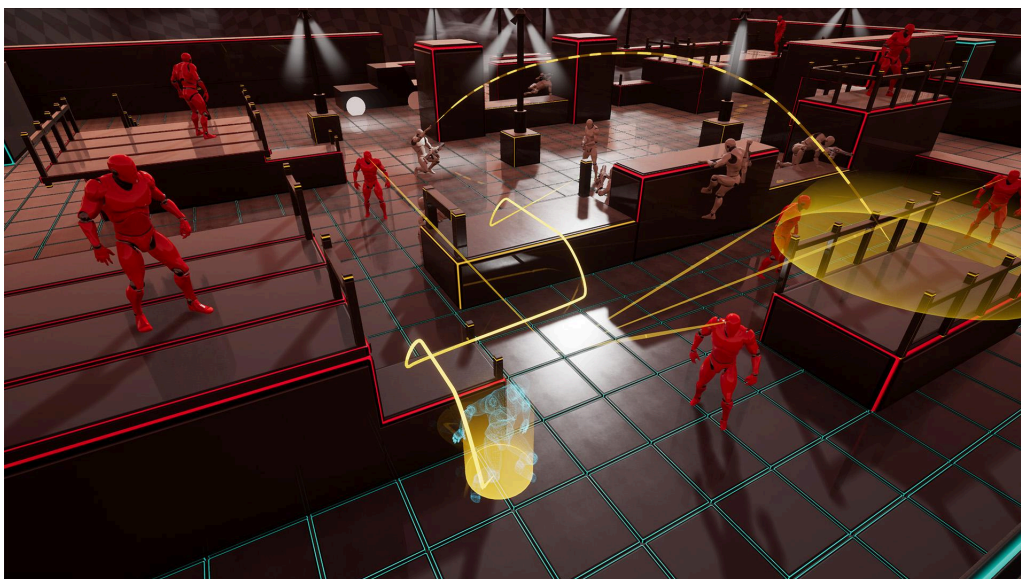


Advanced Tactical-based System v1.0

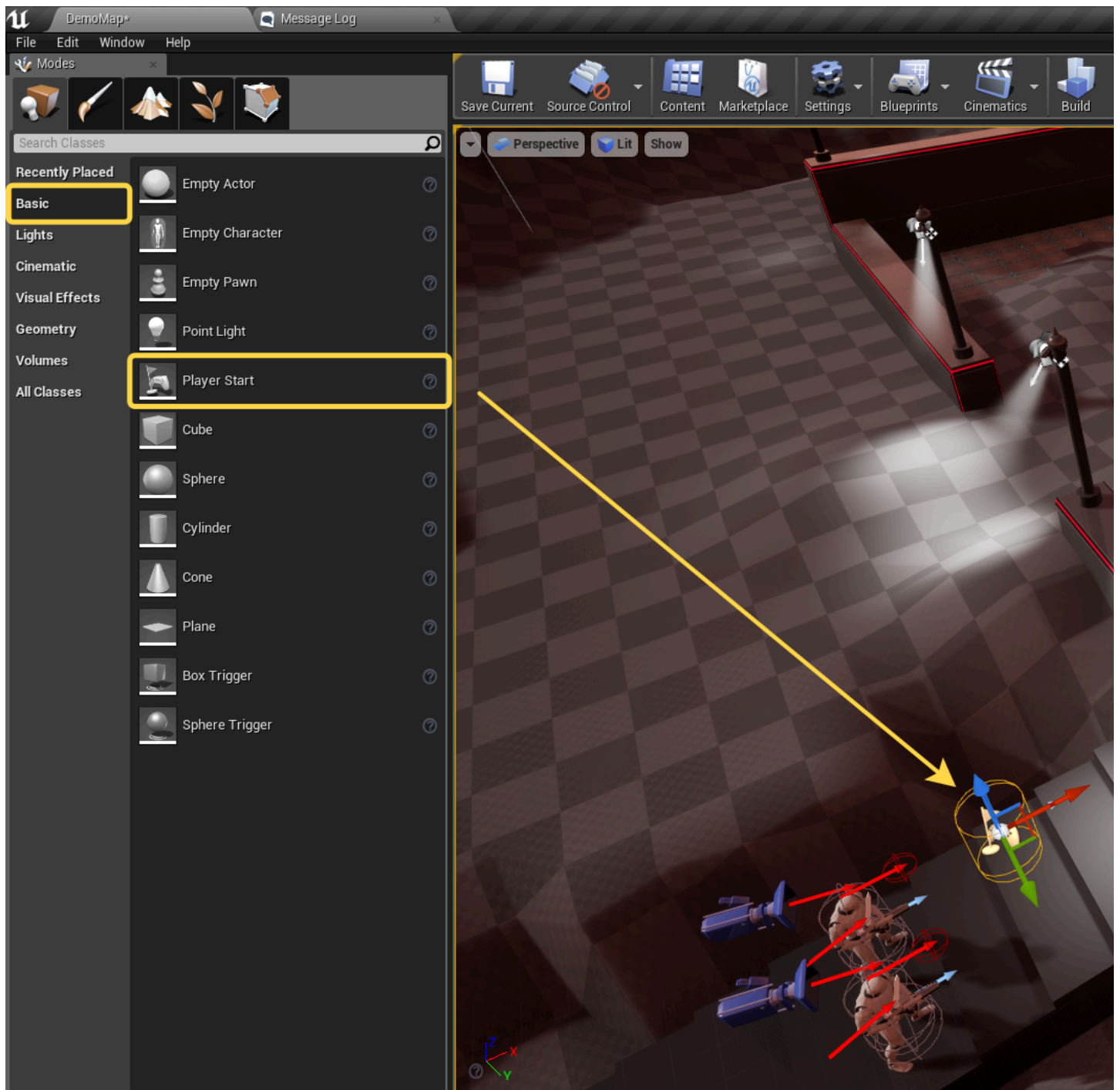
Features:

- Provides most complete solution
- Full free movement on the level (nav mesh and nav links)
- Possibility of movement on the grid
- Dynamic cover system (real time)
- Dynamic preview targets in point destination (real time)
- Trajectory for the grenade with calculate collision
- Reloading weapon
- 3 types of drawing the trajectory of movement of the NPC (smooth line, linear line, A-B point) with numerous settings
- Overwatch
- Melee attack
- Range attack with different attack ranges for pistols and rifles
- Camera control manager with any settings
- Target selection
- and much more



Setup

Step 1 - Add a [Player Start] at your level

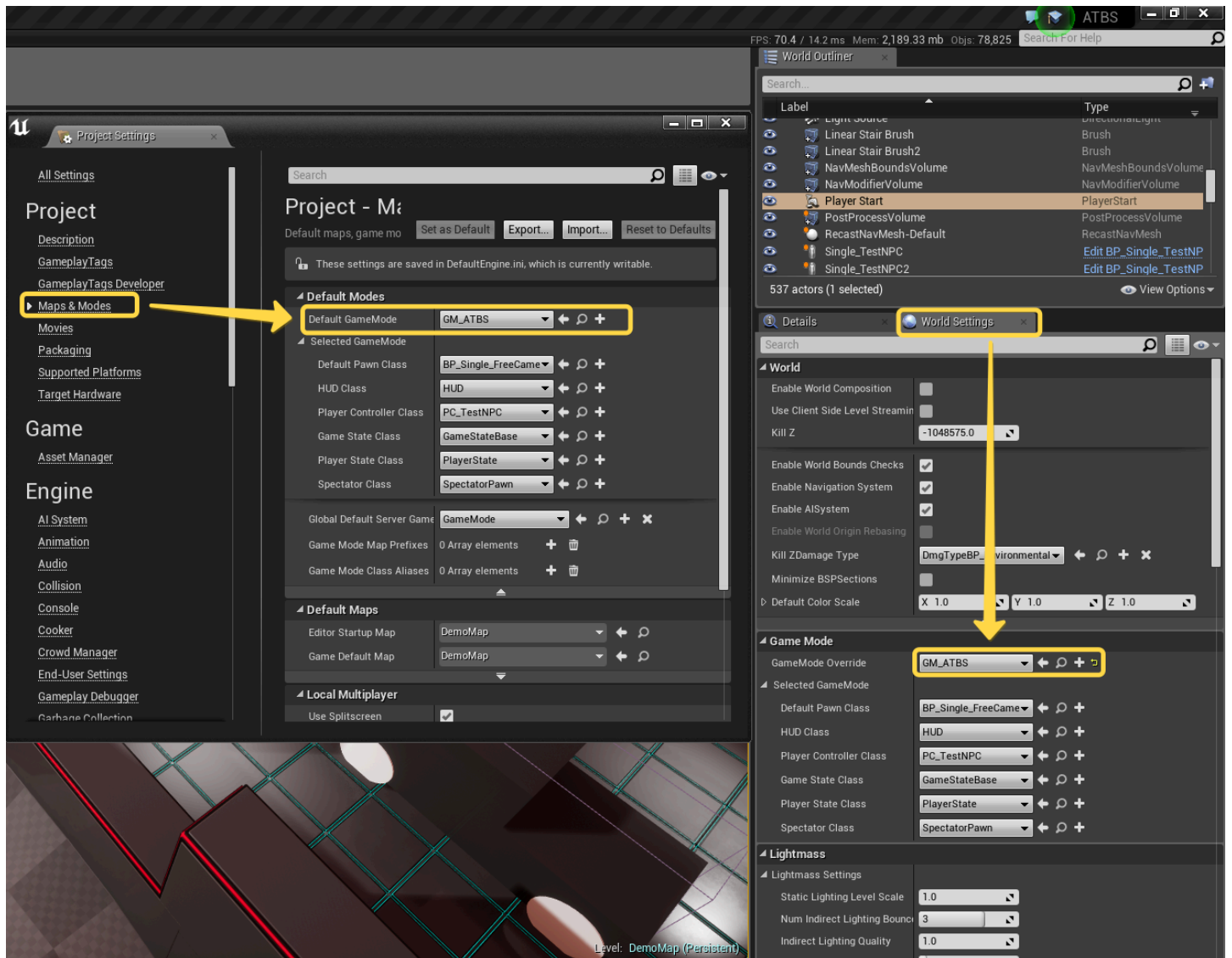


Step 2

- Open Project settings
- Select tab [Maps & Modes]
- in the tab [Default Modes] setup new GameMode “GM_ATBS”

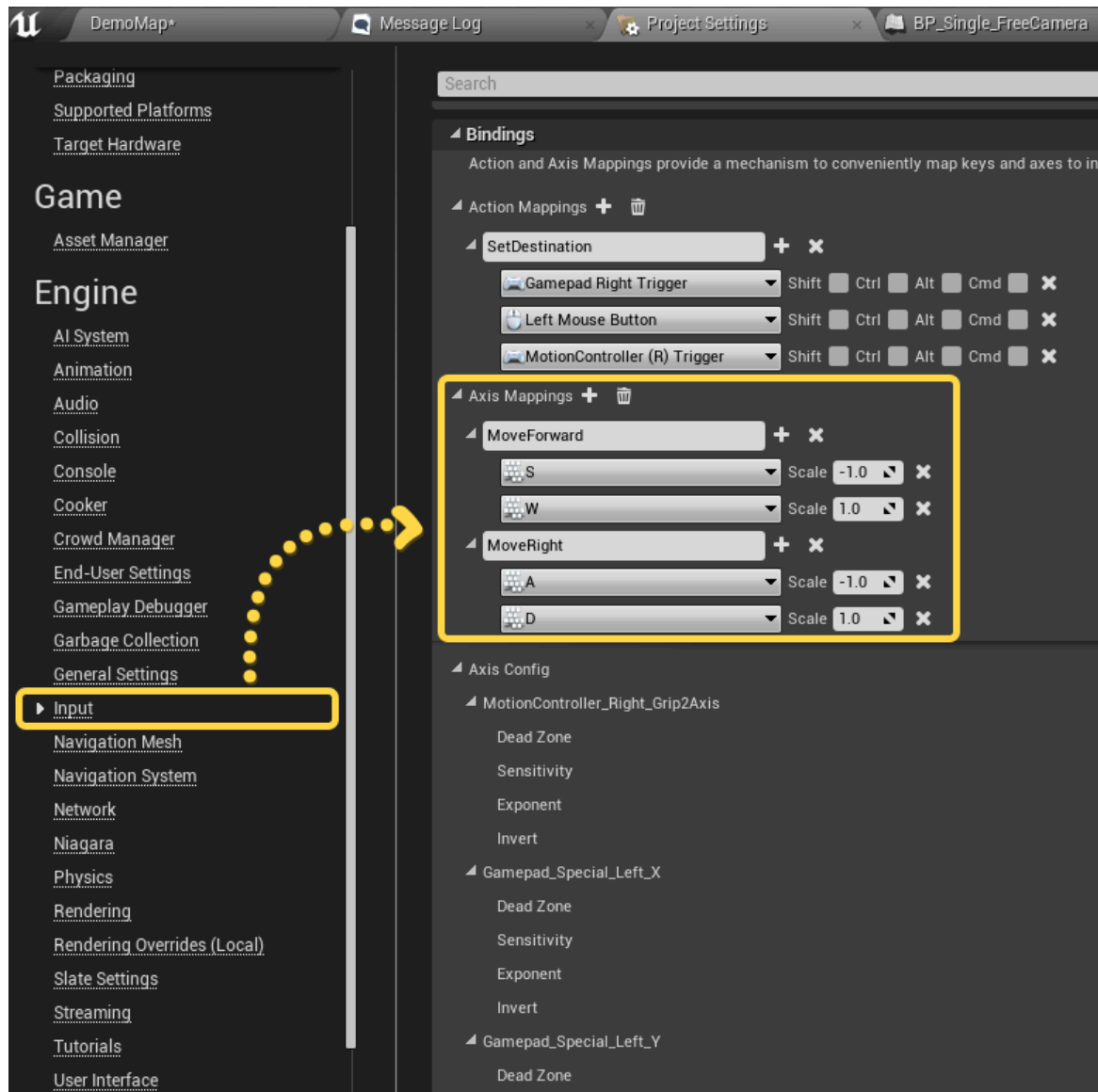
Or

Select tab [World Settings] and add new GameMode “GM_ATBS”

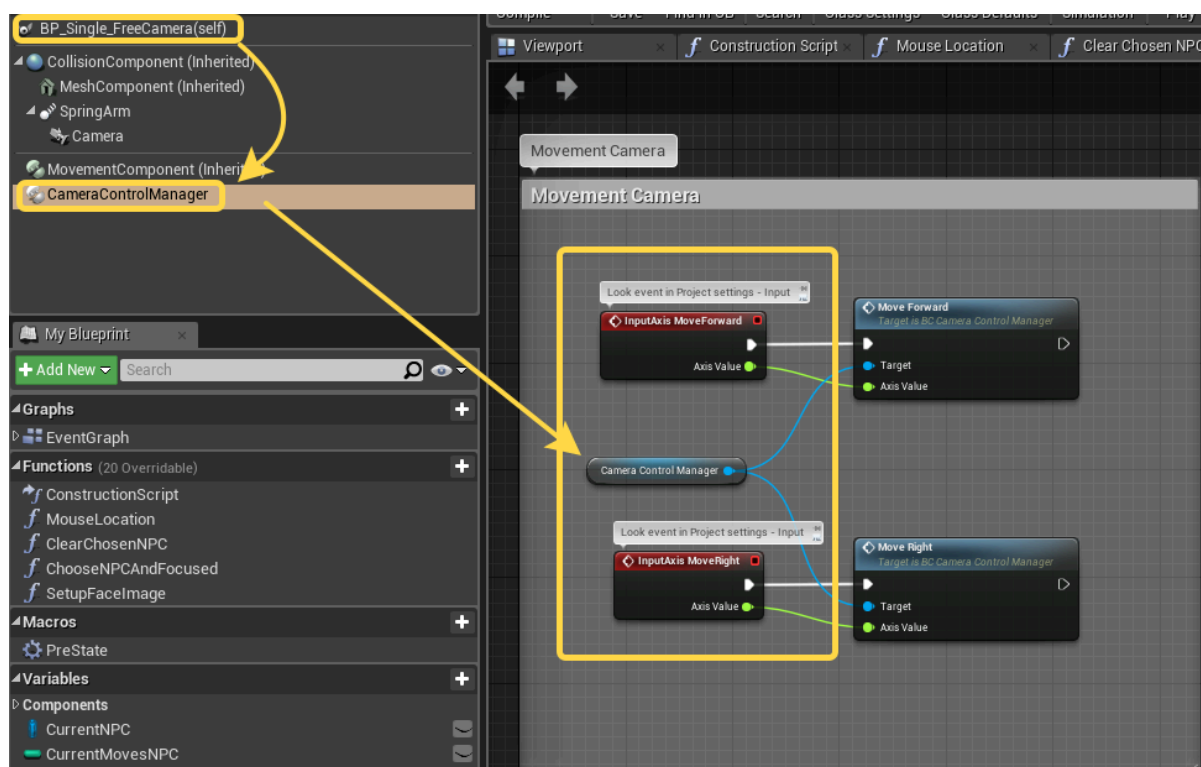


Steps 1 and 2 are only needed for the [BP_Single_FreeCamera] to appear at the start.

Please make sure that you have defined Action in the Project Input Settings:

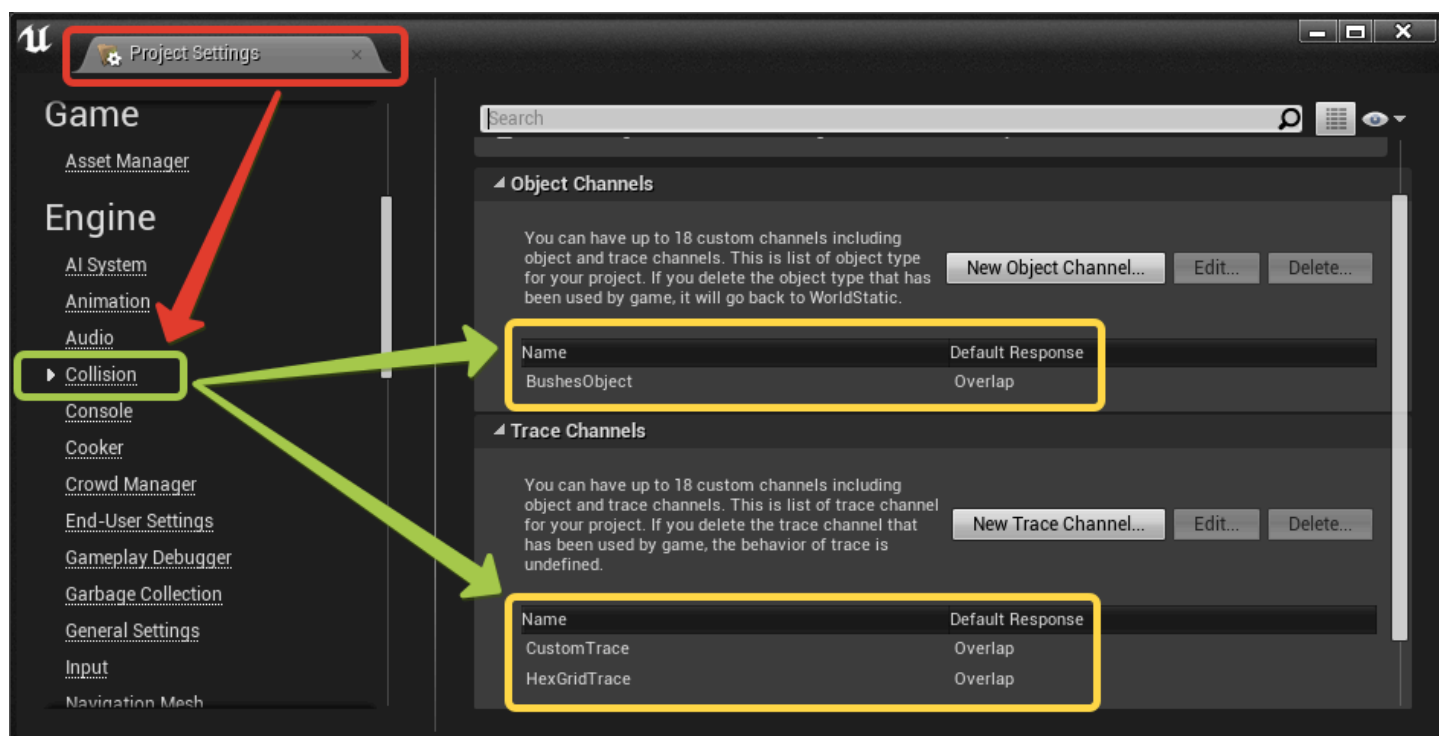


This is needed to control the BP_Single_FreeCamera:



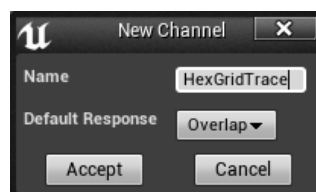
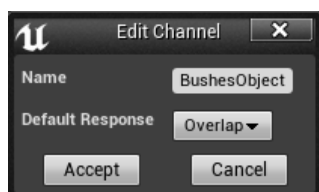
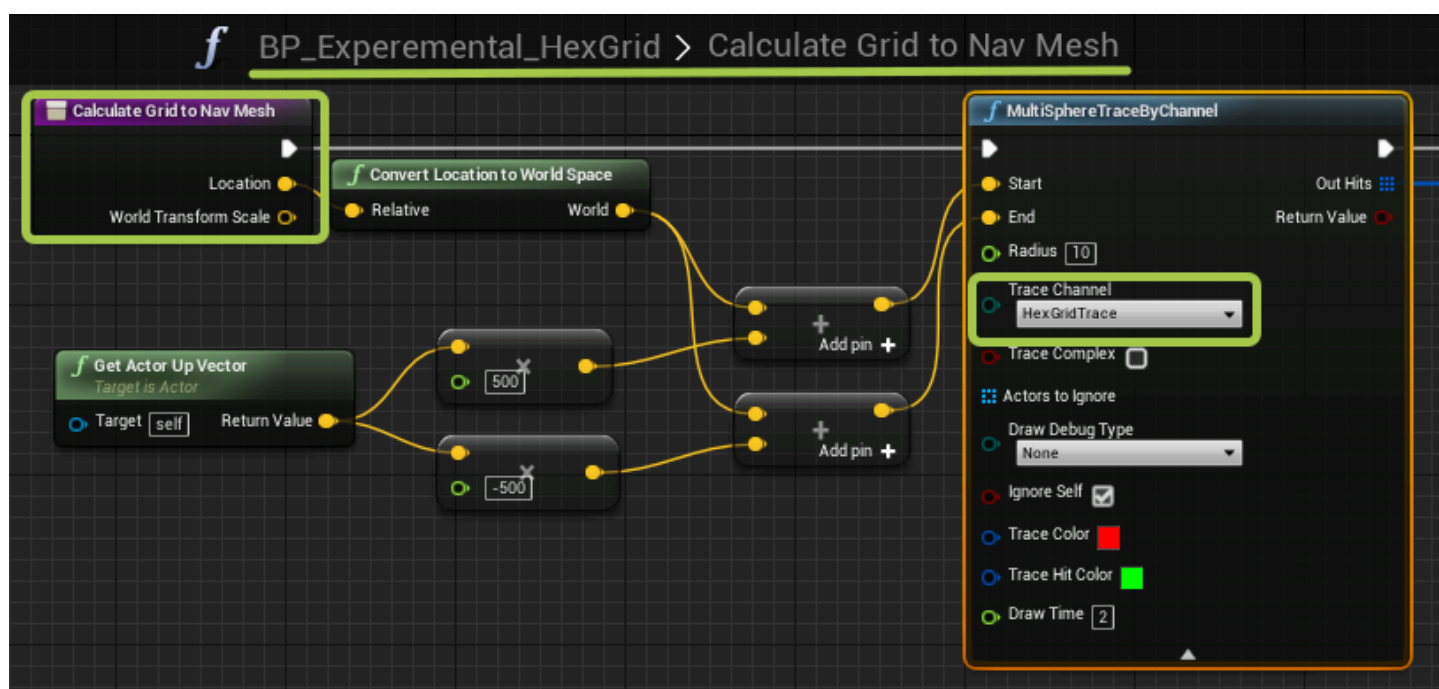
Please make sure you have (Custom Trace, HexGrid Trace) and Object Channel (Bushes Object) in your Project Settings before starting opening Blueprints.

Default Response: Overlap



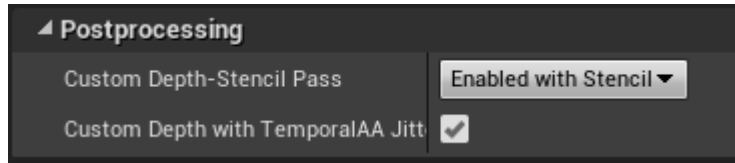
This is needed to correctly work:

- The BP_Experemental_HexGrid
- The BP_HidingBush



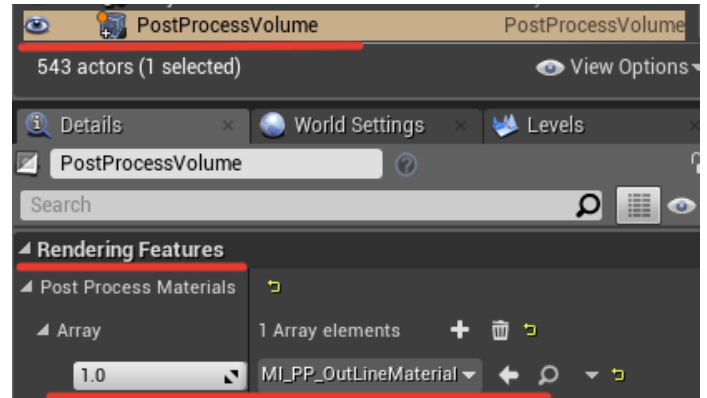
Outline material Highlighting enemy

[Read the documentation](#) for the Outline material in post-processing



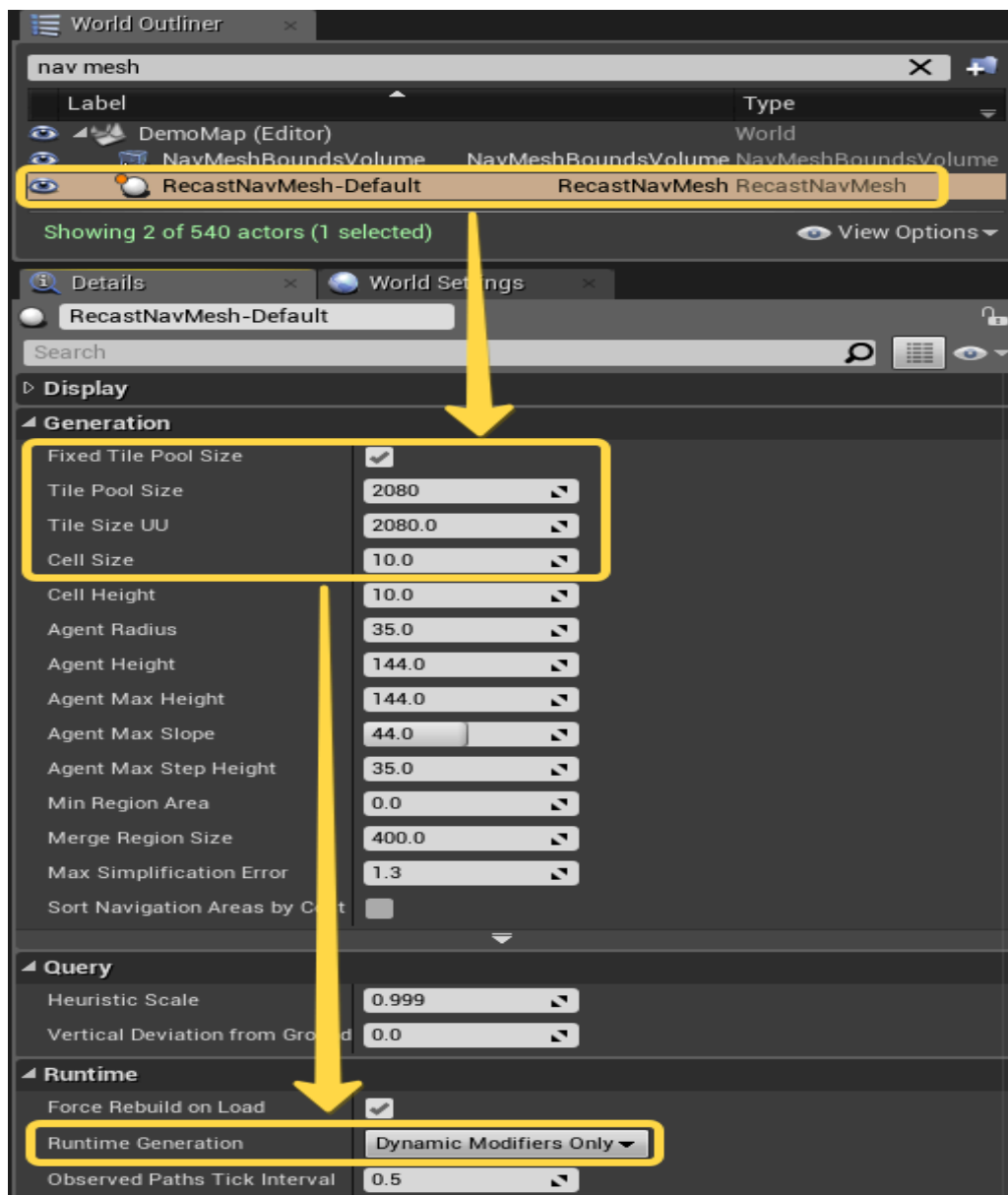
Highlighting for targeting.

Stencil number 4



Step 3 - add a Nav Mesh Bound Volume and after selected RecastNavMesh

Enter parameters:



This is necessary for a more accurate calculation of the navigation mesh.



Because the default nav mesh will give a less accurate calculation. See the picture below



That's all!

BP_Single_FreeCamera

BP_Single_FreeCamera This is the main BP. It does the job of selecting the player's NPC, creates a HUD and Moves behind all the NPCs

Contain component Camera Control Manager which is responsible for moving the camera along the level

BP_Single_TestNPC

This is a player's NPC controlled by a simple AI controller

For move, uses a simple AI Move to. This is enough for this type of game.

We just say AI Move to or AI attack - it's easy

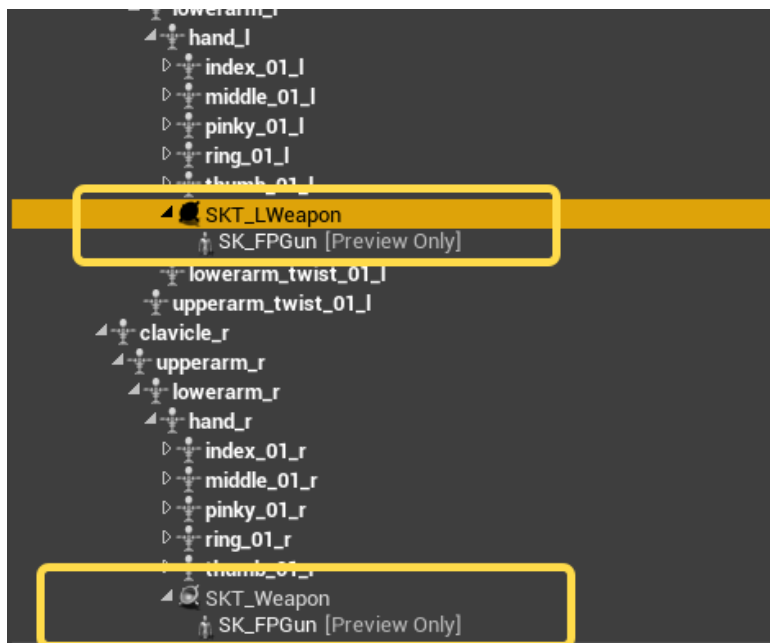
The player's NPC contains 3 components :

BC_Single_DrawPath

BC_Single_Movement_Area

BC_Single_GrenadeTrajectory

Skeletal mesh has 2 Socket for Left and Right hand. This is necessary for changing weapons from hand to hand.



BP_EnergyNPC

This is a NPC controlled by a simple AI controller

For testing purposes, I created these NPCs just to keep track of the rest of the code.

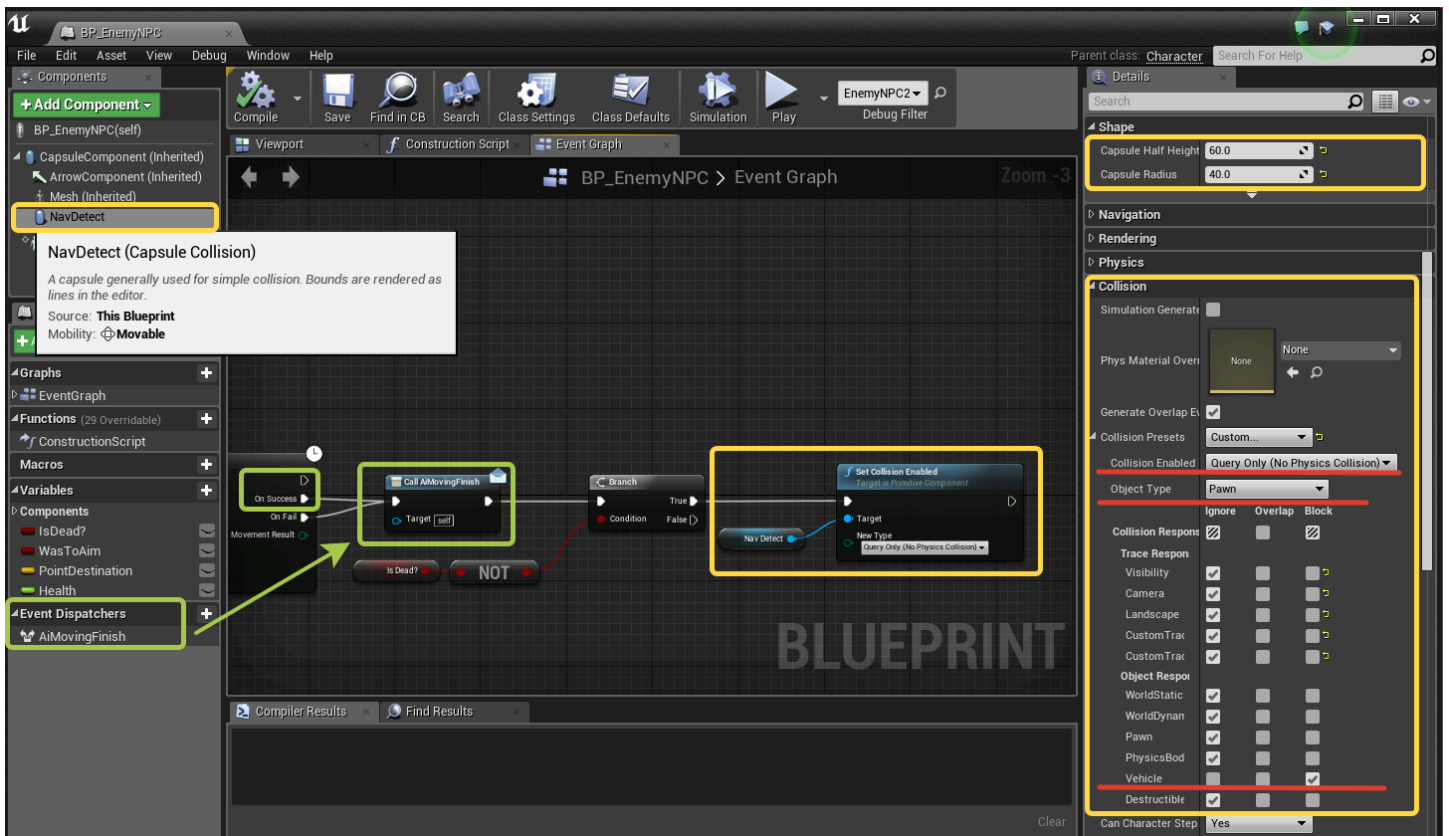
They are very simple - all they can do is find a random point and run to it. You can create NPCs with any AI difficulty

However, you will need to create a Dispatcher "AiMovingFinish" and call him upon the end of the current NPC's turn.

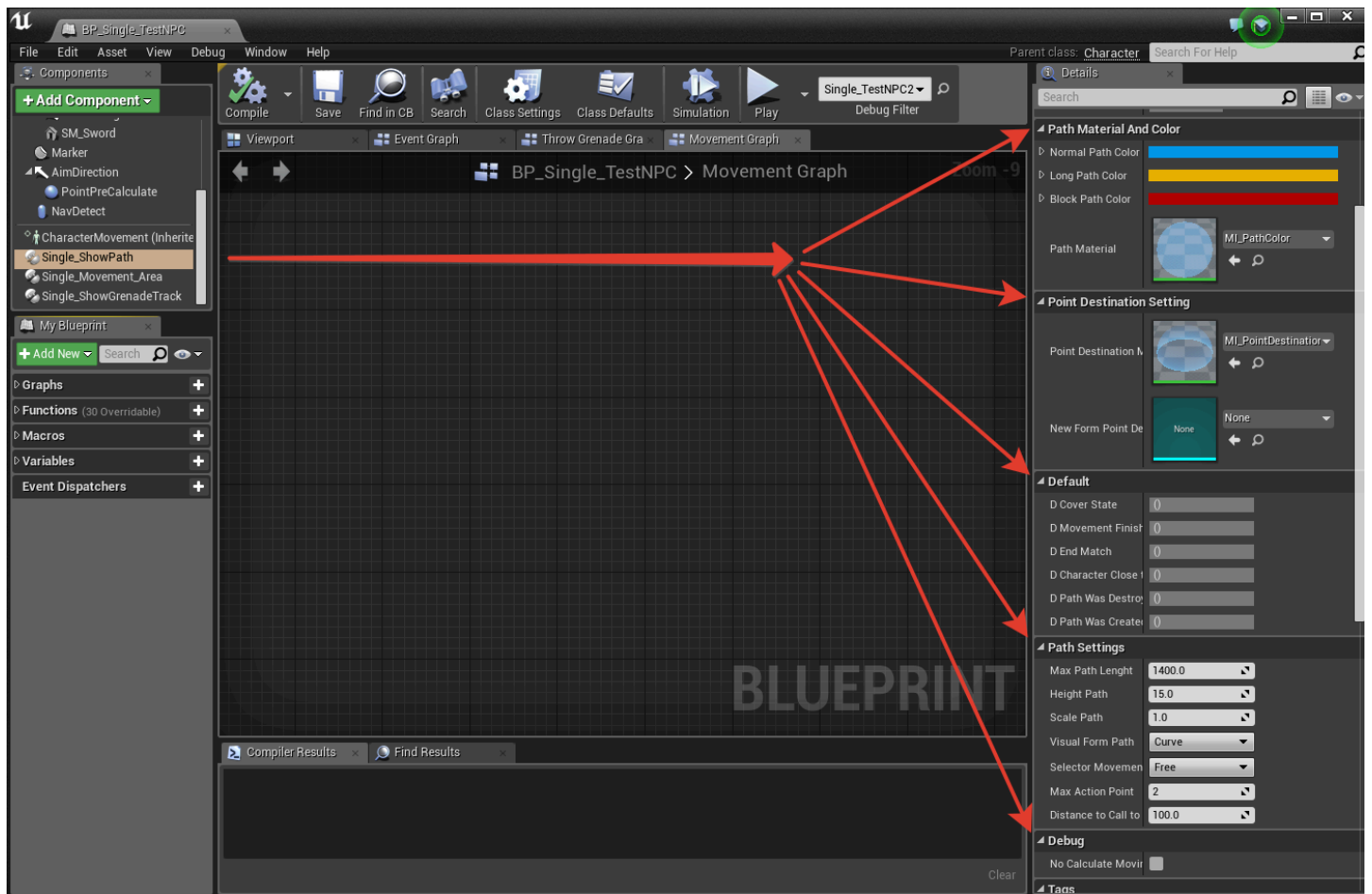
See highlighted in green

The enemy NPC, like the player's NPC, has a Nav Detect for its settings, see highlighted in yellow.

At the end of the current NPC's turn, you will need to Enable Collision



BC Single DrawPath

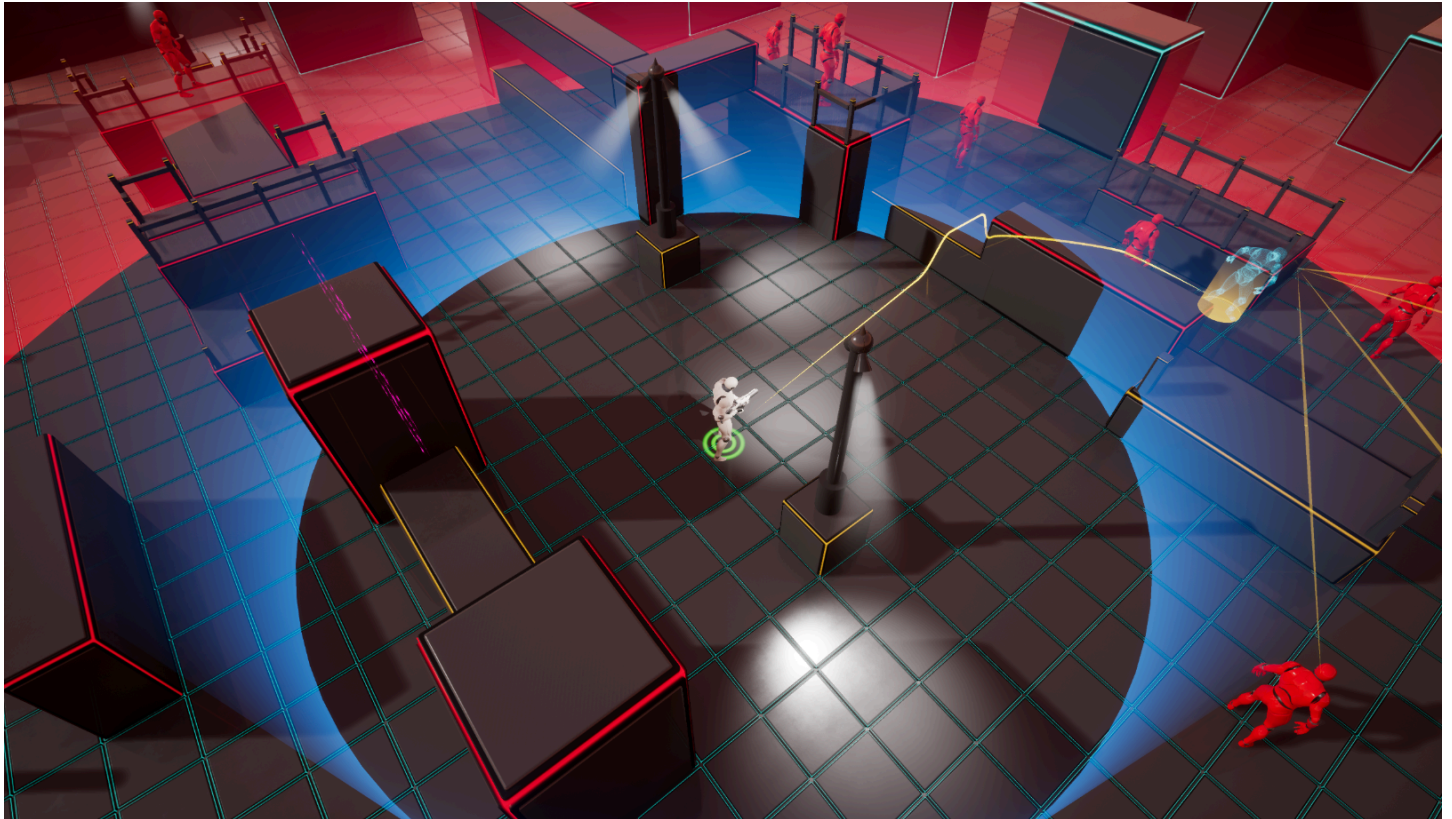


This component is responsible for drawing the movement of the NPC, it also creates a destination point that calculates the:

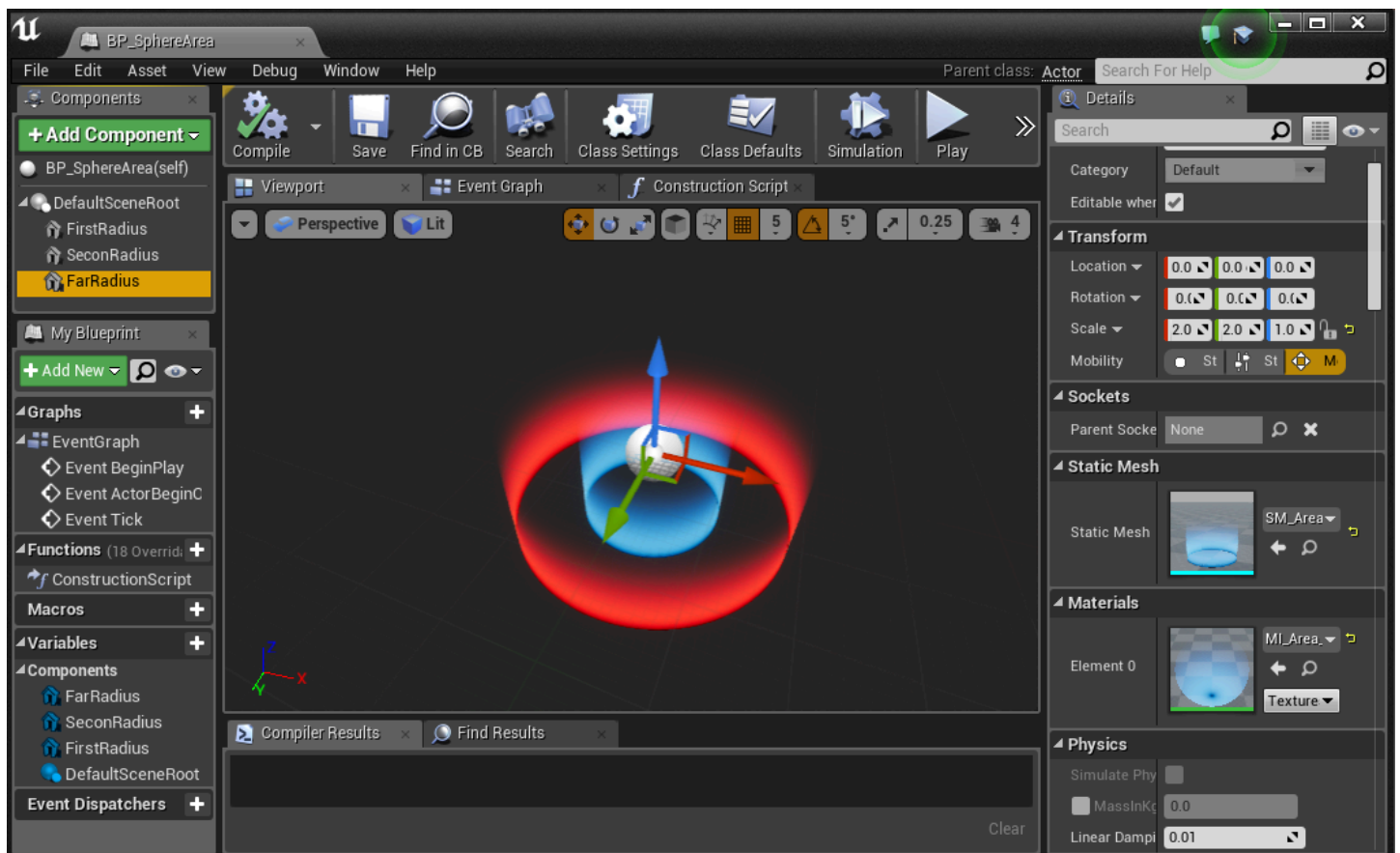
- Full free movement on the level (nav mesh and nav links)
- Possibility of movement on the grid
- Dynamic cover system (real time)
- Dynamic preview targets in point destination (real time)
- 3 types of drawing the trajectory of movement of the NPC (smooth line, linear line, A-B point) with numerous settings
- Logics Melee Attack position and side

More detailed information and the sequence of code execution can be found in the BP component itself

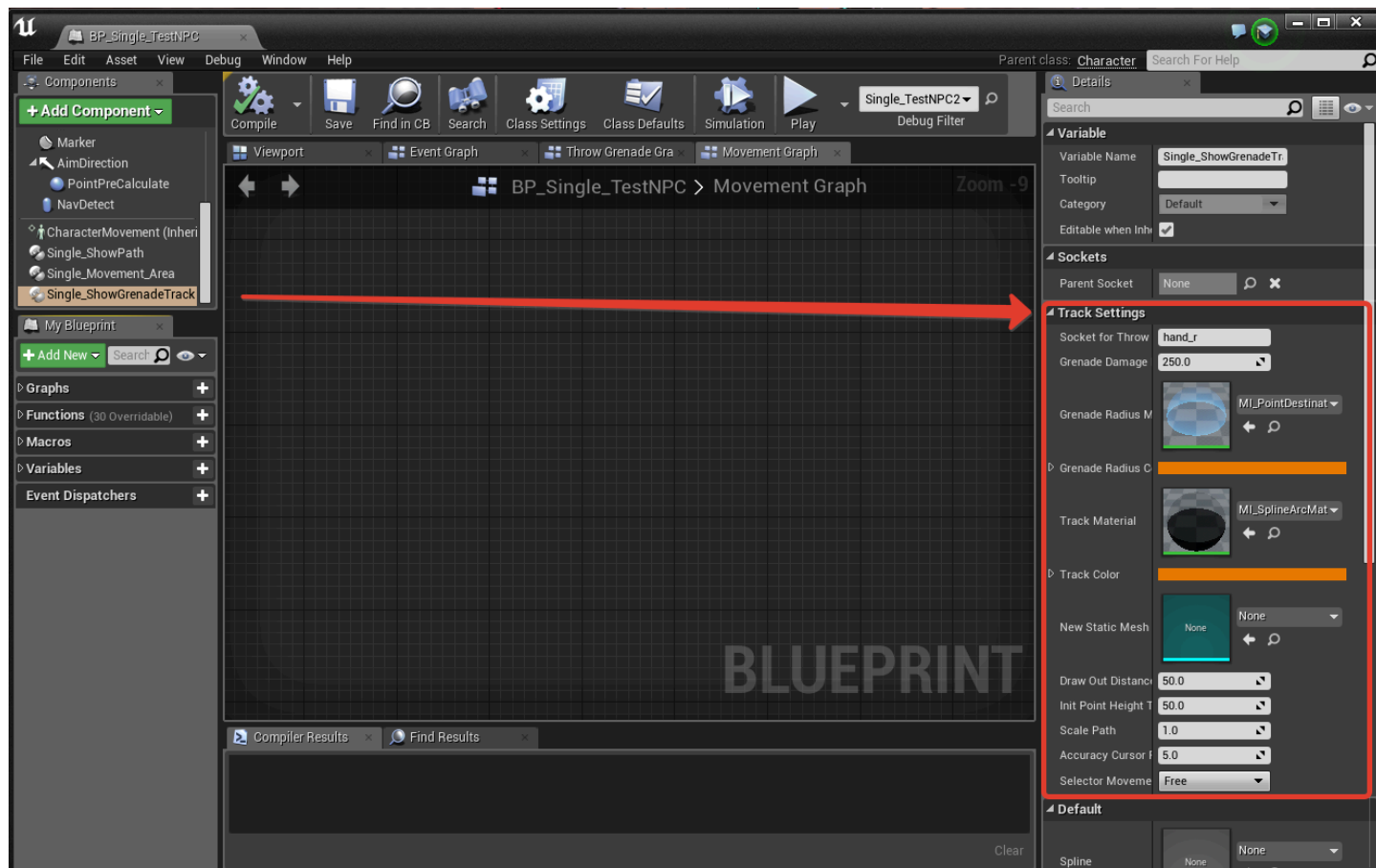
BC_Single_Movement_Area



This component is responsible for drawing the movement distance
Its parameters are set by the component `BC_Single_DrawPath`
However, this component will Spawn `BP_SphereArea`, in fact it's just for visualization



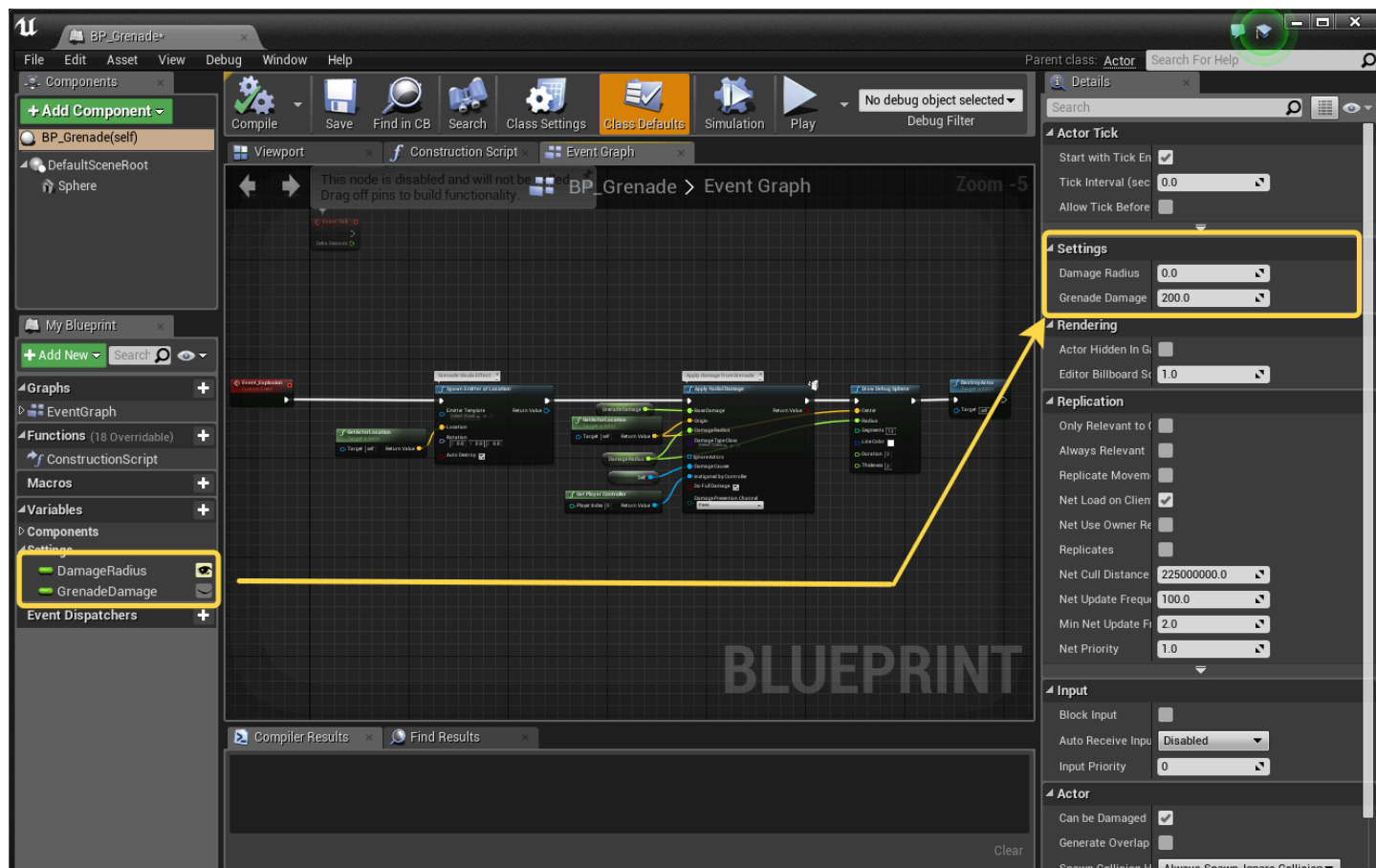
BC Single GrenadeTrajectory



This component is responsible for the trajectory of the grenade throw.

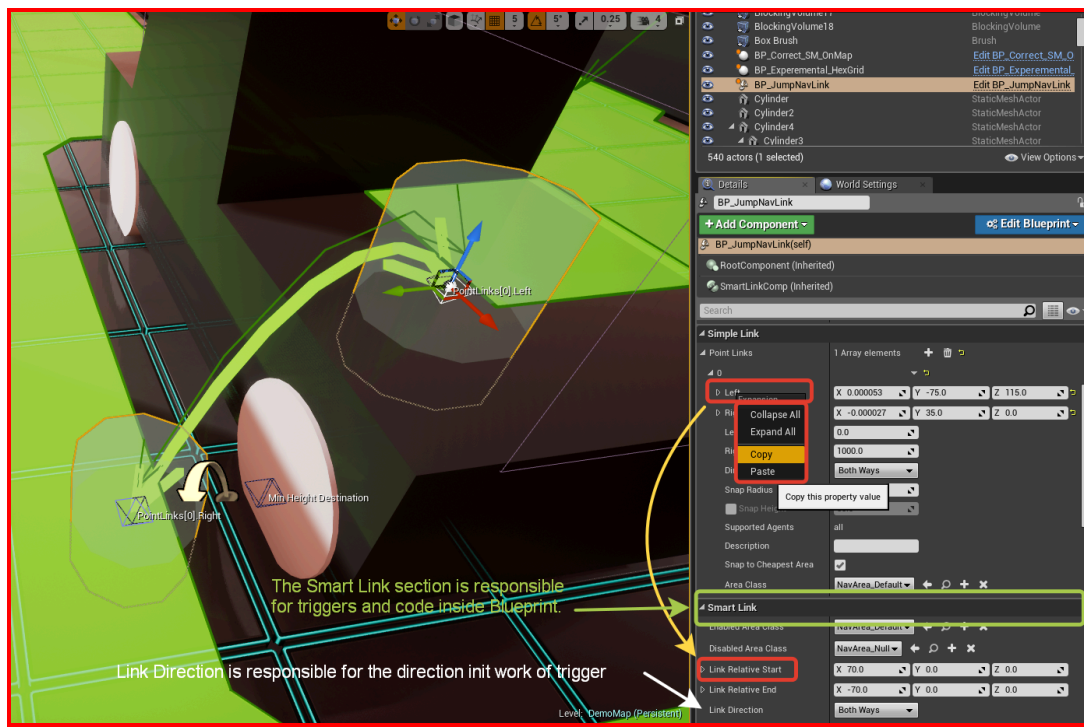
Has a number of settings for visualization.

Damage parameters in the grenade itself, Explosion radius is set when spawning



BP JumpNavLink setup

[Follow the link and watch the video](#)

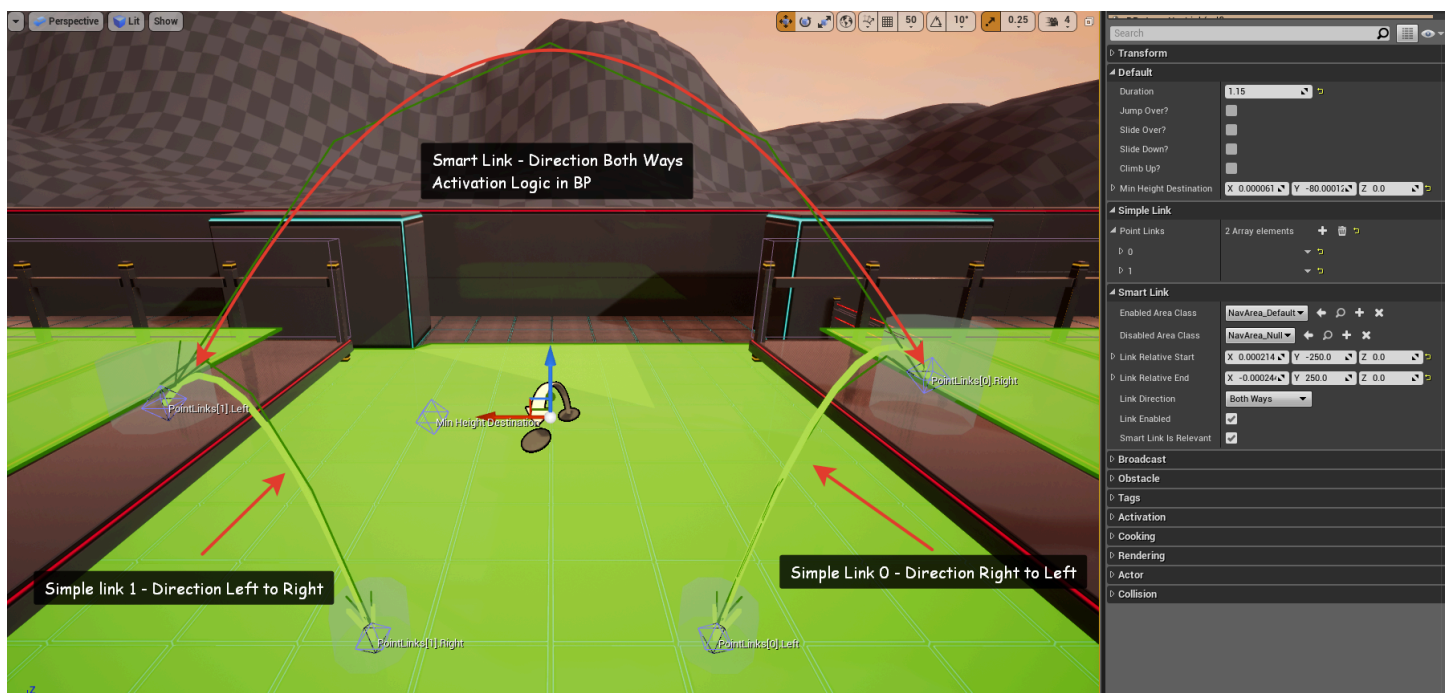


Just an example in the picture - I use 1 BP Nav Link but NPCs can walk in 3 directions:

- Jump over
- Jump right down
- Jump Down Left

In this case, the NPC is simply allowed to jump down by default and only the Jump over break inside the BP is triggered.

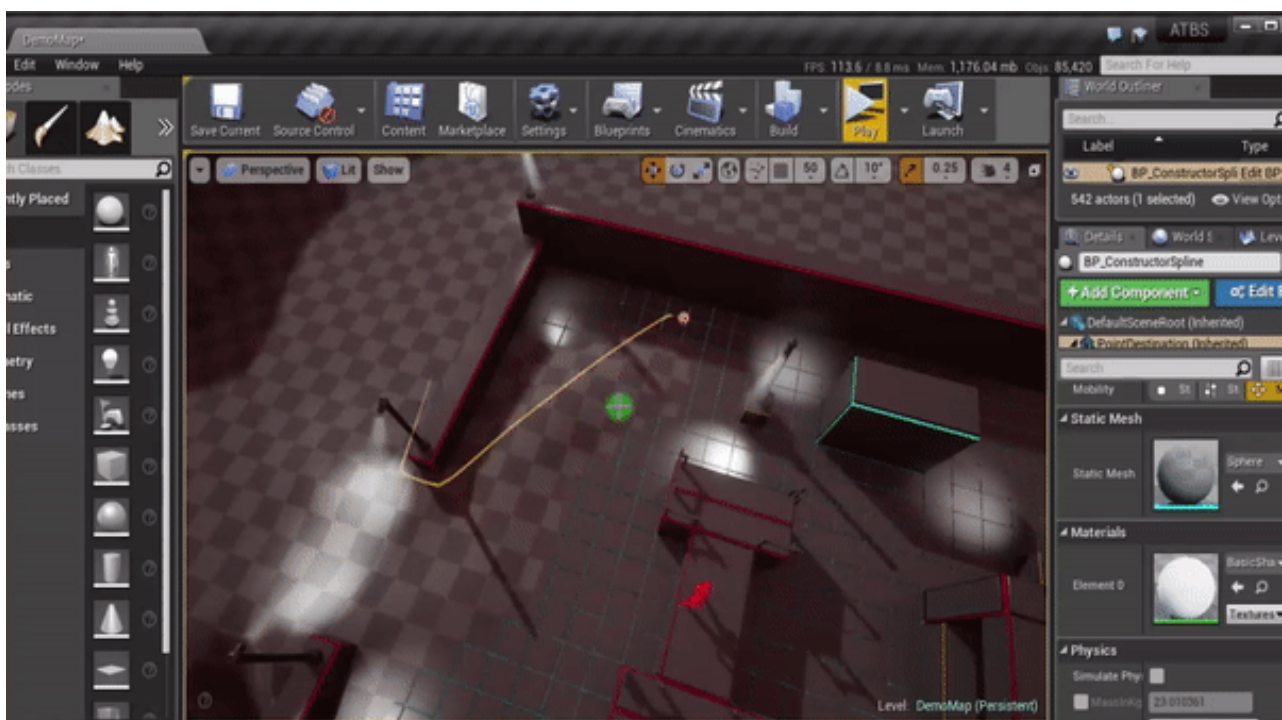
And here, I didn't set Flag to true on Jump Over because actually it = Jump on. I will fix it in the next update



- **Duration** - This is currently 1.15 based on the character's default jump height. It can also be perceived as a Curve (Arch) of jumping, the larger this indicator, the higher the NPC will Jump, respectively, the lower this indicator, the lower jump.
- **Jump Over** - This is if NPC need to jump over an obstacle (fence or barrier) inside the BP there is a corresponding logic that determines the width of the obstacle and turns on the appropriate animation
- **Slide Over** - This is if the NPC needs to slip over something (It's a wide not high barrier) It can also be a pipe or something else that is above the floor, but has restrictions from above. Imagine a rectangle above the floor.
- **Slide Down** - This is if the NPC needs to slip under something
- **Climb Up** - This is if the NPC needs to climb somewhere
- **MinHeightDestination** - This is a vector variable with an open 3D widget to show. Low point Nav Link install close to floor

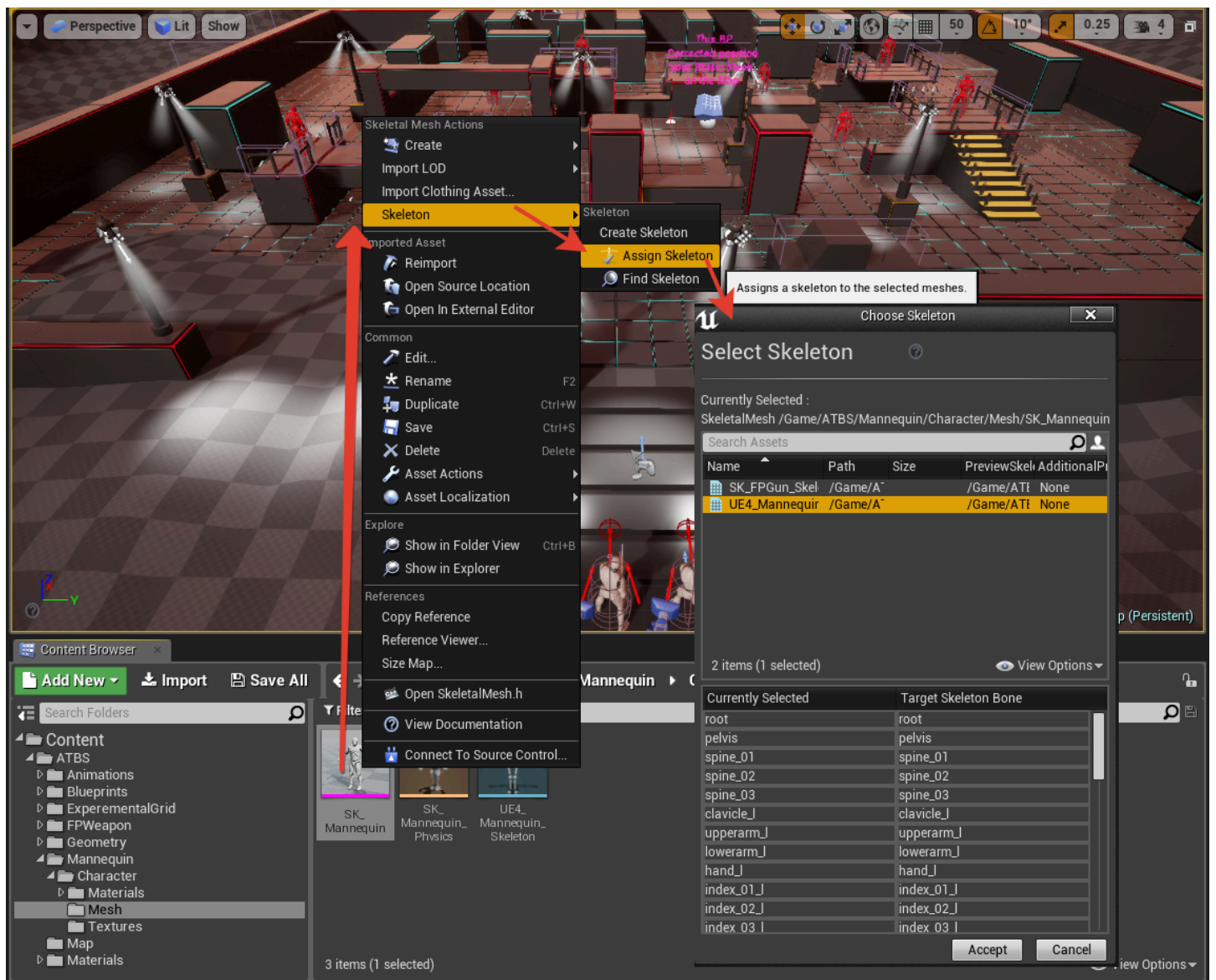
BP_ConstructorSpline

This BP is used to display and check AI movement paths on the map, taking into account Nav Links and Navigation Recast Filters. Has similar code to component (DrawPath) but performs different tasks. Works directly in the editor without running a game or simulation



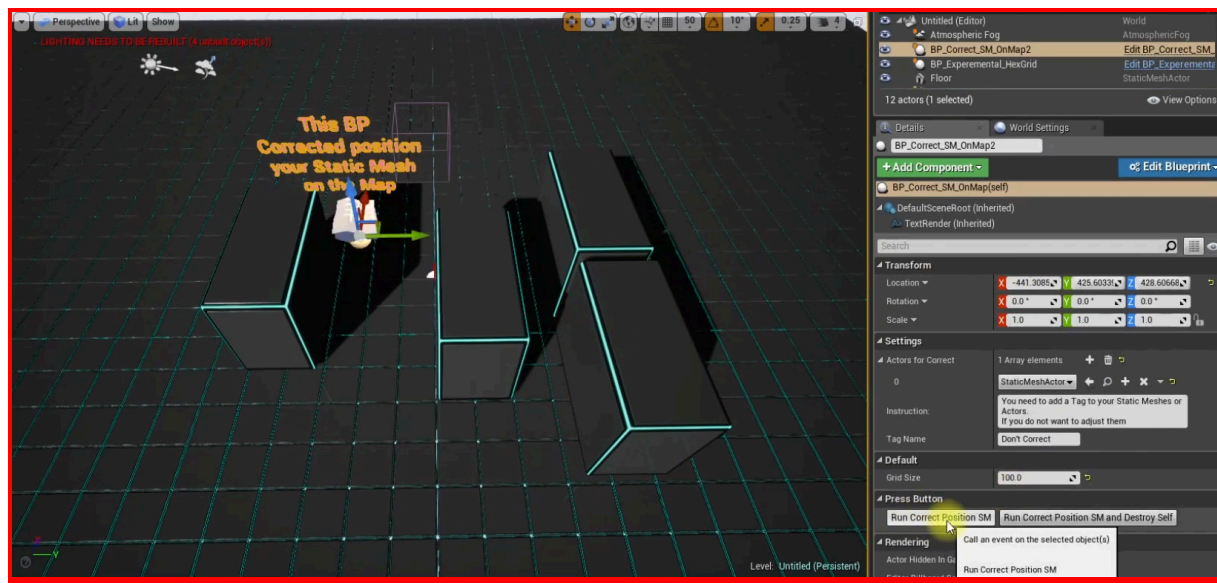
How to change Skeletal mesh

▶ How to change Skeletal Mesh



How to work BP_Correct_SM_OnMap

[Follow the link and watch the video](#)



This BP simply corrects the Static Meshes at the level by aligning them to the Grid
I created it because sometimes you can forget to enable Snapping one the Grid in the Editor
and you have to edit it manually.
Useful if you're using Grid Movement rather than Free movement. Setuped in the component
BP_Single_DrawPath

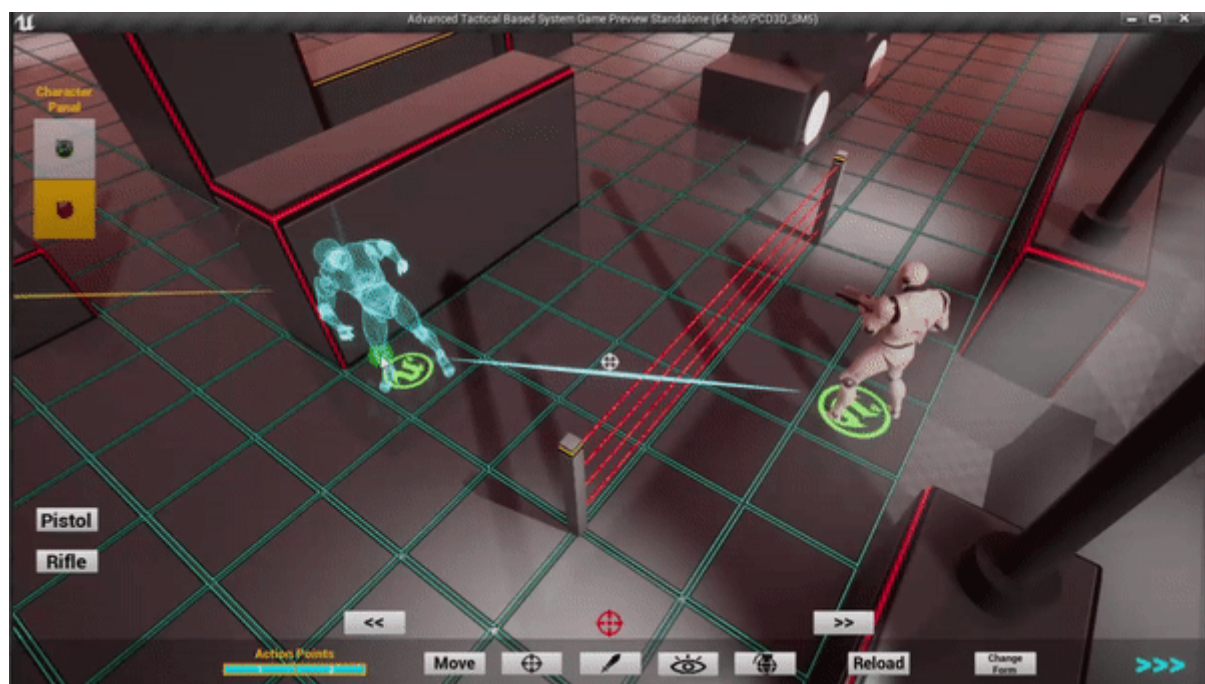
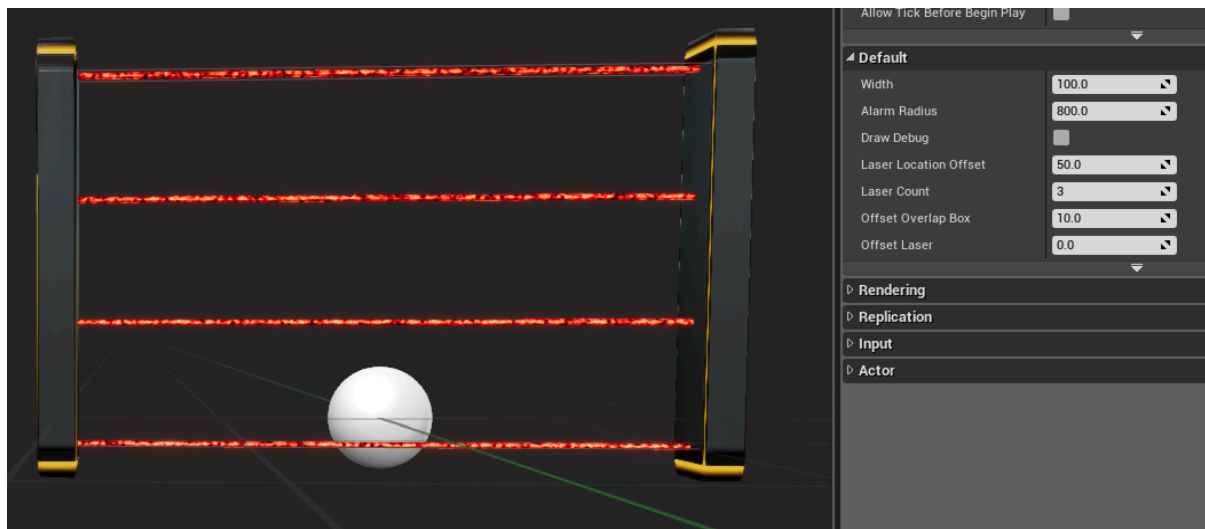
How to work BP_Alarm

Also added a new BP_Alarm, activates an Alarm if the NPC is within the radius of activation of the alarm, the Game switches to Classic mode (Tactical turn-based mode).

This BP has a number of options

- **Width** - Just a width (all logic in the construction script)
- **Alarm radius** - This is the radius in which the NPC responds to an alarm.
- **Laser count** - Number of lasers from 0, where 0 inclusive
- **And Offsets** for fine visual customization - Corrects Overlap box and lasers in height

Static meshes can be replaced with your own - Also, you can change and customize the Decal material as you like.



How to work BP_HidingBush

Only the player's NPCs can hide in the bushes.

Only in Free Mode and only crouching.

Bushes are HISM

It is possible to edit the position of each bush in the editor.

It is also possible to set the number. Rotation and Scale.



If you have purchased this product and found a bug, please let me know.

This is a whole prototype and I could have missed something.

Version history

v1.0

- Initial release

v1.1

- Reworked materials of the movement zone



- Reworked materials for grenades (now can be customized with any texture)

Reworked grenade throw logic (now with recoil, smoother throw and backlight of the enemy).



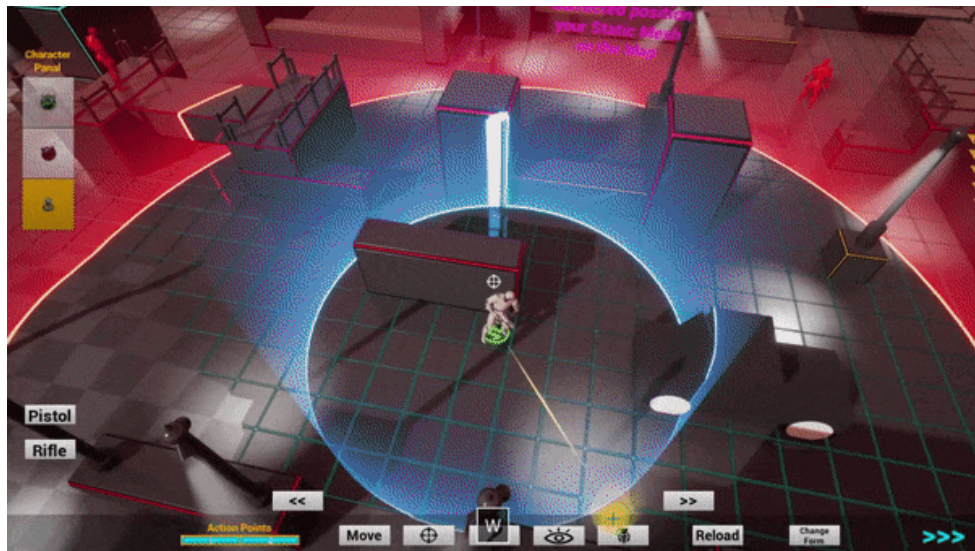
- Full support for character selection (click on a character, select left or right in the widget, select in the character panel)



- Reworked character selection marker material (now can be customized with any texture)

v1.2

- Fixed a bug when throwing a grenade that caused the engine to crash



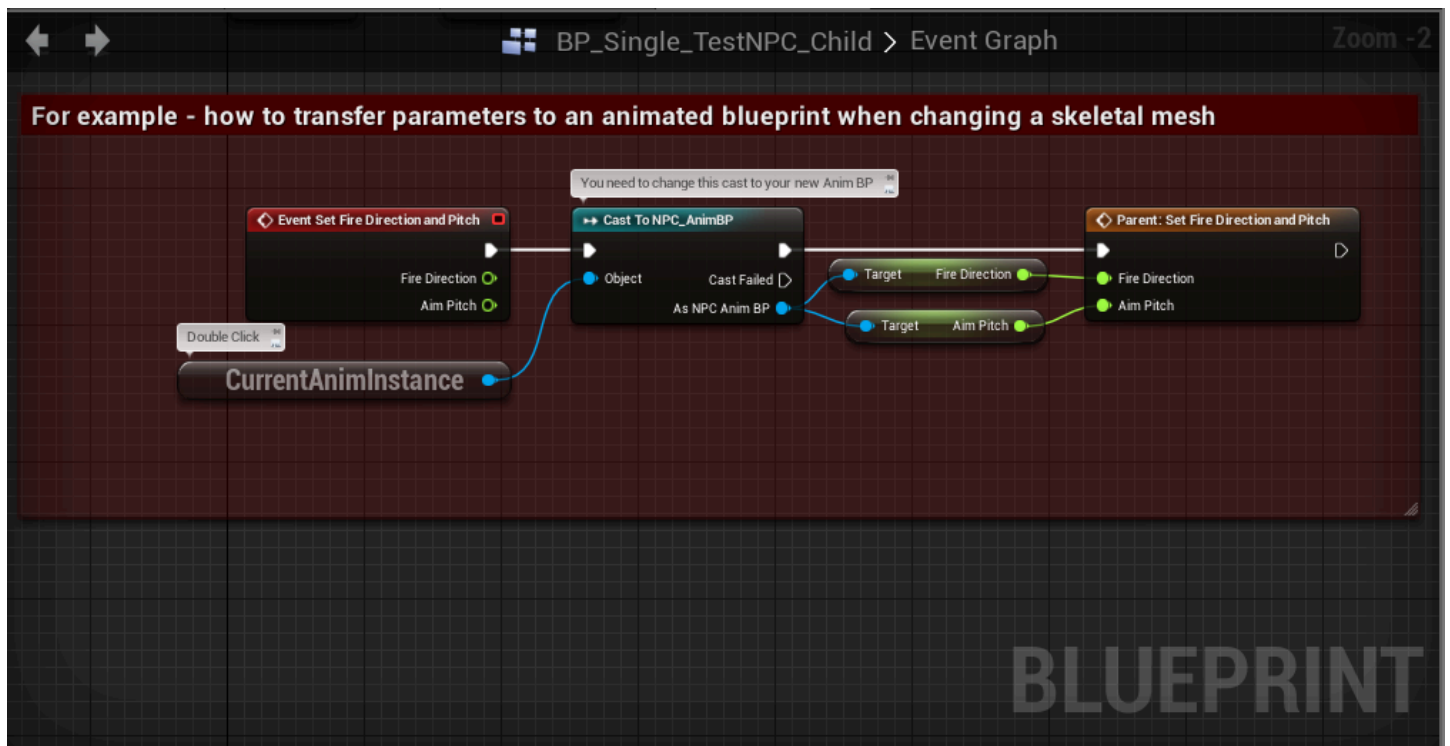
- Added the ability to canceled all previously selected actions (RMB) - previously there was only Aiming
- Rework throw grenade animation - now the throw of the grenade does not go beyond the boundaries of the capsule along the XY axes

v1.3

- Added restrictions for the grenade throw (variable ThrowGrenadeRange - default value 1000) - before there were no restrictions for the throw range.

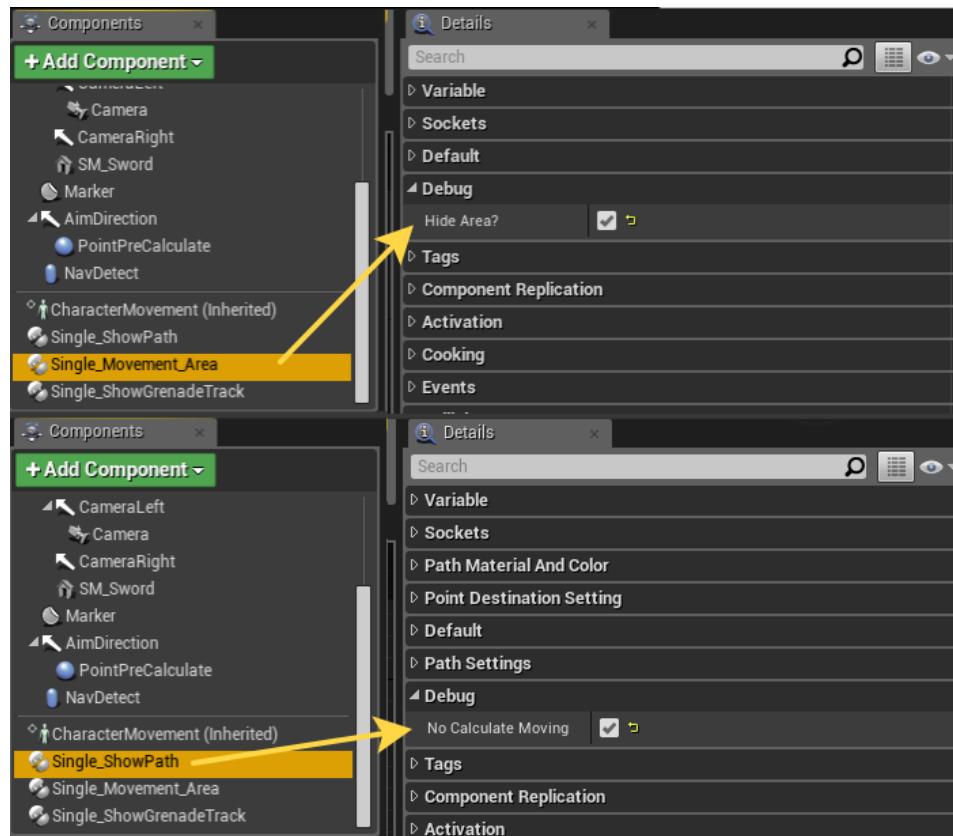


- Rewrote some of the logic. It will now be easier to change the skeletal mesh for the class and for the kids. You will need to replace 1 cast for the new animation blueprint.



Added new functionality

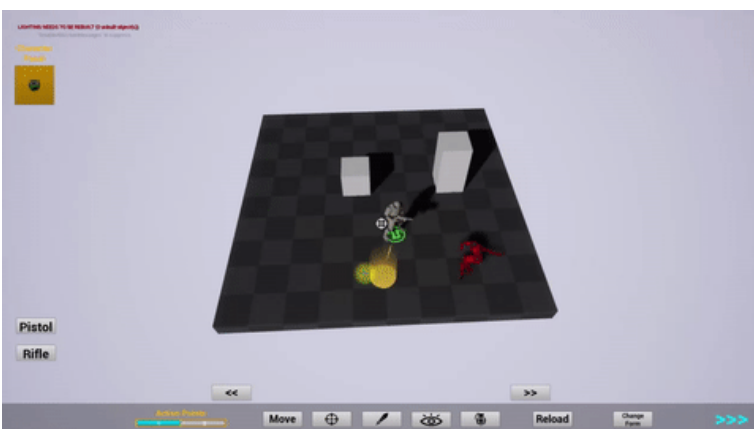
- Debugging without displaying the movement area
- Debugging without calculating movement



- Fixed the problem with the correct display of targets (previously, in sometime, a dead target was written to the target array)

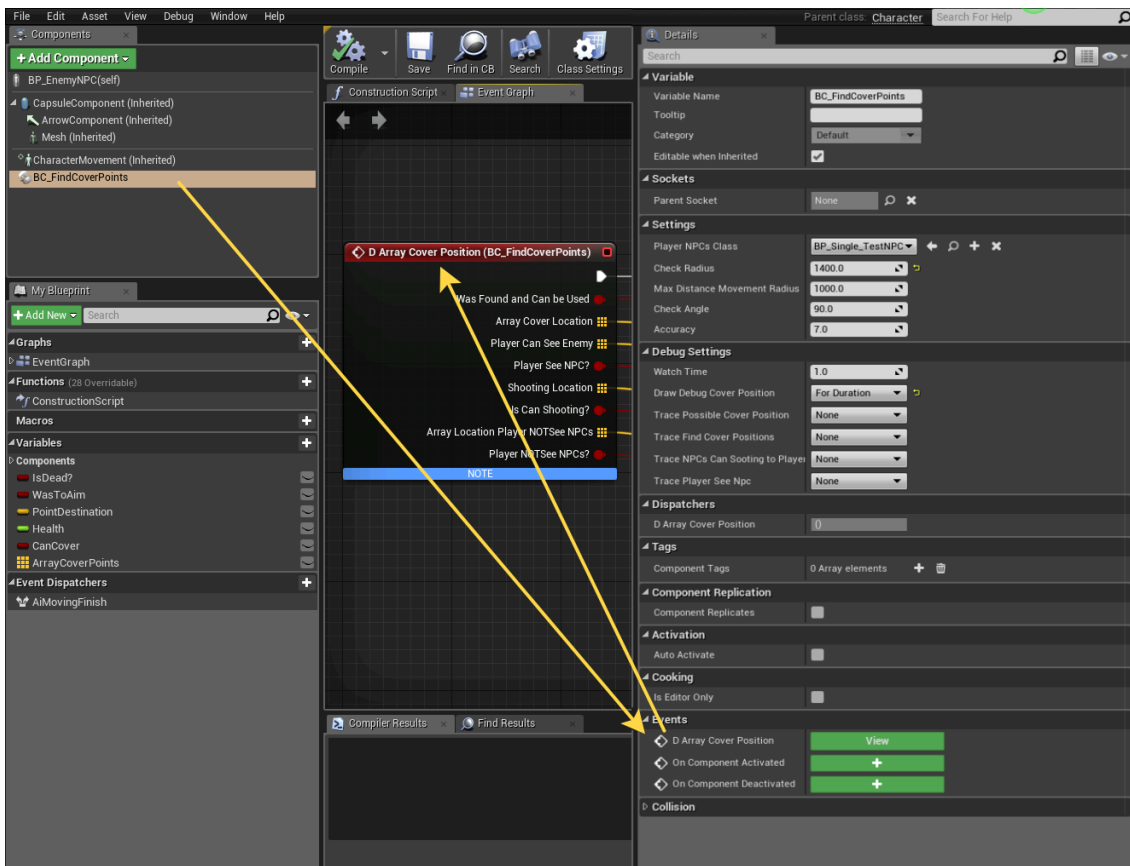
Before

After



Added new functionality

Added new component **BC_FindCoverPosition** for NPCs (See the logic in the class)



This component search for positions in which the NPCs can Covered



v1.6

Added support for UE 5.0

Disable a "Motion Blur" in the Project settings for fix it



Reworked visualization of the Movement Zone

Reworked some animation Idle Aiming and Shooting

Reattached a Socket for camera with "Root Bone" to "Pelvis Bone"

v1.7

- Fixed some bugs
- Fixed rotation of the character along the XY axes when using cover - previously the character could simulate the slope of the cover surface.
- Improved positioning of the cover point when hovering the mouse on the Static Meshes - now the cover point is calculated not only by the floor, but also when you hover the mouse over the place of cover.
- Added a new blueprint (BP_ConstructorSpline) for level designers - in Map Editor Mode - Draws a Path from point A to B, useful for finding and correcting inaccuracies on the map
- A new functionality has been added - now the search for a cover point does not depend on the location or rotation of the Static Meshes on the map.
- **Important** - only now in UE5 splines do not support Type - Curve Clamped I hope this will be fixed soon, Other path drawing forms work correctly

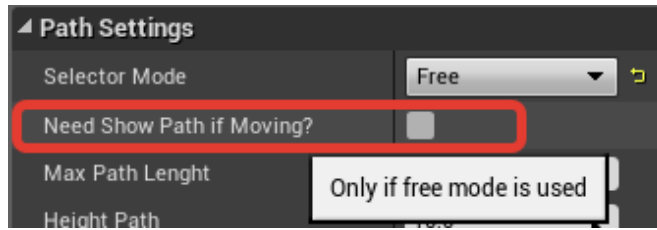
 New Logic Calculate For Cover Position

v2.0

- Now has 2 modes: Classic (Tactical turn-based mode) and Free (Completely free movement with cover). You can switch in real time.
- In free mode, press the CTRL button - now Character can crouch & un crouch, which reduces the visibility of the character. Leaving the opportunity to use cover and attack.
- Fixed melee attack - now if the NPC is in cover, it can be attacked.
- Added point destination marker in free mode
- Fixed a bug - if you leave the PlayerNPC in the way of the EnemyNPC and finish the round, the EnemyNPC will run into the character and will not be able to pass
- EnemyNPCs have a visualized Classic mode (Tactical turn-based mode) activation zone
 - If a PlayerNPC enters such a zone and stays in it for a while, then the EnemyNPC activates the alarm mode and the game switches to Classic mode (Tactical turn-based mode).
 - If the player was in cover but started to move, then the EnemyNPC activates the alarm mode and the game switches to Classic mode (Tactical turn-based mode).
 - If the player was in cover, but the NPC was able to see the player from the back of the cover, then the EnemyNPC activates the alarm mode and the game switches to Classic mode (Tactical turn-based mode).
- If the player killed all enemies while in classic mode, then the player goes into Free mode (Completely free movement with cover)
- The player can kill NPCs while in free mode using all available modes including Overwatch mode
- If the player is in free mode, then the EnemyNPCs are also in free mode and roaming the demo level
- EnemyNPCs now have 3 modes:
 - Stationary - In this mode, NPCs just stand and watch
 - Roam - In this mode, the NPC roam the level in a given Radius
 - Patrol - In this mode, NPCs will patrol the given Points
- Slightly reworked BP_JumpNavLink
- The demo map has been reworked to demonstrate the new mechanics.
- Also added a new BP_Alarm, activates an Alarm if the NPC is within the radius of activation of the alarm, the Game switches to Classic mode (Tactical turn-based mode).
- Added highlighting of the selected target
- In Free mode, player can crouch, sneak up on the enemy and kill him from behind using melee attacks without raising the alarm
- Now if the player did not crouch and ran to a low cover, then the character will do it himself. But if the movement starts, then the character will stand up. If the Player state - crouching, then the character will not get up and also will not get up if high covers are used
- Bushes have been added, now in free mode you can hide in the bushes so that the enemy does not notice you.

v2.1

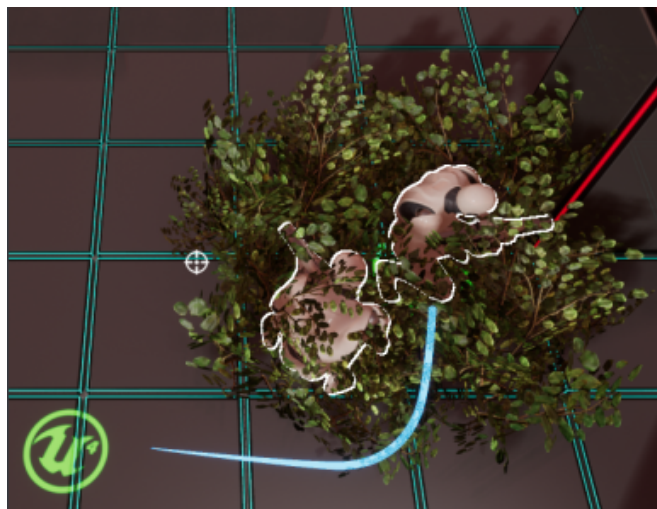
- Path drawing in free mode if the player NPC is moving is now optional. Configurable in component settings



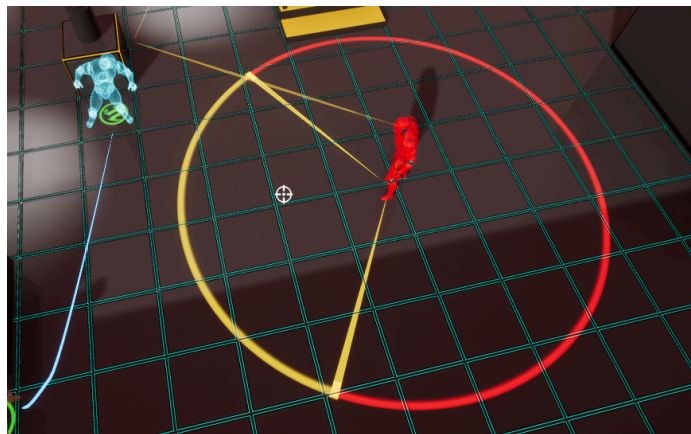
- Fixed a bug of canceling aiming if the character was moving and culling the list of targets, which led to a state change
- Adds new BP_EvacuationArea this BP counts the number of player characters and if the conditions are met, it can run your logic, which you will connect next.



- Added highlighting the PlayerNPC if the NPC is in the bushes



- Added a simple field of view for the NPCs, taking into account the specified parameters of the viewing angle



v2.2

Added Field of Vision component

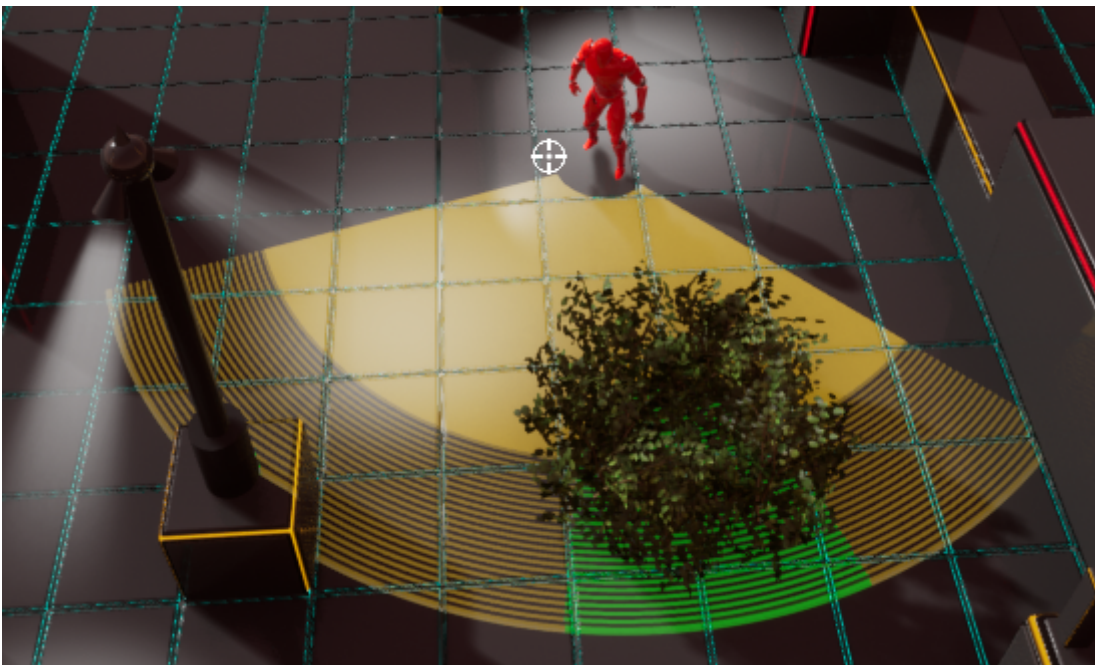
Activate/Deactivate - (ALT + LMB and select NPC) and just Deactivate - (ALT+RMB)

- A lots settings
- Max 120 degrees
- Optimization - is based on a change in the position of the component's owner
- This is not a procedural mesh - Unlike the procedural grid and traces, it allows you to designate places where the player can be hidden, provided that he is crouched or hidden
- Allows for more accurate drawing FOV
- Ability to cut out objects for which you do not need to draw FOV (Example: High Walls, Rock etc...)
- The ability for the player to hide in the bushes - FOV does not see through the bushes and who is in them, provided that the character is sitting in them and can be replaced with any other type (for example: smoke shield)
- Can be integrated into any Actor

2 areas: Sight Distance and Vision Radius

Sight Distance - completely filled area - NPC can see the player in any state.

Vision Radius - striped area - the NPC sees the player if the player is standing or not in cover.



v2.3

- Fixed a bug with clearing the field of view after the death of an NPC.
- Fix a bug with bushes - after aiming, a change of ownership is required for SM BP_Bushes (This was due to changing the camera when aiming)