INTRODUCTION

What is VR Quest?

VR Quest is a fully-immersive, virtual reality game-building system – following the free standards-aligned lesson plans, students learn 3D game design, re-create places of historic significance, and publish their own VR game. Then, using the included Microsoft Mixed Reality headset, step into the virtual world they created – alone or in multi-player mode. VR Quest is an incredibly easy to use, first person game creation tool.
At its simplest, you can drag and drop elements ("Entities") onto a large, buildable terrain and very quickly create your first game.

If you're a more advanced user, you can combine these simple tools with the built-in, LUA-based scripting language to create almost anything your imagination can conjure.

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1. Getting Started

Creating Your First Character

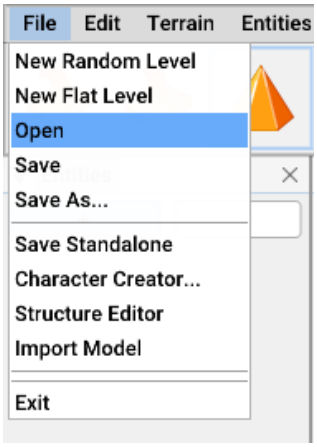
Before learning how to make your own game, you may want to pay a sample games first, and perhaps even play game over Social VR. For the best experience, you may want to join those games using an avatar of your choice. Its easy to make your avatar using the Character Creator.

Simply go to the FILE menu ad select “Character Creator”. When the page load, simply select buttons on the right to change an aspect of the character. When you are done, press the “Save Character” button and give your first character a name.

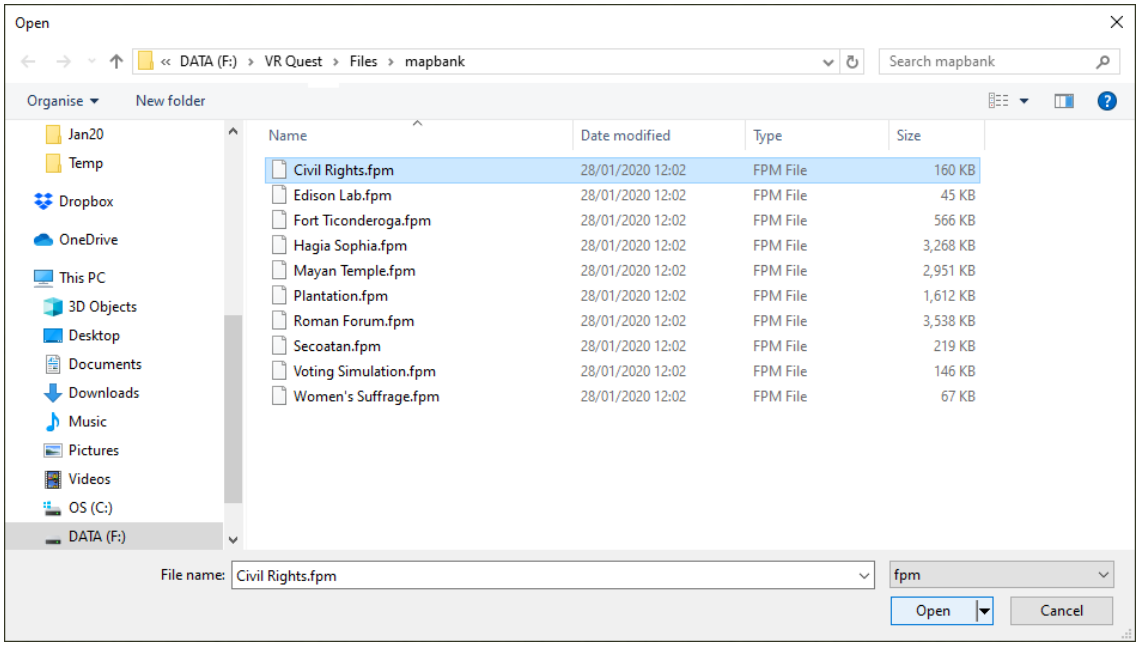
When you eventually get to the Social VR stage, you can select the CHOOSE/CHANGE ONLINE CHARACTER to choose the character you have just created!

Overview

We know that you would love to jump right in and start creating your latest masterpiece and while we've made it as easy as possible for you to get started, we encourage you to try out some of the sample demo levels first so you can see what it can do. You will find these by selecting ‘File’ from the top menu and then choose ‘Open’ and choosing one of the level files.

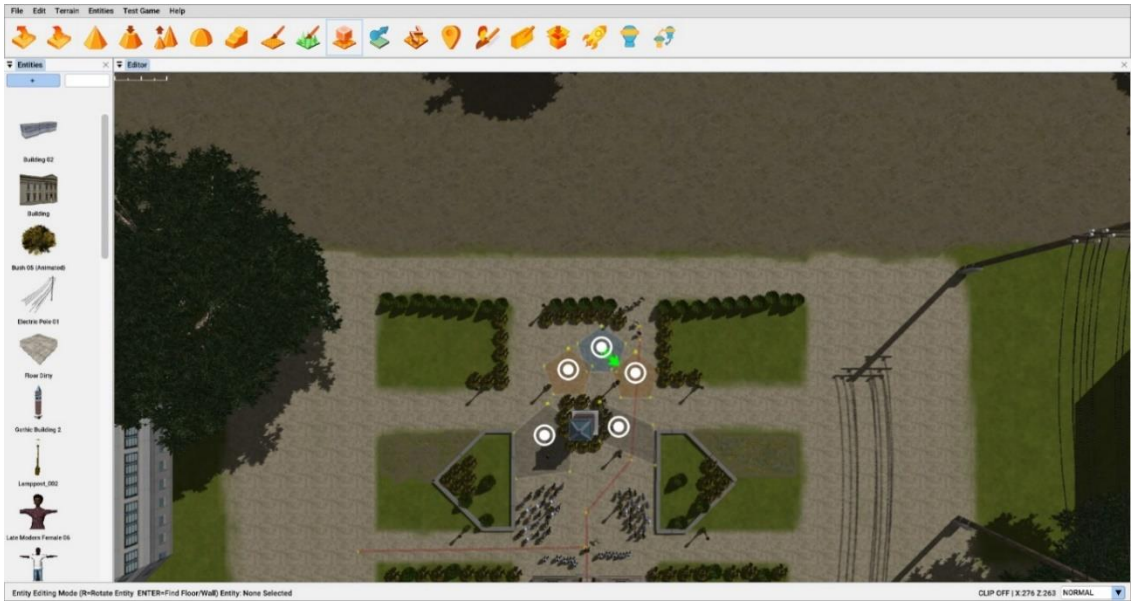


You will then be presented with a Windows Explorer window that looks at the map folder (called mapbank) of the software. Here you will see all the maps that come with the software and any that you create going forward. They will all be saved to this location.

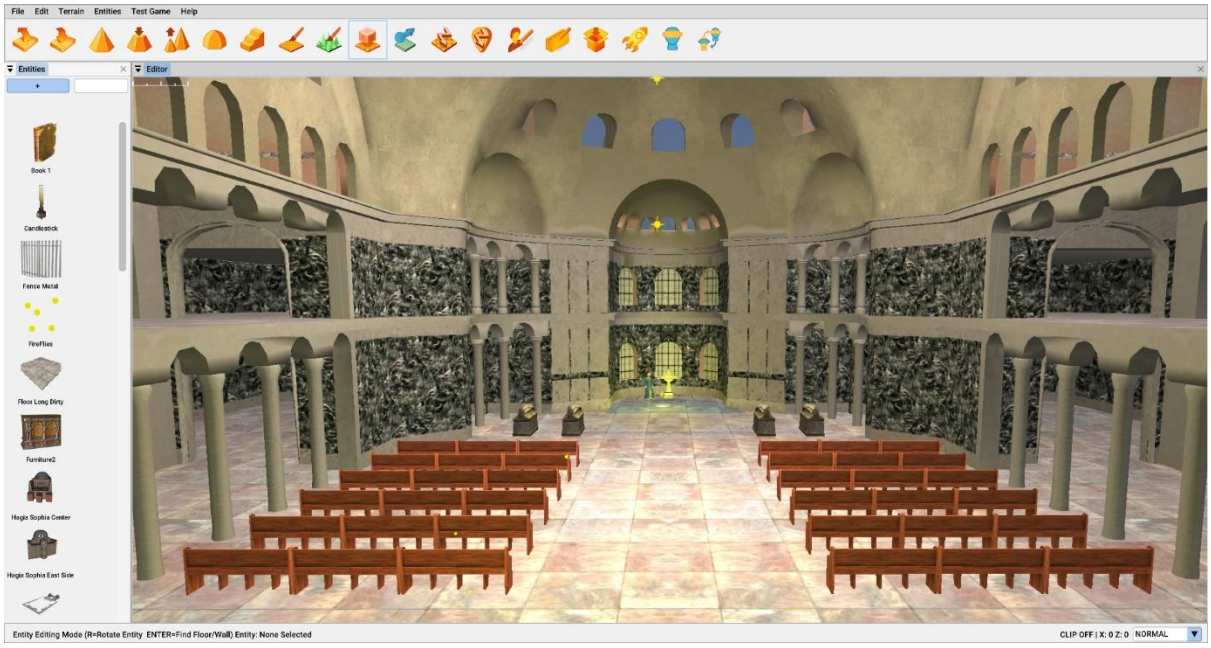


You can select a file by clicking the file, then ‘Open’ or by just double clicking on a file. It will then load into the editor so you can have a play or an explore.

You could load the level “Civil Rights.fpm” involving a famous event that happened in the civil rights movement. When loaded it will look like this in the editor:

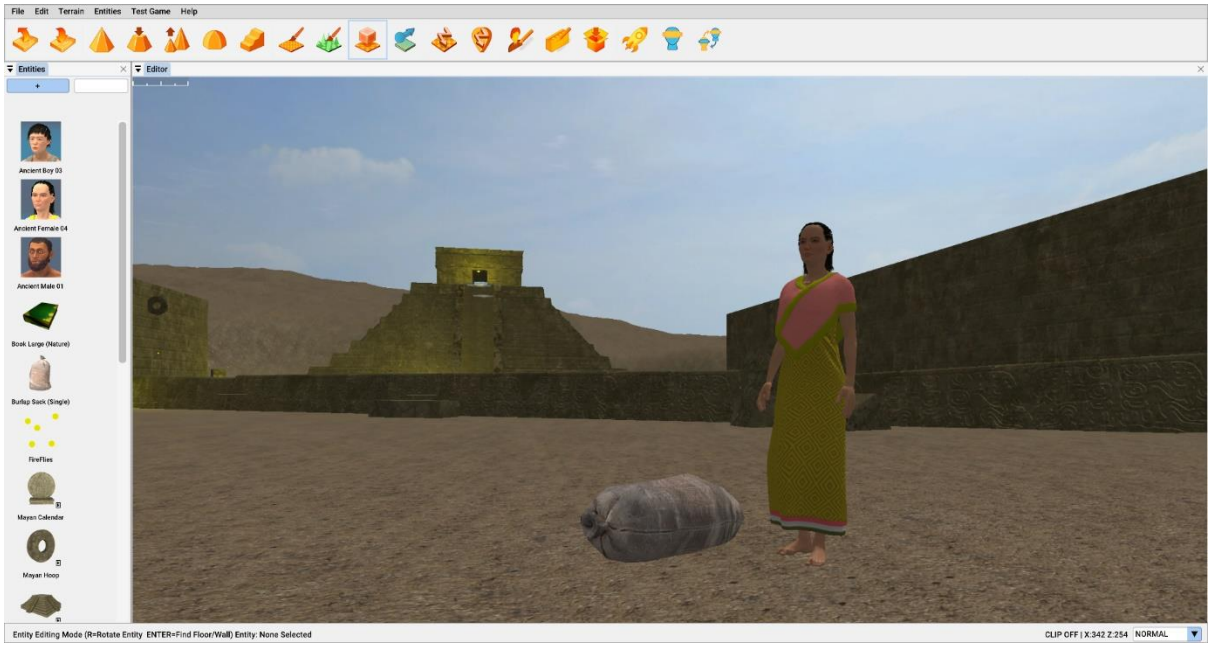


Explore the wonders of the ancient Hagia Sophia…



Maybe after that, a quick jaunt around the American Indian Secoatan Village…

And finally, a quick tour of the temples of the Mayan civilisation…



The Editor User Interface

Let's look at the Editor UI (User Interface) in more detail. This is very easy to use and you'll soon get to grips with the tools in no time. It is easier to learn if you start from a blank canvas, so if you head back on over to 'File' and select, 'New Flat Level', you should find yourself looking at the screen below, ready for your next creation.

Tool bar

Icons in this bar provide quick access to all of the important editor functions. From here you can raise and lower terrain, paint ground textures and grass, add waypoints, test your level and host or join in some multiplayer mayhem.

The Drop-down menus

Access further options by selecting the various drop-down menu items including all the editor functions, saving and loading, building a standalone application, or using the character creator and structure editor.

Library

This window displays thumbnails of the entities (our name for 3D models) used when populating your world. Here you can quickly access entities you've already used in your level or add new ones.

Editor window

Displayed within this area is a top down or free flight view of the level you are currently editing. To make the process of level editing as easy as possible we provide a range of editing styles to suit all users. You can navigate around the windows using the W, A, S, D keys, the arrow keys and mouse-look.

Memory bar

You can place thousands of entities in a VR Quest level, but each one takes a little editor memory. This bar shows you how much space you have left to build your level.

Editor brush

When editing the terrain or painting ground textures or grass, this brush defines the area to be edited. You can change the size of the brush at any point using the mode slider, under terrain tools or use the + and – keys on the keyboard.

Editor mode

When you open the editor, you start in the default top down mode. You can choose between free flight or top down modes when editing and can easily swap between these by pressing [F] to enter free flight or [G] to return to top down mode.

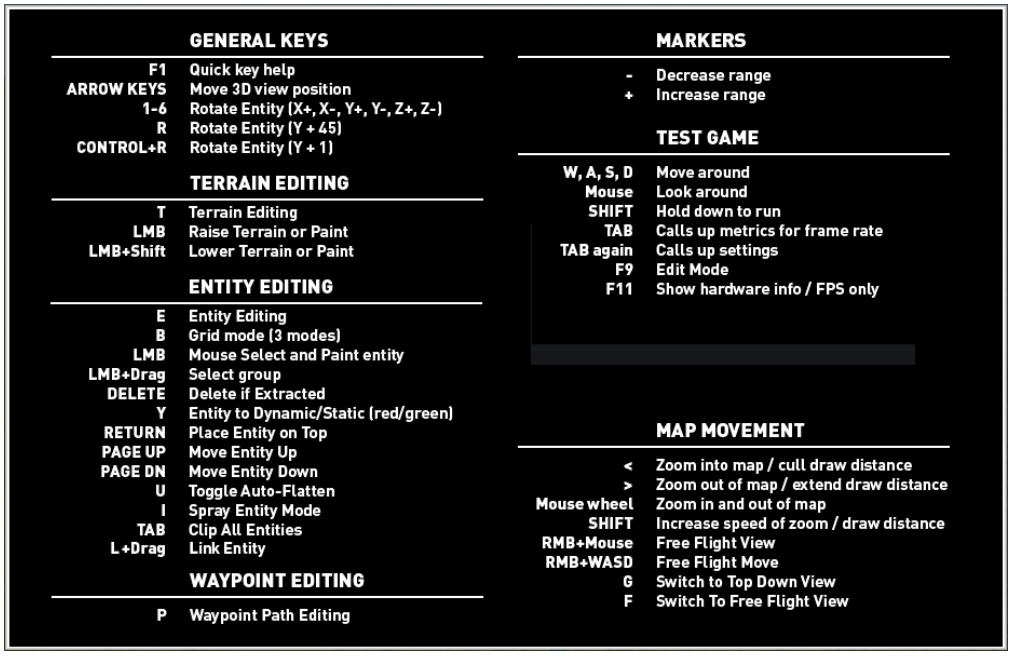
Status bar

Here you can see exactly which modes the editor is in, and where the cursor is on the world map. The details of the status bar are (from left to right):

Name	Notes
Terrain Painting Mode	Indicates terrain sculpting or terrain painting.
Terrain	Describes the type of tool, e.g. Shape mode or ramp mode for terrain editing, or rock or grass for paint mode.
Entity Editing Mode	Visible if you are in entity editing mode. You can change between entity mode and terrain mode from the tool bar. Useful tip: R rotates an entity and ENTER finds the nearest
Entity	This will either show "None Selected" or the entity number, entity name and the current status (static – meaning it is just scenery, or dynamic – meaning it can do something using a script.
Clip	Indicates the current clip mode, this can be Off or shows the clip level. Use CTRL+mouse wheel to adjust the clipping height.
X and Y	This is the current brush Z position. Z can be thought of as up or down the map.
Normal	Default grid mode. Pressing B changes the mode. Normal (Pixel placement), Snap (aligns to the nearest entity), Grid (aligns to the 100x100 grid position for equal placing of entities).

F1 Help Mode

This lists all the keyboard shortcuts aimed at speeding up the development process.

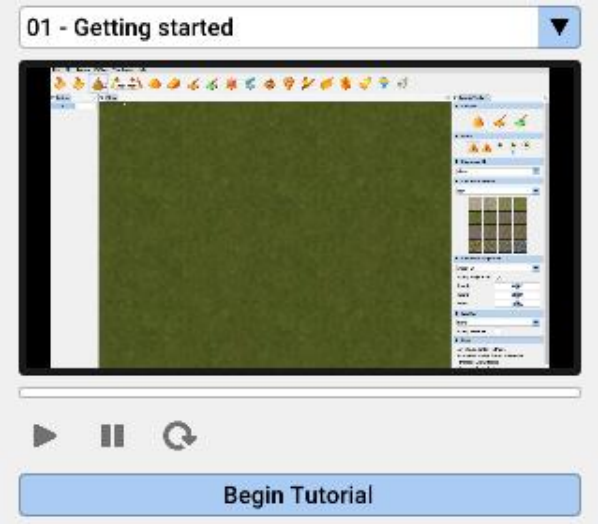


Editor Styles

There are two major user interface styles, both Light and Dark. These can be selected at any time depending on the users own personal taste.

The Built-In Tutorials

If you need a little help, or a reminder during your time using VR Quest, there are several handy tutorials built in. These can be quickly and easily accessed through the Help menu, and selecting 'Getting Started Tutorials' from the dropdown menu.



A new panel will open on the far right of the screen, and from here you can access a range of tutorials that cover every aspect of VR Quest. These can be selected using the dropdown menu, and then clicking, 'Begin Tutorial'. Just follow the steps and use the video to see the tutorial in question being carried out.

The Example Maps

VR Quest comes with several maps already built for you to load, explore and learn from. These can all be accessed from the File menu and Selecting Open. This will be covered in the next chapter.

You can also change these levels to suit your own ideas but remember to save them under a different name so as not to overwrite the originals.

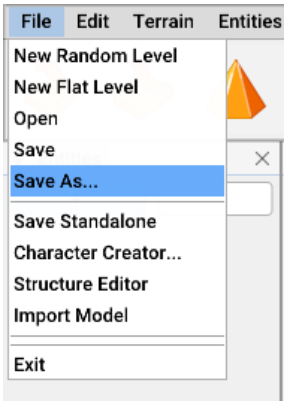
2. Making Your First VR Quest experience

Now you've had an overview of the editor, it's time to create your first experience by following the steps below. Remember that if you make a mistake while editing you can use the Undo by going to 'Edit' and selecting 'Undo' or by pressing 'CTRL' and 'Z' and this will reverse the last action.

As this is very likely your first theme created in VR Quest, we advise saving several copies of your map in case you make a mistake that Undo can't rectify, as Undo only reverses the last action taken.

Saving A Map

Clicking on File at the top left of the menu bar will produce a drop-down menu. We'll discuss each of these in more detail as we work through the process of making our own event, but for now, all we're interested in is the 'Save' and 'Save As' options menus.

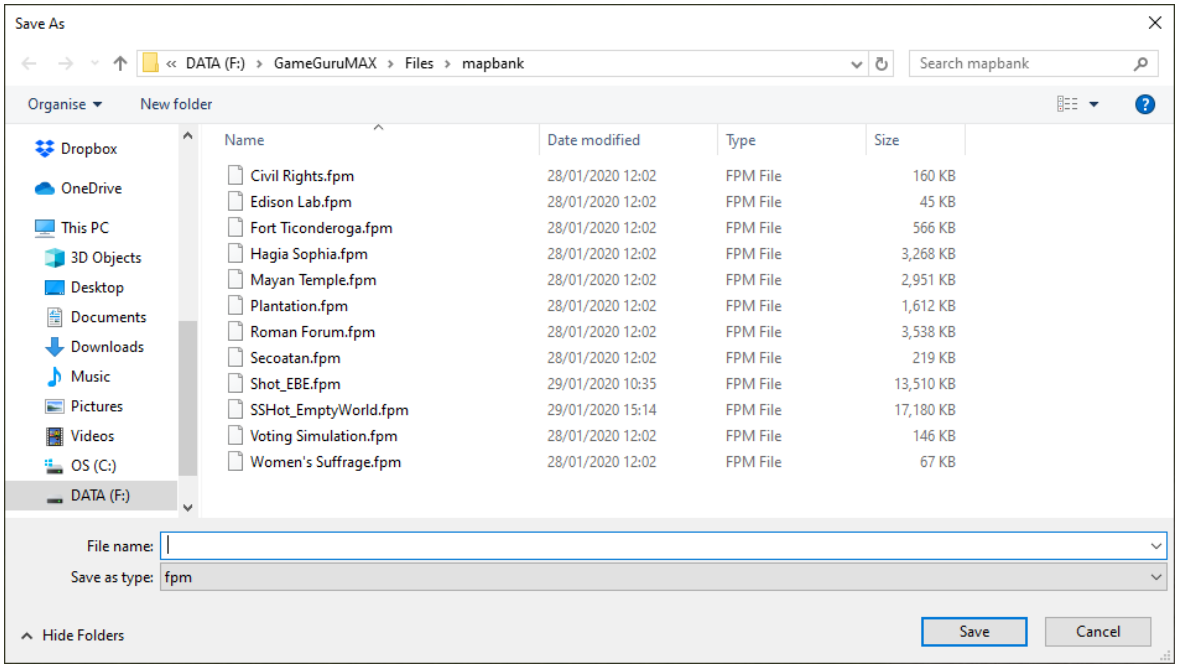


As with most applications, 'Save' will either save the map using the last name, or prompt for a new name if this is the first save.

'Save As' will always prompt for a new name. To ensure that you have plenty of backups of your map, it's a good idea to get into the habit of occasionally using 'Save As' to make copies of your hard work.

Let's test this by saving the default map under the name 'MyFirstMap'. Open the file menu if you've not already done so and click 'Save'.

This will take you to the VR Quest mapbank folder where all map files are stored. The maps have the extension ".fpm", e.g. Roman_Forum.fpm



If you have more maps than the box will display, you can use the slider on the right to move up and down the list.

Enter the name ‘MyFirstMap’ into the File name edit box and click ‘Save’. This might take a few seconds depending on your system.

You can also quickly load and save your maps from the tool bar simply by clicking on these icons respectively.

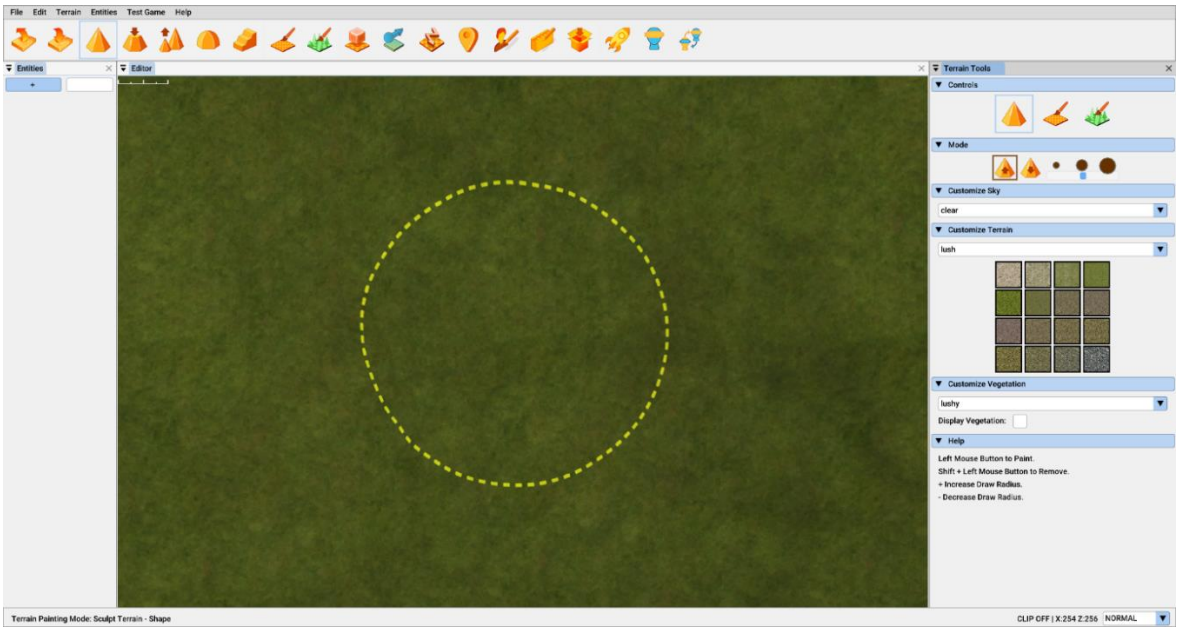
Okay, you’ve saved your first map and are ready to start editing but before you do, let's just have a quick play with the navigation keys so you can move around your map.

You can do this using W to move up the map, S to move down, A to move left and D to move right; you can also use the arrow keys. Give this a try now so you become comfortable with navigating the mapped out world.

You can also zoom in and out of your map using the mouse wheel.

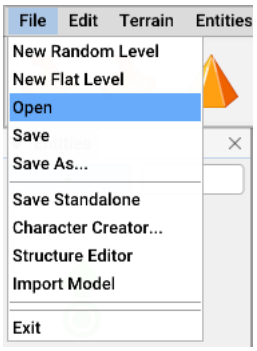
If you look at the status bar, you'll notice the X and Z values changing. You will find this very useful when your map becomes full and you have a lot of different sections to it.

Once you're happy, you can move around the map freely we can move on and start editing. Your screen should look something like this:

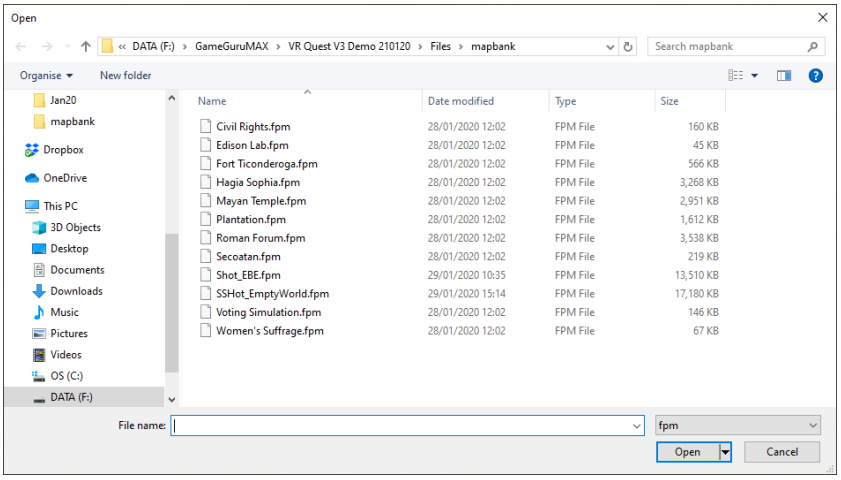


However, as you've been navigating your map, you may have changed the view. To make sure you have a similar view, and to learn a little more, reload your map “MyFirstMap.fpm”

Click File once again to open up the file menu.



Click Open to be taken back into the mapbank folder, but this time to reopen the map. Just like saving you can also use a shortcut icon located on the tool bar to open a previously saved project.

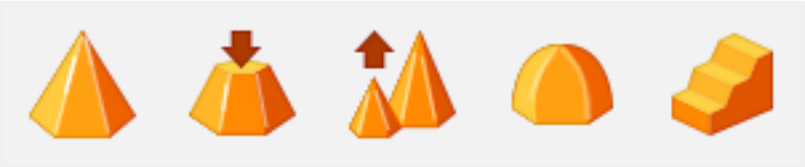


Remember that this will overwrite any unsaved work, so when at a later date you're creating your own levels, stick to the golden rule of always backing up your work and saving often.

Using the slider bar on the right, navigate down the list until your reach MyFirstMap.fpm. You can open this by double clicking on it.

Depending on the size and complexity of a level, they can some time to load up. However, your new level is a simple one so far and is just made up of a terrain at this stage.

Terrain Sculpting



Now that you've opened the map, start by adding some simple hills. You can click any of these icons to enter terrain editing mode. Each has a special function to shape the terrain, but the one to use first is the shape tool.

Click on this icon to enter Terrain Sculpting mode.

Move the mouse to the editor window so you can see the Editor brush, hold down the left mouse button and move the brush about. You will see that the terrain is rising. Do this for a few seconds until you've got something that looks a little like this:

Congratulations, you've made your first hill! Now, let's look at lowering the terrain. You use the same tool for this, but instead of just using the left mouse button you now also hold down the [Shift] key and start carving a few holes with the left mouse button held down.

Note that the water table for all levels is at a height of 500 by default, so if you have chosen a random terrain, the hills and mountains of the randomly generated terrain may be much higher than the 500 height of the water. Keep digging and you will eventually find the water line.

Once the level of the terrain is low enough, you'll see the water plane (if you like, this could be thought of as sea level). Now add some water - place the editor brush in front of your new hill, hold Shift and

the left mouse button to dig the terrain downwards. If everything has gone well, you should now see something similar to this:

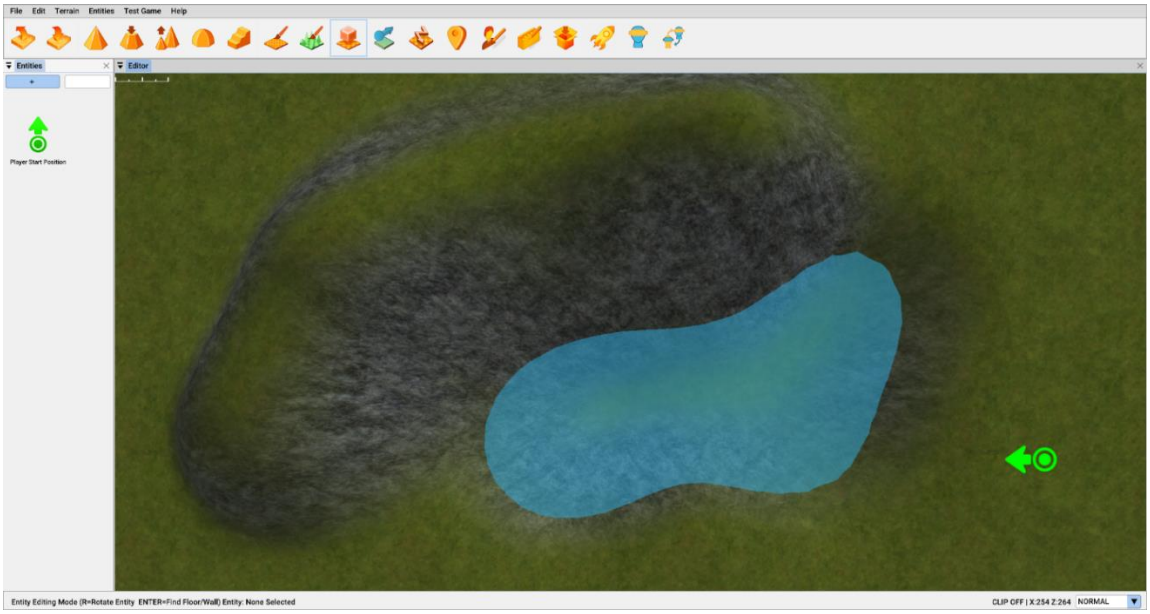
Well done, you've created your first simple terrain. Now we're sure you'd like to take a walk around this new virtual world, but before you do, let's place a player start position marker, this defines where you will appear in the 3D world when the game starts.

Intro to Markers

Move the mouse pointer over to the library and click on the [+] symbol in the blue box. This will open up the Library selection with two tabs. Entities and Markers:

There are several different types of Markers and we'll be covering them all as we move on, but for now the only one that interests us is the green “Player Start” marker.

Not surprisingly, this marker represents the position and the direction you the player will start from in the map. To select a marker from the library, simply left click on it and move the mouse to the main map and left click again to place it onto the terrain. Multiplayer Start works in a similar way but is exclusively for Multiplayer Mode and represents where each player can spawn within a level.

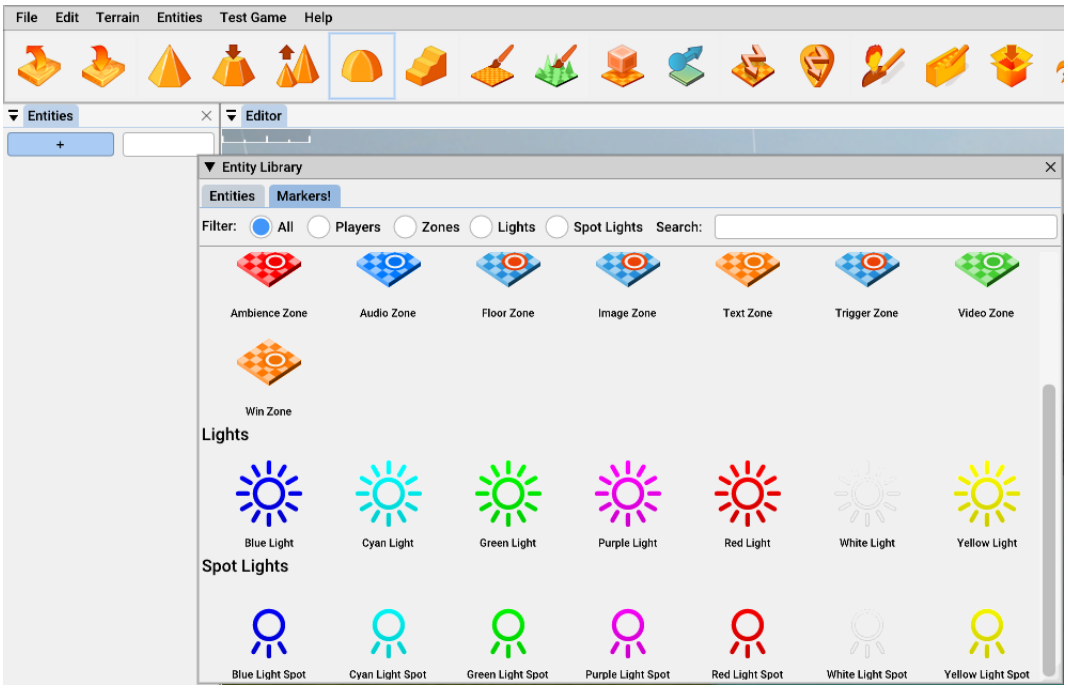


At this point, it's always good practice to save your work, so you should do that now just as you did before but using Save As from the file menu. This time save your map under the new name “MyFirstMap2.fpm”, you can of course use any name you want, but for this tutorial, we recommend using the same name title.

More Markers

There are two additional types of markers here. Light sources and Zones. Zones are areas of the map which will check if the player enters the zone, and if so, will perform an action based on the type of zone selected.

The other type of markers are lights; omnidirectional and spot. These can be placed in your scene as a compliment to the ambient light that already exists as standard. These provide you with extra or focused illumination.



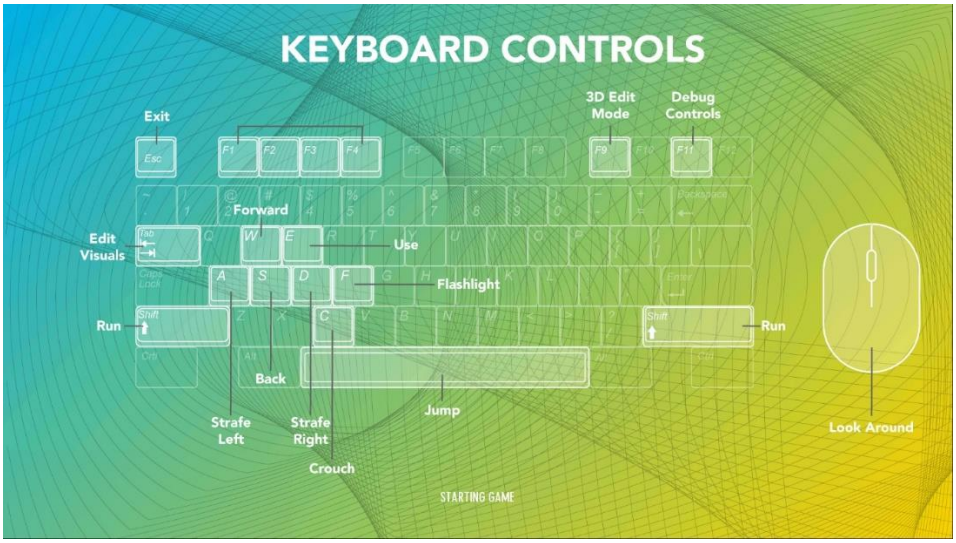
Markers Mode

In markers mode, you are able to interact with any markers, without accidentally moving any of your entities. This is a great way to adjust small details, like waypoint nodes or start markers that may be in a crowded area.

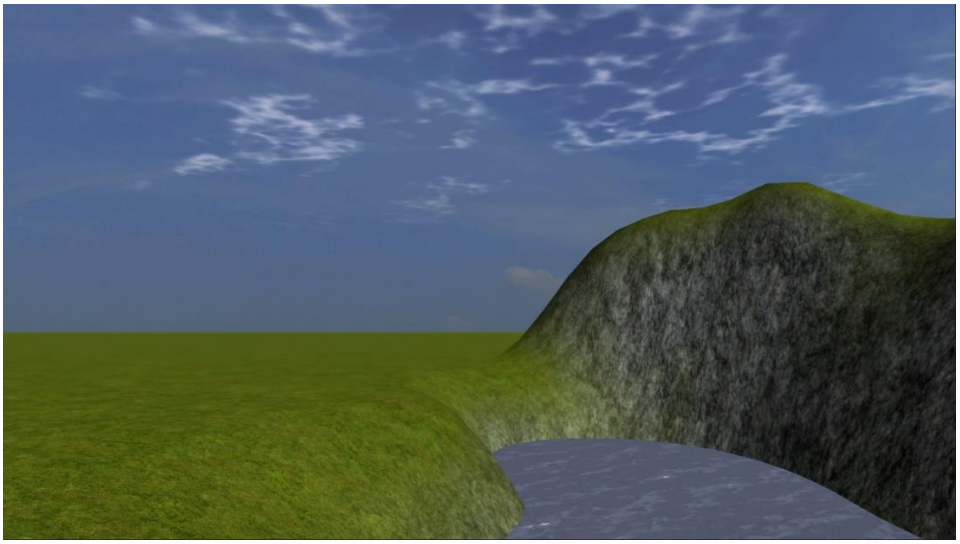
Testing Your Game

So, you're ready to take a look at your very first level. You can launch 'Test Game' from the toolbar by Left clicking on the rocket icon.

You can watch the build process at the base of the screen which can take a few moments as certain things are prepared for your new world.



The eagle eyed among you will also notice that this screen summarises all of the in-game controls, so you'll be able to explore your map. Once the game is prepared, the screen will change to the virtual world like this:



Like many video games, you can move around using WASD keys or the Arrow Keys and by moving the mouse around to look.

Try this for a little while to get comfortable with the controls and then quit and return to the editor by pressing the ‘Esc’ key

More Terrain Editing

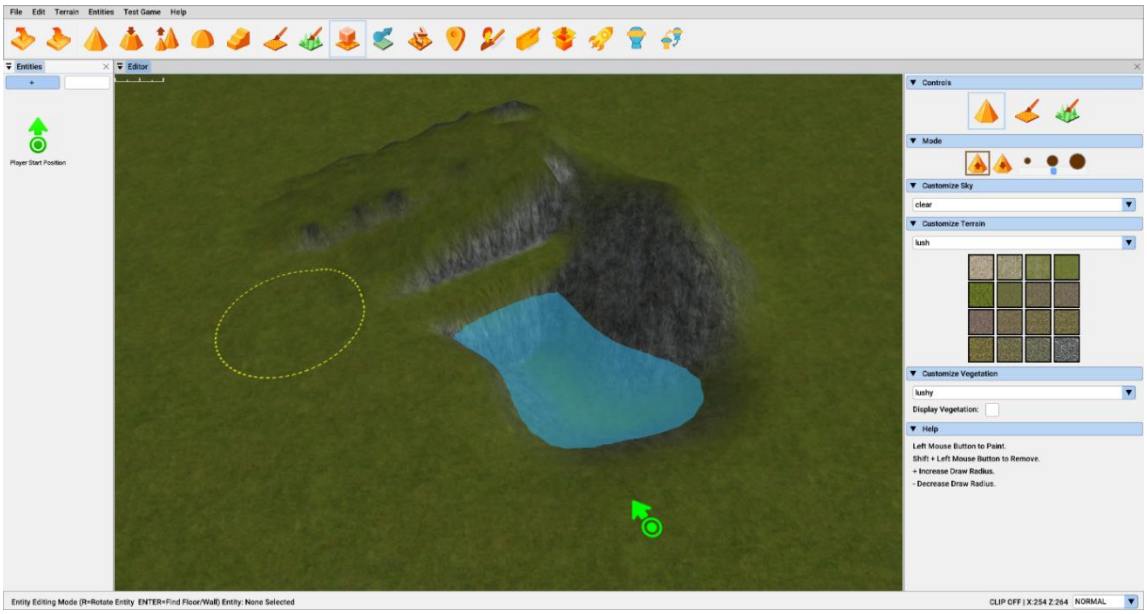
Here we are back in the editor, so let's take a look at some more of the terrain editing tools. Don't forget, if you go wrong you can go back one Undo level from the Edit menu.

Let's move along the toolbar a little to the slope tool.

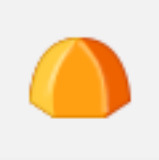
This, as the name suggests allows you to quickly and easily add terrain ramps to your terrain. The tool is easy to use so let's have a go now.

Click on this icon now and then left click on a lower area in the editor window, and while holding down the left mouse button drag the editor brush to the top of the hill.

You can do this several times in the same area. If all has gone well, you will see something similar to this:

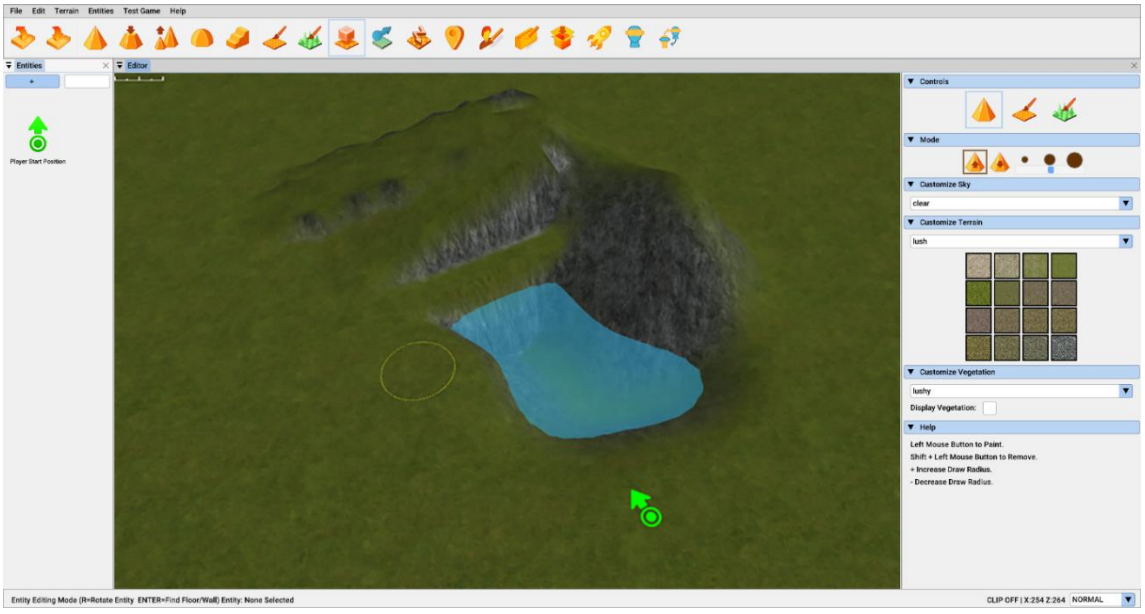


Now, you'll almost instantly notice that the sides of this ramp could be smoother, but don't worry, there's a tool for that too, the blend tool.



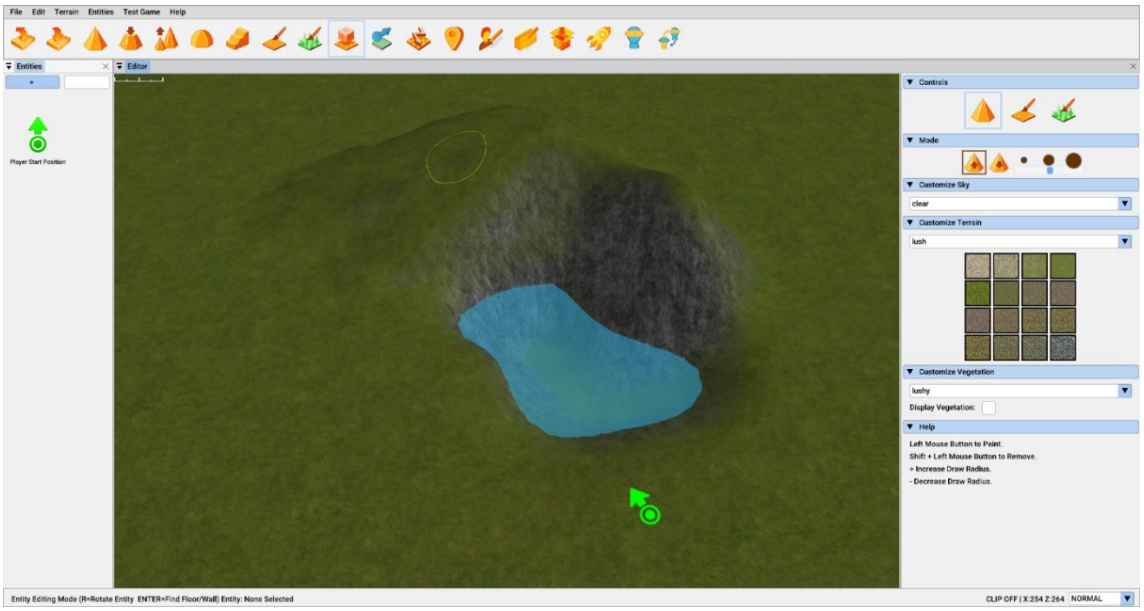
You'll need a smaller brush for this, so it's time to try out some more keyboard shortcuts. This time, it's the [+] and [–] keys. Use these to change the size of the brush cursor.

Play around the size until you have a brush of approximately this size:



Click on the Blend Tool icon and as before, hold down the left mouse button and brush any areas you feel need to be smoother, don't forget you can zoom in and out for a better view using the middle mouse wheel. You can also play around with different brush sizes if you find it easier.

Once blended, your ramp should look like this (if you want it smooth of course).



This is another great time to save what we've done so far and click the test game icon to run around your map to see your ramp in action.

Now you've got your very useful ramp, you may have found that it's a little higher than the terrain, possibly because, if like us, you sculpted the terrain to be different heights.

Once again, the tool bar comes to the rescue with the levelling tool.

This has two functions, both similar but with varying results. Used on its own as you can move all terrain up or down to a single height. Let's try this now by levelling our hill. Click on the icon shown above. For this demonstration, we've increased the size of the brush slightly and we will be starting at the opposite end of the hill like this:

Holding down the left mouse button move the brush along the top of the hill towards the ramp. You can also use the Blend tool again here to smooth over the areas where the new flat terrain meets the ramp. If all has gone well, you will have a map that looks like this.

Once again, this is a great time to save and then click Test Game again and have a look at your new flat terrain. Of course, flat terrain is all well and good, but may not be the natural look you're looking for. This brings us to the second function of the level tool which adds a little randomness to the smoothness giving a more natural feel.

You can access this mode simply by holding down Shift as you level the terrain. Let's do this now around the water line.

As you can see, the terrain along the edge of the water is now rougher, but still kind of level. Take a look at this in test game now.

So, already you can see our level taking shape, but it needs some more detail. We've one more terrain sculpting tool to look at before we can start adding some different textures to our terrain and that's the stored level tool.

This niffy little tool allows you to start fresh terrain on your map at the same height as some previously created. So, let us say that you want to make a valley with two equal sides.

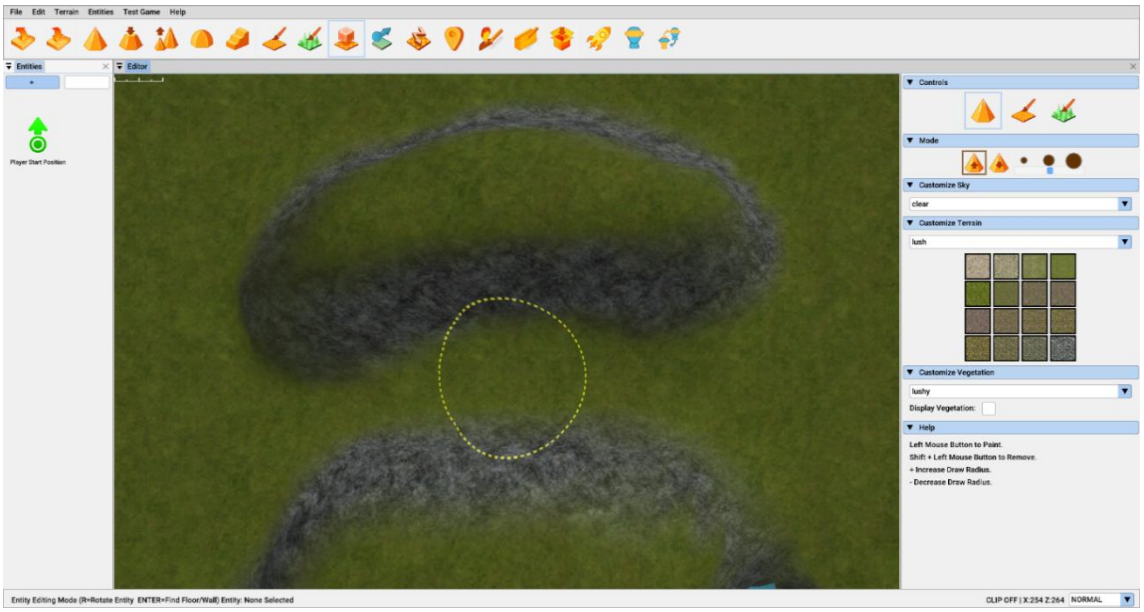
Firstly, to make sure you've got the level you want. Click on the Level tool and click on the end of your flat plateau, like this:

This will then store the last level used for future reference. Now click on the Stored Level icon and move the Editor Brush just up from the plateau.

As before, hold down the left mouse button to paint.

As you are now in stored level mode, all sculpting will automatically be at the same height as your stored level, like this:

This will probably be a little rough around the edges but can quickly and easily be cleaned up with a pass over from the blend tool.

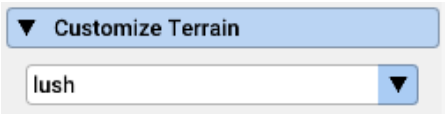


This is another ideal time to save, before you go back into test game to check out your masterpiece.

Your valley will look a little like this, still pretty basic, but we hope you can see where the tutorial is going.

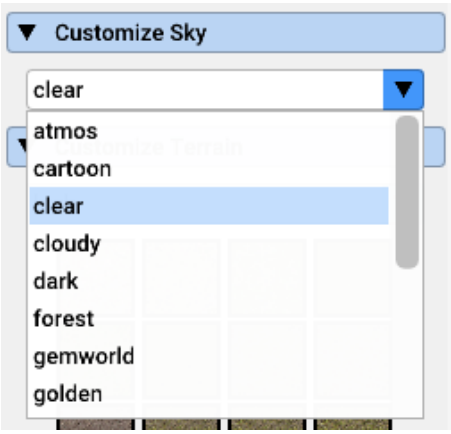
Terrain Style

Once you have started sculpting the terrain, you may feel that the standard colour palette isn't what you want t work with. Fortunately, there are several templates that are available to you, accessed through the sidebar. Simply click on whichever one you like, and it will be loaded directly into the editor.



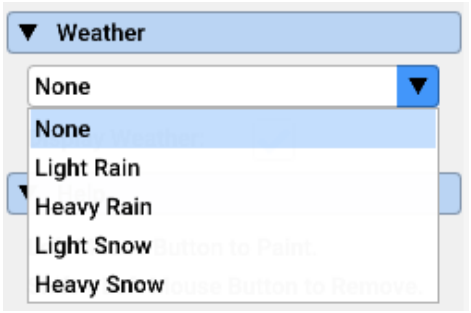
Sky Style

Now that you have the right terrain, it's time for the sky.

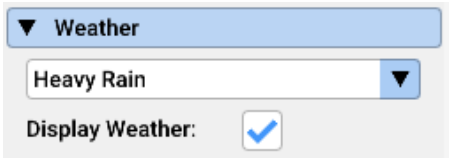


Weather Style

Finally, to round off the atmosphere, there are a good selection of weather effects to choose from to complete the ambiance of your scene.



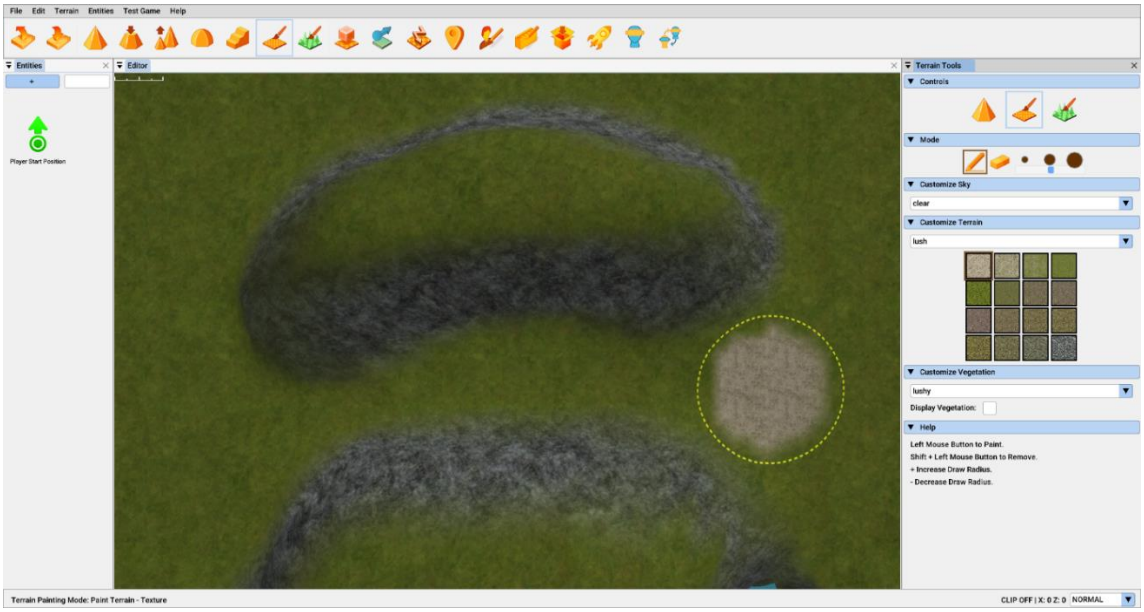
What's more, by checking the 'Display Weather' box, you can see the weather effect take place in real time in the editor window.



Terrain Painting

Now it's time to look at varying some of the terrain textures. Textures let you paint colours and designs onto the terrain area (so you don't just have to settle for green!)

For each terrain style, there are sixteen textures to choose from and these can be freely used to paint the terrain to suit your ideas. The textures will merge into each other gradually, leaving you free to paint without worrying about edges!



Now, you'll notice the palette of textures on the right side of the screen under the Terrain Tools/Customize terrain heading. Clicking on any of these will select it, allowing you to paint a mix of textures onto your terrain.

Try this now. We're going to add several textures to the map to add extra depth and quality to the appearance. Just as before you can alter the size of the Editor Brush using the [+] and [–] keys or you can use the icons under Terrain Tools/Mode.

Take a look at what you've created before in the below screenshot. Feel free to add your own style to your map. This is also another great time to save your map again.

If all goes well you might have something like this now.

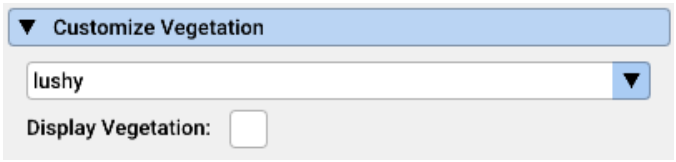
And when you test the game it will look like this in 3D.

Grass Painting

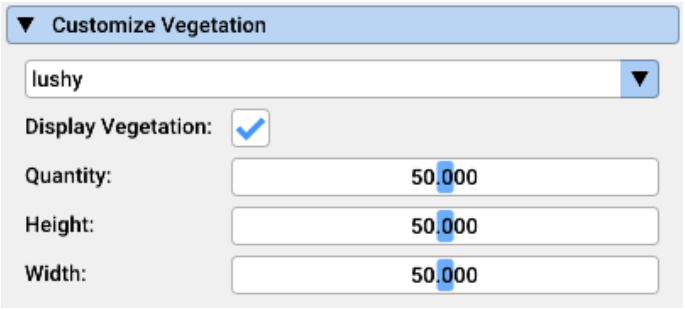
Now the new world is starting to take shape. Using the grass painting option, you can really start to add some real-life effects to your virtual world.

Click on this icon on your tool bar and paint grass in a similar way you painted the textures, but with grass you can have levels of density. As you draw the grass, you will notice that the density of the green colour will increase, and this is directly proportionate to how thick the grass will be in the world. Holding down the 'Shift' key while you paint will thin out the grass, so you can create quite a detailed level of grass in your scene.

On the menu on the right-hand side, you will see the following settings. If you check the 'Display Vegetation' option, you will be able to see your grass in the scene, and even change the style of the vegetation from the drop down list.



These properties can be adjusted to however you like, changing the height, width and quantity of plants in your scene, based on the thickness of the green color painted. You can also use the dropdown menu to change what time of grass is in your scene, all updated as you go.



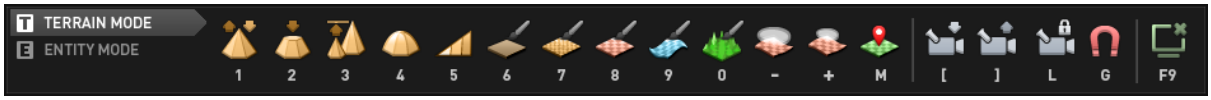
The green painted area shows you where vegetation will be applied to the terrain in your map.

Your map should now start to take on quite a natural feel.

3D Edit Mode and Visuals

Now that the scene is mostly complete, there are a couple more things that can be done to tweak the overall effect. The first one is the 3D edit mode.

When you are in Test Game mode, you can press F9 at any time to bring up the dynamic world editing toolbar.



This toolbar contains most of the world editing functions of the main editor, except they can be used from the direct perspective of the player. You can use this mode to tweak or fine tune elements of your world, increase or decrease the dynamic grass or smooth out the odd hill or valley.

Finally, once you are happy with the terrain, you can access the visuals menu by hitting the TAB key, twice.

These screens allow you to fine tune some of the elements of your world that are not present in the main editor widow, such as water, fog and graphics quality. You can also edit world elements that are also set from within the editor, such as terrain style and the sky style. Some times it's only when you are in this mode that you can fully appreciate how your choices will look.

Between these two tools you can tweak and fine tune your level to perfectly reflect your vision.

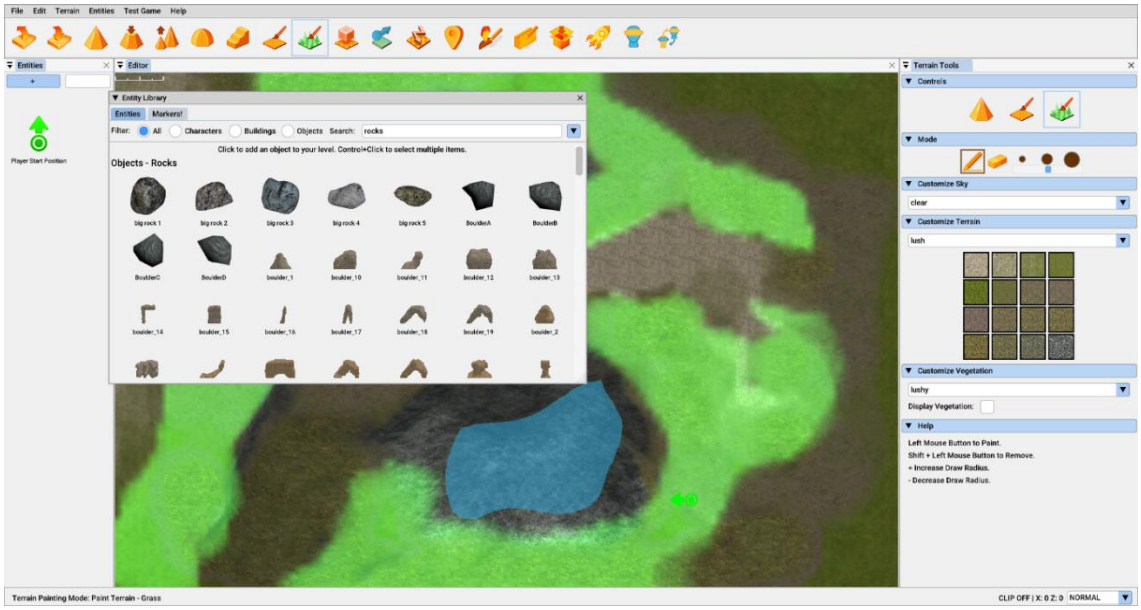
Entities

It's now time to think about a new type of object, the entity. An entity is anything that isn't terrain or a marker, this can be as simple as a 3D cube shaped object, it could be a complex 3D tree object or as even a fully animated, walking, talking character!

You access entities from the library tab in a similar way to placing a marker. Let's start by adding some rocks and some trees from the library into your game scene.

As you can see from the library, all you need to do to add an entity is click the [+] icon, then click on the entities tab. You'll then be taken to your full entity library.

For now, you're going to look at adding a little extra beauty to your level in the shape of trees and rocks. There's plenty to choose from in the library, so start by adding a few rocks which can be found by accessing the entities menu, selecting the 'Objects' radio button and searching through the assets. Alternatively, and more efficiently, the asset library can be searched by typing a keyword into the search box, in this case, rocks. This will show you all the objects in the asset library that match your search criteria.



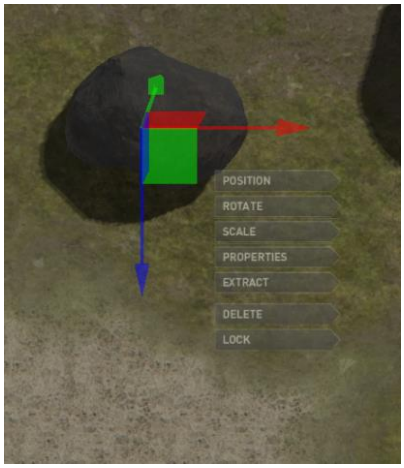
To select an entity, you just need to click on the model you want to add and move it into the editor window, as you'll see the model is attached to the pointer. Left click and it will be placed into the 3D world onto the terrain. Keep doing this process to add different rocks to your scene.

TIP: A single mouse click will place one rock model. If you want to place more of the same type, simply hold down the shift key at the same time as pressing left mouse button.

When you're happy with your rock formation in your scene, use Save As again to store your work safely to your storage and then take a look at the level in test game by pressing the rocket icon.

Things are taking shape nicely now, but all of the rocks are facing in the standard, default direction and size. It would be good if we could add a little variation to each one. This is where the widget tool comes in handy.

What's a Widget?



The Widget tool enable you to fine tune entities in your level, you can make tiny adjustments to the entities position, rotate around the x, y and z axis, scale the entities size, change its properties (more on that later), extract it completely, reposition it, delete it if you no longer need it or lock it in place so you don't accidently move it.

You can select any of these options simply by clicking on the sub menu. This is what each of the widget menu items do.

Description	Notes
POSITION	This is the entities position in the world, you can make fine adjustments to the entity position using the red, green and blue arrows of the widget. Just click and hold down, then move the mouse to move it the selected axis.
ROTATE	Use the widget wheel to turn the entity on the x, y and z axis. Click the wheel and drag to rotate.
SCALE	Click and drag the arrows to scale on the x, y and z axis or click and drag on the white box to scale equally across all axis.
PROPERTIES	Changes many facets of the entity's properties.
EXTRACT	This attaches the entity to the cursor and allows you to move it to a new location by clicking the left mouse button. Holding shift will allow multiple copies of the object to be placed.
DELETE	Completely removes the entity from the map.
LOCK	Locks the entity preventing any changes. Useful if you don't want to accidentally move objects that you consider are in their correct place. Hold the spacebar and hover over the entity to unlock it.

Let's take a more in-depth look at scaling and rotation.

Left click on one of your rocks and select the rotate menu item. We're using a large rock as an example, but this will work for any of them.

You'll notice the three rings surrounding the entity, one for each of the three axis.

In this example we've rotated a few rocks, you can do this yourself by holding down the left mouse button while over any of the rings and dragging the mouse. Try this yourself and look in test game.

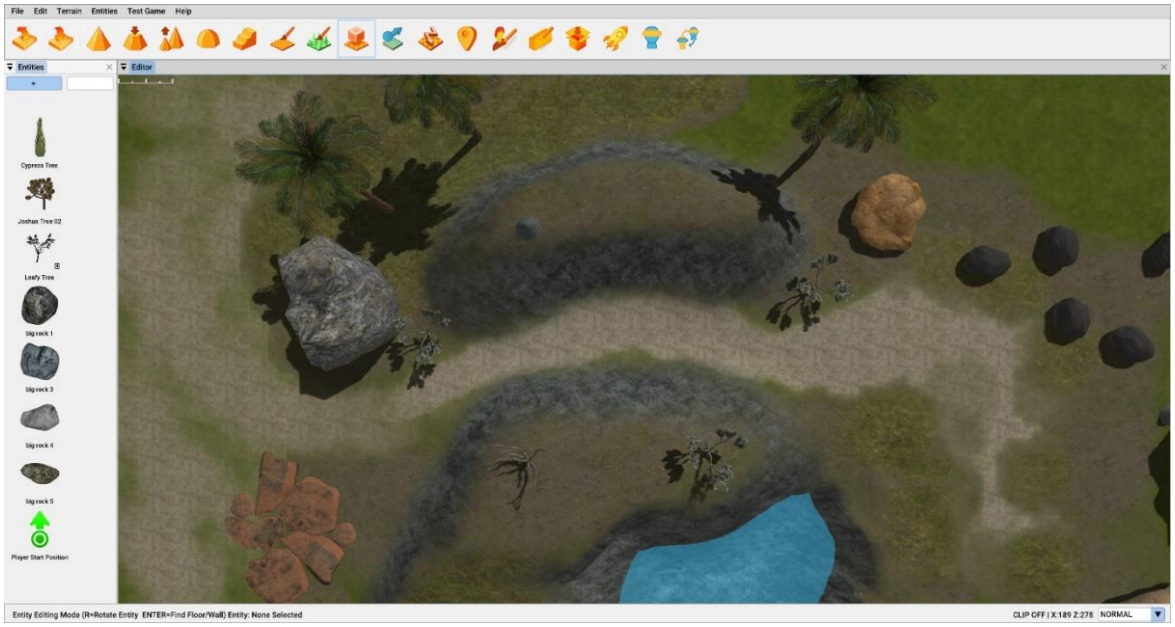
Now save your changes once again and look at scaling. You can access the scale menu in the same way as rotation.

You can scale along any of the three axis. Just hover over the pointers, holding down the left mouse button and dragging. You can also scale equally by hovering over and dragging the white box (this scales all three axis at the same time).

We've scaled a few rocks in our test map.

Give this a go yourself, play around a little more with scaling and rotation to get a feel for it. You might need to occasionally extract the model to better position it on your map. Why not go back through some of the areas we've discussed and try adding a few plants and trees from the library by searching for those keywords. When happy, save your level once more and we'll move on.

We've added a few trees to our level and of course saved it again. We're sure you've been in and out of test game to look at your level in all of its 3D glory but go in and look at the level you've developed and have fun looking around and exploring it.



3. Entities Sidebar

Before we continue, let us quickly go over how you can interact with entities. When you select an entity, you will be able to interact with it using the widget, or a more comprehensive list of options on the right-hand side of the screen. These are broken down into Controls and Mode.

Controls

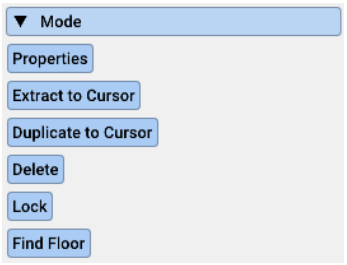
The Position, Rotation and Scale options are the same as the widget. Selecting each of these will change the widget to allow you to manipulate the entity.

Mode

The following options will allow you to interact with the entity in a more detailed way, such as changing the properties or cloning the entity to be used again in the scene, or even deleting it completely.

Properties

Properties will allow you to access the individual properties of an entity such as name, their A.I. behaviours, the sound they make and more.



Extract to Cursor

This option will remove the entity from the world and place it back on the cursor to be placed elsewhere.

Duplicate to Cursor

This option will make a copy of the selected entity and place it on the cursor to be placed elsewhere in the word. The original entity will remain where it is.

Delete

This option will delete the entity completely.

Lock

The option will lock the entity in place and make it unable to be selected or accidentally moved.

Find Floor

This option will look what is underneath the object and calculate the level of the floor beneath it. This may include the actual floor, a surface such as a table or bench or even a roof. Use this to make sure objects are placed precisely with the terrain floor or other objects. Manually moving objects just above the floor can be very difficult so this feature does it for you.

4. VR Mode and Social VR

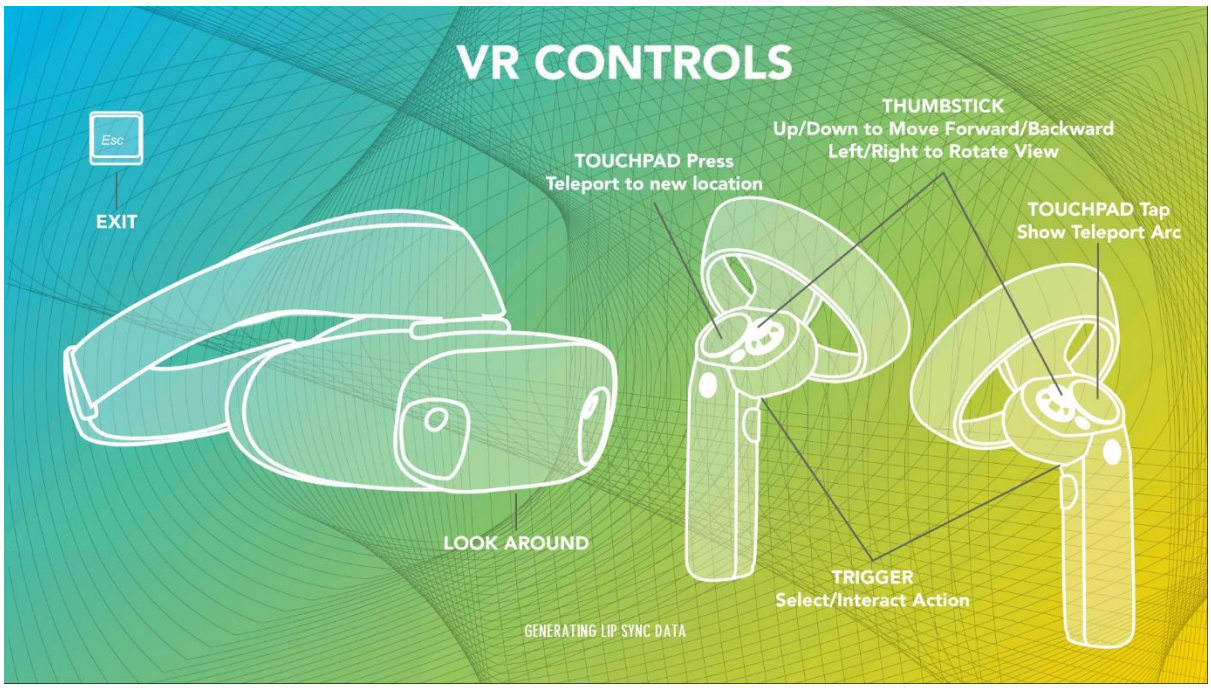
Playing the Game in Virtual Reality

When students are ready to play their games in VR, the real fun starts. Before playing in virtual reality, make sure that the Windows Mixed Reality Headset and one handset (or both if you prefer) are ready for use on the PC you are using. Then you can click the VR Mode Icon.

Opening the Game in VR

With the handset plugged into the computer and batteries in the handset, open up the VR Quest application. The Microsoft mixed reality portal will pop up as VR Quest opens and will finish loading in the background.

Then you can open the game you would like to experience in VR. With the headset ready, and the handset turned on, click the VR Icon to start VR. The loading page will show VR Controls information and once the files are loaded, and the game is ready to start, you will see a message to press the spacebar.



After a few moments, you will see the game on the screen while the VR player will play the game in VR inside the headset.

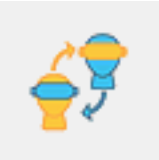
To exit the experience, you just need to hit the ESC key, although you may need to take your headset off first to see the keyboard.

Playing the Game in VR with Others

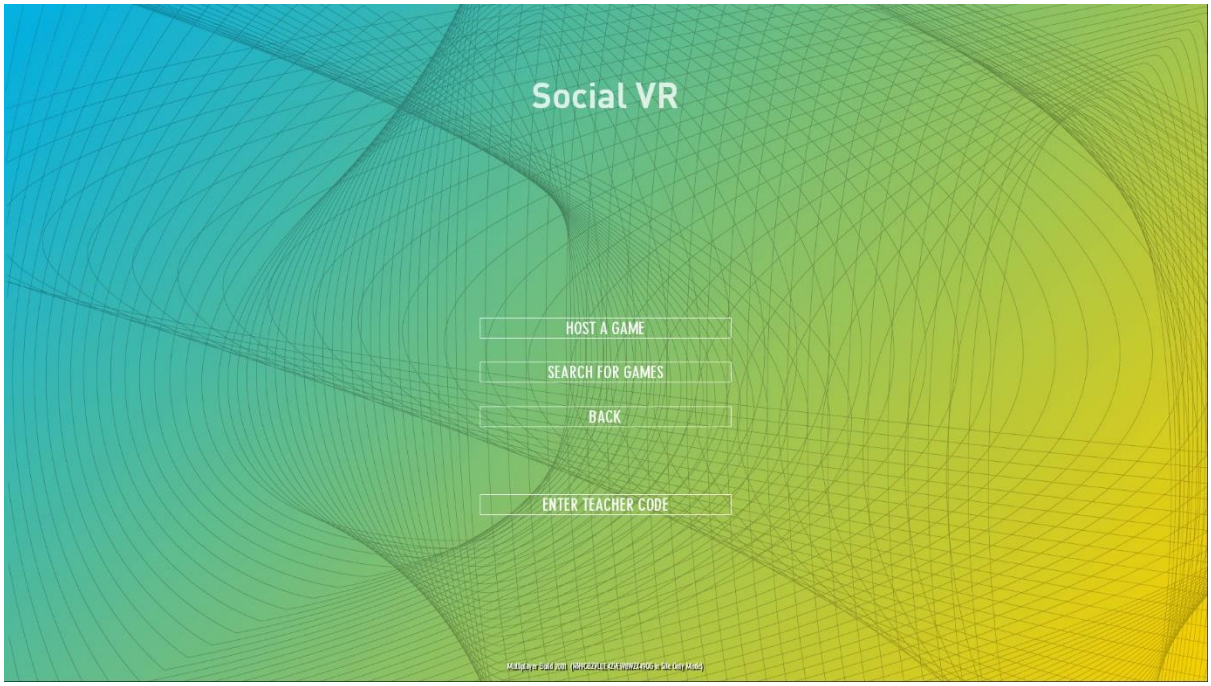
Once you are ready to share your games with others, you can have several players in the game at the same time via multiplier or the Social VR feature. There can be up to eight players in the same game, however, if performance is affected, try limiting a game to just a few players at one time. The gameplay will be very similar to the solo VR play but the screens to get into the game are different.

Entering Social VR

Enter Social VR by clicking on the menu icon on the far right, this will bring you to the Social VR menu screens.

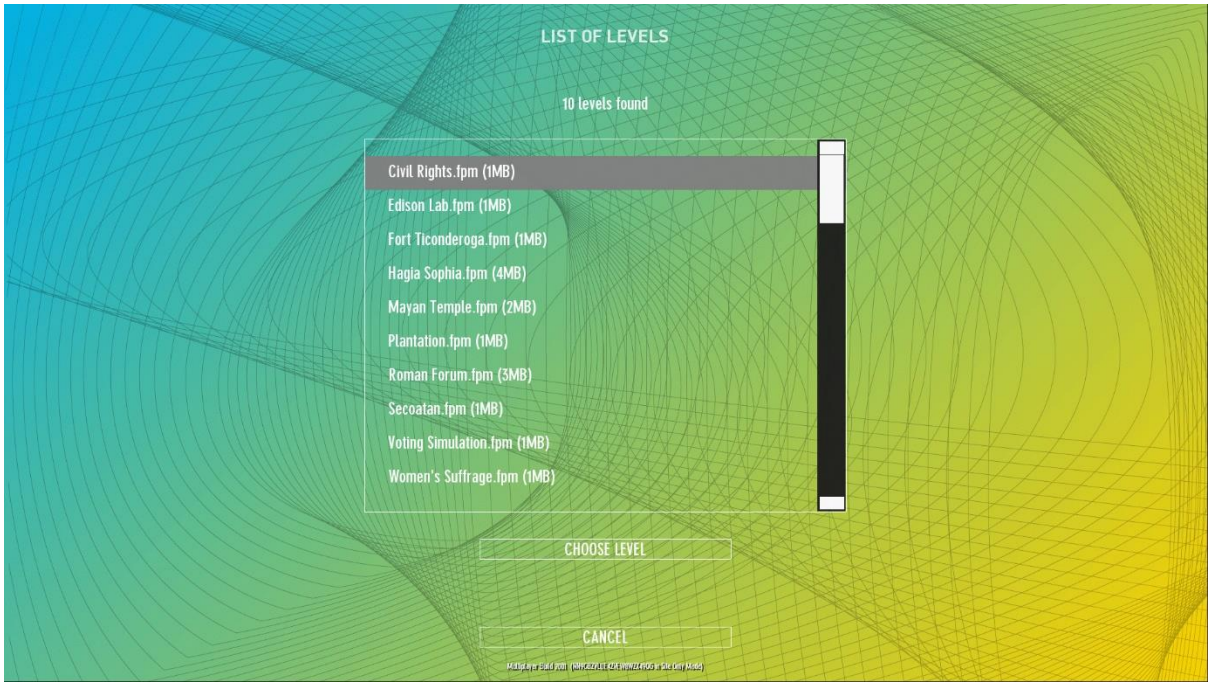


Once in, you will see several buttons:



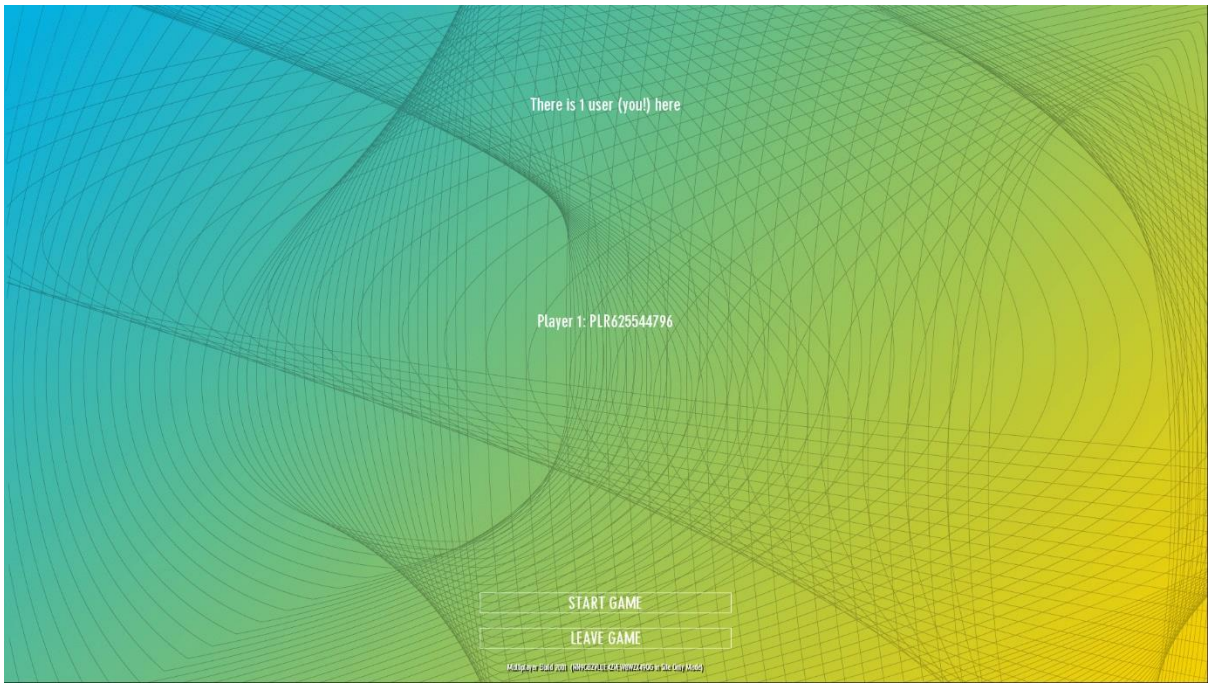
Sharing/Hosting a Game

To share or host a game, click on the **HOST A GAME** button and from the list on the screen, select one of the levels in the list. Then, click the **CHOOSE LEVEL** or **CANCEL** to exit.



The files listed on this screen are the same map level filenames that you see when you go to the File/ Open menu in the main editor screen.

Once you click **CHOOSE LEVEL**, you will be sent to the game hosting area. This will list all the players who have chosen to join the game.



You can also choose to **START GAME** or **LEAVE THE GAME**.

You will see the message about sharing the game and the VR Controls loading screen will pop up and when ready, the player who is hosting can press the space bar to get into the game.

Joining a Shared Game

The other 1-7 players will click on the Search button and will be taken to a list showing games that are being shared.

Then, they should select the game from the list, and click the **JOIN GAME** button.

The players who have selected a shared game will also see the list of players in the same game. Once the host starts the game, they will see that files are being shared from the host game and will see the progress of the files getting downloaded.

Then, you will see the VR Controls screen, loading up the main application files.

The final step is to click on spacebar, then put on the headset and grab your handsets. Once inside the game, you will see the other players and can begin the game.

Exiting a Social VR Game

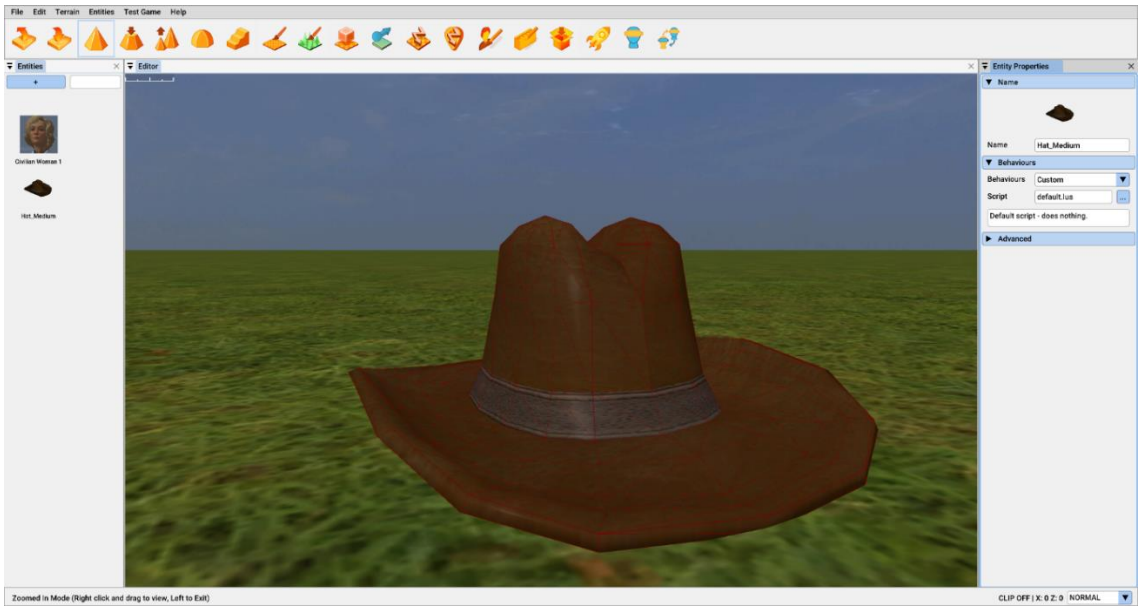
Hit the ESC key to exit out of the VR game. Then press the BACK button to get back to the editing screen. Only the host will have access to the game files that were hosted during this time from their computer.

Entering a Teachers Code

Usually, students can only see games shared from within a school or district; anyone using a specific installed licence key. The teacher code will allow the machine to see any game shared across all VR Quest installs.

5. AI Scripts

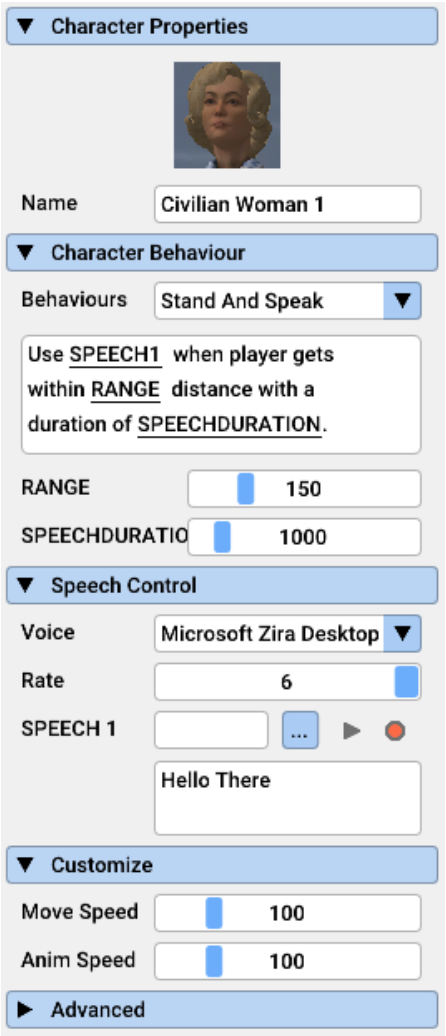
When you enter the properties menu of an entity, you will see the sidebar show some information concerning the object, for example, this hat entity in the screenshot below.



In this case, the sidebar shows the name of the object, a custom AI script, and a brief description of what this item does – in this case, nothing.

The dropdown option for behaviours can be changed to suit your level, for example, the hat may be made into a key (in a surreal game)!

For characters, there is usually a little more to it. For example, in the properties of a female character shown below, this standard Non-Player Character (NPC) has it's behaviour listed as **Stand and Speak**, and in plain text it tells you what this AI will do:

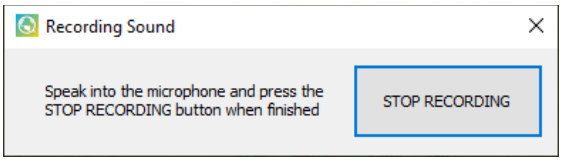


Use SPEECH1 when the player gets within RANGE distance with a duration of SPEECHDURATION

Further down, you can see both the RANGE value and SPEECHDURATION value are editable, allowing you to quickly and easily tailor the behaviour script to suit your needs.

Below that, you can see Speech Control where you can set the voice, speed and the actual text that the NPC will say!

If that wasn't neat enough, you can also record your own voice by selecting the small record button. Simply click record, say what you would like the NPC to say, and then click 'Stop Recording'.

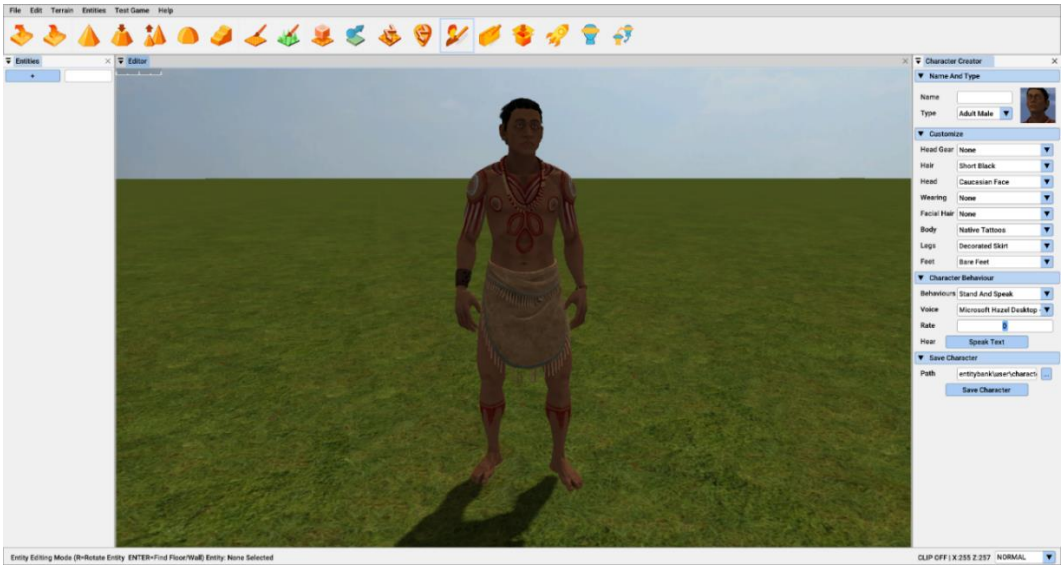


The engine will then save that to your computer and work out how the characters lips will move to match your recording!

Try adding a character to your level, changing its behaviour values and see how it affects the NPC. Also try some of the other behaviours and see how they can be tailored to suit your specific needs.

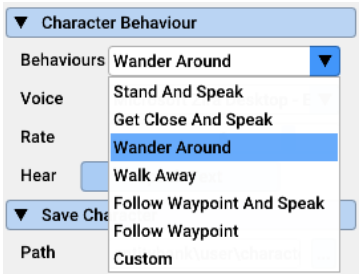
6. Character Creator

The Character Creator tool allows you to create all sorts of characters for your world, with fully customisable features and items. To begin, click the following Icon from the menu.

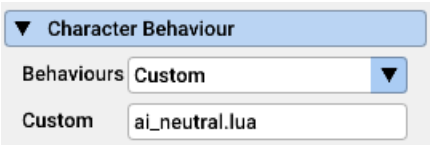


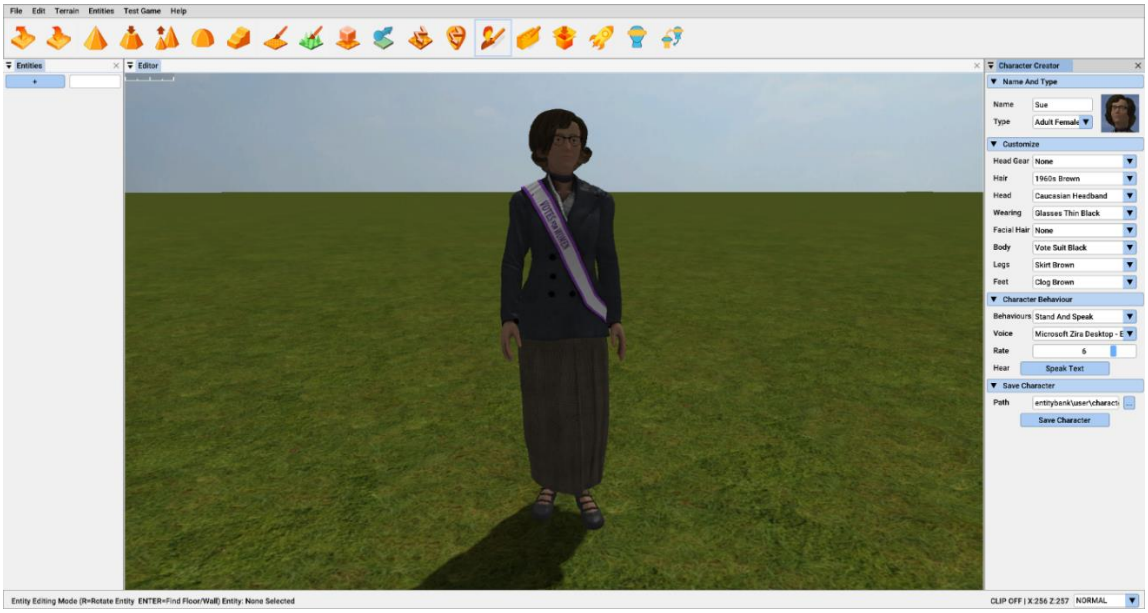
You will first see a screen with a default character and lots of options to choose from on the right-hand side. From here, you can choose from the various dropdown choices to create a huge assortment of characters!

To make your characters even more unique, you can change their character behaviours. The dropdown menu for behaviours contains several types such as 'Wander Around', or 'Follow Waypoint'.



There is also a 'Custom' option where a LUA Script can be specified directly, this is where you could specify a custom behaviour that you have created yourself. This is for the more advanced users who may have LUA coding experience (so not for most users).



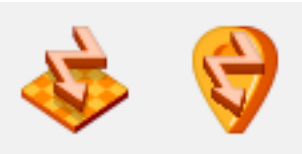


Once you are happy with your new character, remember to give them a good name, and select ‘Save Character’. You can now select this character from the library like you would any other entity. You will find your creations in the ‘User’ section of the entity library.

7. Waypoints

Creating Waypoints

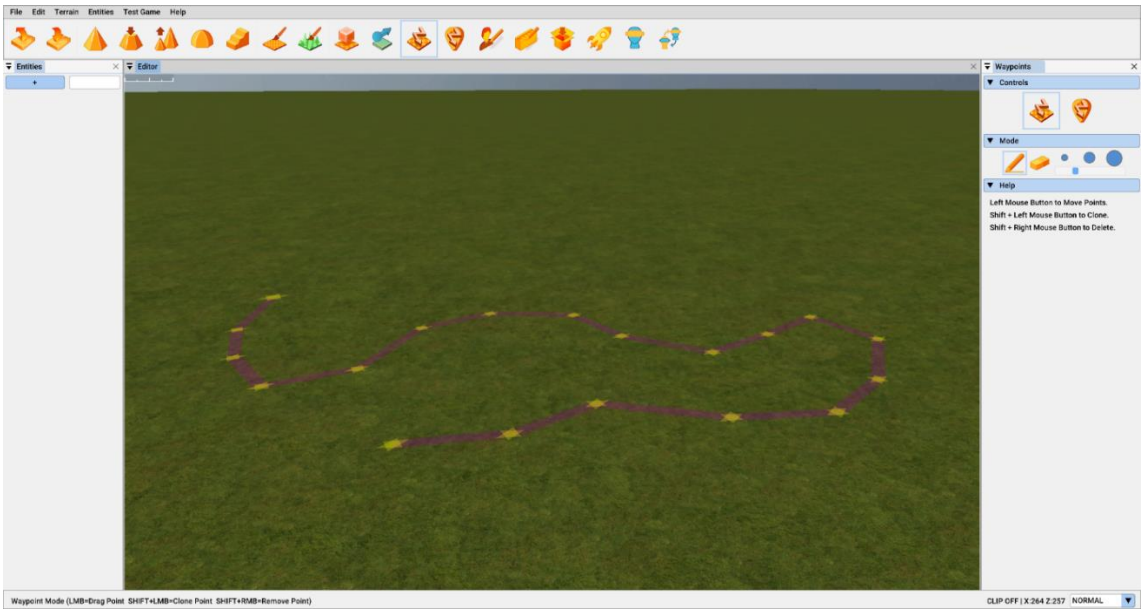
Waypoints are a way to have the character entities in your level follow a path determined by you. The 'Waypoint Editing Mode' and 'Draw Waypoint Path' icons are both used together to make this happen.



The 'Draw Waypoint Path' is first used to draw a rough path that you would like your characters to follow, and the 'Waypoint Editing Mode' is then used to tweak and adjust that path, adding new nodes and removing them as the situation needs.

The Mode section from the right sidebar will allow you to adjust the spacing between the nodes, the smaller the value, the more nodes you will have and the smoother the path will be.

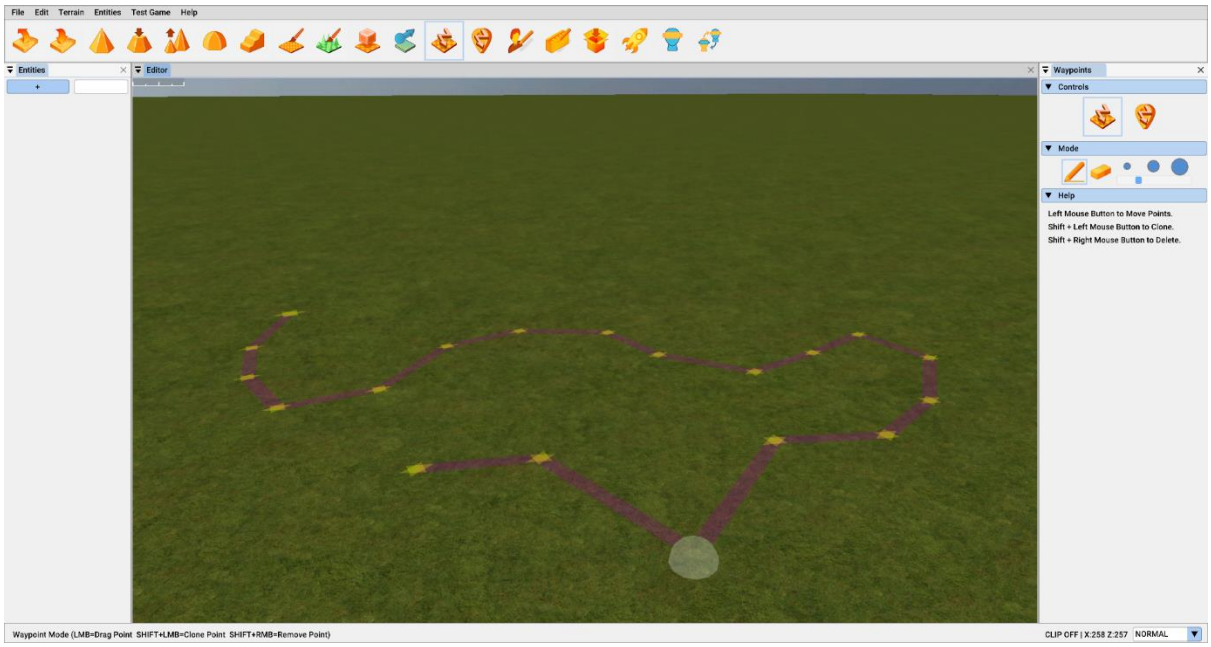
In the Editor window, if you left click and drag on the floor, you will be able to draw a path and you should end up with something like this.



The Waypoint Edit Mode will be automatically selected after each path is drawn.

Waypoint Edit Mode

After you have drawn your path, you can select any of the nodes that have been created and individually move it elsewhere. Holding SHIFT before left clicking to move a node will split that node to increase the precision of the path.

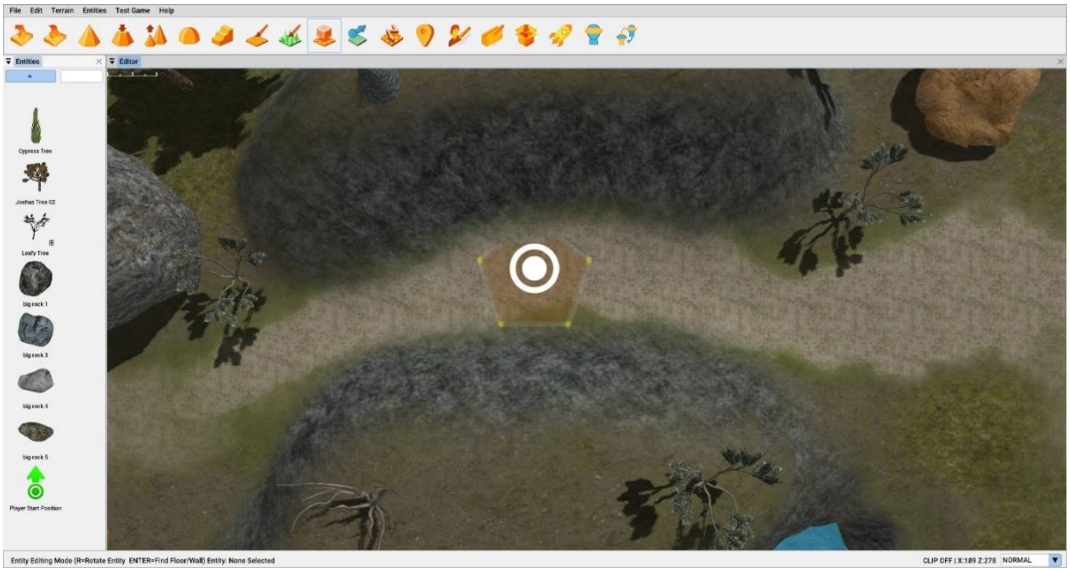


Remember, that the very first node created in any path is the 'Root' of the path. If this is deleted, then the entire path will be deleted. This is useful to delete a path that is no longer required.

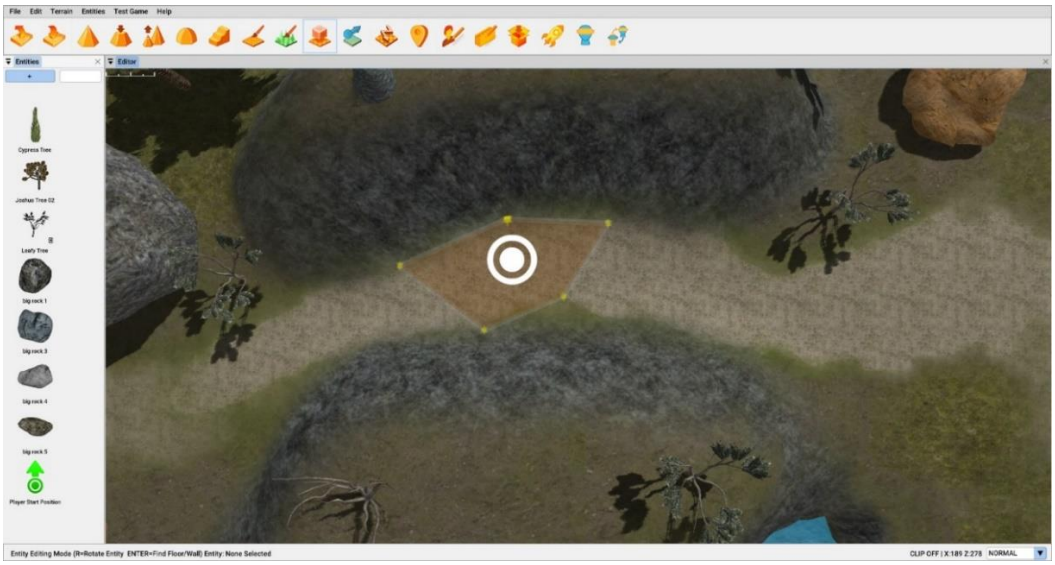
8. Win Zones

The level should now be coming along nicely and start to look a little like a completed scene now.

For the final part of this getting started tutorial we will add a Win Zone object. We've decided for our level that the player simply must cross the map from the start position and enter the Win Zone to escape, so let's place one of these win zones. As mentioned, the win zone is just another type of marker. Move your editor window view to where you want to place your win zone. Click the [+] icon, and then the markers tab. Now scroll down and select Win Zone from the library window. The zone will attach to your pointer and can be placed manually with the left mouse button



You'll notice that the Win Zone has stars around the edges, which can be clicked on and dragged to form any 5-pointed shape you like. All zone nodes can be moved and edited in this way. We want our win zone to cover an area large enough so the player can win by entering it from several directions, so we're going to move the zone stars to shape the size of the zone to fit the terrain, like so:

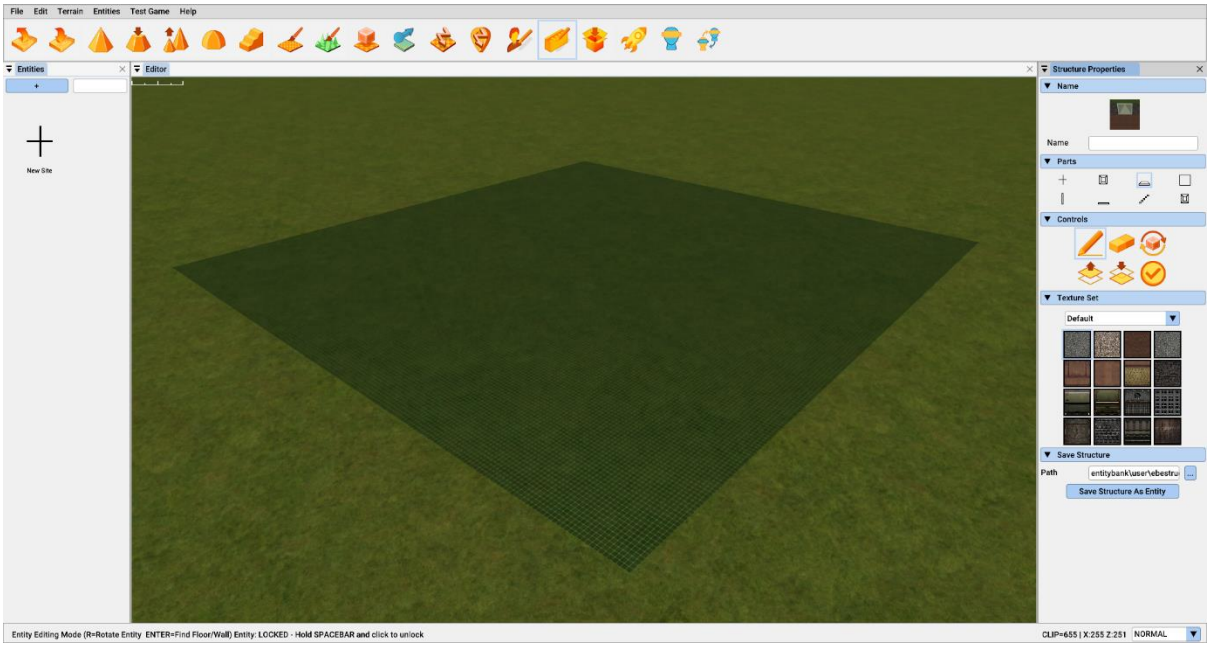


Now test the game and you should see the level complete message when you reach and enter the win zone.

9. Structure Editor

The Structure Editor will let you create a huge assortment of structures for your worlds, using an intuitive modular construction system. To begin, click the following Icon from the menu.

After clicking, you will notice a small icon attached to your cursor, and a ‘New Site’ in your entity library. By placing this onto your terrain, you will place the site of your new structure, and be presented with the following screen.



This is the construction area of your new structure, where you can place floors, walls, doors and everything else you need. The grid plan is a rigid structure made up of 10 tiles by 10 tiles, with each tile consisting of 20 by 20 cubes.

Textured blocks and bricks can be used to build your structures from scratch, and then save them as standalone entities for your characters to discover and explore.

Here's what all these features do.

Name

This is what the structure entity will be called after construction has finished. You'll need to assign a name to your structure, otherwise you will be unable to save it.

Parts

- New Site: Create a new structure.
- Draw with a small 1x1 sized cube
- Floor – draws 20x20x1 flat floor sections
- Wall - make 20x1x20 wall sections
- Column - creates 1x1x20 long blocks
- Row - horizontal 20x1x1 blocks
- Block – a larger 2x2x2 cube

Controls

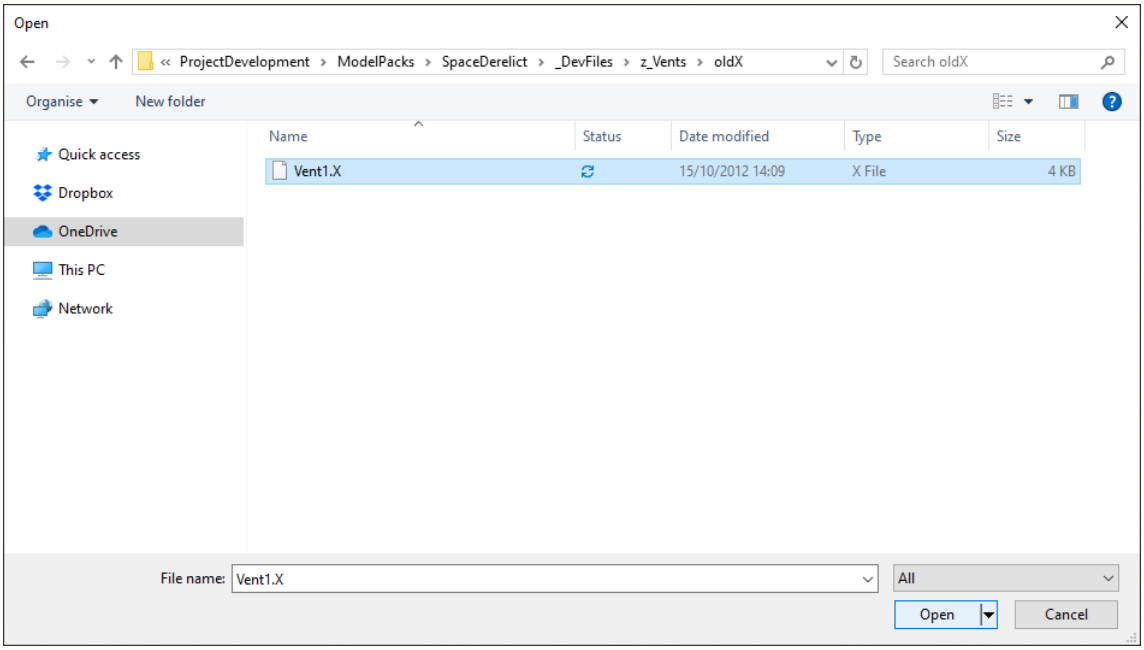
- Paint - applies the selected part to the schematic
- Delete - removes the selected part from the schematic
- Rotates the selected part 90 degrees
- Raises the editing of the structure up to the next level
- Lowers the editing by a level
- Confirms the editing and takes you out of edit mode allowing you to place your construction onto the terrain.

The texture set section lets you select from a range of textures which will be applied to the part painted on the schematic. By choosing different parts and textures, you can create a wide array of structures. The dropdown menu will allow you to select additional custom texture plates to create an even greater variety of structures for your world.

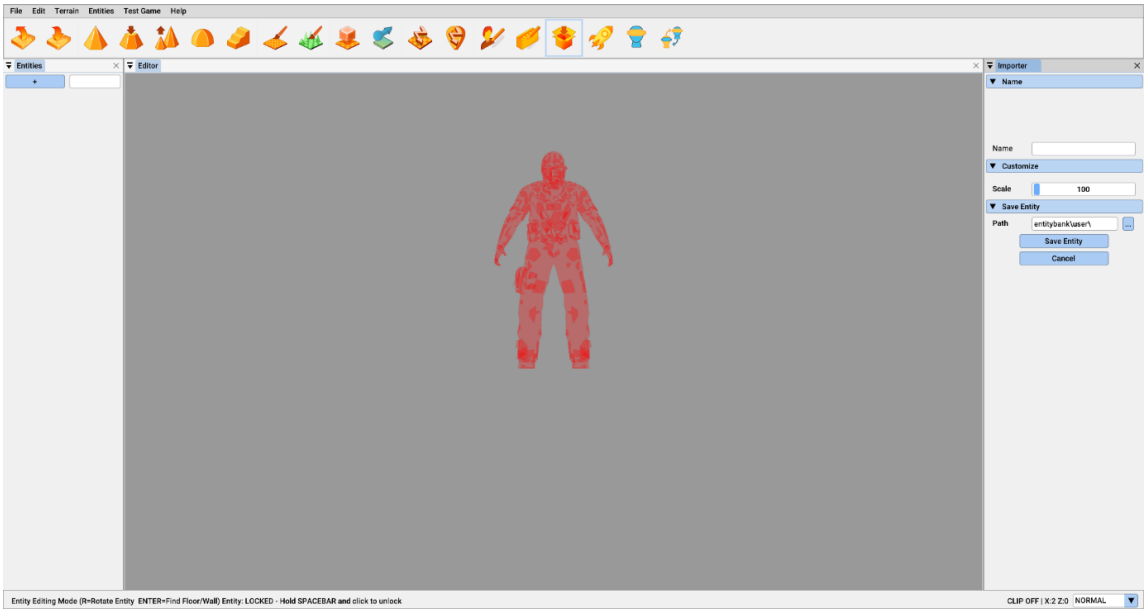
Finally, once you are happy with your structure, and have given it a suitable name, you can save the structure as a standalone entity, which you can then use to populate your world with lots of structures!

10. Importing Custom Entities

For the more advanced users who wish to use some of their own models, there's a powerful importer that will let you bring in your 3D model files. The format supported are .FBX or .X files. To start, you need to have a model prepared and ready for importing, then click the following icon in the menu.



You will then be shown a screen where you can choose your model. Either double click on the mesh file or left click and select Open. This model will then be loaded and converted.



An image of a character is shown so that you can compare the scale of the object you are importing with the width and height of a character as seen in game. Say you imported a castle object, you would not want the castle to be smaller than the man, it would not look right in game.

From this screen, you can setup initial values, such as name, scale through the sidebar on the right-hand side of the screen.

Once you are happy with your import settings, you can save the entity into the VR Quest Library. This can now be selected from the menu like any other object in VR Quest.

11. Wrapping Up

We've saved our map one last time and now we can test out our final, small but complete level.

When you enter the WinZone, if you take a look at the bottom of the screen, you'll see the message Level Complete Triggered. In test game this indicates that the level is over, but you'll still be able to move around and try other things.

If you've built a Standalone, your experience will either end if this is the last level, or if not, it will load in the next level.

Don't forget, for advice on a wide variety of areas or for technical support contact the support service at https://vrquest.com/

12. FAQ

My VR hardware is not showing as detected by my PC
If your VR hardware is not initially detected, you may need to reboot your computer or restart the software. If VR Quest was already on, it is possible the headset or the handset may be asleep and the easiest way to get it going again is to close VR Quest, saving any game in progress, and the Mixed Reality Portal and open a VR Quest again to refresh.