



The Complete Strategic Open Pit Mine Planning System

STUDIO NPVS

STUDIO NPVS
STUDIO RMS
STUDIO MAXIPIT

Release
Notes

Studio NPVS 2.1



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Published: 08 July 2024

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Overview



Studio NPVS is unique in the mining industry as the only strategic mine planning system that optimises both mine design and schedule in the search for maximum NPV. Studio NPVS is actually a collection of 3 products; Studio NPVS, Studio Maxipit and Studio RMS.

Studio NPVS 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 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

This document includes cumulative releases notes for Studio NPVS.

Release notes for other versions of Studio NPVS are available via the Support Portal <https://www.dataminesoftware.com/support/>.

For the complete Studio NPVS documentation, see <https://docs.dataminesoftware.com/StudioNPVS>.

Studio NPVS 2.1 Release Notes

Key Improvements

Sensitivity Analysis Reporting

- Sensitivity Analysis runs, if cancelled, now display partial results. Re-running the same scenario will complete the run. For example if a 10-run analysis is interrupted after 4 outcomes have been calculated, you can still view the completed scenario results and then choose to continue with the remainder or not.
- Sensitivity Analysis KPIs now include Total Metal and Total Metal Recovered.
- Sensitivity Analysis spider graphs now include lines for parameters with 0 base case values.

Maxipit Reserves Reporting

You can now report reserves for Economic Model, Optimized Pit, and Other Surfaces in Maxipit.

Variable Incremental Ultimate Pit Sequencing Factors

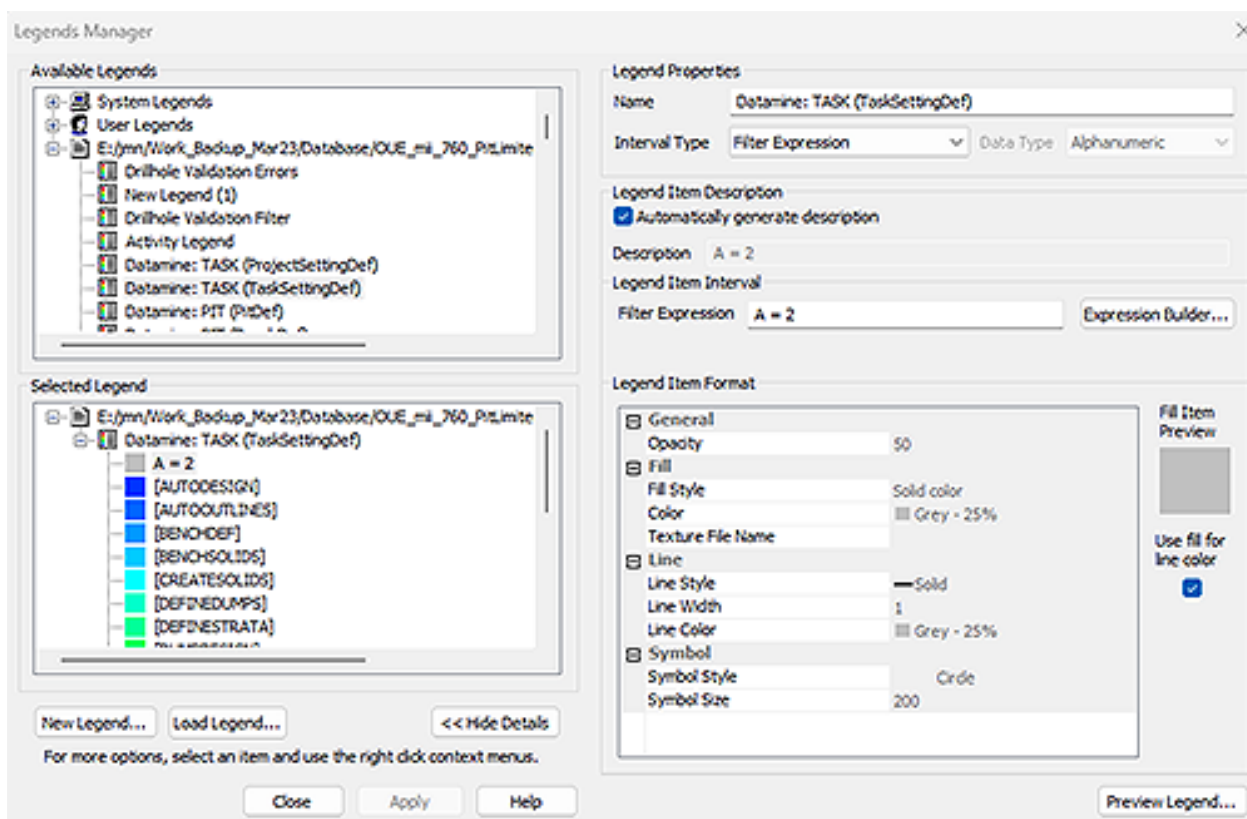
You can now specify variable incremental revenue factors when generating LG phases, using new pit optimization Sequencing.

Generate a 2D Grid

Use **create-grid-perimeter** to generate a 2D grid anywhere in 3D space, with optional grid reference attribution.

Define any origin and azimuth, and design a grid on a 2D plane of any orientation. Each grid cell can be attributed automatically to quickly set up grid reference attributes.

Legends Manager Overhaul



The **Legends Manager** has been overhauled to make it easier to use; Legends and intervals are now in separate lists. This also allows larger legends to be created.

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 do just that; 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.

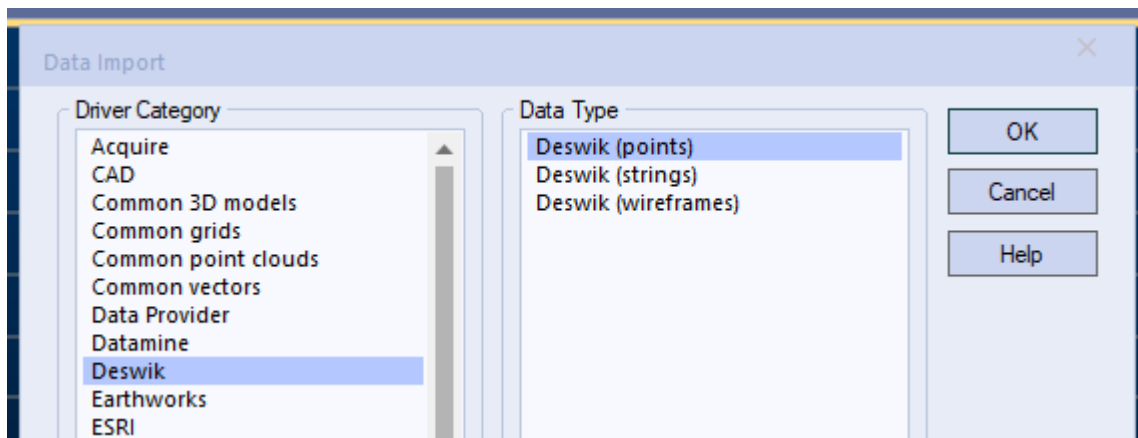
Rotate and Scale Downhole Column Images

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.

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.

Plotting Enhancements

- You can now use **Quick Filter** and Format ribbon filtering options whilst using the **Plots** window.
- Use the "za" quick key combination to automatically zoom the contents of a target projection to fit the available space.
- Navigate active projections or plot sheets by zooming in or out using the mouse wheel, similar to the 3D window behaviour.
- Use the "zx" quick key combination in a Plots projection to activate zoom-by-

area mode.

- Deselect any active projection using <CTRL> and a left click.

New and improved commands

- A new command - **add-zintersect-to-string** - lets you inject string points at a specified elevation.
- 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 - **clip-strings-to-perimeters** - lets you clip any string data with one or more selected perimeters.
- **extend-string-to-string** can now be used to extend any string segment.
- **fillet-single-string-point** can now be performed on strings not in the XY plane.
- **extend-segment-virtual-intersect**: Extend a string segment to virtually intersect a second segment of another selected string (new command).
- Several string **linking** commands now honour the 'Maximum Segment Length' value (if greater than 0) to limit the segment length of wireframes triangles.
- **Macro path lengths** can now be up to 256 characters (the previous limit was 72 characters).
- **move-string-to-view** projects string data without retaining the original data.
- You can now **restore** previously used **retrieval criteria**.
- The maximum number of unique values for the ZONE field in **TRIVAL** has increased from 40 to 2000. The amount of text being written to the command text output window has been significantly reduced and a better progress indicator added to the status bar.
- **write-selected-points**: Save selected points to an external file.

All Improvements

Commands & Processes

- **Case: SNPVS-954** Sensitivity Analysis runs, if cancelled, now display partial results. Re-running the same scenario will complete the run.
- **Case: SNPVS-939** The ordering of Sensitivity Analysis graph tabs is now persistent.
- **Case: SNPVS-934** Sensitivity Analysis KPIs now include Total Metal and Total Metal Recovered.
- **Case: SNPVS-933** After a sensitivity analysis run completes, you can now choose which surfaces you wish to generate for visualization.
- **Case: SNPVS-908** Sensitivity Analysis spider graphs now include lines for parameters with 0 base case values.
- **Case: SNPVS-849** Right-clicking a report table now allows you to save a report template.
- **Case: SNPVS-846** You can now report reserves for Economic Model, Optimized Pit, and Other Surfaces in Maxipit.
- **Case: SNPVS-573** You can now specify variable incremental revenue factors when generating LG phases, using new pit optimization Sequencing.
- **Case: SNPVS-548** Reporting and target items now only contain rock type variables for Products and Elements. Other redundant variables have been removed for clarity and ease of use.
- **Case: CORE-7970** New Legend bins now have correctly assigned values when the distribution is logarithmic.
- **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-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-7917** A new **SELWF** parameter - **FIXNORM** - can be used to detect and rectify common wireframe problems before 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-7792 Link-strings** now honours the Maximum Segment Length wireframe linking setting.
- **Case: CORE-7844 DAELLIPS** can now input rotated models, and **ANISOANG** has been updated to provide expected angular **POINTS** output (plus an optional **REJECTED** output points file). See your process documentation for more details.
- **Case: CORE-7780** You can now pan plot views using the cursor as expected.
- **Case: CORE-7804** The command link-multiple-strings ("lms") now uses the 'Maximum Segment Length' value (if greater than 0) to limit the segment length of wireframes triangles.
- **Case: CORE-7803** The command link-selected-strings-attrib ("lma") now uses the 'Maximum Segment Length' value (if greater than 0) to limit the segment length of wireframes triangles.
- **Case: CORE-7802** The command link-selected-strings-plane ("lmp") now uses the 'Maximum Segment Length' value (if greater than 0) to limit the segment length of wireframes triangles.
- **Case: CORE-7800** The command end-link-boundary (elb) now uses the 'Maximum Segment Length' value (if greater than 0) to limit the segment length of wireframes triangles.
- **Case: CORE-7799** The command end-link (eli) now uses the 'Maximum Segment Length' value (if greater than 0) to limit the segment length of wireframes triangles.
- **Case: CORE-7778** A new command - **write-selected-points** - lets you save selected points to an external file.
- **Case: CORE-7733** User feedback when setting up default grid templates has been improved.
- **Case: CORE-7671** The auto alignment option when defining a new 3D section now also applies to Vertical and Perpendicular section types.
- **Case: CORE-7670 Macro path lengths** can now be up to 256 characters (the previous limit was 72 characters).
- **Case: CORE-7644** Use the "za" quick key combination to automatically zoom the contents of a target projection to fit the available space.
- **Case: CORE-7641** You can now use **Quick Filter** and Format ribbon filtering options whilst using the **Plots** window.
- **Case: CORE-7643** Use the "zx" quick key combination in a Plots projection to activate zoom-by-area mode.
- **Case: CORE-7592** Deselect any active projection using <CTRL> and a left click.

- **Case: CORE-7558** You can now automatically align the view when swapping between preset section orientations (N-S, E-W etc.).
- **Case: CORE-7398 move-string-to-view** projects string data without retaining the original data.
- **Case: CORE-7397 extend-string-to-string** can now be used to extend any string segment.
- **Case: CORE-7396 extend-segment-virtual-intersect:** Extend a string segment to virtually intersect a second segment of another selected string.
- **Case: CORE-7395** A new command - **add-zintersect-to-string** - lets you inject string points at a specified elevation.
- **Case: CORE-7361** An issue causing incorrect icons to be displayed for Data options in the Loaded Data/Sheets context menu has been resolved.
- **Case: CORE-7310** The **Legends Manager** has been overhauled to make it easier to use
- **Case: CORE-7152** A new command - **clip-strings-to-perimeters** - lets you clip any string data with one or more selected perimeters.
- **Case: CORE-6934** You can now **restore** previously used **retrieval criteria**.
- **Case: CORE-6705** When clipping perimeters to other perimeters, interacting with the Quick Filter bar now persists the previous selection.
- **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-6388** Use **create-grid-perimeter** to generate a 2D grid anywhere in 3D space, with optional grid reference attribution.
- **Case: CORE-5683** Downhole images can now be in any industry-standard image format.
- **Case: CORE-5284 filter-point-off** and **show-non-selected-points** commands have been created.
- **Case: CORE-4438 fillet-single-string-point** can now be performed on strings not in the XY plane.
- **Case: CORE-3974** Define an upper limit for **triangle edge length** during string linking via the Project Settings screen. This can also be set using the reinstated dtm-new-point-separation command.

- **Case: CORE-3957** A new command - **switch-wireframe-edge**, lets you quickly adjust the internal organization of wireframe triangles in a quadrilateral.
- **Case: CORE-2849** You can now control the scale and rotation of downhole images in 3D and Log views.

User Experience

- **Case: SNPVS-915** The Tasks Pane now defaults to the Optimization panel, not the Reports panel as previously.
- **Case: SNPVS-784** The ordering of Sensitivity Analysis graph tabs is now persistent.
- **Case: SNPVS-784** The superseded command `undo-last-link` has been removed from the ribbon system.
- **Case: CORE-8008** The default Customization window watermark logo has been updated.
- **Case: CORE-7865** Screen text has been added to suggest using `<CTRL>` when using the `assign-attributes-by-selection-order` command.
- **Case: CORE-7702** An issue causing the degrees symbol to be displayed incorrectly in various parts of the application has been resolved.
- **Case: CORE-7658** The **Find Command** dialog now reacts to visual theme changes.
- **Case: CORE-7574** The **Wireframe Decimate** screen now displays the latest visual themes.
- **Case: CORE-7568** The **Wireframe Verify** screen now displays the latest visual themes.
- **Case: CORE-7534** The **Wireframe Smooth** dialog is now supported by extended visual themes.
- **Case: STUDIO-6696** Your **Start** page will update automatically to reflect the colours of the current Look and Feel mode.

Utilities & Supporting Services

- **Case: CORE-8060** **write-selected-points** has been added to the 3D window context menu (Save >> Selected Points).
- **Case: CORE-8051** Datamine License Services is now supported in networks utilizing the TLS (Transport Layer Security) protocol versions 1.2 and 1.3.

- **Case: CORE-7662** Swapping from online to offline mode (or vice versa) now automatically reloads the current Start page content.
- **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-7782** The Grid DTMs command is now scriptable.

Documentation & eLearning

- **Case: CORE-7840** Documentation on macro limits has been updated.

Defect Fixes

- **Case: SNPVS-1015** An issue causing system failure when rerunning a Multimine ultimate pit has been resolved.
- **Case: SNPVS-994** Economic model settings can now be copied from single to multimine projects as expected.
- **Case: SNPVS-961** An issue causing some custom report items to be missing on tabular reports has been resolved.
- **Case: SNPVS-958** Slope filters are now calculated as expected in MultiMine projects, ensuring pushback results are identical to single mine equivalent projects.
- **Case: SNPVS-957** An issue causing an incorrect bench discount rate in Multimine project has been resolved.
- **Case: SNPVS-944** Optimizations can now be run successfully in multimine projects.
- **Case: SNPVS-926** Sensitivity Analysis tables and graphs are now updated if any single run is successful; previously they were only updated if all runs were successful.
- **Case: SNPVS-919** An issue allowing slope errors to exceed the specified maximum has been resolved.
- **Case: SNPVS-906** If issues are detected during spider graph generation (sensitivity analysis) a single summary list is now displayed for multiple warnings.
- **Case: SNPVS-903** Tabular reports no longer show unexpected (previously deleted) custom variable results.
- **Case: SNPVS-902** The Average sinking rate is no longer modified to round off the Discount rate.
- **Case: SNPVS-886** A sinking rate rounding effect, that could cause unexpected results from sensitivity analysis, has been resolved.
- **Case: SNPVS-873** An issue that could cause the initial display of a report to be incorrect has been resolved.
- **Case: SNPVS-848** In the reporting tool, if no *Report templates* folder has been selected in the Default Settings, you can now right-click and select a template storage folder as expected.
- **Case: SNPVS-627** Issues causing unexpected system behaviour when running on a system with a non-US/UK locale have been resolved.
- **Case: CORE-8153** The User License Logging template spreadsheet has been updated to meeting Windows 11 requirements.

- **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-8041** A data-specific issue causing HOLES3D to process indefinitely has been resolved.
- **Case: CORE-7998** An issue causing system shutdown when creating a legend for a recently modified drillhole has been resolved.
- **Case: CORE-7982** Transform Coordinates no longer creates empty output if the input is in single-precision format.
- **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-7839 SWATHPLT** now processes data where a ZONEFLD contains more than 40 records.
- **Case: CORE-7837** An issue causing processes to fail, if long path names were used in conjunction with !LOCDBOFF, has been resolved.
- **Case: CORE-7788** An issue causing potential system instability when sorting by Date Modified in the Project Browser has been resolved.
- **Case: CORE-7723** You can now update the License Services product name registration database more than once.
- **Case: CORE-7722** In some circumstances in models with a large number of fields including alphanumeric fields, **PROMOD** volume calculations were incorrect. This is now resolved.
- **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-7666** Pasting text into the Command toolbar no longer duplicates the clipboard contents.
- **Case: CORE-7618** Selecting and deselecting individual drillholes or segments is now significantly faster.
- **Case: CORE-7530** An issue causing an unexpected system restart after a product installation has been resolved.
- **Case: CORE-7441** An issue causing a Micromine block model to fail to load has been resolved.
- **Case: CORE-7435** DXF wireframes can now be saved via script as expected.

- **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-6872** When using **SELPER**, If the perimeter file contains DPLUS and DMINUS fields and the values are zero a small tolerance is applied internally to avoid numerical comparison errors. This is now consistent with the methodology used for the DPLUS and DMINUS parameter values when either of them is zero.
- **Case: CORE-6827** An issue causing a DGN mesh to import has been resolved.
- **Case: CORE-6787** An error in SWATHPLT when ALLZONES was set to 1 has been resolved.
- **Case: CORE-5654** An issue causing a Microstation DGN wireframe to import has been resolved.
- **Case: CORE-3966** Exporting Faces and polylines via the CAD driver no longer export unwanted point data.

Datamine enables efficient and sustainable mining through the application of world-leading technology and services.

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