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Building maps for the Data Structures game in Tiled

Tiled is a free and easy to use map editor that is often used as a level editor for game projects.

You can download it here: https://www.mapeditor.org/

Building Levels in Tiled

Getting started with Tiled: http://doc.mapeditor.org/en/stable/manual/introduction/#getting-started

Here are the rules for the Tiled Map for the file creator:

- The size of the map does not matter, but Tiles should be 64x64px
- Layers do not matter. It does not matter what Layer an object is in.
- Only use Object layers
- All objects are Rectangles
- The Name of an object is how other objects refer to it.
- The Type of an object will say how that object is interpreted by the converte
    - Typically, all objects on a layer will be the same type and will be given a different color than other objects of other types.

Table of objects in the game and how they should be represented in Tiled. Sometimes, the Name or Type of an object might not matter, these are marked with *dnm*. Please use correctly sized shapes.

In the game	**Name of thing in Tile**	**Type of thing in Tiled**	**Size in Tiled.**
Player	*dnm*	Player	1 tile
Ground	*dnm*	Ground	1 tile
Start Link Block/ Head	*dnm*	StartLinkBlock*	1 tile
External Link block	*dnm*	LinkBlock*	1 tile
Helicopter Robot/ temp pointer	*dnm*	HelicopterRobot	1 tile
Goal	*dnm*	Goal	1 tile
Platform	The ID of that block	SingleLLPlatform**	3x1 tile block
Objective block	*dnm*	ObjectiveBlock	1 tile

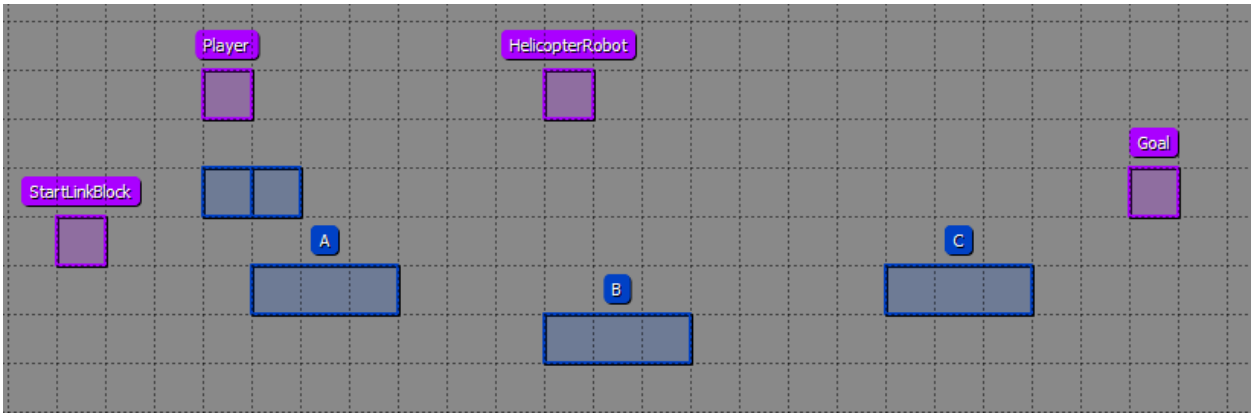
* The StartLinkBlock, LinkBlock, and SingleLLPlatform objects may need an additional Custom Property called "**ConnectTo**" (string value) where the name of it is the ID/Name of the Platform this block may initially connect to. If this property does not exist, it will not start with any initial connections.

** In addition to the **ConnectTo** property, Platforms also should have a **Value** property (int value) for their value.

Because the Name property does not matter for most objects, but it still shows up in the editor, you can use the Name property to label objects as you feel necessary.

To set a level objective, go to Map > Map Properties… and add a Custom Property called **WinCondition** (string value). The value of this will set the objective of this level when it is generated.

Here is a sample level in Tiled. Different layers can have different colors.



Converting it to a JSON file

Now that we have our map and have saved it to a .tmx fie, we are ready to convert it to a JSON file that can be used as a level definition in our game.

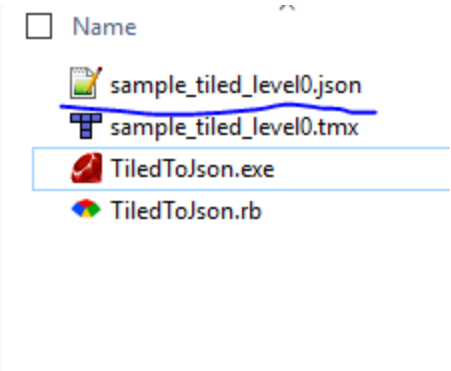
Run TiledToJson.exe in the TiledToJsonEdGame directory with two arguments

1. The input .tmx Tiled map
2. The output .json JSON file

If there were errors in the input arguments, then it may give an error.

```
oJsonEdGame>TiledToJson sample_tiled_level0.tmx sample_tiled_level0.json
Input (.tmx) file: sample_tiled_level0.tmx
Output (.json) file: sample_tiled_level0.json
Done.
```

Once you see "Done." the JSON file should have been created.



Now you can place the JSON file into the game's World Generator and verify that the level file was created correctly.