

# New SpatialAnalyzer Version: SA 2022.2

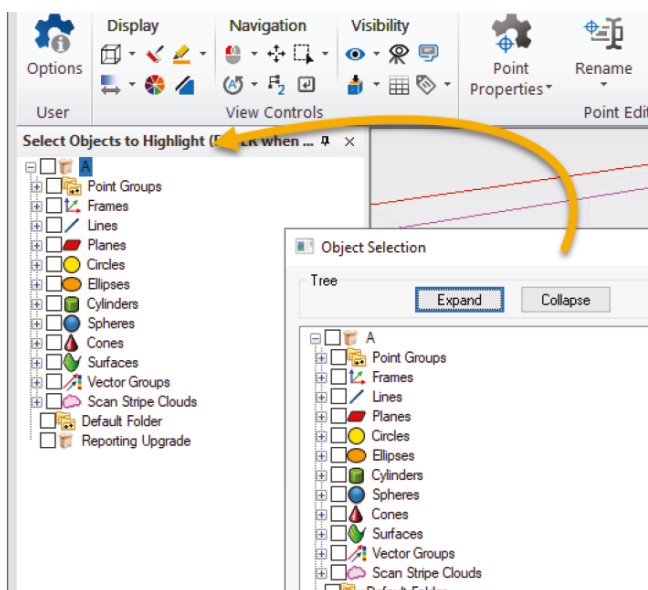
One of the significant advantages of SpatialAnalyzer is that development occurs at a brisk pace. New feature requests, bug fixes, and changes are implemented quickly, giving you the opportunity to start taking advantage of newly implemented features in a very short period of time.



## USER INTERFACE IMPROVEMENTS

### Added Tree Selection

The F2 selection window has been integrated directly into the SA Tree bar as a new dynamic selection panel. This allows direct access to multi-select options from a filtered list of relevant items, when selection is needed.



## IMPORT IMPROVEMENTS

### New CAD Import Libraries

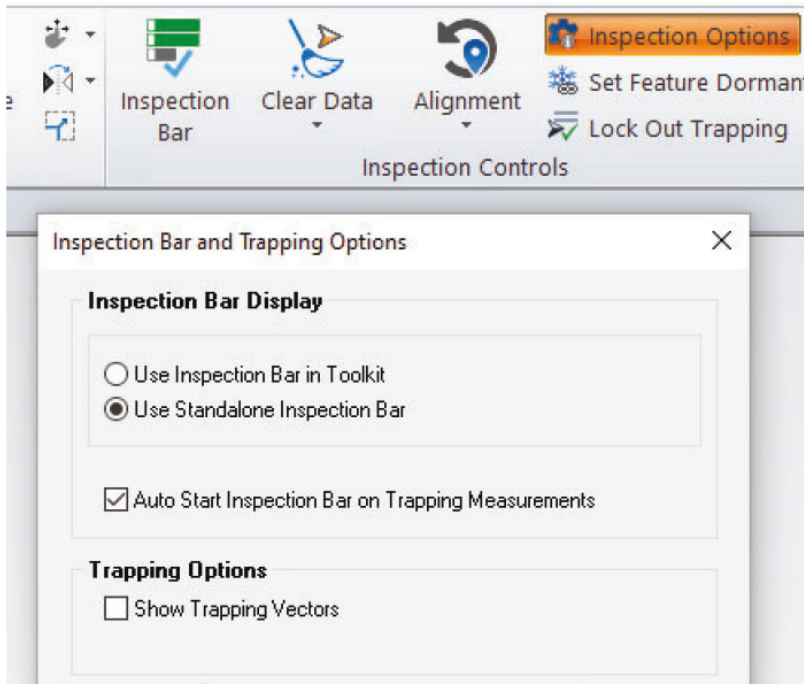
The following updated support is now available:

- Autodesk Inventor 2022, Creo 8.0, FBX 7500, NX 2007, Parasolid 34, Solid Edge 2022, SolidWorks 2022

## INSPECTION IMPROVEMENTS

### Added Inspection Options

There are now basic configuration options for inspection which allow you to choose between the Inspection bar and Toolkit Inspection panels and offers an option to automatically open the inspection bar when trapping begins.

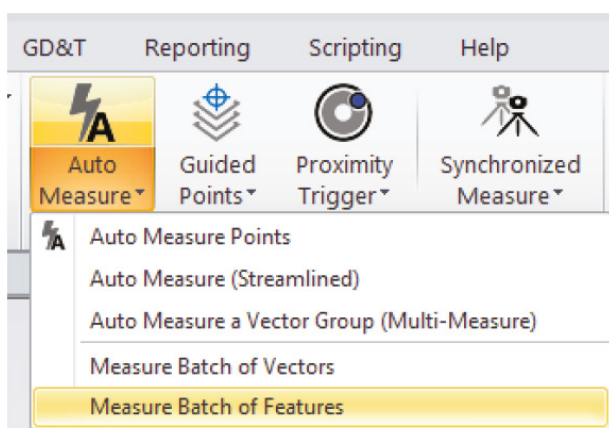


### Expanded Offset Plane References

In prior versions Offset Planes were always based upon a reference plane. In this version any objects base frame can be used as the reference. This expands their use by allowing an offset plane to be built from a dynamic frame for example.

### Added Auto-Measure Batch of Features

[Auto-Measure >> Measure Batch of Features](#) to support the automated measurement of Compare to Nominal GR-Features selection. Currently, it allows to measure a list of circles and/or slots by Nikon APDIS MV400 Laser Radar. See more details in the instrument section.



## GD&T IMPROVEMENTS

### Added support for ASME 2018 and ISO 2017

Options are now available to have GD&T feature inspection conducted using the more recent standard definitions. These options can be found in the [User Options >Analysis>GD&T Options](#)

**Eval Method**

☐ None
 ☐ ASME (1994)
 ☐ ISO (1983)
 ☐ ASME (2009)
 ☐ ISO (2004)
 ☒ ASME (2018)
 ☐ ISO (2012)
 ☐ ISO (2017)

### Added Control Over Diameter Tolerances

Added clarification to plus/minus tolerance modes of operation:

- ▣ *PlusMinus*. Will apply tolerances relative to the reference feature (as nominal).
- ▣ *PlusMinusWithNominal*. Will apply tolerances relative to user defined reference value.

**Tolerance**

ToleranceType: PlusMinus  
 HighVariance: Limit  
 LowVariance: PlusMinus  
 Exact  
 PlusMinusWithNominal

## CLOUD BASED INSPECTION

### Boundary Points

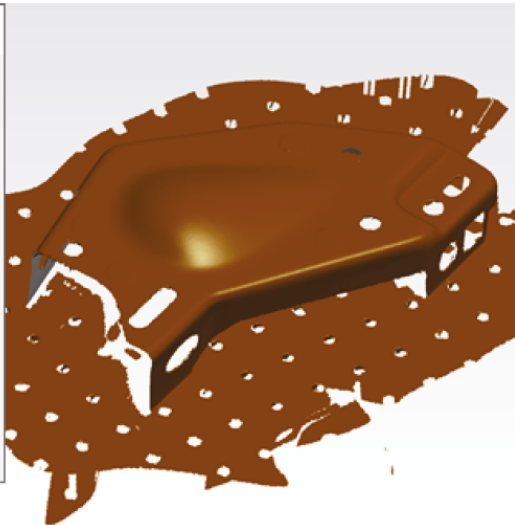
Added Right-Click option to Generate Boundary Points Clouds from a Scan Stripe Cloud. The boundary points define the extents of each scan line and can be used for edge or feature identification.

### Real-Time Meshing Improvements

Real-Time Meshing has been significantly improved. Changes include greatly improved stability with laser trackers based scanners, leading line and cloud visualization as you scan. Greatly improved density and save sizes as well as improved settings and density controls.

**Real-Time Scanning Coarse Mesh**

Smallest Hole Diameter: 5.0 (mm)  
 Stripe Max Deviation: 0.05 (mm)  
 Stripe Max Point Spacing: 5.0 (mm)  
 Grid Size: 1.0 (mm)  
 Grid Max Angle: 30.0  
 Grid Max Ratio: 10.0



## UNCERTAINTY CALCULATIONS

### Modified uncertainty model for laser trackers

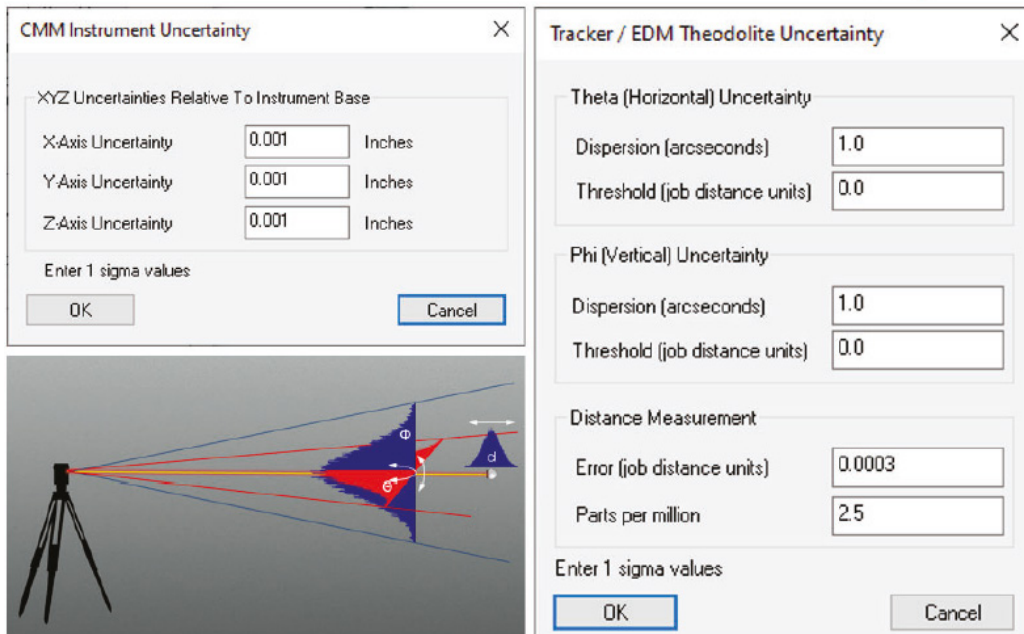
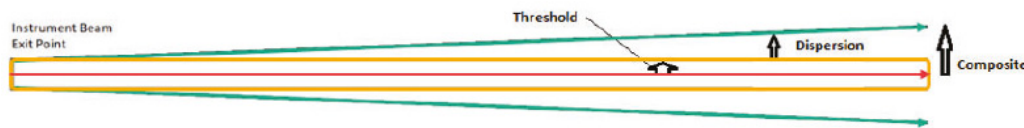
Modified uncertainty model for laser tracker (polar instruments) to eliminate singular behavior of uncertainty assessment when the measurement approaches polar points. Although this singular behavior accurately emulates the motor encoders, in practice the uncertainty is better modeled as:

Distance measurement uncertainty > Error along line-of-sight(LOS)

THETA (Horizontal) uncertainty > Error orthogonal to LOS in the horizontal plane

PHI (Vertical) uncertainty > Error orthogonal to LOS in the direction of positive PHI

Consider sighting through a telescopic sight directed towards the measurement. The angular error is now computed with respect to this shot line.

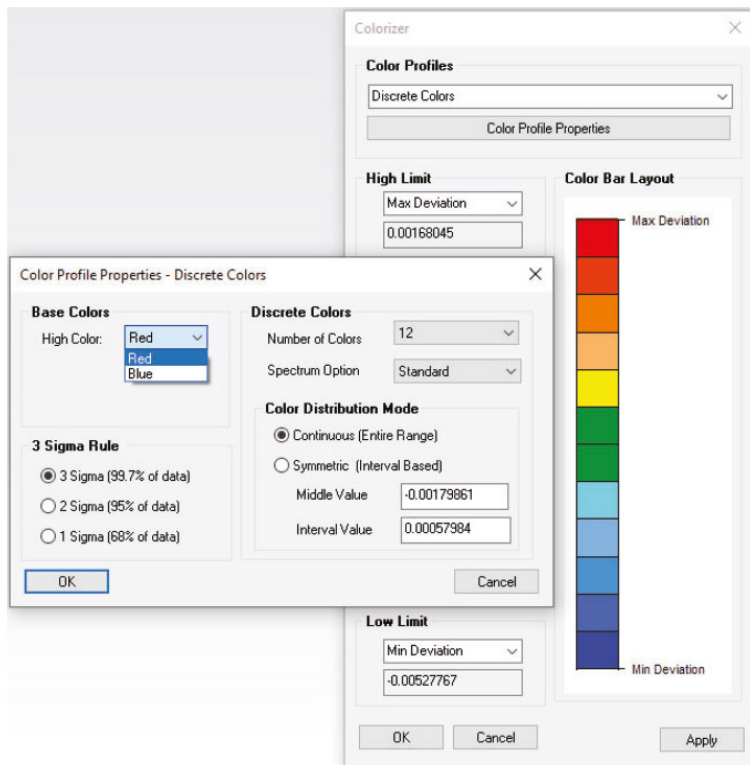


### Modified uncertainty model for PCMM Arms

The uncertainty parameters for an arm model have been simplified to an XYZ uncertainty with respect to the instrument base. Added capability for setting XYZ uncertainties for PCMM instruments so that XYZ component uncertainties can be determined during USMN operations.

## REPORTING IMPROVEMENTS

Added ability to reverse colors in Discrete Colors mode. Now, red color can be picked for high and blue for low.



## INSTRUMENT UPDATES

### Leica Trackers

*Added New Instrument - Leica AT500*



The AT500 offers reflector measurements at up to 160 meters an integrated controller and the ability to measure using the B-Probe<sup>plus</sup>.

*Updated to LMF 1.9 (AT9x0, AT600, AT500)*

- ▣ Added support for RDS 6.2 and improved the ability to connect and disconnect from RDS with the AT960 and a scanner.
- ▣ ATS600 minimum scan distance goes to 1m from 1.5m, and will now scan any part of a perimeter that is not too close.

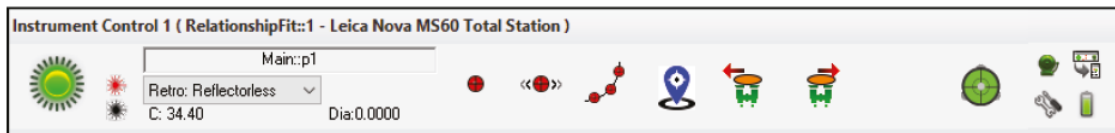
## API Trackers

- Added SDK to support the new 2-axis level for the Radian Plus (OminiTrack2)

## Total Stations

The new total station interface has been greatly improved.

- Added support for Surface Vector Intersection measurements
- Added new instrument toolbar



## Nikon APDIS Laser Radar

- Laser Radar APDIS MV400 has been integrated with Nikon CLR SDK v10.05.06.6174

Added new menu options:

- Instrument >> Hardware Capabilities
- Tests >> Vibration Analysis

Large number of nominal vectors can be measured using menu option [Instrument >> Taking Measurements >> Auto Measure >> Measure Batch of Vectors](#). With this we added:

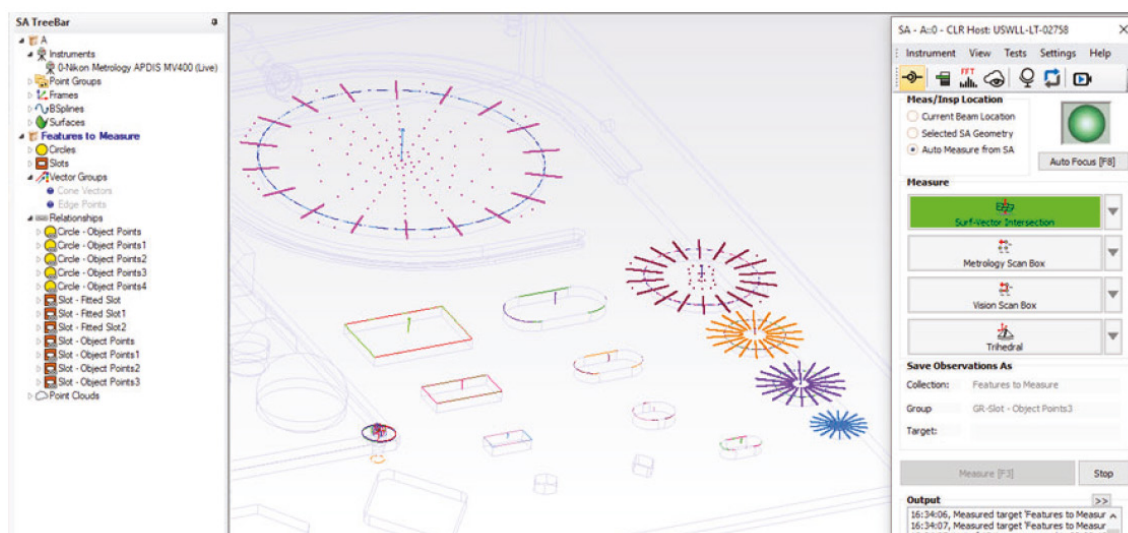
- Now, measured points can be saved in a desired collection
- Added ability to build a new vector group including skipped or failed vectors from the list

## MV430E and MV450E Laser Radar Enhanced Models

Implemented auto measure of SA Geometry Relationships (Features) by MV430E/MV450E Gauging Engine (GE).

- Currently supported geometry types are circles, rounded slots, and rectangular slots.
- Each feature can have a saved target definition for customized scanning and the option to send clouds, measured geometry or both.

To start measurement process, select on SA ribbon [Instrument >> Auto Measure >> Measure Batch of Features](#).



## Laser Projectors

### *Added New Instrument - Virtek Iris Projector*

An all new interface to the Virtek Iris projector has been added. See instrument Manual for setup details and scripting controls.



### *Updated LAP Projector Interface*

Rewritten interface for the SynchroNet API, replacing the older CADPro API, significantly increasing performance.

