Open Mine Format

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Global Mining Standards and Guidelines Group
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Enabling data exchange between mine software to increase operational integration.
The Challenge: The mining industry needs a shared open format for 3D data, to allow users to easily move clean and accurate 3D information between applications.
“If you’re importing a model from one software to another and not double-checking that the variables are imported correctly, you could totally screw up pit operations.”
User Challenge: When Exports Don’t Go As Intended

“We had a watering area flag. Because of [the] export, the import was screwed up … So unless you were going through and double checking, and had the background to do that, could have been totally messed up.”
User Experience: Exported Model Not Valid or Contains Errors

Application A -> export -> Application B

valid model

invalid model
User Solution: Use Intermediary Software or Scripts

- **Application A**: Export valid model
  - Pay for export license

- **Application B**: Use 3rd party "cleaning" application or Write import scripts
  - Additional cost
  - Additional time

- **Valid model**
Shift the paradigm
Open Mining format: universal access to mining data

At a site like this...

...you may have:
- Contact surface
- Borehole assays
- Block model
- Access roads
- Topography
- Lidar survey
- Ore body
- Mining bench
...
# How do we support all 3D mining objects?

## Thinking at a lower level:

<table>
<thead>
<tr>
<th>Object</th>
<th>Geometry</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact surface</td>
<td>PointSet</td>
<td>Scalar Data</td>
</tr>
<tr>
<td>Borehole assays</td>
<td>LineSet</td>
<td>Vector Data</td>
</tr>
<tr>
<td>Block model</td>
<td>Surface</td>
<td>Date/Time Data</td>
</tr>
<tr>
<td>Access roads</td>
<td>Volume</td>
<td>Colors</td>
</tr>
<tr>
<td>Topography</td>
<td></td>
<td>Images</td>
</tr>
<tr>
<td>Lidar survey</td>
<td></td>
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<tr>
<td>Ore body</td>
<td></td>
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<tr>
<td>Mining bench</td>
<td></td>
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<tr>
<td>...</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How do we support all 3D mining objects?

Thinking at a lower level:

Ore Body = Volume + Data

(Ore Body: Grade, Geochemistry)
How do we support all 3D mining objects?

Thinking at a lower level:

Geophysics Survey = Surface + Scalar Data
In the wild: Leapfrog and Deswik

Leapfrog Geo

Generate geomodel

Move models easily in both directions

Deswik

Generate scheduling blocks
How do we support all 3D mining objects?

This is now the state of OMF v1.0:

**OMF:**
- Contact surface: POSSIBLE
- Borehole assays: POSSIBLE
- Block model: POSSIBLE
- Access roads: POSSIBLE
- Topography: POSSIBLE
- Lidar survey: POSSIBLE
- Ore body: POSSIBLE
- Mining bench: POSSIBLE
  ...

**OMF:**
- Surface + Data: SUPPORTED
- LineSet + Data: SUPPORTED
- Volume + Data: SUPPORTED
- LineSet + Data: SUPPORTED
- Surface + Data: SUPPORTED
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  ...

...
So where are things?

- We have focused on the foundation, not objects
- It demonstrates that a solution is possible and actually not that hard
- V1.0 is as much about changing mindsets as it is about a technical solution
What's next?

1. End users need to drive (e.g. $$, mandate to vendors, use-cases)
2. We need to explore development of V2.0 and/or adoption of other standards
3. We need to get permanent management of this solution (Technical, project management).
Questions