Extended Reality in Industry 4.0 (ERI)

Lecture 12: Particle System

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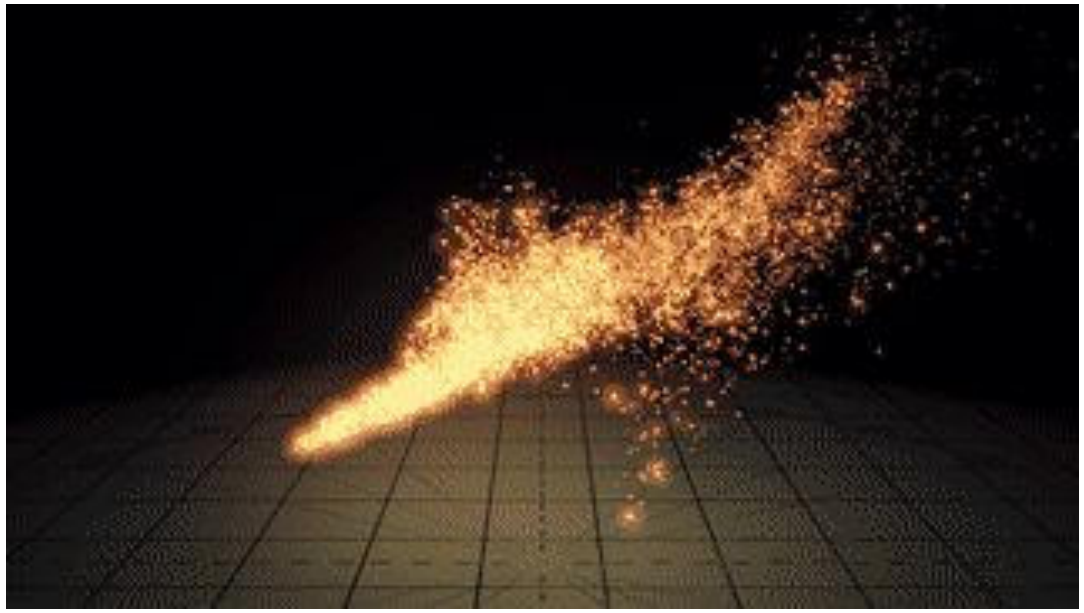
Particle system

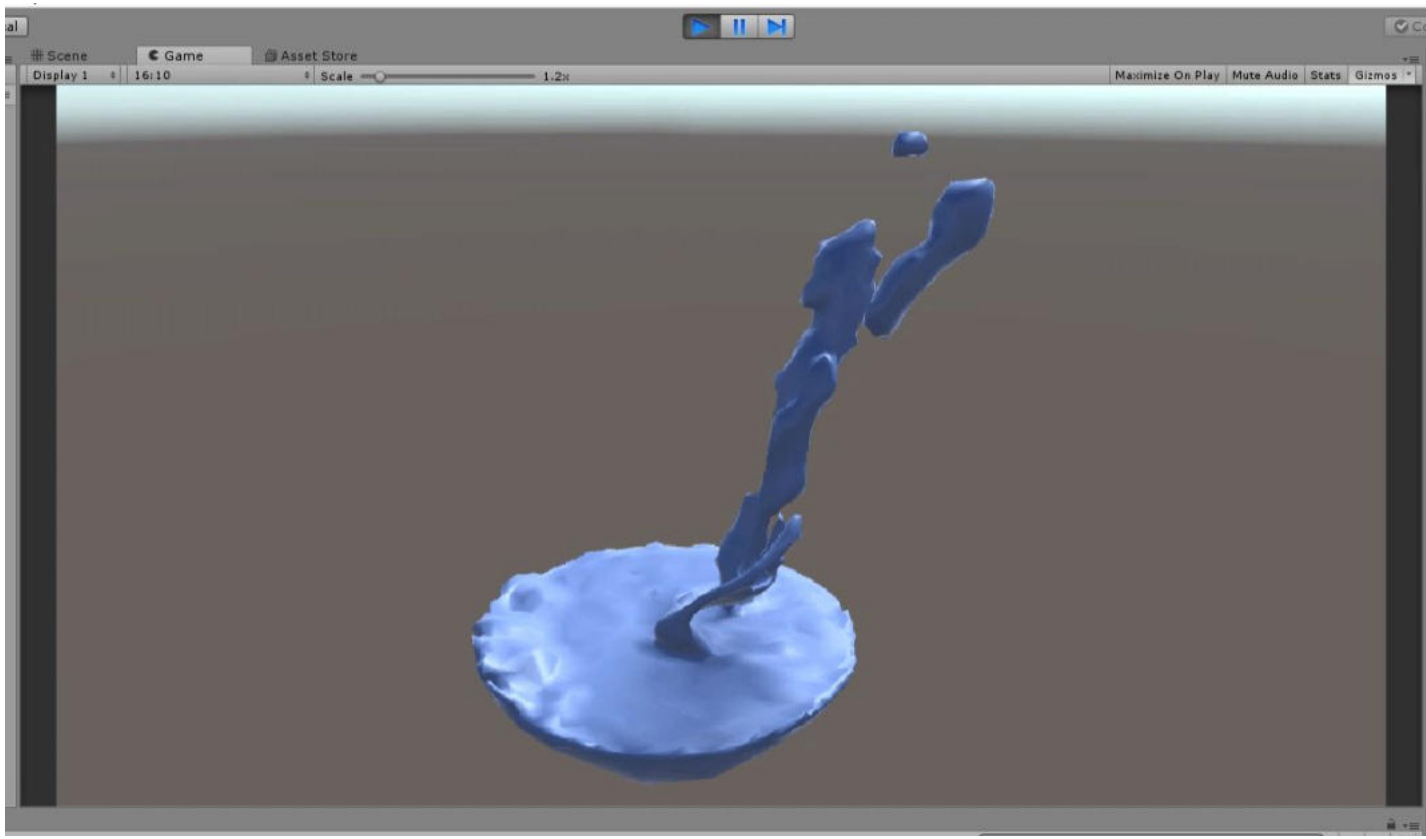
- A **particle system** simulates and renders many small images or meshes, called particles, to produce a visual effect.
- Each particle in a system represents an individual graphical element in the effect.
- The system simulates every particle collectively to create the impression of the complete effect.

Applications of particle systems

- Particle system is useful for creating dynamic objects, for example, fire, smoke, liquid, clouds and flames.
- It is difficult to depict this kind of object with a **Mesh** (3D).
- Meshes are better at depicting solid objects such as a house or a car.

Applications of particle systems



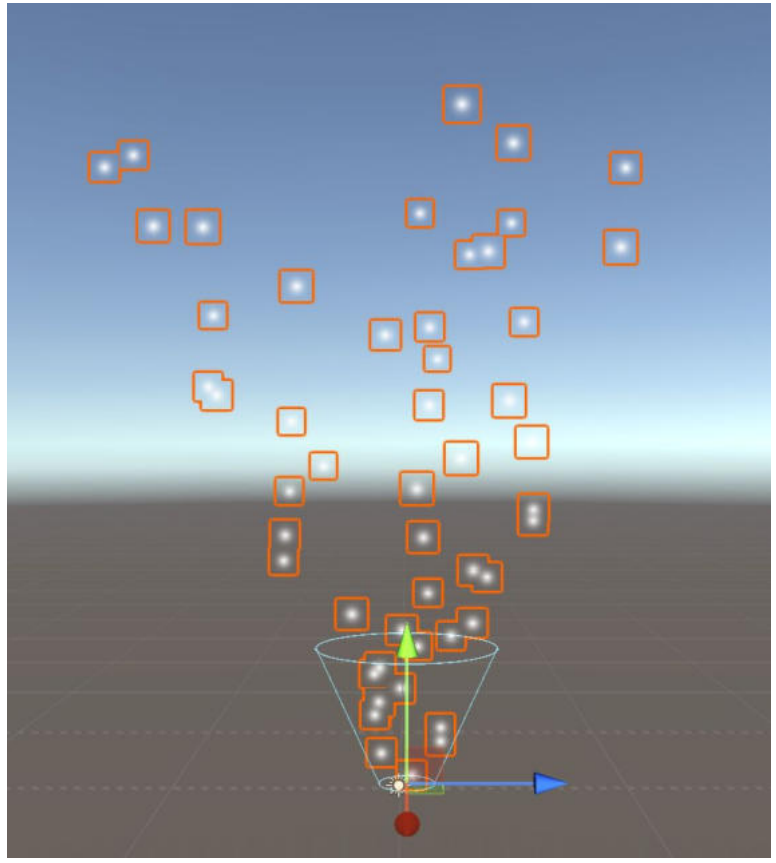


Build-in Particle System

- It is solution that gives you full read/write access to the system, and the particles it contains, from C# scripts.
- C# scripts can be used to interact with a system and the individual particles within it.
- Particle systems can use Unity's underlying physics system and thus interact with **Colliders** in your **Scene.**

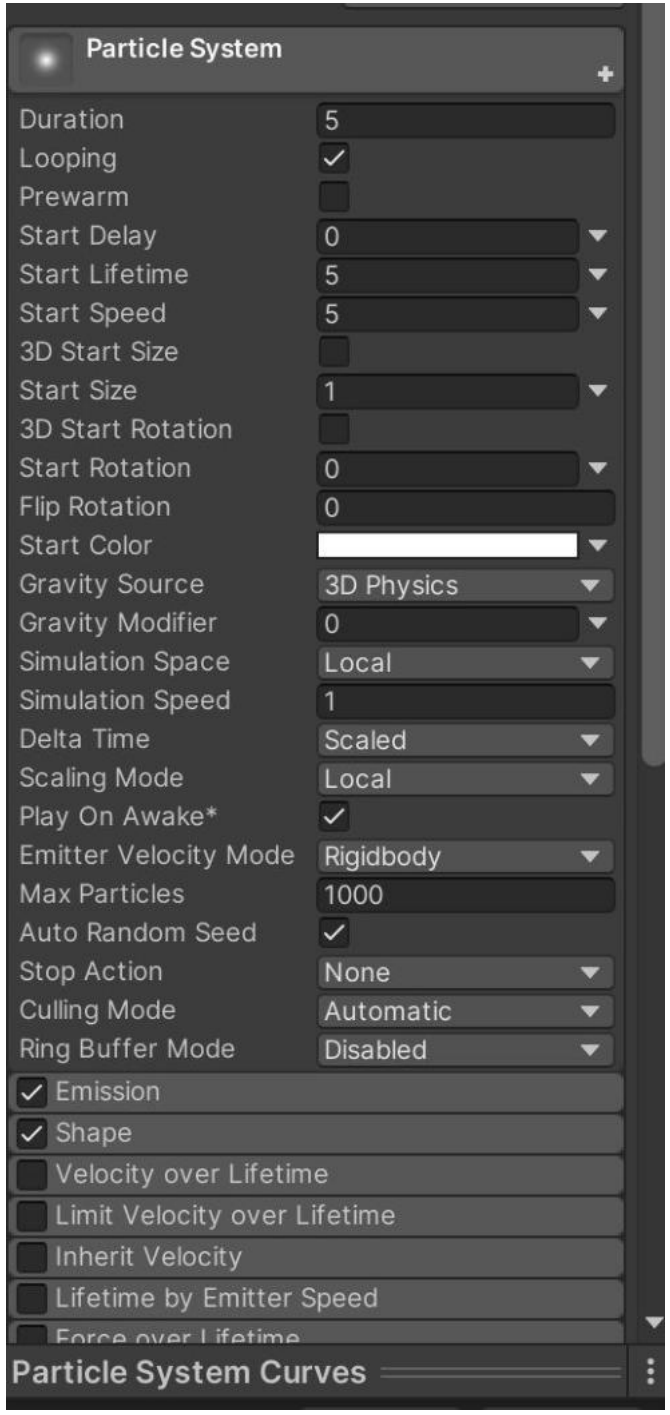
Properties

- Particle system is a game object in the Hierarchy window.
- You can observe particle sprites populate into the scene randomly in the upward direction.



Properties

- There is a large selection of tabs within the particle system inspector, called **modules**.
- The modules contain further settings for particle system.
- The main properties are expanded by default under the **main module.**


Particle System
Duration 5
Looping
Prewarm
Start Delay 0
Start Lifetime 5
Start Speed 5
3D Start Size
Start Size 1
3D Start Rotation
Start Rotation 0
Flip Rotation 0
Start Color
Gravity Source 3D Physics
Gravity Modifier 0
Simulation Space Local
Simulation Speed 1
Delta Time Scaled
Scaling Mode Local
Play On Awake*
Emitter Velocity Mode Rigidbody
Max Particles 1000
Auto Random Seed
Stop Action None
Culling Mode Automatic
Ring Buffer Mode Disabled
Emission
Shape
Velocity over Lifetime
Limit Velocity over Lifetime
Inherit Velocity
Lifetime by Emitter Speed
Force over Lifetime
Particle System Curves