# What's New In SA

One of the 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.

2016.09.01

SAToolkit

Projection planes can now be easily defined as part of the selection process through the SA Toolkit. Right-clicking on either the Make Plane or Make Plane from CAD buttons will create the GR-Plane and define the projection plane in the SA Toolkit in one step. This makes sub-sequent projected feature construction more efficient.
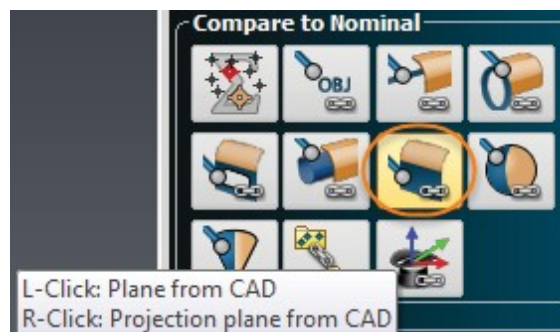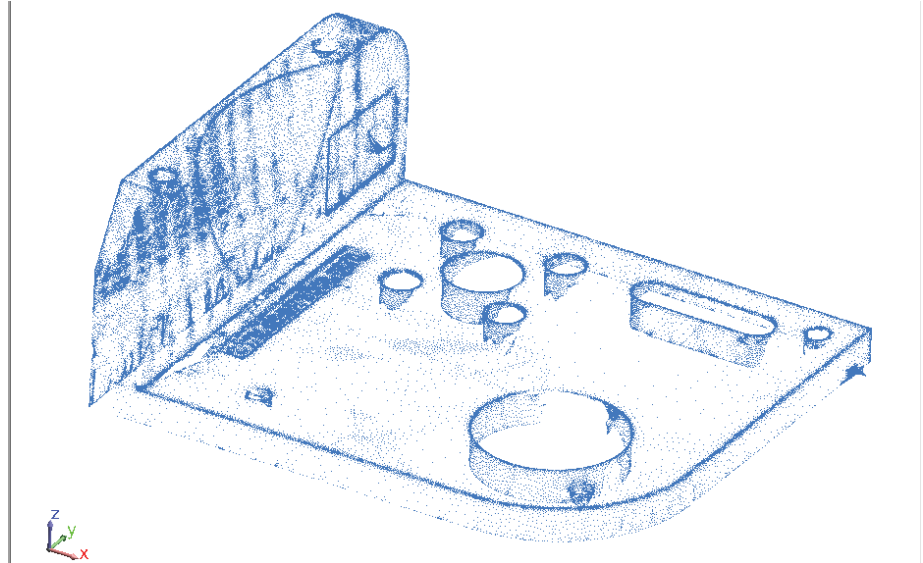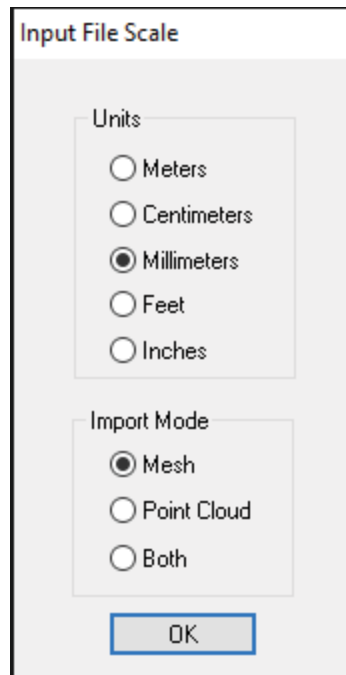

Clouds

Mesh Vertices

Right-click properties of a Scan Stripe Mesh now includes an option to generate a cloud from mesh vertices. This can also be done for multiple meshes at once using **Construct -> Point Clouds -> On Object Vertices.** The resulting cloud can be very useful in that it concentrates the resulting cloud data at edge transitions and along curves where

the greatest detail is needed and reduces the density on flat regions of a part. This can be used as an averaged proxy for a much larger scan, greatly reducing job file size without significant loss in detail.

STL Cloud Import Option

STL cloud import and export speeds have been greatly improved. In addition, you can now import an STL as either a mesh, a point cloud, or both at once for quick utilization.


Dynamic Cloud Thinning

Dynamic cloud display control was added, which limits the total

number of cloud points displayed at any one time while actively connected to an instrument. This dynamic display management makes it easy to measure millions of cloud points without any slowdown in performance due to graphic update processes.

Global Clipping Plane Set Control
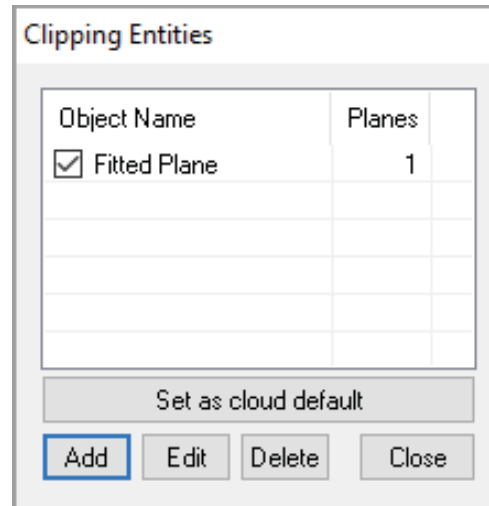
Clipping planes are defined per cloud through their properties, allowing a user to define a separate clipping plane or set of clipping planes per cloud. We have now expanded on that for the simple case where an operator wants to use the same clipping plane for multiple clouds. To do so we have added the option to define any particular clipping plane configuration as the system default, such that each additional cloud inherits the defined global clipping plane(s).

Additional Point Cloud Improvements

- Renaming a scan stripe cloud will now propagate through to an associated mesh (if there is one).
- Tweaked "Cloud to CAD Alignment" to exclude hidden points. This allows for a better result if hidden points are not deleted.

Callouts

Added Mesh Callouts

The ability to add a callout directly to a Scan Stripe Mesh has been added. In doing so, we added the ability to specify anchor points for leader lines in Cloud and Mesh callouts. This control includes a right-click callout menu option to redefine the callout anchor point. The Callout Properties dialog also now includes a "type" indicator option.
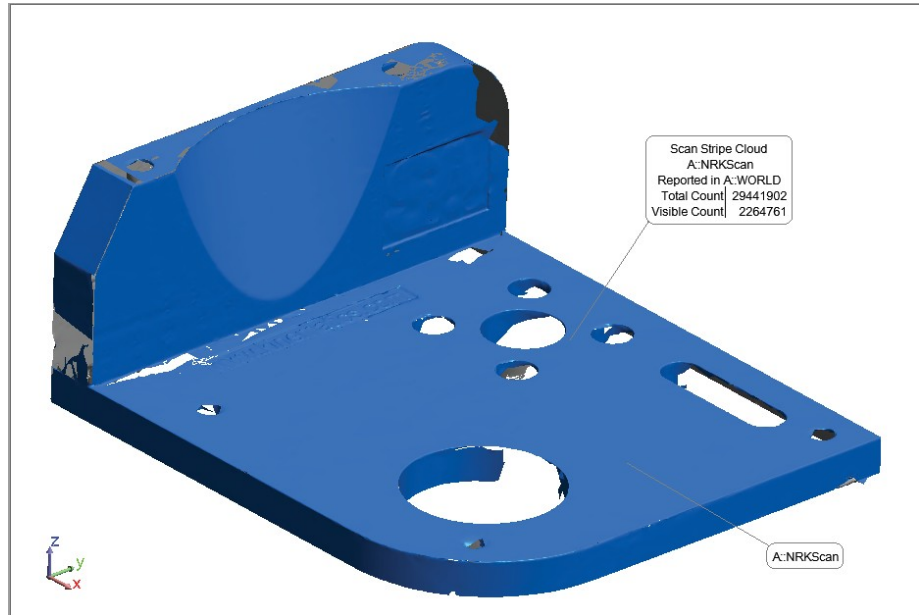
Reporting Frames In Callouts

A "Reporting Frame" option was added to the Callout properties displayed for Objects, Geometry Relationships, and points/groups relationships. This can be very helpful in identifying when details on a feature are reported relative to a reporting frame other than the current working frame.

Reporting

Multiple Reporting Improvements

- Cloud report tables have been added which present basic details on point clouds such as the total point count and number of visible points, probe offsets, and the status of clipping planes and meshs.

- The "Report Option" Dialog use by Group-To-Group Relationship, Points to ObjectsRelationships, and Vector Groups has been rearranged and streamlined for clarity. The "Details" table checkbox now controls the visibility of the point details table. When disabled the corresponding options are also grayed out including "Record Format" and "Point Naming and Ordering" sections.

- In relationship or vector group reports, if no tolerance is defined for a reported component, the field is not colored to more clearly indicate that the no tolerance was defined.
- Added sub-sampling information for cloud-based Geometry Relationships within their reports to more accurately reflect the fit statistics.

Instrument Updates

Both Leica and API SDK Updates

- AutoMeaure from SA with a Leica tracker now allows users to measure reflectors of different types and diameters. It harvests the reflector definition from nominal measurements and sets the correct target information with each measurement command. "Measure All that can be Seen" has also been improved.
- API trackers can now send measurements to SA at full 1,000 Hz.

PCMM Arm Improvements

- A check for minimum joint encoder change was added to prevent excessive graphics updating during measurement. This ensures that no updates are sent when using ToolBar mode, and the arm is docked for example (unless the arm is moved).
- An option to send the classic cloud data format was added for cases when you don't need meshing, but need maximum speed. Go to Options >> Send Scan Stripe Clouds (For Meshing). This defaults ON. Uncheck for original format.

Leica Pxx Room Scanner

- Expanded support from the P20 interface to include all current models of Leica room scanners including P15, P16, P30, P40.

Laser Projection Updates

- Assembly Guidance SDK Update and interface additions.

Measurement Plan

MP Step enhancements

MP command "Load HTML Form":

- Added ability to resize the dialog for presentation on small screens.
- Added different datatypes (integer, double, Boolean, string) support for HTML <input> "radio" buttons.
- Added support for SA embedded files.

MP command "Notify User Text Array":

- Improved user interface for text management. Now the "Edit Text" and "Notice" dialogs are resizable, support word wrap-

ping, and have vertical scroll bars.