



3DEXPERIENCE®

MineSched 9.2 and Beyond

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GEOVIA R&D Application Manager

Perth GEOVIA User Conference

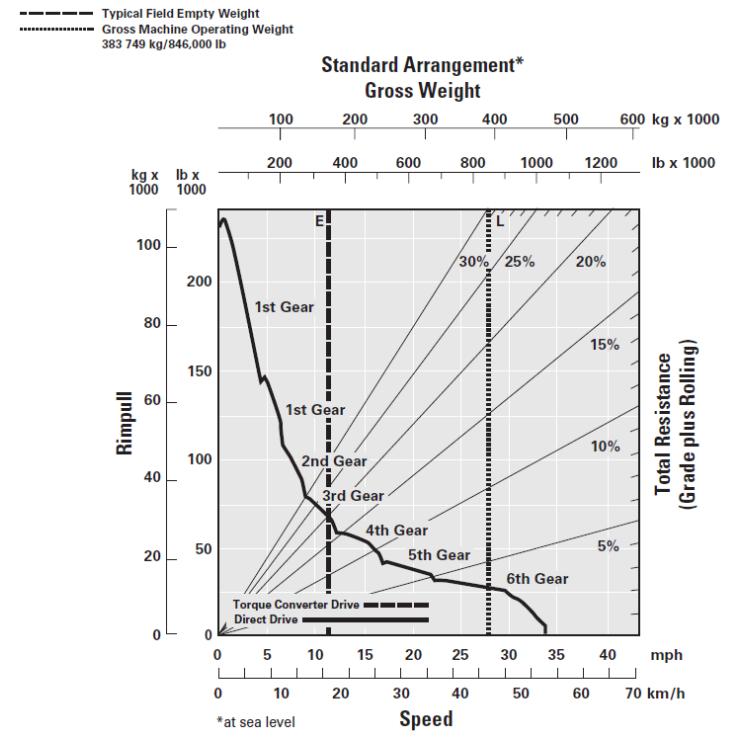
MineSched 9.2 Features

Feature demonstration

MineSched 2018 - 2019 release

MineSched 9.2 – Rimpull Implementation

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Key Inputs

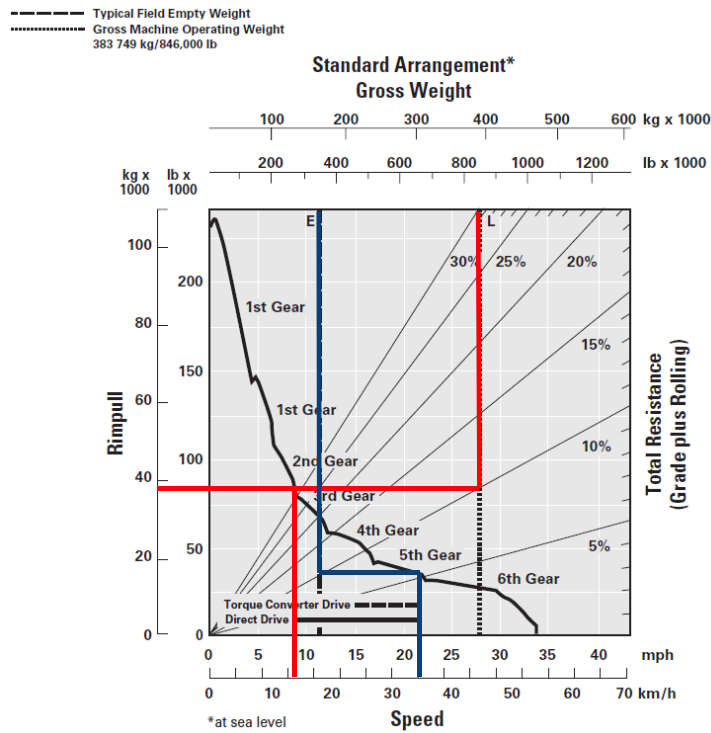
- Rimpull curves – positive roadway grades
- Retarding curves – negative roadway grades
- Rolling Resistance Factor – varies for different haul road surfaces

Effective Grade = road grade +/- 1% per 10 kg/t rolling resistance



* Image from BHP Newman Iron Ore Mine, Western Australia

MineSched 9.2 – Rimpull Implementation



Full Truck		
Effective Grade (%)	Speed (km/h)	Roadway Grade (%)
3	47	0
4	35	1
5	27	2
6	25	3
7	20	4
8	19	5
9	16	6
10	15	7
11	14	8
12	11	9
13	10	10

Empty Truck		
Effective Grade (%)	Speed (km/h)	Roadway Grade (%)
3	53	0
4	52	1
5	51	2
6	50	3
7	48	4
8	45	5
9	35	6
10	34	7
11	32	8
12	26	9
13	25	10

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13	25	10



Rimpull Retard

Rolling resistance factor (kg/t) 30.00

Full route Full weight 357.00

	Effective grade (%)	Velocity	Roadway grade (%)
> 1	3.00 %	47.00	0.00 %
2	4.00 %	35.00	1.00 %
3	5.00 %	27.00	2.00 %
4	6.00 %	25.00	3.00 %
5	7.00 %	20.00	4.00 %
6	8.00 %	19.00	5.00 %
7	9.00 %	16.00	6.00 %
8	10.00 %	15.00	7.00 %
9	11.00 %	13.00	8.00 %
10	12.00 %	13.00	9.00 %
11	13.00 %	12.00	10.00 %
12	14.00 %	10.00	11.00 %
13	15.00 %	9.00	12.00 %
14	16.00 %	8.00	13.00 %

Empty route Empty weight 180.00

	Effective grade (%)	Velocity	Roadway grade (%)
> 1	3.00 %	53.00	0.00 %
2	4.00 %	52.00	1.00 %
3	5.00 %	51.00	2.00 %
4	6.00 %	50.00	3.00 %
5	7.00 %	48.00	4.00 %
6	8.00 %	45.00	5.00 %
7	9.00 %	35.00	6.00 %
8	10.00 %	34.00	7.00 %
9	11.00 %	32.00	8.00 %
10	12.00 %	26.00	9.00 %
11	13.00 %	25.00	10.00 %
12	14.00 %	25.00	11.00 %
13	15.00 %	24.00	12.00 %
14	16.00 %	23.00	13.00 %

MineSched 9.2 – Rimpull Implementation

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Rimpull Retard Rolling resistance factor (kg/t) 30.00

Full route Full weight 357.00

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6	8.00 %	19.00	5.00 %	
7	9.00 %	16.00	6.00 %	
8	10.00 %	15.00	7.00 %	
9	11.00 %	13.00	8.00 %	
10	12.00 %	13.00	9.00 %	
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4	6.00 %	50.00	3.00 %	
5	7.00 %	48.00	4.00 %	
6	8.00 %	45.00	5.00 %	
7	9.00 %	35.00	6.00 %	
8	10.00 %	34.00	7.00 %	
9	11.00 %	32.00	8.00 %	
10	12.00 %	26.00	9.00 %	
11	13.00 %	25.00	10.00 %	
12	14.00 %	25.00	11.00 %	
13	15.00 %	24.00	12.00 %	
14	16.00 %	23.00	13.00 %	



Haulage routes Truck CAT789C In use Yes

Route name	Truck	In use
> 1 TO_DUMP	CAT789C	Yes
2 TO_LOW	CAT789C	Yes
3 TO_MED	CAT789C	Yes
4 TO_HIGH	CAT789C	Yes

Full path Bench collections

Haul roads Total length

Road name	Length	Total length
> 1 Pit_Ramp_1_1	527.67	527.67
2 Dump_Road-2_2_1	1,519.20	2,046.87

Velocities Velocity

Road name	Distance	Total dista...	Velocity
> 1 Pit_Ra...	0.00	0.00	25.00
2 Pit_Ramp...	60.01	60.01	25.00
3 Pit_Ramp...	120.03	120.03	25.00
4 Pit_Ramp...	180.04	180.04	25.00
5 Pit_Ramp...	240.05	240.05	25.00
6 Pit_Ramp...	302.01	302.01	25.00
7 Pit_Ramp...	332.51	332.51	25.00
8 Pit_Ramp...	363.00	363.00	25.00
9 Pit_Ramp...	423.01	423.01	25.00
10 Pit_Ramp...	484.48	484.48	25.00
11 Pit_Ramp...	527.67	527.67	25.00

Roads Bench collections Trucks Haulage routes

MineSched 9.2 – Global Speed Limit

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Haulage routes

Route name	Truck	In use
> 1 TO_DUMP	CAT789C	Yes
2 TO_LOW	CAT789C	Yes
3 TO_MED	CAT789C	Yes
4 TO_HIGH	CAT789C	Yes

Full path: Empty path | Bench collections

Haul roads

Road name	Length	Total length
> 1 Pit_Ramp_1_1	527.67	527.67
2 Dump_Road-2_2_1	1,519.20	2,046.87

Velocities

Road name	Distance	Total dista...	Velocity
> 1 Pit_Ra...	0.00	0.00	25.00
2 Pit_Ramp...	60.01	60.01	25.00
3 Pit_Ramp...	120.03	120.03	25.00
4 Pit_Ramp...	180.04	180.04	25.00
5 Pit_Ramp...	240.05	240.05	25.00
6 Pit_Ramp...	302.01	302.01	25.00
7 Pit_Ramp...	332.51	332.51	25.00
8 Pit_Ramp...	363.00	363.00	25.00
9 Pit_Ramp...	423.01	423.01	25.00
10 Pit_Ramp...	484.48	484.48	25.00
11 Pit_Ramp...	527.67	527.67	25.00

Roads | Bench collections | Trucks | Haulage routes

Haulage routes

Route name	Truck	In use
> 1 TO_DUMP	CAT789C	Yes

Assign Global Speed Limit

Set a global speed limit

Global haulage speed limit:

OK Cancel

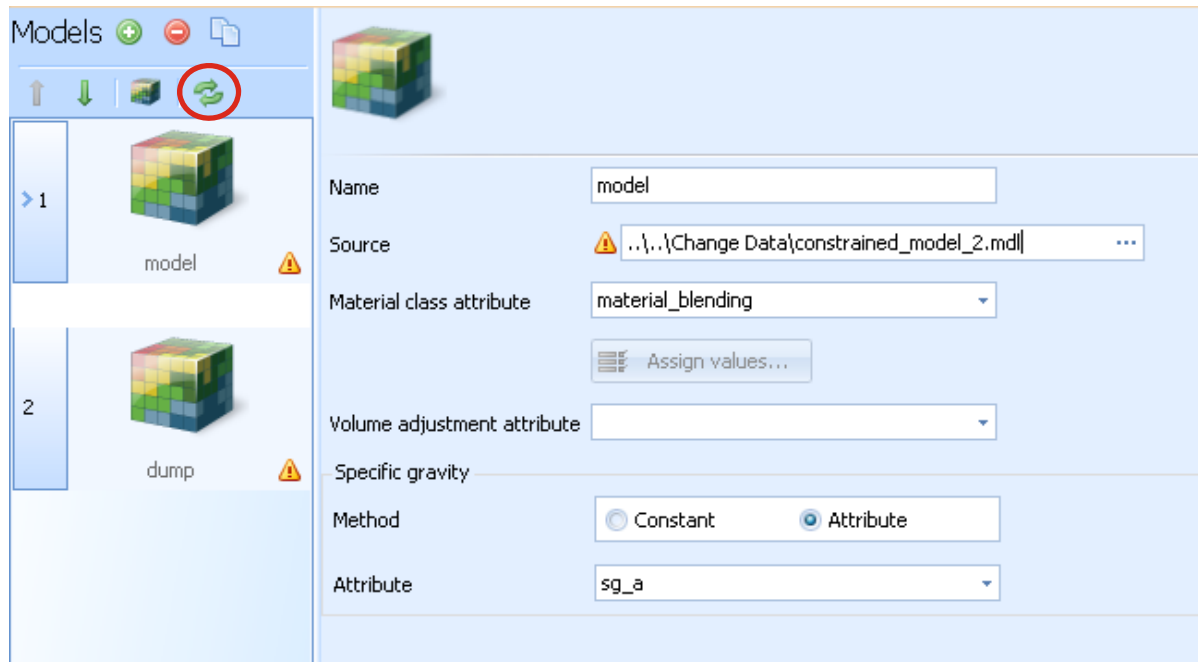
Haulage results

Drag a column header here to group by that column

Haul Name	Period	Source	Source Block	Source Group	Destination	Destination Block	Material
> 1 TO_DUMP	1	PIT	2	1	DUMP_WASTE	1	wast
	X	Y	Z	Velocity			
9	658,928.359	289,609.503	990.000	12.511			
10	658,928.359	289,779.423	985.000	11.404			
11	658,928.359	289,720.248	975.000	13.051			
12	658,928.359	289,659.595	965.000	11.345			
13	658,928.359	289,617.014	957.798	11.944			
14	658,928.359	289,567.014	949.416	45			
15	658,928.359	289,517.014	948.916	45			
16	658,928.998	289,509.048	948.836	45			
17	658,930.897	289,501.286	948.756	45			
18	658,934.009	289,493.925	948.676	45			
19	658,938.254	289,487.154	948.596	45			

MineSched 9.2 – Refresh Block Models

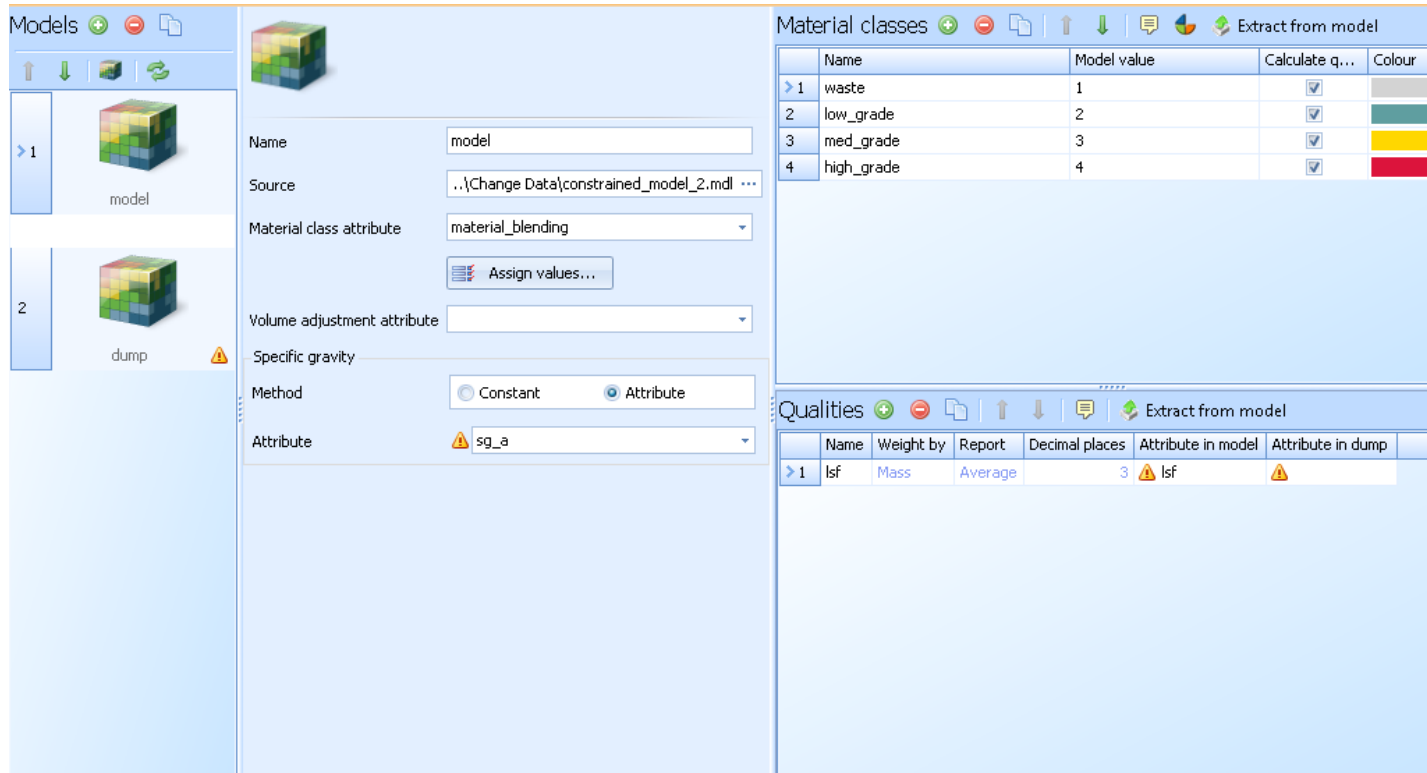
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The screenshot displays the 'Models' management interface in MineSched. On the left, a list of models is shown with a tree view. Model 1 is named 'model' and Model 2 is named 'dump'. Both models have a warning icon next to them. A red circle highlights the refresh icon (a circular arrow) in the toolbar above the list. On the right, the configuration details for the selected model are shown:

- Name:** model
- Source:** ..\..\Change Data\constrained_model_2.mdl
- Material class attribute:** material_blending
- Volume adjustment attribute:** (empty)
- Specific gravity:** (empty)
- Method:** Attribute (selected)
- Attribute:** sg_a

MineSched 9.2 – Refresh Block Models



The screenshot displays the MineSched 9.2 interface with the following components:

- Models Panel:** Shows a tree view with two models: 'model' (selected) and 'dump'.
- Model Properties:**
 - Name: model
 - Source: ..\Change Data\constrained_model_2.mdl ...
 - Material class attribute: material_blending
 - Assign values... button
 - Volume adjustment attribute: (empty)
 - Specific gravity: (empty)
 - Method: Constant Attribute
 - Attribute: sg_a
- Material classes Table:**

	Name	Model value	Calculate q...	Colour
> 1	waste	1	<input type="checkbox"/>	Grey
2	low_grade	2	<input checked="" type="checkbox"/>	Green
3	med_grade	3	<input checked="" type="checkbox"/>	Yellow
4	high_grade	4	<input checked="" type="checkbox"/>	Red
- Qualities Table:**

	Name	Weight by	Report	Decimal places	Attribute in model	Attribute in dump
> 1	lsf	Mass	Average	3	<input checked="" type="checkbox"/> lsf	<input checked="" type="checkbox"/>

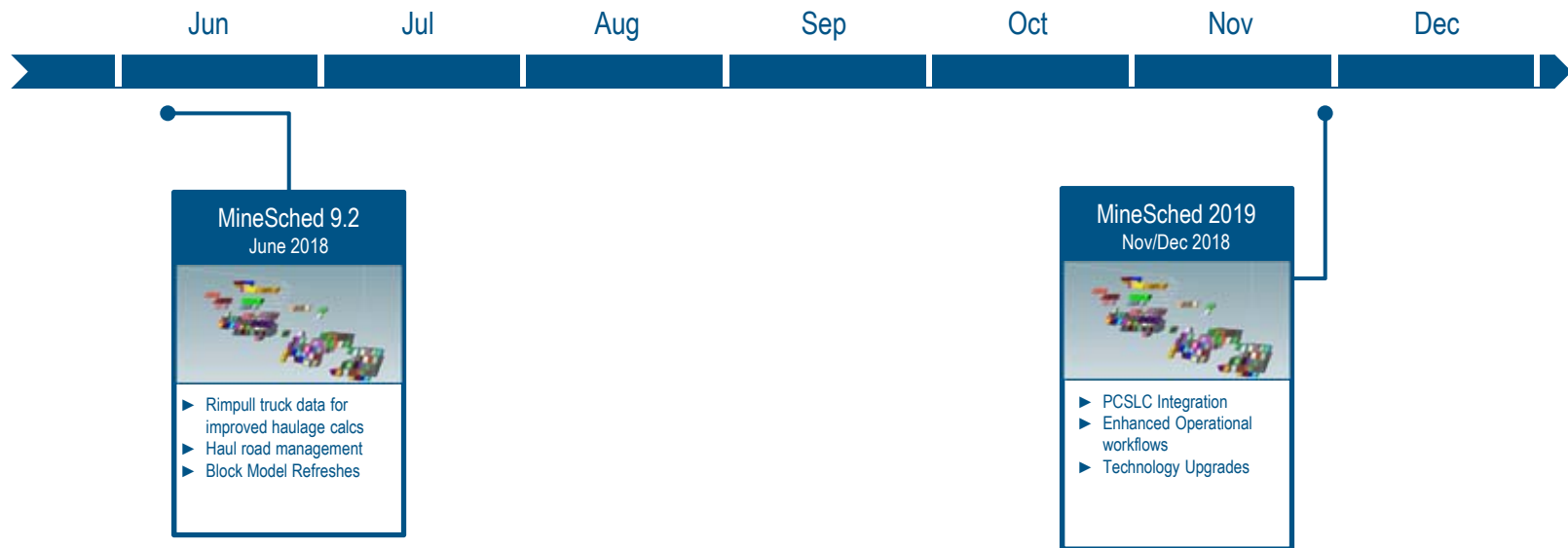
Perth GEOVIA User Conference

MineSched 9.2 Features

Feature demonstration

MineSched 2018 - 2019 release

2018 GEOVIA Plan



MineSched Releases in 2018 + 2019

Release Content

Integration of PCSLC with MineSched for Sub-level caving

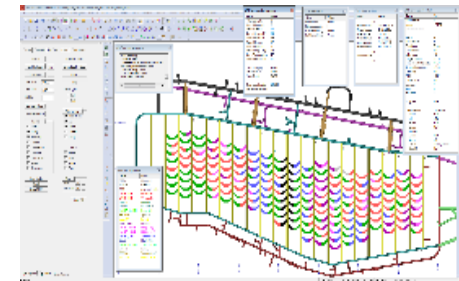
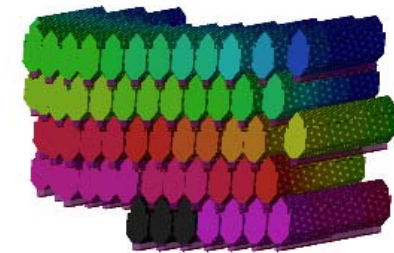
- Import a PCSLC production schedule into MineSched
- Connect with a development schedule to provide a holistic solution

Enhanced Operational Workflows

- Update the development and production activity start points prior to running a schedule
- Rapidly and efficiently rerun a tactical schedule

MineSched POWER'BY Enterprise Collaboration

- Connecting MineSched to the 3DEXPERIENCE platform via POWER'BY Enterprise Collaboration
- Link to ENOVIA Project Management tools
- EXALEAD Dashboards and data management



Questions?



