

SIS

Install and Quick Start

Topo Analyst



Install Notes and Quick Start Guide
July 2011



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information
solutions**

SIS TOPO ANALYST INSTALL AND QUICK START

www.spatialis.com

Spatial Information Solutions, Inc. (SIS)

Software solutions and services that automate verifying the accuracy and quality of spatial data.

Topo Analyst

Automatically tests, verifies, and reports the accuracy of elevation data. Topo Analyst lets you test LiDAR point cloud data, DEM data products, and other raster elevation data such as IFSAR elevation data products.

This install guide and quick start should provide the information and instructions you need to

- **Install and configure the software,**
- **Become acquainted with workflow methods,**
- **Learn how to start a project and load data,**
- **Learn how to generate results,**
- **Learn how to create reports, and**
- **Run your own project within 1 hour of install!**

Topo Analyst runs on Microsoft Windows platforms with OS versions from Windows XP SP2 to the current Windows 7 Professional 64-Bit. System requirements follow:

- **CPU – 1 GHz or faster**
- **Memory – 1 GB or more**
- **Disk – Internal storage, attached, and high performance network storage**
- **Graphics – Dedicated GPU is recommended, but resolution of 1280 x 1024 is required.**
- **Ideal Configurations – Multi-processor systems, 64-bit OS, multiple monitors, and high performance local disk storage system.**



The installation of Topo Analyst is simple, but has several steps. Begin with downloading the most recent build from the SIS web site at:

http://www.spatialis.com/ta_downloads

- Download the MapWindow GIS OCX installer and the Topo Analyst installer.
- Install the OCX installer and reboot.
- Install Topo Analyst, set compatibility, and activate your license.

Open your web browser and go to the SIS web site at: http://www.spatialis.com/ta_downloads

- Create a folder on your local system for the download files.
- Download ‘MapWinGIS46OCXOnly.exe’ and ‘TopoAnalyst_Setup.msi’ and save the files to a local folder on your system(s). Future updates will be available from this location.

Name	Date modified	Type	Size
 MapWinGIS46OCXOnly.exe	7/9/2011 4:57 PM	Application	16,095 KB
 TopoAnalyst_Setup.msi	7/10/2011 2:44 PM	Windows Installer ...	14,311 KB

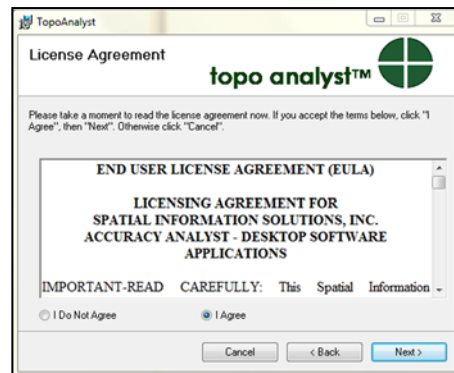
Topo Analyst uses an open source mapping component based on MapWindow GIS (version 4.6). Setup and dependency files from the ActiveX mapping tool must be installed including run-time libraries from the OCX installer. To set up the OCX environment do the following:

- Run the file 'MapWinGIS46OCXOnly.exe**
- Allow the application to install all components**
- When complete you will be prompted to reboot**
- Reboot your system after installing**

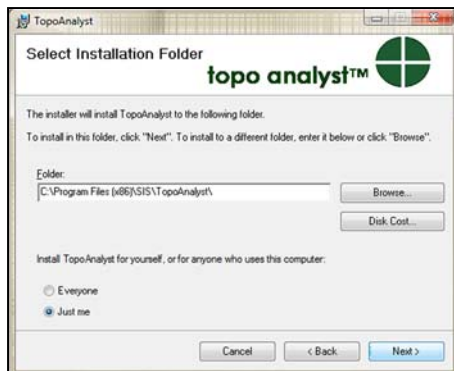
To install and configure Topo Analyst.
Run 'TopoAnalyst_Setup.msi'



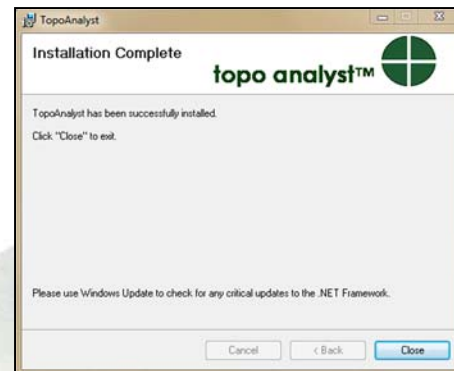
1) Begin Installation



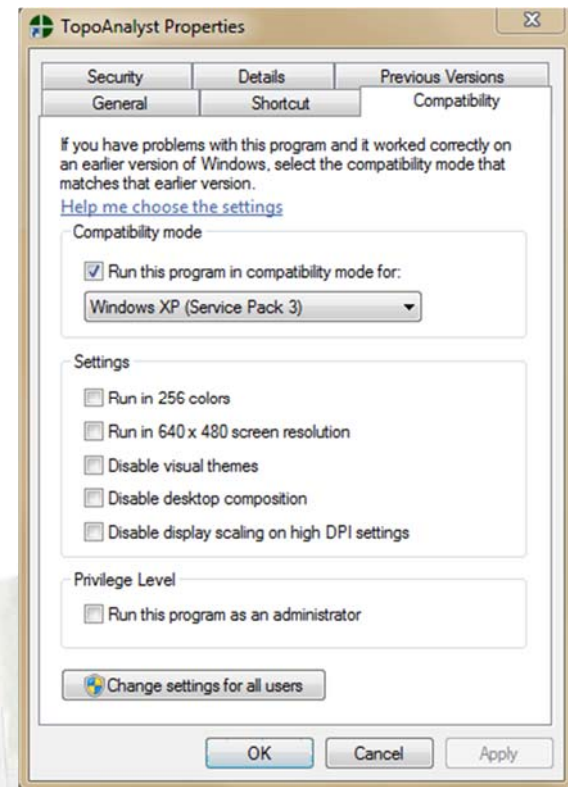
2) Agree to EULA



3) Set Install Path

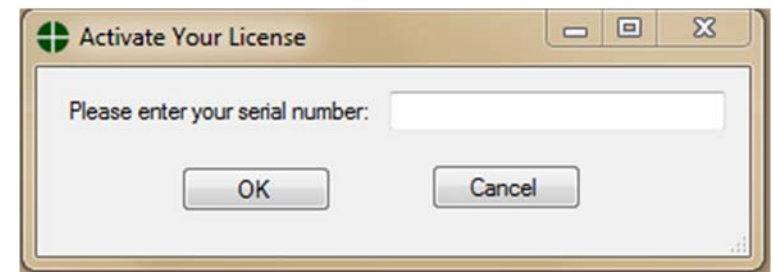
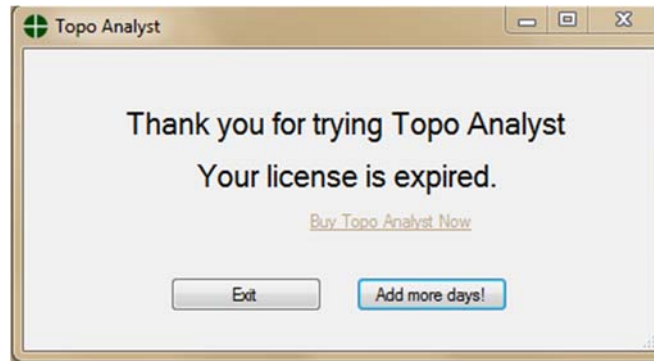


4) Finish Install



5) For Windows 7 Systems – Right-Click Shortcut, Select Properties, Compatibility, and Set for Windows XP SP3

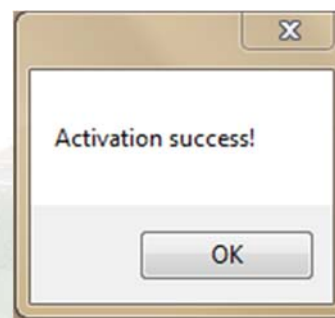
Topo Analyst will require license activation upon first run.



1) Double-Click
Topo Analyst Icon

2) Select 'Add more
days!'

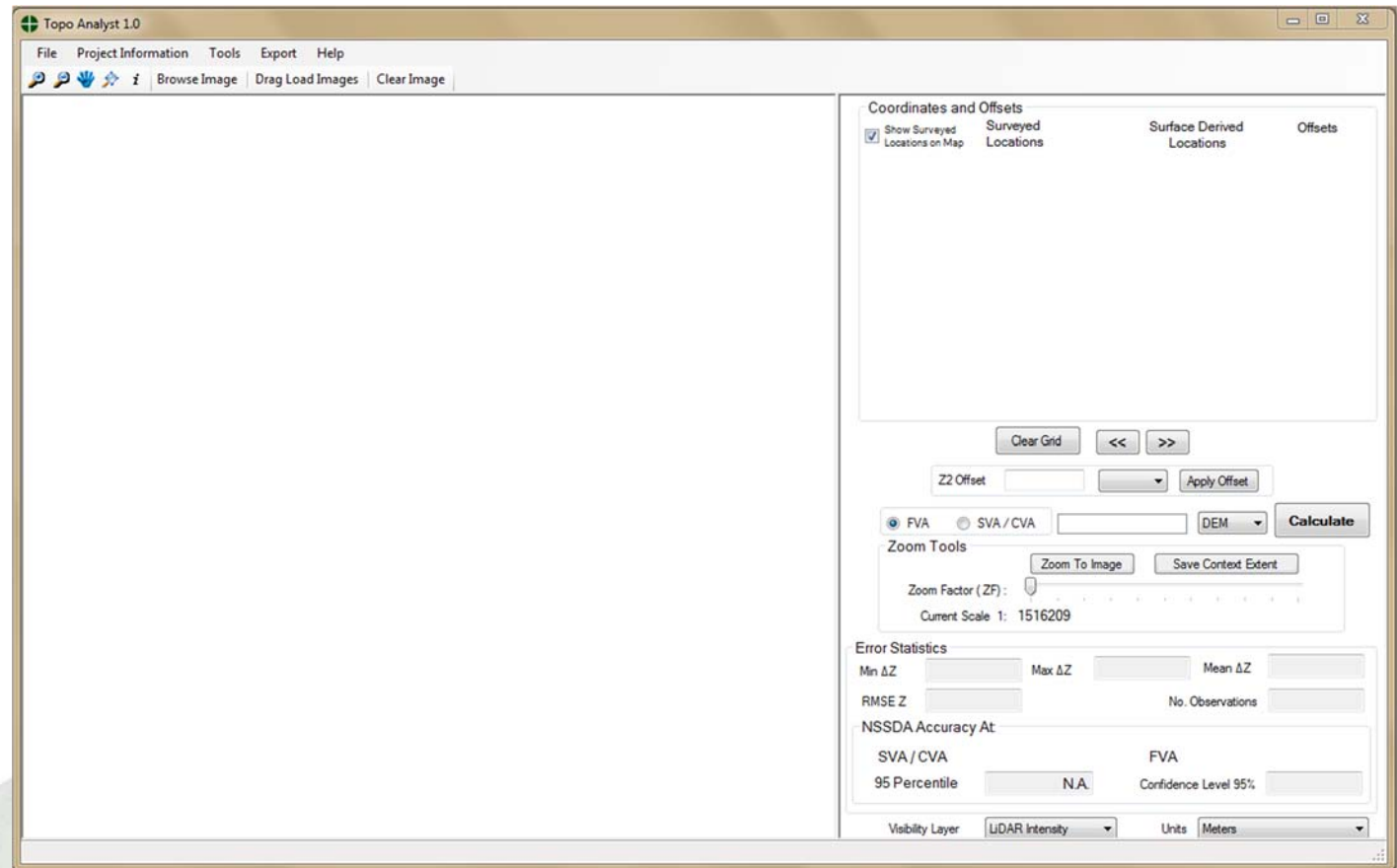
3) Enter Your License
Activation Serial Number



4) Successful Activation!

Topo Analyst – The Main Interface & Steps

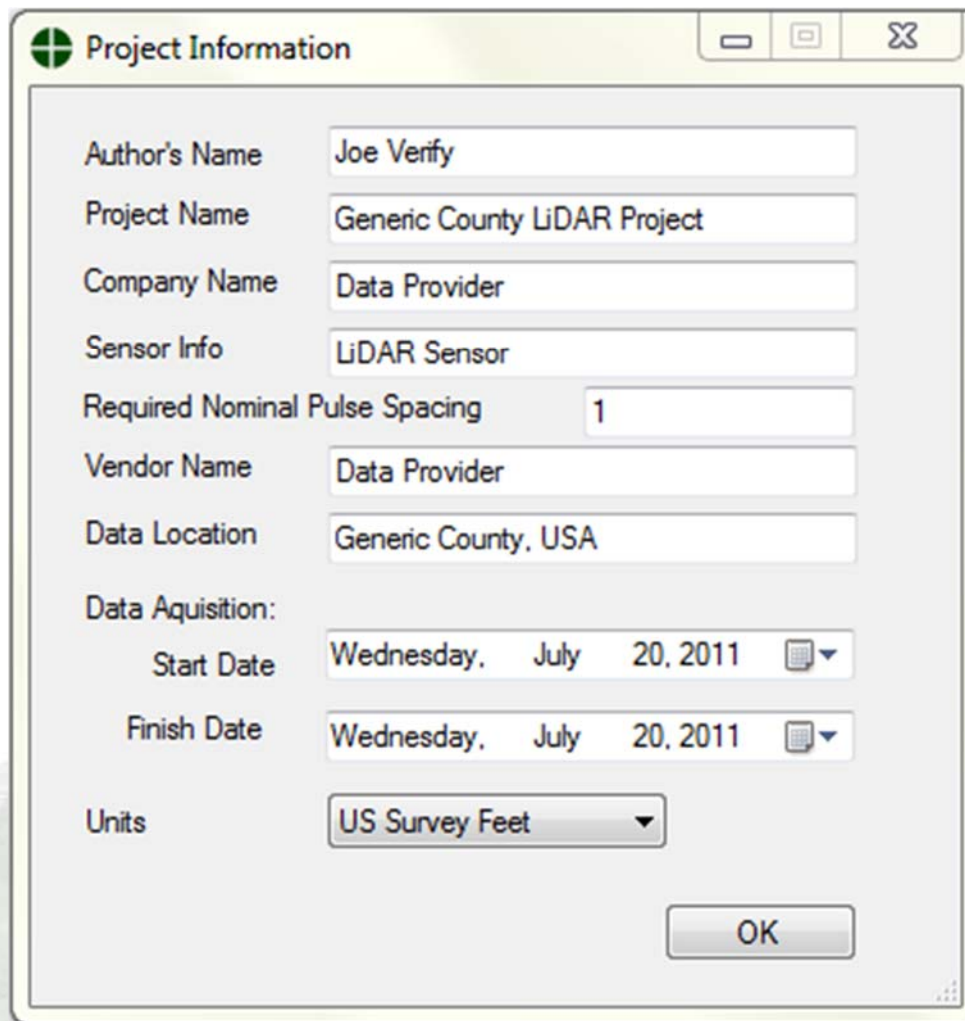
- 1) Load Project Info
- 2) Load Index and Data
- 3) Save the Project
- 4) Load Checkpoints
- 5) Perform File Checks
- 6) Explore Errors
- 7) Set Land Cover Types
- 8) Generate Report
- 9) Save & Exit



Topo Analyst – Step 1) Add Project Information

1) Load Project Info

- 2) Load Index and Data
- 3) Save the Project
- 4) Load Checkpoints
- 5) Perform File Checks
- 6) Explore Errors
- 7) Set Land Cover Types
- 8) Generate Report
- 9) Save & Exit



The screenshot shows a dialog box titled "Project Information" with the following fields and values:

Author's Name	Joe Verify
Project Name	Generic County LiDAR Project
Company Name	Data Provider
Sensor Info	LiDAR Sensor
Required Nominal Pulse Spacing	1
Vendor Name	Data Provider
Data Location	Generic County, USA
Data Aquisition:	
Start Date	Wednesday, July 20, 2011
Finish Date	Wednesday, July 20, 2011
Units	US Survey Feet

An "OK" button is located at the bottom right of the dialog box.

Topo Analyst – Add Index & Data

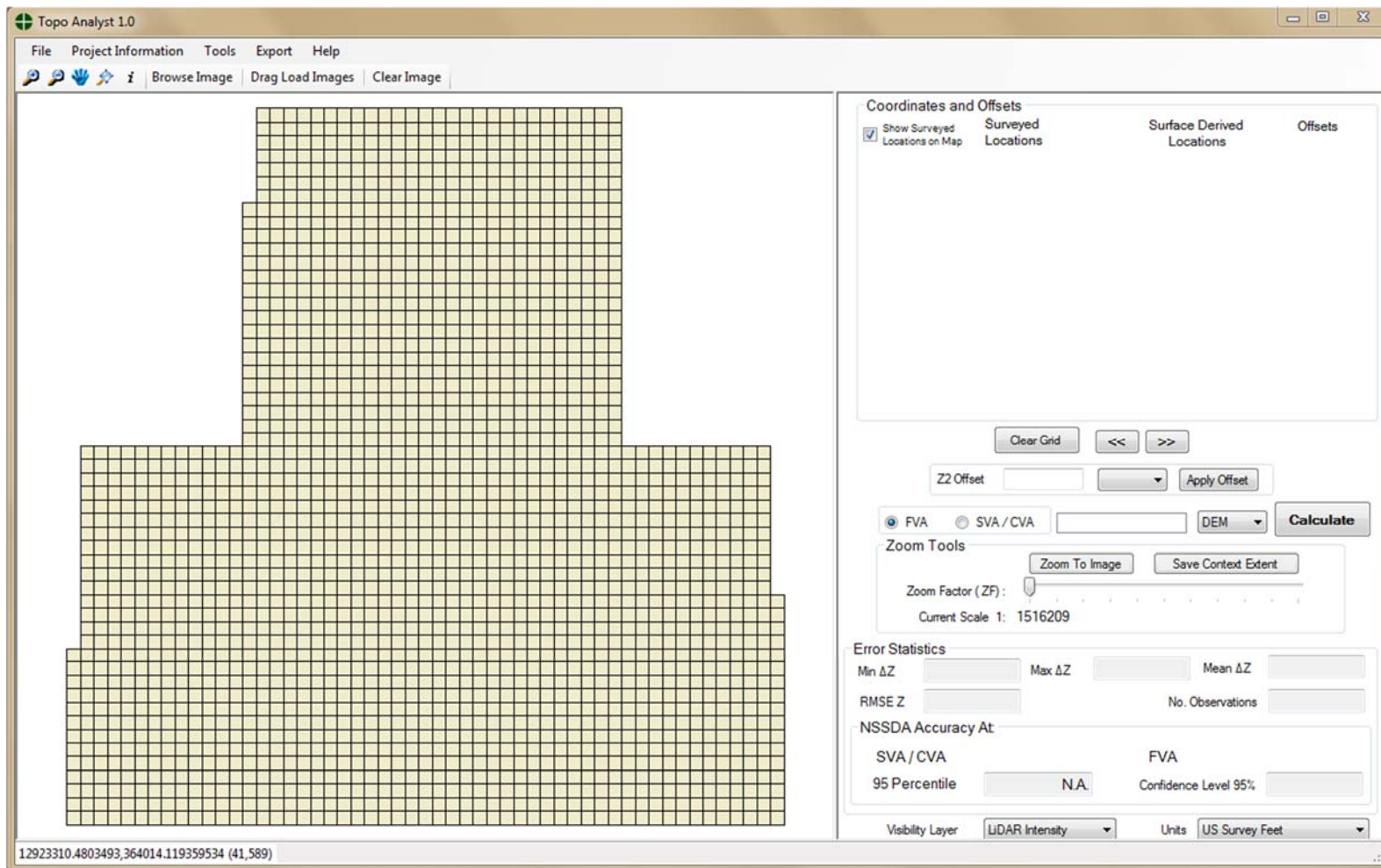
2) Load Index and Data

- Browse to Tile Index
- Select Attribute for Data Files
- Identify Fields for Data To Be Tested
- Browse / Identify Data Folders
- Identify File Types
- Set Folder to Save Temp Files
- Set Class Type for Bare Earth
- Set Search Distance for LAS Points
- Option to Save Intermediate Results

The screenshot shows the 'Add Index and Data Sources' dialog box with the following settings:

- Index File Name: M:\AA_TOPO\TRICO\INDEX\trico_der
- Select Lidar Intensity Images Field Name: intensity
- Select DEM Grids Field Name: location
- Select LAS Field Name: las
- View Table button
- Lidar Intensity Images Folder: M:\AA_TOPO\TRICO\SIS_ADDED\int
- Image Type: TIF
- DEM Grids Folder: M:\AA_TOPO\TRICO\SIS_ADDED\de
- Image Type: TIF
- LAS Folder: M:\AA_TOPO\TRICO\LAS_TILED\LA:
- Set TopoAnalyst CP Directory: M:\AA_TOPO\TRICO\CP_PROCS
- Select Bare Earth Classification Values: Select button
- Set CheckPoint Radial Search Distance for LAS Points: 20
- Save Points/ TINs/ Results: Yes No
- OK button

Topo Analyst – Tiled Data Loaded



Topo Analyst – Loading Checkpoint Data

4) Load Checkpoints

- Browse to Folder
- Load Comma Separated Value File
- Select a Column
- Select Corresponding Radio Button
- If First Row Contains Header, Select Button Ignore First Row
- Combine Checkpoints, Use Land Cover Column For LC Type
- No Extra Rows!

Column Identifier Form

PHOTOS SKETCHES

USE
 ID
 X1
 Y1
 Z1
 Land Cover Type
 Ignore First Row

PHOTO_0 SKETCH_0

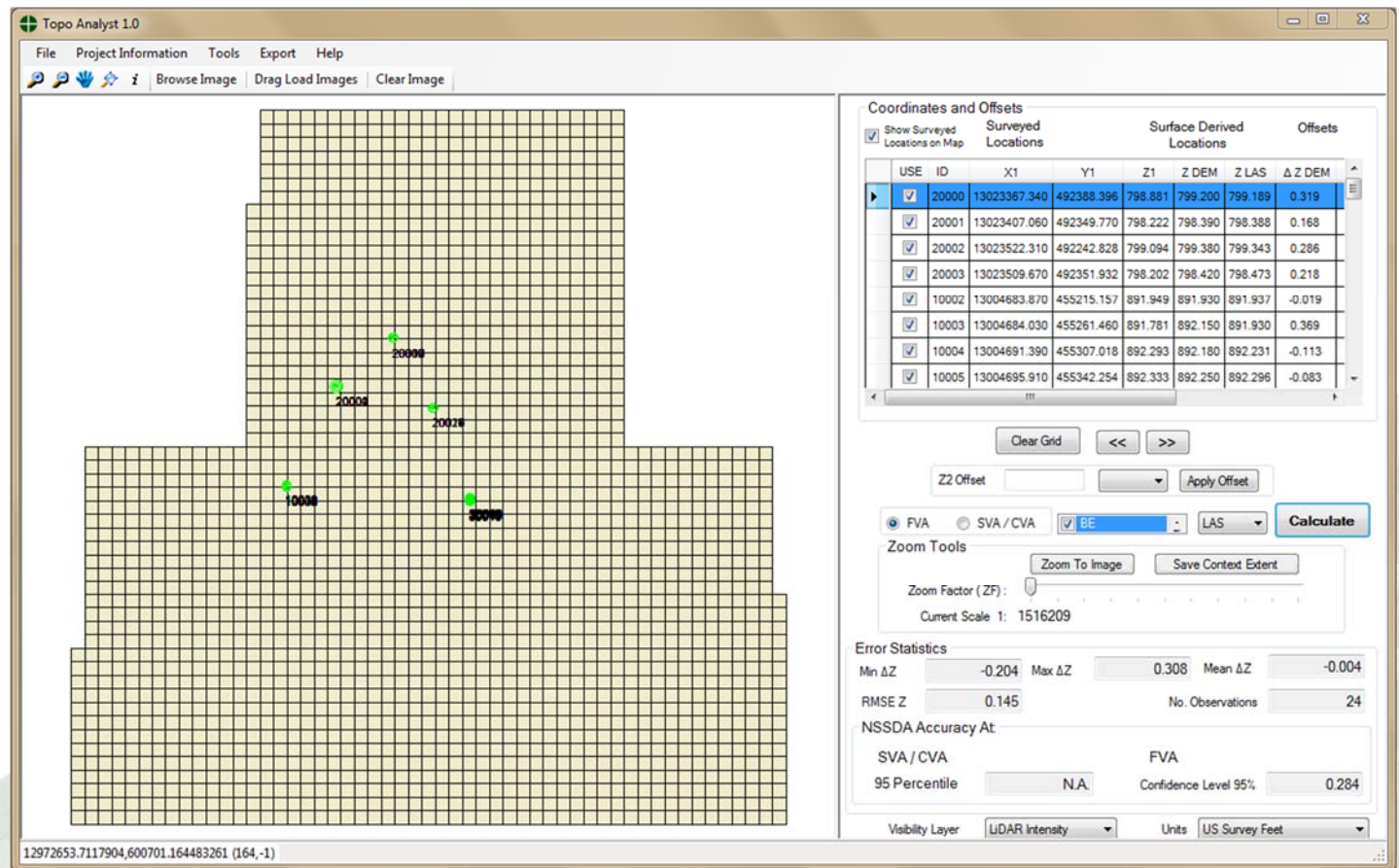
	ID	Y1	X1	Z1		LAND_COVER_TY
0	20000	492388.396	13023367.34	798.881	BARE EARTH	BE
1	20001	492349.77	13023407.06	798.222	BARE EARTH	BE
2	20002	492242.828	13023522.31	799.094	BARE EARTH	BE
3	20003	492351.932	13023509.67	798.202	BARE EARTH	BE
4	10002	455215.157	13004683.87	891.949	GROUND	BE
5	10003	455261.46	13004684.03	891.781	GROUND	BE
6	10004	455307.018	13004691.39	892.293	GROUND	BE
7	10005	455342.254	13004695.91	892.333	GROUND	BE
8	10006	455375.912	13004694.93	892.405	GROUND	BE
9	10007	455401.837	13004695.64	892.464	GROUND	BE
10	10008	455427.336	13004695.65	892.507	GROUND	BE
11	10009	455452.274	13004695.66	892.549	GROUND	BE
12	10010	455479.915	13004696.01	892.579	GROUND	BE
13	10011	455523.425	13004696.01	892.49	GROUND	BE
14	10012	455556.555	13004696.49	892.369	GROUND	BE
15	10013	455600.84	13004696.36	891.982	GROUND	BE
16	10014	455651.043	13004697.18	891.867	GROUND	BE
17	10015	455691.841	13004697.12	891.821	GROUND	BE

Note. Select a column and then select an appropriate radio button.

OK Cancel

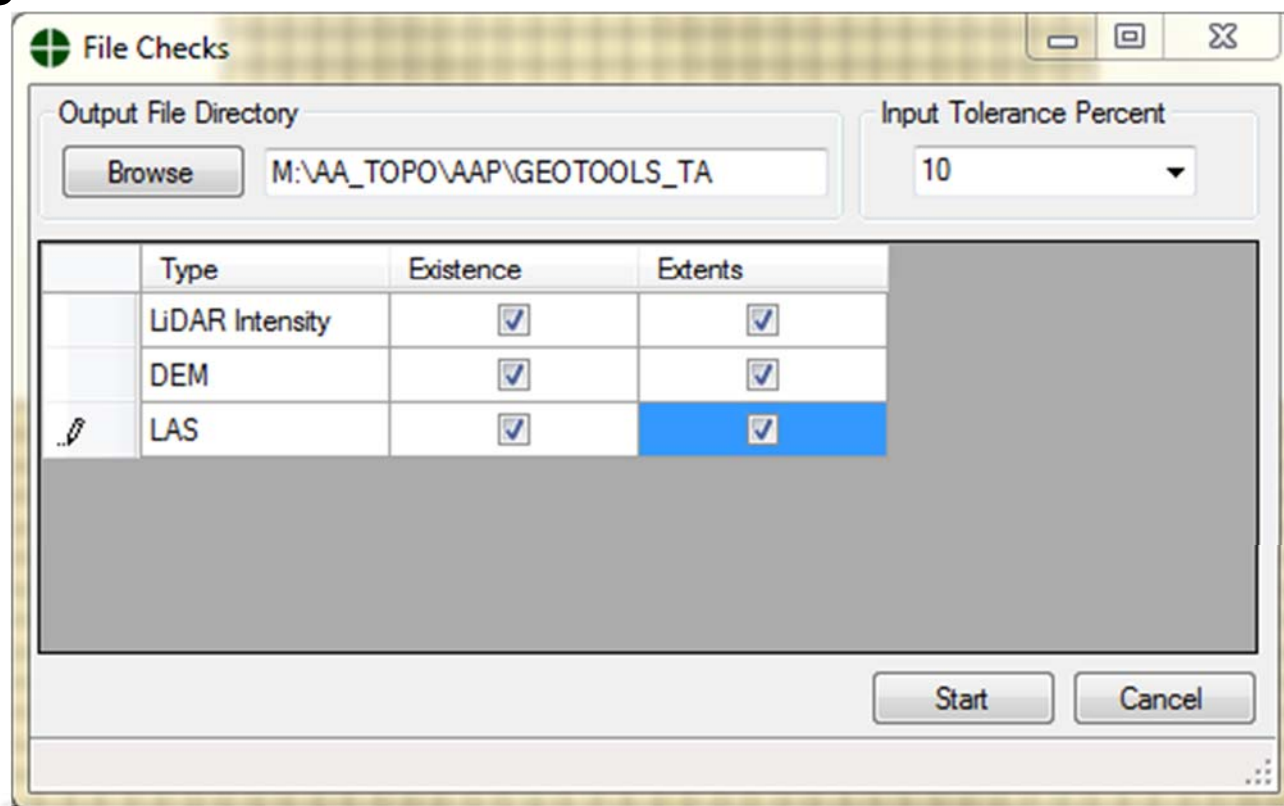
Topo Analyst – Automatic Processing

- DEM & LAS Zs Auto-Extracted
- Delta-Zs Computed
- Results Presented By LC Type and Analysis Type
- Pick Bare Earth LC Type and FVA
- Look at Results for DEM and LAS
- Explore Accuracy Results



Topo Analyst Tool – Perform File Checks

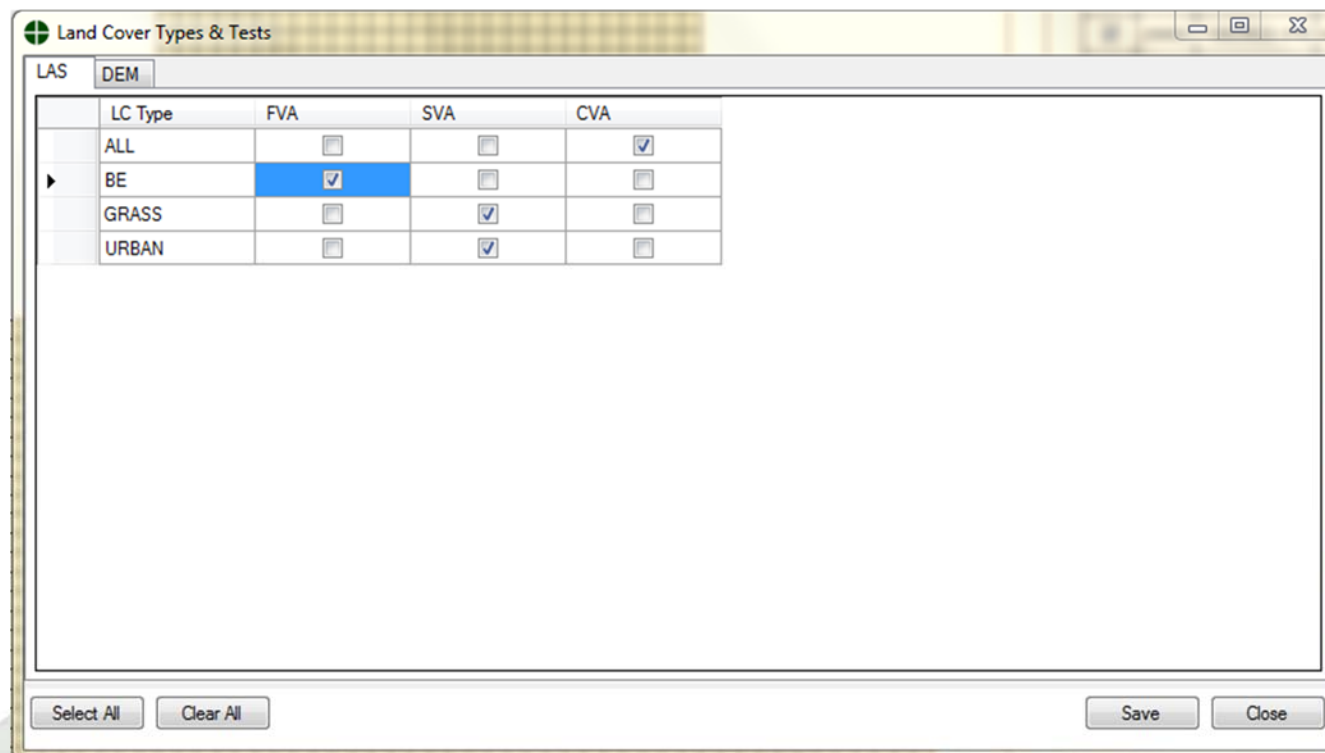
- Check All Files
- Verify Existence of Files Named in Tile Index
- Verify DEMs, LAS, and Intensity.
- Checks Performed Per Tile and File
- Extents Checks Verify Exact Match of Tile and File Geographic Extent.
- May Input a % Tolerance
- Part of V13 Spec
- Important ‘Accounting’ of Products.
- Results Preserved in CSV Outout Files.



NOTE: For large datasets, testing of extents can take some time. If you wish to include existence and extent checks in your report, it is always best to perform file checks before creating a report. File checks are saved for future runs.

Topo Analyst Tool – Set Land Cover Types

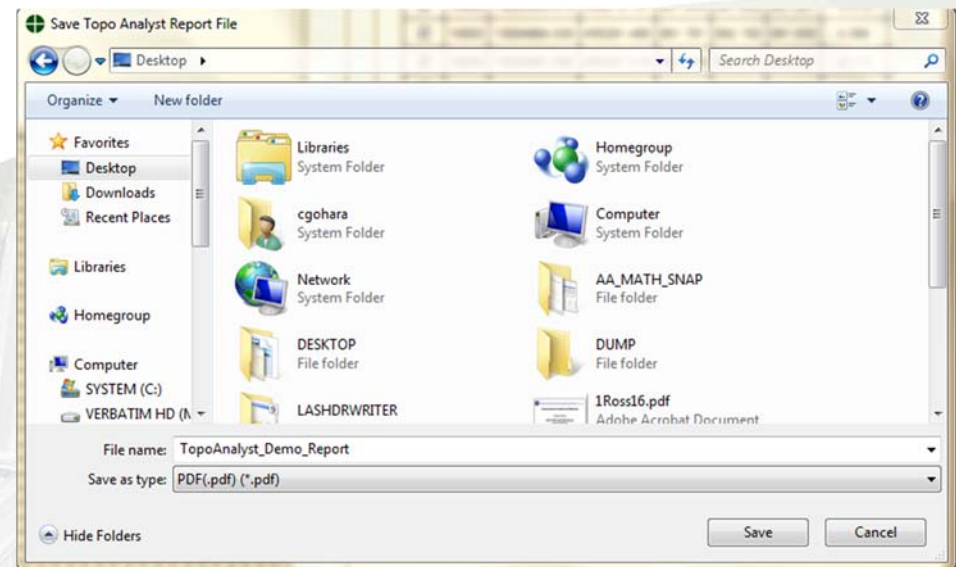
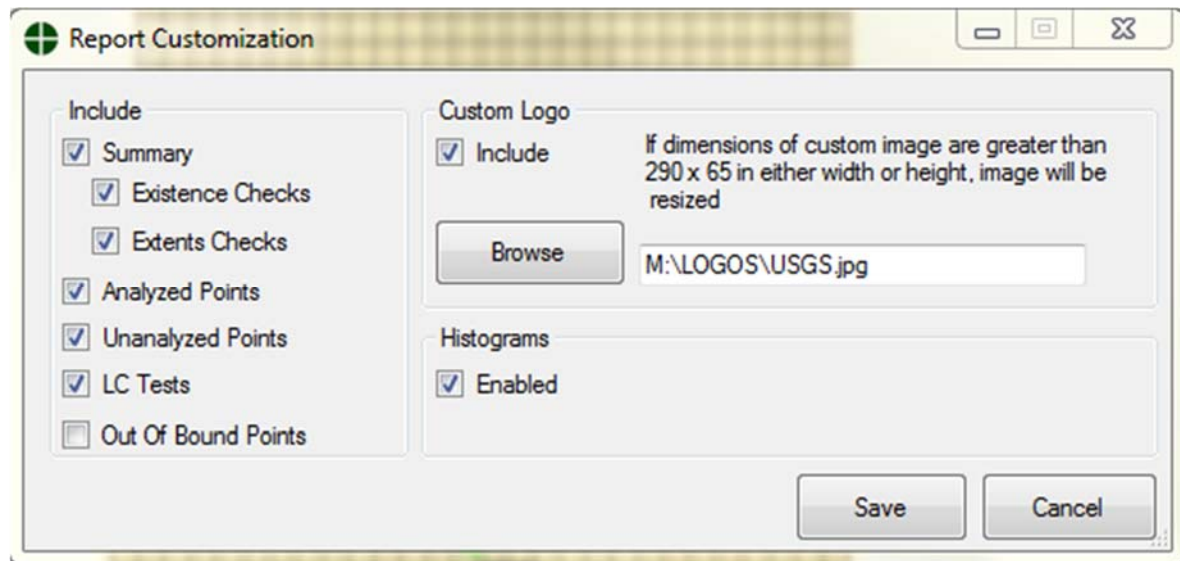
Identify which land cover class contains checkpoints to be used for the Bare Earth verification of Fundamental Vertical Accuracy, which classes are to be used for Supplemental Vertical Accuracy, and whether All Classes should be used for the Combined Vertical Accuracy test. These should be specified for LAS and DEM data.



Topo Analyst Tool – Running A Report

Select Tools → Report
Set Options for the Report

Existence and extents checks provide summary of results of file testing. Analyzed and unanalyzed points are included in data table output. LC Tests provide results of checkpoint analysis organized by Land Cover and test type (95% Confidence Level vs 95 Percentile). Histograms provide good visual of error distribution. Load a logo to customize the report.



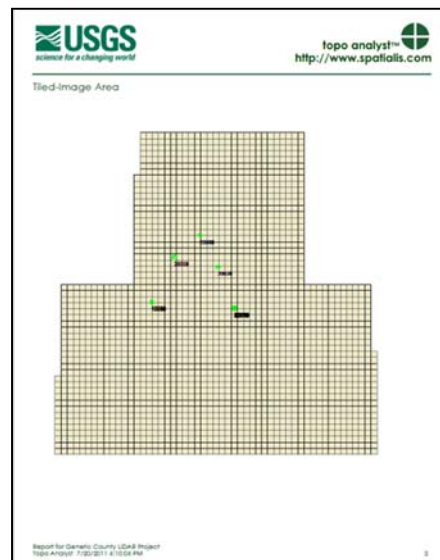
Topo Analyst – Report Results

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Project Information
 Prepared By: Joe Verly
 Project Name: Gannett County LIDAR Project
 Sensor Info: LIDAR Sensor
 Sensor Resolution: 1
 Vendor Name: Data Provider
 Units: US Survey Feet
 Percent of Exceed Tolerance: 10
 Date of Acquisition: Start: 7/20/2011 Finish: 7/20/2011

Metadata Information
Tile Index:
 Path to Data: M:\AA\TOPO\INDEX\Index_tsm.shp
 Number of Poly: 2151
Intensity:
 The Index Attribute: Intensity
 Path to Data: M:\AA\TOPO\TRICO\USE_ADDED\intensity
 Number of Data Files Matching Attribute: 2151 out of 2151
 Number of Data Files With Exceed Matching Poly-Extent: 2151 out of 2151
DEM:
 The Index Attribute: Location
 Path to Data: M:\AA\TOPO\TRICO\USE_ADDED\dem
 Number of Data Files Matching Attribute: 2151 out of 2151
 Number of Data Files With Exceed Matching Poly-Extent: 2151 out of 2151
LAS:
 The Index Attribute: LIDAR
 Path to Data: M:\AA\TOPO\TRICO\LAS\TILED\LAS_BE_v1.2
 Number of Data Files Matching Attribute: 2151 out of 2151
 Number of Data Files With Exceed Matching Poly-Extent: 2151 out of 2151

Report for Gannett County LIDAR Project
 Topo Analyst 7/20/2011 4:10:38 PM

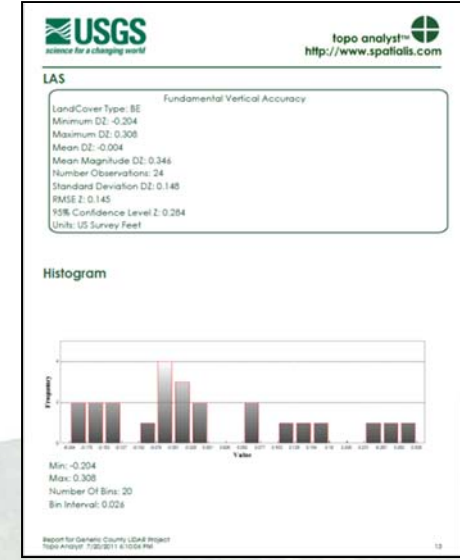


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Coordinates and Offsets of Analyzed Locations

ID	Survey X	Survey Y	Z1	Z DEM		Z LAS	
				ΔZ DEM	ΔZ LAS	LC Type	
1	13023467.94	492338.396	796.881	799.2	799.189		
2	13023467.06	492349.77	796.223	796.39	796.189		
3	13023221.31	492342.828	799.094	799.38	799.343		
4	13023309.47	492351.932	798.202	798.42	798.473		
5	13004883.87	492323.127	891.949	891.91	891.917		
6	13004884.03	492381.46	891.783	892.13	891.91		
7	13004891.39	492387.028	892.293	892.18	892.231		

Report for Gannett County LIDAR Project
 Topo Analyst 7/20/2011 4:10:38 PM



- 1) Cover Project Info
- 2) Project Area / Tile Index
- 3) Data Tables
- 4) Results / Histograms

To Download the complete sample report, visit the SIS web site, Products, Topo Analyst, and look in 'Support Documents' for easy access links to this 'Install Guide and Quick Start' as well as a sample report and other similar guides. A full user guide for Topo Analyst is in preparation and will be posted in this location.

SIS Topo Analyst – Resources

Topo Analyst – Additions Coming Soon

Additional capabilities are coming soon for Topo Analyst. The integrated ReViewer Tool will deliver fixed scale review, ability to mark up data, and load breaklines, ancillary shapefiles, and other data sets to enable efficient review of data products. LAS compression, indexing, data manipulation, and other data utilities will be provided as integrated capabilities in TA.

Topo Analyst – LiDAR Testing Extension (TA-LTE) when released will provide provide modular, highly flexible tools for comprehensive, quantitative testing of LiDAR data and derived information products. Designed to deliver capabilities to verify compliance with version 13 of the “USGS National Geospatial Program LiDAR Guidelines and Base Specification,” TA-LTE will be made available to selected customers on an early access basis.

TA and TA-LTE software as well as design, capabilities, and user guide documents will be distributed from the SIS web site. Tips, info, and discussion about TA and TA-LTE will be featured in the SIS on-line forum.

Questions, Feedback, or Technical Problems?

Send email to
cgochara@spatialis.com
Or call
662.323.0202



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