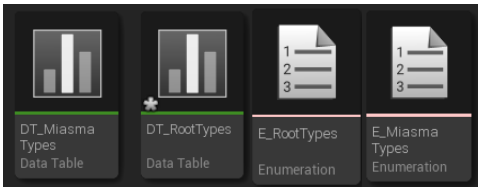
Miasma Usage Guide

Introduction

The Miasma system has two main components consisting of the Roots and Particles.

- Root types determine global functionality, such as weather the miasma uses targets, number of cores or the maximum number of particles.
- Particle types allow precise control over spreading location and spreading speed settings.

Both can be customised using the data tables and an enumeration within the Miasma folder called:



- DT_RootTypes
- DT_MiasmaTypes
- Enums->E_RootTypes
- Enums->E_MiasmaTypes

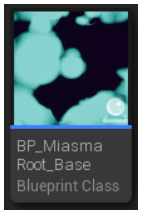
This document will explain all the customisation options for making new miasma types, how to test them and how to use them in game.

How To Make New Miasma

1. Open DT_MiasmaTypes and create one or more new rows with the desired names of the particles you want to be associated with a root.
2. Copy the names of the new particles and make new enumerators within E_MiasmaTypes with those exact names.
3. Open DT_RootTypes and create a new row with the desired name of the root.
4. Copy the new root name and make a new enumerator within E_RootTypes with that exact name.
5. Customise the settings of your new particle types within DT_MiasmaTypes.
6. Customise the settings of your new root types within DT_RootTypes.

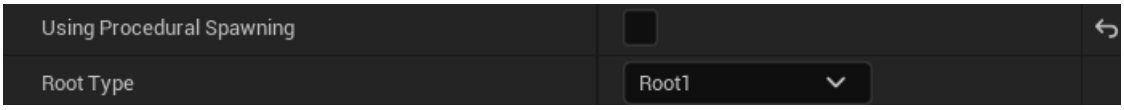
How To Test Miasma

1. Drag a BP_MiasmaRoot_Base into the world.



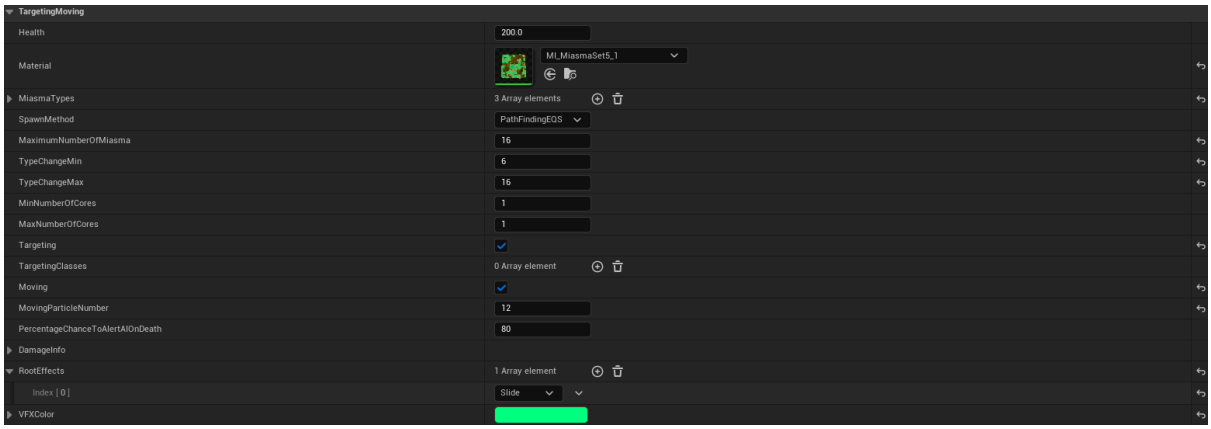
2. Ensure that all surfaces that Miasma should be able to spread on have the MiasmaSurface visibility channel set to block.

3. If using targeting miasma (which can navigate), ensure that there is a valid Nav Mesh Bounds Volume in the world that covers the areas where the miasma can spread. Press P to toggle the navigation details to check that the green surface covers the area where you want the miasma to be able to navigate. Also, ensure that the root is using EQS spawning, as this will ensure miasma spawns in a valid location for pathfinding.
4. Set the Root Type that you want to test and Using Procedural Spawning to false, in the details panel of the root inside the level.



5. Now when you play the game the miasma should work with the settings of the root and particles that you made.

Root Customisation Details



Health: Determines the health of the root.

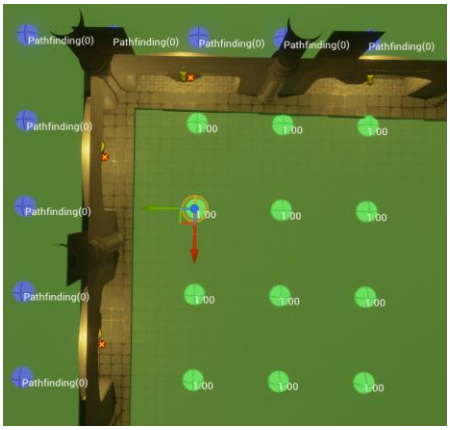
Material: The material will be set to On Begin Play and that will be used for particle effects.

Miasma Types: Types of particles that the root can spread.

Spawn Method:

- **Line Trace**: initialises patches of miasma in a random direction from the root.

- **Pathfinding EQS:** checks for a valid path to the root in a random point on a grid around the root on the nav mesh floor. **Use for all targeting roots!**



Maximum Number of Miasma: Max number of particles that can be spawned by this root at any given time.

Type Change Min and Type Change Max: Uses a random number between a min and max to change the type of miasma as it spreads, the value is randomised on each change of type.

Min Number of Cores and Max Number of Cores: Uses a random number between a min and max of miasma patches that will exist if the root is alive. If this is targeting, then it will mean that more than one patch can be targeting at once with different targets.

Targeting: This determines whether the miasma uses navigation to target actors which implement the BPI_Miasma interface.

Targeting Classes: This determines which classes this root will target. So, if the player class is selected it will exclusively target players. If no class is selected, then it will target all actors with BPI_Miasma.

Moving: This determines whether old particles get destroyed as miasma approaches its max size, making it look like a moving patch of miasma.

Moving Particle Number: Determines the number of particles, which start to get destroyed as miasma reaches max size. Don't set this to be greater than the Maximum Number of Miasma.

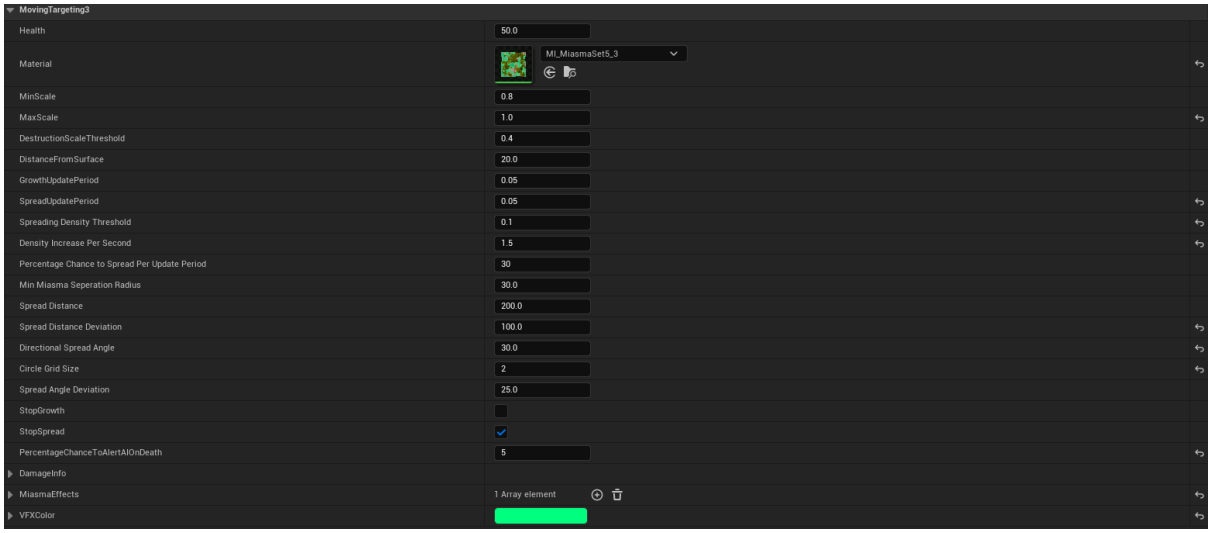
Percentage Chance to Alert AI On Death: When the particle is destroyed what is the chance of miasma sending a message to the ai that makes it investigate that location.

Damage Info: Determines the damage amount and interval of this type, while overlapping with the particle.

Root Effects: Determines the effects this root has on pawns. For example, slowness, slide and float.

VFX Colour: The colour that the VFX of this particle will appear in.

Particle Customisation Details



Health: Determines the health of the particle.

Material: The material will be set to On Begin Play and that will be used for particle effects.

Min Scale and Max Scale: Determines the max size of the particles between a random range.

Destruction Scale: If the miasma is under this scale after it has been damaged then it will disintegrate and die on its own.

Distance From Surface: How far away from surfaces the particles will spread.

Growth Update Period: Determines how often the particles update their scale, health and density. Higher takes more performance but gives smoother visuals.

Spread Update Period: How often the particles will try to spread. Higher takes slightly more performance, means faster spread after reaching Spreading Density Threshold.

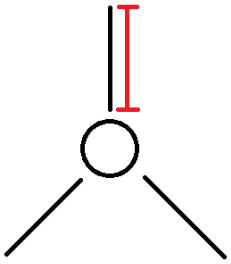
Spreading Density Threshold: The minimum density that the particles must reach to start spreading.

Density Increase Per Second: Determines how fast particles grow per second and how fast they will reach the Spreading Density Threshold.

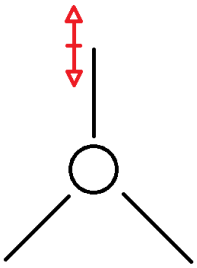
Percentage Change to Spread per Update Period: What is the change of spreading every update period. Higher means more fluid spreading.

Min Miasma Separation Radius: Particles will not spawn closer than this to other particles.

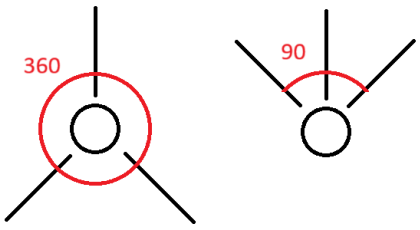
Spread Distance: How far will the miasma try to spread away from the previous particle.



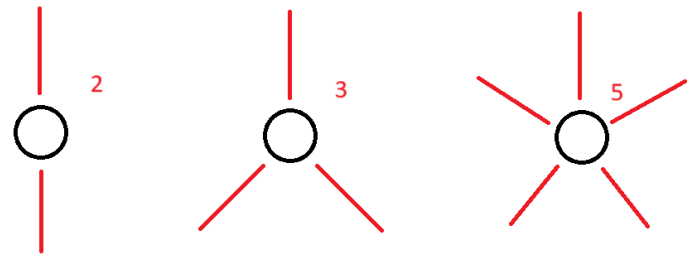
Spread Distance Deviation: Distance deviation which is different for each individual spreading location.



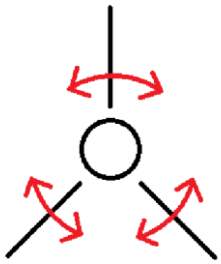
Directional Spread Angle: An angle of 360 will make the particles spread in any direction. The lower the angle gets the more direct the particles path will be towards a target or in its forward direction.



Circle Grid Size: Determines the number of spreading locations, which are evenly distributed within the Directional Spread Angle. A random location is picked for spawning the next particle.



Spread Angle Deviation: Angle deviation which is different for each individual spreading location.



Stop Growth and Stop Spread: Determines what happens when Maximum Number of Miasma is reached.

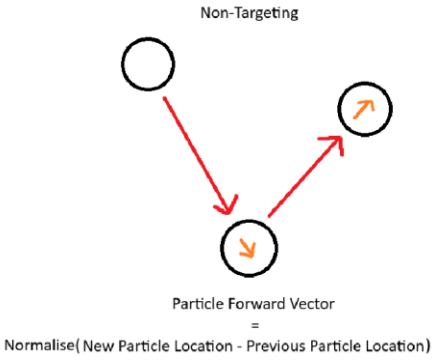
Percentage Chance to Alert AI On Death: When the particle is destroyed what is the chance of miasma sending a message to the ai that makes it investigate that location.

Damage Info: Determines the damage amount and interval of this type, while overlapping with the particle.

Miasma Effects: Determines the effects this root has on pawns. For example, slowness, slide and float.

VFX Colour: The colour that the VFX of this particle will appear in.

Particle Facing Directions (Forward Vector)



Particle Forward Vector
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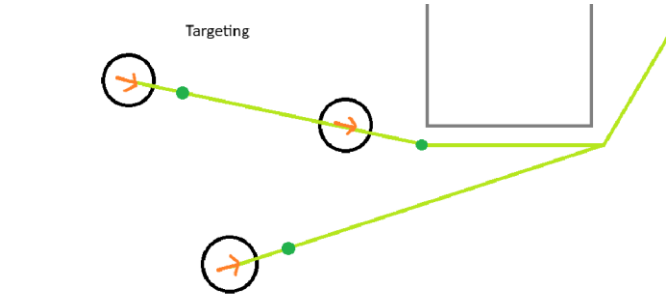
Normalise(New Particle Location - Previous Particle Location)



Particle Forward Vector
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Normalise(Pathfinding Point Location - Particle Location)