# File Structuring

## World File Structure

The main idea behind the world file was to list the biomes in the world and also to determine which biome file contained the player’s default spawning position. As with all the save files in Evolution the text is human readable and follows a simple structure, this means that should the player so desire they could edit this file to adjust the properties of the world.

The naming of the file also makes it easy to find, the file name follows the following format: *WORLDNAME*.wld

A sample of a world file with added comments explaining each line is shown below:

|  |  |
| --- | --- |
| *20000,20000* | *(the size in pixels of the world)* |
| *4* | *(the total number of biome segments in the world)* |
| *0,0,1,1,1380,1500,0,0,False* | *(biome nameId, typeId, segment, segment, width, height, positionX positionY, default spawn?)* |
| *0,1,0,0,1380,780,690,605,True* |
| *0,1,1,0,1380,780,2070,605,False* |
| *0,1,1,0,1380,780,2760,605,False* |

**Biome File Structure**

The main idea behind the text file was that I wanted the player to be able to edit the worlds biomes manually if they so desired, so the text file was designed with readability in mind. Each block is represented by a two character string so that the type of block that is in a particular position is obvious to the player. I used the ‘|’ (pipe) character as a delimiter to again give the appearance of a block like shape to the reader.

The naming of the file also makes it easy to understand its location in world space, the file name follows the following format: *biomeName\_biomeType(segmentXsegmentY)*.bio

A sample of a biome file with added comments is shown below:

*24,20 (number of blocks along x-axis, number of blocks along y-axis)*

*db|db|db|db|db|mb|mb|db|db|db|db|db|mb|db|wb|mb|db|db|db|db|db|db|db|wb|*

*db|db|db|db|db|db|db|db|db|db|db|db|db|db|db|db|db|db|db|db|mb|db|wb|db|*

*db|db|mb|mb|db|db|db|db|wb|db|db|db|wb|db|db|db|db|db|db|db|db|db|db|wb|*

*db|mb|db|mb|db|mb|db|mb|wb|db|db|db|db|db|db|db|db|db|wb|db|wb|db|db|db|*

*db|db|db|db|db|db|db|db|db|db|db|db|db|db|db|db|db|db|mb|db|db|db|db|db|*

*(Some rows were omitted since you already get the idea)*

**Loading and Unloading Biomes**

Early on during the coding of the game, we soon came across a problem. This problem was drawing efficiency and viewport clipping. I came up with the solution of drawing biomes in a “segmented” fashion.

Basically we would write each biome into different segments, the size of these segments would be determined by the width and height of the players monitor. So for a 1920x1080 screen each segment would draw approximately (1920/4) \* (1080/4) pixels... well actually the aim was to have them slightly larger in order to prevent issues when loading new segments as the player moves through the world (basically to give the computer some time to load new segment files and unload ones that no longer needed to be drawn).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | Monitor Area 4x4 segments (Always Drawn) | | | |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

Green area (6x6 segments): represents the segments outside of the monitor that will be drawn but not necessarily visible

Grey Area (>= 8x8 segments): represents the segments that will not be drawn