DEADFORCE

REDEMPTION

ENGINE TECHNICAL GUIDE

YOU DO NOT HAVE PERMISSION TO MODIFY KEY FEATURES WITHIN THE PROTOTYPE

(see section 1 for details)

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Engine Modification Permissions

While you're working with the **DeadForce** prototype, there are certain areas you will not have permission to modify, if you break the systems in-place you can cause mass delays with the production. The list below is all the areas you **DO NOT** have permission to modify. Failure to follow this procedure will result in reduced marks.

Upgrading the project to a newer version of Unreal Engine 4 is also not permitted, you should be working in version **4.16.**

- **Characters > PlayerCharacter**
  - 3P_Player Character
  - 3P_PlayerAnimBP
  - 3P_PlayerController
- **Characters > EnemyCharacters**
  - BaseEnemy_AnimBP
  - BaseEnemyCharacter_BP **(adjusting Pawn Sensing is acceptable)**
- **Characters > EnemyCharacters > AI**
  - ChangeCombatStatus_BTS
  - CheckDistanceToPlayer_BTD
  - CheckFiring_BTD
  - CombatStatus_ENUM
  - CombatType_ENUM
  - EnemyAI_BehaviorTree
  - EnemyAI_Blackboard
  - EnemyAI_Controller
  - FindCover_BTT
  - GetWaypoints_BTT
  - SetIsTakingCover_BTT
  - SetMoveSpeed_BTT
  - StartStopFiringWeapon_BTT
- **Characters > UE4_Mannequin > Materials**
  - DissolveFunction
  - M_UE4Man_Body
  - M_UE4Man_ChestLogo
- **Characters > UE4_Mannequin > Materials > MaterialLayers**
  - ML_GlossyBlack_Latex_UE4
  - ML_Plastic_Shiny_Beige
  - ML_Plastic_Shiny_Beige_LOGO
  - ML_SoftMetal_UE4
  - T_ML_Aluminum01
  - T_ML_Aluminum01_N
  - T_ML_Rubber_Blue_01_D
  - T_ML_Rubber_Blue_01_N
- **Characters > UE4_Mannequin > Mesh**
  - DissolveComponent
  - SK_Mannequin
  - SK_Mannequin_PhysicsAsset
  - UE4_Mannequin_Skeleton

- **Characters > UE4_Mannequin > Textures**
  - DissolveTexture_D
  - UE4_LOGO_CARD
  - UE4_Mannequin_normals
  - UE4_Mannequin_MAT_MASKA
  - UE4_Mannequin_occlusion
  - UE4Man_Logo_N
- **GameFiles**
  - 3P_GameInstance
  - 3P_GameMode
  - 3P_GameState
- **Interfaces**
  - CoverInterface
  - DamageInterface
- **Sounds**
  - LaserShot_FX
- **StandardAssets > Skyboxes**
  - BP_LightStudio
  - FogBrightnessLUT
  - HDRI_Epic_Courtyard_Daylight
  - M_LightStage_Arrows
  - M_LightStage_Skybox_Black
  - M_LightStage_Skybox_HDRI
  - M_LightStage_Skybox_Master
  - Skybox
  - SM_Arrows
  - SunlightColorLUT
- **Weapons > FX > Materials**
  - M_AssaultRifle_MuzzleFlash_4x1
  - M_AssualtRifle_Core_01
  - M_CrystalRefraction_01
  - M_Debris_Tileable_01
  - M_Ember_01
  - M_Ember_Speed_01
  - M_Exp_A_Inst
  - M_Exp_B_Dark_Inst
  - M_Exp_B_Light_Inst
  - M_Exp_C_Dark_Inst
  - M_Exp_C_Light_Inst
  - M_Exp_D_Dark_Inst
  - M_Exp_D_Light_Inst
  - M_Explosion_8x8_A_01
  - M_GlowSphere_01
  - M_GlowSphere_02
  - M_Knife_RibbonTrail_01
  - M_LightRay_01
  - M_Pistol_MuzzleFlash_4x1_A
  - M_Pistol_Streaks_01

- M_Plasma_01
- M_Plasma_Inst_A_Dark
- M_Plasma_Inst_A_Light
- M_Plasma_Inst_B_Dark
- M_Plasma_Inst_B_Light
- M_Plasma_Inst_C_Dark
- M_Plasma_Inst_C_Light
- M_Plasma_Inst_D_Dark
- M_Plasma_Inst_D_light
- M_Plasma_Inst_E_Dark
- M_Plasma_Inst_E_Light
- M_Plasma_Inst_F_Dark
- M_Plasma_Inst_F_Light
- M_Plasma_Inst_G_Dark
- M_Plasma_Inst_G_Light
- M_Plasma_Inst_I_Dark
- M_Pop_01
- M_RockMesh_01
- M_RockSmall_01
- M_Shockwave_01
- M_Shockwave_Refraction_01
- M_Smoke_8x8_B_01
- M_Smoke_Inst_A
- M_SmokeRibbon_01
- M_Sparks_02
- M_SparksImpact_2x2_01
- M_Tracer_A
- M_Tracer_B
- M_Woodchips_8x1_01

❖ **Weapons > PlayerWeapons**
- AssaultRifle_BP
- BaseWeapon_BP
- Shotgun_BP

❖ **Weapons > Projectiles**
- AssaultRifleProjectile_BP
- BaseProjectile_BP
- ShotgunProjectile_BP
- SniperRifleProjectile_BP

❖ **Weapons > Sound > Attenuation**
- Explosion_att
- ProjectileImpact_att
- RocketLoop_att
- WeaponHandling_att
- WeaponShot_att
- WeaponShotClose_Att

❖ **Weapons > Sound > GrenadeLauncher**
- GrenadeLauncher_Bounce_Cue
- GrenadeLauncher_Explosion_Cue

- GrenadeLauncher_Lower_Cue
- GrenadeLauncher_Raise_Cue
- GrenadeLauncherA_Fire_Cue

❖ **Weapons > Sound > GrenadeLauncher > Wavs**

- GrenadeLauncher_Bounce01
- GrenadeLauncher_Bounce02
- GrenadeLauncher_Bounce03
- GrenadeLauncher_Bounce04
- GrenadeLauncher_Bounce05
- GrenadeLauncher_Bounce06
- GrenadeLauncher_Explosion01
- GrenadeLauncher_Explosion02
- GrenadeLauncher_Explosion03
- GrenadeLauncher_Explosion04
- GrenadeLauncher_Explosion05
- GrenadeLauncher_Lower
- GrenadeLauncher_Raise
- GrenadeLauncherA_Fire01
- GrenadeLauncherA_Fire02
- GrenadeLauncherA_Fire03
- GrenadeLauncherA_Fire04
- GrenadeLauncherA_Fire_Dist01
- GrenadeLauncherA_Fire_Dist02
- GrenadeLauncherA_Fire_Dist03
- GrenadeLauncherA_Fire_Dist04

❖ **Weapons > Sound > Knife**

- Knife_ImpactSurface_Cue

❖ **Weapons > Sound > Knife > Wavs**

- Knife_ImpactSurface01
- Knife_ImpactSurface02
- Knife_ImpactSurface03

❖ **Weapons > Sound > Pistol**

- Pistol_Lower_Cue
- Pistol_Raise_Cue
- Pistol_ReloadEject_Cue
- Pistol_ReloadInsert_Cue
- Pistol_Whip_Cue
- PistolA_Fire_Cue

❖ **Weapons > Sound > Pistol > Wavs**

- Pistol_Lower
- Pistol_Raise
- Pistol_Whip01
- Pistol_Whip02
- Pistol_Whip03
- Pistol_Whip04
- Pistol_Whip05
- PistolA_Fire01
- PistolA_Fire02

- PistolA_Fire03
- PistolA_Fire04
- PistolA_Fire05
- PistolA_Fire06
- PistolA_Fire_Dist01
- PistolA_Fire_Dist02
- PistolA_Fire_Dist03
- PistolA_Fire_Dist04
- PistolA_Fire_Dist05
- PistolA_Fire_Dist06

❖ **Weapon > Sound > Rifle**

- Rifle_ImpactBody_Cue
- Rifle_ImpactSurface_Cue
- Rifle_Lower_Cue
- Rifle_Raise_Cue
- Rifle_Whip_Cue
- RifleA_Fire_Cue
- RifleA_FireEnd_Cue
- RifleA_FireLoop_Cue

❖ **Weapon > Sound > Rifle > Wavs**

- Rifle_ImpactBody01
- Rifle_ImpactBody02
- Rifle_ImpactBody03
- Rifle_ImpactBody04
- Rifle_ImpactBody05
- Rifle_ImpactBody06
- Rifle_ImpactSurface01
- Rifle_ImpactSurface02
- Rifle_ImpactSurface03
- Rifle_ImpactSurface04
- Rifle_ImpactSurface05
- Rifle_ImpactSurface06
- Rifle_Lower
- Rifle_Raise
- Rifle_Whip01
- Rifle_Whip02
- Rifle_Whip03
- Rifle_Whip04
- Rifle_Whip05
- RifleA_Fire01
- RifleA_Fire02
- RifleA_Fire03
- RifleA_Fire04
- RifleA_Fire05
- RifleA_Fire06
- RifleA_Fire_Dist01
- RifleA_Fire_Dist02
- RifleA_Fire_Dist03

- RifleA_Fire_Dist04
- RifleA_Fire_Dist05
- RifleA_Fire_Dist06
- RifleA_FireEnd01
- RifleA_FireEnd02
- RifleA_FireEnd03
- RifleA_FireEnd_Dist01
- RifleA_FireEnd_Dist02
- RifleA_FireEnd_Dist03
- RifleA_FireLoop01
- RifleA_FireLoop02
- RifleA_FireLoop03
- RifleA_FireLoop_Dist01
- RifleA_FireLoop_Dist02
- RifleA_FireLoop_Dist03

❖ **Weapon > Sound > RocketLauncher**

- RocketLauncher_Explosion_Cue
- RocketLauncher_InAirLoop_Cue
- RocketLauncher_Lower_Cue
- RocketLauncher_Raise_Cue
- RocketLauncherA_Fire_Cue

❖ **Weapon > Sound > Wavs**

- RocketLauncher_Explosion01
- RocketLauncher_Explosion02
- RocketLauncher_Explosion03
- RocketLauncher_Explosion04
- RocketLauncher_Explosion05
- RocketLauncher_InAirLoop
- RocketLauncher_Lower
- RocketLauncher_Raise
- RocketLauncherA_Fire01
- RocketLauncherA_Fire02
- RocketLauncherA_Fire03
- RocketLauncherA_Fire04
- RocketLauncherA_Fire_Dist01
- RocketLauncherA_Fire_Dist02
- RocketLauncherA_Fire_Dist03
- RocketLauncherA_Fire_Dist04

❖ **Weapon > Sound > Shotgun**

- Shotgun_ImpactBody_Cue
- Shotgun_ImpactSurface_Cue
- Shotgun_Lower_Cue
- Shotgun_Raise_Cue
- Shotgun_Reload_Cue
- ShotgunA_Fire_Cue

❖ **Weapon > Sound > Shotgun > Wavs**

- Shotgun_ImpactBody01
- Shotgun_ImpactBody02

- Shotgun_ImpactBody03
- Shotgun_ImpactSurface01
- Shotgun_ImpactSurface02
- Shotgun_ImpactSurface03
- Shotgun_ImpactSurface04
- Shotgun_Lower
- Shotgun_Raise
- Shotgun_Reload01
- Shotgun_Reload02
- Shotgun_Reload03
- ShotgunA_Fire01
- ShotgunA_Fire02
- ShotgunA_Fire03
- ShotgunA_Fire04
- ShotgunA_Fire_Dist01
- ShotgunA_Fire_Dist02
- ShotgunA_Fire_Dist03
- ShotgunA_Fire_Dist04

❖ **Weapon > Sound > SniperRifle**

- SniperRifle_ImpactBody_Cue
- SniperRifle_ImpactSurface_Cue
- SniperRifle_Lower_Cue
- SniperRifle_Raise_Cue
- SniperRifle_ZoomIn_Cue
- SniperRifle_ZoomOut_Cue
- SniperRifleA_Fire_Cue

❖ **Weapon > Sound > SniperRifle > Wavs**

- SniperRifle_ImpactBody01
- SniperRifle_ImpactBody02
- SniperRifle_ImpactBody03
- SniperRifle_ImpactBody04
- SniperRifle_ImpactSurface01
- SniperRifle_ImpactSurface02
- SniperRifle_ImpactSurface03
- SniperRifle_ImpactSurface04
- SniperRifle_Lower
- SniperRifle_Raise
- SniperRifle_ZoomIn
- SniperRifle_ZoomOut
- SniperRifleA_Fire01
- SniperRifleA_Fire02
- SniperRifleA_Fire03
- SniperRifleA_Fire04
- SniperRifleA_Fire_Dist01
- SniperRifleA_Fire_Dist02
- SniperRifleA_Fire_Dist03
- SniperRifleA_Fire_Dist04

❖ **Weapons > Weapons**

- Darkness_AssaultRifle
- Darkness_AssaultRifle_PhysicsAsset
- Darkness_AssaultRifle_Skeleton
- Darkness_GrenadeLauncher
- Darkness_GrenadeLauncher_PhysicsAsset
- Darkness_GrenadeLauncher_Skeleton
- Darkness_Pistol
- Darkness_Pistol_PhysicsAsset
- Darkness_Pistol_Skeleton
- Darkness_RocketLauncher
- Darkness_RocketLauncher_PhysicsAsset
- Darkness_RocketLauncher_Skeleton
- Darkness_Shotgun
- Darkness_Shotgun_PhysicsAsset
- Darkness_Shotgun_Skeleton
- Darkness_SniperRifle
- Darkness_SniperRifle_PhysicsAsset
- Darkness_SniperRifle_Skeleton

❖ **Weapons > Weapons > Anims**

- Fire_GrenadeLauncher_W
- Fire_Pistol_W
- Fire_Rifle_W
- Fire_RocketLauncher_W
- Fire_Shotgun_W
- Fire_SniperRifle_W

❖ **Weapons > Weapons > Materials**

- M_AssaultRifle_Inst
- M_AssaultRifleVer2_Inst
- M_GrenadeLauncher_Inst
- M_GrenadeLauncherVer2_Inst
- M_Pistol_Inst
- M_PistolVer2_Inst
- M_RocketLauncher_Inst
- M_RocketLauncherVer2_Inst
- M_Shotgun_Inst
- M_ShotgunVer2_Inst
- M_SniperRifle_Inst
- M_SniperRifleVer2_Inst
- M_WeaponMaster_Em

❖ **Weapons > Weapons > Textures**

- T_Darkness_AssaultRifle_D
- T_Darkness_AssaultRifle_Masks
- T_Darkness_AssaultRifle_N
- T_Darkness_AssaultRifleColor_M
- T_Darkness_GrenadeLauncher_D
- T_Darkness_GrenadeLauncher_Masks
- T_Darkness_GrenadeLauncher_N
- T_Darkness_GrenadeLauncherColor_M

- T_Darkness_pistol_Color_M
- T_Darkness_Pistol_D
- T_Darkness_pistol_Masks
- T_Darkness_Pistol_N
- T_Darkness_RocketLauncher_D
- T_Darkness_RocketLauncher_Masks
- T_Darkness_RocketLauncher_N
- T_Darkness_RocketLauncherColor_M
- T_Darkness_Shotgun_ColorM
- T_Darkness_Shotgun_D
- T_Darkness_Shotgun_Masks
- T_Darkness_Shotgun_N
- T_Darkness_SniperRifle_D
- T_Darkness_SniperRifle_Masks
- T_Darkness_SniperRifle_N
- T_Darkness_SniperRifleColor_M

If you wish to modify any of the files listed above, contact your **Lecturer**.

Christian Brindley	christian.brindley@solent.ac.uk

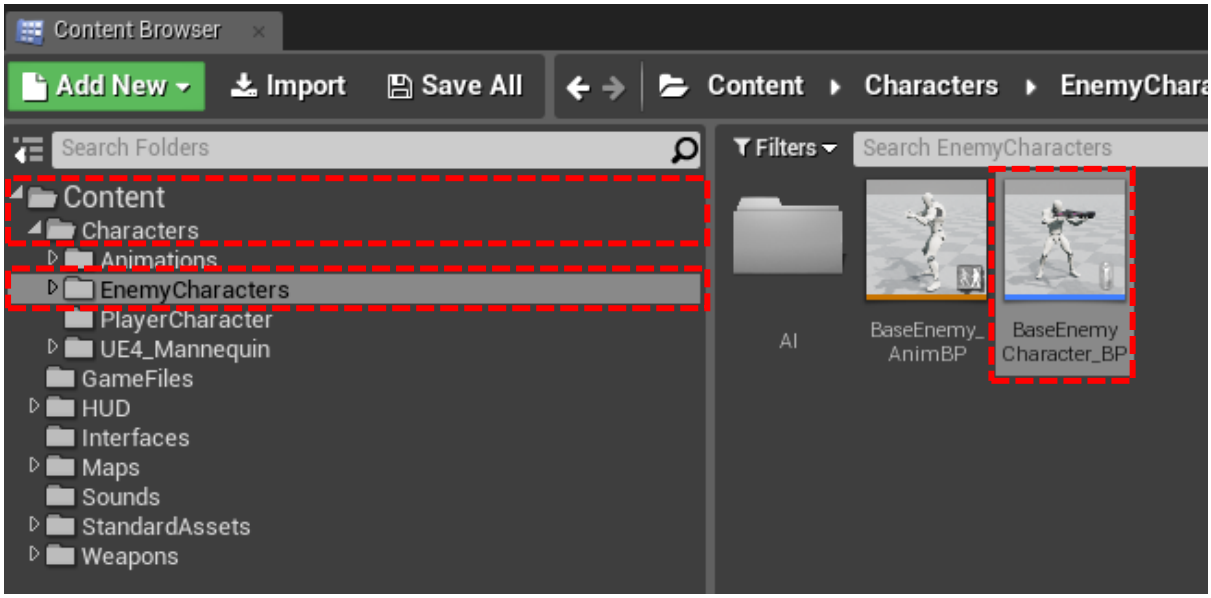
Locations of Key Files

Below are the files that you're allow to use for your maps.

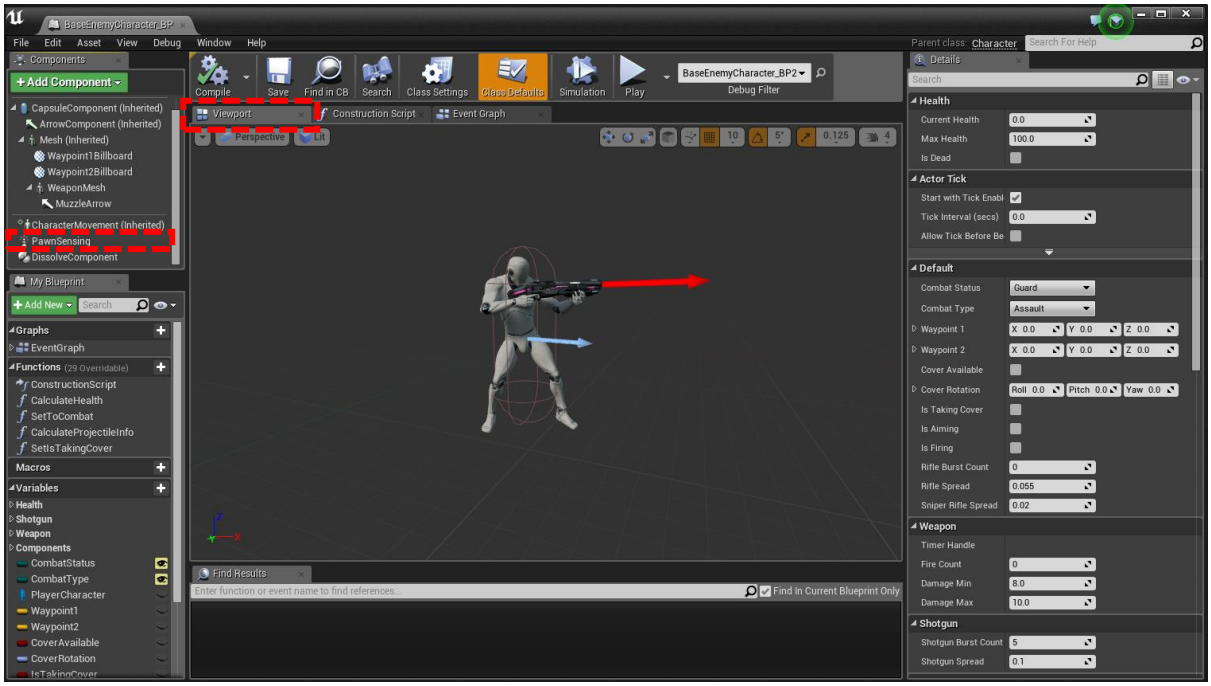
- **Maps > Common Objects**
  - BaseCoverObject
  - LaserFenceObject
  - TurretObject
- **StandardAssets > Materials**
  - M_Bush
  - M_Glass
  - M_Rock
- **StandardAssets > Particles**
  - P_Ambient_Dust
  - P_Explosion
  - P_Fire
  - P_Smoke
  - P_Sparks
  - P_Steam_Lit
- **StandardAssets > StaticMeshes**
  - Darkness_AssaultRifle
  - Darkness_GrenadeLauncher
  - Darkness_Pistol
  - Darkness_RocketLauncher
  - Darkness_Shotgun
  - Darkness_SniperRifle
  - SM_Bush
  - SM_GlassWindow
  - SM_Rock

Modifying the Enemies Pawn Sensing

You might find your enemy characters LOS (line of sight) and hearing might be too high for your current map. You can modify this to better suit your map, to change the enemies pawn sensing settings, you will want to navigate to the '**BaseEnemyCharacter_BP**' inside the '**Content Browser**'. You can find this with the '**Content>Characters>EnemyCharacters**' folder, once there double-click '**BaseEnemyCharacter_BP**' to open up the dialog window.

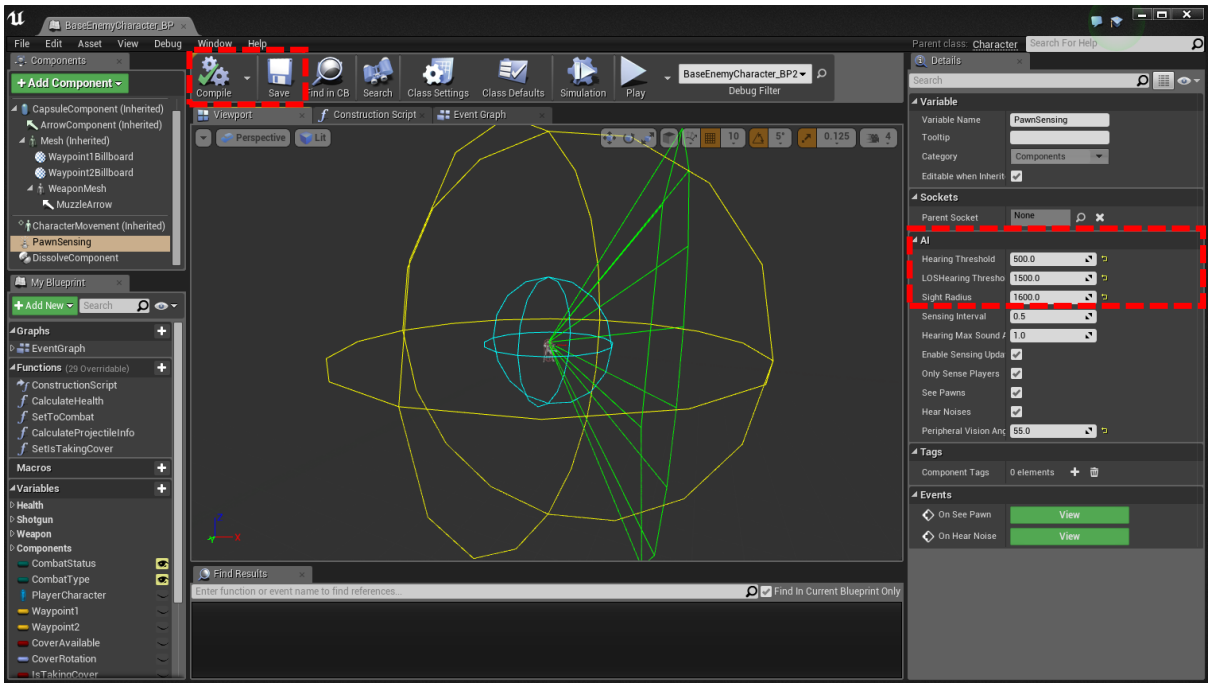


Once inside the '**BaseEnemyCharacter_BP**', select the '**Viewport**' tab under the quick toolbar. Once selected, in the '**Components**' section, scroll down and select '**PawnSensing**'.



When '**PawnSensing**' is selected you will see the different sensing the enemy character uses and its distance. You can modify these values within the right-hand side '**Details**' panel under '**AI**'. There are a total of 3 pawn sensing settings you can change, hearing, LOSHearing, and Sight. Once you have

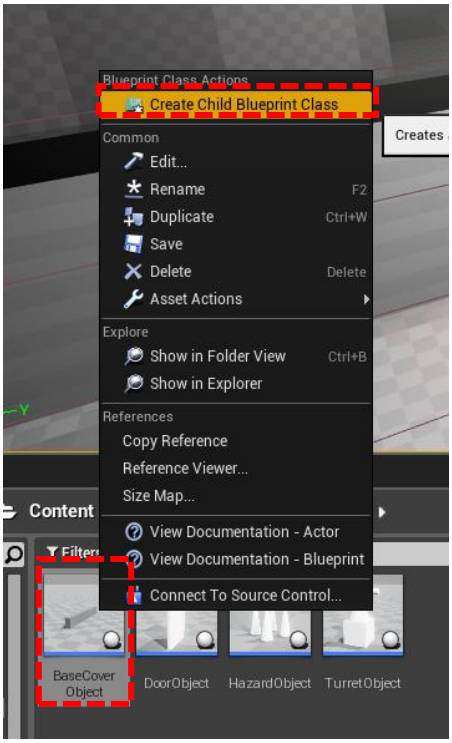
adjusted these to your liking, you will need to press the '**Compile**' and '**Save**' buttons at the top quick toolbar.



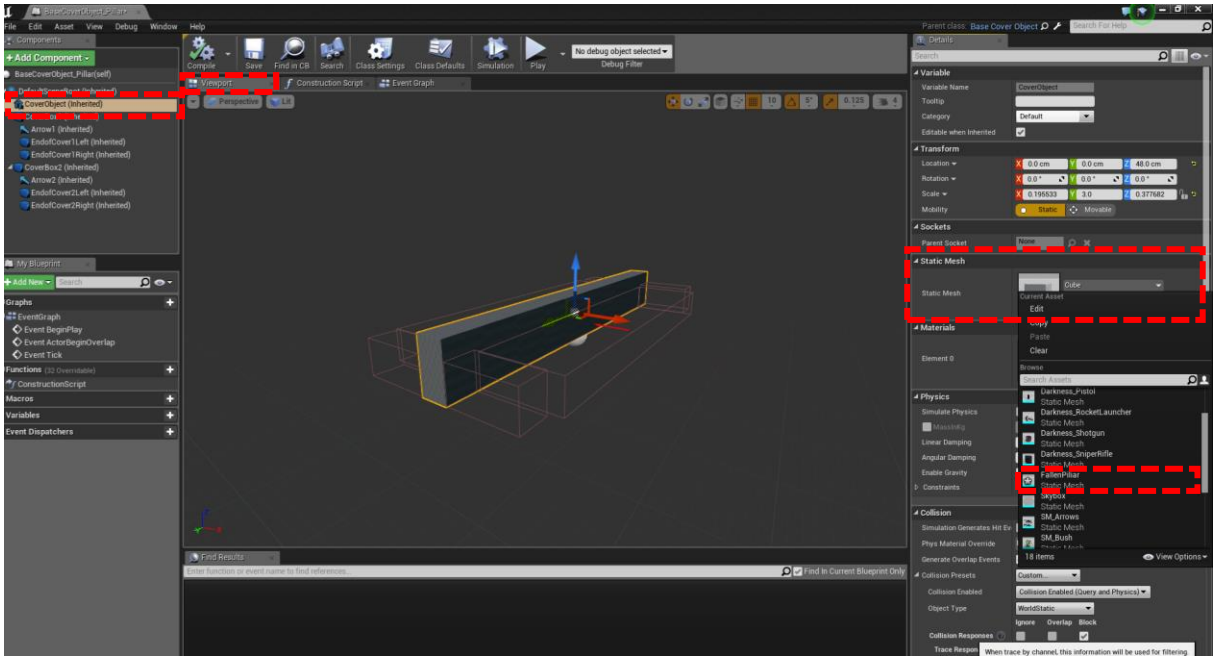
If you would like more information on these settings then please feel free to read over them in the Unreal Documentation:
https://docs.unrealengine.com/latest/INT/Engine/Components/AI/index.html

Replacing Cover Mesh

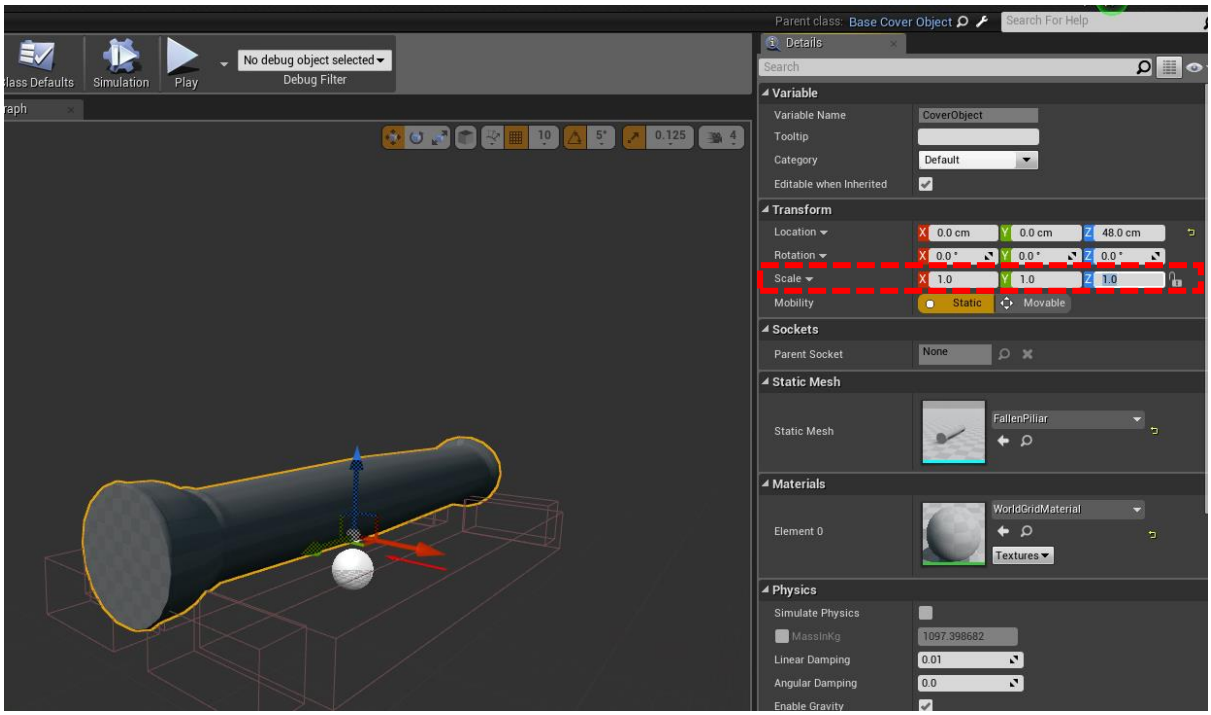
You might want to replace the standard cover assets with your own custom meshes. Before proceeding with this process, we recommend making a child of the standard cover blueprint, to do this go to '**Content>Maps>CommonObjects**' and right-click '**BaseCoverObject**' from the drop-down menu select '**Create Child Blueprint Class**'.



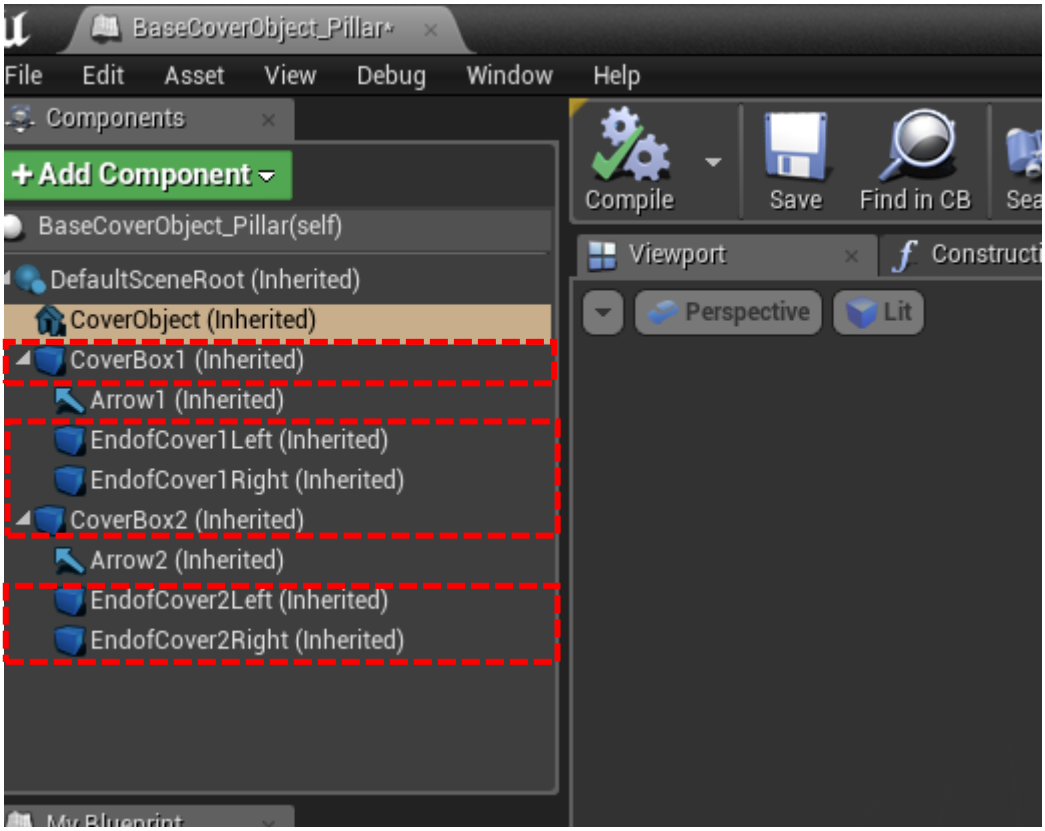
Rename your new '**Child Blueprint Class**' and once done you will want to double-click the object to bring up the objects dialog window. Inside the window, you will want to go to '**Viewport**' tab, from here you want to select '**CoverObject (Inherited)**' from the '**Components**' panel. You can now change the mesh in the '**Details**' panel on the right-side under the '**Static Mesh**' drop-down menu.



Once you do this, you will notice your mesh is stretched, you will need to set the default scale values to 1.0, this can be found via the ‘Transform’ section.



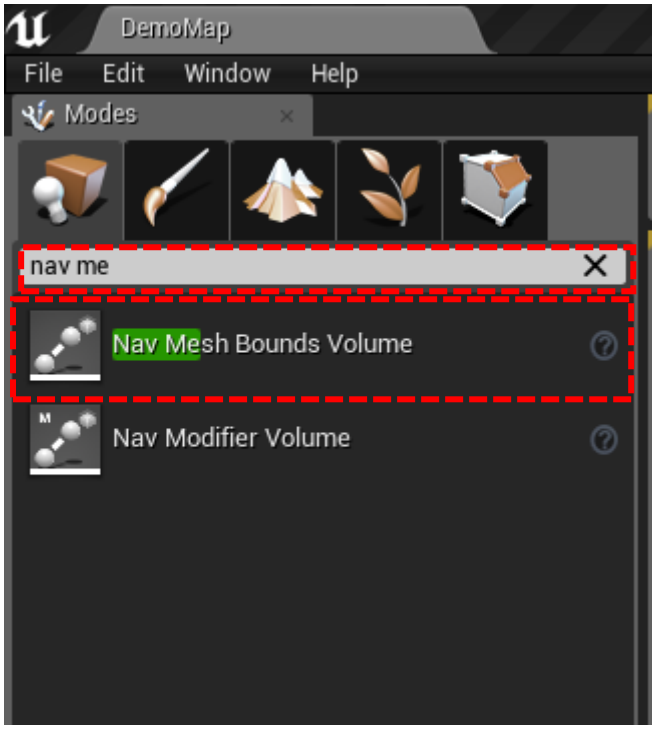
You might also have to move your object within the view port to match the floor level. Depending on your objects length, size ect. You might also have to adjust the size of the ‘**CoverBox1**’ and ‘**CoverBox2**’.



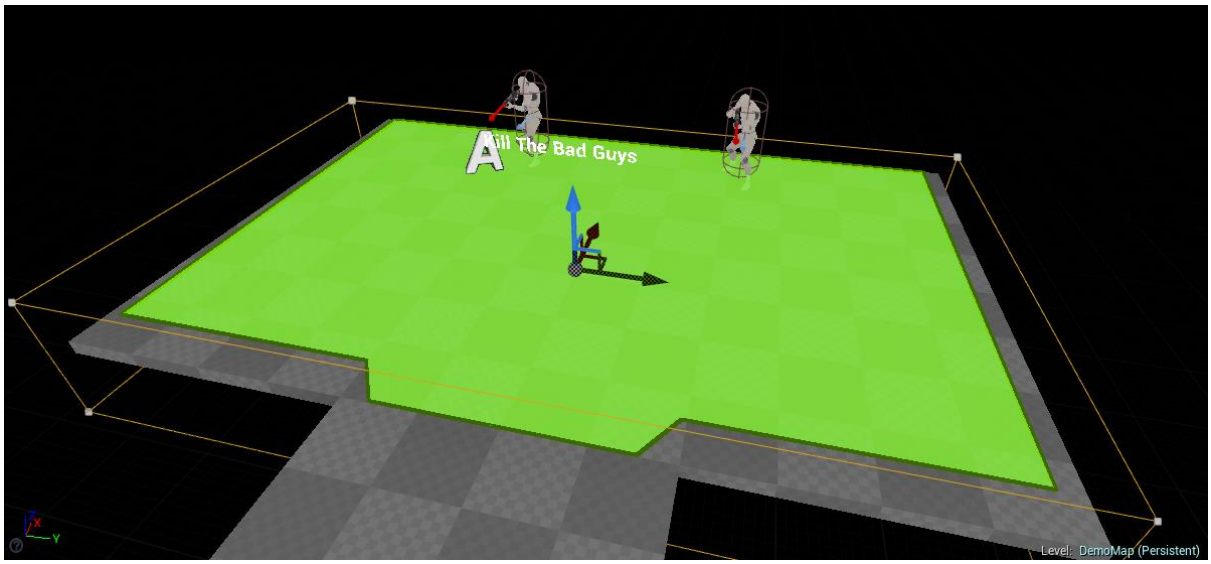
Once you’re happy, you will need to make sure you press the ‘Compile’ button to confirm the changes.

Adding Nav Mesh to a Scene

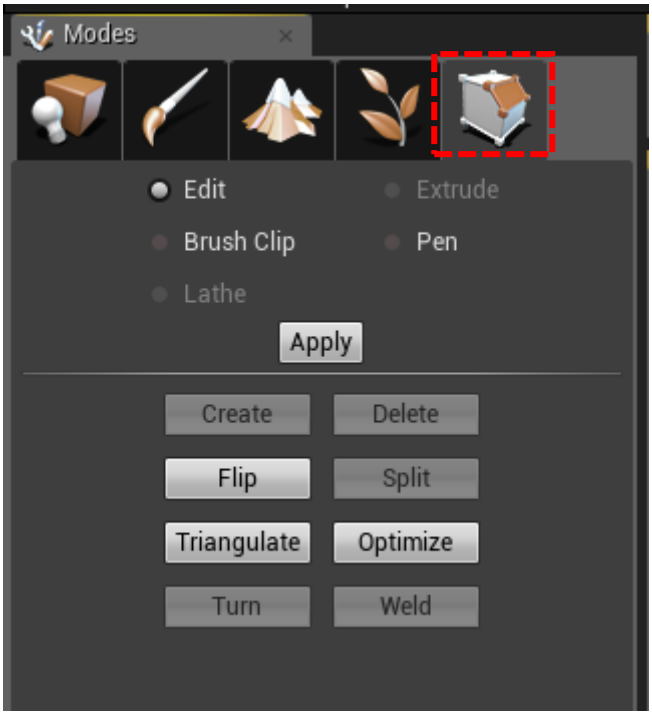
In order for the enemy to walk around your map and follow the player, you will need to add a '**Navigation Mesh**'. To do this, inside your level you will need to search in the 'Modes' panel for "**Nav Mesh**", from the list you will need to drag and drop the '**Nav Mesh Bounds Volume**' into your scene.



Once the '**Nav Mesh Bounds Volume**' is added to your scene, you will need to overlay it with your floor and cover the areas you wish the enemy to navigate around. If you press '**P**' with it selected, you will see a green projection of the areas the enemy can access.



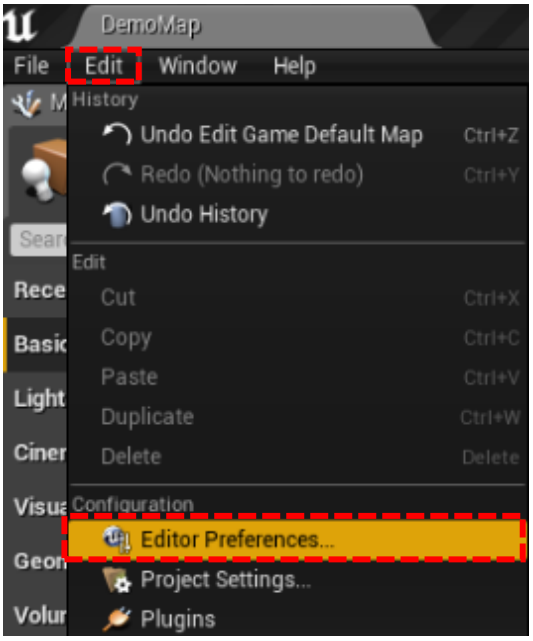
You can edit the '**Nav Mesh Bounds Volume**' by using the scaling tool or if you want to edit single '**Polygons**', **Vertices**', or '**Edges**', you will need to select the '**Geometry Editing**' tab from the '**Modes**' panel. Be sure to turn this back to '**Placement**' once done to avoid errors later on.



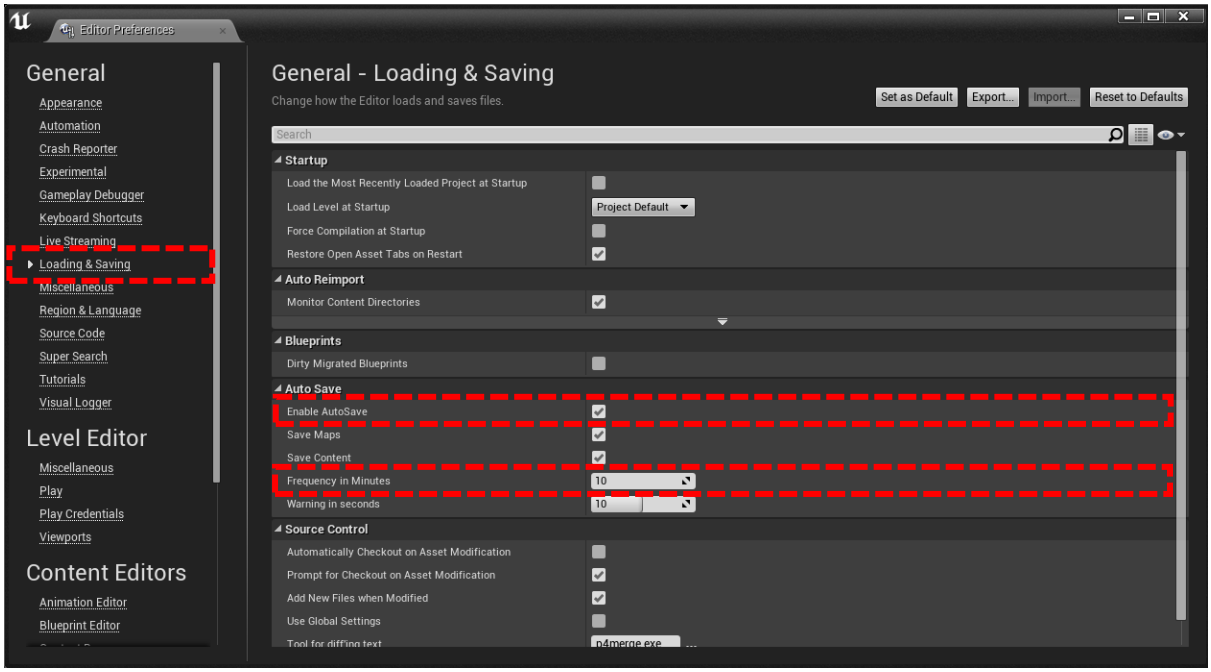
Make sure to build your level once you have placed your '**Nav Mesh**'. If you're interested in learning more about '**Navigation Meshes**' then please read the Unreal Engine 4 Documentation: https://docs.unrealengine.com/latest/INT/Engine/AI/BehaviorTrees/QuickStart/2/

Turning off/Editing UE4 Autosave

Unreal Engine 4 will automatically save every 5 minutes by default, you can change this time or turn it off entirely. To change these settings go to '**Edit>Editor Preferences**' via the top toolbar.



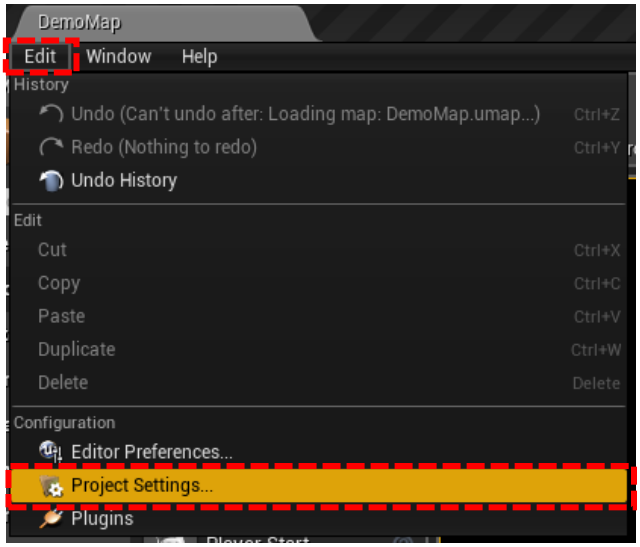
Inside the '**Editor Preferences**' dialog window, select '**Loading & Saving**' from the left-hand side menu. Under '**Auto Save**' section, you can untick the '**Enable AutoSave**' button to turn it off entirely or change the '**Frequency in Minutes**' if you would like to change the times that it auto saves.



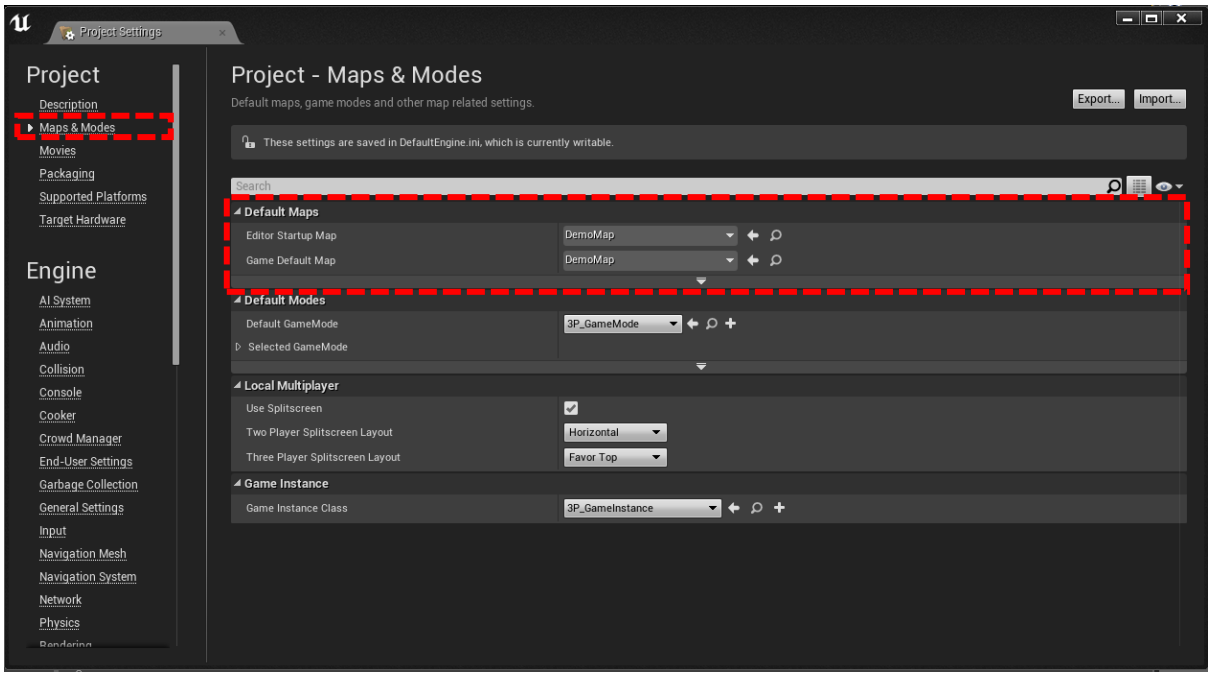
Once happy with your settings, you can close the '**Editor Preferences**' window.

Setting a Default Map in UE4

When working on your project within Unreal Engine 4, it is best to set the level you're working on as the default map when the editor loads. By default the game will load the map '**DemoMap**'. To change this you will need to go to '**Edit>Project Settings**' via the top toolbar.



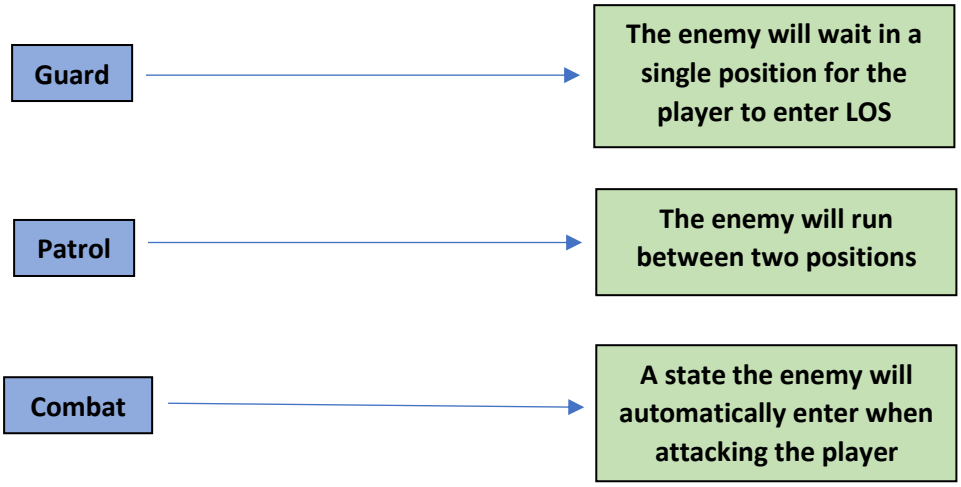
Inside the '**Project Settings**' you will need to select '**Maps & Modes**' from the left-hand list and inside the '**Default Maps**' section, change this the drop downs to the map you wish the editor to load on start-up.



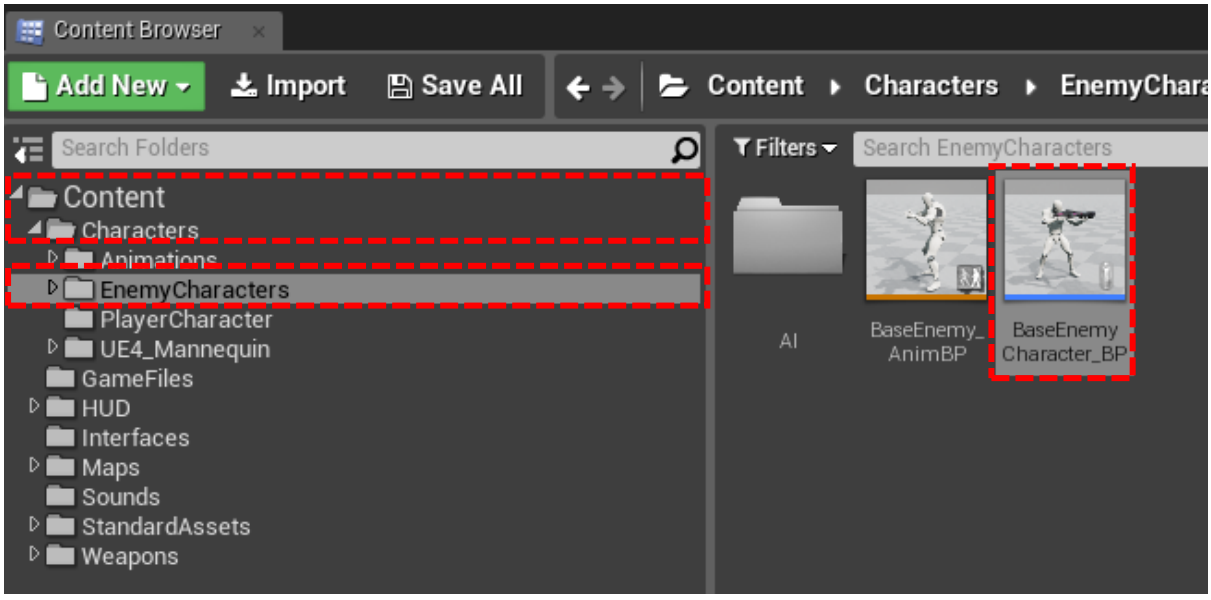
Once done you can close the '**Project Settings**' window.

Changing Enemies Behaviour

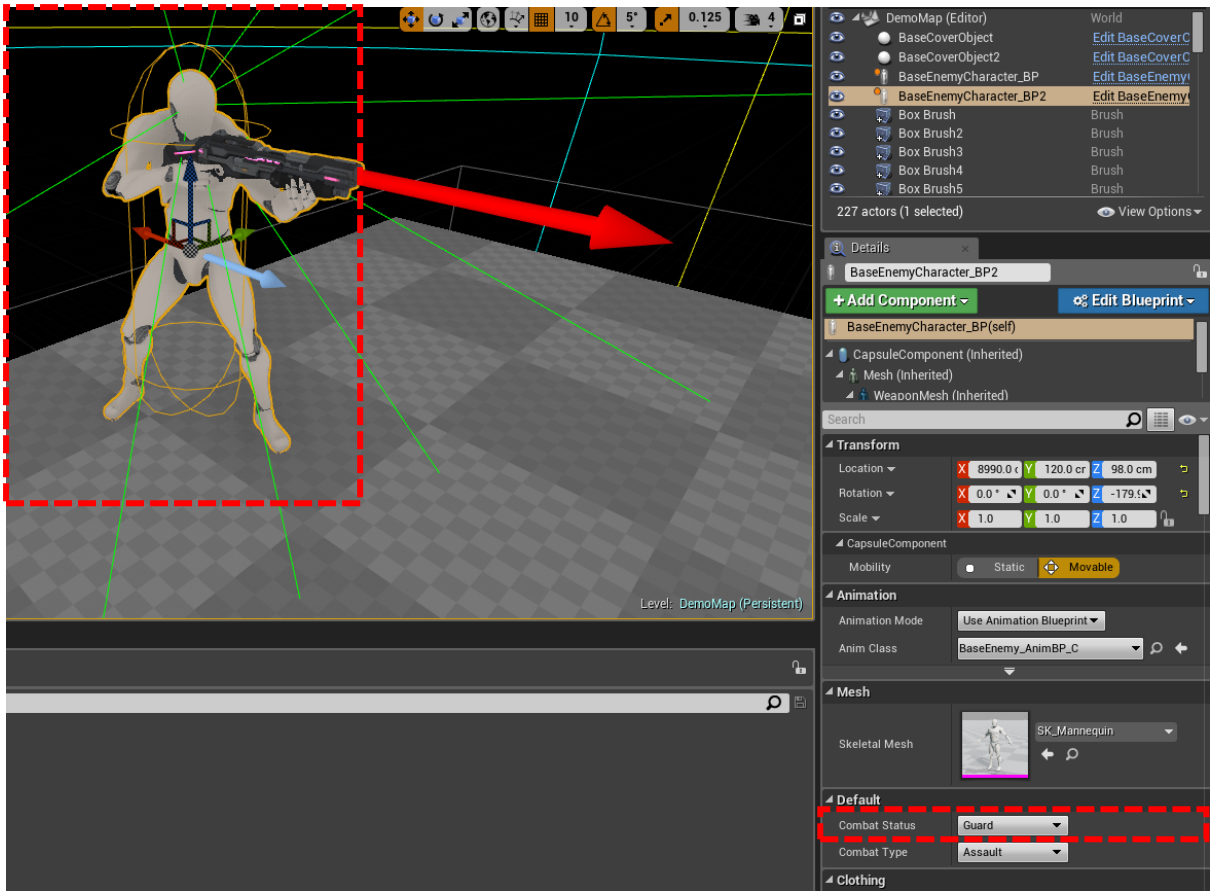
DeadForce currently has three different enemy behaviours; '**Guard**', '**Patrol**', and '**Combat**'. You will never set the enemies to '**Combat**' as this is a behaviour that the enemy will automatically go into when confronted with the player, doing so will create errors within the prototype.



To change set these behaviours you will need to drag and drop the '**BaseEnemyCharacter_BP**' into your level, you can find this via the content browser '**Content>Characters>EnemyCharacters**'.

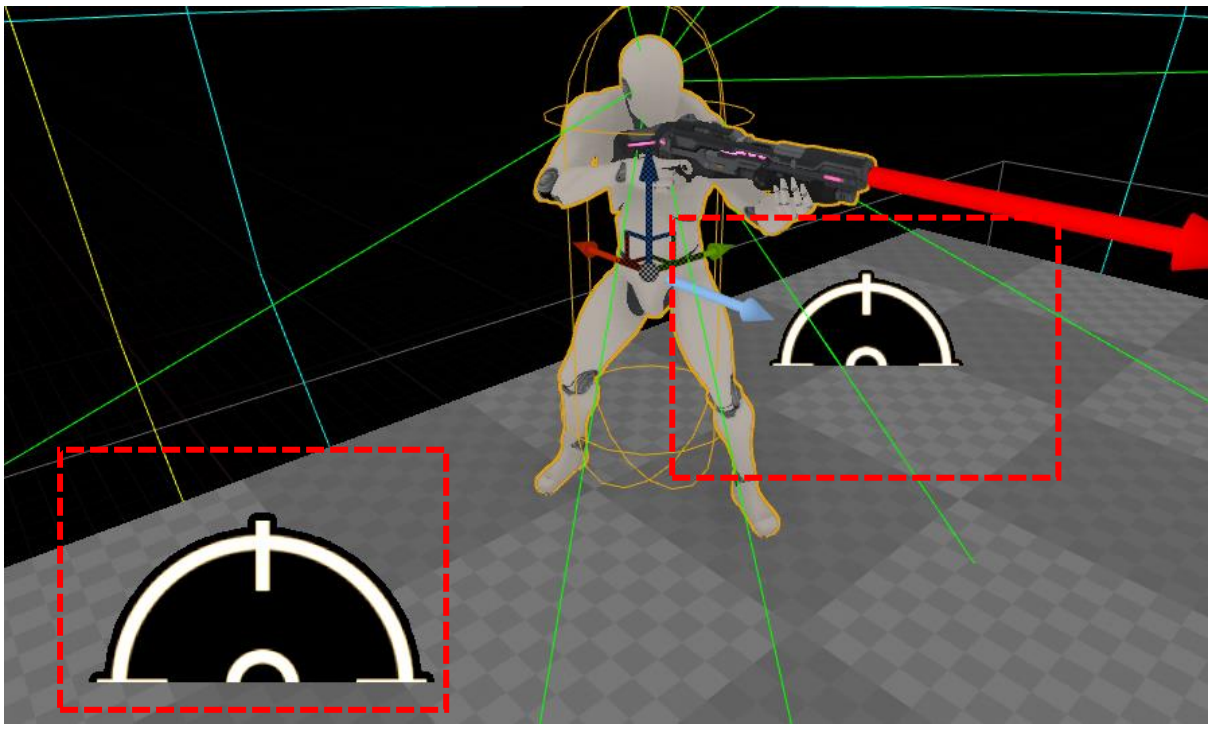


With the '**BaseEnemyCharacter_BP**' placed within your level, with it selected, in the '**Details**' panel on the right-hand side, under the '**Default**' tab, you can change the status via the drop-down list within '**Combat Status**'.

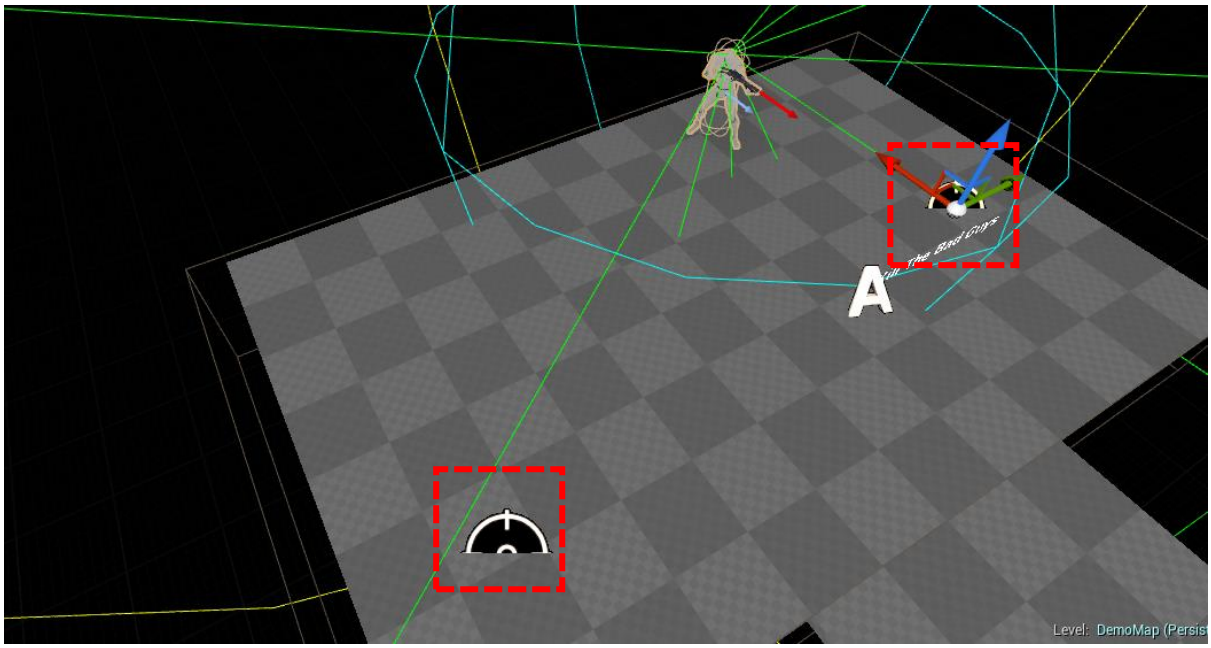


Setting up Patrolling

If you want the enemy to patrol between two points, select the '**Patrol**' drop-down with in the '**Combat Status**' menu (pictured above).Once selected you will see two points next to the '**BaseEnemyCharacter_BP**'.



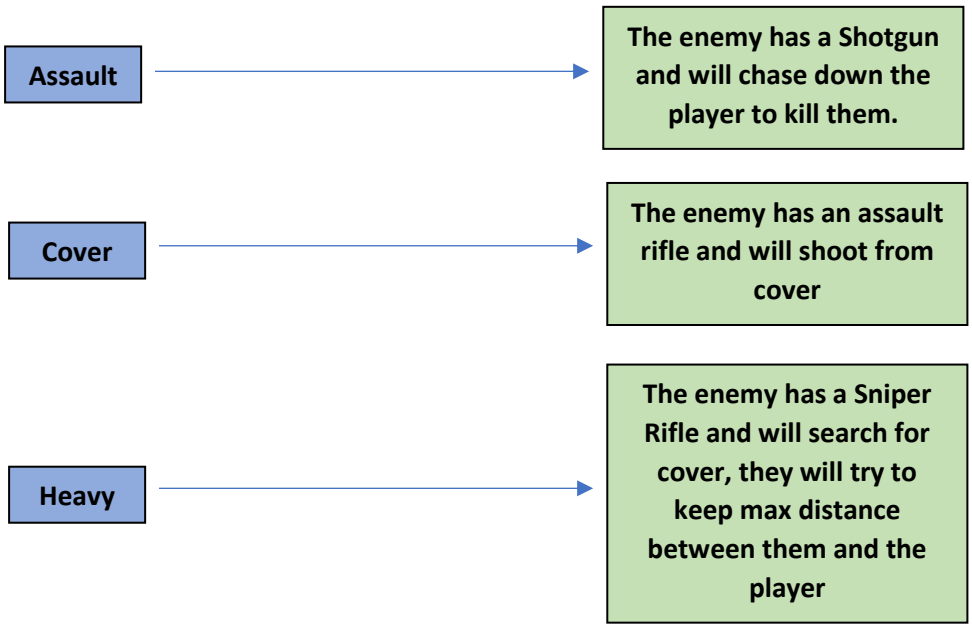
These points represent the two patrolling points. To select, you will need to double-click on them, you can then move these points using the move transform to your desired location.



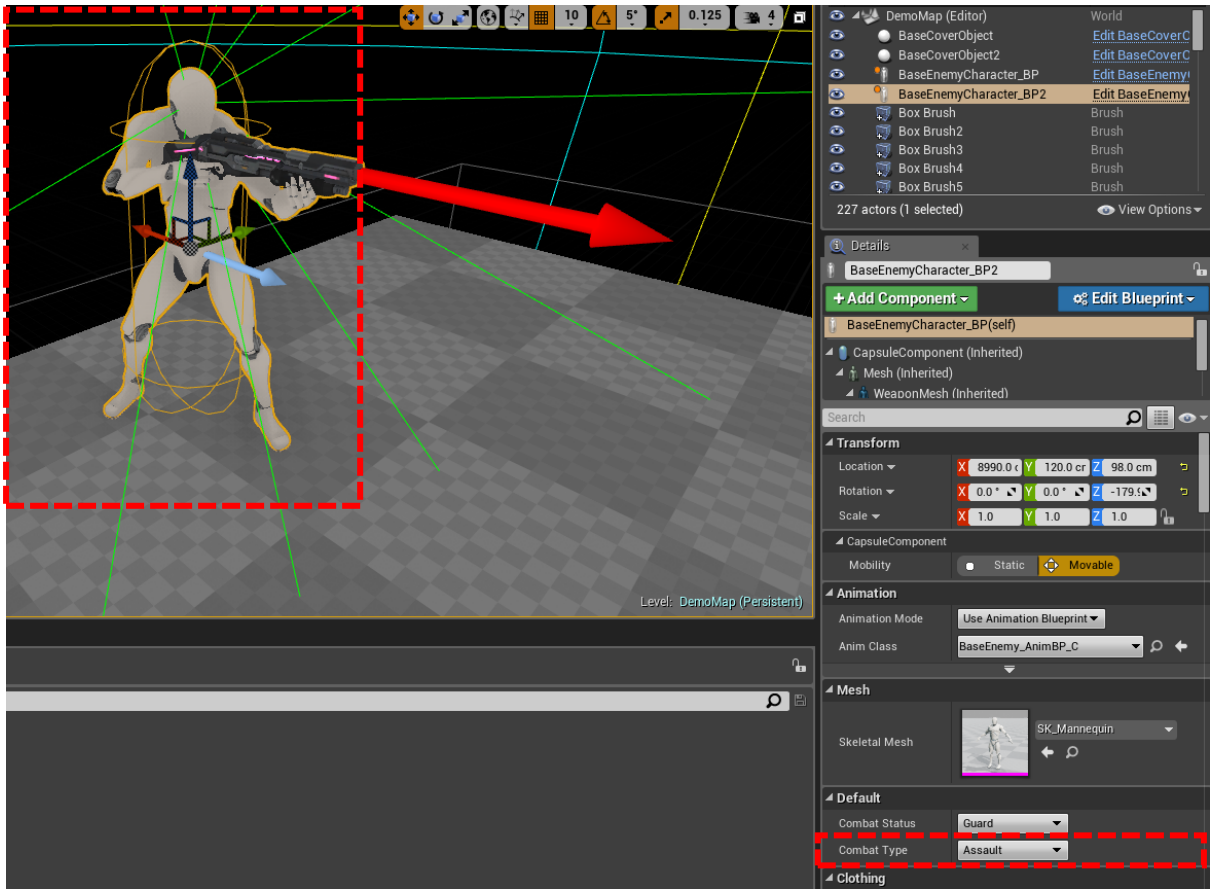
When you begin play, the enemy will begin to patrol between these two points until interrupted by the player.

Enemy Combat Types

The DeadForce prototype also currently has three different combat types; '**Assault**', '**Cover**', and '**Heavy**'.



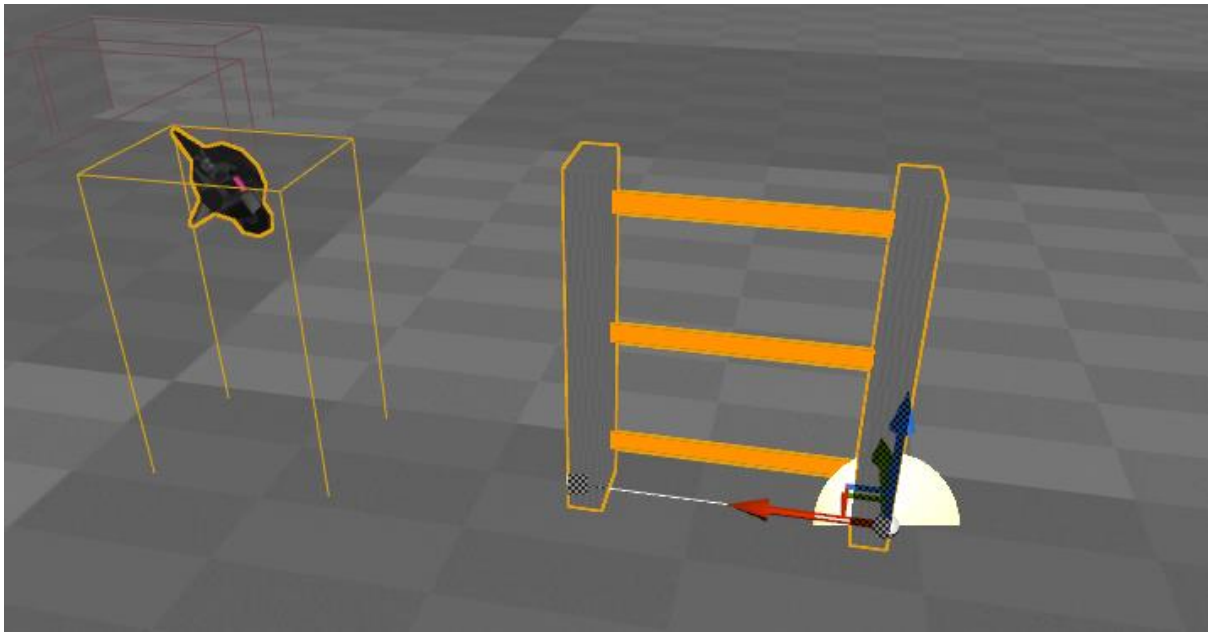
You can change the '**Combat Type**' by selecting your '**BaseEnemyCharacter_BP**' and in the '**Details**' panel to the right-hand side under the '**Default**' tab, select the drop-down list within '**Combat Type**'.



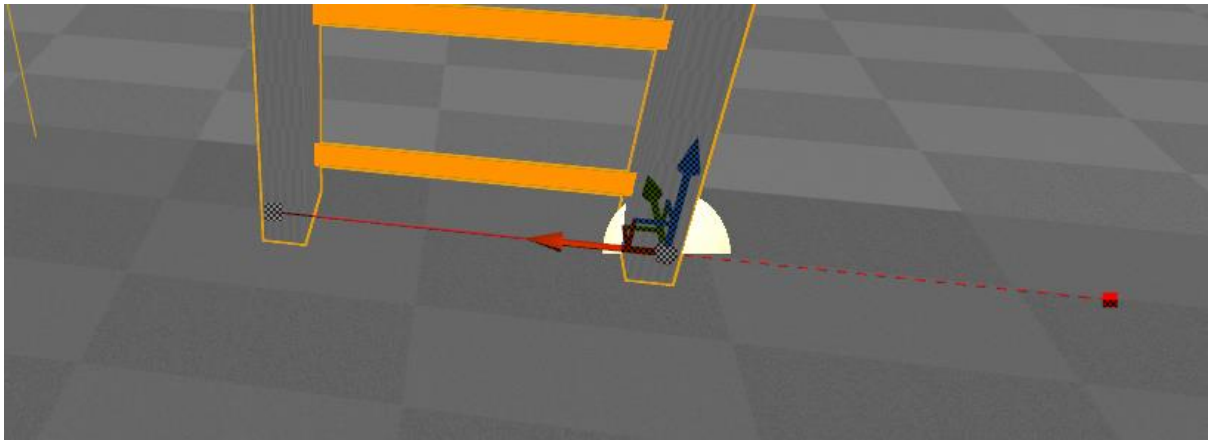
Laser Fence

Adjusting the Size

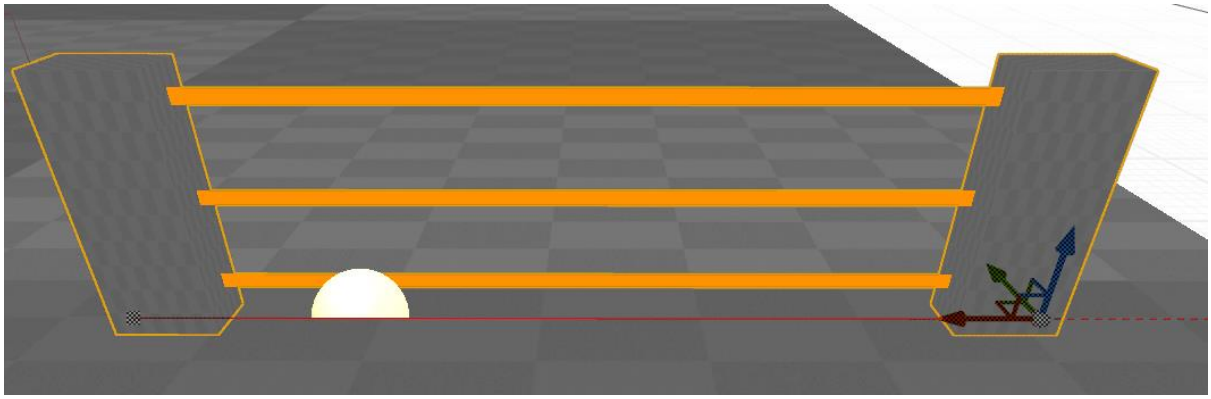
The laser fence can be adjusted in size via the viewport. First place the laser fence in your level where you wish it to be.



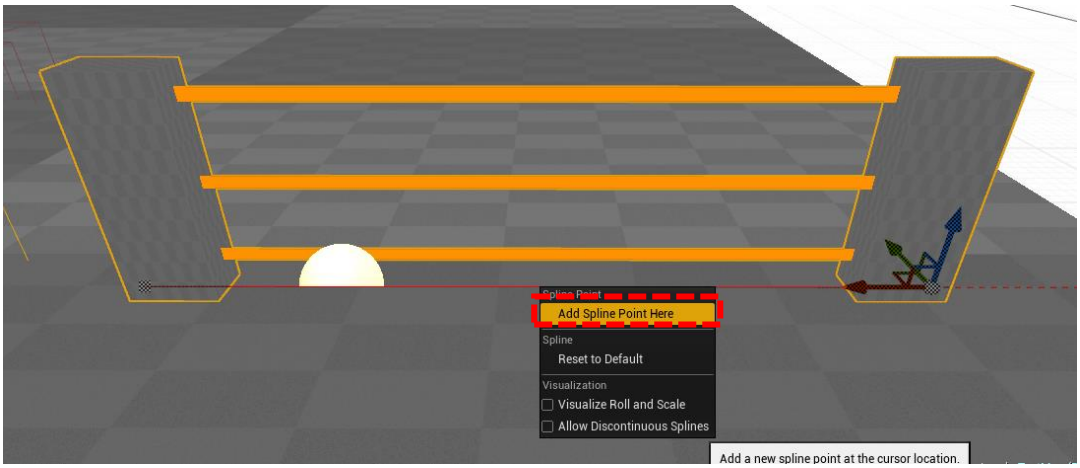
Once placed if you select the spline at the bottom of the fence, and when it is highlighted red, select one of the spline points.

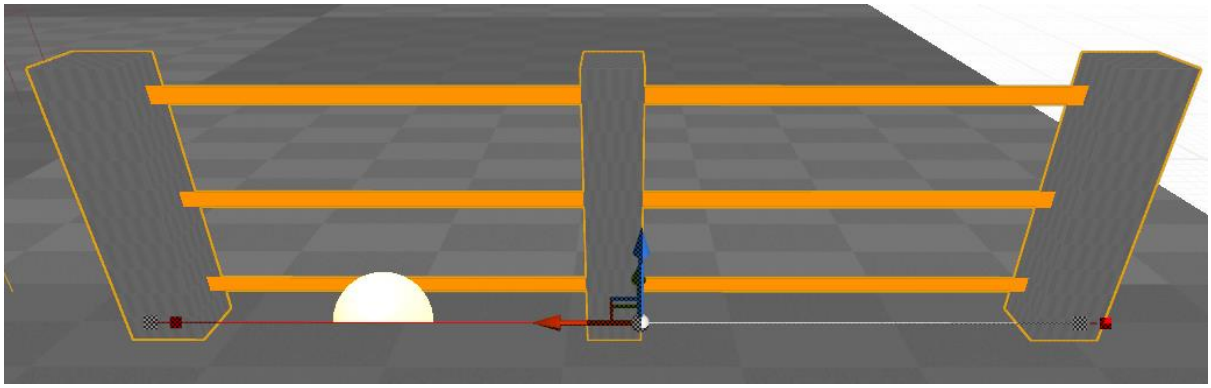


Now drag this point to where you want the fence to end.



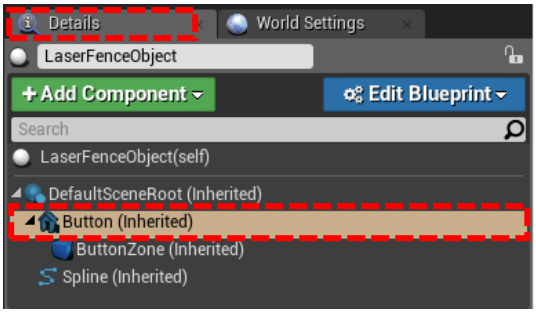
You will notice some stretching, you can adjust this by adding another spine point on the spline. Right-click the spine and select '**Add Spline Point Here'**.



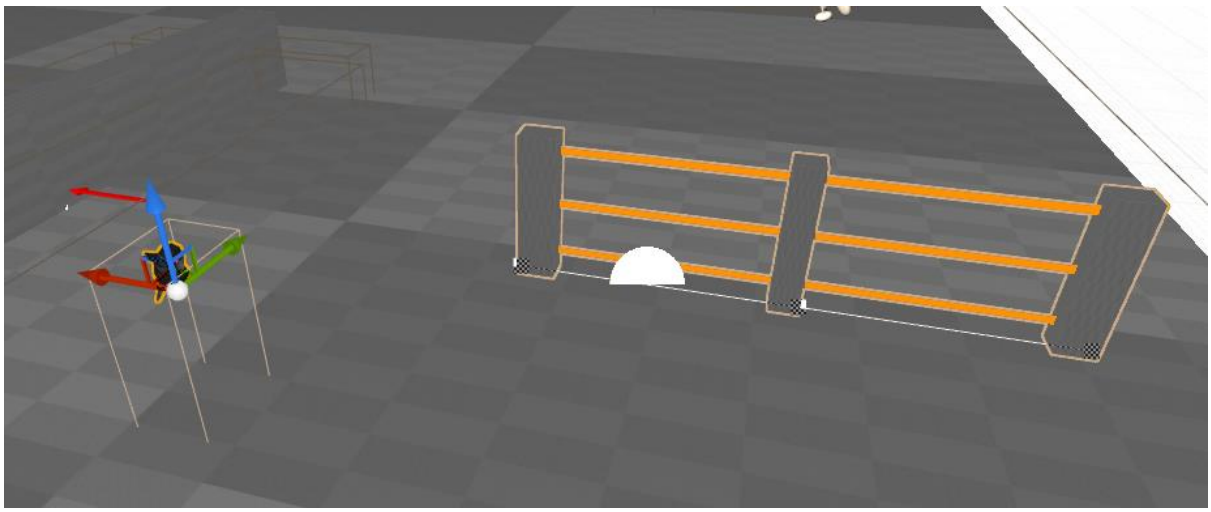


Moving the Button

You will also notice that the laser fence has a button. You can move this into your desired position, with the actor selected, in the '**Details**' panel on the right-hand side, select "**Button (Inherited)**" from the list.

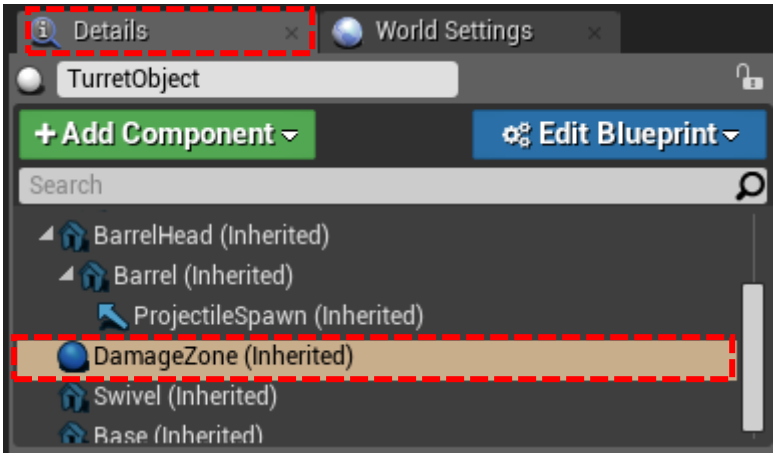


Now inside the viewport, make sure the button is select and move/rotate it to your desired position.

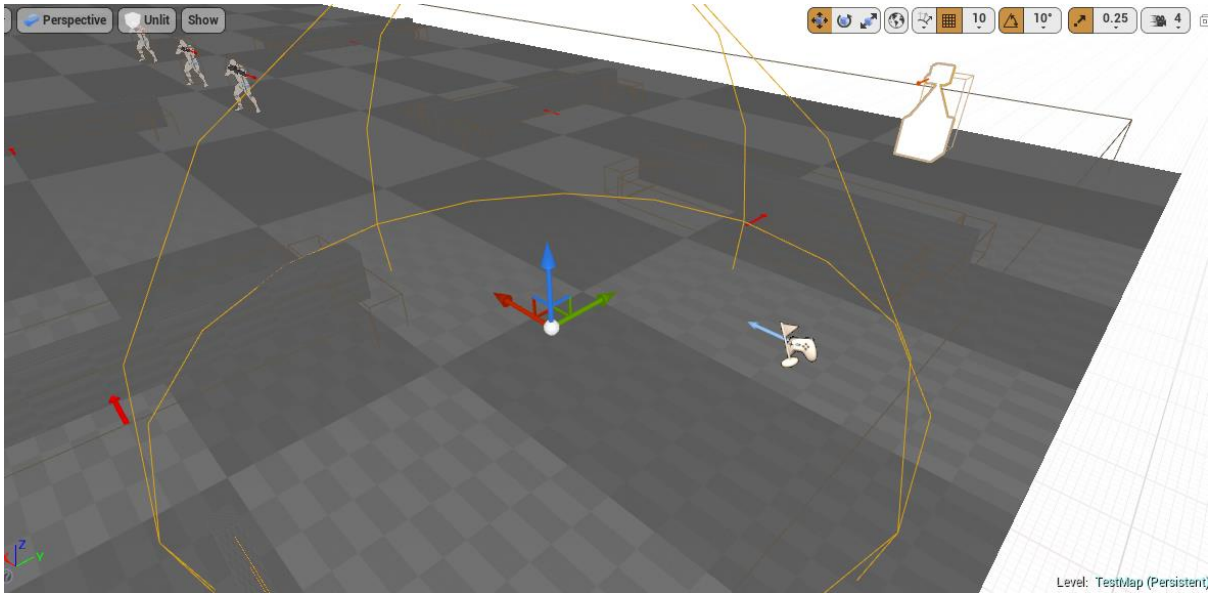


Adjust the Turret Firing Zone

You can adjust the turrets firing zones quite easily, with the turret placed within your level, select it and then in the '**Details**' panel on the right-hand side, from the list select "**DamageZone (Inherited)**"

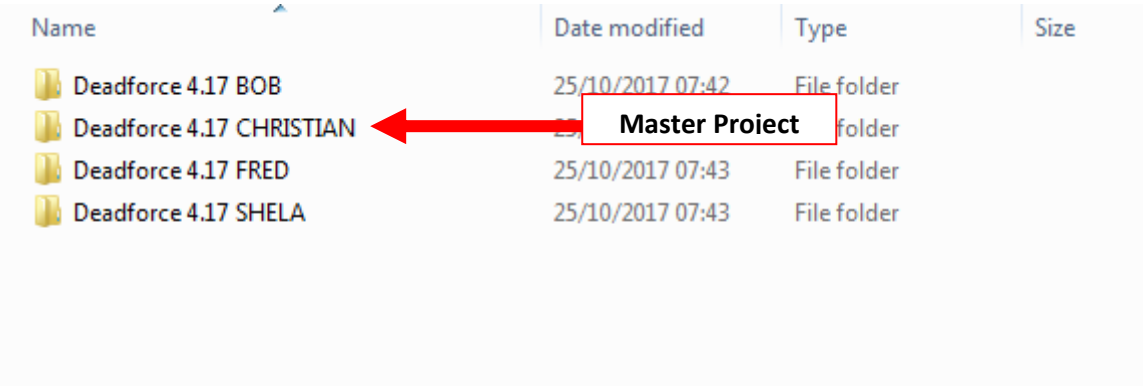


Now in your viewport you can move/scale the damage zone to the area you wish.



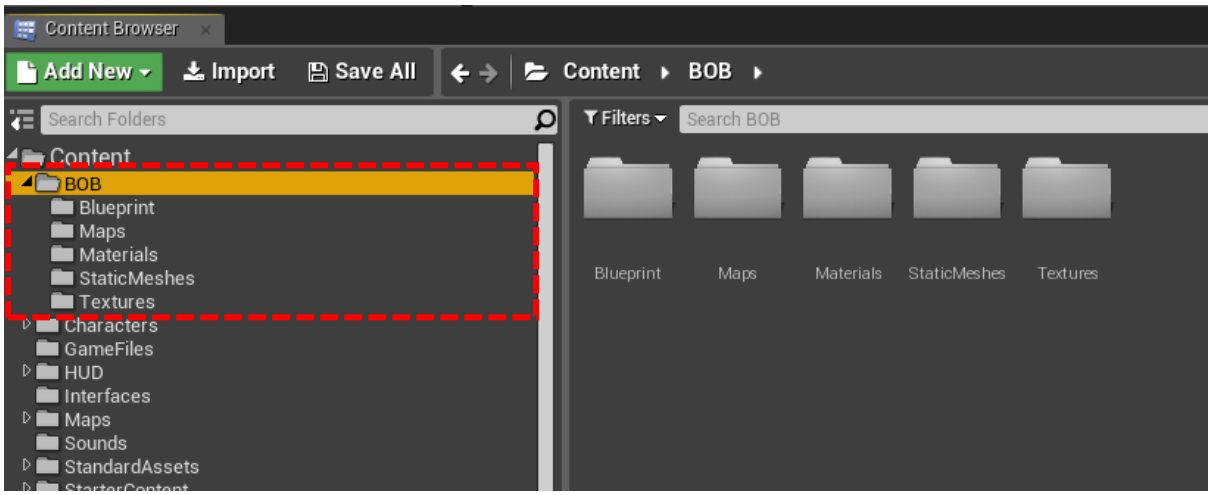
Migrating a Project

You will need to migrate your working project files over to a single project in order to level stream sections found later in this technical guide. To begin this, I would recommend creating a new folder on the PC and call it "**Migrate Example**". Once you have created this folder, I would copy every team members Deadforce projects over to it. You will need to pick a single project to be the master, most likely the project where the player starts.

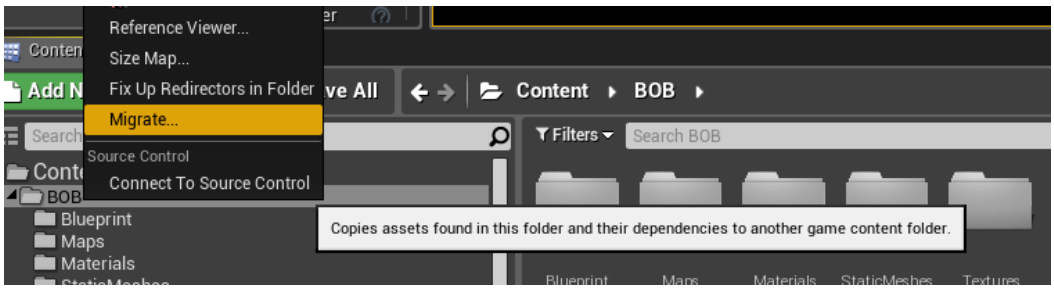


Once you have established a master project, you will need to load a members projects, for this example I have opened "**Deadforce 4.17 BOB**"

If you followed your lecturers lesson when the project was distributed, you should have a folder in your '**Content Browser'** named after your team member where they have been storing all of their files.



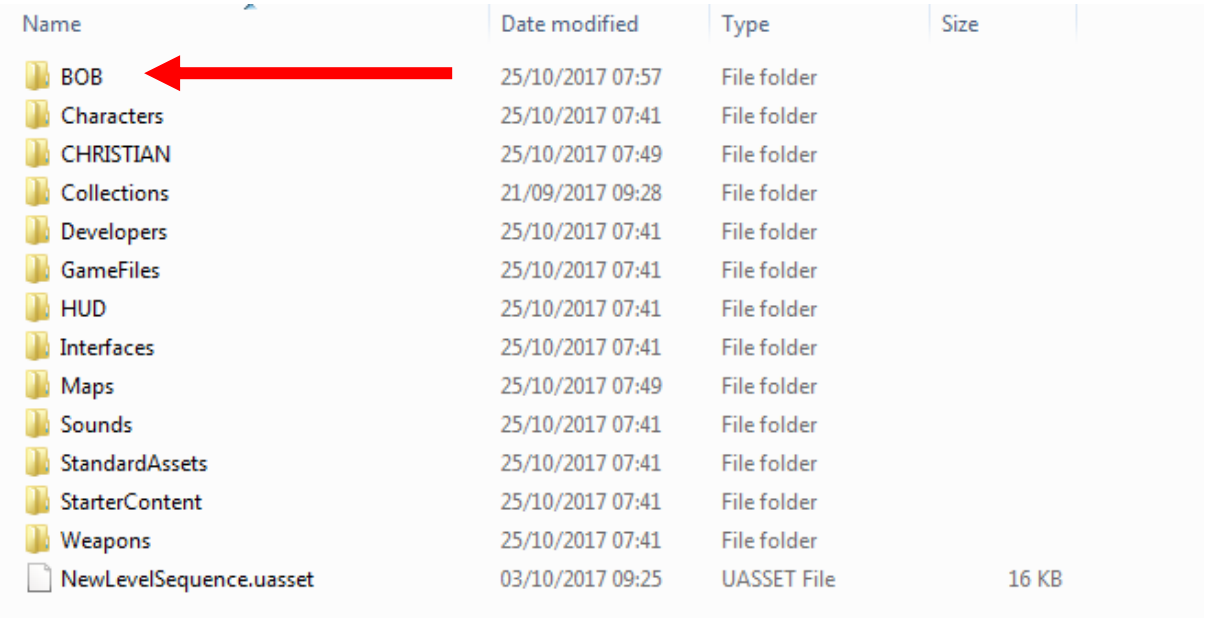
If you right-click on the <NAME> folder and from the drop-down select '**Migrate…**'



You will have the '**Asset Report**' window pop-up, just click the '**OK**' button. Now the file explorer, navigate to your maser projects content folder I.e. '**Deadforce 4.17 CHRISTIAN > Content'.** Once

there click the ‘Select Folder’ button, you should get a confirmation message from UE4 in the bottom-right corner.

You can test to see if this worked without having to open the master project by navigating to your master projects content folder i.e. ‘**Deadforce 4.17 CHRISTIAN > Content’.**

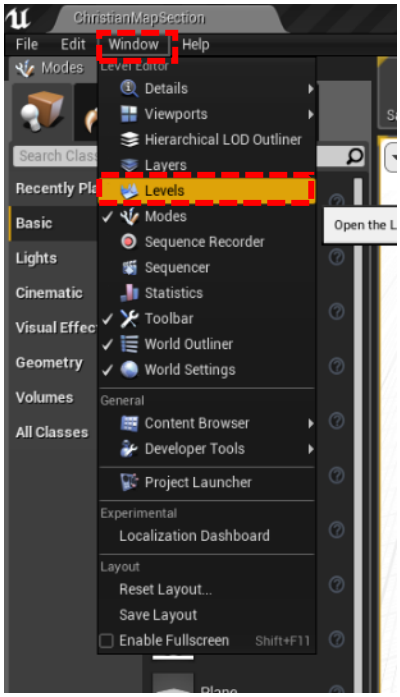


You would follow this same process with each of your team member’s projects. If your team members have not been keeping their files within their name folder then you might have to migrate more folders.

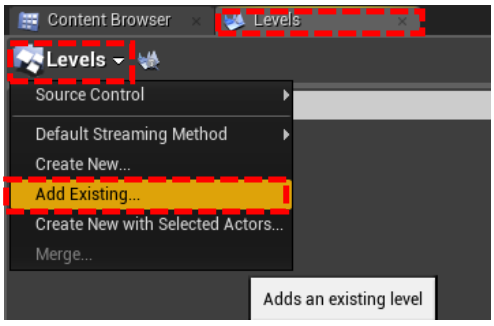
Level Streaming Map Sections

You can stream different level sections together, after you have migrated each member project folder over to the master project (the project that normally has the map starting point) you will want to import each level section to a single map. First load up the main map section where the player will begin.

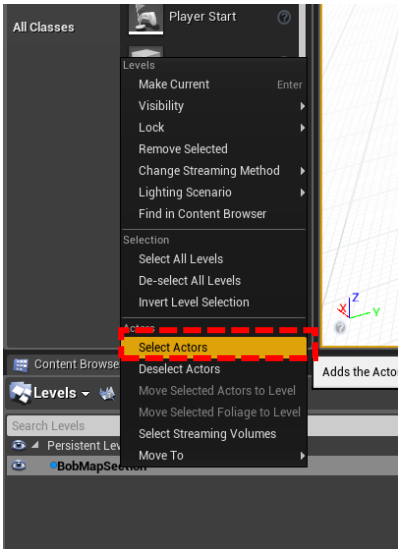
next you will want to turn on the '**Levels**' window, to do this go to **'Window > Levels'**.



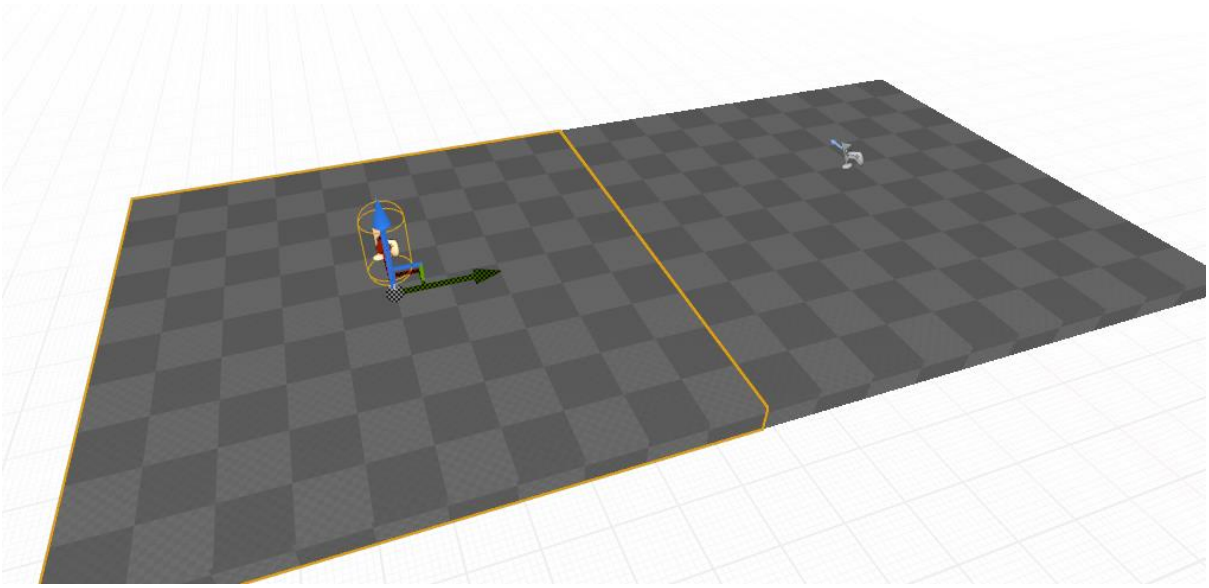
Inside the '**Levels**' window you will want to click the **'Levels'** drop-down and select '**Add Existing…**'



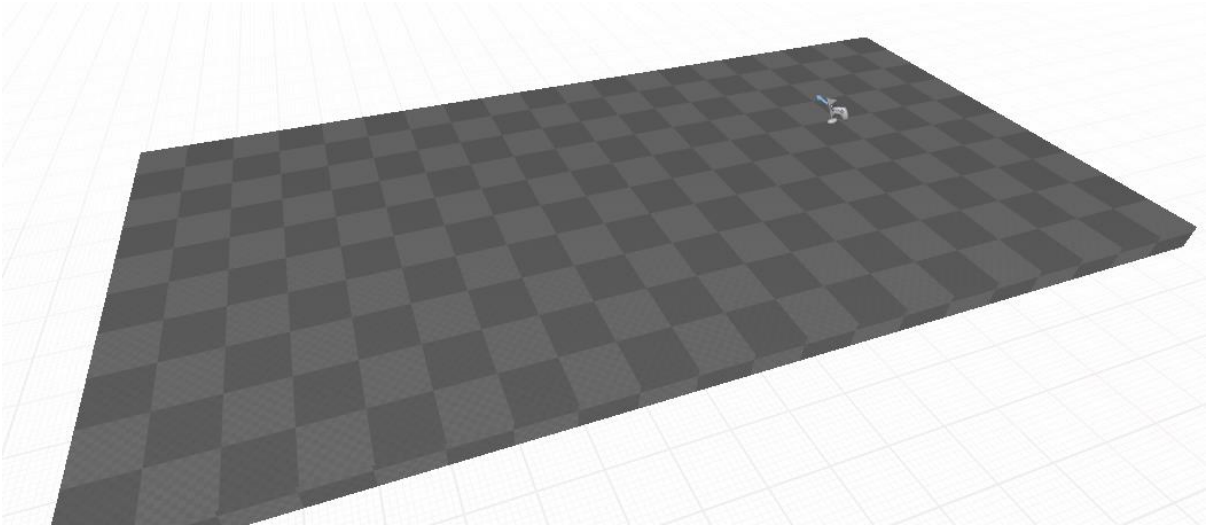
In the '**Open Level'** window, navigate to the other user's level section, select it and then press '**Open**'. Do this same process for the other level sections. Once you have done this, you will need to move each level section to their correct location. First make sure you double-click the map section you want to move in the **'Levels'** window, now right-click it inside the '**Levels**' window and then select **'Select Actors'** from the drop-down menu.



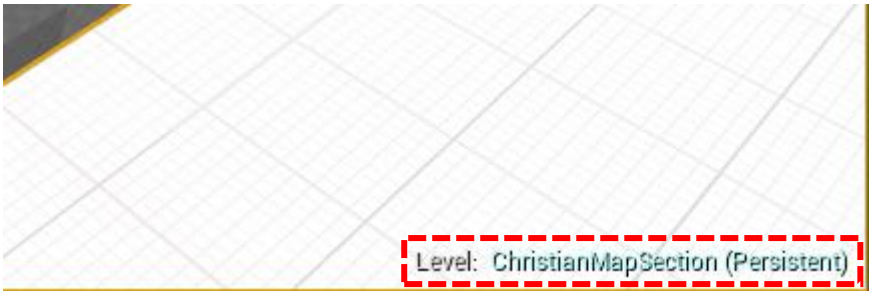
Now using the move/rotate tools, place the level section to the desired location. You will need to do the same process for each level section.



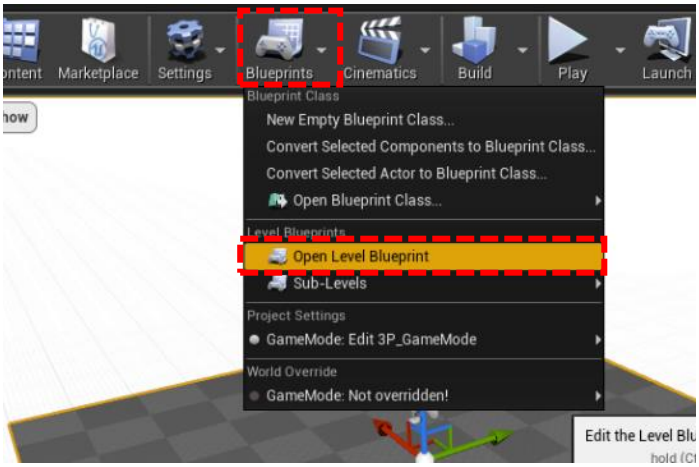
Now you will need to select each level section (not the persistent level section) and delete each of the '**Player Start',** this is to prevent confusing the game engine.



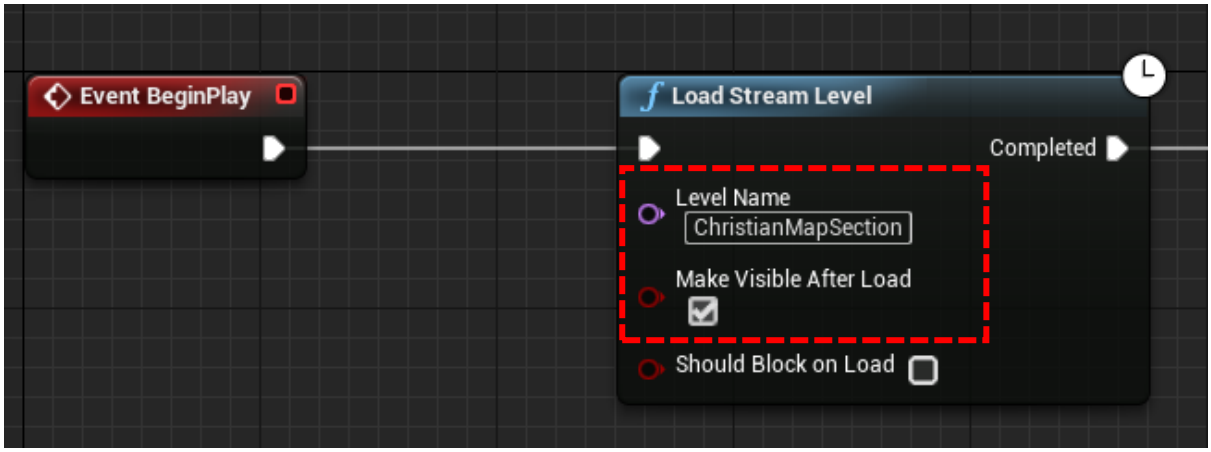
Once done, make sure you double-click your persistent (master) level from the '**Levels**' window, you will know you're on the right one as you will see it labelled in the bottom-right corner of the viewport.



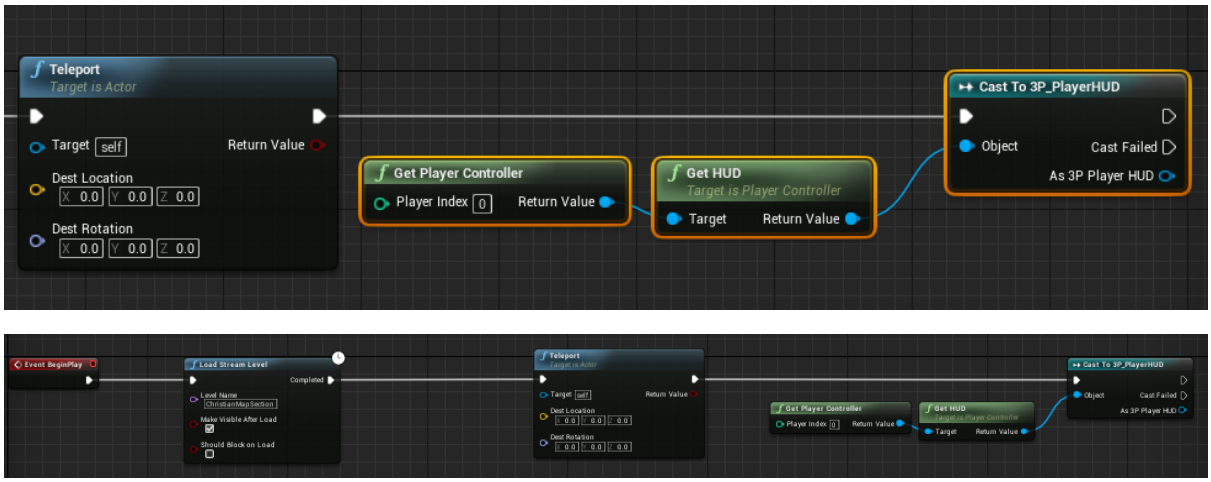
Making sure you're in the persistent level section, open the level blueprints by going to the top toolbar and selecting '**Blueprints > Open Level Blueprint'**.



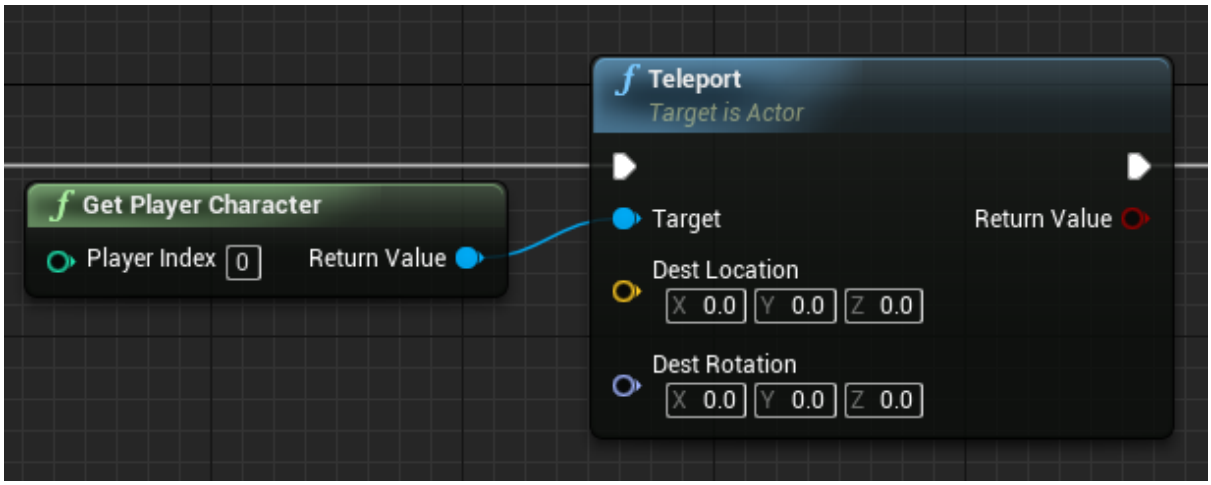
With the 'Level blueprint' window open, we want to drag off the '**Event BeginPlay'** node and add a '**Load Stream Level**'. Inside the **'Load Stream Level'** we want to make the 'Level Name', the name of our persistent level's map name (**must be the same**) and we also want to tick the '**Make Visible After Load**' box.



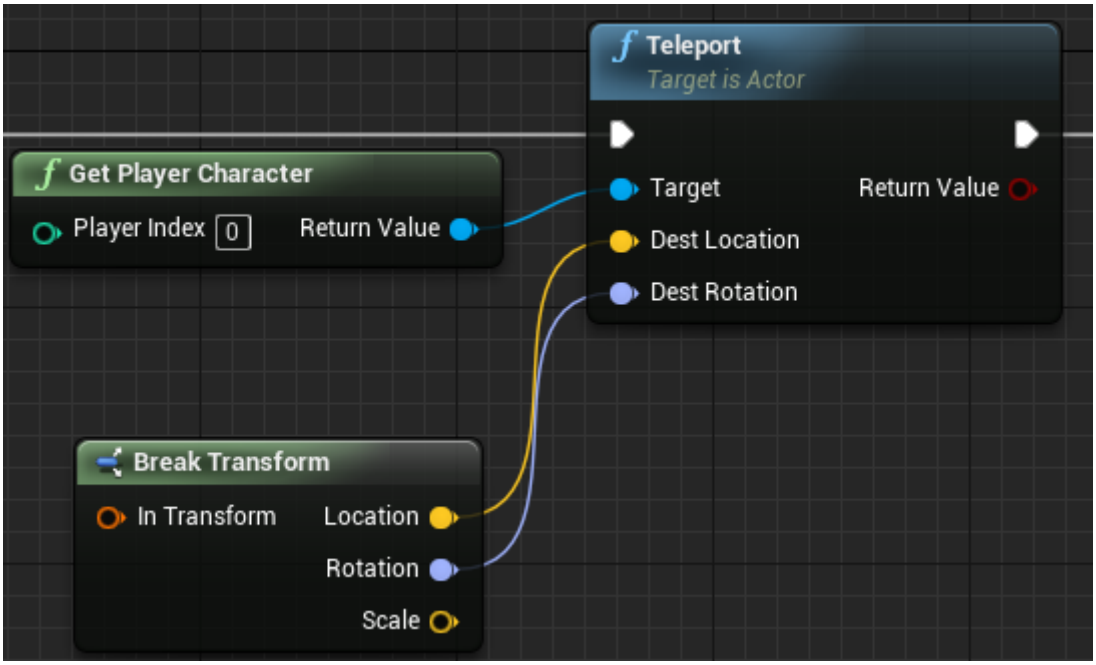
Now from the ‘Completed’ pin on the ‘**Load Stream Level’** node, drag off it and add ‘**Teleport**’, from that add ‘**Cast To 3P_PlayerHUD’**. From the ‘Object’ on the ‘**Cast to 3P_PlayerHUD’** drag and add ‘**Get HUD’** and then the target as ‘**Get Player Controller’**.



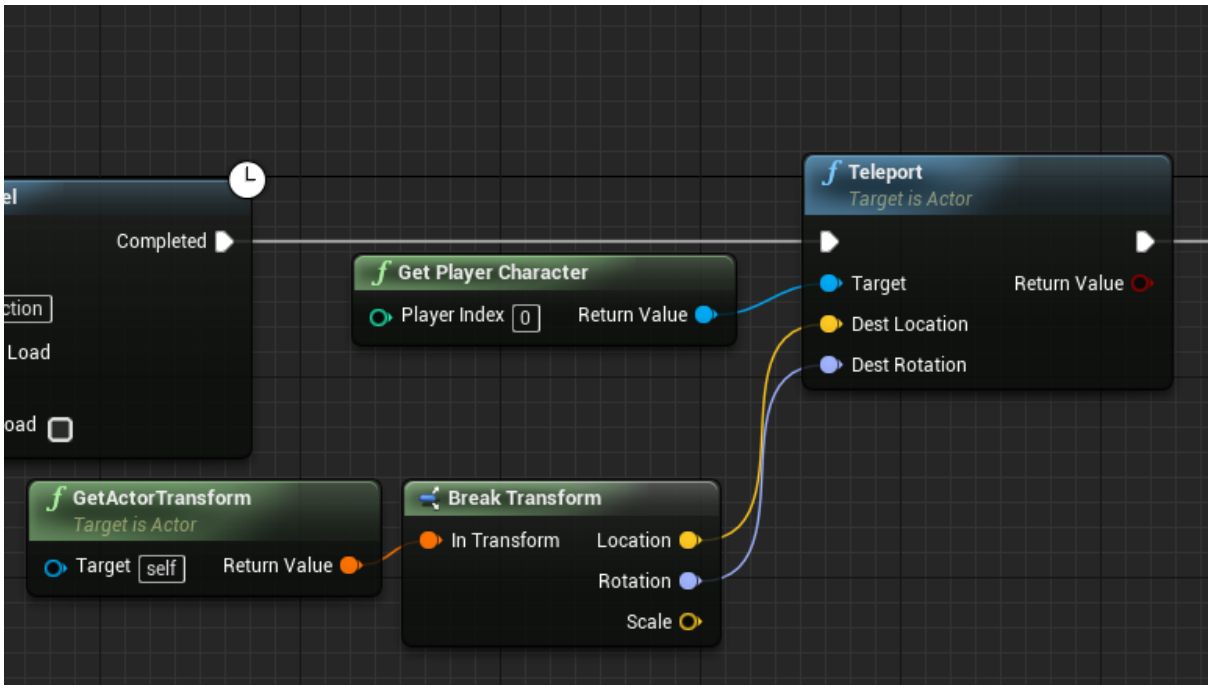
Back to the ‘**Teleport**’ node, from the ‘**Target**’ pin, drag and add ‘**Get Player Character’**.



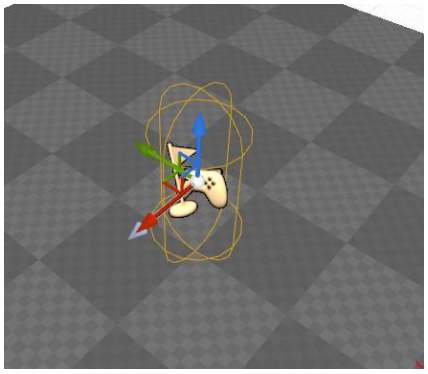
Now from the ‘**Dest Location**’ pin, drag and add ‘**Break Transform’**. Once this is created, plug the ‘**Dest Rotation’** pin into the ‘**Rotation**’ pin of the ‘**Break Transform’**.



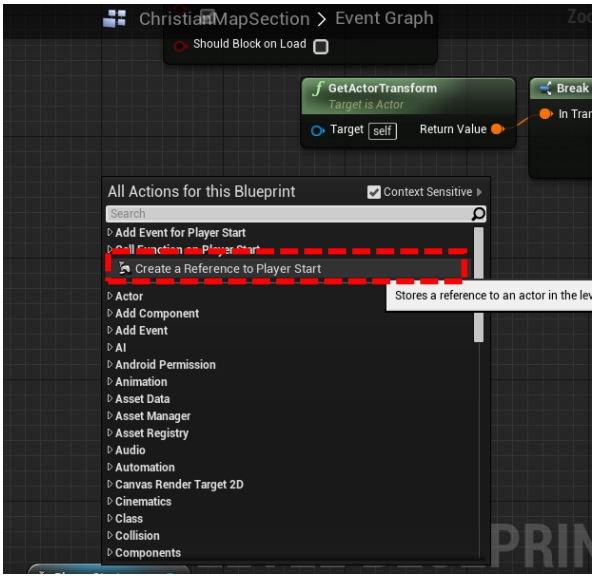
From the '**In Transform'** pin for '**Break Transform**' drag out and add '**GetActorTransform**'.



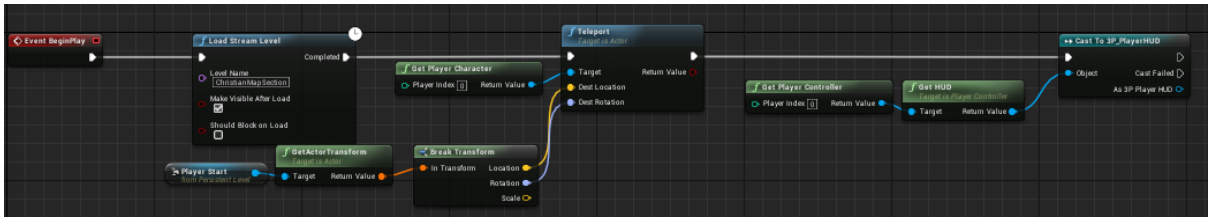
Now you will need to go to your viewport and select the persistence levels '**Player Start'**.



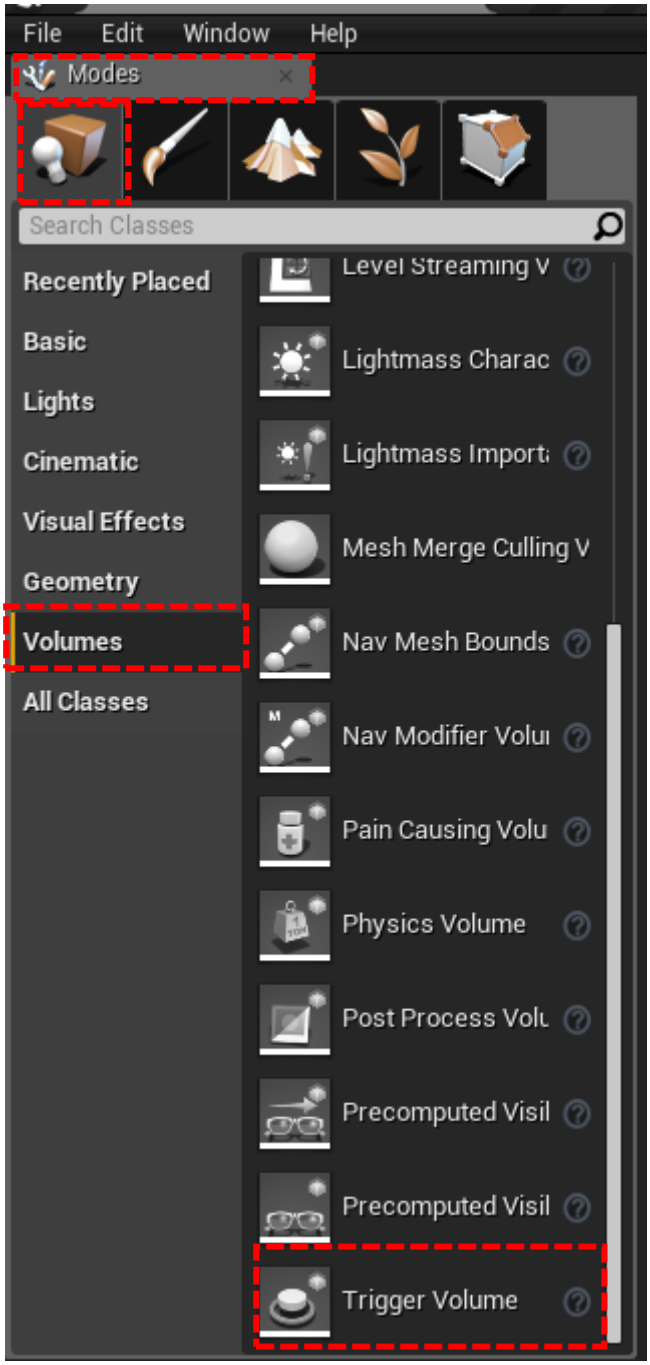
With it selected, go back to the '**Level blueprint'** window and then right-click and from the drop-down select '**Create a Reference to Player Start'**.



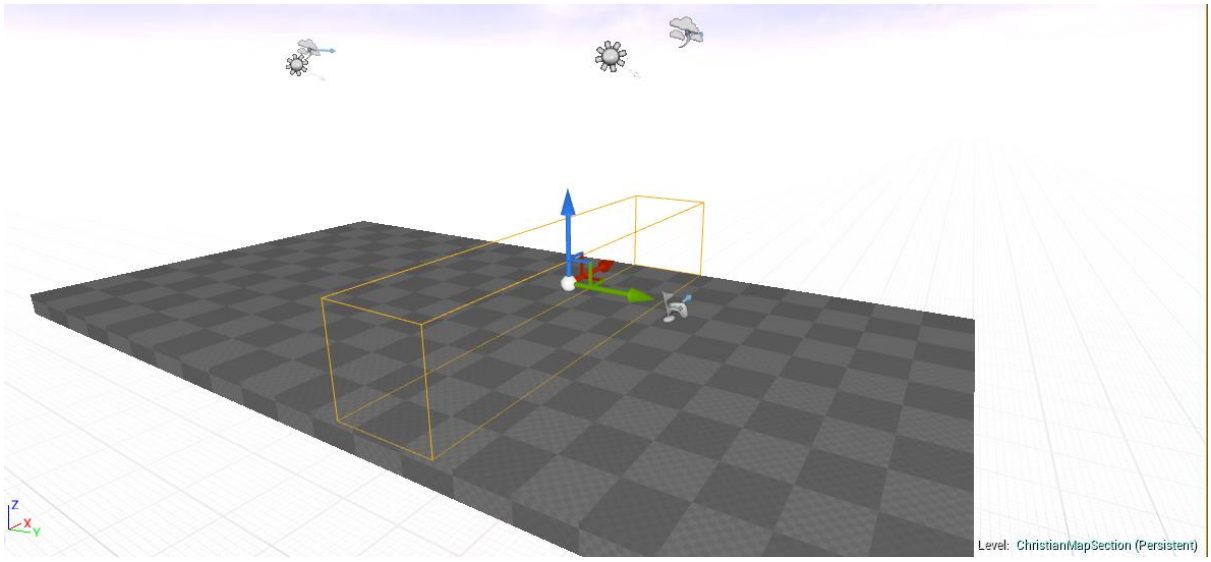
Now plug this into the '**Target**' pin of '**GetActorTransform'**.



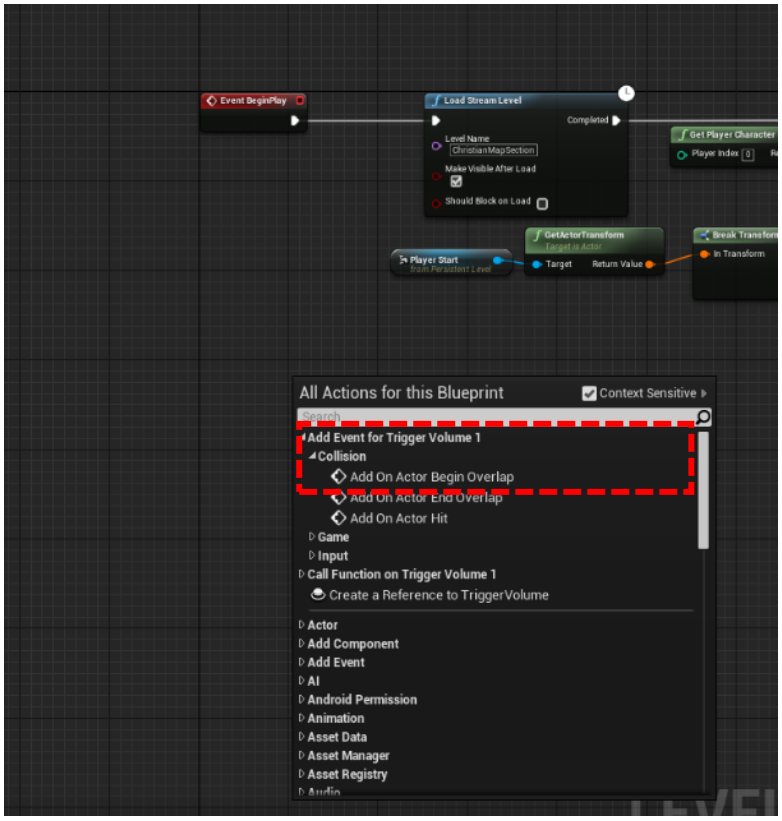
Now to stream this into another section of the level we will need to add some triggers. So making sure you're still in the persistent level, in the '**Modes > Placement**' tab on the right-hand side, select the '**Volumes**' tab and drag the '**Trigger Volume'** into your level.



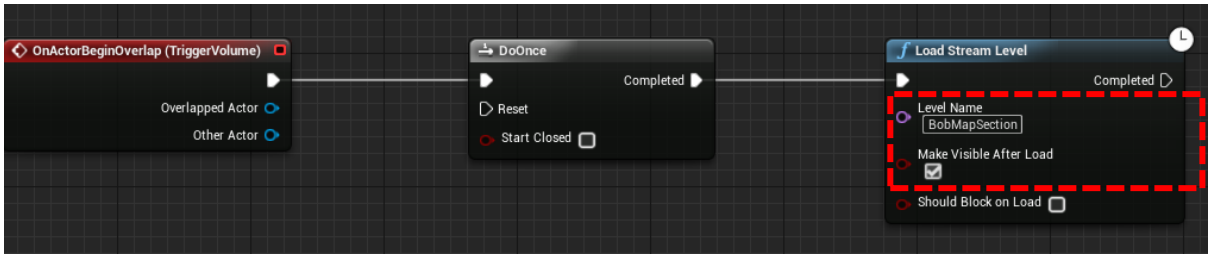
Now we're going move/scale/rotate this '**Trigger Volume**' close to the area we wish to be loaded when the player overlaps with it, I would recommend placing it at the midway point before reaching the new area.



Now if you go back to your '**Level blueprint'** window with the **'Trigger Box'** selected in the viewport. Right-click the graph and then go '**Add Event for Trigger Volume <NUMBER> > Collision > Add On Actor Begin Overlap'**.

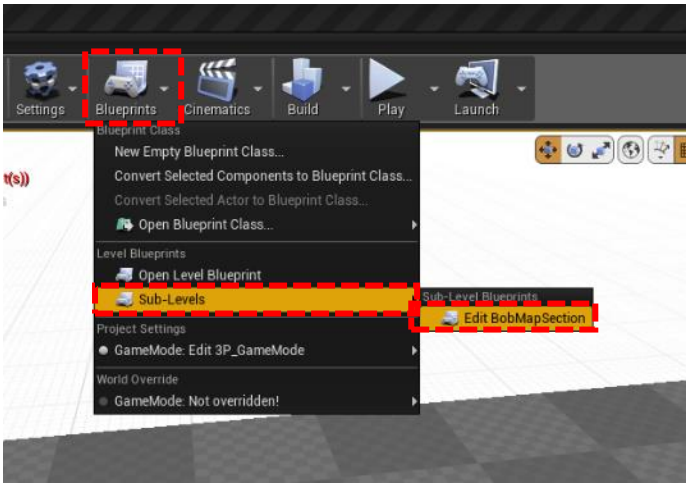


From the '**OnActorBeginOverlap (TriggerVolume)**' pin, drag off and add '**DoOnce**' and from the '**Completed**' pin, drag off and add '**Load Stream Level'**. Now make sure the '**Level Name'** box is the name of the map section you wish to load (**must be the same**), and tick '**Make Visible After Load'**.

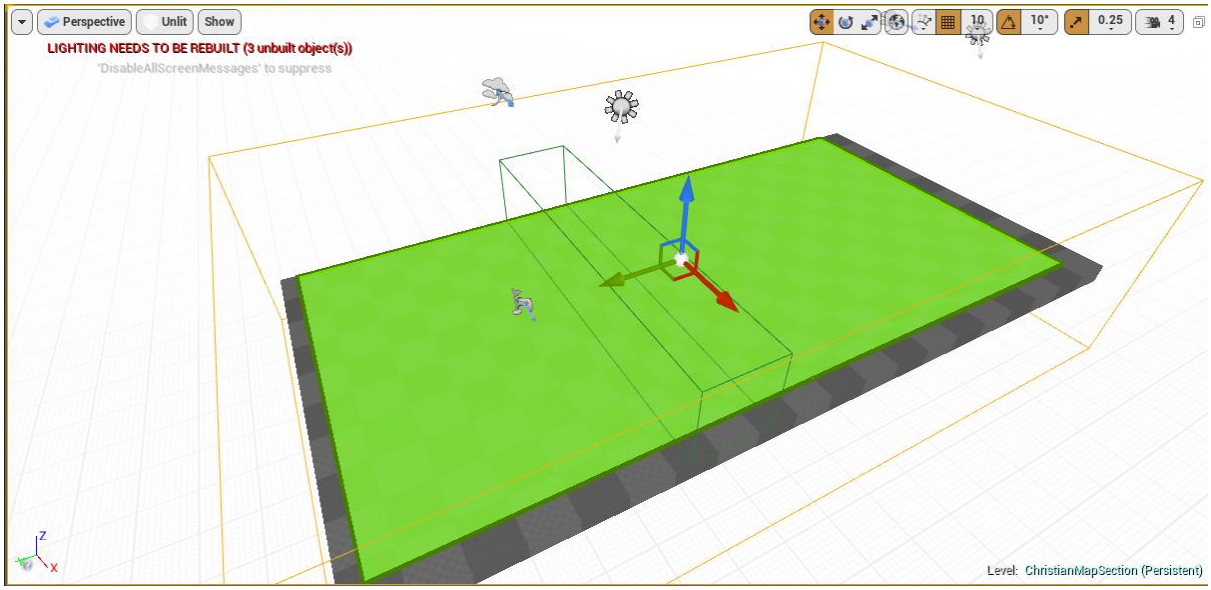


To add other levels to the map to stream, you will want to repeat the process from adding the '**Trigger Volume'** but with some slight changes. Before you add the **'Trigger Box'** you will want to make sure you have the next level section selected in the **'Levels'** window by double-clicking it.

With the section selected in the 'Levels' window, you will want to drag in your 'Trigger Volume'. When you're at the blueprint stage, instead of going 'Blueprints > Open Level Blueprint'. You will want to go '**Blueprints > Sub-Levels > Edit (level section name).** This is where you will want to add the level streaming nodes.



It is also recommended that you delete any '**NavMesh**' volumes that you have in each section and then just recreate one giant '**NavMesh**' to cover the entire level (**make sure to do this inside the persistent level**).


Perspective
Unlit
Show
LIGHTING NEEDS TO BE REBUILT (3 unbuilt object(s))
'DisableAllScreenMessages' to suppress
10
10°
0.25
4
Level: ChristianMapSection (Persistent)