# User Guide

## Start-up

To begin the application, open the *‘AGARR-Sem2.sln’* file with Visual Studio 2022. Click *‘Local Windows Debugger’* at the top of the window. The application should compile and start. If Visual Studio 2022 is not installed, instead, open with Visual Studio 2019. The project’s *Platform Toolset* version may need changing if the application will not compile. To do this, right click each project in the solution, then click *‘Properties’* Under *‘Configuration Properties -> General’* there should be an entry labelled *‘Platform Toolset’*, change this to version 142. This will need to be done for both projects within the solution.

## Terrain

### Plane Mesh

To render terrain using a plane mesh, first, ensure the following lines of code are commented, and uncommented, in Game.cpp

Text

Description automatically generated

To generate the terrain:

1. Open the second GameObject
2. Expand the Heightmap Generator component
3. Load, or procedurally generate a heightmap
4. Expand Plane Generator component
5. Set the plane size, select use heightmap, click Generate Plane

A screenshot of a computer

Description automatically generated with medium confidence

### Marching Cubes

To render terrain using marching cubes, first, ensure the following lines of code are commented and uncommented, in Game.cpp

Text

Description automatically generated

To generate the terrain:

1. Open the second GameObject
2. Expand the Transform component and move along the X axis until the cubes are no longer intersecting
3. Expand the Heightmap Generator component, generate a heightmap as done before
4. Expand the Marching Cubes Mesh Generator component, modify any values (it is recommended to leave default at first), and press ‘Generate Voxel Mesh’.

**Increasing the marching cubes ‘Mesh Resolution’ too high can result in long loading times. On my machine a ‘400’ resolution mesh takes a few minutes to generate, this is addressed in the report.**

A screenshot of a computer

Description automatically generated with low confidence

## Level of Detail

To enable terrain level of detail, first, generate a plane mesh terrain. Then enable wireframe mode and expand the Mesh Renderer component under the second GameObject, then increase the ‘Tessellation Amount’ value.

A computer screen capture

Description automatically generated with medium confidence

## Skeletal Animation

To enable skeletal animation, open the fourth GameObject and expand the Rigged Mesh Renderer component. Load a model and it’s corresponding animation file, the character should now be animated. To properly view the character, open the first GameObject and expand the Mouse Look Controller. Set the View option to ‘Third Person’ and increase the Camera Distance value.

A screenshot of a computer

Description automatically generated with low confidence