leapfrog® | GEO

Leapfrog Geo **2023.2**

new release

Release Notes

Leapfrog 2023.2 continues to advance Leapfrog's modelling, interoperability, and visualisation capabilities, with solid incremental improvements and some exciting new features.

Core modelling functionality has been strengthened to improve the resilience of interval selection and vein edits when data is added or projects upgraded. Changes to erosion/deposit surfacing have improved the editability of these surfaces.

New functionality includes the generation of surfaces off regular gridded block models and geophysical grids and an intuitive new feature for sharing of colourmaps within Leapfrog projects. There is an exciting new feature that allow custom title blocks to be imported into section layouts, and a tool for creating rendered maps.
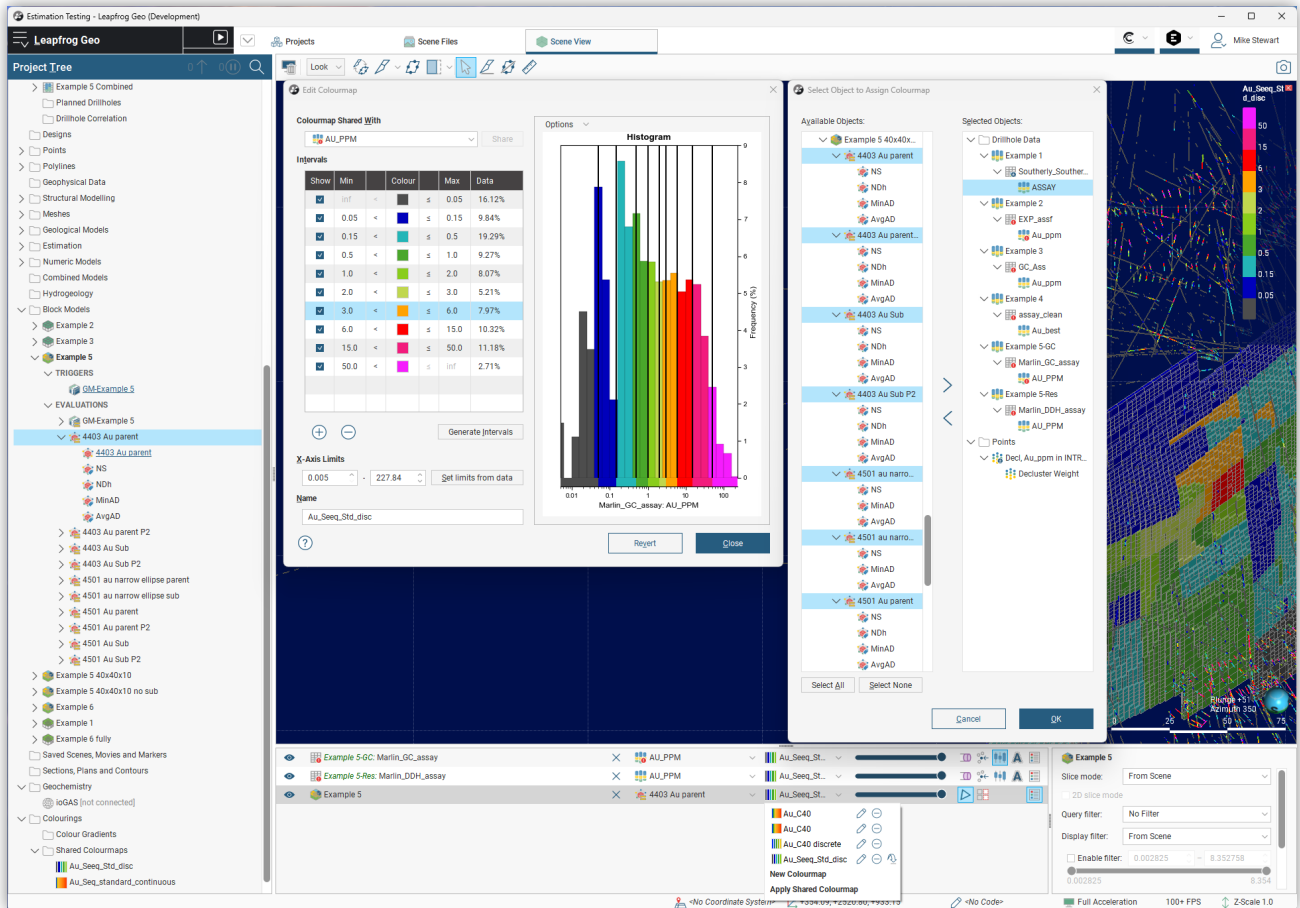
During this release cycle we have also been investing heavily in developing new cloud capabilities of Seequent Evo, in support of our vision for the future of cloud-connected technology.

Seequent, The Bentley Subsurface Company

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Features and Functionality in Leapfrog 2023.2

Shared Colourmaps

This release introduces an exciting new feature that significantly improves the use of colourmaps in Leapfrog.

In previous versions, users reported that applying colourmaps was often a tedious and non-dynamic task. Now, far more flexibility has been added to the creation, sharing, and assigning of colourmaps. The existing Colour Gradients folder has been moved into a sub-folder of a more general parent called Colourings, and a new Shared Colourmaps sub-folder has also been created. The sharing workflows for colourmaps follow familiar Leapfrog patterns and have been designed to be intuitive and easy to use.

New functionality includes:

- Existing colourmaps can be shared to the folder from the colour map edit dialogue or as a menu option from the object in the project tree
- Shared colourmaps can be added to any object from the Scene list, as well as bulk assigned to multiple objects.

Situations where this new sharing functionality will provide benefit include:

- When using 'capped variables' (for example, Cu and Cu_cap1.4pc) in numeric models or resource estimates
- Setting a common colour scheme for dip or dip-azimuth values on a mesh, as well as a common colour scheme for vein thickness
- Using a 'company standard' colourmap for an item (e.g. Au)
- Assigning the same colourmap to all bands of an imported geophysical or seismic grid.

We received a lot of feedback from our users on the need to improve the use of colourmaps, and we are delighted to share this significant enhancement with you.

Grid Surfaces
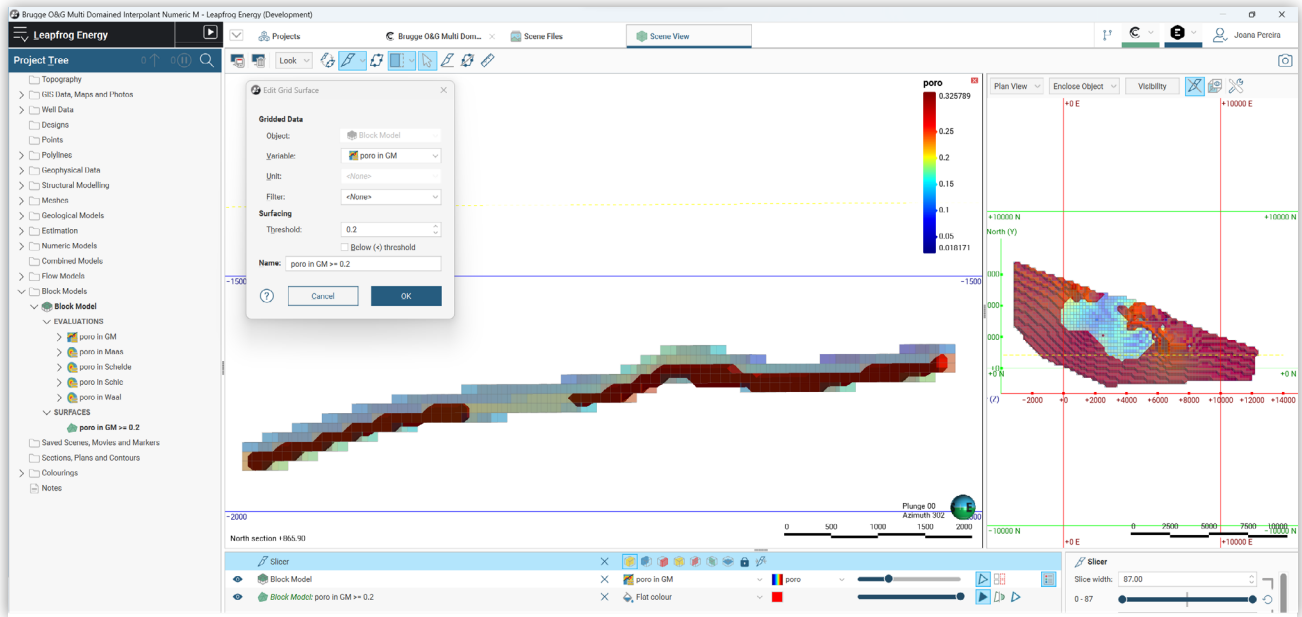
This release also sees the introduction of a new feature for creating 'grid surfaces' from block models, grid of points or geophysical grids. Sometimes called 'grade shells' in other software, grid surfaces can be generated from any categorical or numerical variables on the parent grid. For categories, simply choose the category you wish to enclose. For numeric variables, the grid surface will be generated above (or below) a threshold of your choice, treating the numeric variable as an indicator. Surfaces are always closed against the boundary of models and are extremely fast to create.

Use grid surfaces to:

· create lithological volumes from imported block models;

· provide lightweight outputs of high-grade zones to mining engineers for reference and design; or

· plot contours of modelled values onto cross-sections or sliced views in scene.

We are confident that grid surfaces will become a ubiquitous tool in your modelling toolbox.

Sections and Plans

Section Title Blocks
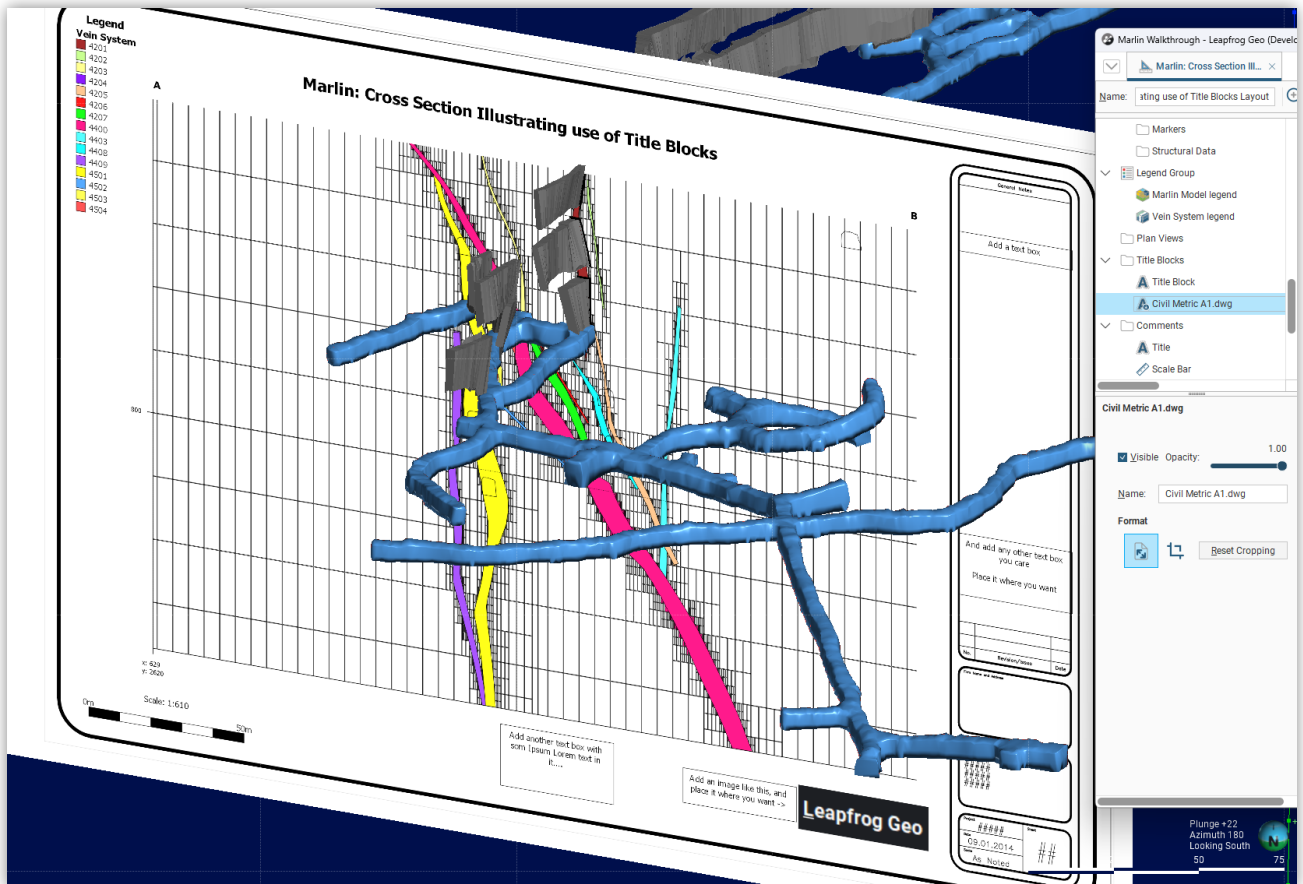
We are delighted to introduce an exciting new feature for customers who create cross-sections.

It is now possible to import a title block in DWG or DXF format into a layout template. The title block can be cropped and scaled to the page margins and have easily edited text boxes and functionality to add images.

This feature allows customers to create their own standardised company title blocks for different page sizes and orientations in their chosen CAD software, then import these title blocks into Leapfrog layout templates.

It is not intended that Leapfrog will provide full CAD-style editability. However, we are confident that this feature will go a long way towards meeting our customers' requirements for producing sectional outputs that conform to company standard formats.

Rendered Map
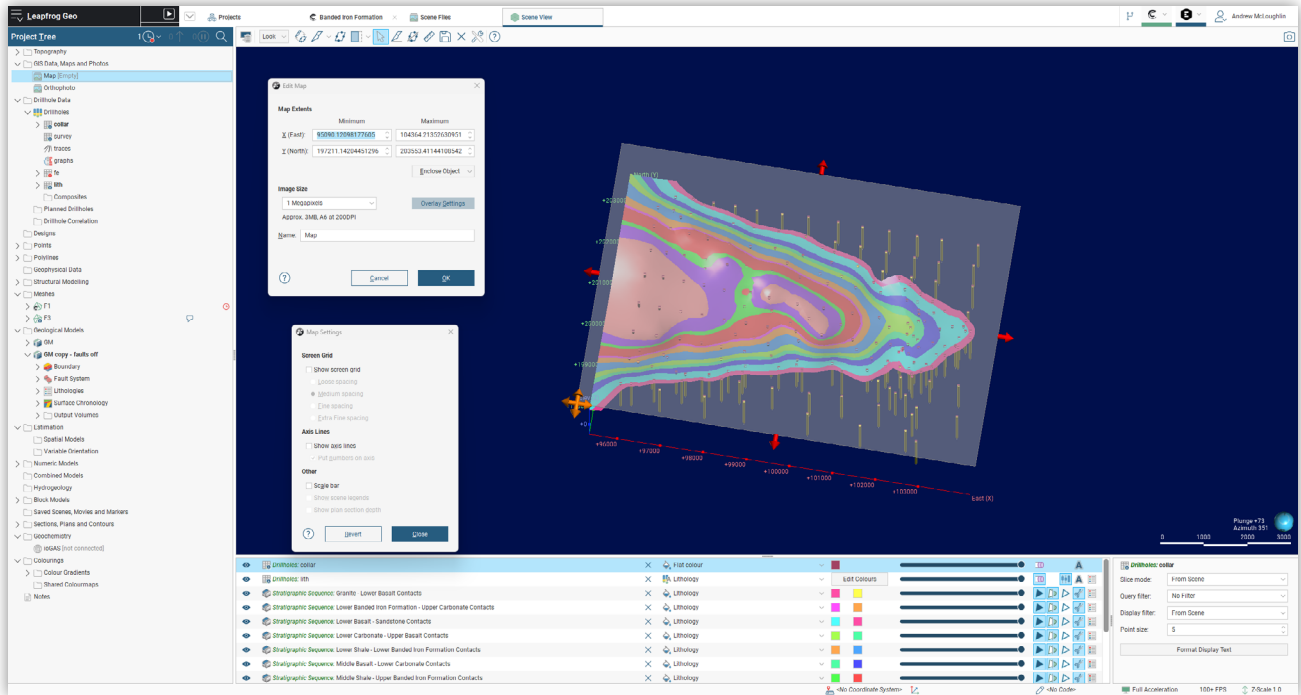
Continuing our theme of improving 2D outputs from Leapfrog, we are pleased to announce the arrival of a new feature to create a Rendered Map under the GIS, Maps and Photos folder.

This tool provides a very handy way to create maps from Leapfrog projects. Use the familiar tools of the Leapfrog scene to set up a view incorporating multiple elements, render the view into an image, then drop this image into a Plan and use the plan layout tools to convert this image into a map with the expected elements, such as grid overlay, title block and scale.

The rendered map rapidly creates a birds-eye (i.e. viewed vertically down) rendering of the current scene elements. The resultant map image is not dynamic and once created additional objects cannot be added to the rendered map, but the map can be re-rendered if any of the objects included in the map are modified. A warning is provided if any object included in the rendered map has changed since it was last rendered.

As well as being able to incorporate rendered maps into Plan Views, the resultant image can be exported in GeoTIFF format. The Image Size for the exported GeoTIFF can be set from the Edit Map window, with options between 1 megapixel and 70 megapixels, which are also helpfully described with approximations to ISO 216 standard "A" paper sizing.

Geological Modelling improvements

In Leapfrog 2023.2, we've continued to make incremental improvements to Leapfrog's Core Geological Modelling functionality.

### Interval Selection edit behaviour

Users of the interval selection tool will be aware that interval selection edits are sometimes sensitive to reloading of drillholes or appending of new data. In this process, edits are exported then re-imported based on matching of from/to interval depths. If an exact match is not found, interval selection edits are dropped and the interval reverts to base column - in some cases it could be difficult to detect when this had occurred. In the specific case of 'interval selections created on merged tables that incorporate a back-flag table', there was a significant increase in the dropping of interval selection edits.

In Leapfrog 2023.2 we have taken the opportunity to address the underlying cause by adding a general tolerance to the matching of interval selection edits, and this has resulted in a greatly improved reliability in the transfer of IS edits upon update/append of drilling data or upgrade of projects.

Vein edit behaviour

Vein edits can also be sensitive to reload or appending of the drilling database. We have now applied the same tolerance to vein edits as to interval selections, which has resulted in an improved transfer of vein edits. Taken together, the improvements to interval selection and vein edit behaviour remove a long-standing source of frustration.

Improvements to Deposit/Erosion surfaces
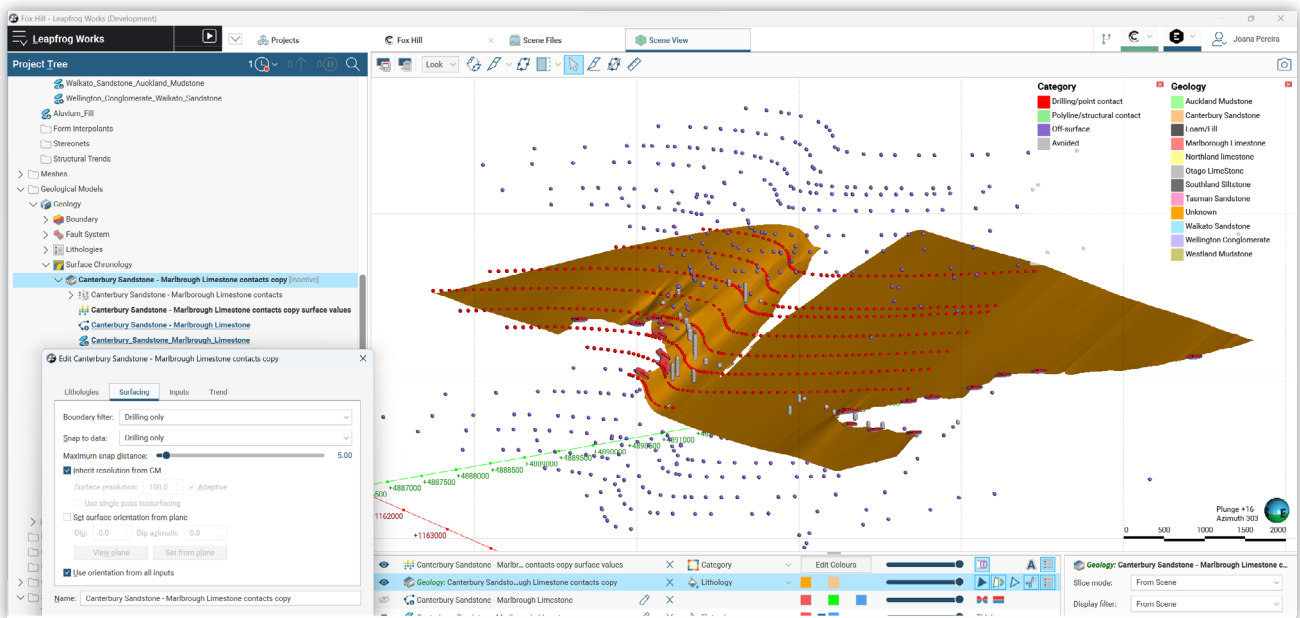
Users of contact (deposit/erosion) surfaces in Leapfrog may be aware that surfaces can sometimes behave unexpectedly when editing with structural disks or polylines. A behaviour change has been implemented that greatly improves the editability of deposit and erosion surfaces.

Two changes to the dialogue boxes will be apparent to users:

- A new option on the Surfaces tab that allows users to "set surface orientation from plane" and
- A tick box option below to "Use orientation from all inputs". Note that this will be ticked on by default for all new objects but is ticked off for existing surfaces to
  ensure these surfaces are unchanged on upgrade.

Furthermore, you can now visualise all the input points that are used when generating contact surfaces, coloured by distance or broken by category:

- Drilling/point contacts (as shown previously)
- Polyline/structural contacts (also visible previously)
- Off-surface points (automatically generated for inclusion in RBF generation) and
- Avoided points (automatically generated – generally you will want to turn off visibility)

We recommend that you experiment and familiarise yourself with these options.

Use vein mid-points and segments in distance functions
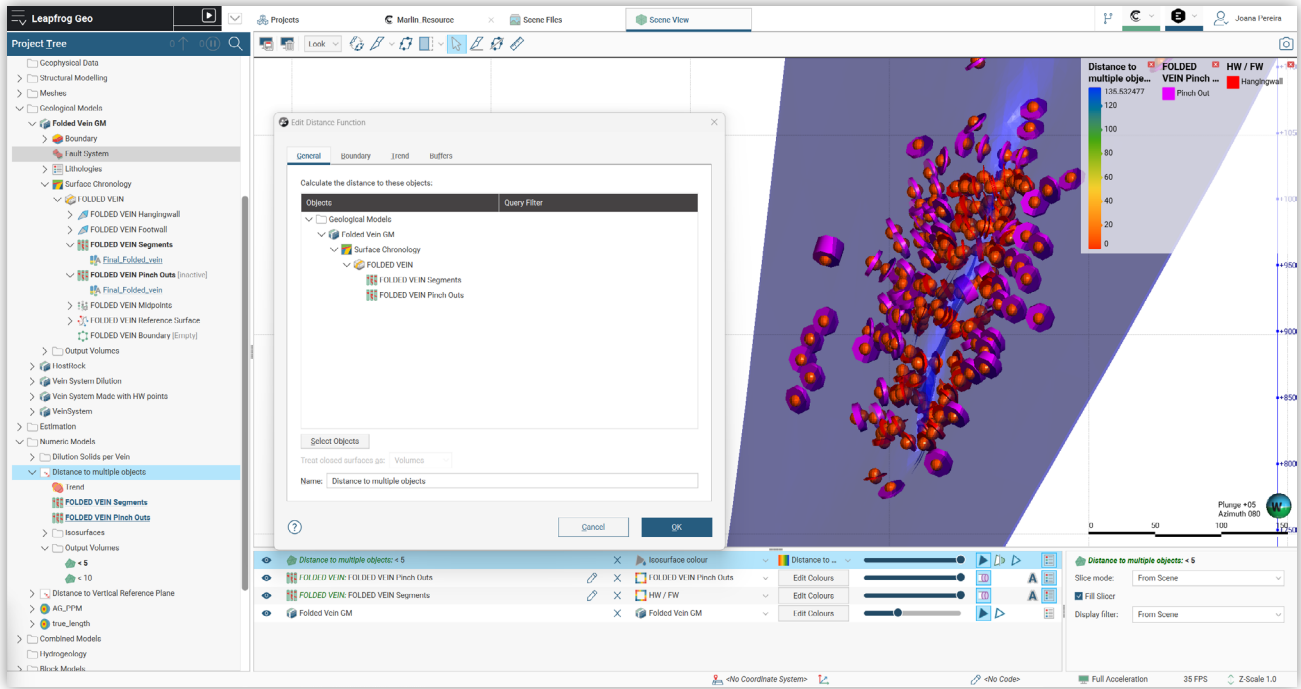
Midpoints and segments can now be used as inputs to distance functions. Evaluating the resultant distance functions on vein models provides a visual assessment of distance to data or the possibility of using Boolean intersection to truncate vein models at a defined distance from drilling.

Volume filter on drillholes
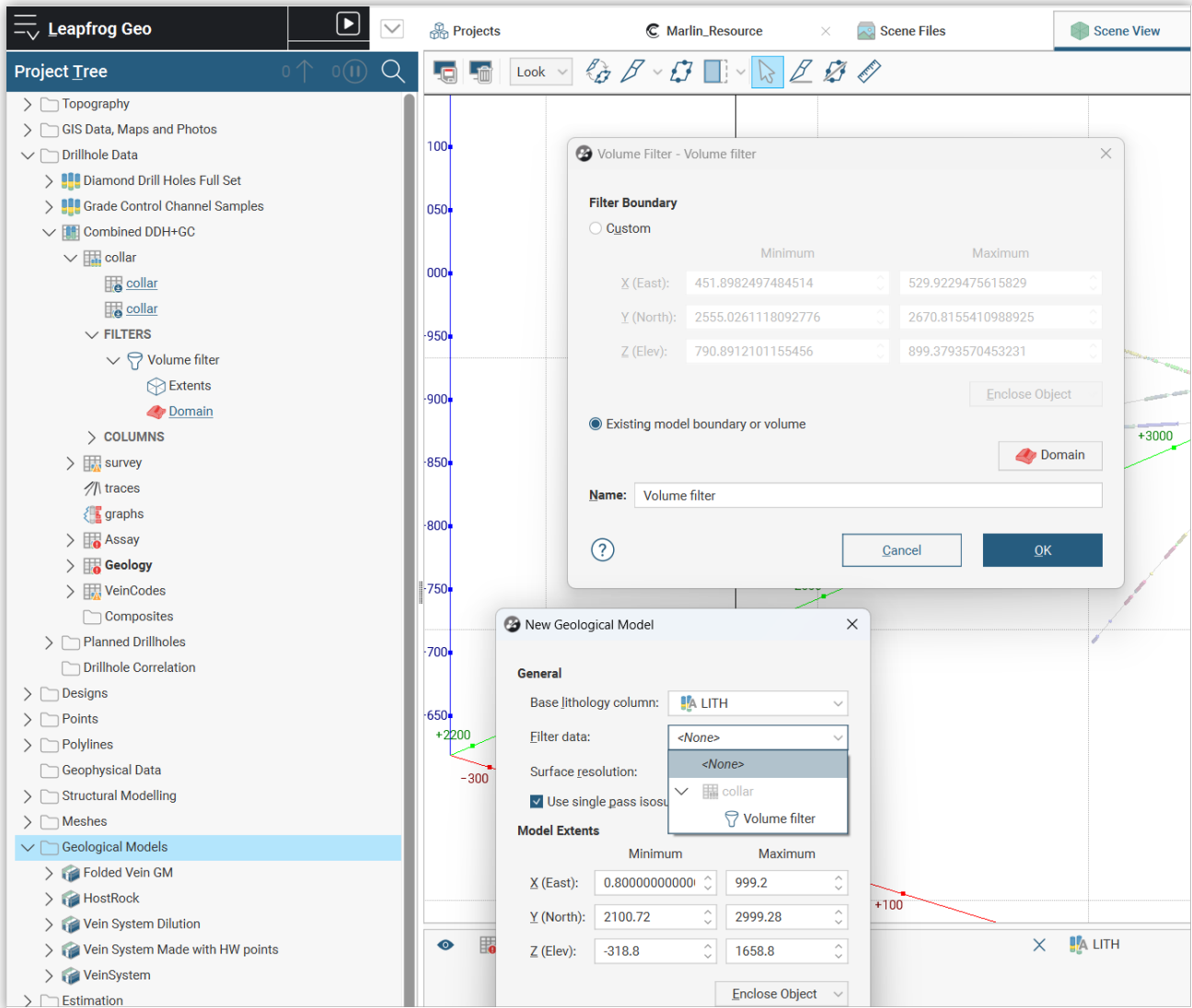
A new option has been added to create a collar level filter from a closed volume. Any hole trace in the drill set that intersects the volume will be added to the filter, allowing you to rapidly and reliably isolate relevant drillholes.

For example:

- Identify all drillholes that penetrate into bedrock geology
- Create a distance function buffer of 15m around a blast boundary and isolate blast holes of relevance to estimation of that block.
- Create a distance buffer around underground workings, and rapidly identify all drillholes that pass close to workings.
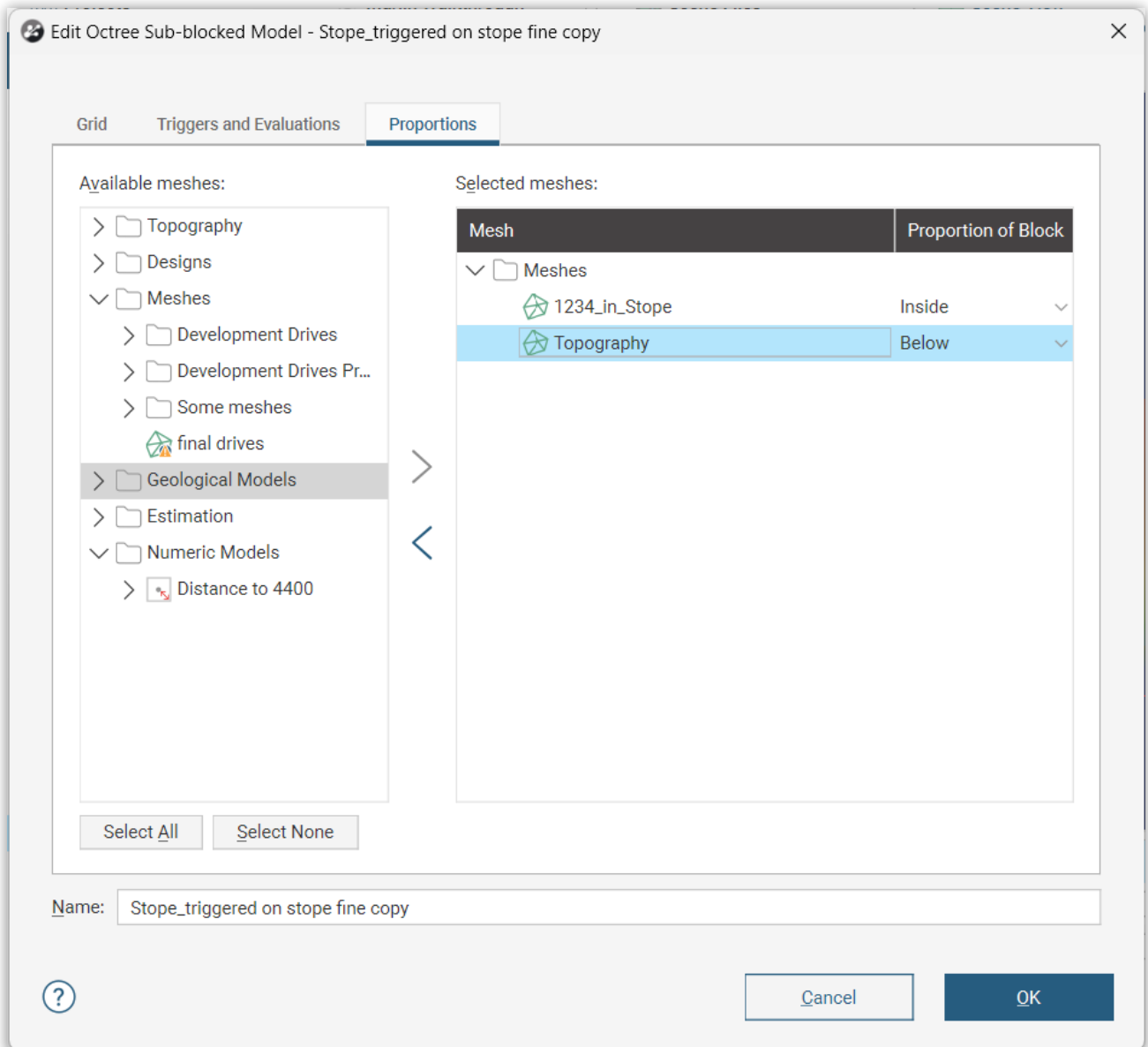
We hope you will find this feature extraordinarily useful.

Allow compositing on Merged Tables
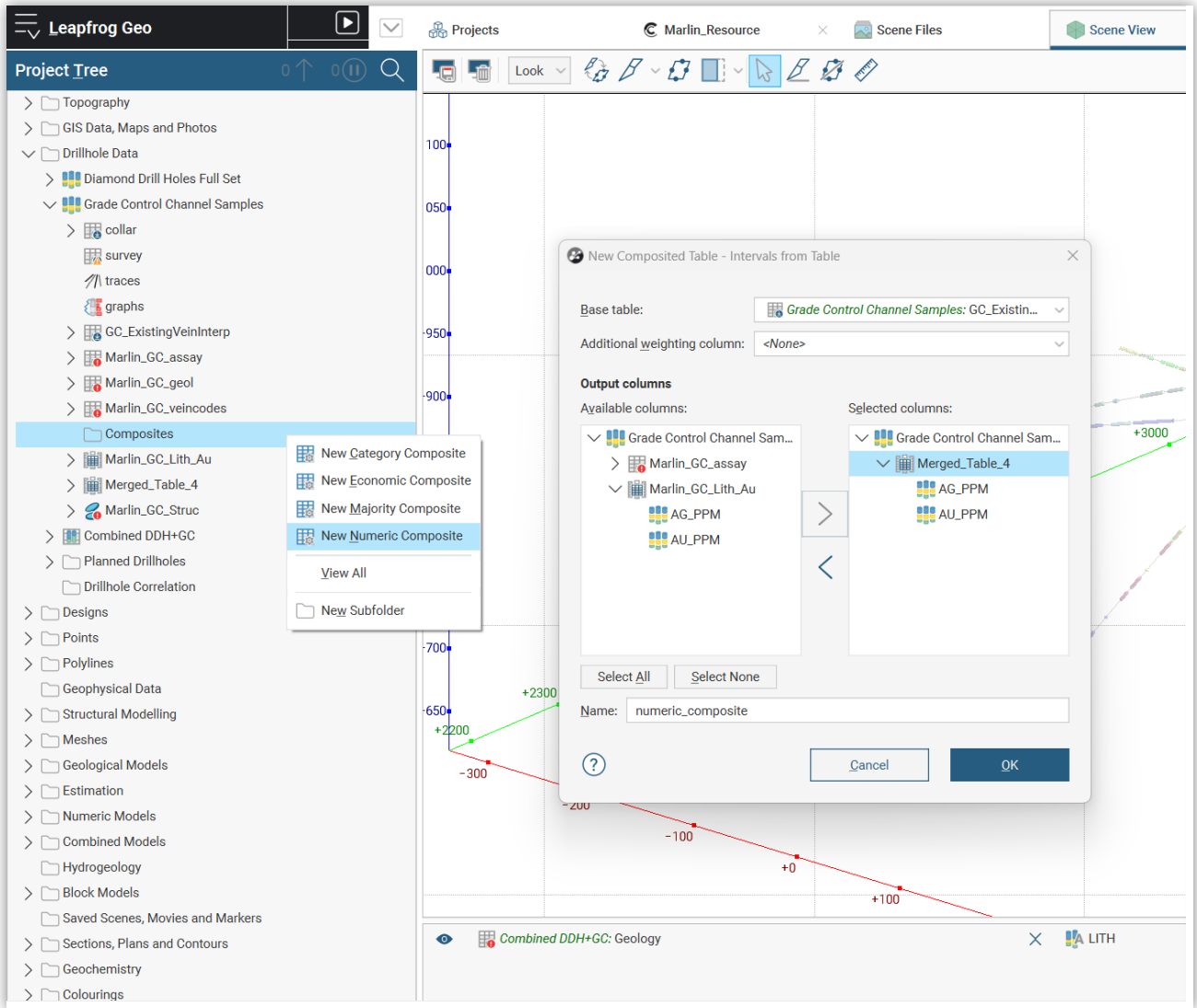
Compositing can now be performed on Merged Tables, including use of Interval Selections to inform category composites.

Store Proportions above/below surfaces

In the previous release of Leapfrog, we created a simple workflow for users to calculate and store proportions within volumes onto block models. We have now extended this functionality to also allow proportions above and below surfaces to be stored as an additional column on block models.

As before, the proportions can be used as a weighting column in statistical reports.

This feature allows the exact geometry of surfaces to be stored without invoking sub-blocking. This is particularly useful for accurately reporting resources above or below surfaces such as pit designs or cut-backs. Multiple surfaces can be evaluated, and the resultant proportions used in calculations or reporting. Evaluations can be applied to both regular and sub-blocked models and are dynamic.

Estimation Parameter Report improvements
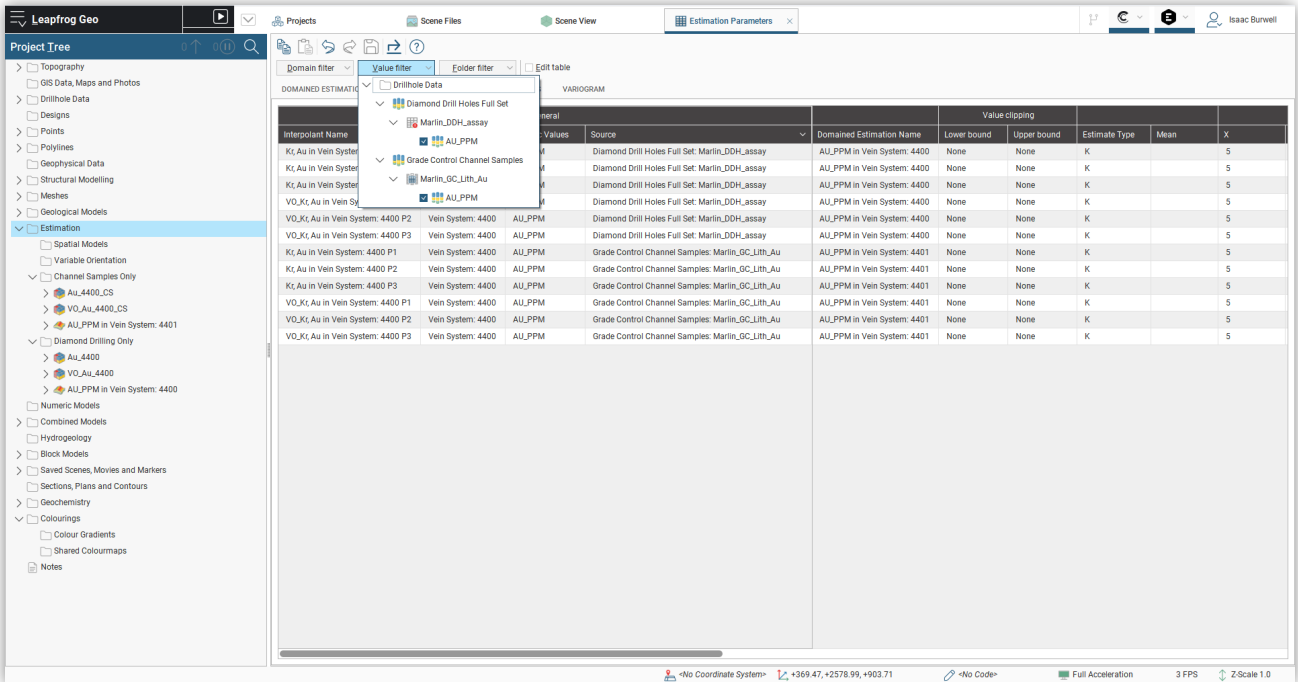
A minor enhancement has been made to the Estimation Parameters Report. The Value Filter list now shows a tree structure to assist with the positive identification of options when they share the same name. To aid in identifying the data source, a Source column has been added to the report.:

Work to improve the creation, management and editing of large and complex resource estimates is ongoing, with significant new functionality planned for future releases.

Add Calculations and Filters to Block Models
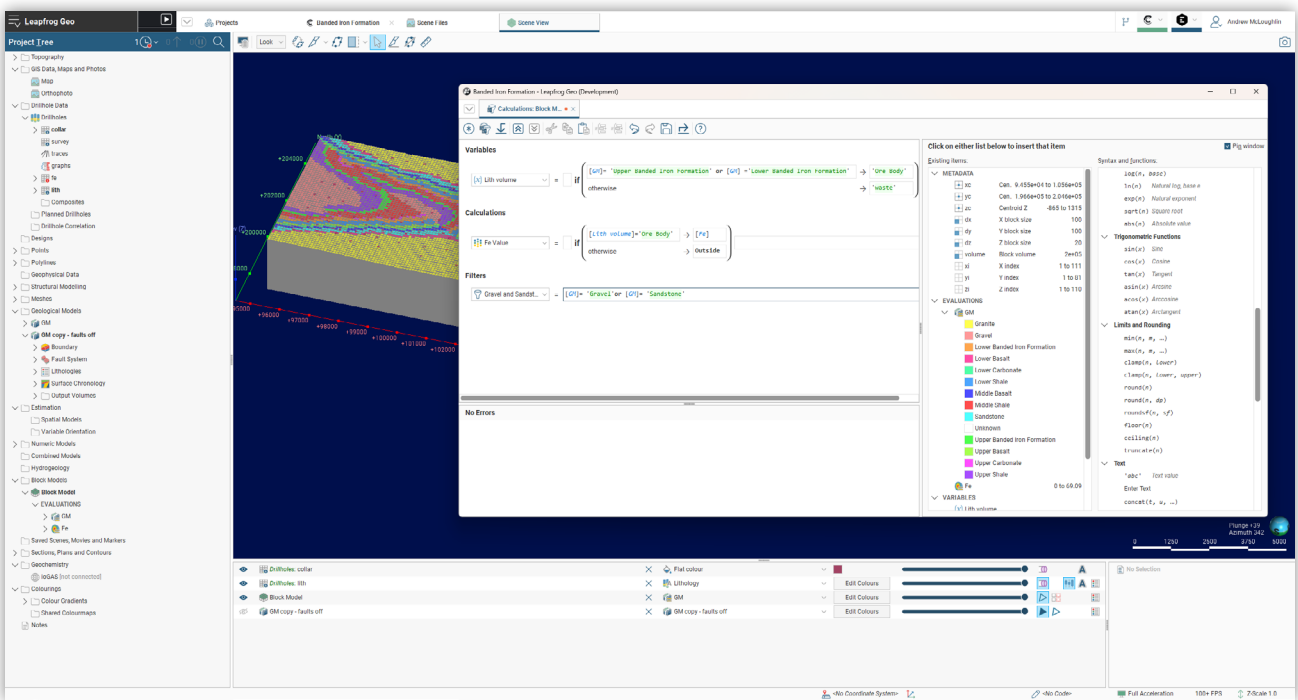
Currently, Calculations and Filters on Block Models is only accessible for users with access to Leapfrog Edge. This is not consistent with other parts of Leapfrog, where Calculations and Filters are available on Drillholes and Points without the need for an extension. Query filters particularly are very important for allowing users to investigate and visualise their block models.

In this version of Leapfrog, we have enabled the ability to create Calculations and Filters on Block Models without the need for an Edge extension.

Scene Details
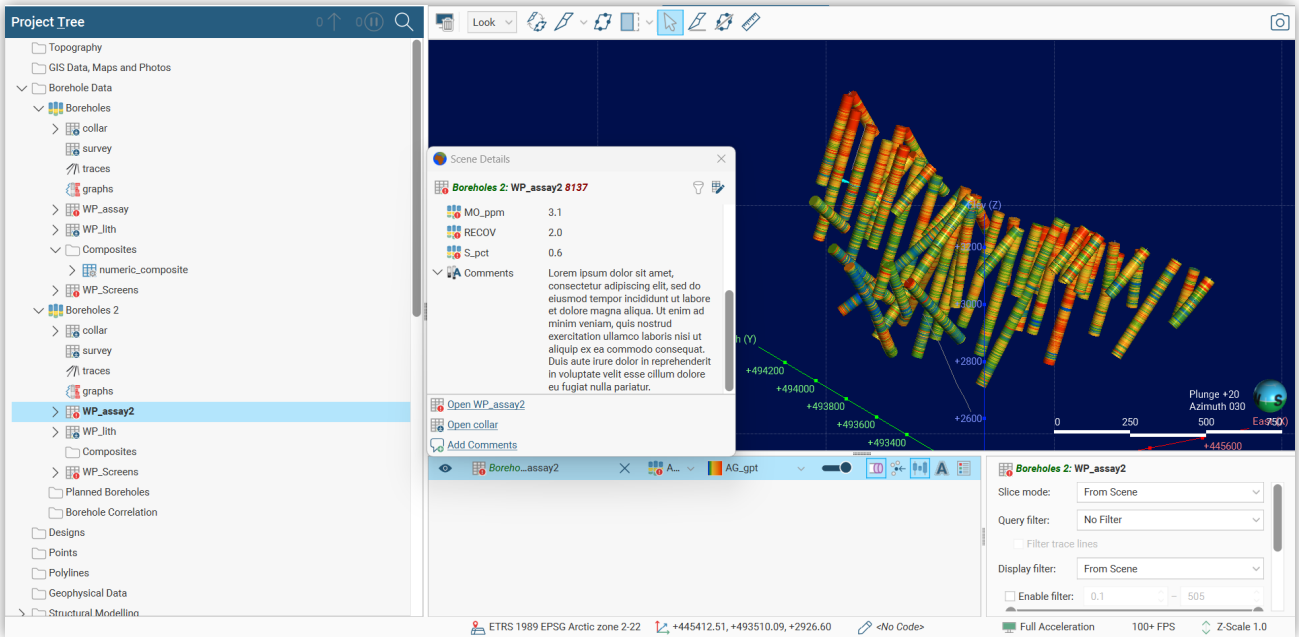
In response to feedback on the removal of wrapped text in the scene details panel, new behaviours have been introduced to provide more control over how scene details are displayed.

While the default for long text descriptions is still not to wrap, a collapse/expand chevron will now appear at the start of a row when text width exceeds the column width - clicking the chevron will reveal the full text with wrapping. The wrap setting preference is saved on the shape to persist the selection, therefore if you close the scene details panel and reopen it, your preference is retained. User preferences are retained even after reopening Leapfrog.

Collapsible Headers on Block Models
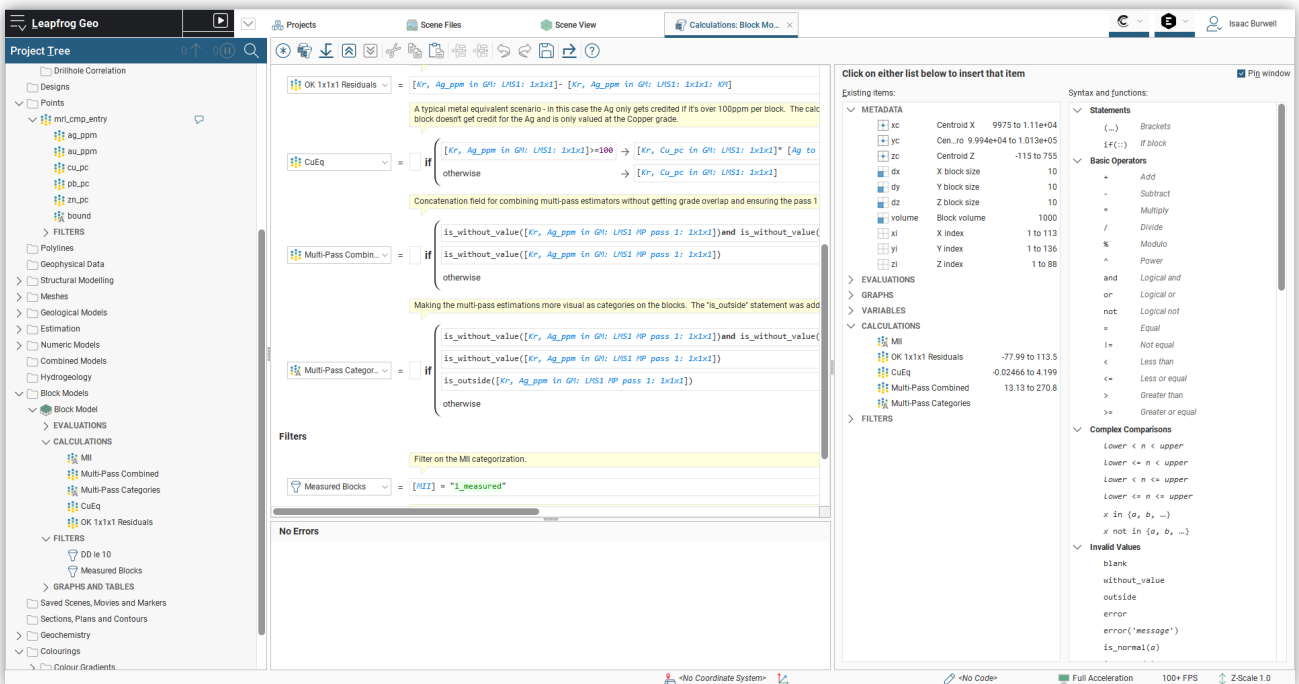
The list of items on a block model can become overwhelming. To reduce clutter and improve navigability, sub-groups of items can now be expanded or collapsed as required.

Markers
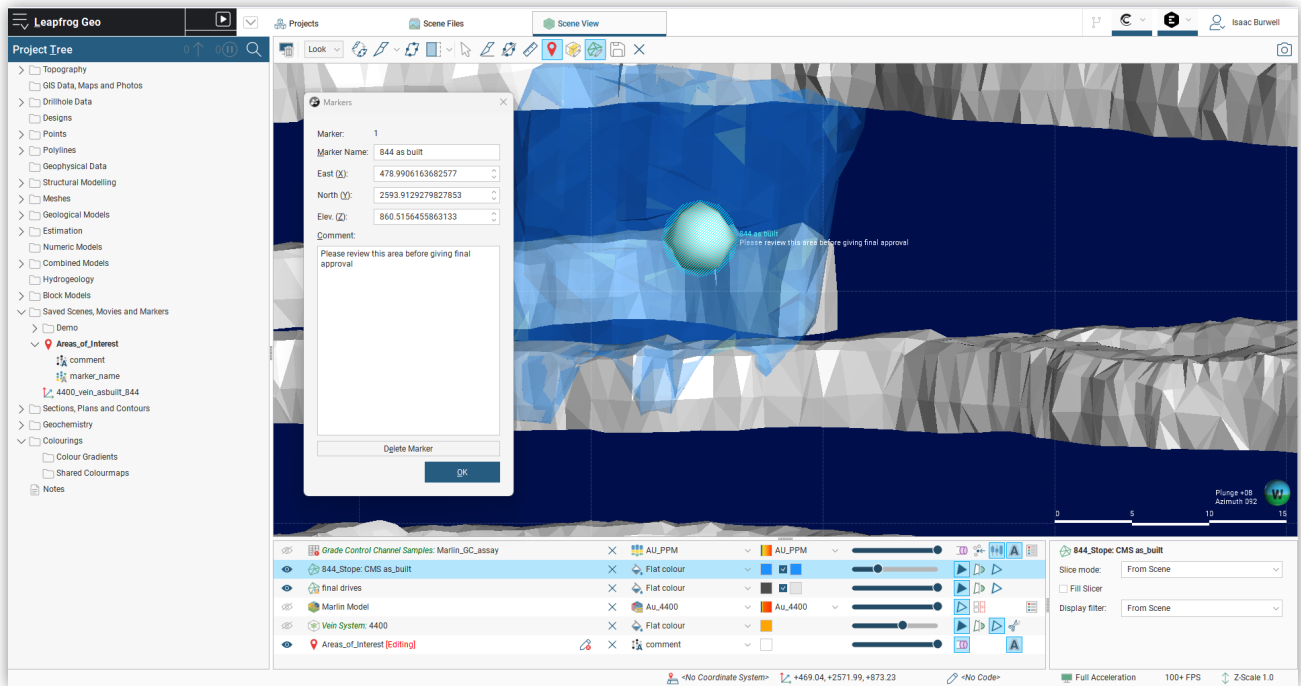
Enhance your communication and improve your peer review workflows with the introduction of in-scene Markers, found under the renamed Saved Scenes, Movies and Markers folder.

Markers are location points that can be placed anywhere within the 3D scene. Each marker can be given a name and a long form text comment, with existing text field formatting available for visualisation in scene.

These can be used to provide in-scene annotations when or wherever these are required – for example, drawing attention to specific features of geological models, commenting on the locations of planned holes, highlighting structures of significance etc.

Markers can be exported and re-imported to other projects.

It should be noted that Markers are internal to Leapfrog projects and are not linked to Annotations in Central. Markers will be included in published Central projects but cannot be published as separate objects or shared via Central.

Central 'Out of Date' Workflow Improvements

When publishing a project to Central, if network connection issues interrupt the publishing event, the Central button will show a red bar when the interruption is detected. A series of publish re-attempts will be kicked off, with increasing gap periods between each attempt. Leapfrog will continue attempts to publish for approximately an hour before abandoning the publish event.

Coordinate System Improvements for iTwin compatibility
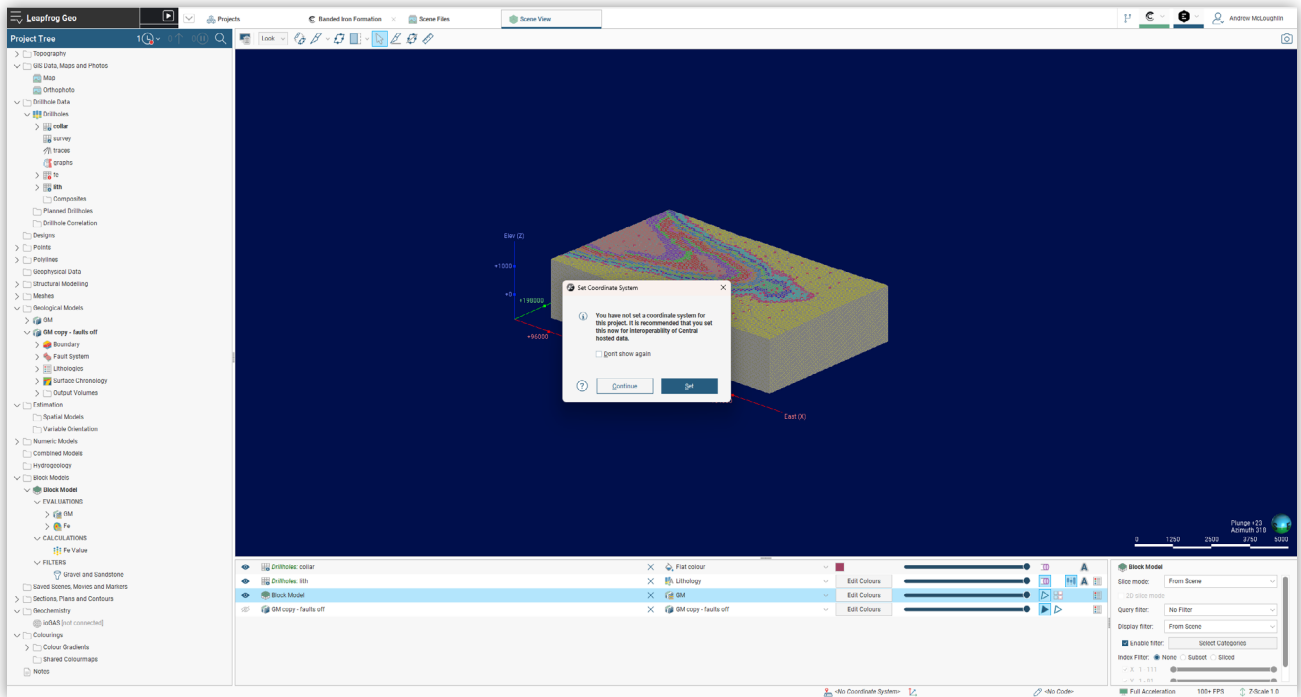
Extra support has been added when publishing information to Central. This is specifically designed to allow for better compatibility with Bentley iTwin, as the coordinate system is crucial to this workflow.

A new dialog box is presented to users to prompt the setting of the coordinate system before publishing, this dialog box has also been updated to allow for users to search EPSG codes as well as the co-ordinate system by name. If the coordinate system is unknown, or is not important, the code can be set to "**unspecified**".

Point Release 2023.2.1

Seequent Connector

This point release contains changes for new security certificates related to Seequent Connector. Seequent Connector is going to be upgraded in late December 2023.

Users of Leapfrog are not immediately affected by this change unless they are planning to upgrade to the new releases of Oasis montaj or Plaxis due in December 2023. Point releases are being issued for all supported versions of Leapfrog (Leapfrog 2021.1.4 - 2023.2.1) to ensure compatibility with the new Seequent Connector. Read more here

Issue Summary

ISSUE SUMMARY
A problem with value filters on variable Z sub-block models has been repaired
TB Related to a specific situation when vein segment midpoints are edited, then excluded (for example by boundary filter change)
TB occurring when Resource Report is copied and volume filter type is changed
TB when selecting duplicate planned boreholes on long section
Drag and drop planned drillholes across groups not working
TB when using 'set-to' to set a trend on a deposit/erosion surface.
Behaviour errors in interpretation table may cause TB
TB when upgrading block model containing proportion from refined model
Drag and scroll in project not working
Sub-folders lost when shifting DH composites
TB when settling Shared Colourmaps sharing to None

Point Release 2023.2.2

This Point Release 2023.2.2 contains minor bug fixes and improvements to further enhance Leapfrog modelling, interoperability and visualisation capabilities.

Issue Summary

ISSUE KEY	SUMMARY
LF-45661]	Fixed a Traceback when viewing TOUGH2 grid with imported outputs with more than 9999 time steps
[LF-49201]	Importing Directional Drilling Plan populates columns with "?"
[LF-51497]	Add logging better tack connection issues with Central
[LF-51517]	Leapfrog fails to connect to Central and/or IDP when it encounters certificates that are either expired, missing, or cannot be processed.
[LF-51519]	Fixed an issue where Seequent Connector would stop a publishing action
[LF-51948]	Fixed a Traceback when upgrading points to the new point storage
[LF-52012]	Fixed a Traceback when importing TOUGH model with non-unique value names
[LF-52206]	Fixed an issue where a missing certificate would stop connection to Central
[LF-52249]	Fixed a Traceback when trying to refresh acQuire
[LF-52262]	Fixed an issue whereby incorrect GM volume names sometime do not match the lithology they represent
[LF-52290]	Fixed an issue when a vertical borehole Azimuth downhole structural data has changed by 180
[LF-52305]	Fixed a Traceback that stopped publishing to Central
[LF-52306]	Fixed a Traceback when trying to import a single Leapfrog generated .lfc file into Shared Colourmaps
[LF-52307]	Fixed a Traceback when adding polyline to surface with empty contacts and orientation checked
[LF-52428]	Fixed an issue on OneDrive Folder detection on capturing folder location in the metrics
[LF-52433]	Fixed an issue where a vein pinch out would not reprocess when vein boundary filter is changed
[LF-52434]	Fixed a Traceback when a table flagged for deletion on upgrade fails to delete and block project upgrade
[LF-52669]	Fixed an issue where the performance on large search neighbourhoods was excessively slow