

3D Dungeon Generator Tool v1.0

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Introduction

3D Dungeon Generator Tool is a PCG Dungeon generator that is highly customizable for your own assets. Swap your assets into the provided Scriptable objects, adjust the generator settings, and make any number of procedurally generated 3D dungeon levels. This tool creates a Procedurally Generated Dungeon from a single starting opening, to a set grid space limit and a path size limit.

The Demo Scene (-DEMO-LevelGeneration), and the Prefabs folder are where you can find the --EDITORS Prefab with the relevant tools and scripts attached if you're just looking to get started.

Importing

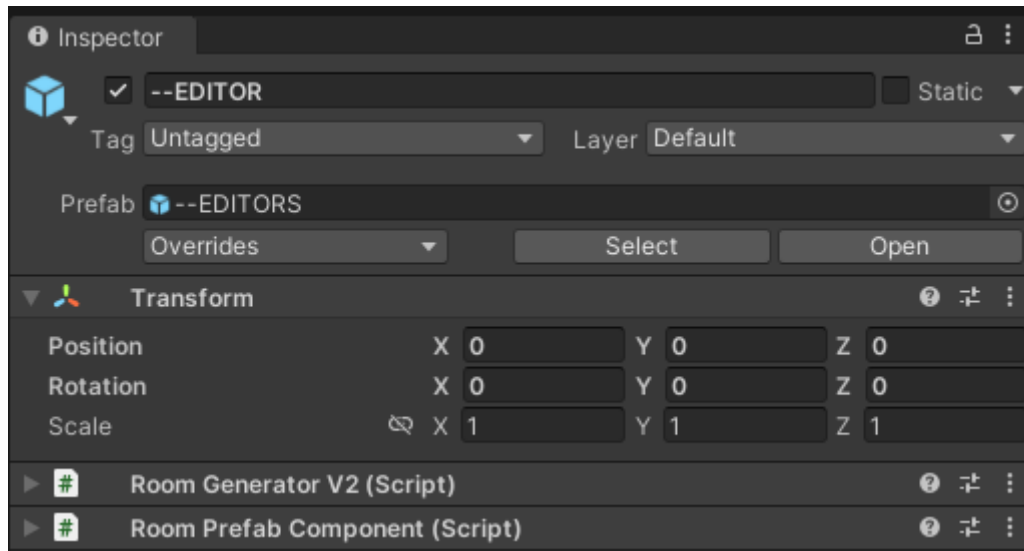
You will need Unity 2022.3.4f1 at least in order to import the package. To import, in your project tab you'll need to right click > Import Package > Custom Package > and select the 3D Dungeon Generator Tool from where you downloaded it (21100267_DanielBeale_GD303_AssetPack_DungeonGeneratorCustomEditorTool for Open Window assessors).

Demo Scene and Demo Assets

As part of the Package, there is a scene labelled -DEMO-LevelGeneration for easy access to the editor tools, and to test out the tools. The Demo assets use URP for their shaders. If your project does not have Universal RP, you can add it by opening the Package Manager > Unity Registry > and searching for Universal RP, which can then be installed and added to your project.

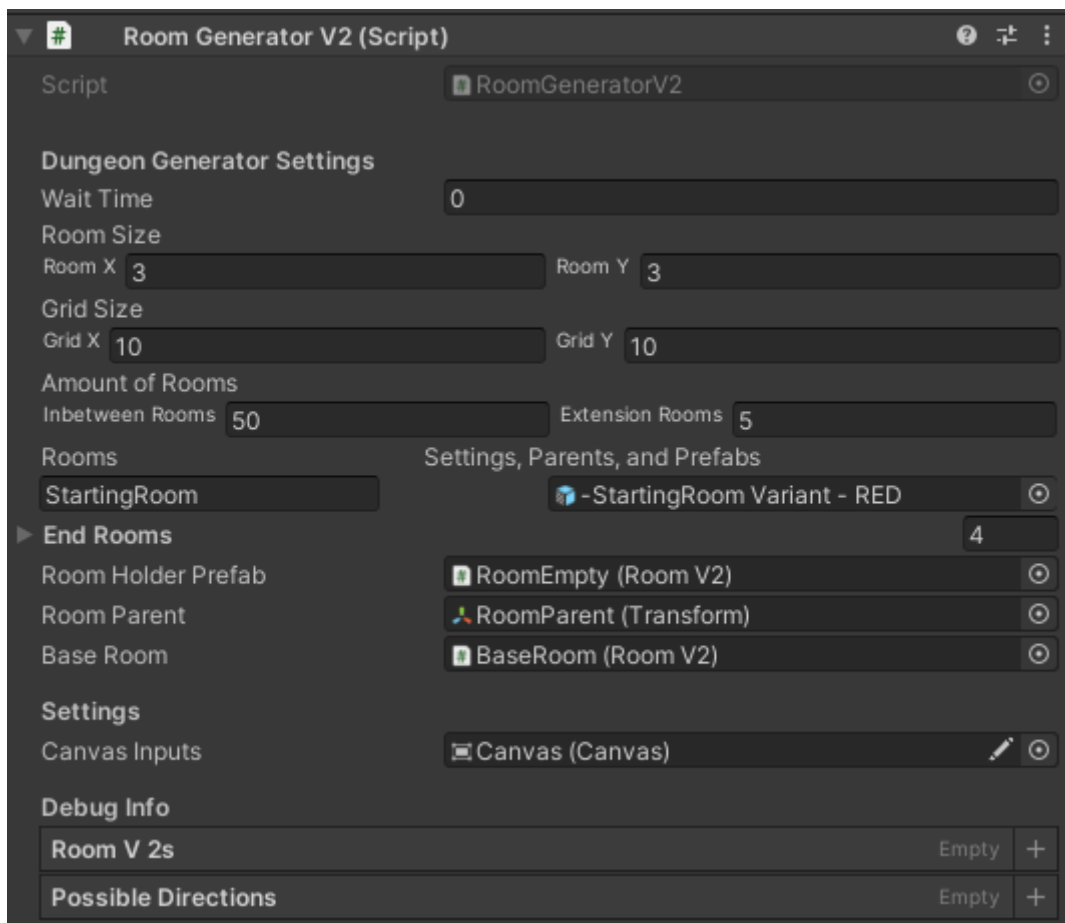
The Editor

Editor Prefab



The Editor Prefab, found in the demo scene and the prefabs folder, contains two Scripts: Room Generator V2, and Room Prefab Component. This is the base of the tools, and should be zeroed to the position of where you want your Dungeon to be.

Room Generator V2

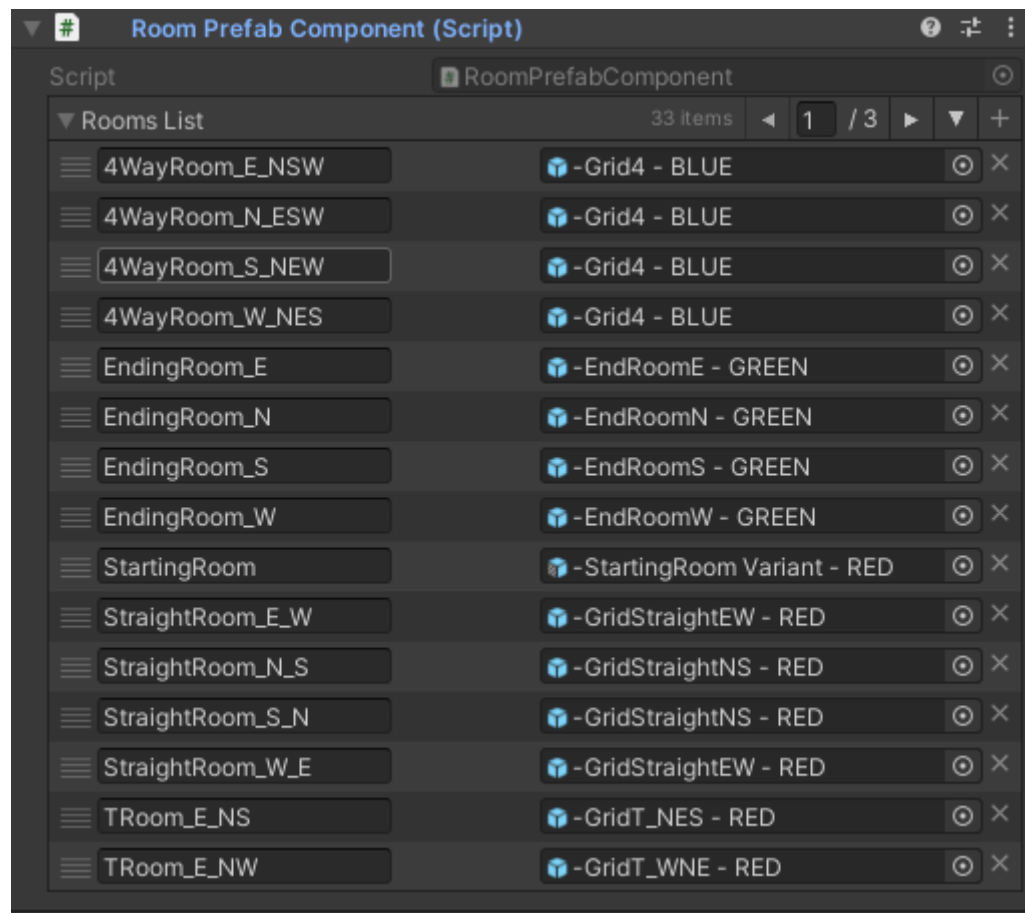


Room Generator V2 is the editor for adjusting the Dungeon Settings, and has been modified by a Custom Property Drawer (DungeonGeneratorDrawer).

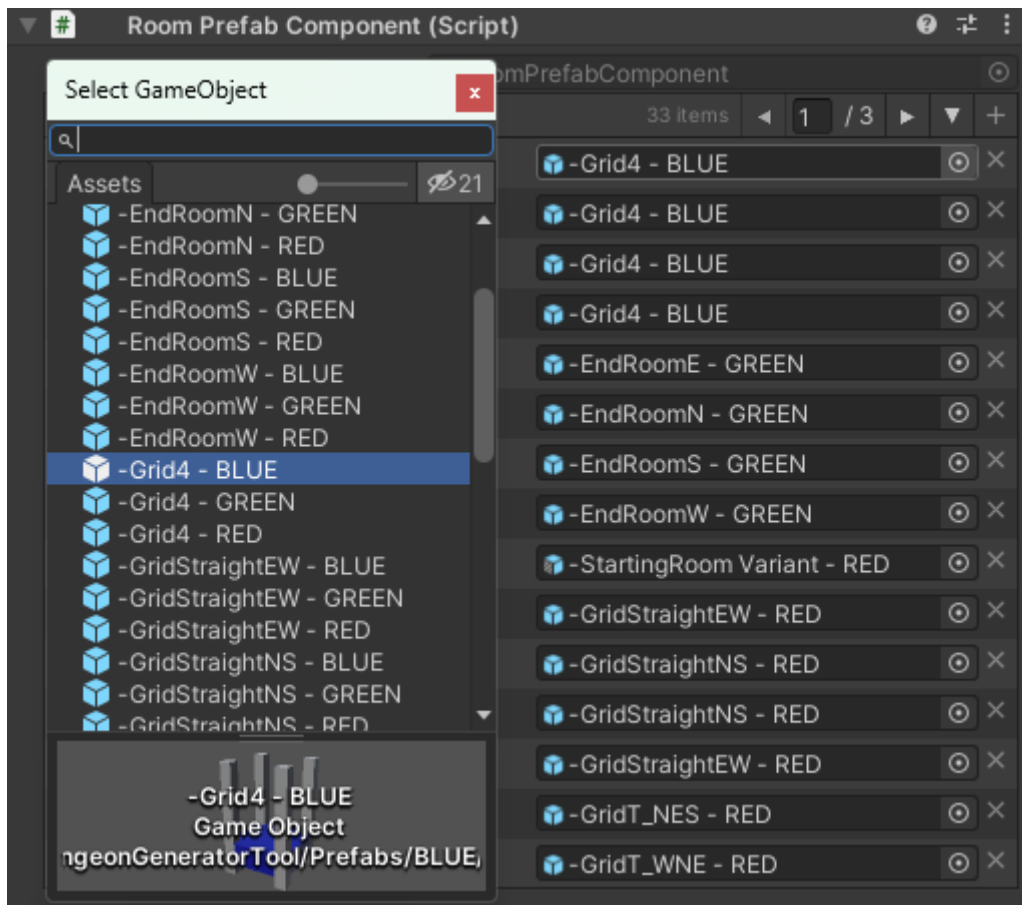
- Wait Time: Float variable used as part of a Coroutine for visualising the generation of the dungeon (Not a necessary component but it does help track the building out of the extensions)
- Room Size
 - Room X: Space set for room model in X direction (Int)
 - Room Y: Space set for room model in Y direction (Int)
- Grid Size
 - Grid X: Number of spaces for interior rooms in the X direction (Int)
 - Grid Y: Number of spaces for interior rooms in the Y direction (Int)
- Amount of Rooms
 - Inbetween Rooms: The maximum amount of rooms on the main branch (Int)
 - Extension Rooms: The maximum amount of rooms on all the other branches (Int)
- Rooms (Do not recommend changing these settings)
- StartingRoom: the first room that will be generated (ScriptableObject)
- End Rooms: List of the 4 directional ending rooms (ScriptableObjects)
- Room Holder Prefab: Script reference for Room Location Holder (Do Not Change)
- Room Parent: Transform that holds all instances of rooms in a level
 - Used as a basis from where clearing the level whilst in Play Mode is quick

- Base Room: In-Scene instance of a Room for the sake of a starting position, although this can be ignored as well.
- Canvas Inputs: There is an Inactive element in Scene for Canvas controls.
- Room V 2s: Debug List of all of your generated Rooms
- Possible Directions: Debug List of the possible Directions for the actively generated room (No Longer visible without Coroutine for main branch in scripts)

Room Prefab Component



Room Prefab Component is a script holding a list of all the Room Scriptable objects, modified with a property drawer (RoomPrefabDrawer) so that the Room Model is visible and replaceable. Each Room Scriptable Object has been titled and organised (Refrain from deleting or adjusting the placement of the Rooms). Each Room is Titled: Description_Entrance Direction_Exit Directions, except in the case of the EndingRooms where its: Description_End Direction. Each Room's model can be changed by accessing the gameObject selector button, and choosing another GameObject. With the package there are prefabs for all the room types with Red, Blue, and Green floors for visual distinction whilst testing.



Expected Questions and Answers

- Do I need Universal RP to use this tool?
 - No. Whilst the Demo assets use URP for their shaders, the tool itself is not reliant on Render settings to function. This tool should function for any game object model with any shader and render settings.
- My Assets do not fit within the Generator spaces, what should I do?
 - Please note that this tool is built for modular room spaces with square/rectangular/rhomboid shapes, as well as the spaces only being variable Integer values. If issues arise even after making adjustments to Room X and Room Y values, it will be necessary to adjust your asset prefabs' scales.
- Does this tool work outside of PlayMode?
 - Yes, but with some errors. You can generate a Dungeon outside of PlayMode, but you will have to navigate to the RoomParent and delete the generated assets in order to clear the dungeon.
- I really like the dungeon I made with this tool, how do I save it?
 - The simplest way is to copy the RoomParent GameObject with your current Dungeon and paste it in the Scene you are currently working in, or to make a Prefab Variant of the Room Parent with your Dungeon.