1011's Stealth System

Product Documentation

Hi, and thank you for purchasing **1011's Stealth System**! This documentation covers the following topics:

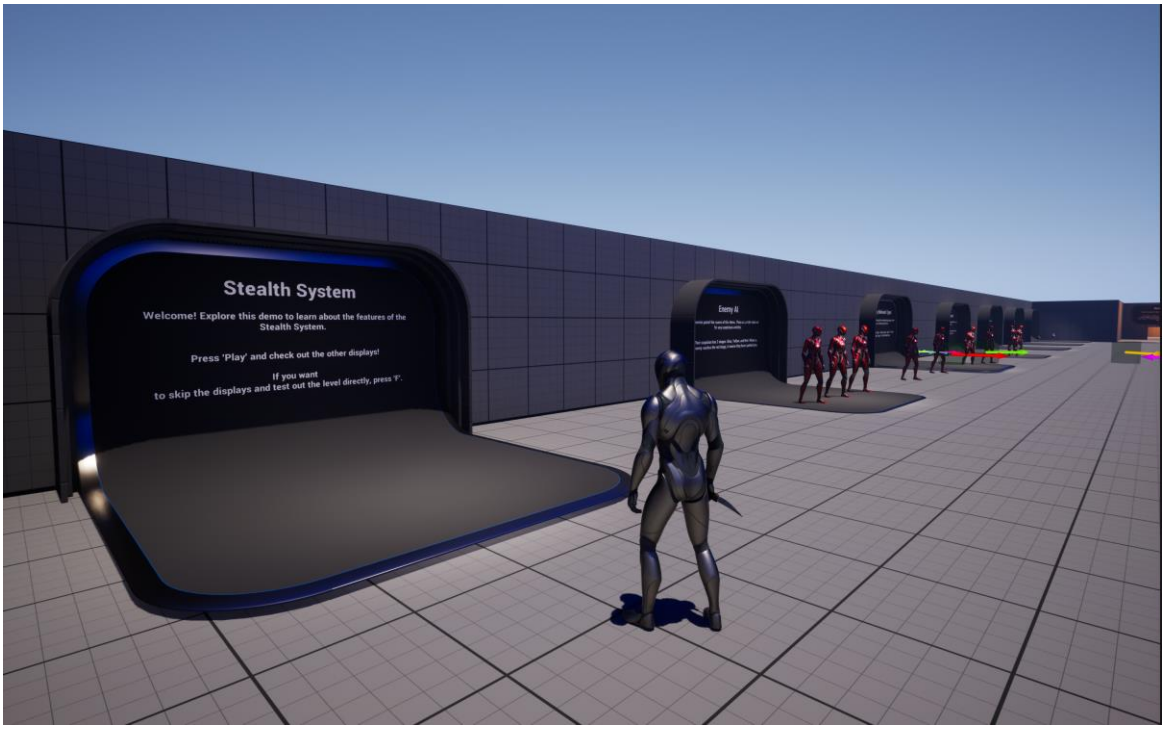
- **Quick Start.**
- **Migrating To Your Project.**
- **Setting Up Your Player Character.**
- **Enemy Setup and Customization.**
- **Stealth Grass.**
- **Smoke Bombs & Rocks.**
- **Level Doors.**
- **Integrating Your Assassination Animations.**
- **Integrating Your Custom Enemies**

Quick Start

Open the **1011StealthSystem** project in **Unreal**. You will be greeted by a demo map that will take you through each feature of the system. Explore the subfolders of **Content > StealthSystem** to view all features of the system in detail.

You can use this readymade template as a base to build your game on or learn from the system.

If you need to integrate the features of the system into your existing player character and project, read the steps described in the following pages.

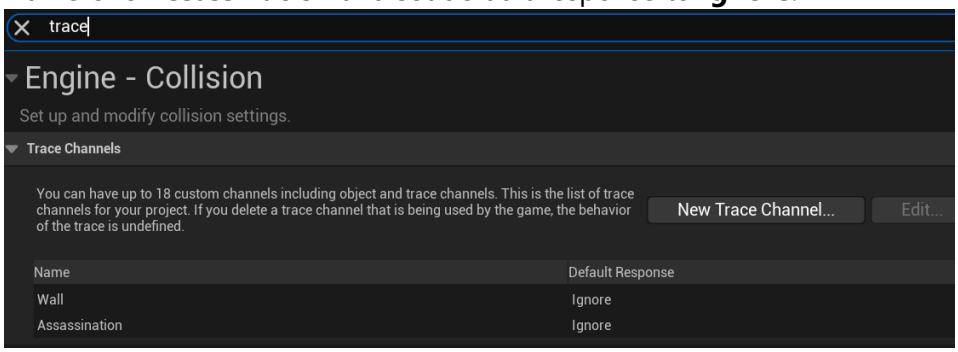


Migrating To Your Project

This section will guide you through the steps necessary to migrate the Stealth System into your existing game project.

1. Create 5 **Action Mappings** in your project input settings (**Edit -> Project Settings -> Input**).
    a. Name one **Crouch** and assign it to any key you want.
    b. Name one **SmokeBomb** and assign it to any key you want.
    c. Name one **Aim** and assign it to any key you want.
    d. Name one **Throw** and assign it to any key you want.
    e. Name one **Assassinate** and assign it to any key you want.

2. Add 2 **trace channels** in your project input settings.
    a. Name one **Wall** and set default response to **Ignore**.
    b. Name one **Assassination** and set default response to **Ignore**.

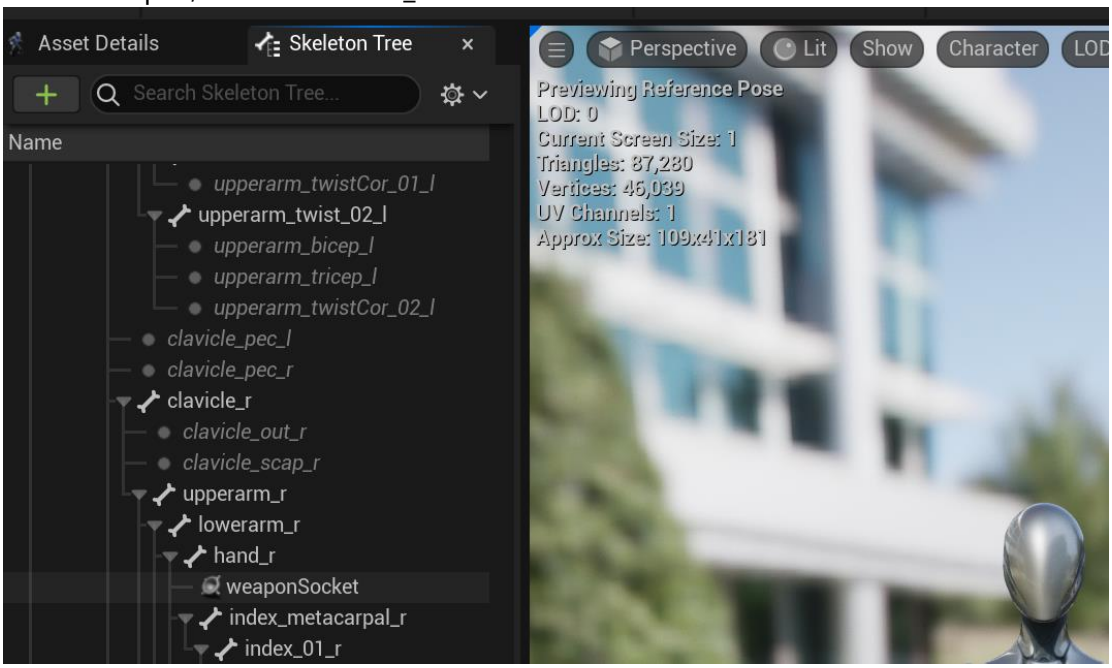


3. Enable **Motion Warping** (**Edit -> Plugins -> Motion Warping**). Restart your project.
4. **Open** the 1011 Stealth System Project.
5. Right click on the StealthSystem folder in the content browser and select **Migrate**. Select the **Content** folder of your project as the destination.
6. You can now close 1011StealthSystem project and focus on your own project.

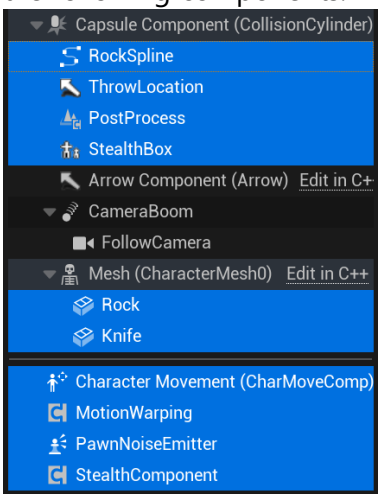
Setting Up Your Player Character

Now that the system is migrated and your project is updated, it's time to add the stealth functionality to your player character.

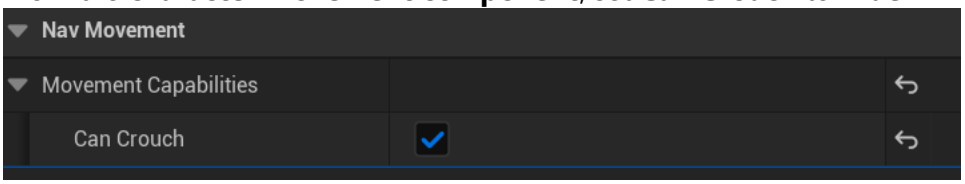
1. Go to **Demo_EpicGamesContent -> Characters -> Mannequins -> Meshes**. Open **SKM_Manny_Simple**.
2. In the skeleton tree, search for **WeaponSocket** and copy it.
3. Open your character mesh and paste the **WeaponSocket** under your hand bone. For the UE mannequin, it's called **hand_r**.



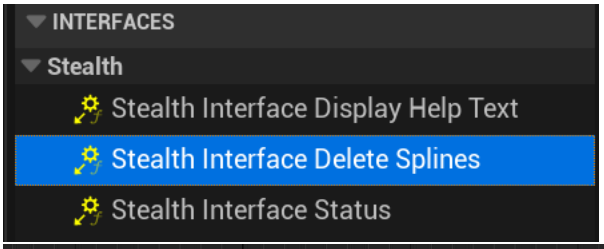
4. Open the StealthSystem_Character_BP (Content > StealthSystem > Player) and copy the the following components:

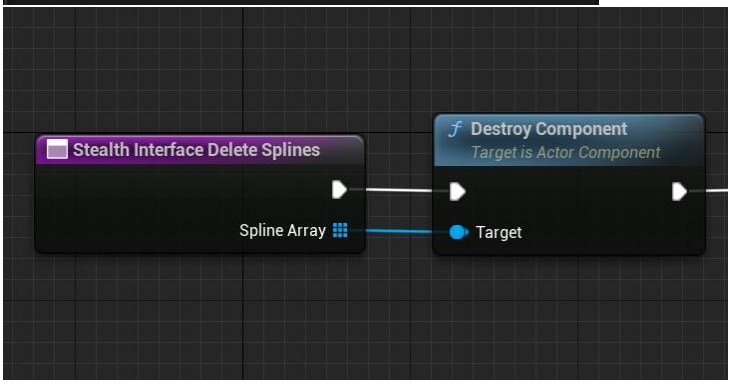


5. Open your existing character Blueprint and **paste** those nodes in. Make sure that the **Rock** and **Knife** meshes are parented to your character's **mesh**, and assign **WeaponSocket** as their **parent socket**. Adjust all components to make sure they match the proportions of your character.
6. Go to **Class Settings** on your **character** and add the following interfaces:
    a. **StealthBPI.**
    b. **PickUpBPI.**
    c. **WarnPlayerOfThreatBPI.**
7. From the **character movement component**, set **Can Crouch** to **True**



8. **Compile** the blueprint.
9. Right click on the **Stealth Interface Delete Splines** function of your character blueprint (under INTERFACES0 and add a **Destroy Component** node. Plug it into the rest of the chain.





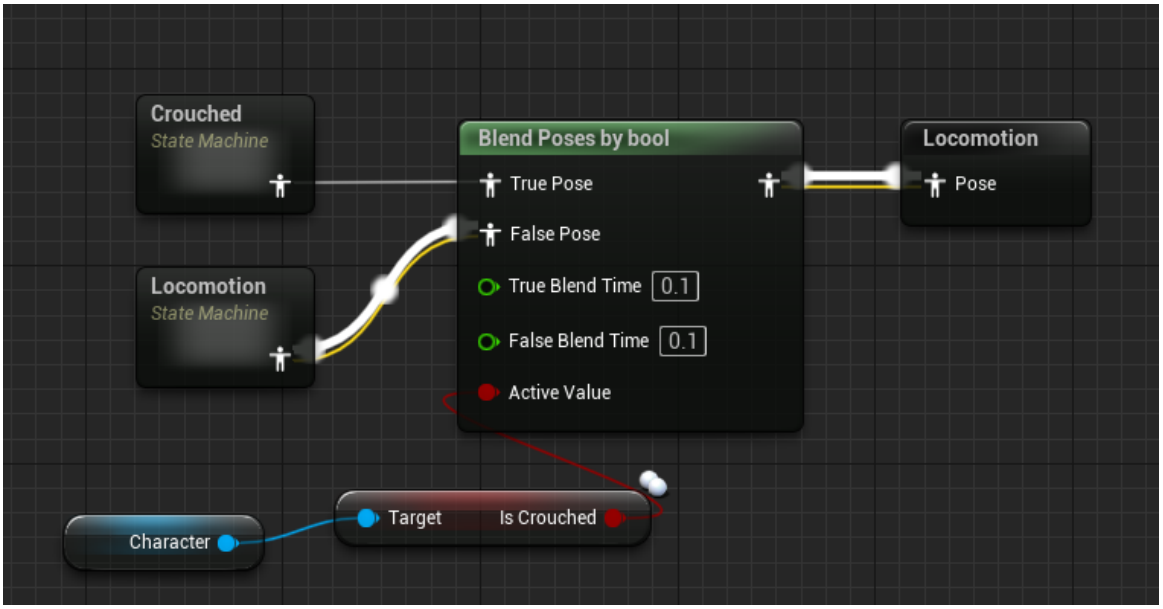
10. You can swap the **Knife** and **Rock** meshes for your own by selecting their **components** under **Mesh** and inserting your own meshes.
11. For best results, enable **camera lag** on your **CameraBoom** component and set a **socket offset** of around 50 and a **target offset** of around 65.

Your character set up is now complete.

Player Animation Blueprint

If you don't want to use the sample ABP provided, you can add the crouching functionality to your character animation blueprint by following the steps below (Using default UE5 Manny ABP):

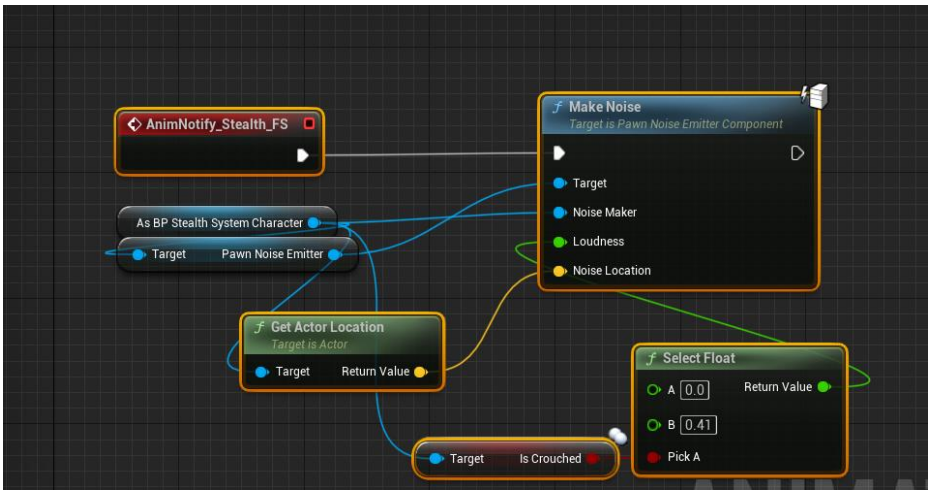
1. Open the **AnimGraph** of your character ABP and rename the **Locomotion** State Machine to **Standing**.
2. Copy and paste the **Crouched** State Machine from the **StealthSystem_Player_ABP** into your ABP **AnimGraph**. Blend the two State Machines using a **Blend Poses by Bool** node using **Character -> Is Crouched** as the condition. Plug the Blend node into the Locomotion **Pose**.



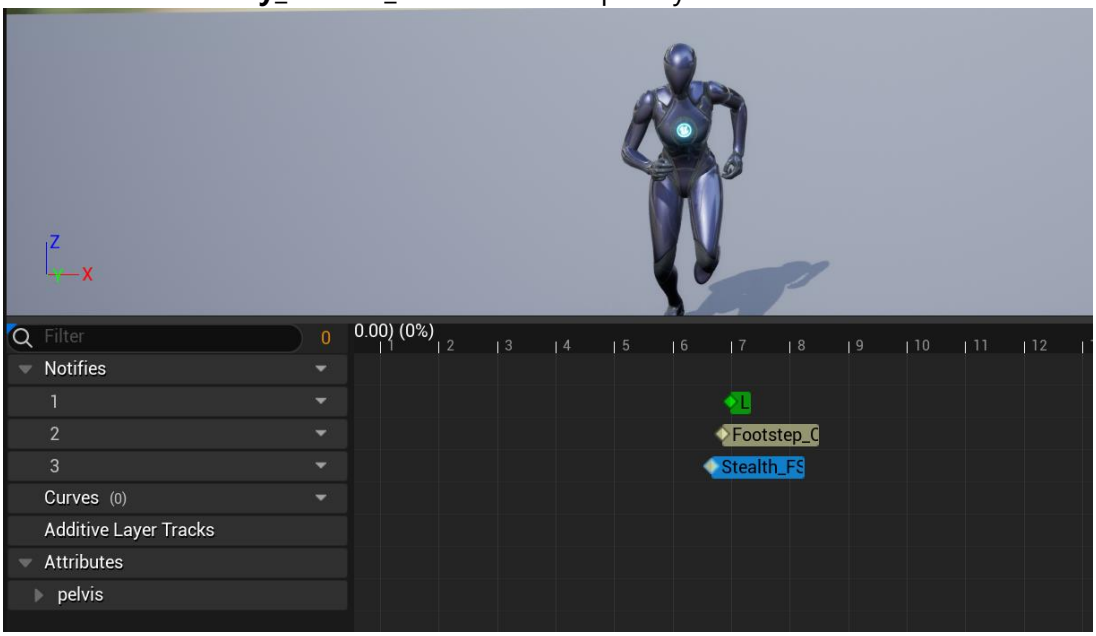
Now your Animation Blueprint allows the character to **Crouch**.

Footsteps Reactions

To have enemies react to the loudness of your character's footsteps, copy and paste the following code from the **StealthSystem_Player_ABP Event Graph**:



1. Don't forget to **change** the **As BP Stealth System Character** variable to your character's variable.
2. Add the **AnimNotify_Stealth_FS** to all footsteps of your custom locomotion animations

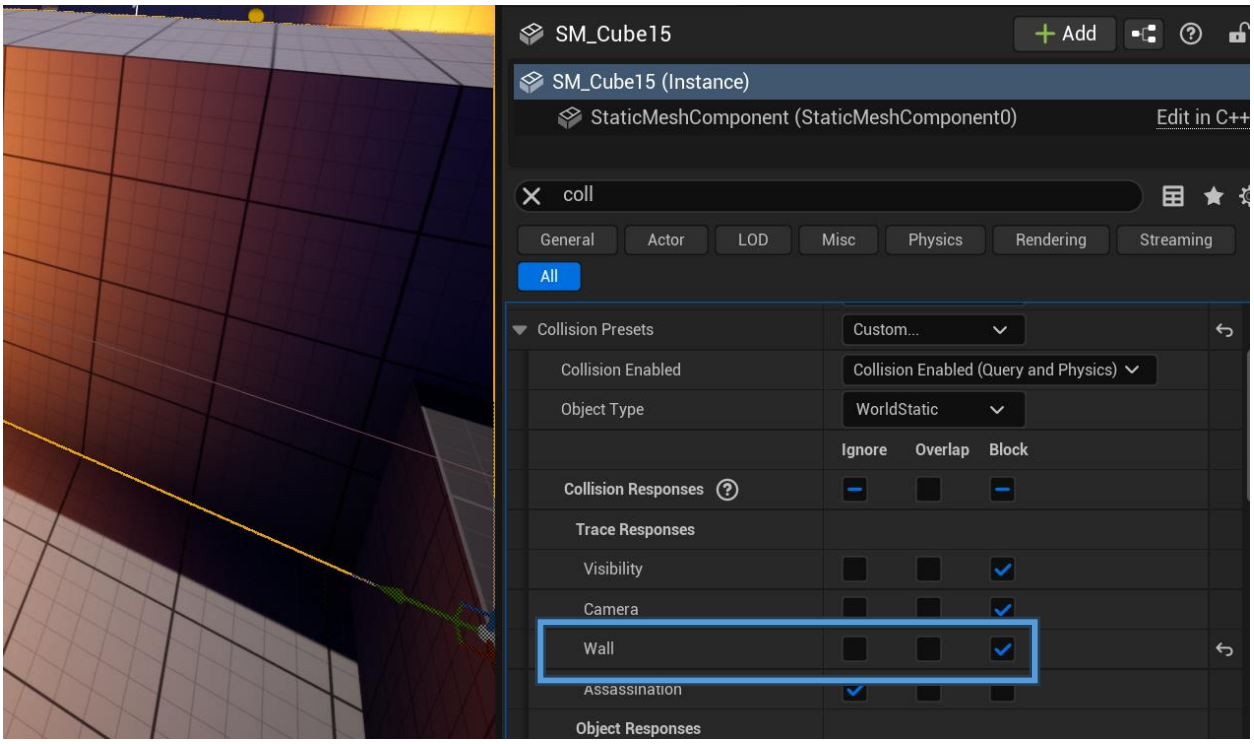


You have set up footstep sounds on your character. When an enemy hears your footsteps and you are not crouched, he will spot you.

Preventing Sound from Bleeding Through Walls

To avoid enemies reacting to footsteps and rocks when they are behind a wall, you can set up the wall's collision channel.

1. Select your wall mesh in the **Outliner.**
2. Scroll to the **collision settings** and select **Custom.**
3. Select **Block** for the **Wall** channel.



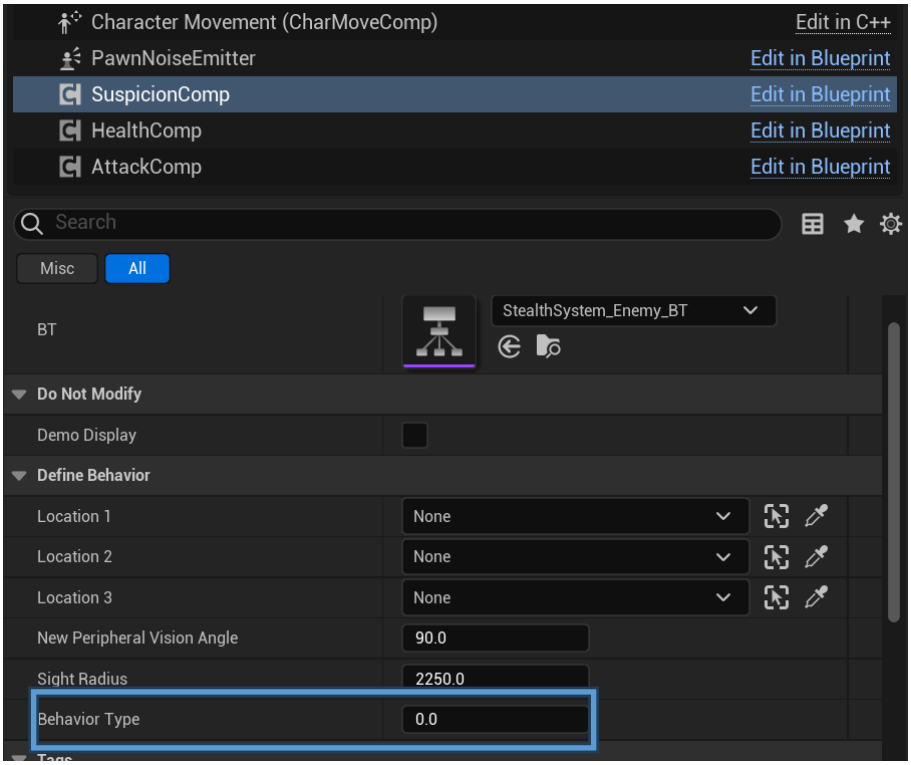
Footsteps and rock sounds will no longer be able to travel through the wall.

Setting Up Enemies

Now that your character is setup, it's time to add enemies to your level.

1. From the **Get Content** drop-down menu, go to **Volumes** and drag **a Nav Mesh Bounds Volume** into your level. Stretch it out to determine the area where enemies are allowed to walk.
2. From the **Content** folder, go to **StealthSystem > Enemy**. Drag a **StealthSystem_Enemy** into your level.
3. Select the enemy in the **Outliner** and from the **details** panel, select the **SuspicionComp**. From there you can define its **Behavior Type** by typing a number between 0 and 3. Currently the Behavior Types supported are the following:
    a. 0: **Standing**
    b. 1: **Random Roam**
    c. 2: **2 Point Patrol**
    d. 3: **3 Point Patrol**

Behavior Types 0 and 1 don't require any additional set up. **Behavior Types 2 and 3** require you to use **PatrolPoint_BP**.

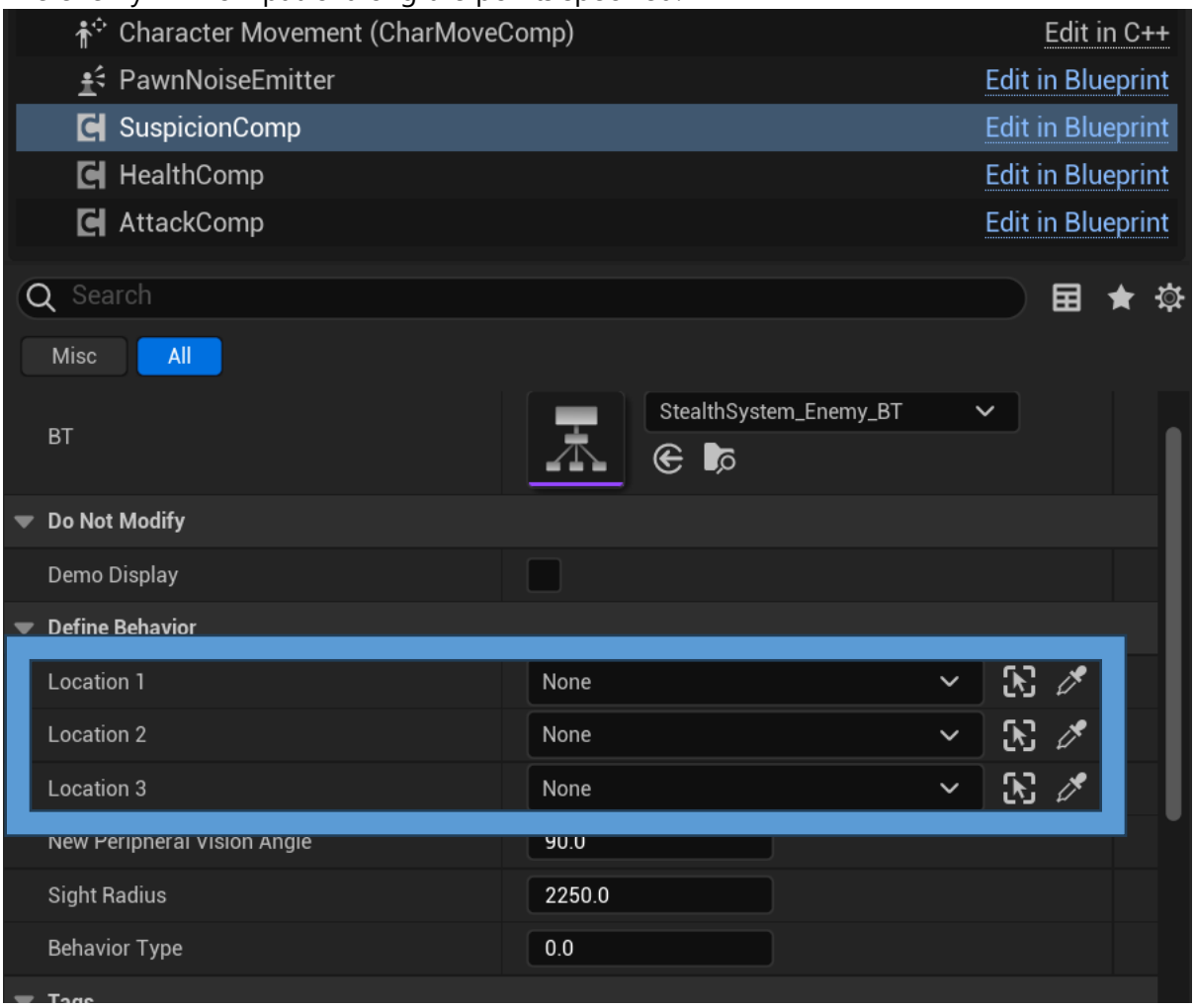


Patrol Points

Patrol Points are used to direct an enemy's patrol path.

1. From the **Content** folder, go to **StealthSystem > Enemy** and drag 3 **PatrolPoint_BP** into your level.
2. Place each **PatrolPoint_BP** wherever you want your enemy to walk to. (Must be within the Nav Mesh).
3. Click on the **SuspicionComp** from the **StealthSystem_Enemy** details panel in the **Outliner,** and assign the 3 **PatrolPoint_BP** to **Location 1, 2, and 3**.
4. Select **Behavior Type 2** or **Behavior Type 3**.

The enemy will now patrol along the points specified.



Stealth Grass

Stealth Grass allows the player to hide from enemy sight. Follow the steps below to set up Stealth Grass in your level:

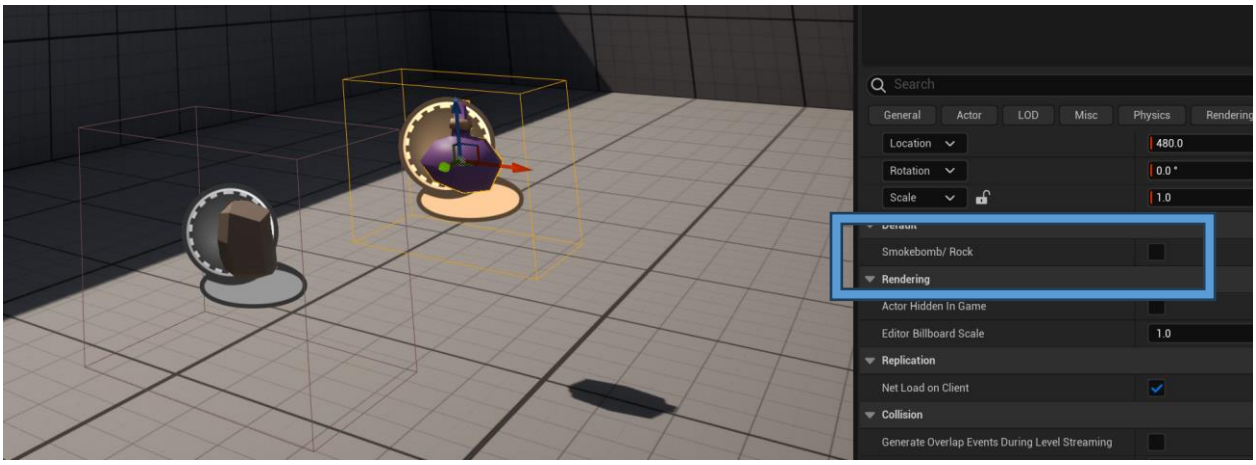
1. Go to **Content > StealthSystem > LevelDesignTools**. Drag a **StealthSystem_Grass** into your level.
2. Switch the **Outliner** from **Selection Mode** to **Foliage Mode**. Drag a **StealthGrass_FoliageType** from the same folder into the **Foliage Editor**.
3. Paint grass within the bounds of the **StealthSystem_Grass** green box you placed in your level.

Test the grass in play mode – walking on the grass while **crouched** should trigger a white **overlay material** on the player, which signals that you are hidden from enemy sight.

Smoke Bombs & Rocks

In order to use smoke bombs and rocks, they must be placed in the level.

1. Go to **Content > StealthSystem > Pickups** and drag 2 **StealthSystem_Pickup_BP** into your level.
2. **Select** one of the 2 BPs and from the Details Panel, **uncheck** the **Smokebomb/Rock bool**. The Blueprint will now be converted into a Smoke bomb you can pick up.
3. Play the level and walk over the two pickups. You should now see 1 rock and 1 smoke bomb displayed at the top right of your **HUD**.
4. Throw a rock near an enemy to draw their attention towards the rock's impact location.
5. Use a Smokebomb near an enemy who is chasing you to make them lose track of you.

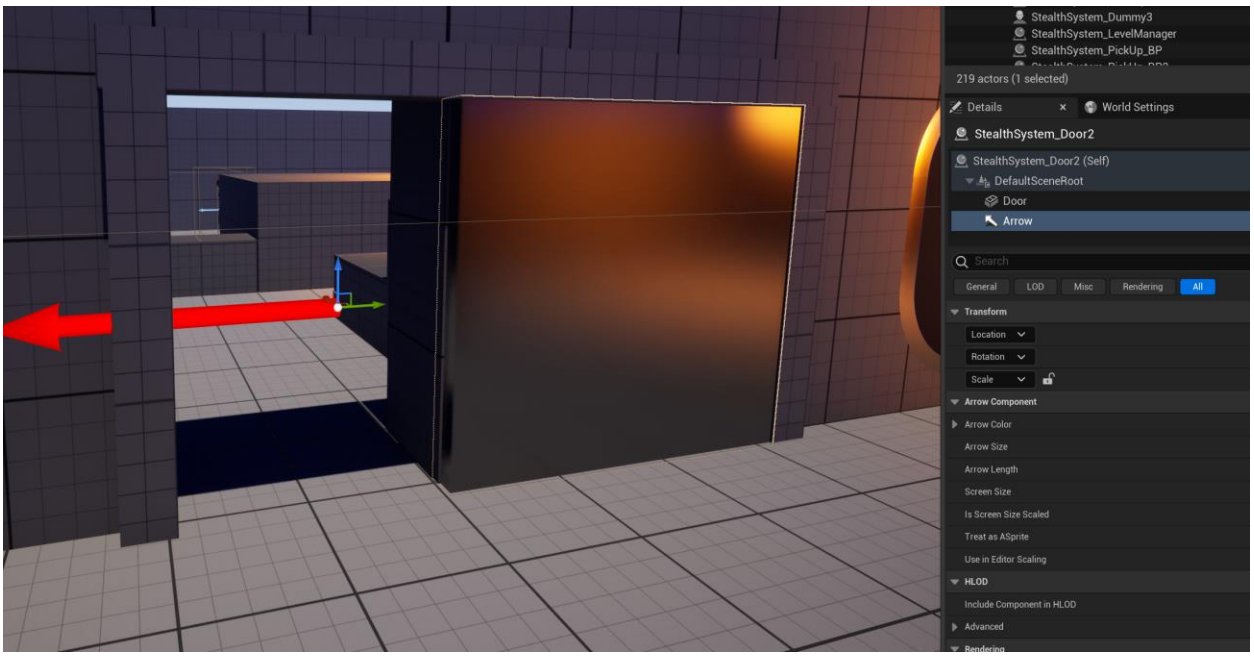


Level Doors

The Stealth System includes basic automatic doors that you can set up in your level. When an enemy spot you, all doors will close. When no enemy is searching for you anymore, doors will reopen. Here are the steps to set up a level door:

1. Drag a **StealthSystem_LevelManager** and a **StealthSystem_Door** into your level from **Content > Stealth System > LevelDesignTools**.
2. **Scale** and **Position** the Door to suit your needs.
3. From the **Details** panel of the Door, select the **Arrow** component under **DefaultSceneRoot** and drag it to where the door should slide to when it's closed.

Your set up is now complete. When an enemy spot you, the **StealthSystem_Door** will slide to its closed location, dictated by the location of its **Arrow** component in the level. You can add as many doors as you like to the level – the **StealthSystem_LevelManager** will automatically recognize them.

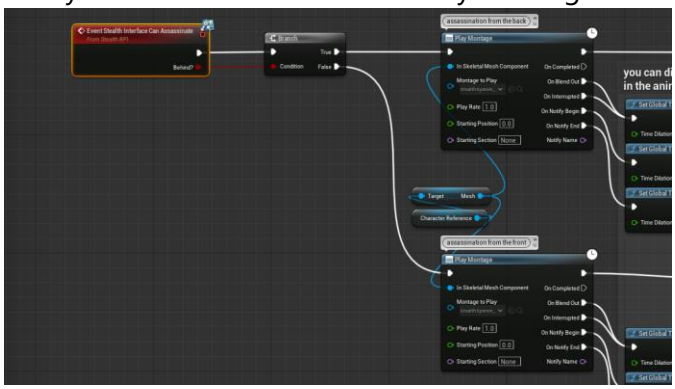


Integrating Your Assassination Animations

The assassination animations included the system are placeholders meant to be replaced by more refined animations. Your custom animations should be in **sets of two** (attacker & victim), and **root motion compatible**.

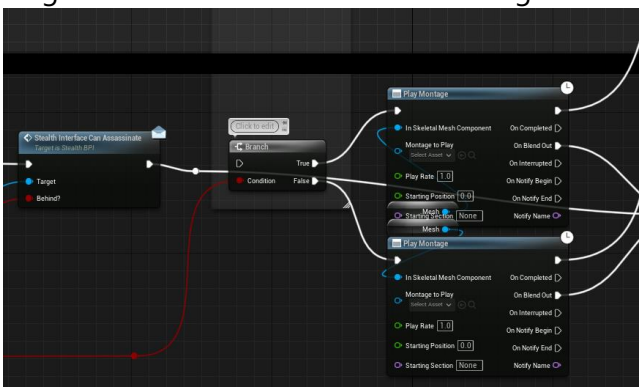
To add your custom animations to your player character:

1. Go to Content > StealthSystem > Player > StealthComponent.
2. Double click on the Assassination collapsed graph.
3. Add your animations in the two Play Montage nodes.



To add your custom animations to your enemy character:

1. Go to Content > StealthSystem > Enemy > Components > SuspicionComp.
2. Double click on the Assassination collapsed graph.
3. Find the two Play Montage nodes and add your victim animations.
4. Plug the Branch node before the montages back in the sequence.

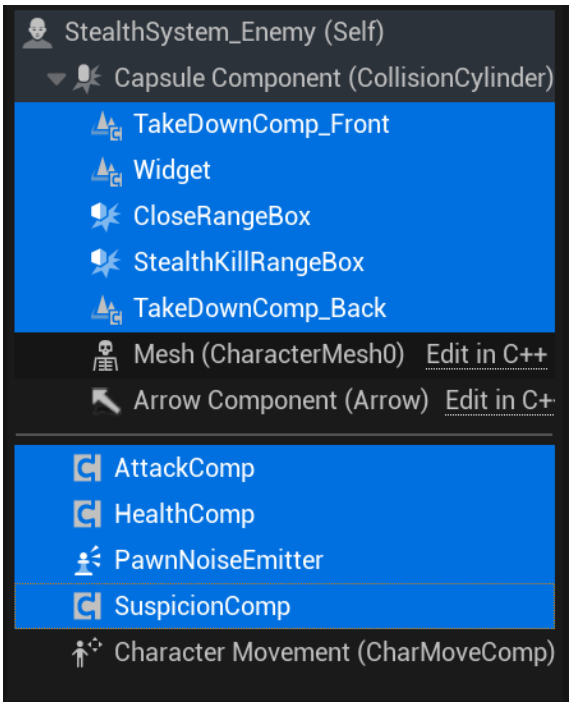


Your custom assassination animations should now work. According to the angle that you execute the takedown from, the correct animation will be executed.

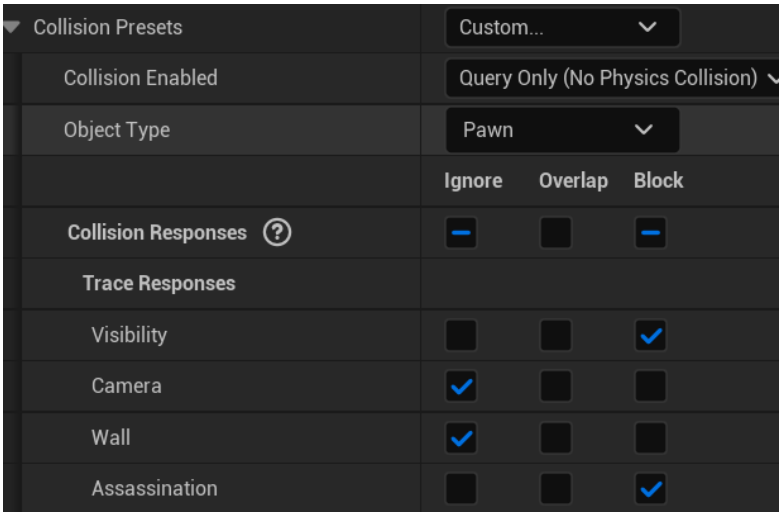
Setting Up Custom Enemies

If you don't want to use the sample enemies provided, you can easily add the same functionality to your enemies.

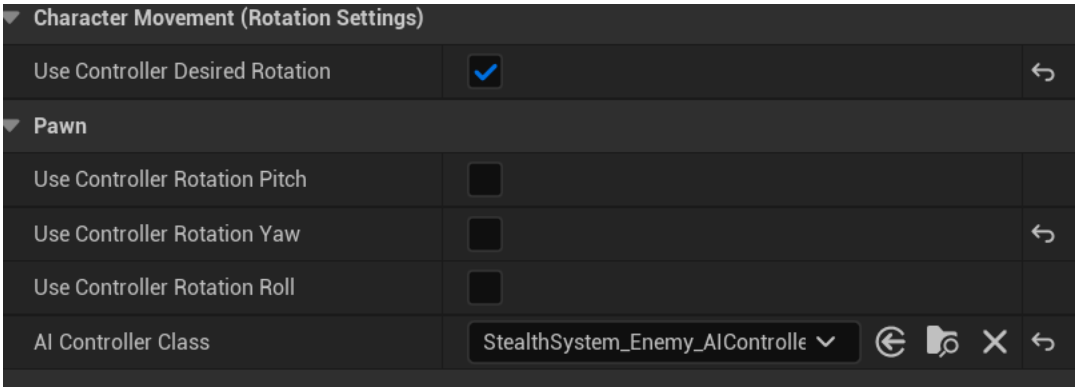
1. Copy-paste the following components from **Stealth_System_Enemy** into your custom enemy BP



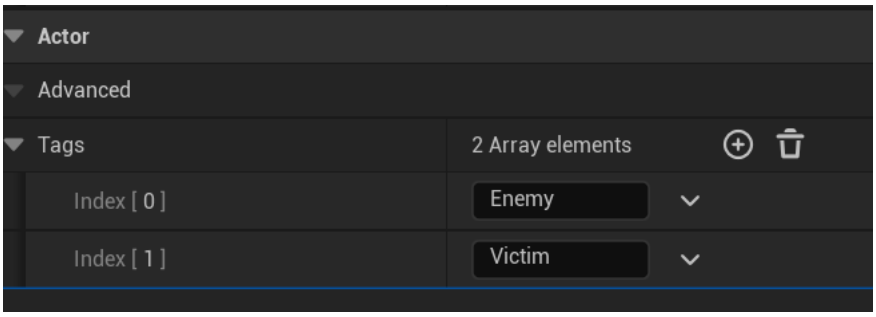
2. In the character's Capsule Component collision settings, set mode to Custom and set Assassinate to Block



3. From the **details** panel in your enemy BP, scroll to **AI Controller Class** and **choose StealthSystem_Enemy_AIController.**
4. Check **Use Controller Desired Location.**



5. Scroll down to the **Tags** section and add the two following tags, spelling them exactly the same:
    a. **Enemy**
    b. **Victim**



Your enemy set up is complete.