

#### RAPID | INTUITIVE | EFFICIENT

# MINESCAPE 2023 UPDATE 1 WHAT'S NEW

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# What's New

The following section lists the new functionality, features, and defect corrections delivered with MineScape 2023 Update 1.

# Support for Underground Scheduling with Tactical Scheduler

Users can now create underground (UG) scheduling in **Tactical Scheduler**. To support this new capability, the **UG Coal** App and **Tactical Scheduler** App have been enhanced in the following ways:

• Two new forms, the **Create UG Solids** and **Model Resource** Forms, have been added to the **UG Coal** App.



New Group in the UG Coal Tab

These forms allow users to generate UG mining blocks from existing underground designs, serving as vital input for scheduling once reserved. To access these forms, click the **UG Coal** Tab and locate the **UG Solids** Group. Two new Options should be present: **Create** and **Run Reserves**.

Create UG Solids		? <b>k</b> ? 🗆 – 🗆 ×	Model Resource	? 📢	
UG Solids Martinea Martinea Longwalls Longwalls Output	Surface  Schema  Schema  Grid Spec  Surface  Schema  Grid Spec  Schema  Grid Spec  Y  Grid Spec  Y  Schema  Y  Grid Spec  Y  Surface  Surf		Model Resource	Setup  Reserves Sample Source  Source  Source  UG Multi-Mesh  Schema  Name  Quality Model  V Exclusions  Input Mesh Mesh Group  V Mesh File  Cotput  Table File  V	•
≝ 8-	Ok	Apply Cancel		14	
	1		<b>≥</b>	Ok Apply	Cancel

New Forms to Create UG Mining Blocks

• In the Scheduler App, the New Schedule Project wizard now provides a new option called Mining Type: Surface and Underground.

New Schedule Project		0		?	□ ×
General		R.			
Project Definition Schedule Project Nam	e				
Copy from Existing Pr	oject				~
Mining Type Surface O Unde	rground				
Project Length					
Schedule Length	14 Days				
Period	Weekly ~				
Number of Periods	2				
Start Date					
Thursday, October 12	2, 2023 12:00 AM				6
End Date					ra.
Thursday, October 20	5, 2023 12:00 AM				U
Calendar Settings					
Equipment Utilisat	ion				
○ Real Date Calenda	r				
Shift Start Time					
12:00 AM					
Shift Length (Hou	rs)				
8					
		Back	Next	Can	icel

Mining Type Selection

# Mining Blocks, the next generation of Bench Blocks

The Mining Blocks App, formerly known as the Bench Blocks App, has undergone significant enhancements in this release. Beyond its original capability of generating single benches, the App now offers options to create mining blocks from multiple benches or an entire pit. It has also been improved in the following ways: • The Mining Blocks Ribbon is updated to accommodate the new workflow.





 The Mining Blocks Form has been intuitively enhanced, allowing the name of the form and its sections to dynamically adjust based on the selected mining type and its unique workflow.

Create Mining Blocks for the Pit	:	?	<b></b> ₹?	Q		×
<ul> <li>→ Mining Blocks</li> <li>Setup</li> <li>Input/Output</li> <li>Between Benches</li> <li>Block Naming</li> </ul>	Scenario Mining Type O Single Bench O Multi-Benches O Pit		<b>~</b>	New	]	
<b>-</b>	Ok Apply			Car	ncel	

Create Mining Blocks for the Pit Form

- Single Bench This option generates a mesh file with a single intact bench, which can later be cut into mining blocks using the options within the Interactive Group.
- Multi-Benches and Pit These options are integrated with the Rapid Slicer Tool, generating a mesh file containing mining blocks. The Rapid Slicer Tool is accessible within the Between Benches Section; for more details, refer to the information on the Rapid Slicer below.

Mining Blocks     Setup     Input/Output     Polygon Region     Between Benches     Block Naming	Between Benches       Bench Spec       Bench Start       Bench End       Schema       Model Type		~	]			
<b>-</b>	Rapid Slicer	Apply	~	] [*	Can	cel	

Rapid Slicer Tool in the Between Benches Section

• The **Solid/Outline** Option allows users to toggle between displaying or hiding mining blocks outlines for better viewing of the benches, slices, and intervals.



- The Calculate Reserve Form is updated to accommodate reserve and volume calculations for Multi-Benches and Pit scenarios.
   The Naming Section automatically adjust accordingly to the selected scenario, as follows:
  - Single Bench enables users to select blocks for naming and construct names for each block by defining prefixes for each element and material, along with its order arrangement.
  - **Multi-Benches** and **Pit** allows users to define the order arrangement of elements and material hierarchy.

Calculate Reserve for Minim	ng Blocks		?	▶? 🖵	- 0	×
□ Reserves Sample Setup Naming Intervals Qualities	Naming Output Mesh File Naming Order Pit Strip Bench Interval Material Block Reset to Defau		↑			
<b>≧ ⊒</b> -		Ok	Apply		Cancel	

Naming Section for Multi-Benches and Pit Scenario

# Rapid Slicer

This update introduces the **Rapid Slicer**, an interactive mesh slicer tool designed to effortlessly divide benches into mining blocks. Users can easily customise slices into different sizes and cut angles, ensuring precision and flexibility in block formation. Once a Rapid Slicer is defined, users can save and reuse it across multiple benches, significantly saving time in the process.



Interactive Block Sizing

The **Rapid Slicer** Tool is accessible within the **Between Benches** Section of the **Create Mining Blocks for Multi-Benches** and the **Pit** Form.

File Open Cut Stri	p Planning Mining Blocks	Reserves Quakes	Regulatory Plots
Create Blocks Order	Blocks Blocks Solid/Outline Rename Polygon	Calculate Reserve	Mining Blocks to DTM
Mining Blocks	Blocks Update	Output	Rapid Update
Create Mining Block	s for Multi-Benches	? 🎝	🛛 – 🗆 X
- Mining Placks	Between Benches		
Setup	Bench Spec	v	]
Input/Output	Bench Start	~	-
Polygon Region Between Benche	Bench End	v	]-
Block Naming	Schema	~	]
	Model Type	Ŷ	
	Rapid Slicer	v	
📑 🗄 •	Ok	Apply	Cancel

Between Benches Section of the Create Mining Blocks Form



It is also accessible within the **Dump Mesh** Section of the **Dump Mesh** Form.

Dump Mesh Section of the Dump Mesh Form

To reuse the **Rapid Slicer**, users can reopen the file via the Tool within the Forms or by right-clicking on the **Rapid Slicer** file under the **Rapid Slicer** node and select **Edit**.

Explorer	* # X
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📃 All	Search >>
Ouslition	A
Rapid Slicer	
Reports Edit	
<ul> <li>Schedule F</li> <li>Scripts</li> </ul>	
▶ 🧊 Specs 🛛 🗙 Delet	ie
Strip Plann     Rena	me
Explorer	

Rapid Slicer Node in MineScape Explorer

Users can edit the slicer grid using the **Slicer Toolbox** located at the bottom right corner of the slicer grid, providing four input modes.



Slicer Toolbox

## Survey Server Manager

The new MineScape **Survey Server Manager** allows users to easily configure and manage the services of the **Survey Server**, which includes checking the server status, changing the settings, updating the application, checking the logs, and more.

🚰 MineScape Survey Server Manager								
IP Addresses	169 192	9.254. 2.168.	163.0 1.13					Settings
	177	2.17.1	91.24					Update
Services			A	ctio	ns		Status	
Survey Server			0	2	Î	¶		
Survey Worke			0	<u>9</u> -		<u></u>		
Message Serv	er		0					Exit
Working directory: C\Program Files\Datamine\MineScape\Survey Server\								

MineScape Survey Server Manager

For more information, refer to the <u>Survey Server Installation Guide</u>.

### Start Page Enhancement

The MineScape **Start Page** has been enhanced in the following way:

#### Region-Adaptive Content

Users can now access content based on their chosen Windows region format. With the addition of new regions, MineScape now supports 16 languages, including English (Australia, Canada, New Zealand, South Africa, the United States), Russian, Polish, Chinese, French, German, Hindi (Indian), Bahasa Indonesia, Portuguese (Brazil), Spanish (Spain), Thai (Thailand) and Vietnamese. Access news, videos, guides, and feature articles tailored to the users' region, ensuring them the content that suits their preferences and needs.

🔊 Regior	n	×
Formats	Administrative	
Format	t	
English	h (United States)	~
Langua	age preferences	
Date a	and time formats	

Region Window

# CAD

The **CAD** App has been improved in the following ways:

#### Interactive Boolean

The **Interactive** Option allows users to perform **Boolean** operations, such as intersecting, combining, and finding the difference between two meshes or multi-mesh, and choose the desired outputs.



Interactive Boolean

The difference between **Interactive** and other **Boolean** Options, such as **Intersect** and **Difference**, is that **Interactive** allows users to select the desired output portions of the mesh. In contrast, the other **Boolean** Options mandate users to follow specific orders when selecting meshes.

Find the Interactive Option within the Boolean Group of the Mesh Tab.



Interactive Option

#### Update DTM

**Update DTM** allows users to manipulate two surface meshes to create a combined mesh output that visualises a dump or hole through elevating and excavating a surface mesh against the other.



Before and After Excavation

The two ways to access the **Update DTM** Option are:

• Within the **Boolean** Group of the **Mesh** Tab



Update DTM Option in Mesh Tab

• Within the Rapid Update Group of the Open Cut Tab



Update DTM Option in Open Cut Tab

#### Create Surface Mesh from Design Data

The **Create Surface Mesh from Design Data** Feature allows users to create surface meshes from various design files without having to open the source design file and layer on the **CAD** Window. The output can be a single mesh or a multi mesh.

Previously, users can also create a surface mesh by utilising the **Create Surface** Feature. However, since the **Create Surface Mesh from Design Data** Feature is a module, users can now create surfaces from batch files, instead of the previous manual process.



Three Surface Mesh

Find the **Create Surface from Design Data** Option within the **Surface Mesh** Group of the **Mesh** Tab:



From Design Data Option

#### Automatically remove triangle anomalies with Mesh Despike

Unwanted triangles within meshes can be detected and removed automatically using the Mesh **Despike** Feature.



Before and After Comparison of a Successful Despike Function

Running this function will produce a new refined mesh file so that the original mesh is preserved. To access it, click the **Mesh** Tab and click **Despike** in the **Surface Mesh** Group. A new form should appear.

∺ Despike		? 💦?	⊑ – □ ×
- Input			
Name _Despike		Mesh ID	6058
Output			
Mesh Group		~	
Output Mesh File		~	
<b>=</b> -	Ok	Apply	Cancel

Mesh Despike Form

#### Hotkeys Updates

Updated Hotkeys for the purpose of switching between Apps are listed in the table below:

Hotkey	Description
DO	Activate the 10 <sup>th</sup> App in the list.
D7	Activate the 7 <sup>th</sup> App in the list.
D8	Activate the 8 <sup>Th</sup> App in the list.
D9	Activate the 9 <sup>th</sup> App in the list.

Updated Hotkeys for the purpose of viewing and rotation are listed in the table below:

Hotkey	Description	MineScape Path
Shift+D0	Rotate the Y axis by 180	RIBBON: View / Animation /
	degrees	Rotation / Y Axis 180

Hotkey	Description	MineScape Path
Shift+D7	Rotate the X axis by 90	RIBBON: View / Animation /
	degrees	Rotation / X Axis 90
Shift+D8	Rotate the Y axis by 90	RIBBON: View / Animation /
	degrees	Rotation / Y Axis 90
Shift+D9	Rotate the Z axis by 90	RIBBON: View / Animation /
	degrees	Rotation / Z Axis 90

#### Small Enhancements

#### Elevated Mesh File Performance

MineScape latest update brings significant performance enhancements to mesh file management, offering a smoother experience when loading, unloading, and applying interactive filters. Furthermore, the mesh **Relimit** Option now accommodates poly3D elements as inputs, increasing the flexibility of your workflows.

#### Explore and Modify Multi-Mesh Efficiently

The multi-mesh in MineScape has undergone enhancements to offer a more interactive and streamlined experience. Key improvements include:

- Detailed mesh listing Each individual mesh within a multi-mesh is now listed in the **Display** Dock. Clicking the arrow next to the multi-mesh name reveals a comprehensive list of all constituents meshes.
- Interactive highlighting Selected meshes within a multi-mesh are highlighted in both the **Display** Dock and the **CAD** Window. This can be done seamlessly from either the **Display** Dock or the **CAD** Window.
- Selective property updates Users can selectively update properties for specific meshes within a multi-mesh, with changes reflected across all instances.

#### Interactive Filter for Multi-Mesh

**Interactive Filter** can now be applied to multi-meshes that contains metadata within a mesh folder. Users simply need to choose the desired multi-mesh, and the dropdown list in the **Metadata** Field within the **Interactive Filter** Dock will automatically update based on the metadata present in the selected multi-mesh.

#### Polygon Balancing Output Format Updated

The output format for **Polygon Balancing** has been updated. Formerly generating triangles, it now produces a mesh.

#### Height Cue in Mesh Property

As part of the **Properties** Dock for meshes, users can now set the **Height Cue**, which means that users can colour the meshes according to the height of the mesh data.



Height Cue Field

#### Automatic Pick Cursor Colour Adjustment

For improved visual clarity, the pick cursor now automatically adjusts its colour to complement the viewport background.

• The pick cursor will appear in a dark colour when the viewport background is a gradient or light-coloured.



Dark Pick Cursor

• Conversely, the pick cursor will adopt a light colour when the viewport background is dark.



Light Pick Cursor

• Additionally, the pick cursor will be coloured blue when the viewport background is grey.



Blue Pick Cursor

#### Increase in Supported Total Colours

MineScape now supports 8000 colours in its palette, a significant increase from the previous limit of 1000.

## Geology

The **Geology** Product has been enhanced in the following ways:

#### New Import CSV Options in GDB

Users now have the option to independently import and update CSV files or utilise a predefined data template.

#### The CSV, CSV Using Template, From CSV, and From CSV Using Template

Options are added under the **Import** and **Update** Groups of the **Data** Tab within the **GDB** App.





lı SV Fi	mport CSV				GDB Table		. ▶? 🖵 ·	_ □
D:\We	ork\Projects\Test_Proj	ject\data\gdb_collar.	CSV		Drillhole Collar		Settings	
elimi	iter		Star	at Line	Preview Size		_	
Com	ma ~		1		Based on first 200	rows	✓ ✓ Has Heade	r
	DHHOLENAME	V DHEAST	V DHNORTH	V DHELEV	V DHDEPTH	V DHLEASE	V DHSOURCE	~
	DHHOLENAME	DHEAST	DHNORTH	DHELEV	DHDEPTH	DHLEASE	DHSOURCE	
1	X002	118289.980	2361733.180	462.900	51.210			
2	X006	117759.110	2364648.480	488.200	87.290			
3	X012	119263.140	2362242.670	458.100	56.860			
4	X013	119452.320	2363314.140	470.700	54.470			
5	X014	118172.390	2363499.050	488.400	76.330			
6	X015	118474.960	2364204.750	474.400	44.050			
7	X016	120522.210	2363400.120	481.300	98.230			
8	X017	121056.660	2362972.430	469.800	65.810			
9	X025	118773.300	2362903.700	467.700	54.280			
10	X026	119405.600	2361877.300	452.100	46.700			
11	X035	118348.900	2362323.400	479.400	60.700			
12	X036	120618.400	2362408.300	450.100	46.860			
13	X037	120183.500	2362998.800	470.100	69.230			
14	X038	119706.700	2362656.300	459.900	61.100			
15	X041	118062.200	2362155.000	479.200	54.680			
16	X052	118659.220	2362063.010	468.200	59.270			
17	X053	118864.980	2362565.040	466.600	86.530			
18	X054	119302.550	2363682.220	476.000	111.850			
19	X055	119213.650	2363060.230	454.100	76.770			
20	X056	119476.530	2363108.330	466.800	103.440			
21	X057	120069.500	2363573.800	486.400	121.670			
22	X060	117990.440	2365034.270	499.500	107.930			
23	X061	118352.860	2364431.980	480.000	92.930			
24	X072	121582.320	2363196.820	460.500	71.470			
25	X077	121783.850	2363969.910	440.900	70.000			
26	X078	119512.780	2364320.550	488.200	38.240			
27	X079	118469.650	2365080.840	498.400	38.650			
28	X081	119834.460	2363299.250	480.600	115.500			
<								>
							Import	Close

Import CSV Form

import CSV	Using Template 💦 🖵 — 🗆 🗙
CSV File	D:\Work\Projects\Test_Project\data\gdb_collar.csv
GDB Table Data Template	Drillhole Collar  Collar  Settings
<b>-</b>	Import Close

Import CSV Using Template Form

\Wo	ork\Projects\Test_Project	\data\gdb_collar.csv			Drillhole Collar	~	Settings	
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omi	na Y		1		Based on first 200 r	ows 🗸	✓ Has Header	
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	DHHOLENAME	DHEAST	DHNORTH	DHELEV	DHDEPTH	DHLEASE	DHSOURCE	
	X002	118289.980	2361733.180	462.900	51.210			
	X006	117759.110	2364648.480	488.200	87.290			
	X012	119263.140	2362242.670	458.100	56.860			
	X013	119452.320	2363314.140	470.700	54.470			
	X014	118172.390	2363499.050	488.400	76.330			
	X015	118474.960	2364204.750	474.400	44.050			
	X016	120522.210	2363400.120	481.300	98.230			
	X017	121056.660	2362972.430	469.800	65.810			
	X025	118773.300	2362903.700	467.700	54.280			
	X026	119405.600	2361877.300	452.100	46.700			
	X035	118348.900	2362323.400	479.400	60.700			
2	X036	120618.400	2362408.300	450.100	46.860			
3	X037	120183.500	2362998.800	470.100	69.230			
1	X038	119706.700	2362656.300	459.900	61.100			
ō	X041	118062.200	2362155.000	479.200	54.680			
5	X052	118659.220	2362063.010	468.200	59.270			
7	X053	118864.980	2362565.040	466.600	86.530			
3	X054	119302.550	2363682.220	476.000	111.850			
)	X055	119213.650	2363060.230	454.100	76.770			
)	X056	119476.530	2363108.330	466.800	103.440			
	X057	120069.500	2363573.800	486.400	121.670			
2	X060	117990.440	2365034.270	499,500	107.930			
	X061	118352.860	2364431.980	480.000	92.930			
ı	X072	121582.320	2363196.820	460.500	71.470			
ō	X077	121783.850	2363969.910	440.900	70.000			
5	X078	119512.780	2364320.550	488.200	38.240			
	X079	118469.650	2365080.840	498.400	38.650			
3	X081	119834.460	2363299.250	480.600	115.500			
								>

#### Update from CSV Form

∺ Update From	n CSV Using Template	₹?	Ţ	_	D X
CSV File	D:\Work\Projects\Test_Project\data\gdb_collar.csv Start at Line 1				
GDB Table Data Template	Drillhole Collar   Collar   Settings				
<b>-</b>	Update			Clo	ose

Update from CSV Using Template Form

This improvement also allows users to customise the import processes through the **Import Settings** Form, accessible via the **Settings** Button in each form.

H In	nport CSV									▶2 □	-	□ ×
CSV Fi	le					GDE	3 Table					
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2	X006	<ul> <li>Output Records wit</li> </ul>	h Fatal E	rrors into Raw Table	Fatal Errors File		gdb_import_erro	r *	Append			
3	X012 X013	Load All the Data In	nto Raw	Table	Warning Messad	es File	gdb import war	ning ~	✓ Append			
5	X014											
6	X015				Error Records Fil	e	gdb_import_fata	Ý	<ul> <li>Append</li> </ul>			
7	X016				Maximum Errors		-					
8	X017 X025											
10	X026	Advanced										
11	X035					-		_		_		
12	X036	Break Column Names				Com	iment Position					
14	X038		≥ 1	HOLENAME	~	Defa	ult Status Value	1				
15	X041		۰.		~							
16	X052					Hole	Number Padding					
17	X053 X054					Date	Format	DD/MM/	YYYY	~		
19	X055						Din is positivo dour			_		
20	X056						Dip is positive down	n horizont	-			
21	X057					<b>V</b>	Dip is measured iro	n nonzon	lai			
23	X061											
24	X072	-2.13										
25	X077								Clos	se		
26	X078 X079	118469.650		2365080.840	498.400		38.650					
28	X081	119834.460		2363299.250	480.600		115.500					$\sim$
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Import Settings Form

New Trace Types Added to GDB for Enhanced Data Visualisation

The latest enhancement in MineScape **GDB** allows users to efficiently store and visualise dip line and induration drill hole information for cross-section interpretations, across both **2D** and **3D** graphics displays.

Drill Ho	le Value Traces							
Filter l	ength for geophysics dat	a 0		✓ Display Pincl	h Out 🗹 Ignore Des	urvey Data		
	Field display Spec	Trace Type		linimum Value	Maximum Value	Min. Value Offset	Max Value Offset	
▶ 3	dipline_a0	✓ DIP LINE	~		-	90	240	
▶ 4	dipline_a90	DIP LINE	~		-	250	400	
▶ 5	dipline_a180	✓ DIP LINE	~		-	410	560	
▶ 6	dipline_a270	✓ DIP LINE	~		-	570	720	
▶ 7	indur_syn	V INDURATIO	on v		-	-5	75	
da								
O Usir	ng Template	~	Selected Va	lues	F	Selection Set		

Dip Line and Induration Trace Type

The **DIP LINE** trace type utilises the dip angle and azimuth fields to render angled dip lines as their apparent dip as viewed from the specified cross-section bearing. Dip line traces employ colour coding based on a custom control field such as the dip quality.

Display Settings Records	
General Combine Thickness Text for Interval into one line Combine Interval Records Into to One Record Lithtype for It Do Not Display Value Show Depth as Elevations Filter Data Density by Minimum Depth 2D Plots Use Dip Angle Dip Angle Dip Angle Column Draw Wavy Tops Draw Wavy Bottoms	Text Control Trace title Trace title Text Display Definition Text Location Location Overrical Offset Draw Indicate Line (Trace Text) Indicate line length Override Format for Display Column Display Column Format
Dip Line Azimuth Column DIPAZM v Cross Section Bearing 180 Align at Hole Depth by Centre v	Tadpole       Tail Bearing       Confidence       Confidence Limit       Logarithmic Scale       Head Diameter       2D       1       3D       10

Updated Attribute Display Parameters Form

Meanwhile, the **INDURATION** trace type indicates hardness changes with horizontal lines drawn at the initial depth of each induration record. The colouring of these lines is determined by a custom control field such as a text structure code or numeric induration value.

When visualising the drill hole data, users can apply a data density filter within the field display specifications to reduce dense data to a manageable size based on a minimum depth change.

#### **Resource Classification**

Users can now define the minimum drill hole data to include when generating **Polygon of Influence**. This option is available when the **Omit polygons for isolated points** checkbox is selected.

Setup Setup Internals Resource Status	Option <ul> <li>Use Horizontal Calculation</li> </ul> Quality <li>Quality</li> <li>Surface ROOF</li> Polygon of Influence   Iminum Drill Holes   Use expanded voronor diagram polygon   Expanding Factor   Convex Corner Curve Step	Suffix Limit Merge & Clip Output Examples Layer Example Grid Value Example Vse Washability Vash Table File Vpper Size Fraction Lower Size Fraction Float Sink V
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Create Resource Classification Form

# Surface Engineering

The **Surface Engineering** Product has been enhanced in the following ways:

#### App List Update

Under the MineScape **Surface Engineering** App List, three Apps have been added, which are – **Mining Blocks**, **Reconciliation**, and **Reclamation**.



Surface Engineering App List

#### Dump Mesh

Enhanced with new features, the **Dump Mesh** Form now more accurately replicates actual conditions, enhances flexibility, and adds precision to the creation of dump mining blocks. The **Dump Mesh** Form has been improved with the following features:

🗎 Dump Mesh		?	<b>\</b> ?	₽	-		×
Dump Mesh Creation     1. Solid Mesh     2. Naming     3. Bench Mesh     4. Dump Mesh	Solid Mesh Input © Use Input Layers Crest Lines				× ×		
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Solid Mesh Section

- Reordered sections to facilitate a more efficient workflow.
- Now supports topography mesh as its base.
- Added the option to apply boundary limits.

H Dump Mesh		?	₹?	Q	-		×
Dump Mesh Creation 1. Solid Mesh 2. Naming 3. Bench Mesh 4. Dump Mesh	Bench Mesh         Input         ✓ Use Solid Mesh output         Mesh Group         Mesh Name         ● Use Height         Bench Height 10.0         ● Use Bench         Bench Spec         ▼         Bench Start         ▼         Bench End         ▼         Split Solid Mesh by Bench						
<b>≧ ∃</b> •					Clo	se	

Bench Mesh Section

- Introduced the ability to directly use a solid if it already exists and skip the solid-generating process.
- Enabled the splitting of benches using bench specifications, allowing for a precise cut at the desired elevation.
- Integrated with **Rapid Slicer** to enable a rapid, interactive, and customised slicing process.

#### Place Dragline by Swing Angle

The new **Swing Angle** feature in MineScape **Dragline** allows users to interactively position the dragline within a section by entering dump and cut angles. This functionality can determine a dragline position with the highest productivity, minimum swing angle, and efficient placement of dumped material in the available pit space. Users can evaluate dragline locations against its capabilities for material replacement.

#### 3D Display of Dragline Section

Users can now view **Dragline** sections in 3D mode, applicable to **DRAG SURFACE** and **DRAG AREA**. Previously displayed as a static single line without rotation capability, these sections now transform into a ribbon within the **3D View**, their width corresponding to the defined **Section Width** and allowing rotation. The **3D View** Option is within the **Display** Group of the **Design** Tab.



Dragline Section 3D Preview

#### Engineering Multi-Mesh

Generating samples from the **Engineering Multi-Mesh**, which can be used for reserve calculations, now offers the option to include or exclude the bench. Additionally, the output now supports metadata by selecting the **Output to Multi-Mesh** Option.

Reserves	Setup
Setup	Reserves Sample Source
Intervals	Source Engineering Multi-Mesh ×
Geology	⊂ Schema
Classification	Name Model Type Y
Oualities	
Graphics	Quality Model
Reporting	Input Mesh
	Mesh Group
	Mesh File Reserve by Benches Output to Multi-Mesh
	Coutput
	Table File v

Reserve by Bench and Output to Multi-Mesh Option

This enhancement applies to sample generating Forms within the **Open Cut** and **Reconciliation** App.



Open Cut App

Reconciliation App

# Engineering Optimization

The **Pit Optimization** App has been enhanced in the following way:

#### Automatic Price per Iteration

The **Pit Optimization** Form now supports automatic calculation for price per iteration, eliminating the need for manual calculations outside the system. MineScape now handles the iteration calculation automatically, a process that was previously done manually by users outside MineScape.

Pit Optimization Input Block Model Rock Type  Mass Density Mining Cost Mining Dilution Factor Mining Recovery Factor Default Density Slope		Block Model Count	Price Facto Minimum Maximum Iteration Roundiny	n - n - s 1 g Factor 2 View	? <b>N</b> <sup>2</sup> C	
Ottiput Optimizer Result Mesh Group Attribute Process R Attribute Attribute	v     Prefix     Grade Representation Grade Ratio	Price Unit	Price Ratio	Reference Price	Price per Iter	ation
Mining Cost Adjustmen	nt Factor	v	THE PUBLIC	modeline rike	roc per iter	
Processing Cost Adjustr	ment Factor	v				

Pit Optimization Form

# Scheduling

The Tactical Scheduler App has been enhanced in the following ways:

#### New Mining Blocks App Added

The **Mining Blocks** App, previously called **Bench Blocks**, has been removed from the **Scheduler** Ribbon within the **Tactical Scheduler** App and turned into a standalone App.



Mining Blocks App Added as a Standalone App

#### Added Recalculate Sequence Buttons

For scheduling that uses the **Equipment Utilisation** method, a new **Recalculate Sequence** button has been added to the following forms in the **Schedule Setup** Tab:

- Utilisation & Availability
- Equipment Rates
- Truck Wait *Times*
- Truck Cycle Time
- Truck Load Factors
- Production Rates
- Schedule Hours

The **Recalculate Sequence** Button allows users to modify the schedule configurations without the need to delete the current sequence and repick the blocks.

#### New Clear Button in the Pivot Grid

A **Clear** Button has been added to the Pivot Grid that allows user to reset the pivot table and return the selected filter fields to their default positions.

#### New Pit Face Positions as a Reporting Method

Pit face positions can be generated in the form of boundary lines. This output provides X, Y, Z coordinates that are helpful for users to put markers in their pit based on the latest schedule progress. The outputs are a design layer containing boundary lines, contours, and mesh DTM reflecting the latest schedule progress.

Pit face positions can be generated by:

- Progress based on the current state of the animation
- Date based on the selected schedule date



Updated Contour



Updated Mesh DTM

## Drone Surveying

Several of the Classify Forms within the **Point Cloud** App have been updated in the following ways:

#### **Classify Ground**

The **Remove Near Non-Ground** and **Convergence** Fields have been removed from the **Classify Ground** Form. The current **Classify Ground** Form looks like the below:

H Classify Ground				?	<b>№</b> 🖵 – □ ×
Ground Classify Setting Reset Points Keep Non Ground I	s Points				
Input Resolution Multiplier Curvature	3	metres			
- Non-Ground Points -	[-				
Min Window Size	2	pixels	Min Delta Height	50	metres
Max Building Width	100	metres	Max Delta Height	1.5	metres
Expected Terrain Slo	pe 7.5	degrees			
<b>=</b> -		[	Ok	Apply	Cancel

Classify Ground Form

#### Classify Buildings and Vegetations

The Mahalonobis Distance Field has been changed to Maximum Standard Deviations Field to improve clarity. There has been an added Points Unit in the Minimum Cluster Size Field. The current Classify Buildings and Vegetations Form looks like the below:

H Classify Buildings and Vegetations		<b>}</b> ?	₽			×	
General Settings							
Reset Points Ignor	e NDVI						
Single Pass Best Fit Ignor	e NDWI						
Use Graph							
Maximum Standar Deviations							
Min Cluster Size		points					
Input							
Base Bin Size to Check for Planar Points	4		S	pacing	s	~	
Minimum Vegetation Distance	0.15		m	etres			
Maximum Co-Planar Distance	0.08		m	etres			
Minimum Height Above Ground	2		m	etres			
Maximum Co-Planar Angle Difference	5		de	egrees			
- Invalid Roof							
Min Angle 65 degrees							
Max Angle 78 degrees							
ok ⊡		Apply			Car	ncel	

Classify Buildings & Vegetations Form

#### **Classify Poles**

The Maximin X Distance Field has been changed to Maximum Horizontal Extent of Pole Field. The current Classify Poles Form looks like the below:

General Settings         Reset Points       Ignore NDVI         Single Pass Best Fit       Ignore NDWI         Input       0.1         Bin Size to Check for Planar or Linear Points       0.1         Classification Threshold for Pole       45         Minimum Points Per Pole       200         Minimum Height of Pole       4         Maximum Horizontal Extent of Pole       4         Image: Second Heighbor Distance       0.05         Iteration       0	Classify Poles			? 📢	2		×
Input         Bin Size to Check for Planar or Linear Points       0.1       metres         Classification Threshold for Pole       45       %         Minimum Points Per Pole       200       %         Minimum Height of Pole       4       metres         Maximum Horizontal Extent of Pole       4       metres         Image: Smoothing       Height Above Ground       Minimum 2         Neighbor Distance       0.05       metres         Maximum       80       metres	General Settings   Reset Points  Single Pass Best Fit  Ignore NE	DVI DWI					
✓ Ground Base         Smoothing         Neighbor Distance       0.05         Iteration       0	Input Bin Size to Check for Planar or Linear Points Classification Threshold for Pole Minimum Points Per Pole Minimum Height of Pole Maximum Horizontal Extent of Pole	0.1 45 200 4 4	metres % metres metres				
	✓ Ground Base       Smoothing       Neighbor Distance       0.05   Iteration	Height Minim Maxin	Above Groun	ıd r	netres		

Classify Poles Form

### Plot Designer

The **Plot Designer** App is now accessible from the App List. When users select the **Plot Designer** App, MineScape will open the **Plotting** Tab.



Plot Designer App and Plotting Tab