros



- Macro files now store file paths in macro steps as paths relative to macro file location
- Data set can be moved to another location or to another computer and macro will work without modifications
- Macro window shows absolute paths




```


[TerraScan macro]
Description=Assign color
Author=
ByLine=0
ByScanner=0
NeedColorMixtures=1
SlaveCanRun=1
AnotherComputerCanRun=1
CanBeDistributed=1

FnScanAssignColor ("18",130,60,50)
FnScanAssignColorInt ("19","..\mission\tram_mx8_intensity.clr")
FnScanAssignColorMix ("12","Tree")
FnScanModifyColor ("4-5",50,0,0,0)
FnScanDeleteClass (7,0)
    
```

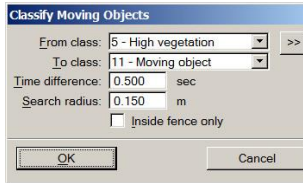
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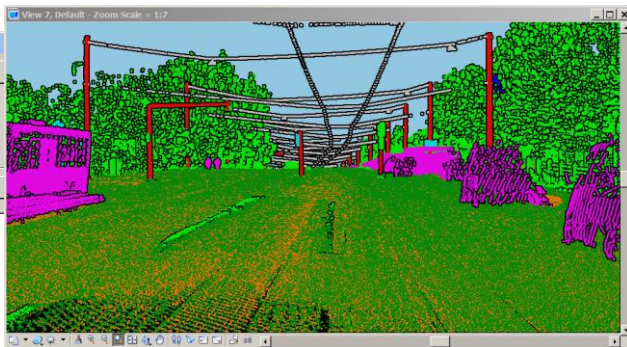


Classify groups / Moving objects





- Classifies groups of points which:
 - Have been seen only at one moment in time
 - At another moment in time laser pulses go thru the area
- Requires multiple passes or more than one scanner
- Requires that groups have been assigned







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Find Road Breaklines Improvement

- **Section centerline** and **Section breakline** types added
- These produce road breaklines which have vertices at the same regular step along the section centerline
- Elevations of resulting breakline vectors are affected by all laser points in between two breaklines
- Resulting vectors give a TIN model of road surface which is better average surface than locally fitted breaklines

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'Scale dz from TIN' Transformation

- For exaggerating the difference of laser points to a TIN model
- Good for viewing road deformations etc.

Transform points

Class: 2 - Ground >>

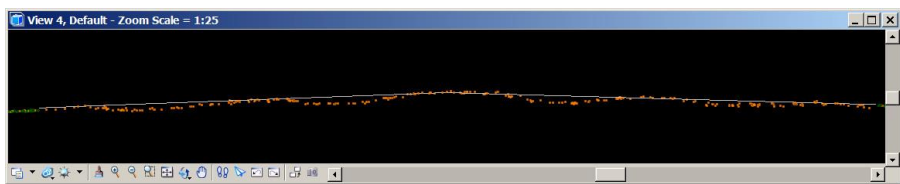
Flightline: 0-65535 0-65535 for all

Inside fence only


Transform: Scale dZ from TIN

Surface: Road surface Scale: 5.000000


OK Cancel



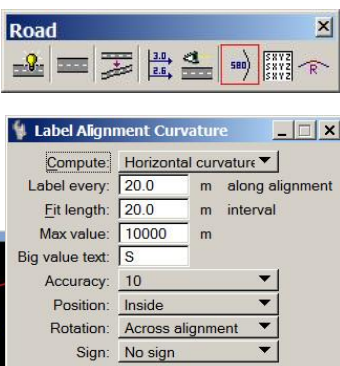
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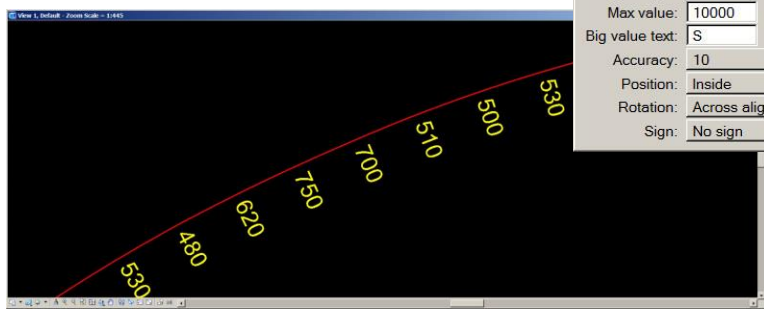


Label Alignment Curvature



- Labels horizontal or vertical curvature of an alignment at regular steps







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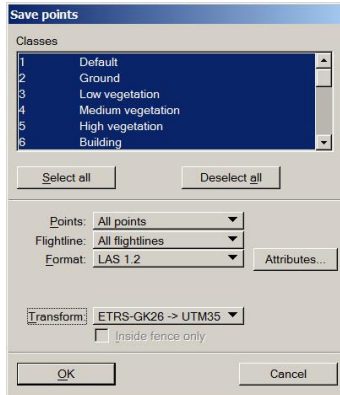
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Writing Longitude & Latitude LAS/FBI





- Software recognizes when you have chosen a projection change transformation to LAT/LON and chooses seven decimal resolution and zero origin for output file



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Design Block Boundaries & Levels

- Design block boundaries can use all visible levels from a view as the line work
- In earlier versions source lines had to reside on a single level
- Now easier to use this tool for different polygon creation tasks

Design Block Boundaries

Start from: Bounding line work

Line level: View 1 levels

Shape level: Level 23 - Pavement polygons

Label level: Level 12

Loaded every: 50 th point

Minimum count: 15 million points



Maximum count: 25 million points

Good count: 2

Bad count: 3

OK
Cancel

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Export Raster Images Improvement

- Road intensity** option in exporting raster images
- Uses directional sampling based on road alignment vectors to improve longitudinal and perpendicular intensity features

Export raster images

Color by: Road intensity

Class: Classes 3.23 >>

Bounding polygons: Level 27 - Expanded pavement pc

Alignments: Level 20 - Road centerline

Sampling: 0.080 m

Format: GeoTIFF

Colors: 24 Bit Color

Pixel size: 0.025 m

Fill gaps

Up to 3 pixels

Attach as reference

Range: 0.000 25535.000

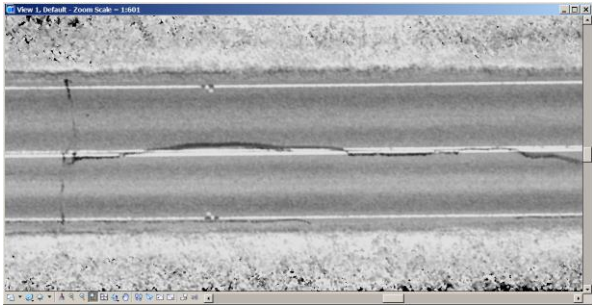
Scheme: Selected colors

Define...


File naming: Selected text elements Browse...

Directory: D:\v6\intensity_ortho


OK
Cancel



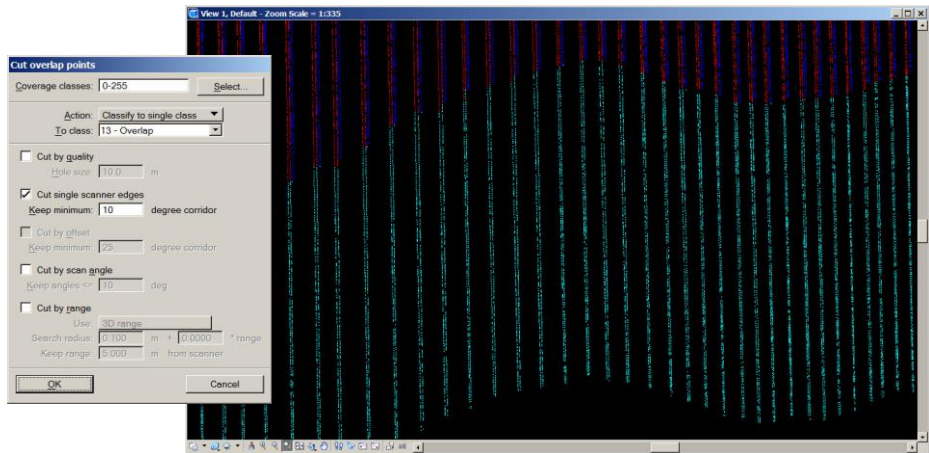
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Cut overlap / Cut single scanner edges




- Written for dual scanner airborne data where you may want to remove edges of scanlines seen by one scanner only



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Scan Create Surface Key-in




- Key-in command for automatic TerraModeler TIN creation
- Example:
 Scan Create Surface 8 key10
 would create a model from class 8 and give it name key10

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New Trajectory Formats




- Import support for POF 1.1 trajectory format
- Import support for Topcon trajectory format

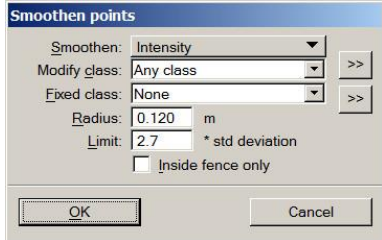
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Intensity in Smoothen Points



- **Smoothen points** can now smoothen intensity values
- Useful if there is some noise in intensity values
- Modifies only those points which differ from local average intensity by more than **Limit** * local standard deviation
- If **Limit** is 0.0, will smoothen every point
- If **Limit** is 5.0, will modify only clear outliers



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Intensity in Smoothen Points

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Enhanced Depth Perception

- **Use depth** modified: draws black margin around foreground points
- Separates foreground from background and enhances 3D perception
- Always drawn as raster – vectors visible on top of laser points regardless of which one is closer to viewer

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Sky Background in Perspective Views

- Draw sky if **Use depth** on setting in **Settings** tool and **Point display** category
- Draws sky blue background into perspective views

The screenshot shows the TerraScan settings window with the 'Point display' category selected. Under 'Background in camera views', the 'Draw sky if 'Use depth' on' checkbox is checked. To the right, a perspective view of a road shows a clear blue sky background.

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Color Mixtures


- Define using **Settings** tool and **Color mixtures** category
- Assign to laser points using **Assign color**

The first screenshot shows the 'Color mixture' dialog box with 'Tree' as the name. It has three color sections: Color 1 (70% green), Color 2 (30% brown), and Color 3 (0% black). The second screenshot shows the 'Assign color to points' dialog box with 'Class: T2 - Tree', 'Assign: Color mixture', and 'Mixture: Tree'.

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'Modify color' Macro Action



- Adjust color values of laser points
 - Brightness
 - Saturation
 - Grey balance
- Adjustment can be run on selected classes only
- For example: make building roofs more red and all other classes less saturated

Macro step

Action: Modify color

Class: Classes 4-5 >>

Brightness: 50

Saturation: 0

Red: 0

Green: 0


Blue: 0

OK
Cancel


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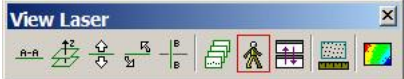
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Travel View



- Sets up a perspective view with viewer at a specified height above ground
- Provides controls for traveling in the view



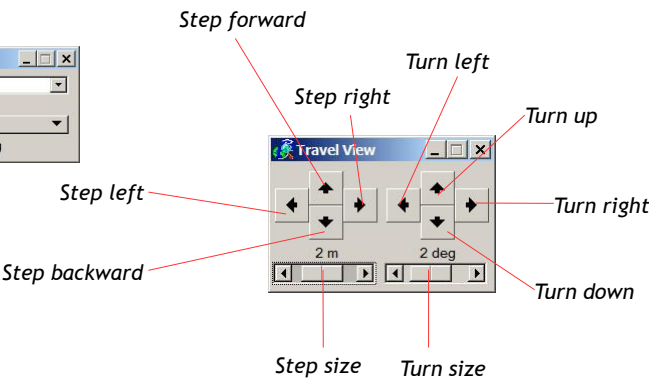
Travel View

Surface: 2 - Ground

Viewer height: 1.70 m

Viewing angle: Terrain slope

Angle: 30.0 deg



Step forward
Turn left
Turn up

Step right
Turn right
Turn down


Step left
Step size
Turn size

Step backward


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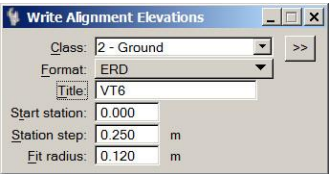
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Write Alignment Elevations







- Writing laser elevations along an alignment
- User identifies two alignment vectors (can be same):
 - Alignment to write
 - Center alignment providing stationing
- Moves along alignment at regular steps, fits a plane equation to laser points and writes elevation
- You can read ERD file format into ProVAL
- ProVAL is free software for road profile analysis such as IRI and Power Spectral Density computation

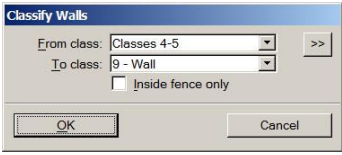
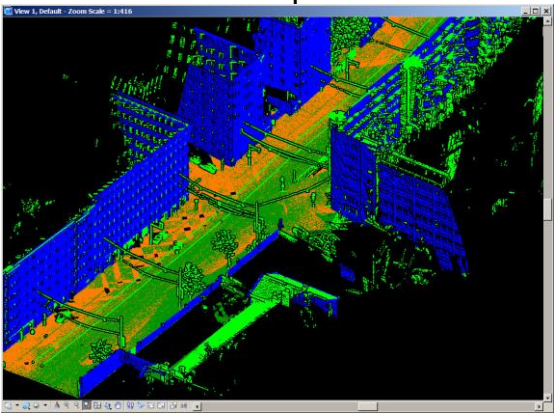
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Classify / Walls




- Classifies planar surfaces which are:
 - nearly vertical (within 10 degrees)
 - large (> 10m²)
- Requires that normal vectors have been computed

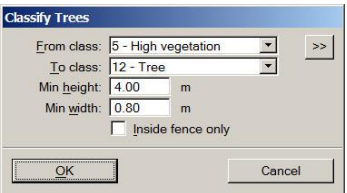
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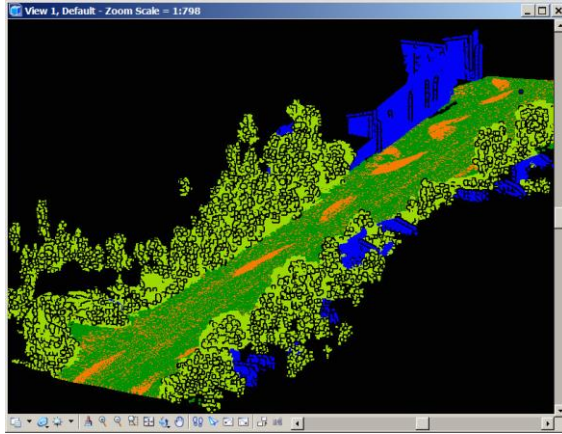


Classify groups / Trees




- Classifies irregular groups of points as trees
- Requires that normal vectors have been computed
- Requires that groups have been assigned






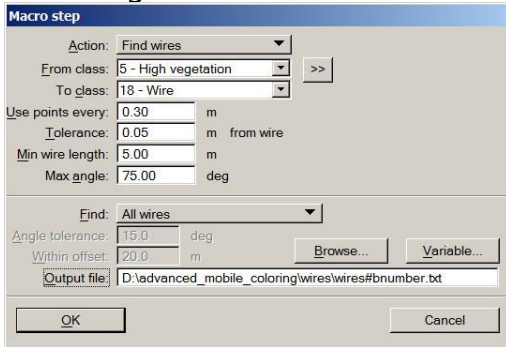
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Find Wires in Macros




- Find wires added as macro action
- Produces two results:
 - Classifies points into wire class
 - Writes one text file for each block
- Use **Tools / Read / Wires** to read text files and draw vectors into the design file



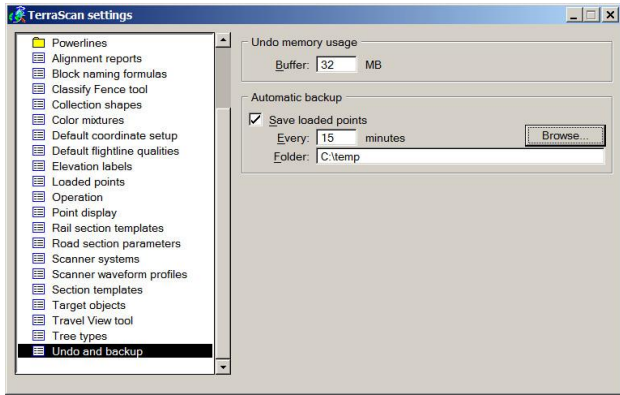
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Automatic Backup




- **Settings** tool **Undo and backup** category can specify that an automatic backup will be written of loaded points every X minutes of modifications
- Points stored as alternating Fast Binary files:
 - Backup01.fbi
 - Backup02.fbi
 - Backup03.fbi
 - Backup04.fbi




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Smoothen Stops




- Builds correction for trajectory drift during a stop



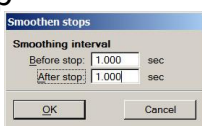
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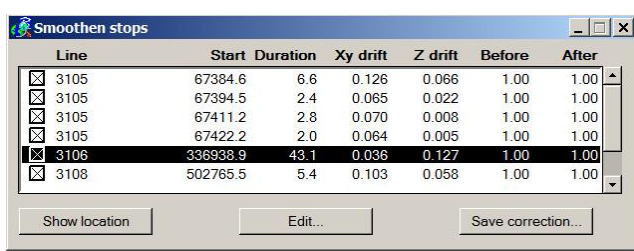


Smoothen Stops




- Builds correction for trajectory drift during a stop
- Software looks at trajectory information:
 - Finds a stop interval
 - Computes a smooth curve through stop interval
- Correction is difference between smooth curve and trajectory positions
- Create .tms file which you apply with **Apply Correction**






Line	Start	Duration	Xy drift	Z drift	Before	After
<input checked="" type="checkbox"/> 3105	67384.6	6.6	0.126	0.066	1.00	1.00
<input checked="" type="checkbox"/> 3105	67394.5	2.4	0.065	0.022	1.00	1.00
<input checked="" type="checkbox"/> 3105	67411.2	2.8	0.070	0.008	1.00	1.00
<input checked="" type="checkbox"/> 3105	67422.2	2.0	0.064	0.005	1.00	1.00
<input checked="" type="checkbox"/> 3106	336938.9	43.1	0.036	0.127	1.00	1.00
<input checked="" type="checkbox"/> 3108	502765.5	5.4	0.103	0.058	1.00	1.00

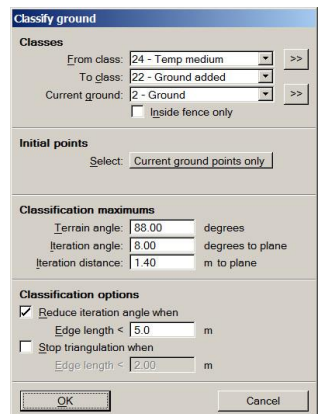
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Multiple Source Classes in Ground Classification



- Multiple source classes and separate ground class added to ground classification routine
- Gives more flexibility in building workflows



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