

# Core shooter Kit

## Table des matières

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What is Core Shooter Kit ? .....	3
Game system .....	5
GameEntity .....	5
Shield .....	8
Spawner .....	9
Weapon System .....	10
Weapon .....	11
Bullet .....	14
Laserbeam .....	15
Missile .....	17
Damage Inspector .....	19
ScriptableObject .....	19
Faction .....	19
DamageNature .....	20

# What is Core Shooter Kit

Core Shooter Kit is a set of components to help you to create 3D shooter game of any kind.

CSK provides a complete system easily integrated regardless of the type of games you want to do, without the risk of interfering with other package. The modular approach coupled with Unity events make it a formidable tool for rapid prototyping, or your final games.

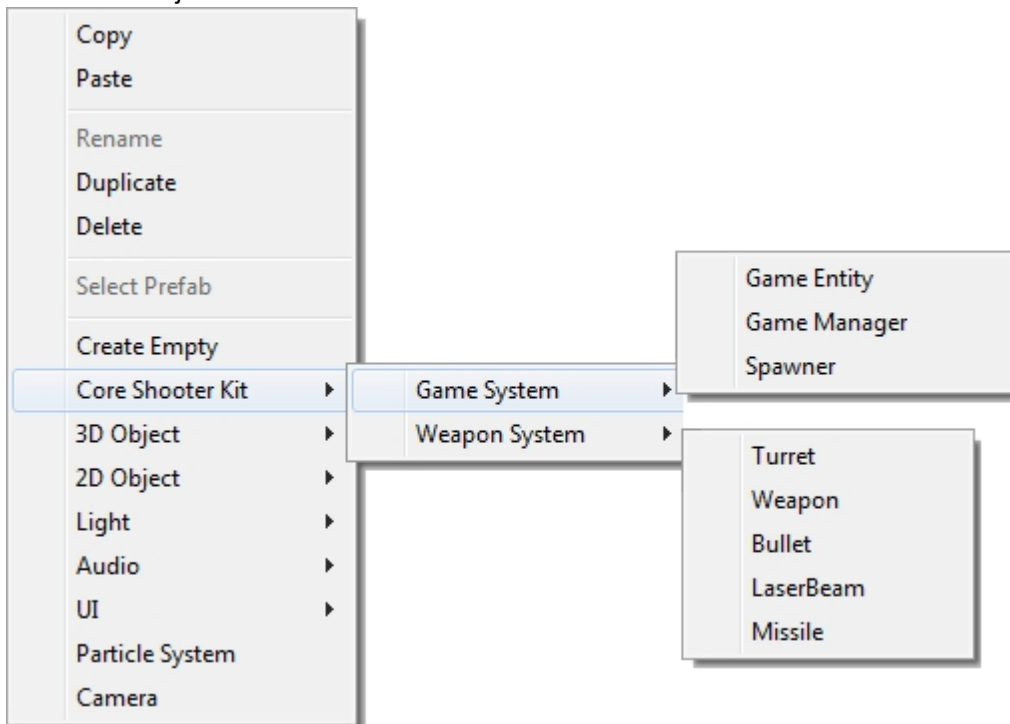
It includes the following systems:

- Modular Weapon System : Create any type of weapon
- Game Entity : One component is enough to make a beatable gameobject and more
- Armory : Easily manage weapons available to players
- Turrent system : Flexible and easy to use turret
- Pool Manager : For better performance CSK uses a pool manager ( It is generic and usable in all your project)
- [Faction](#) : CSK uses a clever faction system, so do may conflict with your layers, and tag you already have
- [Nature Damage](#) : Each weapon, games entity react to natures of damage. This helps to manage difference between a man and a tank relative to a weapon
- Spawner : A small system that allows the object spawn
- Radar : A transverse component to identify enemies, friends, the nearest target etc ... Usable for the player or AI
- And lots of other little thing, very useful

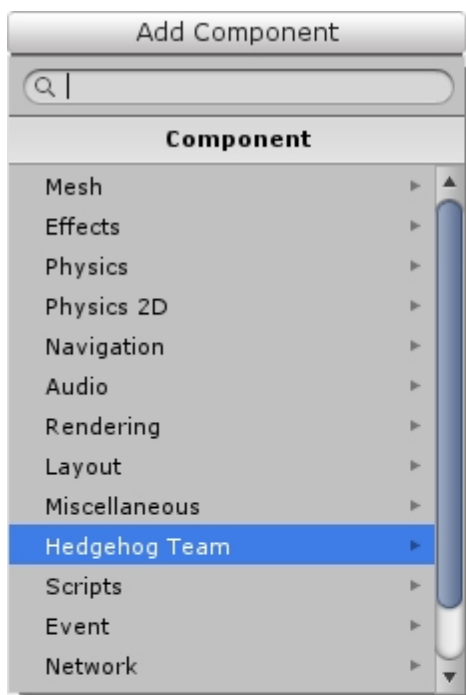
## How to use it

All of these components are accessible from the GameObject menu or Component button. And don't forget to look at example & our Youtube Channel.

From GameObject menu

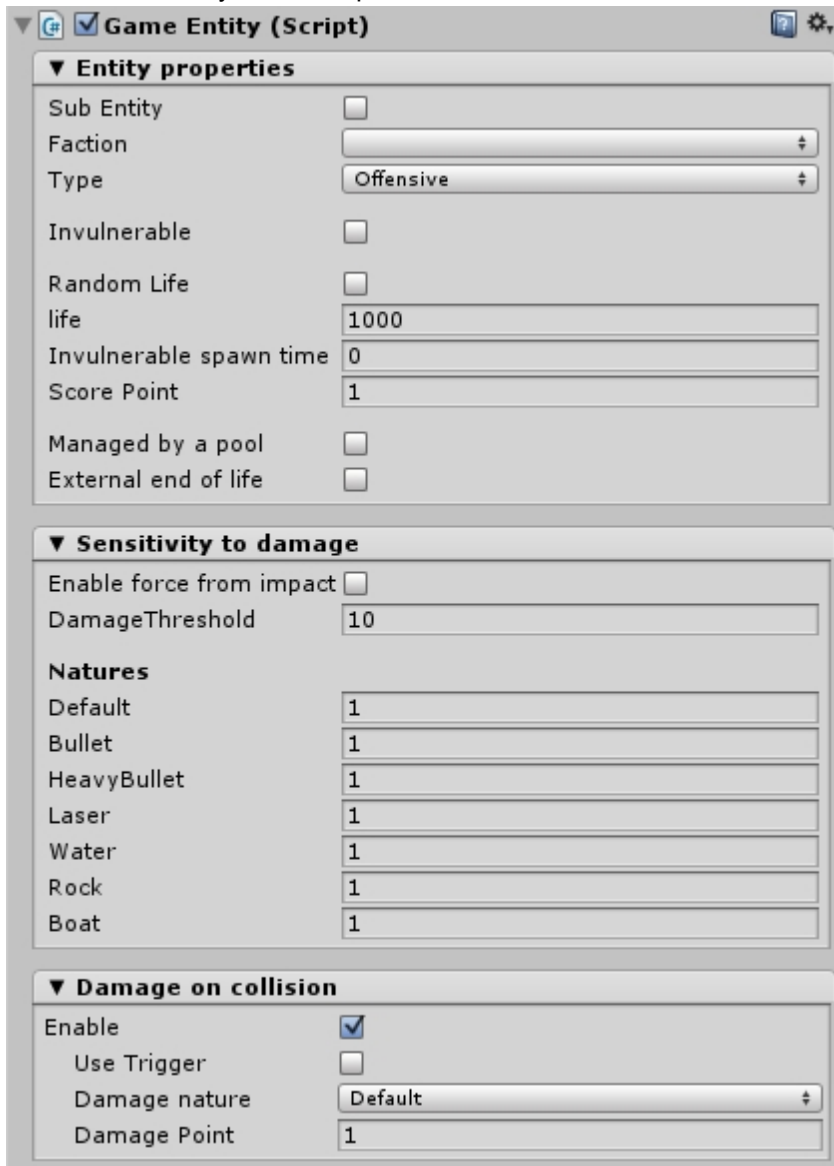


From Add Component



# GameEntity

This is main component of Core Shooter Kit, it allows a gameobject of being killed, emit damage on collision, increment score, detectable by radar component.



**Game Entity (Script)**

**Entity properties**

- Sub Entity ☐
- Faction
- Type
- Invulnerable ☐
- Random Life ☐
- life
- Invulnerable spawn time
- Score Point
- Managed by a pool ☐
- External end of life ☐

**Sensitivity to damage**

- Enable force from impact ☐
- DamageThreshold

**Natures**

- Default
- Bullet
- HeavyBullet
- Laser
- Water
- Rock
- Boat

**Damage on collision**

- Enable ☒
- Use Trigger ☐
- Damage nature
- Damage Point

## Entity Properties

Property	Function
<a href="#">Sub entity</a>	Indicates that this is a child entity
<a href="#">Faction</a>	The faction of the entity, the list contains all existing factions in your project
Type	The type of the entity is used by the radar component to filter entities
Invulnerable	Defined if the entity is invulnerable
Random Life	Defined as the life points will be assigned based on a range of value
Life	The number of life point of the entity
Invulnerable spawn time	The time in seconds during which the entity is vulnerable to its creation
Score point	The number of points to add to the score, if the entity is destroyed by the player (entity possessing the tag "Player")
Managed by a pool	Whether this entity is managed by the Pool Manager.
External end of life	By default the entity is destroyed or returned to availability in the pool manager. This option allows you to manage yourself the end of life of an entity.

## Sensitivity to damage

Property	Function
Enable force from impact	Enable force application set on the ammunition (Bullet / Laserbeam / Missile)
Damage threshold	The minimum damage received to emit event On Hit (usefull for laserbeam )
<a href="#">Natures</a>	The coefficient of application of damage depending on their nature

## Damage on collision

Property	Function
Enable	Enable damage when the entity collided
Use Trigger	Colliders are trigger
<a href="#">Damage Nature</a>	The nature of the damage caused
Damage point	The number of points of damage

▼ Effects

▼ Spawn Effects

Offset

X 0 Y 0 Z 0

Size

1

Element 0

None (Game Object)

▼ Hit Effects

Offset

X 0 Y 0 Z 0

Size

0

▼ Heal Effects

Offset

X 0 Y 0 Z 0

Size

0

▼ Death Effects

Offset

X 0 Y 0 Z 0

Size

0

▼ Events

On Entity Spawn ()

List is Empty

+ -

On Hit (Impact)

List is Empty

+ -

On Heal (Single)

List is Empty

+ -

On Entity Destroy ()

List is Empty

+ -

## Effects

The effects are automatically instantiated with respect to their corresponding event. Core Shooter Kit uses Easy Pool

Manager to managed effects, your effects must be compatible with the a pool management.

Property	Function
Offset	Spawn offset relative to GameObject pivot
Size	The number of effect emit
Element	Prefabs of effects

## Events

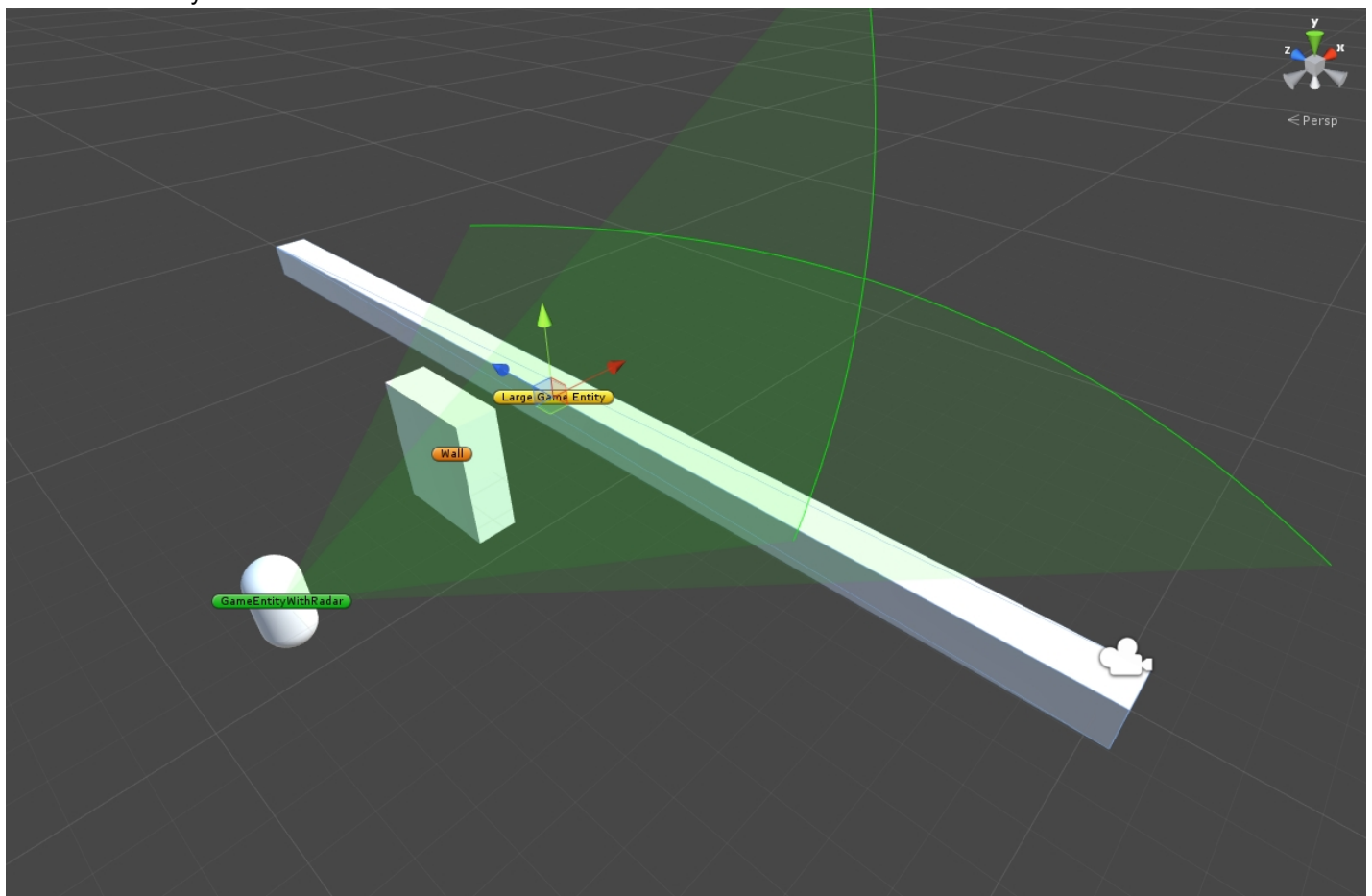
Property	Function
On Entity Spawn	Occurs when entity is created or spawned
On Hit	Occurs when entity receives damage, and the sum is greater than Damage threshold property, and call the method InitHitEffect from IHitEffect
On Heal	Occurs when entity receives heal, and call the method InitHealEffect from IHealEffect
On Entity Destroy	Occurs when entity life reach 0

## Detail

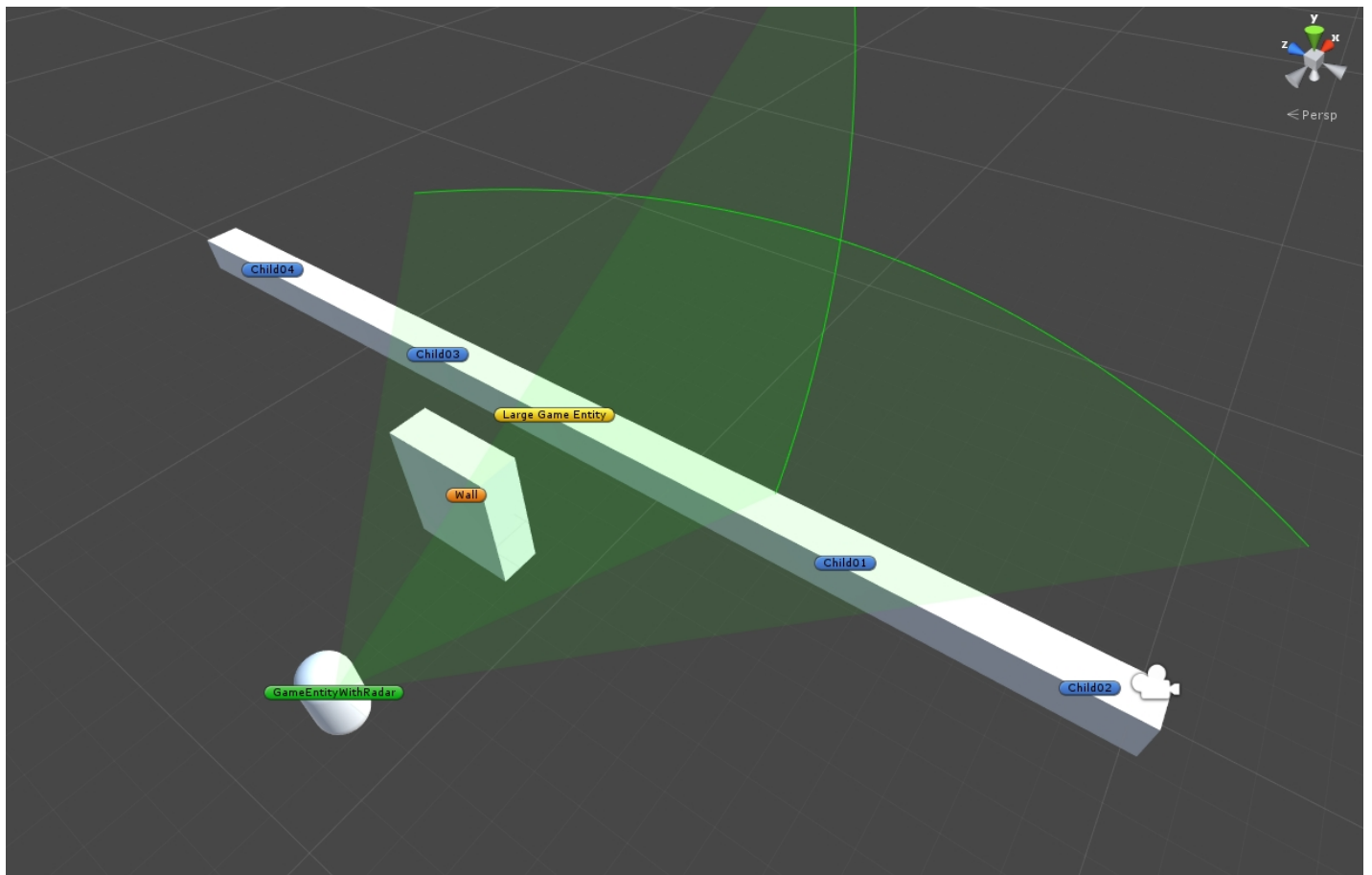
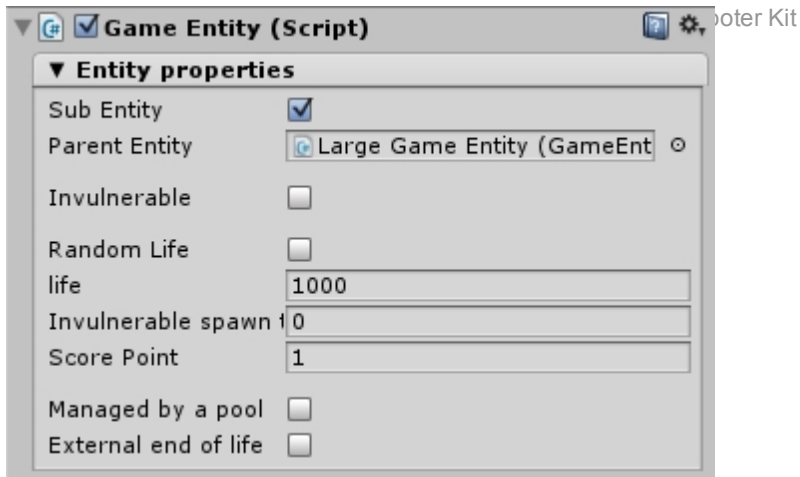
### Sub Entity

Radar component uses the GameObject pivot to determine if a Game Entity is visible or in the detection field. However in the case of very large GameObject this can lead to inconsistency (a)

a) A part of the object is in the detection area, but its pivot is hidden in this case the radar component considers that there is no enemy.

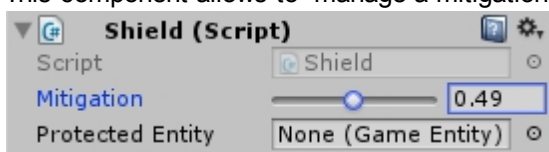


To solve this case, simply add children gameobject with a [GameEntity](#) with Sub Entity property set to true. When this option is enabled, you must indicate the GameEntity parent,



## Shield

This component allows to manage a mitigation of damage suffered by the "shield" object to the protected object



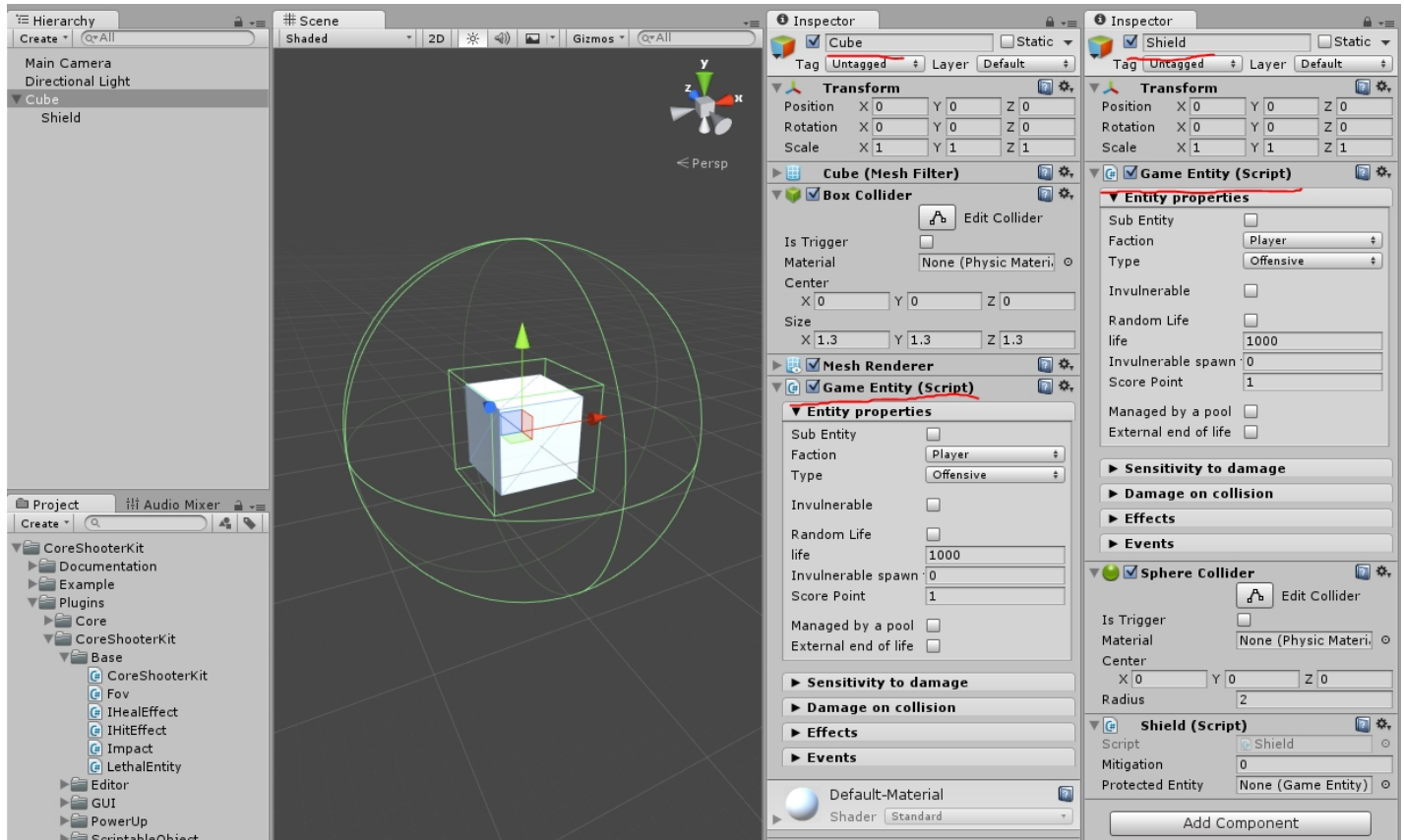


## Sensitivity to damage

Property	Function
Mitigation	The coefficient of attenuation 0 to 1
Protected entity	The <a href="#">game entity</a> that will receive the damage after mitigation





## Detail

To manage a shield, just add a child [GameEntity](#) the object you want to protect. And make sure that the collider is to cover the protective object



## Spawner

This component allows you to spawn GameObject in wave.



**Spawner (Script)**


ter Kit

**Properties**

Launch At Start ☒  
Start Time   
Spawn Shape   
Spawn Radius   
Managed By Pool ☐

**Waves**

Use Pool Manager ☐  
Child ☐  
▼ Entities  
Size   
▼ Amount  
Spawn Type   
Value   
▼ Simultaneous  
Spawn Type   
Value   
▼ Frequency  
Spawn Type   
Value   
Wave Amount   
Re Spawn Type   
▶ Waiting Time

## Properties

Property	Function
Launch At Start	The spawn will begin at launch
Start Time	The start time in second
Spawn Shape	The form to be used to spawn the objects (In Circle, On Circle, In Sphere, On Sphere)
Spawn Radius	Radius
Managed By pool	Indicates if the spawner is managed in a pool, or child of an object managed by a pool

## Waves

Property	Function
Use Pool manager	The entities are managed by a pool
child	The entites will be attached to the spwaner after their spawn
Entites	List of GameObjects that will be randomly selected at each spwan.
<b>Amount</b>	Set the number of object and method of spwn, for a wave
SpawnType	Fixe,Random, Progressive
value	Relative to spawn type
<b>Simultaneous</b>	Max game created at the same time
SpawnType	Fixe,Random, Progressive
value	Relative to spawn type
<b>Frequency</b>	Define the spawn frequency
Wave Amount	Number of wave
Re Spawn Type	The trigger for the next wave
Waiting time	The waiting time to trigger the next wave

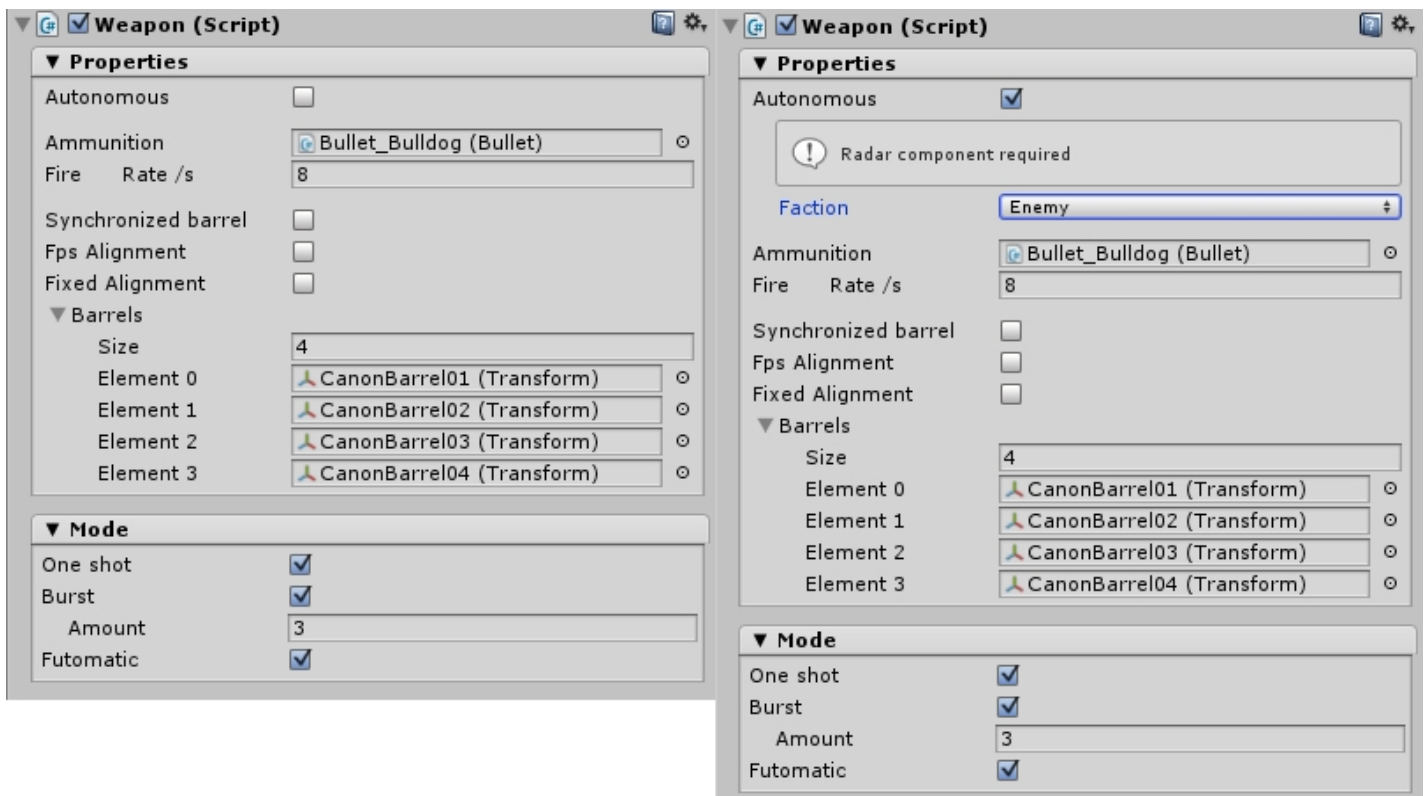
# Weapon system

The weapon system is a modular system, which allows you to create a wide range of different weapons. It simply consists of a component [Weapon](#) that uses a type of component Ammunition ([Bullet](#), [Laserbeam](#), [Missile](#)). This system can be used both for the player, as an AI. Each of these components is independent from its physical appearance, the only visual limit is your imagination. Additional components will allow you to add random, make autonomous weapon, create sub-weapons ...

To avoid excessive consumption of resources related to the creation of ammunition, this system uses a pool manager. You must therefore ensure that the graphic effects will manage properly the fact that they are associated with a pool management. Also to avoid collision misses, they use raycast with prediction of the position, Also it uses less resources than colliders.

## Weapon

This component allows fire ammunition. It manages all aspects of the weapon, its rate, its magazine etc ... This component requires an AudioSource which will be added automatically



## Properties

Property	Function
Autonomous	The weapon will fire automatically if a <a href="#">GameEntity</a> of an opposing <a href="#">faction</a> is in the field of view defined by a radar component (requires radar component)
<a href="#">Faction</a>	Defined <a href="#">faction</a> when the weapon is autonomous.
Ammunition	The ammunition will be fired
Fire Rate/s	The rate of fire per second, this property is not available for a laserbeam type of ammunition
Synchronized barrel	<b>True</b> : The weapon uses all barrels at the same time / <b>False</b> : The weapon uses barrels one by one
FPS Alignment	<b>True</b> : Barrels will be align to shoot at the center of screen / <b>False</b> : Barrels keep their orientation to fires
Fixed Alignment	<b>True</b> : Barrels will be align with a specific transform / <b>False</b> : Barrels keep their orientation to fires
Barrels	The list of all barrels uses by the weapon

## Mode

Allows you to define available weapon mode, the default mode will be the last enabled one.

Property	Function
One Shot	The weapon will fire shot per shot, it requires that the user release the firing action between each one
Burst	The weapon will fire as its rate a little amount of ammunition, set by Amount
Amount	the amount of ammunition to shot in burst.
Automatic	The weapon will fire as its rate as long as the magazine has ammunition

▼ Magazine

Enable ☒

Type Unit

Capacity

Shot value

Auto reload ☐

Reload Time

▼ Stock of ammunition

Enable ☐

Max Stock

Initial stock

▼ Magazine

Enable ☒

Type Time

Capacity

Speed

Auto reload ☐

Reload speed

## Magazine

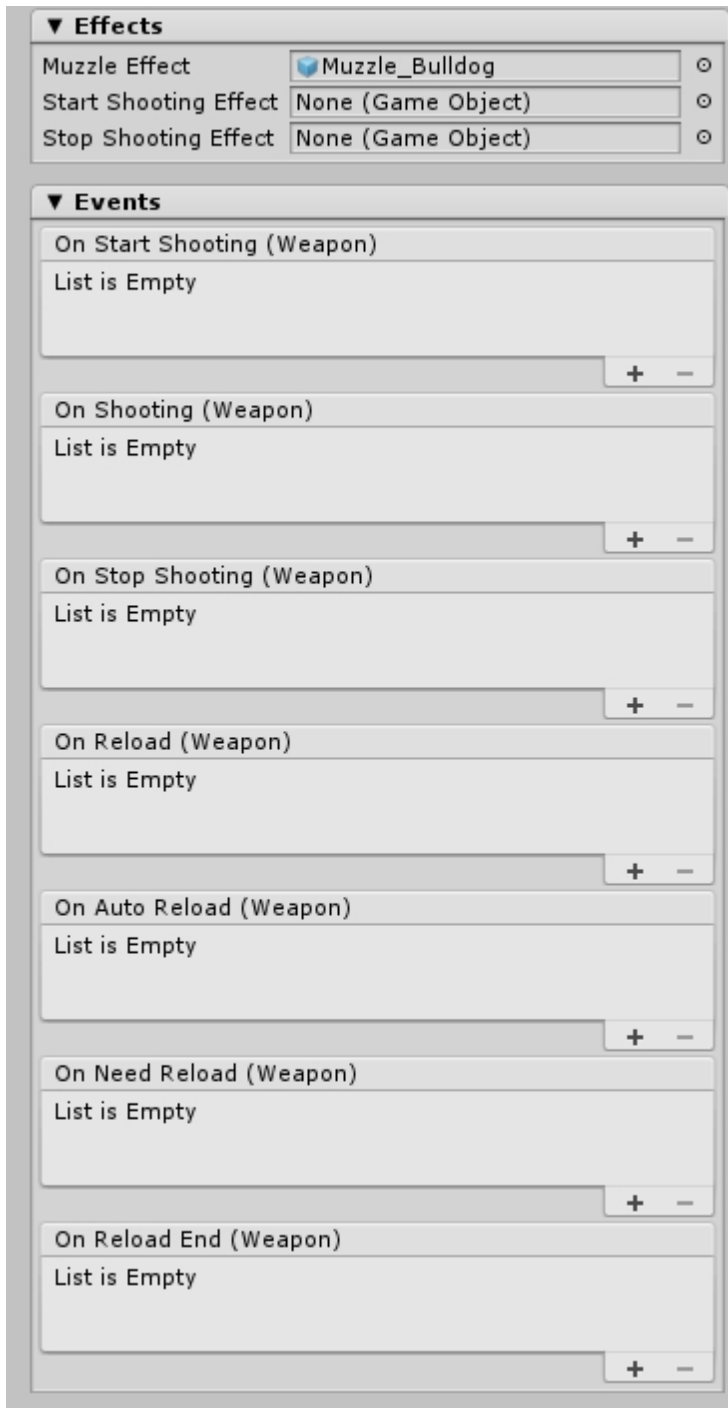
Without magazine, weapon has unlimited ammunition

Property	Function
Enable	Active magazine management
Type	Ammunition may be managed either by the unit or by time (only by time for <a href="#">Laserbeam</a> )
Capacity	Magazine capacity by type
Shot value / Speed	The value of an ammunition unit or in time
Auto reload	The weapon reloads itself, once the magazine is empty
Reload Time / Reload speed	Reload time / Reload speed

## Stock of ammunition

Without stock, weapon has unlimited number of reload

Property	Function
Enable	Active ammunition stock
Max Stock	The maximum stock of ammunition
Initial Stock	Magazine capacity by type
Shot value / Speed	The value of an ammunition unit or in time
Auto reload	The weapon reloads itself, once the magazine is empty
Reload Time / Reload speed	Reload time / Reload speed



## Effects

The effects are automatically instantiated with respect to their corresponding event. Core Shooter Kit uses Easy Pool Manager to managed effects, so your effects must be compatible with the a pool management.

Property	Function
Muzzle	Muzzle effect
Start shooting effect	Effect at start
Stop shooting effect	Effect at end

## Events

Property	Function
On Start Shooting	Occurs when weapon starts shooting
On Shooting	Occurs when weapon fires ammunition
On Stop Shooting	Occurs when weapon stops shooting
On Auto Reload	Occures when auto reload is triggering
On Need Reload	Occures when weapon need to be reloaded

On Reload	Occurs when weapon begins reload
On Reload End	Occurs when reload is finished

## Detail

### Weapon Sound

Audio Source component is automatically added, that can manage the sound of the weapon. You must disable the property "Play on Awake".

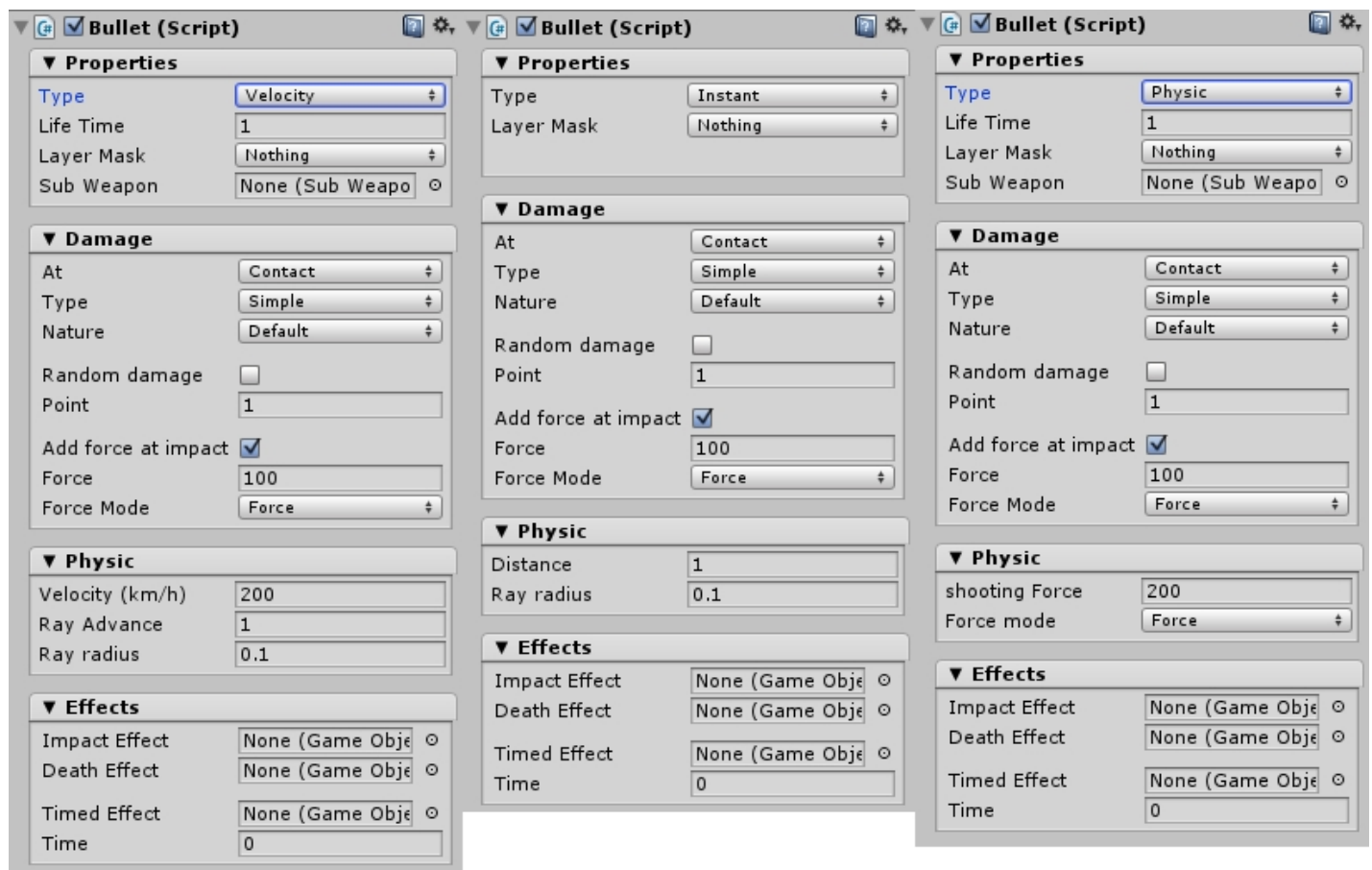
You can use either a sound loop, a sound one shot, the weapon will fit the settings you chose.

## Bullet

This component allows to create ammunition that will have a bullet-like behavior. They will move "physically" in time and space. You will be able to simulate all existing weapons (gun, assault rifle, grenade, sniper etc...).

This ammunition has 3 types of behavior:

- **Velocity** : The munition moves according to a velocity
- **Instant** : The munition instantly calculate its impact point
- **Physic** : The munition use the physic engine of unity (require Rigidbody component)



## Properties

Property	Function
Type	The type of ammunition (Velocity, Instant, Physic)
Life Time	The lifetime of the ammunition, once fired (not available for Instant)
Layer Mask	The collision layermask
Sub Weapon	The sub weapon that will be triggered at the end of life of the ammunition

## Damage

Look at this chapter : [Damage Inspector](#)

## Physic

Property	Function
Velocity	Defined movement speed in the case of a type Velocity
Ray advance / Distance	Defined "advance" relative to the velocity to detect collision for velocity bullet (Increase this value if you have missed them for collision detection) Defined the maximum distance for Instant bullet
Ray radius	Defined the radius of the munition for collision detection
Shooting force	Defined the that will be applied by the weapon to launch the bullet
Force	Look at Unity documentation : <a href="http://docs.unity3d.com/">http://docs.unity3d.com/</a>

## Effect

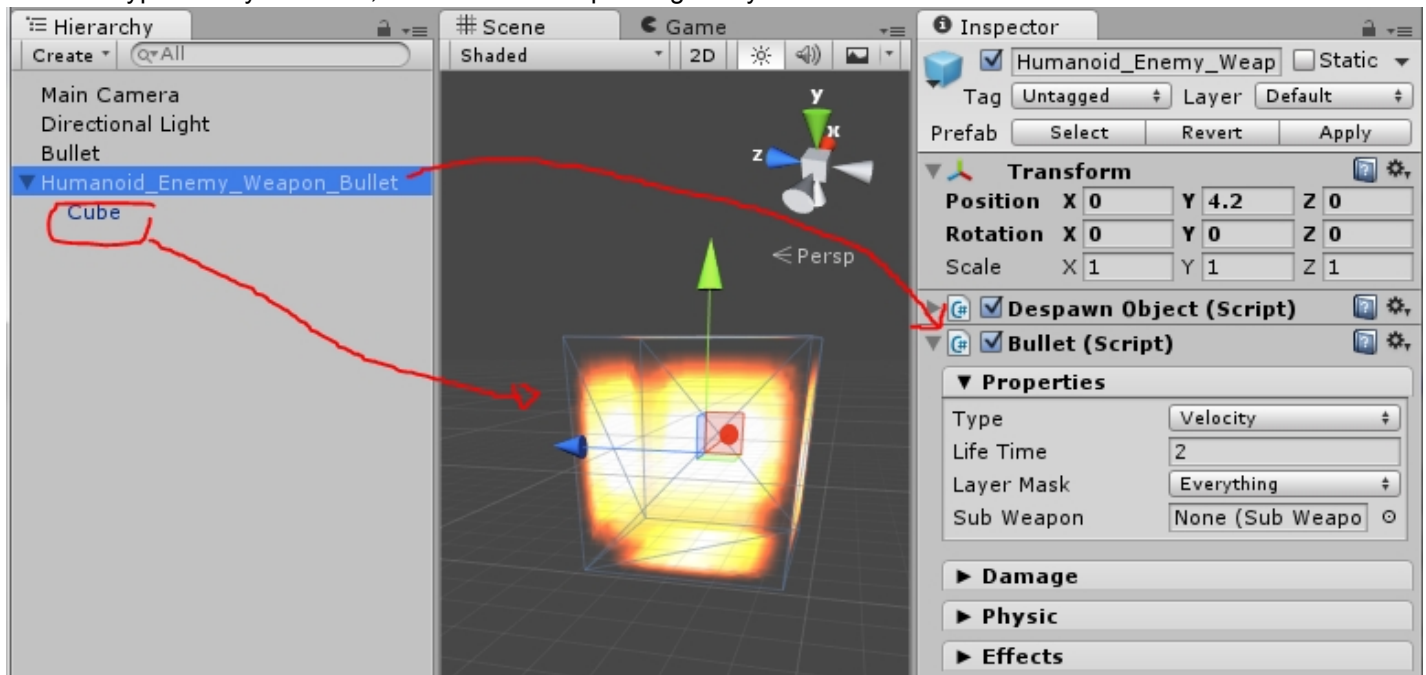
The effects are automatically instantiated with respect to their corresponding event. Core Shooter Kit uses Easy Pool Manager to managed effects, so your effects must be compatible with the a pool management

Property	Function
Impact	When the bullet touches an object
Death	When the bullet dies without having touched an object
Timed Effect	Relative to a start time
Time	Start time for timed effect

## Detail

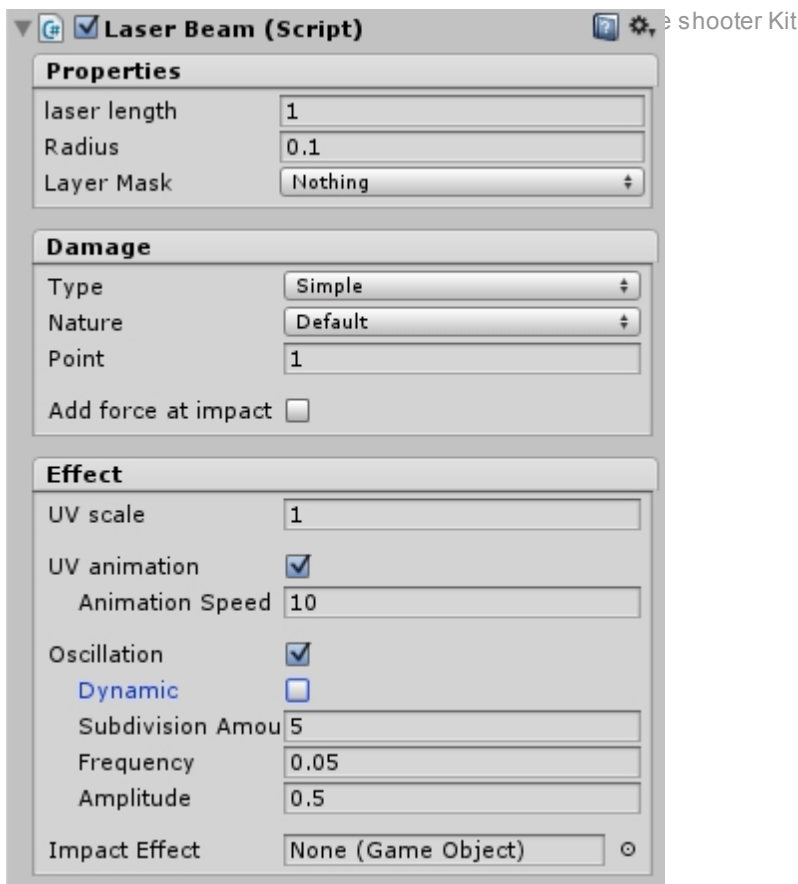
All ammunition are managed by the pool manager, It will be automatically added component "Despawn Object", which will be piloted by the bullet component. You do not have to setup it.

We advise you to attach all the graphics or 3D model representing the bullet as child. Do not add collider except in the case of a type of Physic bullet , which will also require Rigidbody.



## Laserbeam

This component allows to create ammunition of type laser beam. The laser will have a starting point which depends on the setting of the weapon (barrels), and a specific length. The points of damage are applied in function of time.



## Properties

Property	Function
Laser length	The length of the laser beam.
Radius	The radius of the laser beam
Layer Mask	The collision layermask

## Damage

Look at this chapter : [Damage Inspector](#)

## Effect

Property	Function
UV scale	Scale of the texture on the line render
UV animation	Enables UV animation of the texture
Animation speed	Direction & speed of the animation
Oscillation	Enables oscillation effect
Dynamic	The subdivision will be fairly distributed according to the actual length of the laser beam
Subdivision	The subdivision amount
Frequency	The frequency of the effect
Amplitude	The amplitude of the oscillation

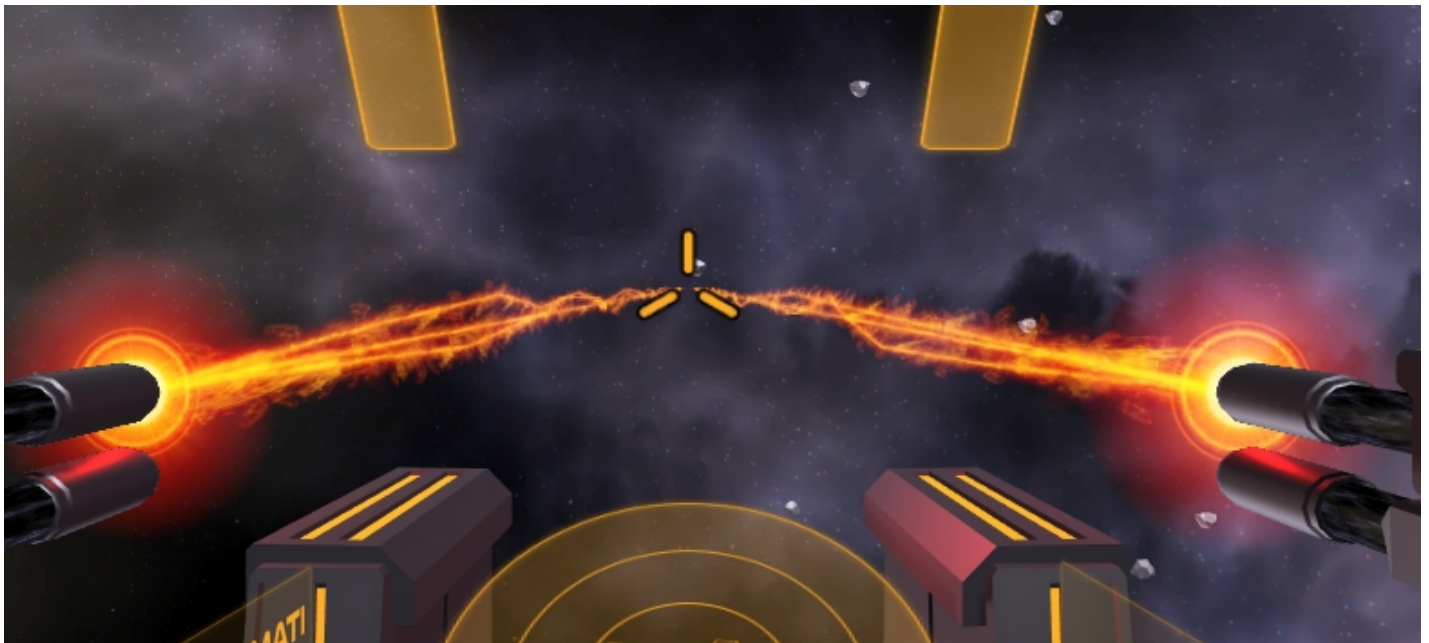
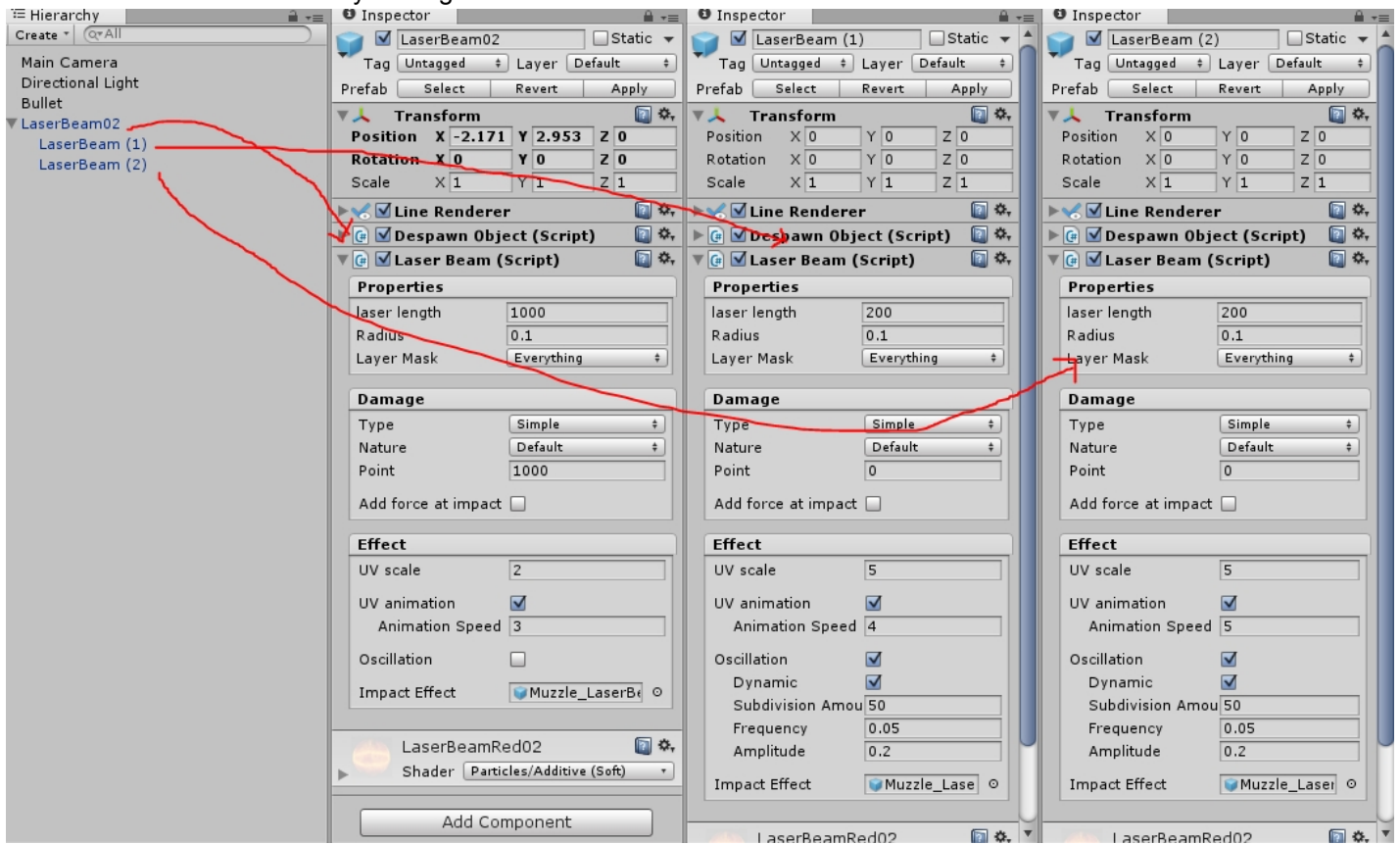
## Detail

The Laserbeam requires LineRender (automatically added) but you have to set yourself this component.

- 1- Uncheck Use World Space
- 2- Add the correct material

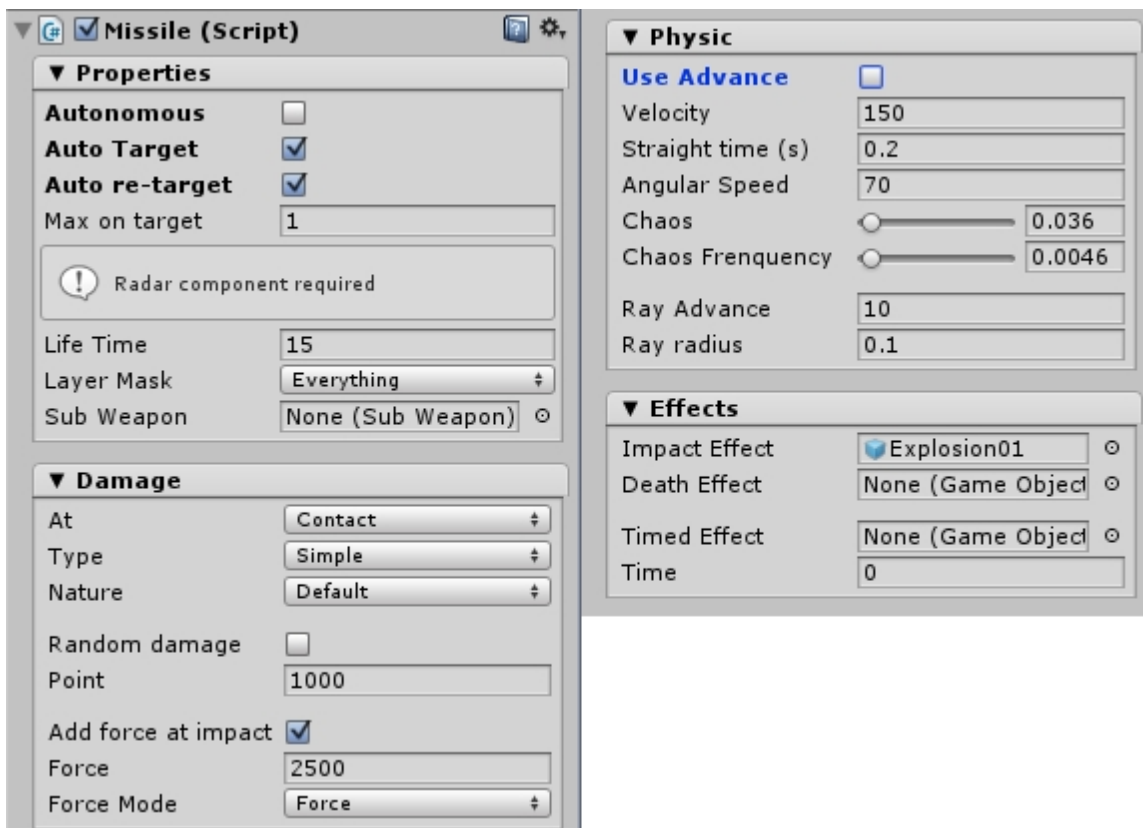


You can create various effect by Adding sub Laserbeam shooter Kit



## Missile

This component allows to create guided ammunition to their targets.



## Properties

Property	Function
Autonomous	Allow to launch the ammunition directly without a weapon component
Auto target	The missile choose its target automatically depending on the radar setting (requires a radar component)
Auto re-target	If the target missile is destroyed it will automatically find a new target
Max on target	The maximum number of missiles on a <a href="#">GameEntity</a> to be targetable
Life time	The lifetime of the ammunition
Layer mask	The collision layermask
sub weapon	The sub weapon that will be triggered at the end of life of the ammunition

## Damage

Look at this chapter : [Damage Inspector](#)

## Physic

Property	Function
Use advance	The missile calculate an intercept position according to the velocity of the target
Velocity	Speed of the missile
Straight time	Straight time after launch
Angular speed	Angular speed of the missile
Chaos	>0 adds chaos to the trajectory
Chaos frequency	Frequency of chaos
Ray advance	Defined "advance" relative to the velocity to detect collision for velocity bullet (Increase this value if you have missed them for collision detection)
Ray radius	Defined the radius of the munition for collision detection

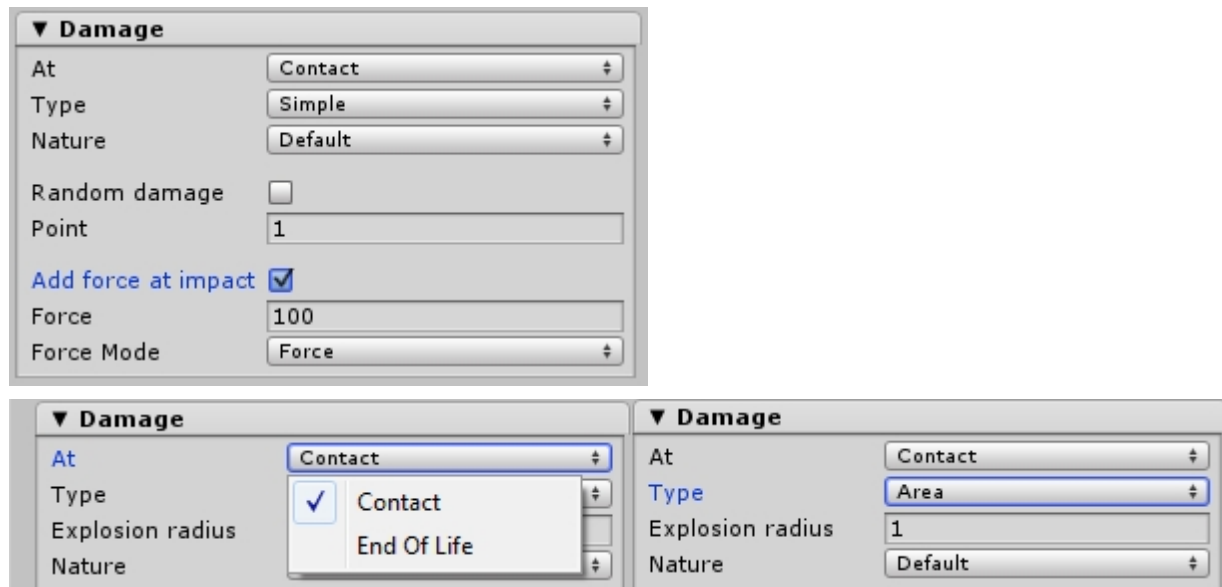
## Effect

The effects are automatically instantiated with respect to their corresponding event. Core Shooter Kit uses Easy Pool Manager to managed effects, so your effects must be compatible with the a pool management

Property	Function
Impact	When the bullet touches an object
Death	When the bullet dies without having touched an object
Timed Effect	Relative to a start time
Time	Start time for timed effect

## Damage Inspector

Detail on the Damage of the ammunition. This part is the same regardless of the ammunition that you create

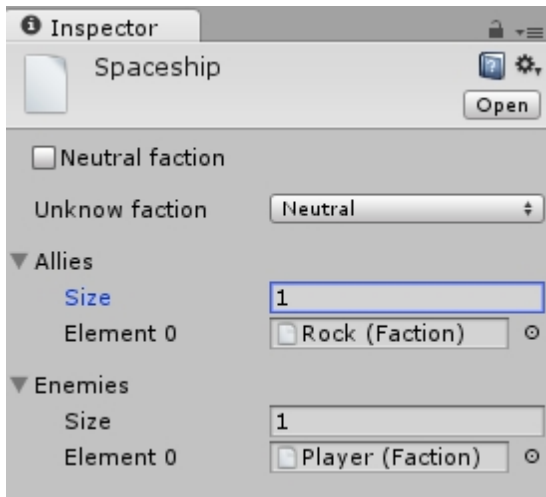


Property	Function
At	Defined when the damage of the ammunition will be applied ( <b>Contact</b> / <b>End Of Life</b> )
Type	Defines the type of damage ( <b>Simple</b> / <b>Area</b> )
Explosion radius	Defined radius of the explosion, when the damage is type area. The damage will be relative of the distance of the impact point.
Nature	<a href="#">The nature of damage.</a>
Random damage	Allows to set a damage range
Point	The number of point of damage
Add force at impact	On impact, a force will be applied to the object that was hit. It is necessary that the property <b>"Enable force from impact"</b> is set to <b>True</b> on the <a href="#">GameEntity</a>
Force	The value of the force that will be applied
Force Mode	Look at Unity documentation : <a href="http://docs.unity3d.com/ScriptReference/ForceMode.html">http://docs.unity3d.com/ScriptReference/ForceMode.html</a>

## Faction

The factions used to define teams and behavior together. Each entities of Core Shooter Kit had a faction, either define or inherit. They will be used by the radar component to find enemies or allies, to determine whether an entity was hit by a enemies etc ...

You can create as many factions as you want.



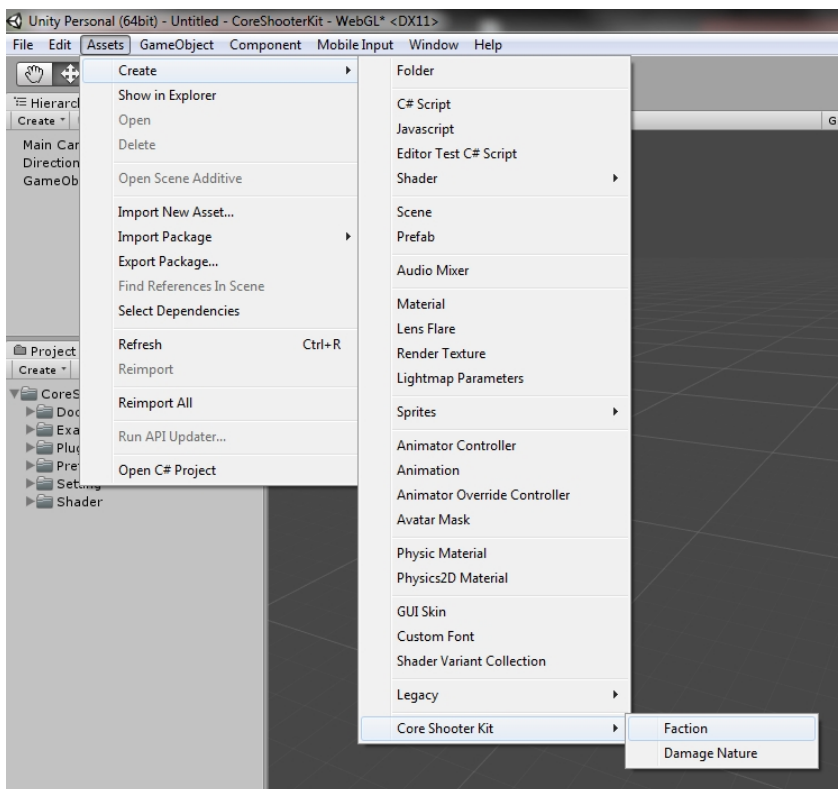
Core shooter Kit

## Properties

Property	Function
Neutral faction	Indicates that a faction is neutral. An entity with a neutral faction, can not be targeted by radar component, but may explicitly designated as target.
Unknown faction	If a faction is not known, indicate its default status (Neutral, Ally, Enemy )
Allies	List of ally factions
Enemies	List of enemy factions

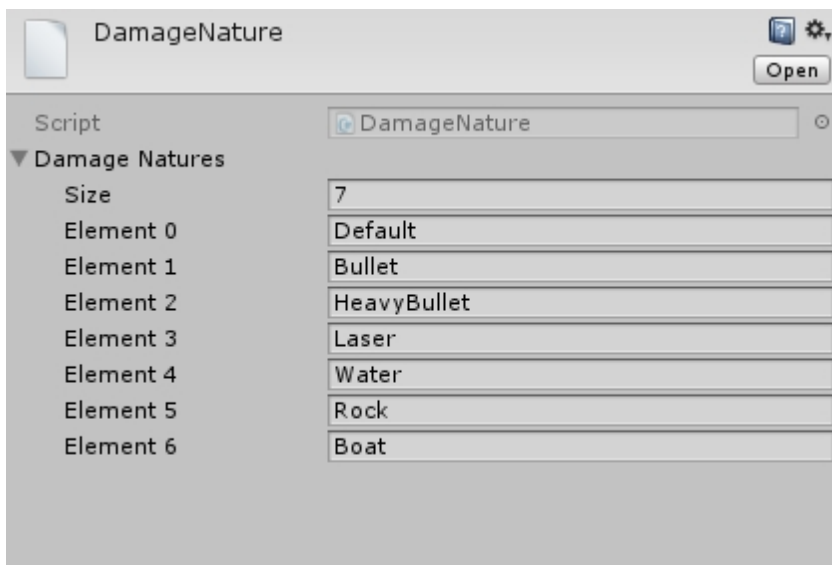
## How to create

You access the creation of faction by the Assets menu



## Damage Nature

All damage possess a nature and each Game Entity may have a different resistance to every nature of damage. You can create as much damage nature as you want. This allows to destroy a small object with gun, but not a bigger Game entity with the same weapon for example.



## How to create

You access the creation of faction by the Assets menu

