

# New Features in TerraScan

Arttu Soinen

Software developer

Terrasolid Ltd

# TerraBaby

Currently version 0.3

Size 6.6 K

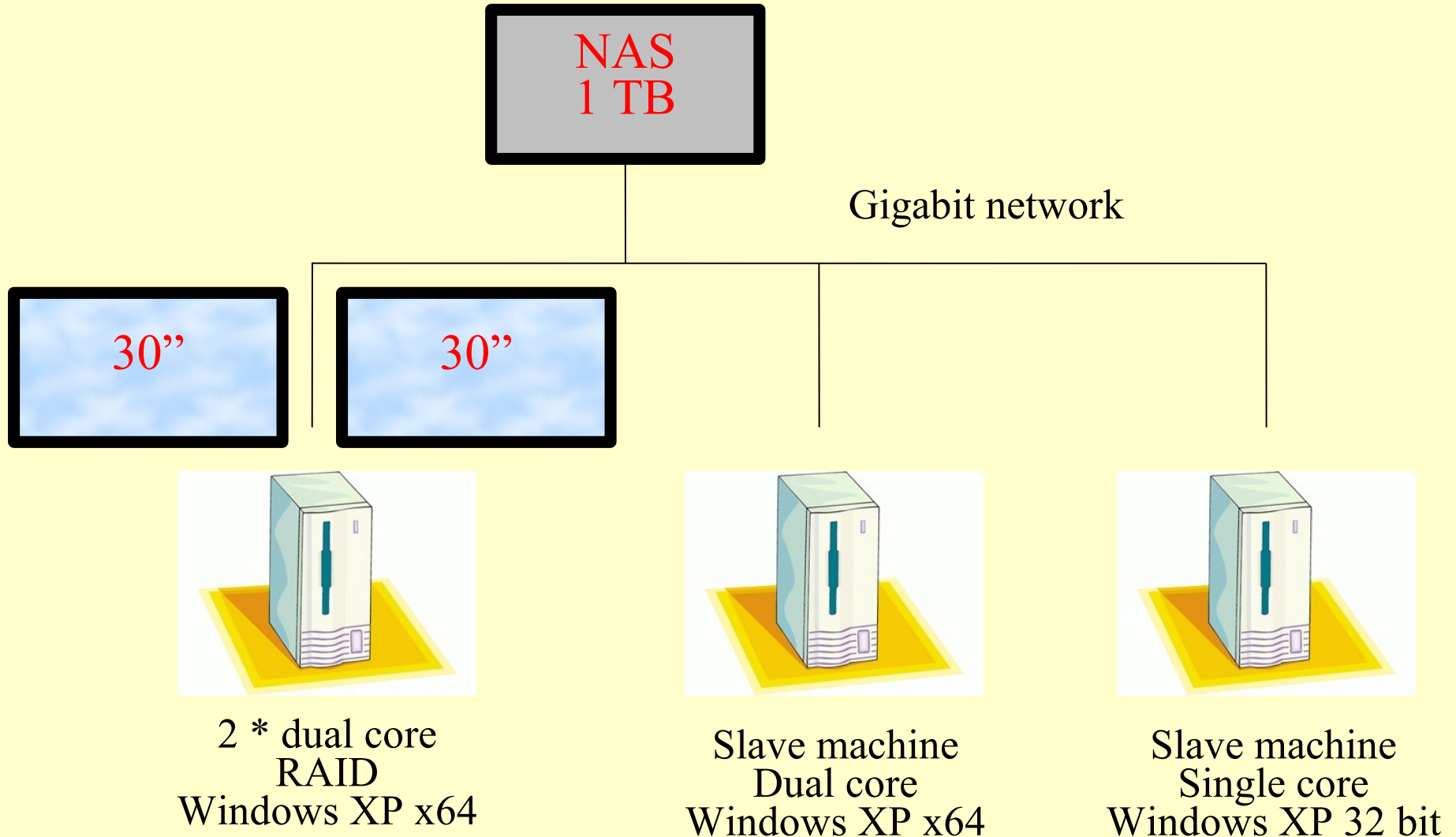
Final release expected  
2024, version 18.0



# MicroStation XM

- Terra Applications do not run properly in XM
- XM uses DirectX for drawing on the screen
- Need to rewrite:
  - TerraScan display of laser points
  - TerraModeler display of shaded surface and all **Preview** drawing mode display methods
  - TerraPhoto display of raster references, camera views, tie points and color points
- No developer documentation
- Do not update to XM yet

# Development & Testing



# Network issues

- Setup has revealed some issues with networks
- Windows supports max. 64 K to be written to a file in one operation across network
  - This would result in truncated files
  - Fixed in Match, Scan, Photo & Modeler
- Checking if a file exists is very slow
  - Some logic rewritten in Scan & Photo

# Processors

- Many time consuming routines in TerraPhoto and TerraScan have been using two threads
- First routines are now using 4 threads
  - Memory access often becomes a limit
  - Not easy to gain speed from adding threads
- You should currently choose a machine with one dual core or two single core processors
- You may consider two dual core processors
  - Small speed gain when running TerraScan/Photo
  - Helps if running TerraSlave in the background

# Various improvements

- Intensity coloring in perspective views
- Multiple from classes in **Thin points**
- Support for ArcInfo ASCIIGRID as input format
- Fixed bug which caused loss of time stamp precision when using LAS as project storage format
- Coordinate system support for Finnish ETRS-TM35FIN, ETRS-GK and KKJ with JHS154 correction model
- Group identifier string for trajectories -- future versions of TerraMatch will use this for solving by group
- Undo support for tools which modify elevations (smoothing, geoid adjustment)

# Various improvements

- **Classify / Inside shapes** supports regions with holes
- **Classify / By time stamp** action in macros
- Faster speed when writing LAS to external hard disks
- Support for Japanese Geoid model GSIGEOME in **Convert geoid model**
- **Output positions** command in *Manage Trajectories* for writing trajectory positions into text files
- Support for **Northern Ireland** and **Republic of Ireland** projection systems using OSi/OSNI polynomials and OSGM02 geoid model
- Import of Optech LPK format

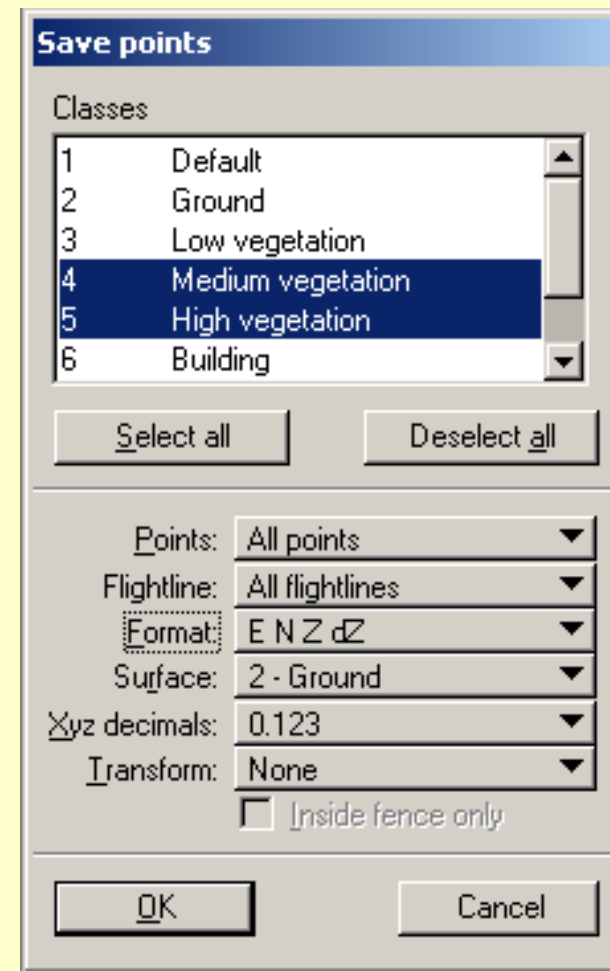


# *Define Project* improvements

- **Create along tower string** menu command for creating block boundaries for a powerline dataset
- Places block boundaries at towers making it processing steps easier
- Workflow:
  - Create initial project definition
  - Import points into that project
  - Match flightlines
  - Classify ground and by height from ground
  - Place tower string
  - Create new project definition along tower string
  - Import classified points into new project

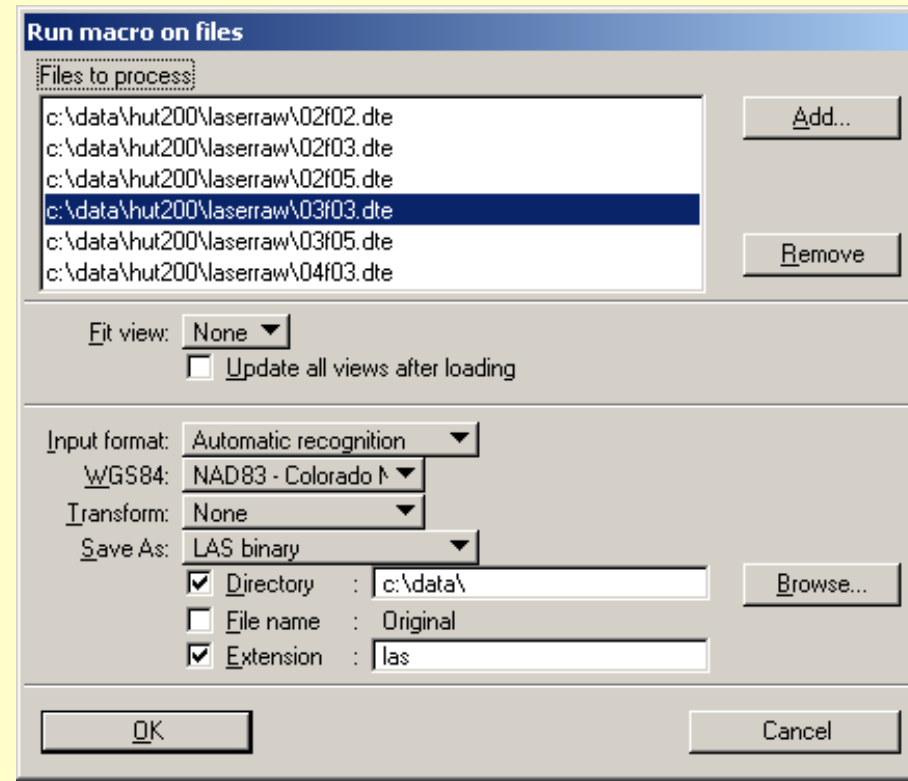
# Improvements in text file output

- **E N Z dZ** file format supports height from laser ground as dz value
  - Dz from TerraModeler TIN model
  - Dz from selected class
- Setting for number of coordinate decimals

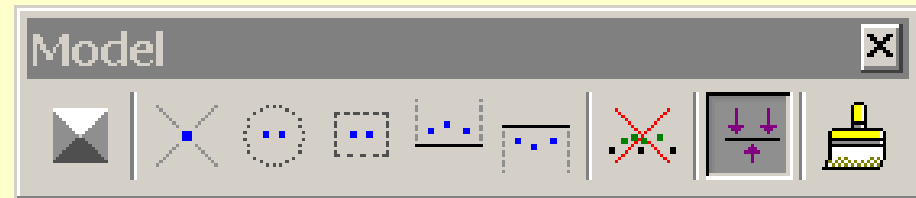


# Transformations & run macro on files

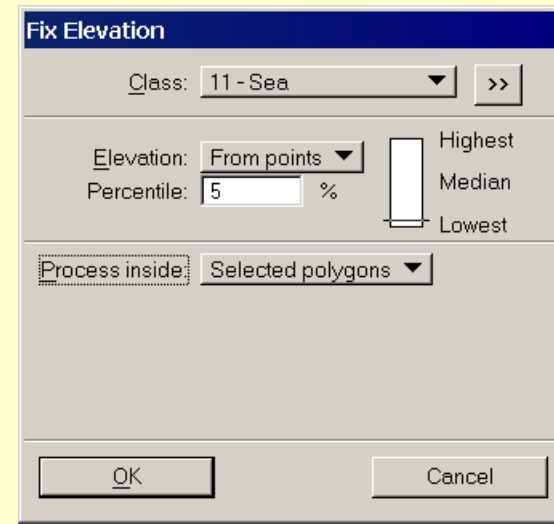
- You can now apply a projection system transformation and a second transformation on input data
- Makes it possible to run macros on WGS84 longitude & latitude or geocentric XYZ files



# *Fix Elevation*



- Tool for fixing elevations of laser points inside a polygon to a given value
- Useful with water bodies
- Elevation value may be:
  - Keyin value (fixed value)
  - Compute from points – expressed as percentile
- Polygons may be:
  - Fence
  - Selected polygon(s)
  - Polygons from a given level



# Classify by height from TIN

- Classify / By height from ground supports dz from TerraModeler surface
  - Classify points based on elevation difference to a control surface
  - Classify points based on a design surface:
    - Draw 3D vectors into the design file
    - Create TerraModeler surface

# Scale Elevations for Editable Model

- Exaggerate elevations differences of ground
- Does not change laser point elevations – only TIN model elevations

# Open Inside Fence Command

- Reads points from project inside fence or inside selected polygons
- No **Save points** action possible
  - application does not keep track of what points came from which block