
Simple TMX Library Documentation

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This library reads and writes the Tiled TMX format in a simple way. This is useful for map editors or generic level editors, and it's also useful for using a map editor or generic level editor like Tiled to edit your game's levels.

To load a TMX file, use `tmx.TileMap.load()`. You can then read the attributes of the returned `tmx.TileMap` object, modify the attributes to your liking, and save your changes with `tmx.TileMap.save()`. That's it! Simple, isn't it?

At the request of the developer of Tiled, this documentation does not explain in detail what each attribute means. For that, please see the TMX format specification, found here:

<http://doc.mapeditor.org/en/latest/reference/tmx-map-format/>

TMX.TILEMAP

class `tmx.TileMap`

This class loads, stores, and saves TMX files.

version

The TMX format version.

orientation

Map orientation. Can be “orthogonal”, “isometric”, “staggered”, or “hexagonal”.

renderorder

The order in which tiles are rendered. Can be "right-down", "right-up", "left-down", or "left-up". Default is "right-down".

width

The width of the map in tiles.

height

The height of the map in tiles.

tilewidth

The width of a tile.

tileheight

The height of a tile.

staggeraxis

Determines which axis is staggered. Can be “x” or “y”. Set to `None` to not set it. Only meaningful for staggered and hexagonal maps.

staggerindex

Determines what indexes along the staggered axis are shifted. Can be “even” or “odd”. Set to `None` to not set it. Only meaningful for staggered and hexagonal maps.

hexsidelength

Side length of the hexagon in hexagonal tiles. Set to `None` to not set it. Only meaningful for hexagonal maps.

backgroundcolor

A `Color` object indicating the background color of the map, or `None` if no background color is defined.

nextobjectid

The next available ID for new objects. Set to `None` to not set it.

properties

A list of `Property` objects indicating the map’s properties.

tilesets

A list of `Tileset` objects indicating the map’s tilesets.

layers

A list of *Layer*, *ObjectGroup*, *GroupLayer*, and *ImageLayer* objects indicating the map's tile layers, object groups, group layers, and image layers, respectively. Those that appear in this list first are rendered first (i.e. furthest in the back).

layers_list

layers, but with all *GroupLayer* objects replaced recursively with their respective layer lists. Use this to ignore the layer hierarchy and treat it as a simple list of layers instead.

(Read-only)

classmethod `TileMap.load(fname)`

Load the TMX file with the indicated name and return a *TileMap* object representing it.

`TileMap.save(fname, data_encoding='base64', data_compression=True)`

Save the object to the file with the indicated name.

Arguments:

- `data_encoding` – The encoding to use for layers. Can be "base64" or "csv". Set to None for the default encoding (currently "base64").
- `data_compression` – Whether or not compression should be used on layers if possible (currently only possible for base64-encoded data).

OTHER CLASSES

```
class tmx.Color (hex_string='000000')
```

red

The red component of the color as an integer, where 0 indicates no red intensity and 255 indicates full red intensity.

green

The green component of the color as an integer, where 0 indicates no green intensity and 255 indicates full green intensity.

blue

The blue component of the color as an integer, where 0 indicates no blue intensity and 255 indicates full blue intensity.

alpha

The alpha transparency of the color as an integer, where 0 indicates full transparency and 255 indicates full opacity.

hex_string

The hex string representation of the color used by the TMX file. The format of the string is either "#RRGGBB" or "#AARRGGBB". The hash at the beginning is optional.

```
class tmx.Image (format=None, source=None, trans=None, width=None, height=None, data=None)
```

format

Indicates the format of image data if embedded. Should be an extension like "png", "gif", "jpg", or "bmp". Set to None to not specify the format.

source

The location of the image file referenced. If set to None, the image data is embedded.

trans

A `Color` object indicating the transparent color of the image, or None if no color is treated as transparent.

width

The width of the image in pixels; used for tile index correction when the image changes. If set to None, the image width is not explicitly specified.

height

The height of the image in pixels; used for tile index correction when the image changes. If set to None, the image height is not explicitly specified.

data

The image data if embedded, or None if an external image is referenced.

```
class tmx.Text (text='', fontfamily='sans-serif', pixelsize=16, wrap=False, color=#000000, bold=False, italic=False, underline=False, strikethrough=False, kerning=True, halign='left', valign='top')
```

text

The text displayed.

fontfamily

The font family used.

pixelsize

The size of the font in pixels.

wrap

Whether or not word wrapping is enabled.

color

A *Color* object indicating the color of the text.

bold

Whether or not the font is bold.

italic

Whether or not the font is italic.

underline

Whether or not a line should be drawn below the text.

strikethrough

Whether or not a line should be drawn through the text.

kerning

Whether or not kerning should be used.

halign

Horizontal alignment of the text within the object ("left", "center", or "right").

valign

Vertical alignment of the text within the object ("top", "center", or "bottom").

```
class tmx.ImageLayer (name, offsetx, offsety, opacity=1, visible=True, properties=None, image=None)
```

name

The name of the image layer.

offsetx

The x position of the image layer in pixels.

offsety

The y position of the image layer in pixels.

opacity

The opacity of the image layer as a value from 0 to 1.

visible

Whether or not the image layer is visible.

properties

A list of *Property* objects indicating the properties of the image layer.

image

An *Image* object indicating the image of the image layer.

class `tmx.Layer` (*name*, *opacity*=1, *visible*=True, *offsetx*=0, *offsety*=0, *properties*=None, *tiles*=None)

name

The name of the layer.

opacity

The opacity of the layer as a value from 0 to 1.

visible

Whether or not the layer is visible.

offsetx

Rendering offset for this layer in pixels.

offsety

Rendering offset for this layer in pixels.

properties

A list of *Property* objects indicating the properties of the layer.

tiles

A list of *LayerTile* objects indicating the tiles of the layer.

The coordinates of each tile is determined by the tile's index within this list. Exactly how the tiles are positioned is determined by the map orientation.

class `tmx.LayerTile` (*gid*, *hflip*=False, *vflip*=False, *dflip*=False)

gid

The global ID of the tile. A value of 0 indicates no tile at this position.

hflip

Whether or not the tile is flipped horizontally.

vflip

Whether or not the tile is flipped vertically.

dflip

Whether or not the tile is flipped diagonally (X and Y axis swapped).

class `tmx.Object` (*name*, *type_*, *x*, *y*, *width*=0, *height*=0, *rotation*=0, *gid*=None, *visible*=True, *properties*=None, *ellipse*=False, *polygon*=None, *polyline*=None, *id_*=None, *text*=None)

id

Unique ID of the object as a string if set, or None otherwise.

name

The name of the object. An arbitrary string.

type

The type of the object. An arbitrary string.

x

The x coordinate of the object in pixels. This is the left edge of the object in orthogonal orientation, and the center of the object otherwise.

y

The y coordinate of the object in pixels. This is the bottom edge of the object.

width

The width of the object in pixels.

height

The height of the object in pixels.

rotation

The rotation of the object in degrees clockwise.

gid

The tile to use as the object's image. Set to `None` for no reference to a tile.

visible

Whether or not the object is visible.

properties

A list of *Property* objects indicating the object's properties.

ellipse

Whether or not the object should be an ellipse.

polygon

A list of coordinate pair tuples relative to the object's position indicating the points of the object's representation as a polygon. Set to `None` to not represent the object as a polygon.

polyline

A list of coordinate pair tuples relative to the object's position indicating the points of the object's representation as a polyline. Set to `None` to not represent the object as a polyline.

text

A *Text* object indicating the object's representation as text. Set to `None` to not represent the object as text.

```
class tmx.ObjectGroup(name, color=None, opacity=1, visible=True, offsetx=0, offsety=0, draworder=None, properties=None, objects=None)
```

name

The name of the object group.

color

A *Color* object indicating the color used to display the objects in this group. Set to `None` for no color definition.

opacity

The opacity of the object group as a value from 0 to 1.

visible

Whether or not the object group is visible.

offsetx

Rendering offset for this layer in pixels.

offsety

Rendering offset for this layer in pixels.

draworder

Can be "topdown" or "index". Set to `None` to not define this.

properties

A list of *Property* objects indicating the object group's properties

objects:

A list of *Object* objects indicating the object group's objects.

```
class tmx.GroupLayer(name, offsetx=0, offsety=0, opacity=1, visible=True, properties=None, layers=None)
```

name

The name of the group layer.

offsetx

Rendering offset for the group layer in pixels.

offsety

Rendering offset for the group layer in pixels.

opacity

The opacity of the group layer as a value from 0 to 1.

visible

Whether or not the group layer is visible.

properties

A list of *Property* objects indicating the group layer's properties.

layers

A list of *Layer*, *ObjectGroup*, *GroupLayer*, and *ImageLayer* objects indicating the map's tile layers, object groups, group layers, and image layers, respectively. Those that appear in this list first are rendered first (i.e. furthest in the back).

class `tmx.Property` (*name*, *value*)

name

The name of the property.

value

The value of the property.

The following types are specially recognized by the TMX format and preserved when saving:

- Integers
- Floats
- Booleans
- Color* objects
- `pathlib.PurePath` objects

Any other type is implicitly converted to and stored as a string when the TMX file is saved.

class `tmx.TerrainType` (*name*, *tile*, *properties=None*)

name

The name of the terrain type.

tile

The local tile ID of the tile that represents the terrain visually.

properties

A list of *Property* objects indicating the terrain type's properties.

class `tmx.Tile` (*id_*, *terrain=None*, *probability=None*, *properties=None*, *image=None*, *animation=None*, *type_=None*)

id

The local tile ID within its tileset.

type

The type of the tile. An arbitrary string. Set to `None` to not define a type.

terrain

Defines the terrain type of each corner of the tile, given as comma-separated indexes in the list of terrain types in the order top-left, top-right, bottom-left, bottom-right. Leaving out a value means that corner has no terrain. Set to `None` for no terrain.

probability

A percentage indicating the probability that this tile is chosen when it competes with others while editing with the terrain tool. Set to `None` to not define this.

properties

A list of *Property* objects indicating the tile's properties.

image

An *Image* object indicating the tile's image. Set to `None` for no image.

animation

A list of *Frame* objects indicating this tile's animation. Set to `None` for no animation.

class `tmx.Tileset` (*firstgid*, *name*, *tilewidth*, *tileheight*, *source=None*, *spacing=0*, *margin=0*, *xoffset=0*, *yoffset=0*, *tilecount=None*, *columns=None*, *properties=None*, *image=None*, *terrain-types=None*, *tiles=None*)

firstgid

The first global tile ID of this tileset (this global ID maps to the first tile in this tileset).

name

The name of this tileset.

tilewidth

The (maximum) width of the tiles in this tileset.

tileheight

The (maximum) height of the tiles in this tileset.

source

The external TSX (Tile Set XML) file to store this tileset in. If set to `None`, this tileset is stored in the TMX file.

spacing

The spacing in pixels between the tiles in this tileset (applies to the tileset image).

margin

The margin around the tiles in this tileset (applies to the tileset image).

xoffset

The horizontal offset of the tileset in pixels (positive is right).

yoffset

The vertical offset of the tileset in pixels (positive is down).

tilecount

The number of tiles in this tileset. Set to `None` to not specify this.

columns

The number of tile columns in the tileset. Set to `None` to not specify this.

properties

A list of *Property* objects indicating the tileset's properties.

image

An *Image* object indicating the tileset's image. Set to `None` for no image.

terraintypes

A list of *TerrainType* objects indicating the tileset's terrain types.

tiles

A list of *Tile* objects indicating the tileset's tile properties.

class `tmx.Frame` (*tid*, *duration*)

tileid

Global ID of the tile for this animation frame.

duration

Time length of this frame in milliseconds.

FUNCTIONS

`tmx.data_decode` (*data*, *encoding*, *compression=None*)

Decode encoded data and return a list of integers it represents.

This is a low-level function used internally by this library; you don't typically need to use it.

Arguments:

- *data* – The data to decode.
- *encoding* – The encoding of the data. Can be "base64" or "csv".
- *compression* – The compression method used. Valid compression methods are "gzip" and "zlib". Set to None for no compression.

`tmx.data_encode` (*data*, *encoding*, *compression=True*)

Encode a list of integers and return the encoded data.

This is a low-level function used internally by this library; you don't typically need to use it.

Arguments:

- *data* – The list of integers to encode.
- *encoding* – The encoding of the data. Can be "base64" or "csv".
- *compression* – Whether or not compression should be used if supported.

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