3D Tiles Update
3DP SWG

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Streaming massive heterogeneous 3D geospatial datasets

• Candidate OGC Community Standard
• Passed OAB vote on Monday
• Public Comment Period starting soon
  • Please participate!
Massive heterogeneous 3D datasets with **semantics**

**3D Tiles** =

Spatial data structures ++ gITF ++ Styling ++ Metadata

```json
{
  "show": "$\{\text{Area} \rangle 0\}$,
  "color": {
    "$\{\text{Height} \rangle 60\}$: "color\('\#13293D'\)",
    "$\{\text{Height} \rangle 120\}$: "color\('\#1B98E0'\)",
    "true": "color\('\#E8F1F2', 0.5'\)"
  }
}
```

github.com/AnalyticalGraphicsInc/3d-tiles

**OGC**

Making location count.

Proposed Community Standard

[OGC Logo]

[GitHub Link]

github.com/AnalyticalGraphicsInc/3d-tiles
Exporters & converters & tools

- Cesium ion (multiple)
- Vricon
- Hexagon/Luciad
- MicroStation
- ContextCapture
- PhotoScan
- PhotoMesh
- Safe FME (multiple)
- osm-cesium-3d-tiles
- virtualcitySYSTEMS
- Fraunhofer (multiple)
- GeoRocket
- GameSim Conform
- geopipe
- Peaxy
- Point Cloud Technology
- VirtualGIS
- lfc2b3dm
- citygml-to-3dtiles
- osgb/shapefile/fbx -> 3dtiles
- Py3dtiles & lopocs
- objTo3d-tiles
- cesium_pnt_generator
- Entwine
- Veesus Arena4D
- CISRO Data61
- 3D Digital Territory Lab
- Çeşme 3D City Model
- Testbed13 CDB experiment
- 3D Tiles Tools

Visualization engines

- CesiumJS
- Bentley MicroStation
- Hexagon/Luciad
- iTowns 2
- OSGJS
- GNOSIS (WIP, Testbed 13)
- Unity (WIP, multiple)
- three.js (WIP)
- Blender (WIP)
Trimble Point Clouds

- 6.4 billion points
- 72 scans with Trimble TX8 scanner
- Tiled in 72 minutes

https://cesium.com/blog/2018/02/05/historic-pharsalia-cabin-point-cloud/
Data fusion: terrain, imagery, point clouds, and SketchUp models
Point Clouds for Autonomous Driving

youtube.com/watch?v=VGKAI7PzXgw
3D Tiles Dublin Point Cloud

Just 1.3% of the 3D tileset!
Time-Dynamic Point Clouds

- Streaming millions of points per second from autonomous vehicle LIDAR
- Time-dynamic 3DPS?
3D Tiles Roadmap - Post 1.0

**In progress**

- Draco mesh & point cloud compression
- Single file .3dtiles
- Geometry & vector tile formats
- Time-dynamic 3D Tiles

**Upcoming**

- Implicit tiling schemes
- 3D analytics-enabled styling language

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The Cesium team rocks!

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