GIS Terrain Loader Pro

THE ULTIMATE SOLUTION TO IMPORT GEOGRAPHIC DATA INTO UNITY ENGIN

DOCUMENTATION V1.0

Description

GIS Terrain Loader Pro is a Runtime-Editor plugin that gives you the ability to import geographic data directly into Unity Engine, it's designed to load not only Real World Terrains data but also any supported customized terrain data exported from any GIS applications or external terrain generators (GlobalMapper, QGIS ,WorldMachin, ArcGIS ,SAS.Planet..etc).

GIS Terrain Loader Pro create terrains based on loading (Raster-Vector-DEM) data which makes importing and modifying large quantities of data fast and easy.

KEY BENEFITS:

- Create a real world terrain in unity engine fast.
- Load or parse gis data and perform complex tasks.
- Manipulate gis data in serious games or any research project, easley.
- Generate an accurate terrain up to 1m/pixel based on the introduced dem/lidar data.
- Ability to use any custom projections for an accurate geo-referencing operation.
- Generate and Edit a Geo-Referenced terrain in edit mode and get access to his data at runtime.
- Texture Unity terrain by any kind of raster data.
- Edit and export dem's and vector data to files.
- Create roads, buildings, trees, grass, and custom geopoints based on the vector data introduced.

Technical details

Supported Render Pipelines: Standard RP, URP, HDRP.

Supported Platforms: Windows, Mac, Linux, Android, IOS, WebGL.

- ➢ Supported Dataset:

. DEM Data:

- *.Tiff : DEM 64Bit, 32Bit, 16Bit ((Tiled + Not Tiled),(Compressed + Not Compressed));
- Multi-Bands 8Bit, 32Bit ((Tiled + Not Tiled),(Compressed + Not Compressed));
- GrayScale Raster as DEM Model;
- *.Asc : Arc ASCII Grid format;
- *.Hgt : Shuttle Radar Topography Mission (SRTM) Data;
- *.Flt : Floating Point Raster File;
- *.Bil : Band Interleaved by Line (BIL) Image File;
- *.Bin : Binary Float point;
- *.Las : Lidar Point Cloud Format ;
- *.Ter : Terragen File;
- *.Raw : Unity Heightmap data;
- *.Png Grayscale : Grayscale Pixel File;
- .Ablity add custom DEM's data.

Raster Data :

- *.GeoTiff : Raster GeoTiff Files
- *.jpg : Digital Image Compression
- *.Png : Short for Portable Network Graphic

Vector Data :

- *.Osm : OpenStreetMap Information ,
- *.Shp : ESRI Geometry data,
- *.GPX : GPS Exchange Format",

- *.KML: Keyhole Markup Language
- *.Geo-Json: Geographical Vector GeoJSON features

➢ Supported Dataset for Other Platforms (WebGL, IOS, Android) :

- DEM : *.Tiff, *.Png
- Raster: Full Support
- Vector : *.Osm, *.Shp
- Support for other files is available upon request

➢ Terrain Generation

- Generate accurate Unity terrains from DEM's Data (up to 1m/pixel);
- Create multiple, seamless, terrain tiling.
- Split a terrain to tiles manually or automatically depending to the number of raster tiles existing in the texture folder;
- Generate terrains from non Geo-Refeneced DEM's (Like moon surface);
- Fix terrain holes and deformation;
- Generate terrain Baseboards;
- Ability to Load Underwater (Negative) heightmaps;
- Scale terrain to real world dimensions (from Geo-Refenced data);
- Generate a flexible terrain by setting the dimensions manually;
- No more scaling problem, you can set your vector scale and make your terrain as large/small as you want;
- Setting Terrain parameters (Heightmap resolution, detail resolution …) is easy and fast directly from "Terrain preferences" GUI Tab or From GISTerrainLoaderPrefs.cs script;
- Full access to the Geo-Data of any generated terrain in Edit mode.
- Serialize the heightmap to get/set data in edit/play mode without having to read the source DEM file.
- Generate high quality Unity terrains from LIDAR Point Cloud (*.Las) files.

➢ Terrain Texturing && Shading

- Texture terrains with any custom raster data (Imagery, Topographic, Terrain ... etc).
- Texture terrains based on “Splat mapping” which will apply textures depending on customizable height/Slope;
- Ability to add shaded textures to terrains (Color Ramp, Elevation GrayScale, Slop ..);
- Generate terrains withour any texture.
- Generate terrains with a custom color;
- Ability to customize terrain material;
- Add topographic real shaders depending on terrain height/Slope (Color Ramp, Color Ramp with contour lines, Elevation GrayScale ....).

➢ Terrain Smoothing

- Smooth terrains with unwanted jaggies, terraces, banding and non-smoothed terrain heights and surfaces;

➢ Vector Generator

- GTL Is also able to generate 3D trees, buildings, grass and roads based on vector data;
- Generate buildings from complexed vector shapes.
- Vector data can be read without any reprojection operation.
- Ability to customize vector 'id', building parameters ('levels number, height ..) and many vector parameters.
- Read and parse vectordata and extract any needed information with easy and simple API.
- Abitilty to add database to the gameobjects generated in edit/play mode.
- Road Generator support (LineRender,EasyRoad3D and UnityRoadCreatorPro).

➢ Export Data

- Edit and export generated terrains to DEM's (GeoTiff, PNG/JPG GrayScale, Raw).
- Edit and export objects to VectorData (only ShapeFile).

➢ General Parameters and features

- Ability to customize folders names (_Textures, _VectorData);
- Ability to customize and use any format for texture tiles.
- Ability to adapt GTL to load custom dataset.
- Update Raster + Vector Data in edit/Play mode without using the generator.
- Improved Terrain Metadata (More details about projection ..etc).
- Ability to load data from StreamingAsset folder or from any location in the hard drive
- Get/Set coordinates is now easy with very easy API.
- Get elevation [m] of any object/position (according to the sea level, Altitude-Elevation or Height).
- Runtime demo scene with new customized UI Interface.

➢ Supported Dataset from Platforms:

- DEM : *.Tiff, *.Png
- Raster: Full Support
- Vector : *.Osm, *.Shp
- Support for other files is available upon request

➢ *** SUPPORT ***

- Full source code included;
- 14 demo scene included;
- Compatible with Unity's terrain system;
- Easy to use with video tutorials;
- Documentation Still under writing;
- Active support through emails and forum posts or Discord Channel;

- Email : GISTech2008@gmail.com
- Discord : Discrod Channel
- Youtube : Youtube Chanel
- Asset Store Page : Unity Asset Store
- Official Page : Main Page

➢ API Compatibility Level to .NET 4.x

- Tested with unity 2020,2021,2022,2023;
- This asset uses Third-Party :
- Pdal under Simverge Software LLC License (MIT) (Only For Las File Using);
- LibTiff.Net under License (MIT);
- See Third-Party Notices.txt file in package for details.
- Runtime File Browser : is a free asset used only for Runtime Demo Scene (to remove safely)