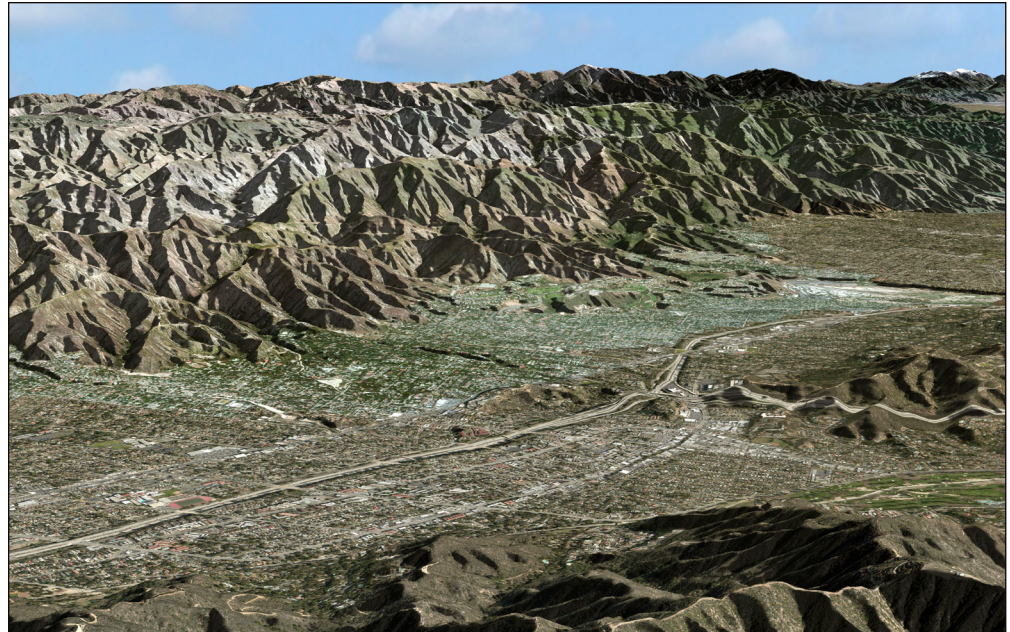


Terrain Server provides off-the-shelf processing and hosting of terrain data for use within STK or Cesium-based applications.

Choose the best option for your company:

- **AGI publicly hosted STK World Terrain.**
A complete set of premium data is available to use in accordance with our terms of use.
- **Privately hosted world terrain.**
Process and curate your own world terrain data for hosting in an offline or disconnected environment.



Highlights

- Mosaicking varied terrain data sources into a global unified tileset
- Its own Web server for hosting processed terrain
- Designed to run on commodity hardware
- Uses open standards and avoids vendor lock-in by leveraging the open terrain runtime format, Quantized Mesh format

Terrain Processing

- Level of detail pyramid is simplified within a known geometric error tolerance.
- Client applications can precisely request terrain tiles where the difference in mesh geometry from the source data is not visually discernable.
- **Adaptive level of detail.** At the root zoom level, meshes are simplified until roughly 150 km in error from original source data. This error is cut in half for each subsequent tile level in the pyramid. *(The allowable error between mesh and source data is ~150km for the root zoom level, however at this distance from the globe, there is no discernable difference, with far less geometry.)*
- Through use of an irregular mesh for terrain geometry, merging datasources of different resolutions does not require all geometry to be upsampled to the maximum resolution.

Obtaining raw terrain data

You can import raw terrain data in any raster format supported by the Geospatial Data Abstraction Library (GDAL), and in most map projections.

Quantized Mesh format

- Provides optimal performance and accuracy for massive terrain streaming over the internet or server-based implementation.
- Fast, accurate processing of custom terrain from virtually any raster elevation format to Quantized Mesh.
- Heights are quantized between minimum and maximum values in a tile, for a more compact representation while maintaining accurate elevations in a tile.
- Watermask and terrain lighting add visual realism and are treated as extensions, allowing for ala carte selection of features and therefore more compact tile requests.

Simplified processing workflow

An administrative interface allows the user to define and add data. The Terrain Server combines one or more datasources together in the user-defined order and processes them to create a tileset that is ready for fast, accurate 3D visualization.

Terrain Hosting

Terrain tilesets are processed into a standalone database file, terraindb, for efficient storage on the server.

- By embedding tiles within a database over direct storage to the filesystem, we remove the overhead of file system cluster sizes (4KB) for the small tiles.
- Single files are optimal for managing file transfers between hosting nodes.
- Terraindb's are designed for processing on dedicated CPU intensive hardware, yet easily imported onto light weight hosting nodes.

Server Public REST API

REST web service API. Used by the Terrain Server for discovering Terrain tilesets available on the server and requesting individual tiles from a given tileset. You can use the REST API to stream terrain tiles to your application.

Public REST API. Sits behind a URL versioning scheme, with v1 being the current API version. If breaking changes are introduced into the REST API, a new API version is introduced to ensure that applications developed against earlier versions of the API will continue to operate as designed.

Public API

/v1/tilesets

/v1/tilesets/{tileset_name}/tiles/layer.json

/v1/tilesets/{tileset_name}/tiles

{z}/{x}/{y}.terrain?v={version}

Curated data products

Terrain Server comes with GTOPO30 1km resolution terrain data. The following higher resolution data sets are available:

SRTM data set (100 GB)

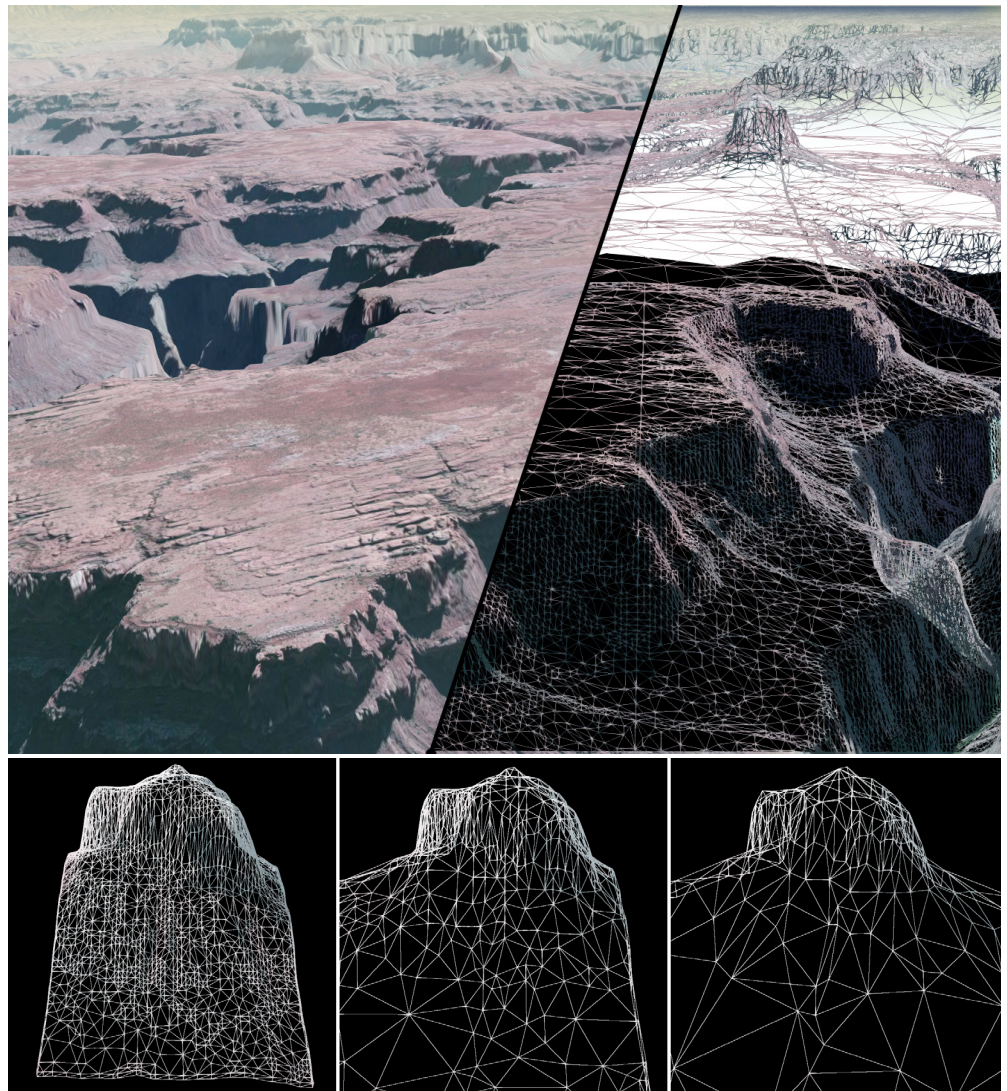
- Smaller tileset with global coverage.
- Useful for higher altitude visualizations.

Source	Coverage	Resolution
GTOPO30	Entire Earth	1000 meters
CGIAR SRTM	60N -60S	90 meters
National Elevation Dataset (NED)	United States	30 meters

STK World Terrain data set (650 GB)

- High resolution tileset
- Useful for visualizations all the way down to near Earth surface.

Source	Coverage	Resolution
GTOPO30	Entire Earth	1000 meters
CGIAR SRTM	60N -60S	90 meters
National Elevation Dataset (NED)	United States	10 to 30 meters
USGS SRTM 1 arc sec	60N - 60S	30 meters
EU-DEM	Europe	30 meters



Terrain features are preserved within a known geometric error tolerance for each zoom level in a tileset.