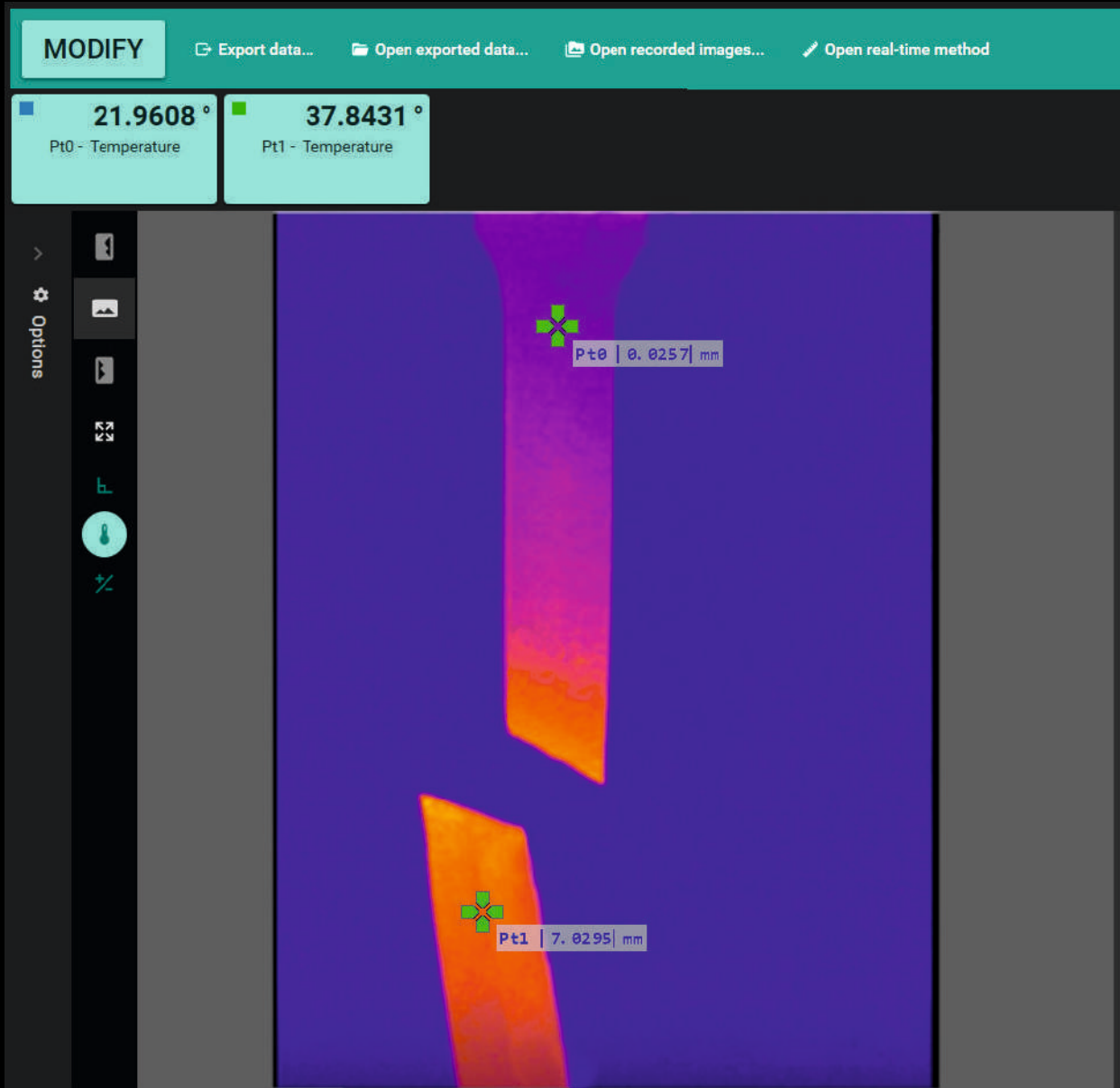# XSIGHT

ALPHA 2022 SP1

The 2022 SP1 (Service Pack) release brings the improved version of DIC measurement software ALPHA. We are Xsighted to present new features and summarize other improvements.

Thermal camera integration
Anchor point probe
Scriptable values
Torsion line 3D
Automatic DIC area detection

Anchor point probe:

The Anchor Point is like the Point, but it does not measure anything by itself. It is intended for use with other probes. It allows to isolate displacements of other probes from displacements of the Anchor Point. If the Anchor Point moves, its displacement is subtracted from the displacement of another probe.
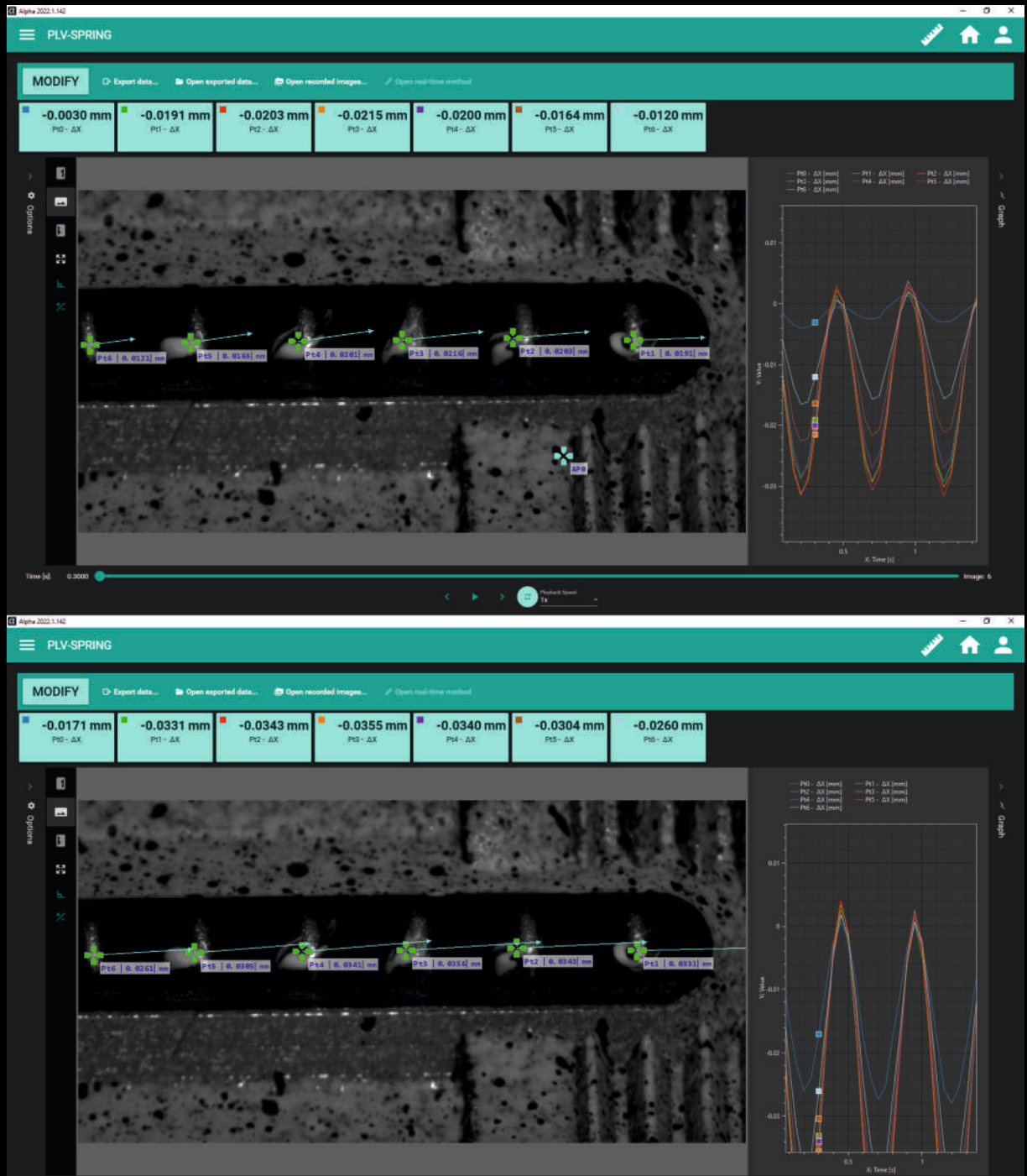
The dynamic measurement of spring system located on a shaker with and without an Anchor point example. The DIC method demonstrates the possibilities of a large deformation measurement on a spring example

![XSIGHT logo]

ALPHA 2022 SP1

NON CONTACT THERMAL MEASUREMENTS

Thermal camera integration:

The thermal camera integration allows users to monitor the temperatures of applied probes and display the thermal field of the measured scenery. ALPHA integrates an extremely lightweight, robust, and compact LWIR (Long-Wave infrared) camera for common temperature measurements.
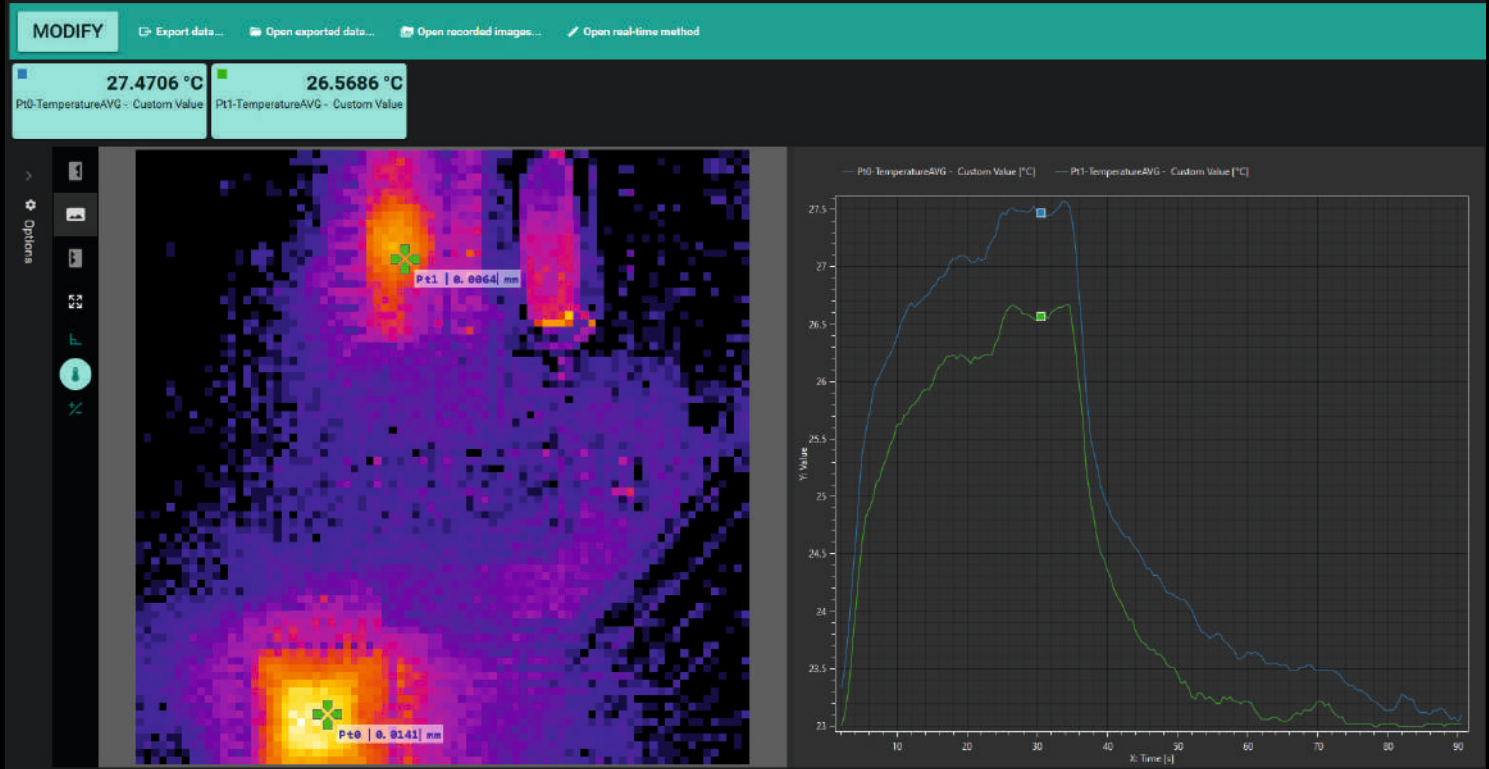
The example of assembled PCB measurements with a temperature visualization during operation

Torsion line: The implementation in 3D and improved detection of edges.

The evaluation of Twist and Shear Strain in degrees by using the Torsion Line tool.

TOOL ENHANCEMENTS

Scriptable values

ALPHA added the support of custom value scripting for all results measured by tools in the measured scenes, including input values. The scripts can use results from any camera, camera pair, or camera stitching set-up. Many scripts can be saved and used by any method, where they can be selectively turned on.

The scripting is provided by the C# language, including a smart code autocompletion. Scripts are compiled into a native code that runs at a high speed. The flexibility is very high as even very sophisticated procedures and systems can be defined.

The scripting of custom values can be combined with recording, where a trigger condition can be defined in the script. The recording is then started only when the condition occurs, for instance, when the expected object appears in the scene.

Scripting examples:
- Custom-defined filtering using interpolation, approximation, etc.
- Various computations based on real-time regression and using different measured parameters from multiple tools and cameras. (e.g., second camera measurement motion compensation, thermal compensation based on regression ...)
- Including any functions of Artificial Intelligence, Expert systems, Fuzzy logic, and genetic algorithms
- External computation libraries can be included
- Computation of a real-time contraction based on the evaluated ellipticity of a measured sample
- True stress/strain evaluation based on area contraction using custom formulas
- ...
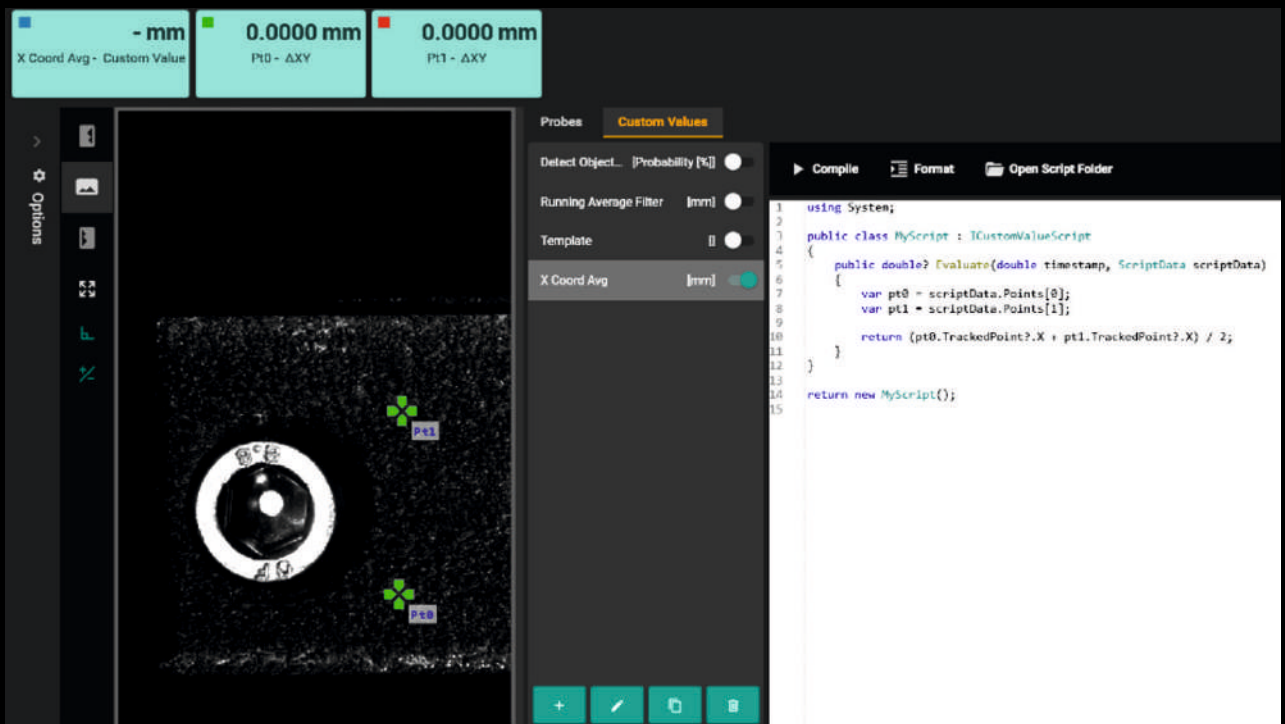
The example of computing the average value of two Point probe X-coordinates by scripting.

Automatic DIC Area detection:

The automatic area detection accelerates and simplifies the placement of the DIC Area probe for surfaces with distinct speckle patterns. There are three options:

- Single polygon, boundary only – arbitrary point count can be selected
- Single polygon, including inner points – spacing is determined by detection parameters
- Joined polygon, including inner points – detects more complex shapes
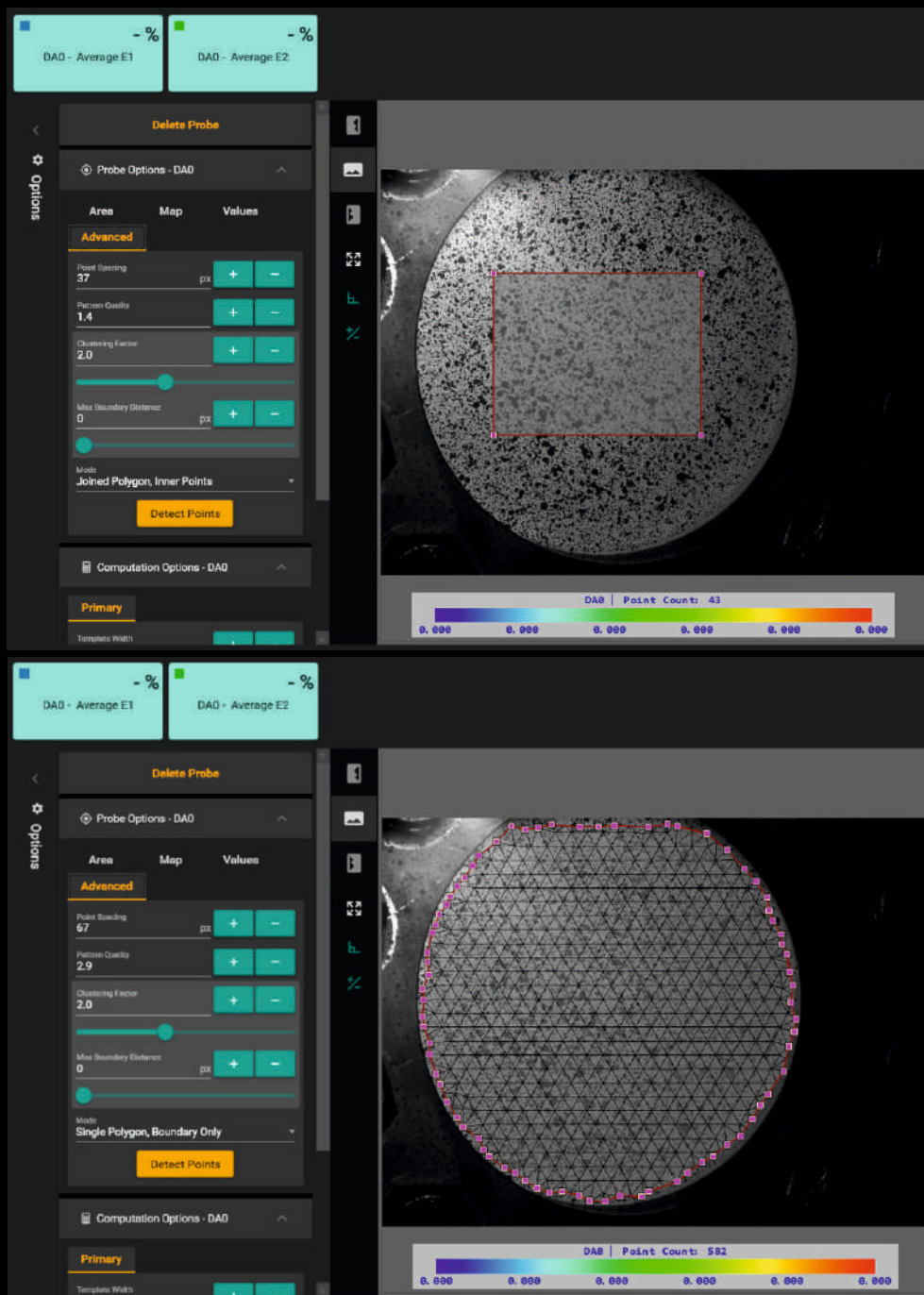
The example of an automatic area selection of a Nakajima test measurement

OPTIMIZED FUNCTIONALITIES

XSIGHT

ALPHA 2022 SP1

The ALPHA 2022 SP1 introduces a new Research module where chosen new functionalities are defined for customer testing purposes before they are fully integrated into commercial ALPHA modularity.

The ALPHA 2022 SP1 release integrates the following 17 new features:

- Configurable default averaging window of input/measured values
- Interactive calibration image error graph
- Specimen thickness differentiates between flat and round specimen
- Major overhaul of values computed by Torsion Lines
- Support for Torsion Lines in 3D
- Added Custom Values Editor with editable template
- Anchor point motion removal (Research module only)
- Automatic edge alignment option for width line detection
- Support for PointGrey (FLIR) Spinnaker camera Anti-Aliasing blur option
- Support for different values of shutter between independent camera
- ZP-500N (manual force gauge) input support
- Optris thermal camera support (Research module only)
- Support for 2D methods with one thermal camera, temperature readout using points and lines (Research module only)
- Automatic DIC Area mesh detection (Research module only)
- Scriptable automatic probe detection (Research module only)

The ALPHA 2022 SP1 release also integrates 46 additional improvements.