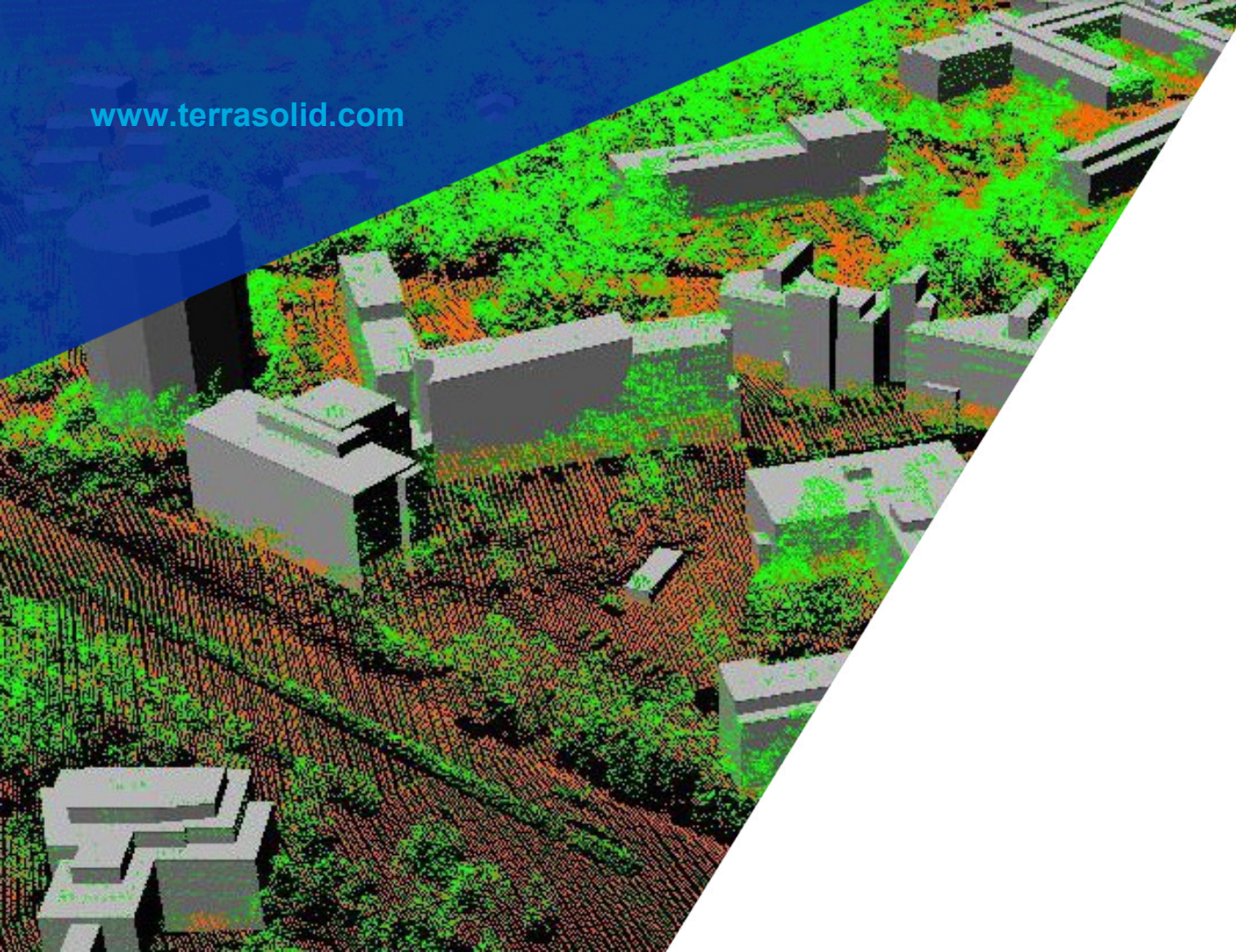


[www.terrasolid.com](http://www.terrasolid.com)



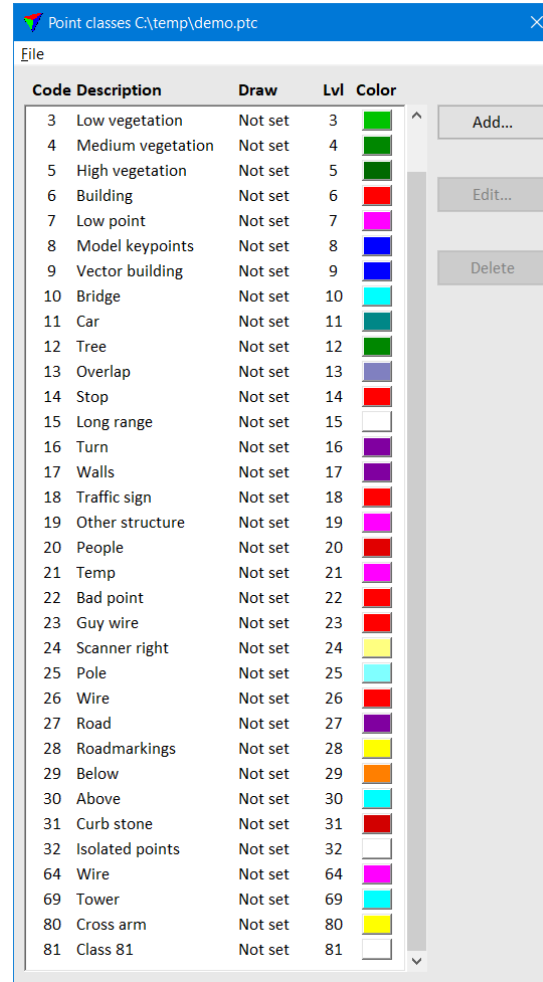
# TerraScan New Features

Arttu Soininen 13.10.2020



# Resizable Windows

- TerraScan Main Window
- Manage Trajectories
- View Positions
- Define Classes
- Check Tunnel Sections
- Check Building Models
- Inspect Groups
- Define Macro



Point classes C:\temp\demo.ptc

File

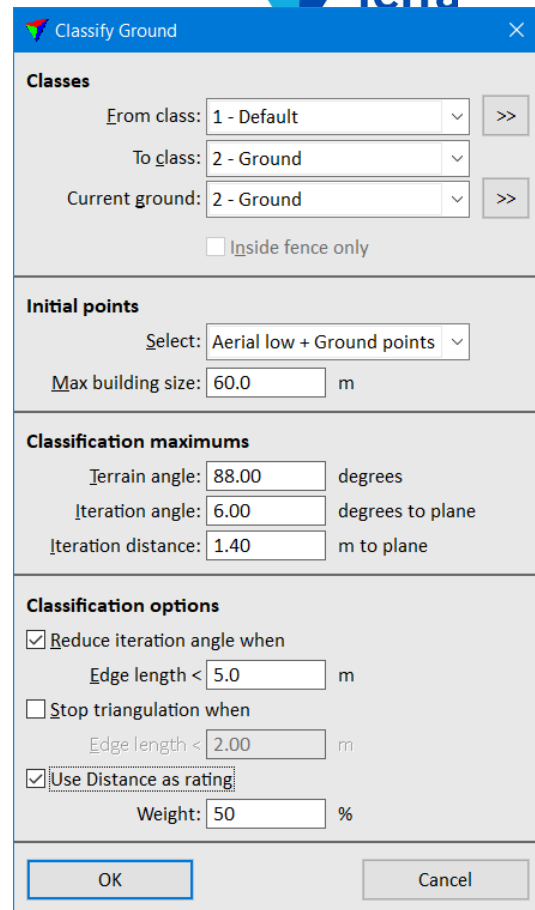
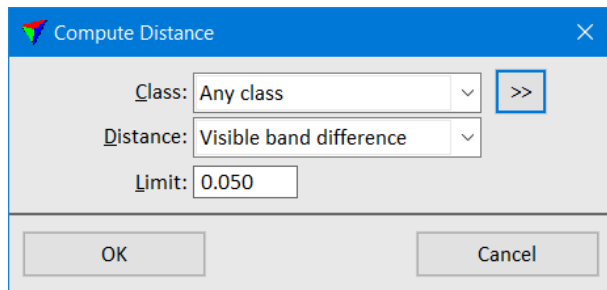
Code	Description	Draw	Lvl	Color
3	Low vegetation	Not set	3	Green
4	Medium vegetation	Not set	4	Green
5	High vegetation	Not set	5	Green
6	Building	Not set	6	Red
7	Low point	Not set	7	Magenta
8	Model keypoints	Not set	8	Blue
9	Vector building	Not set	9	Blue
10	Bridge	Not set	10	Cyan
11	Car	Not set	11	Teal
12	Tree	Not set	12	Green
13	Overlap	Not set	13	Grey
14	Stop	Not set	14	Red
15	Long range	Not set	15	White
16	Turn	Not set	16	Purple
17	Walls	Not set	17	Purple
18	Traffic sign	Not set	18	Red
19	Other structure	Not set	19	Magenta
20	People	Not set	20	Red
21	Temp	Not set	21	Magenta
22	Bad point	Not set	22	Red
23	Guy wire	Not set	23	Red
24	Scanner right	Not set	24	Yellow
25	Pole	Not set	25	Cyan
26	Wire	Not set	26	Red
27	Road	Not set	27	Purple
28	Roadmarkings	Not set	28	Yellow
29	Below	Not set	29	Orange
30	Above	Not set	30	Cyan
31	Curb stone	Not set	31	Red
32	Isolated points	Not set	32	White
64	Wire	Not set	64	Magenta
69	Tower	Not set	69	Cyan
80	Cross arm	Not set	80	Yellow
81	Class 81	Not set	81	White

Buttons: Add..., Edit..., Delete



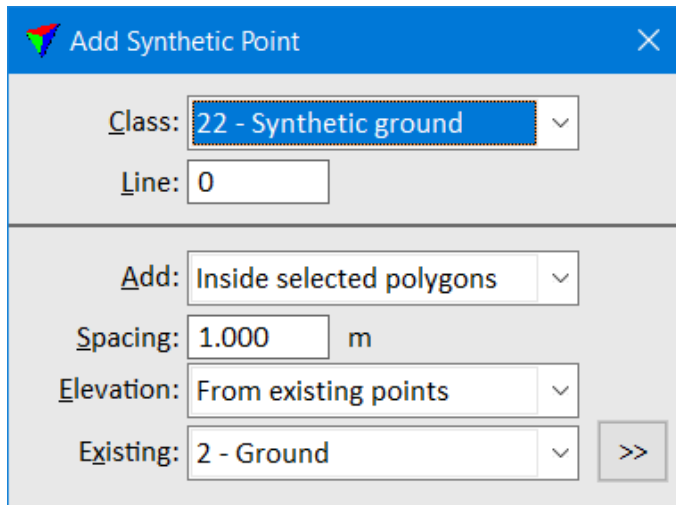
# Vegetation Index in Ground Classification

- Ground classification can make use of vegetation index as a probability factor for how likely a point is to be ground
- Improves result with a photogrammetric point cloud
- Steps:
  - Use **Compute distance** to store vegetation index as distance value
  - Use **Smoothen points** to smoothen distance values
  - Run ground classification with **Use Distance as rating** on



# Improvements in Add Synthetic Points

- **Add Synthetic Point** can add multiple points in operation
- **Along selected vectors** adds points along selected 3D vectors at given spacing
- **Inside selected polygons** adds points in a grid pattern inside selected polygons



The screenshot shows a software dialog box titled "Add Synthetic Point" with a close button (X) in the top right corner. The dialog is divided into two main sections. The top section contains a "Class:" dropdown menu with "22 - Synthetic ground" selected, and a "Line:" text input field containing the number "0". The bottom section contains an "Add:" dropdown menu with "Inside selected polygons" selected, a "Spacing:" text input field with "1.000" and a unit "m" to its right, an "Elevation:" dropdown menu with "From existing points" selected, and an "Existing:" dropdown menu with "2 - Ground" selected. A double right arrow button ">>" is located to the right of the "Existing:" dropdown.

# Faster Mobile Project Creation



- **Cut turnarounds** has new logic which works better for mobile trajectories
- **Create along trajectories** draws block boundaries based on trajectory information alone
- Workflow:
  - Import trajectories
  - Run **Cut turnarounds**
  - Run **Create along trajectories** to draw block boundaries into design file
  - (Optional) Modify block boundaries if needed
  - Use **File / New project** to enter project information
  - Use **Block / Add by boundaries** to add block boundaries to project
  - Save project definition
  - Import points into project

A screenshot of the "Cut Turnarounds" dialog box. It has a blue title bar with the Terra solid logo and a close button. The main area is light gray and contains the following controls: "Apply to:" with a dropdown menu set to "All trajectories"; "Keep length:" with a text input field containing "200.0" and "m" to its right; "Line separation:" with a text input field containing "25.0" and "m" to its right; and a checked checkbox labeled "Sort and renumber". At the bottom are "OK" and "Cancel" buttons.

Cut Turnarounds

Apply to: All trajectories

Keep length: 200.0 m

Line separation: 25.0 m

Sort and renumber

OK Cancel

A screenshot of the "Create Blocks Along Trajectories" dialog box. It has a blue title bar with the Terra solid logo and a close button. The main area is light gray and contains the following information: "Trajectories 12962.4 m total length"; "Block length:" with a text input field containing "1500.0" and "m driving" to its right; and "Block width:" with a text input field containing "160.0" and "m" to its right. At the bottom are "OK" and "Cancel" buttons.

Create Blocks Along Trajectories

Trajectories 12962.4 m total length

Block length: 1500.0 m driving

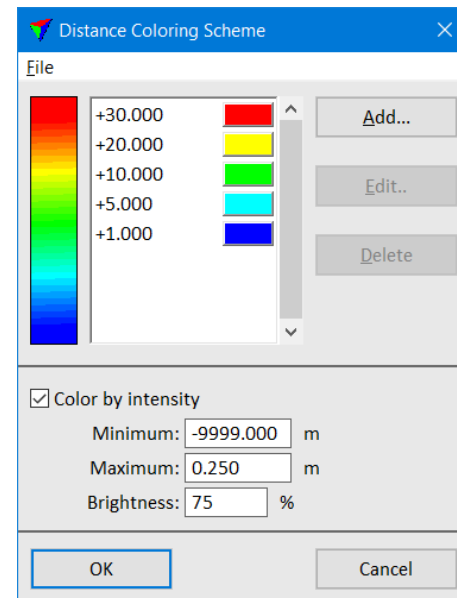
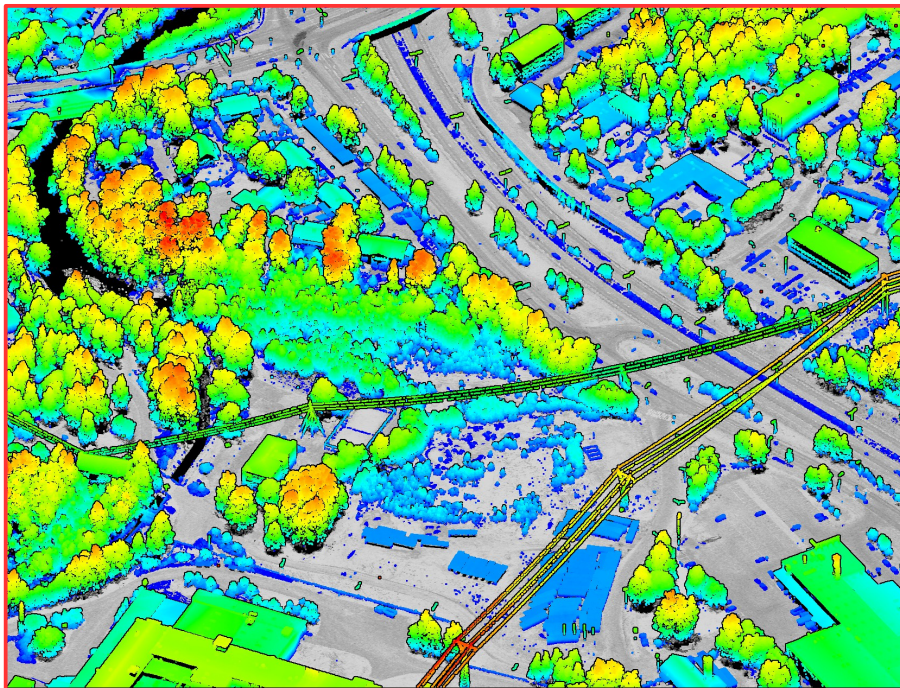
Block width: 160.0 m

OK Cancel



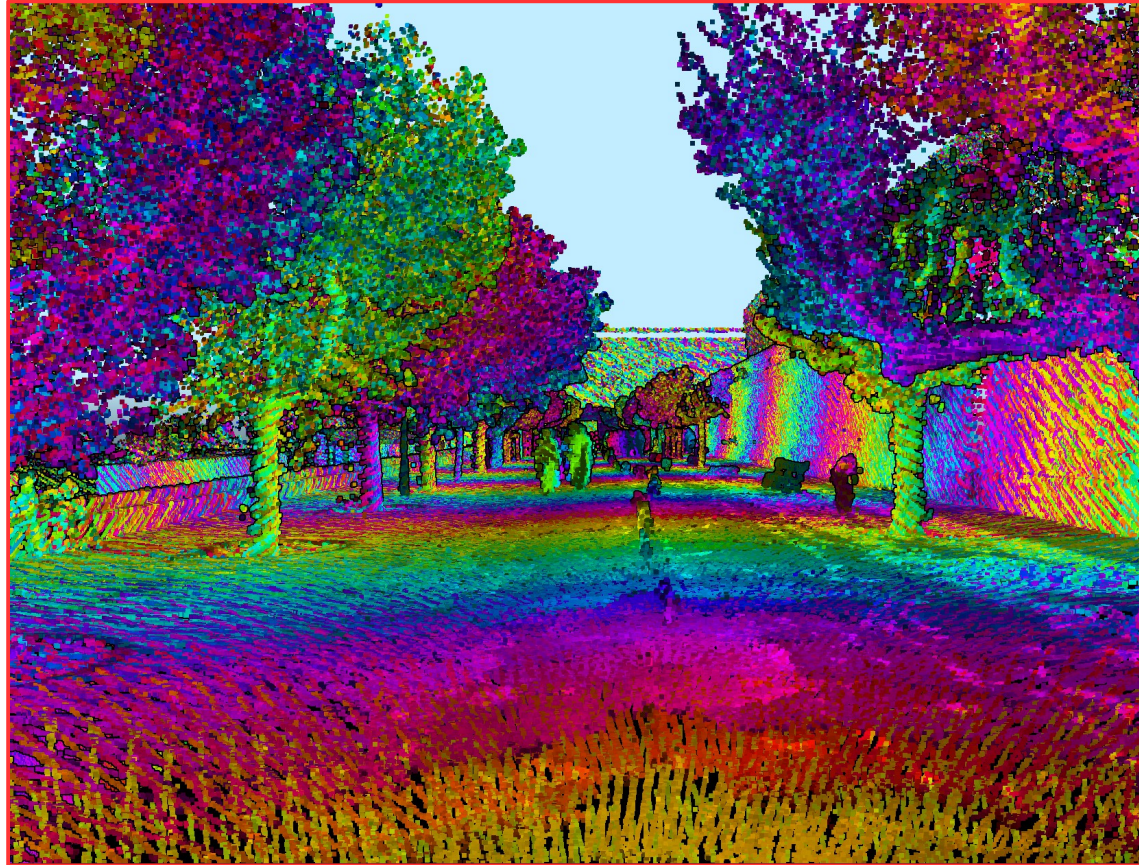
# Smooth Distance Coloring

- Distance coloring uses smoothly changing RGB color scheme now
- You can optionally specify a distance range to be displayed by intensity



# Coloring by Time

- **Display Mode** has two new color by choices: **Time** and **Time+Intensity**
- Coloring is based on time stamp
- You specify how fast color changes





# Coloring by Density

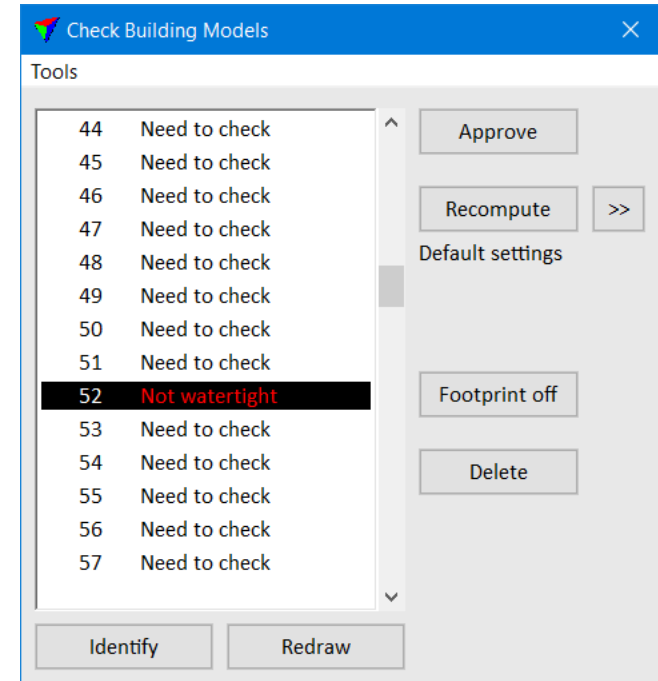
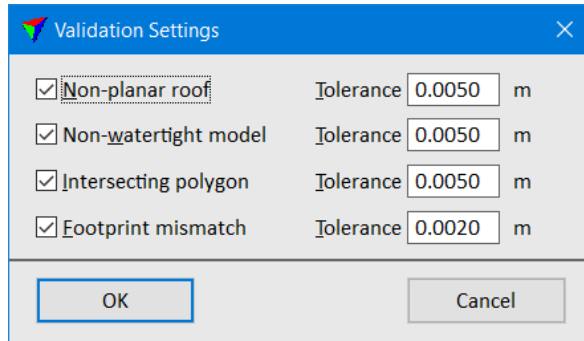
- Computes an approximate local point density for each point
- Bright means high density
- Dark means low density





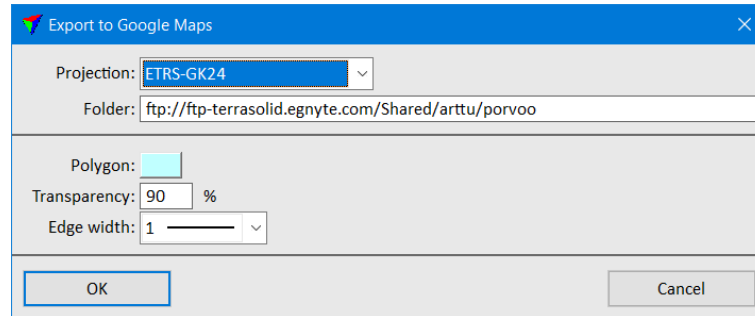
# Geometric Improvements in Vectorizing Buildings

- **Vectorize Buildings** tool creates cleaner vector models (=fewer geometric flaws)
- **Check Building Models** checks buildings for two new types of geometric flaws:
  - Non-watertight model
  - Roof polygons crossing each other



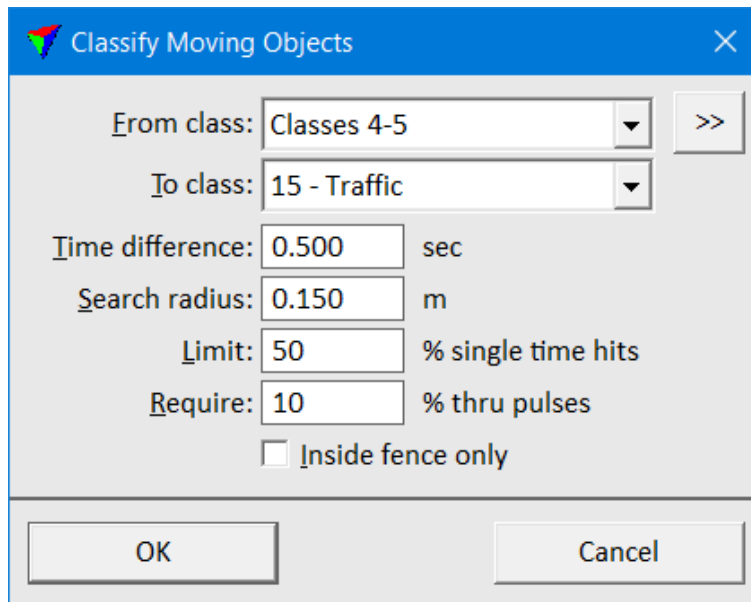
# Export to Google Maps

- Menu command in **Define Project**
- Creates one KML file which contains project block polygons with a link to an FTP site
- Provides a simple way to publish point clouds on Google Maps – viewer can download point cloud data thru clicking on a polygon



# More Control in Classifying Moving Objects

- You can specify what percentage of points must be single time hits
- You can specify what percentage of points must have thru pulses closeby



The screenshot shows a dialog box titled "Classify Moving Objects" with a close button (X) in the top right corner. The dialog contains the following fields and options:

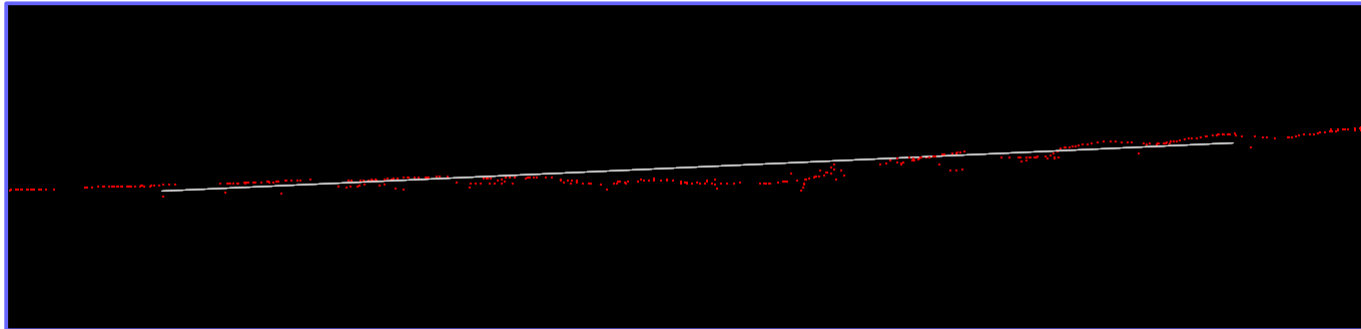
- From class:** A dropdown menu showing "Classes 4-5" with a right-pointing arrow button (>>) to its right.
- To class:** A dropdown menu showing "15 - Traffic" with a downward-pointing arrow button.
- Time difference:** A text input field containing "0.500" followed by the unit "sec".
- Search radius:** A text input field containing "0.150" followed by the unit "m".
- Limit:** A text input field containing "50" followed by the text "% single time hits".
- Require:** A text input field containing "10" followed by the text "% thru pulses".
- Inside fence only:** An unchecked checkbox.

At the bottom of the dialog are two buttons: "OK" on the left and "Cancel" on the right.



# Road Bumps and Potholes

- **Compute distance** tool can compute how much each point on a road surface differs from a line fitted to a narrow longitudinal section along the road
- Bumps get a positive value – point is above fitted line
- Potholes/depressions get a negative value – point is below fitted line
- Computation requires:
  - Hard surface classification is done
  - Height from ground classification is done (to include points very close to the hard surface)



# Visualizing Bumps and Potholes

- Coloring by distance gives you an ability to view bumps and potholes
- **Export raster image** from main window and **Export raster images** from project window can produce orthophotos with the same distance coloring

