THE FOUNDATION OF INTELLIGENCE
3D Tiles Next:
Data Performance for the Future of 3D Geospatial

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3D Tiles Next

- 3D Tiles: An Open Geospatial Consortium (OGC) community standard for efficiently streaming and rendering the massive 3D geospatial datasets today’s sensors are producing

- 3D Tiles Next: Result of Cesium-led collaboration across the community, government and industry to evolve the 3D Tiles standard to support game-like interactivity over massive 3D geospatial datasets

- Foundational datasets built on 3D Tiles Next, like US Army One World Terrain, can be used for advanced visualization and analysis
Building simulations that scale

- To build large simulations, the spatial organization of data is critical for performance.
- To facilitate optimal subdivisions for large, diverse datasets, 3D Tiles Next provides a flexible ‘implicit tiling’ scheme that avoids the need to explicitly define the relationship of parent and child tiles.

<table>
<thead>
<tr>
<th></th>
<th>3D Tiles tileset.json</th>
<th>Implicit Tiling (tilesset.json + tile availability bitstreams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncompressed</td>
<td>7684 KB</td>
<td>96 KB</td>
</tr>
<tr>
<td>GZIP compressed</td>
<td>392 KB</td>
<td>4 KB</td>
</tr>
</tbody>
</table>
Metadata for game-like interactivity

- Accessibility of metadata elevates geospatial data from a visualization to an interactive representation of the world that can be used for simulations and analysis
  - For each geographical or cultural feature, informational properties can be added to provide meaning to the data
  - Users can click on a building to see relevant information and click the terrain to see the material classification

Leveraging glTF for performance

- **glTF**: a 3D model format optimized for streaming and rendering
  - **Minimizes the size of 3D models** and the runtime processing needed to render them on the GPU
  - **Streamlines authoring workflows** and interactive services by enabling the interoperable use of 3D content across the industry
- **3D Tiles Next** streamlines the connection between 3D Tiles and glTF, providing extensions for compression to reduce file size, memory usage, and load times

<table>
<thead>
<tr>
<th>Compression Type</th>
<th>Desktop Time</th>
<th>Mobile Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>No compression</td>
<td>403 ms</td>
<td>643.46 ms</td>
</tr>
<tr>
<td>KTX2 only</td>
<td>279.16 ms</td>
<td>502.86 ms</td>
</tr>
<tr>
<td>Meshopt only</td>
<td>159.16 ms</td>
<td>234.16 ms</td>
</tr>
<tr>
<td>KTX2 + Meshopt</td>
<td>133.40 ms</td>
<td>154.33 ms</td>
</tr>
</tbody>
</table>
Get started now

GEOINT 2022 attendees who are writing their own pipelines or runtime engines can get started right away with specs and sample data at https://github.com/CesiumGS/3d-tiles-samples
Thank you

• Come see us at Booth 1011

• Use this QR for more live demos, videos and documents on 3D Tiles

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