

Whittle 4.7.0

Enhancements

Miscellaneous

- **Expression limitations removed**

Limits on the number and size of expressions in Whittle have been removed. A project can now have as many expressions as needed. However, the use of several large and complex expressions will impact performance. Expressions that are broken down into smaller subexpressions are easier to manage and troubleshoot. These subexpressions can be aggregated to more complex expressions when needed.

This enhancement is available only in the 32-bit and 64-bit engines; it is not available in the classic engines.

- **Unlimited constraints and variables for blend optimisation**

You can use an unlimited number of constraints and variables in a blend optimisation. As a result, you can optimise a broader range of blend scenarios.

- **Support for Microsoft Windows 10**

Whittle 4.7.0 can be installed and operated on a Windows 10 Operating System.

- **Support for Microsoft Office 2013**

Whittle 4.7.0 supports Microsoft Office 2013.

- **Support for Microsoft Office 2016**

Whittle 4.7.0 supports Microsoft Office 2016.

Simultaneous Optimisation

- **SIMO Multi-mine Optimisation features**

The following SIMO Multi-mine Optimisation features have been added:

- For a multi-mine block model, the **Schedule** tab for **SIMO** node has been updated to include mine information. You can specify whether a mine is included in the optimisation and define the pushbacks for each mine to be used in the SIMO optimisation.
- On the *Advanced Optimisation Controls* form, you can now see the pushbacks the mine to belongs to in the inhibit pushback table.
- A new licence option, Multi-mine Simultaneous Optimisation, has been added. This licence is required to enable and run a **SIMO** node under a multi-mine block model.

- **SIMO Add Pushback definition (single mine)**

When you create a new pushback definition for SIMO in a single mine scenario, you can now set the min/max lead and the max benches per period using the *Pushback Definition Creation* form. This behaviour is consistent with SIMO multi-mine.

- **Simultaneous Optimisation uses COIN-OR LP Engine**

The **Simultaneous Optimisation** (SIMO) node has been updated to use the COIN-OR Linear Programming (LP) engine. This new engine provides significant performance improvements over the previously available XA engine. COIN-OR is now the only LP engine supported by Simultaneous Optimisation. The LP Solver Engine preference is no longer used by the **SIMO** node. The change from the XA LP engine to COIN-OR may result in variations in output from previously run projects.

- **Simultaneous Optimisation Spreadsheet Reporting**

Output from SIMO can now be viewed in an Excel report. To access the report, after running a **Simultaneous Optimisation** node, right click the node and select **View Simo Report**. Excel opens and processes all of the relevant data to produce a detailed report.

- **Processing method limitation removed for SIMO Multi-mine**

If you have a SIMO multi-mine licence, when working with **Pit Shell** nodes, you are no longer limited to three processing methods per rock type.

Licensing

- **New Network License Manager**

To support the new license modules in Whittle for SIMO multi-mine, the Network License Manager has been updated to version 14.8.1. You can install this new version as a direct replacement for any existing license managers. See the GEOVIA support website for details.

Issues Fixed

Other Area

- **Improved spreadsheet output for Spider Graphs**

The **.csv** file output from spider graph nodes has been improved. The new **.csv** file contains a table with headers that show the names of the items being varied in each column. This new format is similar to the **Output** tab in Whittle.

Pit Shell Generation

- **Interim Pushbacks not running correctly**

You can now run Interim Pushbacks when the pit shell node has the Constraint, Discount by depth, or Discount by sequence mode enabled, without any issues.

- **Error messages updated**

For large models, or projects with complicated slopes, when you run the 32-bit or classic engines, it is possible that the **Slope Set** node will generate more slope information than can be stored in a 32-bit file. When that occurs, the pit optimiser can detect corrupted slope information, and generates an error message, PROGRAM ERROR A IN FXSCST. You can typically avoid this event by switching to the 64-bit Whittle engine. The error messages have been updated:

- On a 64-bit Windows installation: The structure arcs file is corrupted, re-run the slope node. Try re-running the node with 64-bit engine (See **File > Preferences > Engines**).
- On a 32-bit Windows installation: The structure arcs file is corrupted, re-run the slope node. You should consider upgrading to 64-bit Windows.
- The classic engines will continue to fail with the old error message.

Data Export

- **Improvements to exporting pushback pit shells from block centroids in a DXF format**

Previously, when you exported surfaces from a **Schedule** graph to a DXF format as centroids, the resultant surfaces were based on the top and inside positions of the block. As a result, the surfaces were smaller and, when used as block model constraints, many blocks could be skipped. Whittle now exports to a DXF format using the bottom and outside positions of the block, and exports the correct dimensions of the surface.

- **Multi-mine export .par file**

Previously, when you exported a **.par** file from a multi-mine project where only one mine was selected, the mine origin coordinates could not be set on line two. As a result, subsequent engine runs treated the mine origin as 0,0,0 instead of its true value. This issue has been fixed. Now, when you export a single mine **.par** file from a multi-mine project, the specified mine coordinate data appears on line two.

Data Import

- **Surpac block model import fails**

When you import large (>2.3GB) Surpac block models, the progress bar no longer produces negative numbers or values greater than 100%. Because of this improvement, you are no longer flooded with progress updates, and the import does not fail.

- **Import Large Block Models**

Previously, when you imported a block model, and the size of the imported file in bytes was greater than a 32-bit number, the progress bar would have a negative value and cause the import process to fail. This issue has been fixed.

- **Import block models does not import duplicate elements**

Previously, if a block model contained multiple elements with the same name, only the first element would be read correctly and all subsequent elements sharing that name would be ignored. This issue has been fixed. Now, Whittle prompts you to rename non-unique element names before completing the import process.

Multi-Mine

- **Improvements to best case multi-mine scenarios and rock-types unassigned to blend**

For a best case scenario with a multi-mine mode, the minimum lower (and maximum upper) bench for blocks that are part of a pushback are now taken into account across all mines. In addition, generating a solution for blend scenarios where not all rock-types are assigned to a blend is now handled correctly, and Whittle no longer exits unexpectedly.

Miscellaneous

- **FXED has been deprecated in 32-bit and 64-bit**

The engine that enables the manual editing and creation of parameter files (.par files) has been deprecated in the 32-bit and 64-bit variants, but is still available as the classic engine (FXED_F90.exe). This engine can only be used from the command line, and is not used by the Whittle user interface software. No further maintenance or development of this engine will be carried out.

- **Warning messages identify incorrect regions**

The check data warnings for slope regions have been corrected, and now identify the correct region number.

Simultaneous Optimisation

- **SIMO Extractive Blend validation**

Using the same validation behaviour as for the **Extractive Blend Scenario** node, Whittle now validates SIMO extractive blends. If multiple blends are mapped to the same processing method, SIMO cannot function, so the **SIMO** node becomes unavailable.

Slope Set Generation

- **Profile number in the Report tab does not match the profile number in the Profile tab**

In reports generated by the **Slope Set** nodes, the **Slope Profile** names now match the names in the **Profiles** tab in the Slope Set. In addition, the default slope profile is now called Profile 1 instead of Default 0, to reflect the names of the subsequently created slope profiles.