DATAMINE

STUDIO UG

Optimise Your Underground Mine Design & Scheduling

STUDIO UG

Release Notes

Studio UG 3.4

Contents

Overview

Datamine Studio UG meets all your underground design and data management needs.

Datamine's industry-leading systems form an unparalleled, integrated toolset for underground mine planning.

Studio UG is one of several products in the Studio product family, which includes:

Studio EM for exploration data analysis and modeling.

Studio Geo for structural modeling.

Studio Mapper for geological face mapping and reporting.

Studio NPVS for strategic open pit optimization, design and scheduling.

Studio NPVS+ for strategic open pit optimization, design and enhanced scheduling.

Studio OP for open pit design and operational scheduling.

Studio RM for mine geology, reserve modeling and resource estimation.

Studio Survey for open pit and underground mine surveying and reporting.

Studio UG for underground mine design and scheduling.

Further Information

Release notes for other versions of Studio UG are available via the Datamine Customer Support website. For more details, see **https://www.dataminesoftware.com/support/**.

For the complete Studio UG documentation, see **https://docs.dataminesoftware.com/StudioUG**.

Studio UG 3.4 Release Notes

EPS Compatibility

Studio UG 3.4 requires **EPS 3.1.174** or later to export and synchronize schedule data. The latest version of EPS is available from the Datamine Support Website and the Datamine Customer Portal.

> **News!** Enhanced Production Scheduler, now owned by Datamine, will be superseded by **Datamine Task Scheduler** in early 2025. DTS will be a new platform for scheduling functionality with Studio-focussed changes and an exciting roadmap ahead!

Key Improvements

Stope Reconciliation Update
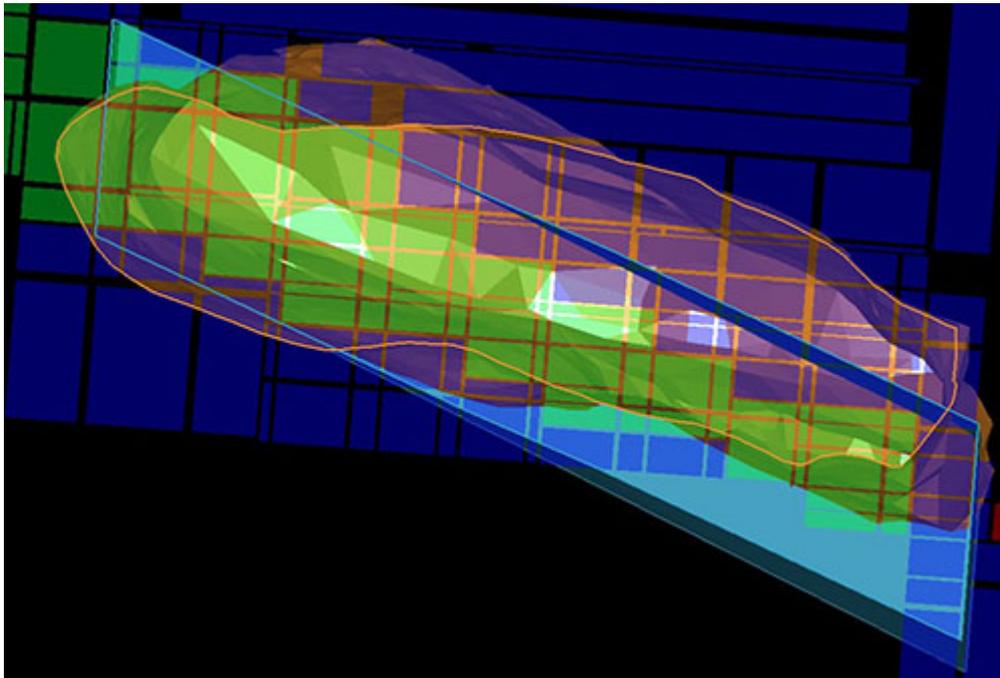
Stope Reconciliation tools have been overhauled and extended in this update:

- A single, simple console containing all reconciliation tools. The Stope Reconciliation ribbon has been removed.

- A choice of *Wireframe Boolean* and *Model Depletion* reconciliation methods.
- Single scenarios or batch runs including any defined scenario, with detailed run results (errors, warnings, messages).
- Quicker processing.
- Merged settings screens for simpler run configuration.
- Clear overbreak and underbreak report results split into complete and "development-subtracted" results.
- Load your scenario input and output data and review it in a 3D context.
- Export results to Excel at the click of a button.
- Commit and revert unsaved reconciliation scenario changes either per-scenario or for all scenarios in the project. You can also instantly see which scenarios have unsaved changes.

Attributes by Selection Order
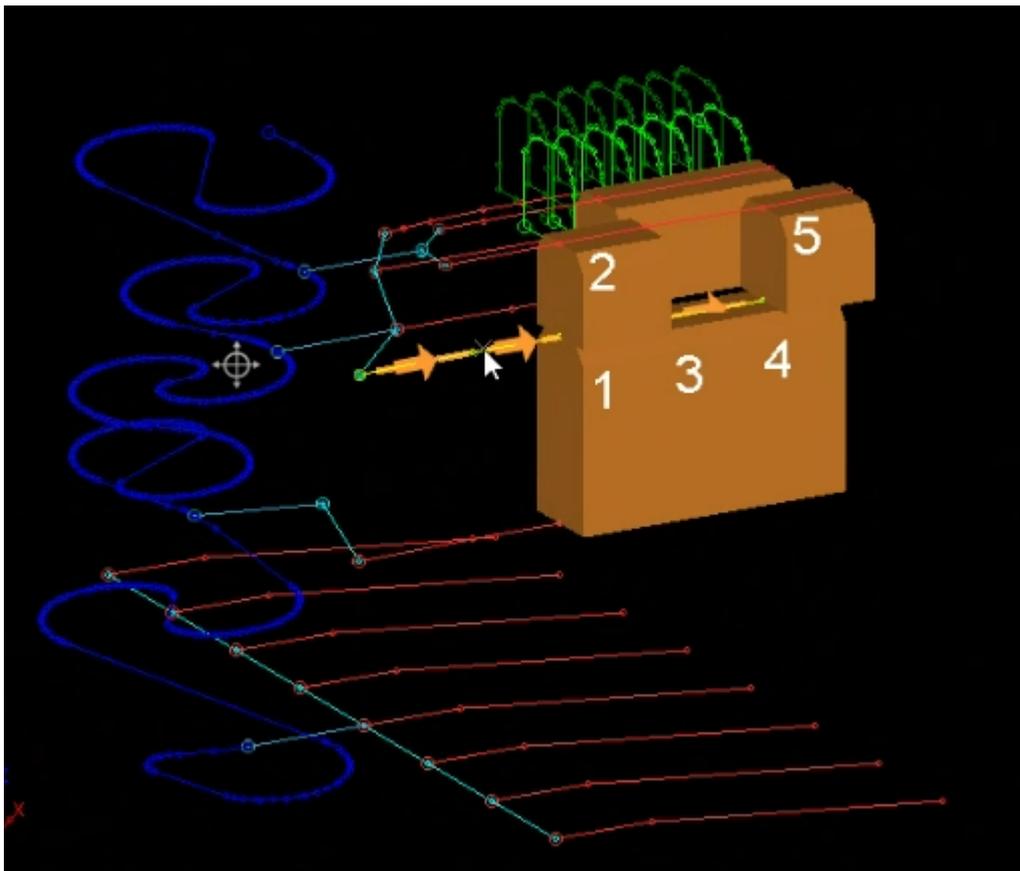
It can be useful to define a series of numeric attributes in increasing order along a particular path. For example, assigning a stope index to wireframe volumes along the direction of development, assigning a blasthole row ID throughout a blast

pattern and so on. A sequential index can also be useful to create spatial indices that can be used for dependency creation, control / guide schedule sequencing, mapping different areas of the reserve or mine and many other uses.

An excellent new command - **assign-attributes-by-selection-order** lets you attribute loaded wireframe, drillhole or string data based on the order you select data in a 3D window or how loaded data interacts with a projected string.

Filters in Filters

When defining filters, you can now reference other filters. This allows you to reuse elements of filter expressions, saving time when configuring project settings.

For example, you could set up a filter that includes a list of FXS design definitions you want to exclude from a more general *FXS filter.

Subcell Splitting Plane

When defining parent cell divisors, you're no longer restricted to subcelling in the Z direction. Whilst this may be typically useful for DTMs or solids which have a low dip, sometimes you may want to subcell in the XZ or even YZ planes to cope with moderate to steeply dipping structures.

Streamline Master Project Import

It is no longer necessary to prepopulate a master project with dependencies matching sub-projects to be imported. Imported sub project dependencies can no longer be edited to maintain project integrity.

Custom Coordinate Transformations

You can now define custom coordinate transformations using the **transform-coordinates** command.

Define one or more control points in 3D space and automatically calculate the transformation between source and target systems. The resulting transformation matrix can be saved and shared with others.

Custom Highlight Colour
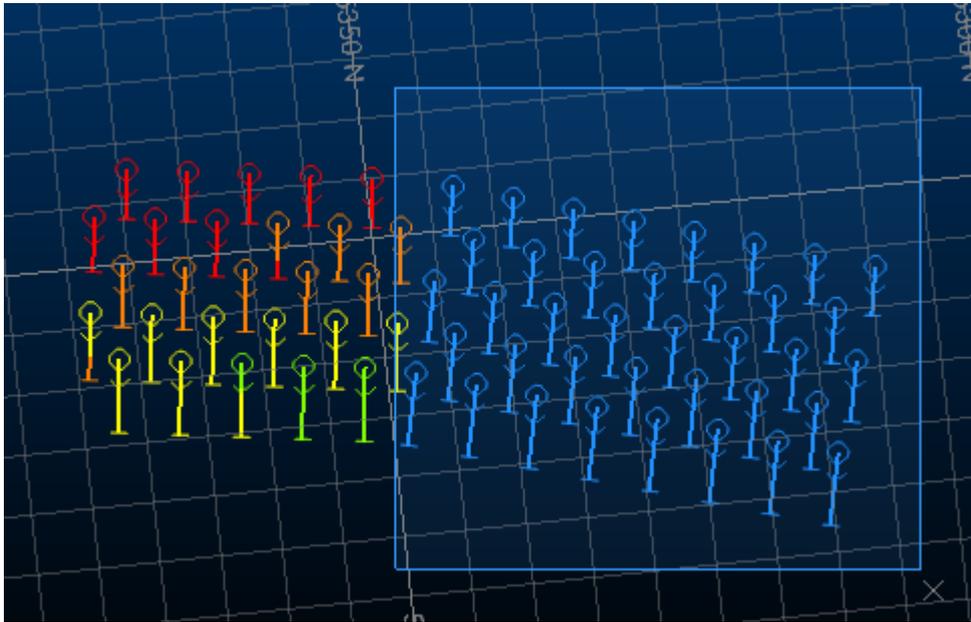
Change the 3D window selection colour to whatever you like, using the new **Options >> 3D >> General >> Selection** options.

Rotate and Scale Downhole Column Images

If displaying downhole column images, you can now scale and rotate image data in both 3D and Log views. You can even set per-image rotations by appending this information within the image database.

Drillholes as Points

A new option has been added to the 3D **Drillhole Properties** screen to allow drillhole samples to be rendered as points. Choose the position of the symbol and set its style, including 2D and 3D options.

New Wireframe Triangles with 1 Click

Creating new wireframe triangles is now much quicker with an optional 1-click approach for data with shared edges. Digitize the first triangle and, optionally, click another point to generate a new triangle formed from that point and the two previously-digitized points. This makes build up a chain or patch of interconnected triangles much quicker.

EXTRA Improvements

EXTRA is a popular expression translator tool, now in its 27th year!

In this release, we've extended EXTRA and made existing functions easier to access and more consistent with global standards. For example, there's a new arctangent function (atan2), an azimuth calculator (azimuth(dx,dy), NOT expression support, simple row number field addition, random number generators and field type detection.

There are improvements elsewhere, such as improved handling of missing fields, new ways to work with IJK values in block models. Inequality definition using "<>" and implicit field creation.

New procedures are here; exit() for immediate process termination (pre-data-recording) and keep() to name specific fields (cumulatively if required) to retain in data output. It's a useful partner function to saveonly(), which requires all output fields to be specified.

New Commands & Improvements

- A new process - **ALPHCODE** - converts between numeric and alphanumeric field values.
- The **BOOLEAN** process now supports a @USENORM parameter to determine if wireframe triangle normals are used to determine the inside/outside of input data.
- A new command - **create-planar-rectangle** - lets you define a rectangle by height, width, azimuth and anchor point, then position it in a 3D window interactively.
- You can now right-click a visible 3D object to set it as the **current object**.
- **ELLIPSE** now supports a ZONE field to allow multiple ellipsoids to be generated simultaneously.
- The **extrude-strings** command now lets you define a field for existing azimuth and dip extrusion values.
- A new process - **RANDOM** - generates random numbers, superseding the legacy MONACO process.
- A new command - **simplify-string** - provides an alternative string conditioning approach to condition-string.
- A new process - **TRANSCO** - transforms data coordinates in physical files between Well Known Transformation (WKT) codes.

Import & Export Deswik Data
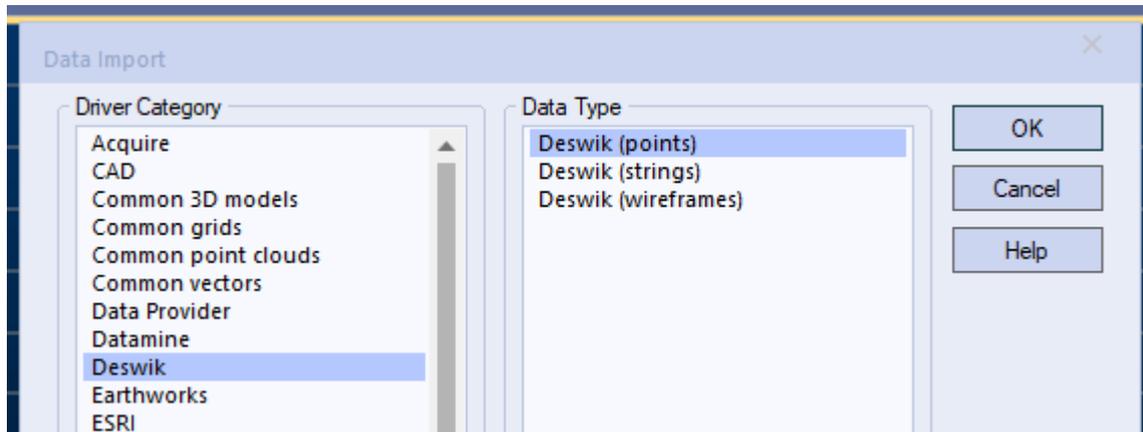
You can now import data in Deswik's unified format (points, strings or wireframes) using a brand new data driver, accessible using the various file load and import routines available on the **Data** ribbon. You can also export any loaded data as either points, strings or wireframes in the same .duf format.

Vector Export Improvements
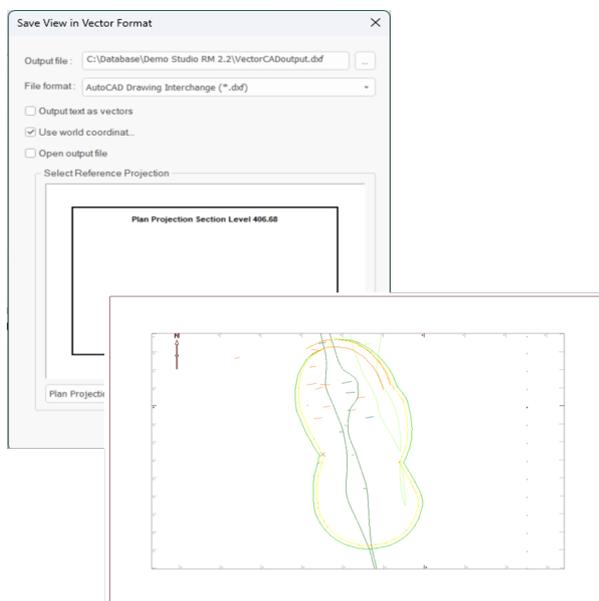
Exporting Plots window data to CAD formats has been completely overhauled to provide support for a wider range of data configurations and to improve accuracy for all exported data types. Data can be exported as AutoCAD Drawing (.dwg) or AutoCAD Drawing Interchange Binary (.dxb) formats.

The latest changes also remove the need for plot projections to be axis-aligned before exportation, so they can now be exported in any orientation. Several other limitations of the previous export engine have been resolved as a result of this work, including export of labels to a dedicated layer, as outlined in the release notes further below.

Enhanced License Tracking

License Manager's user logging facility has been extended to include the status of all licenses on the target system (locked, unlocked, checked in or checked out) at the start of each logging session. Previously, only licensing events were recorded. This means you can now view the starting snapshot of all licenses on the server before logging continues.

All Improvements

Commands & Processes

- **Cases: Multiple Stope Reconciliation** tools are now available as a streamlined single task featuring significant functional and performance improvements.

- **Case: UG-4612** During processing, checking WFM designs for duplicates is now faster.

- **Case: UG-4607** The output Stope Reconciliation report now shows a breakdown of complete and development-subtracted results (where appropriate).

- **Case: UG-4606** Stope reconciliation results are now reported separately for total (original) volumes and development-depleted volumes.

- **Case: UG-4411** It is no longer necessary to prepopulate a master project with dependencies matching sub-projects to be imported.

- **Case: UG-4363** When defining parent cell divisors, you're no longer restricted to subcelling in the Z direction.

- **Case: UG-4334** Stope reconciliation now reports overbreak and underbreak in relation to the *Design Volume* by default.

- **Case: UG-1066** When defining filters, you can now reference other filters.

- **Cases:Multiple** The **EXTRA** process has been extended with new features, procedures and other improvements.

- **Case: CORE-8681** If a maximum file or field length is exceeded in a process, the output report now specifies the maximum amount breached.

- **Case: CORE-8515 ELLIPSE** now supports an input CENTRE file containing coordinates for positioning multiple ellipsoid output.

- **Case: CORE-8514 ANISOANG** process feedback has been improved.

- **Case: CORE-8484** Start pages now show the correct modified data for projects. Previously, some dates were truncated.

- **Case: CORE-8447 DAELLIPS** now features a **ZONE** field that allows for multiple zones to be processed.

- **Case: CORE-8441 ELLIPSE** now supports a ZONE field to allow multiple ellipsoids to be generated simultaneously.

- **Case: CORE-8411** When saving objects, files are no longer unnecessarily converted to lower case, invalid characters and spaces are now replaced with underscores.

- **Case: CORE-8352** An issue causing the system to halt when reimporting Fusion data has been resolved.
- **Case: CORE-8332** TRIFIL now considers surfaces where the elevation value is outside the block model Z range.
- **Case: CORE-8226** Changing section positions with the move-plane-forward and move-plane-backward commands is now quicker.
- **Case: CORE-8209**The **extrude-strings** command now lets you define a field for existing azimuth and dip extrusion values.
- **Case: CORE-8197** You can now paste copied items into the Project Data control bar, and can access project file addition functions.
- **Case: CORE-8181** Exporting Plots window data to CAD formats has been completely overhauled to provide support for a wider range of data configurations and to improve accuracy for all exported data types.
- **Case: CORE-8173** During volumetric block modelling, TRIFIL's @RESOL (Z Resolution) parameter is now available when using wireframe dip to determine maximum subcelling.
- **Case: CORE-7985** When synchronizing data with EPS, all boundary string entities are now attributed, not just the first point.
- **Case: CORE-7936** A new command - **switch-drillhole-points-traces** - toggles between pixel line and points drillhole rendering modes.
- **Case: CORE-7931** Drillholes can now be rendered as points.
- **Case: CORE-7925** When exporting vector data, each overlay now contributes to a unique CAD layer.
- **Case: CORE-7924** The **BOOLEAN** process now supports a @USENORM parameter to determine if wireframe triangle normals are used to determine the inside/outside of input data.
- **Case: CORE-7892** REBLOCK now cleans up temporary files during processing.
- **Case: CORE-7855** The performance of commands that involve moving points has been improved when a lot of visual data is loaded and displayed in a 3D window.
- **Case: CORE-7801** end-link-selected-strings is now supported by the Maximum Segment Length project setting.
- **Case: CORE-7789** An "Open containing folder" option has been added to the Project Data control bar context menu.
- **Case: CORE-7759** A new process - RANDOM - generates random numbers, superseding the legacy MONACO process.

- **Case: CORE-7671** The auto alignment option when defining a new 3D section now also applies to Vertical and Perpendicular section types.
- **Case: CORE-7612** During point cloud reconstruction, you are now prompted to save recent changes when closing the command.
- **Case: CORE-7611** Point reconstruction scenarios are now automatically enabled after creation.
- **Case: CORE-7588** You can now define custom coordinate transformations using the transform-coordinates command.
- **Case: CORE-7558** You can now automatically align the view when swapping between preset section orientations (N-S, E-W etc.)
- **Case: CORE-7557** Optionally, orient the 3D view direction after defining a one-point section.
- **Case: CORE-7524** An issue causing an incorrect string segment to be removed, after using the Insert Line command, has been resolved.
- **Case: CORE-7391** A new command - **insert-segment-intersect** - lets you add a vertex to a string segment where it intersects the projected intersection of another segment.
- **Case: CORE-7342** You can now right-click a visible 3D object to set it as the current object.
- **Case: CORE-7266** A new command - **simplify-string** - provides an alternative string conditioning approach to condition-string. It is available on the **Design** ribbon.
- **Case: CORE-6886** A consistent **Enter Translation Distance** screen is displayed when translating point, string or wireframe data.
- **Case: CORE-6536** Probability plots can now be displayed as either lines or points.
- **Case: CORE-6389** A new command - **assign-attributes-by-selection-order** - lets you attribute string, drillhole or wireframe data based on data selection or string direction order.
- **Case:CORE-6369** A new process - **TRANSCO** - transforms data coordinates in physical files between Well Known Transformation (WKT) codes.
- **Case: CORE-5683** Downhole images can now be in any industry-standard image format.
- **Case: CORE-2849** You can now control the scale and rotation of downhole images in 3D and Log views.
- **Case: CORE-543** A new command - **create-planar-rectangle** - lets you define a rectangle by height, width, azimuth and anchor point, then position it in a 3D window interactively.

User Experience

- **Case: UG-4521** The MineScape Block Model converter utility is now available on the Data ribbon (External menu).
- **Case: UG-4493** The Settings panel now displays the same Format Legends icon as the ribbon system.
- **Case: UG-4462** When the Studio UG application is shrunk, the MSO tab displays small, appropriate icons.
- **Case: UG-4344** Start page resources have been updated to display the latest corporate branding.
- **Case: UG-4342** The Studio UG splash screen has been updated to reflect the latest branding.
- **Case: UG-4322** Access the **Borehole Warning Report** tool via the Report ribbon.
- **Case: UG-4304** **reduce-points** and **percentage-reduction** commands have been replaced on the Design ribbon by the superior simplify-string command.
- **Case: UG-4299** The **Decline Optimizer** button has been removed from the ribbon. The command is still available.
- **Case: UG-4135** The command **assign-attributes-by-selection-order** is now available on the **Design** ribbon.
- **Case: UG-3885** The **Deplete Block Model** command is on the **Model** ribbon.
- **Case: UG-3841** The **Edge Editor** is available on the **Design** ribbon
- **Case: UG-3818** The height and width of the Outline Design Definition Orientation Settings has been fixed.
- **Case: UG-3556** The **string-to-road** command is now on the **Design** ribbon.
- **Case: UG-3295** The **merge-wf-to-object** command is now on the **Solids** ribbon.
- **Case: CORE-8008** The default Customization window watermark logo has been updated.
- **Case: CORE-7944** Options for managing loaded ellipsoid data have been added to the Data ribbon menus.
- **Case: CORE-7939** The **REBLOCK** ribbon tooltip has been modified to make it distinct from the REGMOD process.
- **Case: CORE-7865** Screen text has been added to suggest using <CTRL> when using the assign-attributes-by-selection-order command.
- **Case: CORE-7785** The Data Unload screen now lists objects alphabetically.

- **Case: CORE-7783** The Data Unload screen is now resizable.
- **Case: CORE-5851** Installer graphics have been updated following corporate rebranding.

Utilities & Supporting Services

- **Case: CORE-8328** When importing MineScape Stratmodel data, you can now choose if overlapping seam data is consolidated or left overlapping.
- **Case: CORE-8233** User logging in **License Manager** now records the status of all licenses on the host system at the start of data recording.
- **Case: CORE-7937** A MineScape Block Model Generator utility can be accessed with a new minescape-to-blockmodel command.
- **Case: CORE-7689** When importing a Minescape Prism model, multiple layers can be selected, and you can also create a SEAM column during import.
- **Case: CORE-4876** You can now load and import data in Deswik Unified Format (.duf). The new driver option appears on the Data Import screen, accessed via the Data ribbon.

Automation

- **Case: CORE-8292** The Studio Script Helper's **varsave()** method now produces a file that interacts with VARLOAD as expected.
- **Case:CORE-7782** The Grid DTMs command is now scriptable.

Documentation & eLearning

- **Case: CORE-8623** Documentation for the translate-string, translate-point, translate-string-opt and translate-wireframe commands has been updated.
- **Case: CORE-8007** Help files have been updated to reflect the latest corporate branding.
- **Case: CORE-7840** Documentation on macro limits has been updated.
- **Case: CORE-3931** More information on IF-ELSE-END loops in EXTRA has been added to the help file.
- **Case: CORE-3574** More examples have been added to the EXTRA help file.

Additional Defect Fixes

- **Case: UG-4696** The Help menu link to the Datamine eLearning website is now working.

- **Case: UG-4656** Design rule sets are now unlocked as expected after design file changes.

- **Case: UG-4570** A project-specific synchronization Problem between Studio UG and EPS has been resolved.

- **Case: UG-4550** An issue causing processing to fail when marking boundaries on derived activities has been resolved.

- **Case: UG-4535** If attribute matching values are changed after processing to be invalid, subsequent processing no longer attempts to generate activities from them.

- **Case: UG-4532** Excluded design definitions no longer trigger the creation of invalid associated activities during processing.

- **Case: UG-4515** Duplicate entries are no longer created in 'Apply filter to activity data' list when dependency layers are changed.

- **Case: UG-4510** MSO wireframe stope colours no longer change unexpectedly aftering processing.

- **Case: UG-4492** Available system filters are now refreshed when a sub project is removed.

- **Case: UG-4480** Dependencies are now removed as expected in conjunction with the associated dependency rule.

- **Case: UG-4479** When processing if only the design definitions have changed Studio UG now updates the previously prepared designs with the design definition information.

- **Case: UG-4471** Ribbon tooltips for the Clip Inside Perimeter and Clip Outside Perimeter have been corrected.

- **Case: UG-4456** An issue causing poor system performance when digitizing a new string has been resolved.

- **Case: UG-4452** Poor system performance when manually defining dependencies has been resolved.

- **Case: UG-4408** An issue preventing the successful import of sub project dependencies has been resolved.

- **Case: UG-4397** An issue causing block model interrogation results to be incorrect, if the default DENSITY field name isn't specified, has been resolved.

- **Case: UG-4386** Schedule Constraint Dates in EPS are now retained after small design changes.

- **Case: UG-4383** An issue causing incorrect Design Count Definitions for wireframes has been resolved.
- **Case: UG-4323** The Stope Reconciliation icon is no longer enabled before loading a project.
- **Case: UG-4250** Project saves are now only prompted if changes are actioned by the user during a project session.
- **Case: UG-4242** When merging EPS projects, the **Subprojectid** field now contains expected values.
- **Case: UG-4174** A minor display glitch when displaying validation alerts in the Stope Reconciliation tool has been resolved.
- **Case: UG-3592** You can now only report against numeric fields with the Stope Reconciliation tool.
- **Case: UG-3270** Copying a stope reconciliation scenario now only copies the scenario settings, not the original output files.
- **Case: UG-3049** An issue causing inaccurate solids animation when data is synchronized with EPS, has been resolved.
- **Case: MSO-1490** You can now run a scenario using Merge in conjunction with Smoothing.
- **Case: MSO-1483** When defining the Shape Framework, you can no longer sort the data of the Point List Configuration screen.
- **Case: MSO-1482** Sensitivities for Vertical Dilution are now generated as expected.
- **Case: CORE-8727** The application no longer halts unexpectedly if a macro containing more than 10 macros is right-clicked in the Project Files control bar.
- **Case: CORE-8693** If EXTRA is called from a macro, a missing GO instruction no longer prevents the process from completing.
- **Case: CORE-8404** An issue causing system instability when cutting multiple file references to the clipboard via Project Files, has been resolved.
- **Case: CORE-8321** An issue causing the capping surface of a block model cell to be displayed, even when clipping is disabled, has been resolved.
- **Case: CORE-8319** An issue causing clipped block model cells to render incorrectly has been resolved.
- **Case: CORE-8280** An issue causing the restoration of form values to render process screens incorrectly has been resolved.
- **Case: CORE-8278** A component misregistration problem that could cause Strat3D to malfunction after installing this product, has been resolved.
- **Case: CORE-8201** Reload All now reloads all data types as expected.

- **Case: CORE-8199** When exporting plot data in a vector format, labels are now position correctly if not exported as vectors.
- **Case: CORE-8184** An issue preventing Edit Attributes from working correctly with alphanumeric fields has been resolved.
- **Case: CORE-8153** The User License Logging template spreadsheet has been updated to meeting Windows 11 requirements.
- **Case: CORE-8126** When assigning attributes via perimeters, you can now group attributes using the system SURFACE attribute.
- **Case: CORE-8068** Unexpected parameters have been removed from the wireframe-section and wireframe-plane-project command interfaces.
- **Case: CORE-8042** If BHID values were numeric and larger than seven significant figures DESURV could fail. This is now resolved.
- **Case: CORE-8035** In the Project Data control bar, script files are now displayed with an appropriate icon.
- **Case: CORE-8041** A data-specific issue causing HOLES3D to process indefinitely has been resolved.
- **Case: CORE-7989** DXF import now imports frozen layers by default, and an issue causing duplicate points has been resolved.
- **Case: CORE-7971** An issue causing the Back, Finish and Cancel buttons to appear incorrectly in the New Legend wizard, after resizing it, has been resolved.
- **Case: CORE-7982 Transform Coordinates** no longer creates empty output if the input is in single-precision format.
- **Case: CORE-7970** New Legend bins now have correctly assigned values when the distribution is logarithmic.
- **Case: CORE-7949** An error in the write-all-strings help file has been corrected.
- **Case: CORE-7891** An issue preventing the full import of AutoCAD data has been resolved.
- **Case: CORE-7837** An issue causing processes to fail, if long path names were used in conjunction with !LOCDBOFF, has been resolved.
- **Case: CORE-7826** Block model hulls are now displayed correctly in 3D windows, in relation to the current clipping settings.
- **Case: CORE-7733** User feedback when setting up default grid templates has been improved.
- **Case: CORE-7666** Pasting text into the Command toolbar no longer duplicates the clipboard contents.

- **Case: CORE-7514** An issue causing clipboard items to be pasted twice into the command line has been resolved.
- **Case: CORE-7487** EXTRA's calculation of inverse trigonometric function "asin" while there is a mathematical expression which contains columns inside it, is now as expected.
- **Case: CORE-7441** An issue causing a Micromine block model to fail to load has been resolved.
- **Case: CORE-7248** An issue causing unexpected value distributions in histogram and log histogram data when customizing the X axis has been resolved.
- **Case: CORE-6988** The **Create Ramp String** command no longer creates an unexpected additional segment when the gradient is greater than 0.
- **Case: CORE-6827** An issue causing a DGN mesh to import has been resolved.
- **Case: CORE-6813** You can now define a segment length below 1 when using the **create-ramp-string** command.
- **Case: CORE-6690** An issue causing misaligned texturing of an imported .obj file has been resolved.
- **Case: CORE-6410** An issue causing coincident wireframe data to be displayed contrary to an EPS schedule during animation playback has been resolved.
- **Case: CORE-6375** When exporting plot data in vector format, grid data is now exported correctly.
- **Case: CORE-5654** An issue causing a Microstation DGN wireframe to import has been resolved.
- **Case: CORE-5460** When exporting plot data to a CAD format, precision issues no longer occur when world coordinates are disabled.
- **Case: CORE-4144** Change the 3D window selection colour to whatever you like, using the new **Options >> 3D >> General >> Selection** options.
- **Case: CORE-3966** Exporting Faces and polylines via the CAD driver no longer exports unwanted point data.
- **Case: CORE-2248** Macro names in a .mac file now appear correctly via the Project Files control bar.
- **Case: CORE-1498** Exporting to a vector format no longer includes data outside the original view boundaries.

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