VERISURF 2024

What's New in Verisurf 2024: *Release Highlights*

Connecting Metrology & Manufacturing for Global Success

The new release features many productivity enhancements for measurement inspection, first articles, CMM programming, tool-building, and 3D reverse engineering.

FULL VIDEO PLAYLIST ▶

(CLICK BUTTON BELOW FOR INDIVIDUAL FEATURE VIDEO)

AUTOMATE

NEW Automate RPS Alignment

RPS Alignment combines the power of Auto Align and Feature Align into a new alignment for inspection plans. It works with points, features, constructions, and analyzes, making it easy to align to virtually any datum scheme in a plan. It can use previously measured points, features, and surface points making it easier to add probe changes, go-to points, and device station moves between measured features in a plan.

- *Automate alignments from points, features, constructs, and surface points*
- *Advanced control for orientation, rotation, position, weight, and target type*
- *Simplifies alignment strategies required by the automotive industry and more*
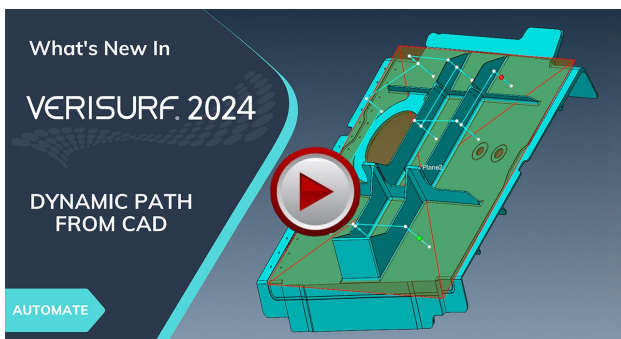
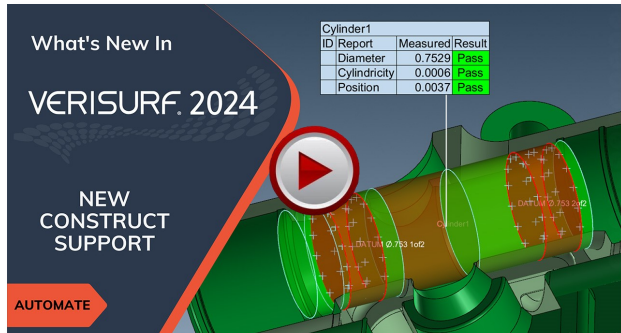### NEW Dynamic Path Creation using CAD

Standard path-creation uses feature geometry and a fixed set of parameters to define a path. With the new dynamic path from CAD functionality, you can create the path for any type of feature interactively by selecting points directly on the model.

- *Dynamically create or add path points to any object*
- *Automatic in-path collision avoidance*
- *Supports 3-axis and 5-axis systems*

AUTOMATE

- *Control feature constructs using center points or measured points*
- *Flexibility to use points from one or more measured features to construct a new feature*
- *Evaluate features using alternate fit methods without re-measuring*

NEW Construct Support

When features are constructed in Automate or the Report Manager, a new construction option enables the use of either the measured points of the selected features, or their calculated centerpoints to construct a new feature. This new construction option provides the flexibility to use measurements from one or more features without first having to export them to points.

- *Ultrasonic thickness evaluation*
- *Metal parts ranging from 1 mm to 20 mm*
- *Accuracy better than .010 mm*

NEW REVO RUP1 Thickness Sensor Support

New support for the Renishaw RUP1 (REVO[®] Ultrasonic Probe), providing an ultrasonic thickness probing solution to automate the measurement and reporting of thickness requirements. Leveraging the powerful Dynamic Surface Points tool, Inspection Plans within Verisurf now incorporate ultrasonic thickness measurements.

- *Surface finish/roughness evaluation*
- *Variety of surfaces, including bores as small as 5 mm in diameter*
- *Output Ra, RMS, and raw data*

NEW REVO SFP2 Surface Finish Sensor Support

New surface finish measurement probe and reporting solution for CNC CMMs equipped with Renishaw REVO SFP2 (Surface Finish Probe). Using direct output from the Renishaw REVO SFP2 probe, Verisurf CMM programming can include defined surface finish/roughness evaluation from 6.3 µm to 0.05 µm (250 µin to 2 µin) Ra with results added to automated quality reporting.
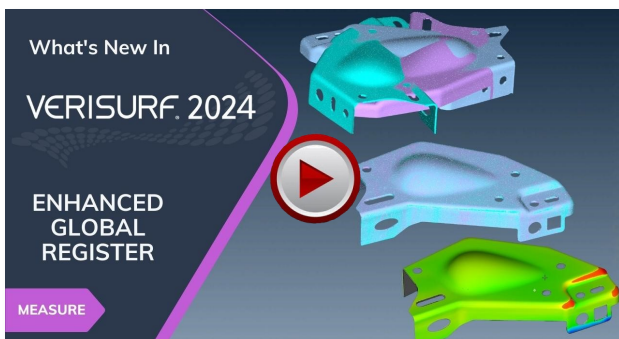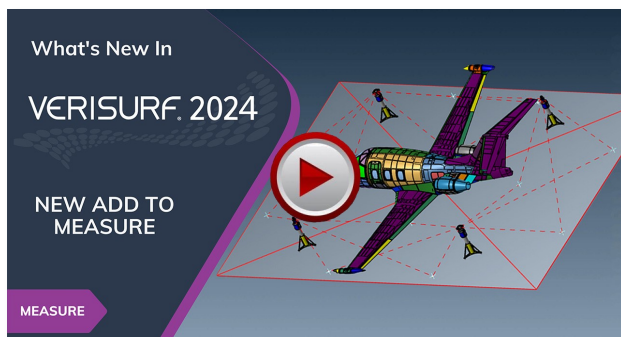
VERISURF.
3D Measurement Solutions

MEASURE
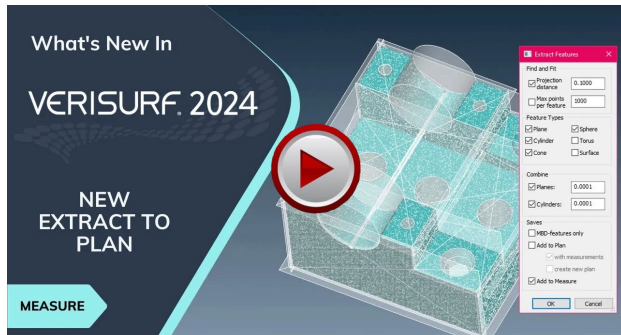
- *Easy, fast, and reliable feature extraction from clouds and meshes*
- *Auto feature and nominal recognition from CAD*
- *Extract all, selected, or features defined by MBD*

NEW Extract to Plan

A new option to extract features to a plan from clouds and meshes, provides an easy, fast, and reliable way to create inspection plans to analyze part tolerance-condition using scan data. Features are extracted based on their projection to corresponding entities in the model, and pre-selection can be used to limit extraction to specific features.

- Rapid sampling for fast registration of datasets cloud to cloud, cloud to mesh, mesh to mesh, cloud and mesh to CAD (the first dataset in the tree is stationary)
- Refine registration for improved alignment between datasets.
- Supports manual inspections and automated inspection plans

NEW Global Register

Global register, used in the Reverse, Measure, and Analysis managers, features new capabilities and significant performance improvement to align datasets including clouds, meshes, and CAD. It gives users an accurate and reliable way to bring scans, meshes, and models together for reverse engineering, inspection automated analysis, feature extraction, application of GD&T callouts, and colorful graphic representation and reporting.

- *Add points to existing features*
- *Add points from multiple stations*
- *Supports all measurement devices*

NEW Add to Measure

When the size of a feature exceeds the measurement volume of the device, it's now possible to re-position the device and complete the feature measurement from additional locations. After measuring the feature from the first location, the device is re-aligned. The speed-menu option to **Add Measurements** is then used to continue measuring the feature from the new location.
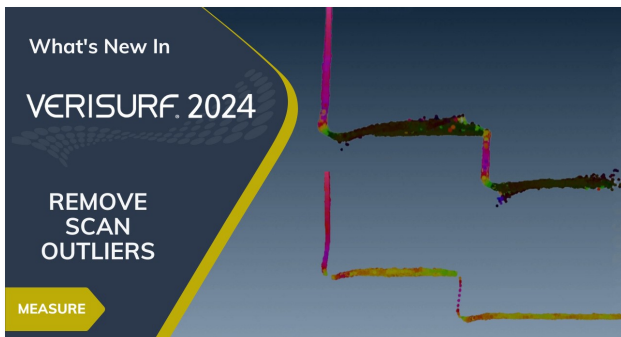
MEASURE

- *Interactive feature-fitting filters*
- *High-frequency noise removal from tactile scanning*
- *Remove the start and end data (acceleration and deceleration) from tactile scanning*

NEW Measure Filters

In Measure Settings, the new Filter tab has been added for all features (lines, circles, ellipses, slots, splines, planes, spheres, cylinders, cones, paraboloids, and toroids) to provide the user greater control of the feature calculation process. These filters are applied after the measurement is complete, and are especially relevant when measuring features using tactile scanning on CMMs. This scanning type typically has inherent measurement noise at the start and end of the scan, and the new filters help to diminish the effect.

- Real-time outlier removal from laser line scanners
- Supports more than 1.2 million points per second
- Improve scan quality for inspection and reverse engineering

NEW Remove Scan Outliers

Streamlines measuring with laser line scanners by removing scan outliers in real time. Real-time scan-outlier removal improves scan quality for all inspection and reverse engineering applications. Real time scan filtering allows you to scan parts more efficiently by scanning with the full range of motion of the scan head without cleaning up the data.

- Align to Targets in Any Order
- Supports Points, Surfaces, and Features
- Simplifies alignment of Portable Arms and Laser Trackers

NEW Auto Align Sequence Any Order

Measuring Auto Align targets in their sequence/order is not always the most efficient method, especially when using a laser tracker which might involve backtracking around a large part. Verisurf 2024 lets you choose whether or not to follow the Auto Align target order so you can measure point, surface, and feature targets in the order that's most convenient for the operator. This change simplifies the alignment of portable arms and laser trackers.

MEASURE

NEW Radius Reporting

When measuring only partial regions of large-radius circles, cylinders, and spheres, form-error and measurement-process-uncertainty can have an undue effect on the calculated radius. Verisurf solves this problem through range reporting for radius characteristics.
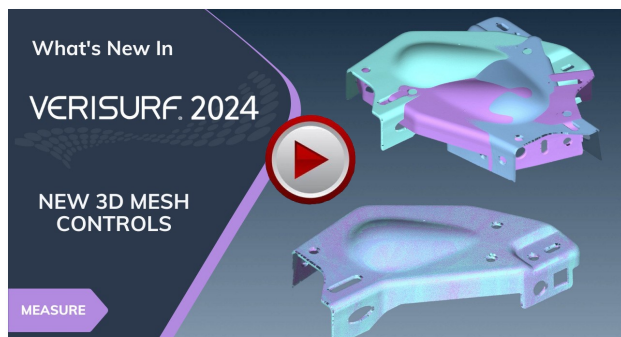
- Simplified min/max reporting for small arc segments of radius dimensions
- Supports manual inspection and automated inspection plans
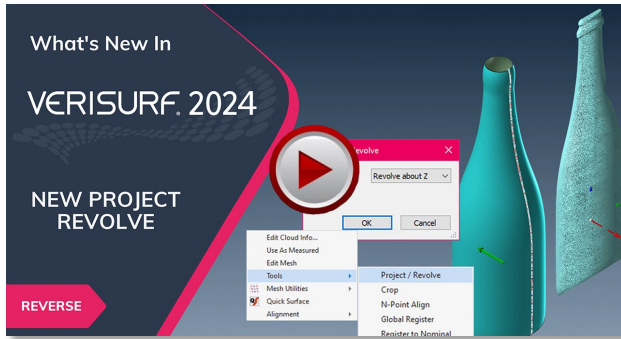- Supports circles, cylinders, and spheres

NEW Auto Align Controls

Expands the power of Auto Align with new intelligent axis component and gravity controls. Added new controls in the Auto Align Results dialog check boxes to Select / De-select all Points in an Axis. Added +Z button to lock the Auto Alignment to the highest value in Z. Added Hold Gravity Level to use the Device orientation to control the Z value of the Auto Alignment. With this a laser tracker can be used to record the direction of gravity as a level plane, and the gravity vector can be used to define the primary datum to establish a level alignment.

- Hold Gravity Level for Laser Tracker applications
- Intelligent axis component controls to achieve desired alignment strategy
- Set highest point, to constrain the alignment to the highest Z measurement when aligning to a freeform surface as a primary datum

NEW 3D Mesh Controls

When meshing multiple overlapping clouds the 3D mesh controls include an option to refine the cloud alignment to minimize noise generated during merging and meshing. A new Cloud option simplifies registration, merging, smoothing, and filtering of clouds for workflows that require a single clean Cloud instead of a mesh. A Power Mesh option improves the user experience by offering all meshing options in a single dialog.

- Register Selection to align multiple Clouds for quality meshing
- Use Cloud Normals improves mesh speed and orientation
- Added Power Mesh to 3D Mesh Controls to improve the user experience

- Simplifies surface of revolution reverse engineering
- Create 2D cloud from a 3D cloud (silhouette)
- Supports using an axis of revolution or plane of projection.

NEW Project Revolve

Objects defined by a surface of revolution are easily modeled with the new projected-revolve tool. The scan is first aligned so its axis of symmetry coincides with an axis of the WCS. The points are then projected by revolving around the axis to form a 2D cloud representing the total profile of the scan. Points can likewise be projected by translation onto the planes of the WCS to create a silhouette of the part.
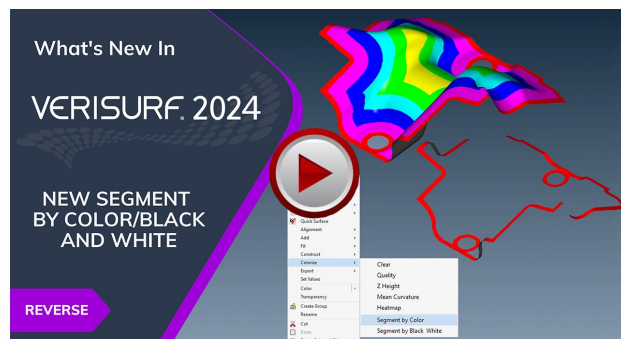
VDI

NEW VDI Custom CMM Display

New Custom CMM display lets you create your own CMM image displays. Solids or Surfaces can be used. Users can show the new Custom CMM options in Automate Simulator. These also show the Verisurf Device Settings to simulate a live device. Probe heads don't need to be included. The VDI Device Setup has the new option to use the Display Custom CMM.

- Create your own CMM Display
- Supports 3-axis and 5-axis systems
- Use OEM models or create your own using Verisurf CAD

REVERSE

NEW Segment by Color/Black and White

Takes advantage of color scans by enabling segmentation based on color. When a cloud or mesh contains RGB values, the scan can be segmented into individual clouds or meshes based on the color assigned to each point. Segmentation by black and white helps when extracting geometry such as part outlines from 2D images. Segmentation by color simplifies data management and is useful for dividing a cloud or mesh based on point quality, Z height, gaussian curvature, mean curvature, and wall thickness.

- Segment colored regions into independent datasets
- Simplifies data management
- Supports Clouds and Meshes

Verisurf 2024 includes additional improvements beyond these highlights.

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