

# Minecraft 2.0: Finite Worlds and Resources

## [Plug-in Description]

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### Finite Worlds

This plugin explores the idea of limiting Minecraft's infinite world generation so that worlds only generate with a finite amount of available land and resources. The idea is that this will encourage player interaction (either cooperatively, or competitively), since it wouldn't necessarily be practical to self-sustain yourself as an individual in such a world. To achieve a finite world, the infinite world generation was retained, but a new "wasteland" biome was introduced that is very hostile and contains no resources of any interest. After a fixed distance from the world spawn in every direction, all further world generation will just spawn wasteland biomes. The plug-in outputs a configuration file that allows this distance to be modified, but it defaults at a 25 chunk radius (each chunk is 16x16 blocks).



**The Wasteland Biome**

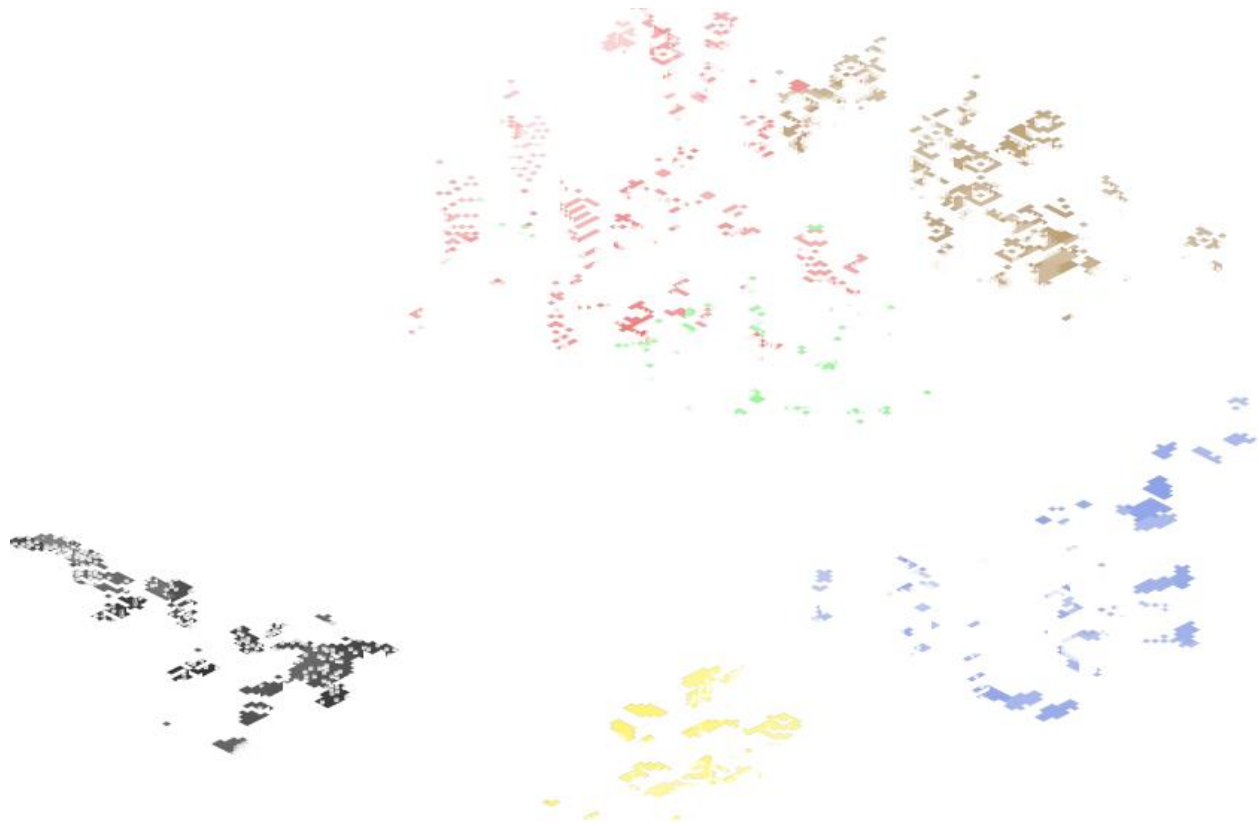
### Ore Generation

Minecraft's default ore generator was also overridden for the sake of further incentivizing inter-player collaboration in the finite world. I created a new ore generator that generates resources into "clusters" -- each resource appears in only a small number of places around the world, but they appear in very large, very dense collections. The idea behind this is if a group of players settle in a single area, they will be swimming in riches in terms of the resource cluster that appears near their home, but will

be lacking in every other type of resource. This will require different groups of players in different areas of the map to interact in order to exchange and barter resources with each other.

The configuration file allows full control over the generation of these clusters. In particular, for each ore type, the config file gives the following options:

- **minVeinSize/maxVeinSize:** The range of sizes of each "vein" of this resource (a vein is an series of adjacent blocks of the same type)
- **minSpawnHeight/maxSpawnHeight:** The range of y coordinates that this resource can be found spawning.
- **minVeinsPerChunk/maxVeinsPerChunk:** The range over the number of these veins that can spawn in a single 16x16 chunk.
- **minChunksPerCluster/maxChunksPerCluster:** The range over the number of adjacent chunks that will be used to spawn these resources as a "cluster".
- **minClustersInWorld/maxClustersInWorld:** The range over the number of these clusters that will appear in the finite world for the resource.



**An x-ray of a snippet of a world containing generated clusters of redstone, iron, emerald, lapis, gold, and coal**

## Future Extensions

It would be good to later extend configuration of the finite world to other aspects such as:

- **Biomes** - Currently biomes are not considered by the finite world gen, so there is a very high probability that certain biomes will not appear anywhere in the finite world. This should be changed to add config options for each biome type, specifying how many of that biome should be forced to appear somewhere in the world.
- **Entities** - It may be interesting to cluster entities as well, so certain animals or monsters only appear in specific parts of the finite map.
- **Dimensions** - The current finite world gen only affects the overworld dimension; other dimensions like the nether still contain infinite resources.
- **Etcetera** - Other resources might be worth clustering other than just ores, like trees and plants, fluids like lava, etc.
- **Special Structures** - Special world gen structures are not considered by the current generator (like villages, strongholds, mineshafts, etc). These should be able to be controlled via the config file, and at the moment, I believe these types of structures will continue spawning in the wastelands.