New SpatialAnalyzer Version: SA 2020.12.01

One of the significant advantages of SpatialAnalyzer is that deve-lopment 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.

RIBBON MENU IMPROVEMENTS

Added full featured customizing of the SA Ribbon bar.

This includes a search bar to help you find buttons, a hide and show control, the ability to create new tabs, groups and add new buttons as needed. It also provides the ability to link MP's directly to new buttons on any tab with a user defined icon.


Ribbon Customization: https://youtu.be/RpfMIoZ116s
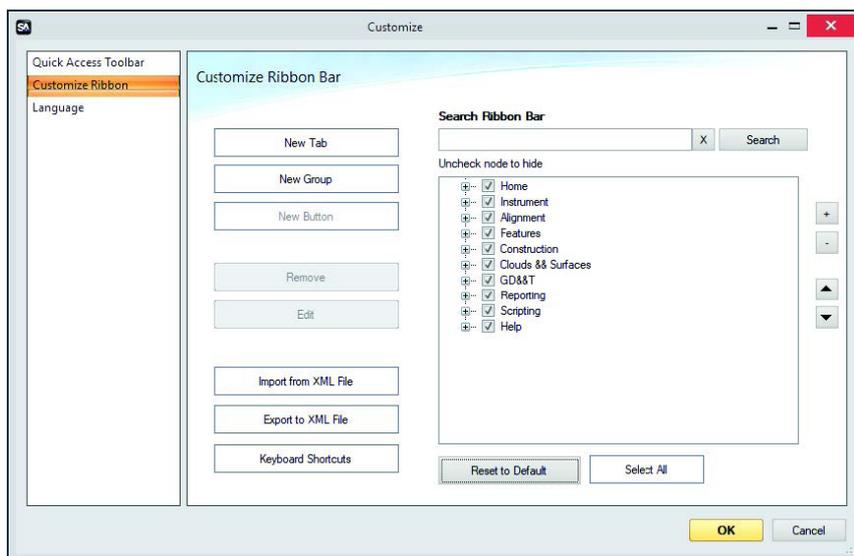
GR-FEATURE INSPECTION ENHANCEMENTS

New Auto Detect Feature

This feature auto-detect the geometry type eliminating the need to predefine what geometry you are measuring. It also auto-matically sets the projection plane for you and auto-detects the nominal when when pre-aligned to a CAD model. Adding an Auto-Detect also automatically set the repeat flag when trapping so that you can simply press the next button to add another feature to the job.
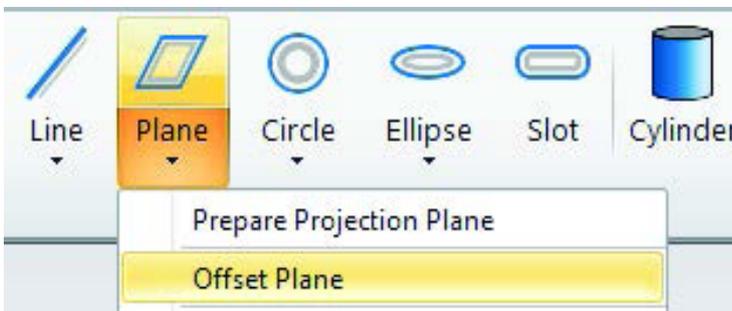
This saves numerous trips back to the keyboard...

Autodetect Features: https://youtu.be/r45lkmfxczw
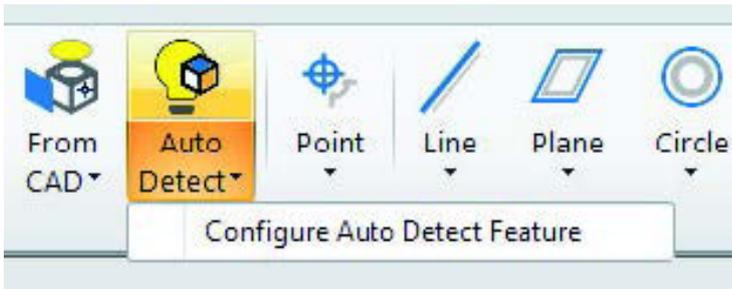
Dynamic Offset Planes Added

A dynamic reference plane is now easy to access.

Allows a user to select an existing plane and the relationship maintains the specified distance from that reference plane.

## CLOUD/MESH ENHANCEMENTS

Improved Cloud Point Selection

Added new individual cloud point selection mode activated by:

- Global cloud display properties set to auto zoom (active by default).
- Global cloud display properties set to use view depth (active by default).

This will establish a radial zone about the mouse click point aligned with the viewing direction with a radius equal to the target promper disk radius as per user settings. All cloud points along this cylindrical zone will be interrogated and the one that is closest to the near plane of the view will be returned provided that there is at least one point within this cylindrical volume.

Outlier Rejection using Graph button

Geometry Relationships now keep track of both the input cloud (original associated cloud) and the analysis cloud using for the fit. This allows you to use both Proximity Filtering and a new Graph button with a histogram display to process a cloud.
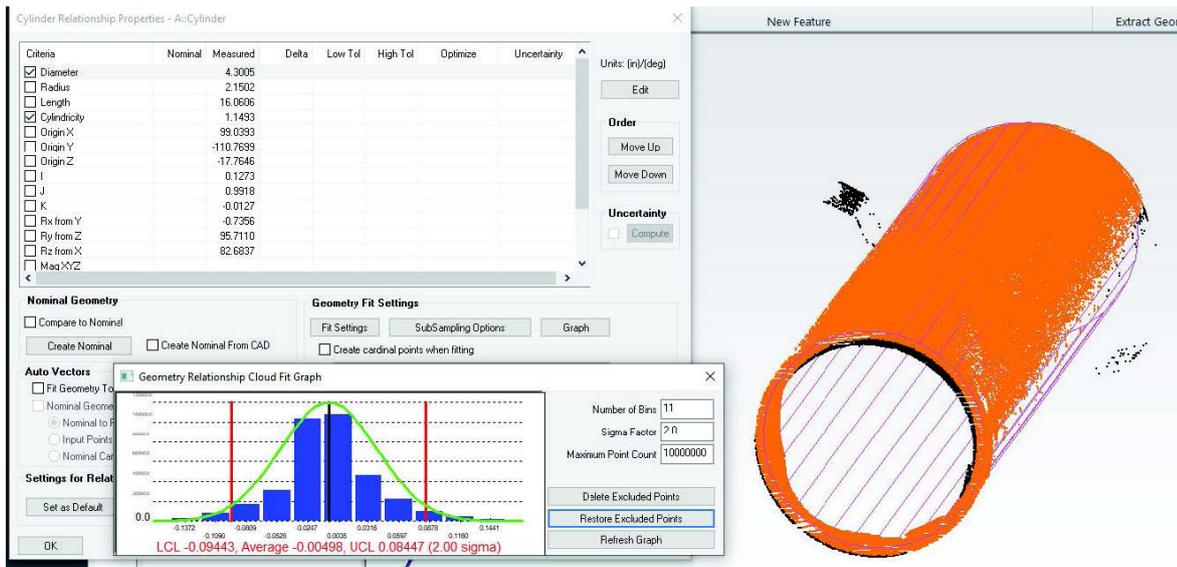
Expanded Proximity Filter Controls

GR-Features capable of performing a proximity filter now preserve the references to the input clouds. This enables edits to the filter settings to be made at any time. An Apply to Selection button can also be used to apply updated settings to other features, triggering a recomputation.
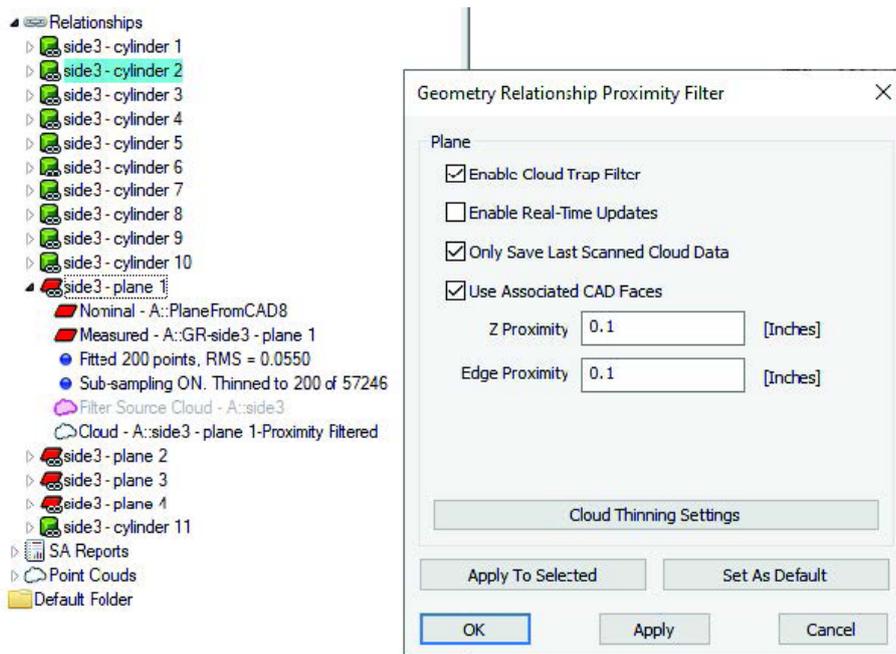

Feature Extract Settings: https://youtu.be/g9o7EvB-63o

Align to CAD

The "Align Cloud to CAD" R-Click menu function will now auto-adjust the resolution of the CAD mesh to fit the size of the part. The default will be a mesh resolution to 10% of the maximum spatial extent of the surface.

If this fit is canceled and a retry attempted, the user can adjust this resolution manually. A larger value will result in a coarser CAD mesh to serve as an alignment target for the active cloud which translates to a shorter time required to generate the CAD mesh.

Cylindrical Cross Sections

The cross section cloud configuration has been expanded to allow for the use of concentric cylinder definitions.
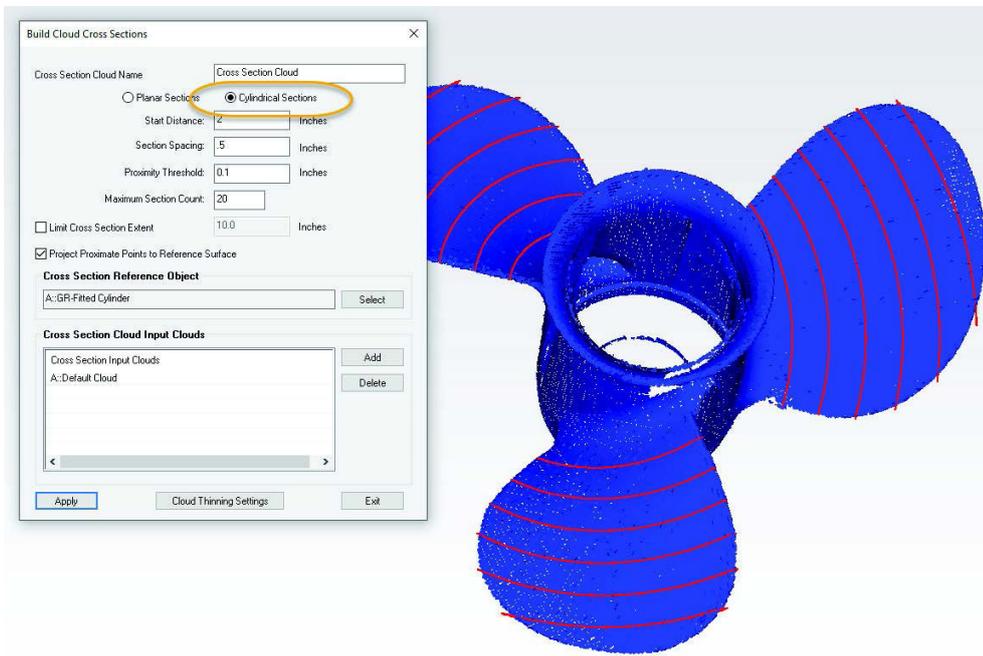
Demo available here: https://youtu.be/JbawRLRHpGE

Mesh Editing Expansion

In this version a selection of additional commands have been added to facilitate mesh editing. These include

- **Dissect Mesh.** Which allows you to break a mesh apart into its distinct pieces for editing or export.
- **Combine Selected Meshes.** This command allows you to combine independent mesh elements into one.
- **Delete Selected Mesh Region.** This option allows you to remove unwanted segments of an existing mesh.

When combined with the existing hole fill, mesh stitching, and direct STL export options, a fairly full featured mesh editing package is now available.

GD&T ENHANCEMENTS

Expanded GD&T with GR-Features

- When selecting reference features in geometry relationship mode, the selection display now will by default expand the tree view.
- When selecting reference features in geometry relationship mode, the nominal geometry will be used to establish the nominal tolerance value.

ADDITIONAL ANALYSIS FUNCTIONS

Improved Backup Strategy

Modified strategy for saving job files such that a job with an existing job file will first be saved to a temporary file and if this operation succeeds, then the existing job file will be deleted and the temporary job file will be renamed appropriately. Note that this temporary file will be written to the same directory as the original file so there must be enough disk space available in this directory for this operation to succeed. If it fails or SA crashes during this operation, then the previous job file should still be valid as of the last time it was saved.

Added Locked Points

In addition to the existing ability to lock the transform of surfaces and other SA objects, it is now possible to lock imported points such that they cannot be moved or measured over.

IMPORT EXPORT IMPROVEMENTS

Improvements to Selective Import

The selective import controls have been improved to make selection even easier. An "Apply to all by type" option has been added to allow a user to easily add or remove objects of a certain type by selecting a single item of that type. The include/exclude wildcard select filter has also be improved.
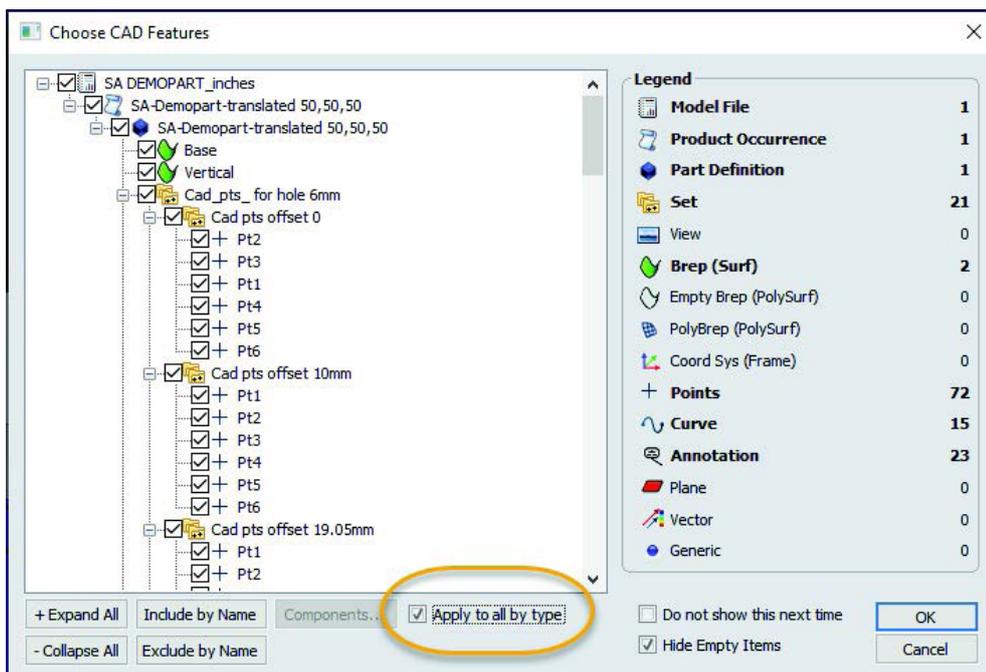
CAD import library update

⌐ Direct CAD Access Import:
   Updated Formats: ACIS 2020, CATIA V5-R2020, JT 10.3, Inventor 2021, NX 1899, Revit 2020, Parasolid v32.0

Cloud Import

E57 files can now be imported such as to optionally partition each file into a separate cloud for each scan block.

REPORTING ENHANCEMENTS

Added report table for ellipsoids which also supports callouts for ellipsoids. Reporting differentiates between general ellipsoids and those generated to represent uncertainty covariances. Also modified ellipsoid properties editor to expose settings for magnification scaling and optional flagging as an uncertainty ellipsoid.

Dimension Display

Point to object and object to object dimensions now have an option to include/exclude magnitude from component projections to a reference frame when component selection is set to ALL.

Reports Export

Added ability to select up to 100 SA reports to combine into a single PDF file.

INSTRUMENT DEVELOPMENTS

Laser Trackers

- Default "Pause at Beam Break" true for the standard "Spatial Points to SA" measure profile.
- This was by request from "Toolbar" interface version users. But the change applies to the main interface as well.
- Since settings persist, this default value only changes for new users with no existing settings file for their tracker(s).

Faro
Actively check if tracker needs an AutoComp during the startup sequence, and run it if so.

Leica Automation Interface Control

Add message informing you that system confi guration is needed if the AutomationInterface COM api cannot be created at startup.

Leica ATS600

Simplified measurement from the OVC – when the OVC is open, whatever is showing in the OVC will always be Measured, no matter how the OVC was opened (from a profile definition or from the Drive Head/OVC control).

By request, always add a new Region or Line so that distance parameters can be set separately for perimeters or points selected from SA. Previously, a new Region or Line was only added if none already existed in the profile.

Nikon- Metris Laser Radar

Added support for double-clicking on the video window to zoom.

Surphaser Scanner

The SDK and support for the Surphaser Scanner has been greatly expanded including support for the Surphaser10:

- Added ability to define the density of a scan at a given distance.
- Added the ability to build a live voxelize the cloud and send it independently or in addition to the full cloud.
- Expanded MP support.

Kreon (und API Axxis, Baces) Messarme

Updated SDK v.20.0.0.0 and support for the Kreon/API Axxis arm including an updated set of arm models.

Scanning mode (for all Kreon/Axxis arms) now starts paused, and scanning button functions are shown in the scan status window that pops automatically.