

Shooter Game Framework

Complete FPS/TPS Weapon, Health, Ammo & HUD System for Unreal Engine

5

4 Components

100% Blueprint

Multiplayer Ready



Quick Start - Get Shooting in 5 Minutes

Follow these steps exactly and you'll have a working weapon system in minutes.

1 Enable the Plugin

Go to `Edit > Plugins`, search for **Shooter Game Framework**, enable it, restart the editor.

● PLUGINS WINDOW

☒ **Shooter Game Framework v2.0.0** | Adrenaline Games

⚠ Restart Required

2 Add Components to Your Character Blueprint

Open your Character BP, click `Add Component` and add:

● COMPONENTS PANEL

📦 **CharacterMesh** (inherited)

└ 🗡 **ShooterWeaponComponent** ← Required

└ ❤ **ShooterHealthComponent** ← Required

└ ⚡ **ShooterAmmoComponent** ← Required

└ 🎮 **ShooterHUDComponent** ← Optional

💡 **Tip:** Search "Shooter" in Add Component to find them all.

3

Create a Weapons DataTable

Content Browser: `Right Click > Miscellaneous > DataTable` . Pick **ShooterWeaponData**. Name it `DT_Weapons` .

● PICK STRUCTURE

→ **ShooterWeaponData** (Shooter Game Framework)
[OK]

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Add Your First Weapon Row

Open `DT_Weapons`, click `Add Row` , set Row Name to **"Pistol"**:

● DT_WEAPONS > ROW: "PISTOL"

Identity

Weapon ID: Pistol
Display Name: M1911 Pistol
Weapon Type: Pistol
Fire Mode: Single Shot

Damage

Base Damage: 25.0
Headshot Multiplier: 2.0
Max Range: 5000.0

Firing

Fire Rate (RPM): 400
Ammo Type: Pistol Ammo
Magazine Size: 12
Reload Time: 1.5

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Connect DataTable to Component

Select **ShooterWeaponComponent** in Details panel, set:

● DETAILS > SHOOTER WEAPON COMPONENT

Configuration

Weapons Data Table: DT_Weapons ✓

Camera Component: Camera ✓

⚠ **Important:** Set Camera Component! Without it weapons aim from actor center instead of the camera.

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Blueprint: Add Weapon & Fire

● EVENT GRAPH - CHARACTER BLUEPRINT

Event BeginPlay → WeaponComp → **Add Weapon** (ID: "Pistol")

Input Fire (Started) → WeaponComp → **Start Fire**

Input Fire (Completed) → WeaponComp → **Stop Fire**

Input Reload (Started) → WeaponComp → **Start Reload**

Input ADS (Started) → WeaponComp → **Start ADS**

Input ADS (Completed) → WeaponComp → **Stop ADS**

✅ **Done!** Press Play and fire away. Add more weapons to DataTable, use **Equip Weapon** to switch.



Components & Settings

All 4 components and every configurable property.



Weapon Component

Firing, reloading, ADS, switching, attachments, recoil, spread, penetration.



Health Component

Health, shields, resistances, regen, death & revival.



Ammo Component

Ammo reserves, grenades, powerups.



HUD Component

Hitmarkers, damage numbers, crosshair, kill feed.

DataTables

DATATABLE	ROW STRUCTURE	ASSIGN TO
DT_Weapons	ShooterWeaponData	Weapon Component
DT_Attachments	ShooterAttachmentData	Weapon Component
DT_SurfaceImpacts	ShooterSurfaceImpact	Weapon Component
DT_Grenades	ShooterGrenadeData	Ammo Component
DT_Powerups	ShooterPowerupData	Ammo Component

Weapon Component Settings

PROPERTY	DEFAULT	DESCRIPTION
<code>Weapons Data Table</code>	None	Required! Your weapons DataTable
<code>Attachments Data Table</code>	None	Weapon attachments DataTable
<code>Surface Impacts Data Table</code>	None	Impact effects per physical material
<code>Max Weapon Slots</code>	2	Max weapons player can carry
<code>Weapon Socket Name FP</code>	weapon_r	First-person weapon socket name
<code>Weapon Socket Name TP</code>	weapon_r	Third-person weapon socket name
<code>Camera Component</code>	None	Recommended! Camera for ADS and aim direction
<code>Projectile Class</code>	None	Projectile actor for Launcher weapons

Health Component Settings

PROPERTY	DEFAULT	DESCRIPTION
<code>Max Health</code>	100	Maximum health points
<code>Health Regen > Can Regenerate</code>	true	Auto-regen after delay
<code>Health Regen > Regen Delay</code>	5.0s	Seconds after damage before regen
<code>Health Regen > Regen Rate</code>	10.0/s	HP per second
<code>Shield > Has Shield</code>	false	Enable shield system
<code>Shield > Max Shield</code>	100	Maximum shield points
<code>Damage Resistances</code>	Empty	Per-type damage multipliers
<code>Invulnerable</code>	false	Zero damage from everything

✳ Ammo Component Settings

PROPERTY	DEFAULT	DESCRIPTION
Grenades Data Table	None	Grenade types DataTable
Powerups Data Table	None	Powerups DataTable
Default Ammo Max Amount	240	Max reserve for new ammo types
Default Grenade Max Count	4	Max for new grenade types
Starting Ammo	Empty	Ammo reserves at start
Starting Grenades	Empty	Grenades at start

🎮 HUD Component Settings

PROPERTY	DEFAULT	DESCRIPTION
Hitmarker Duration	0.15s	Hitmarker display time
Kill Confirm Duration	0.3s	Kill confirmation display time
Show Damage Numbers	true	Enable floating damage numbers
Max Damage Numbers	10	Max visible at once
Max Kill Feed Entries	5	Max kill feed entries
Kill Feed Entry Lifetime	5.0s	How long entries stay



Weapon System - All Functions

Every Blueprint function on the Shooter Weapon Component.

Firing

FUNCTION	RETURNS	DESCRIPTION
Start Fire	-	Begin firing. Auto weapons keep firing until Stop Fire
Stop Fire	-	Stop firing. Releases Charge weapons (fires if >50% charged)
Fire Once	bool	Fire exactly one shot
Can Fire	bool	Can weapon fire? (ammo, not reloading, owner alive)

Reloading

FUNCTION	RETURNS	DESCRIPTION
Start Reload	bool	Begin reload. False if full or no reserve
Cancel Reload	-	Cancel reload in progress
Can Reload	bool	Is reload possible right now?
Is Reloading	bool	Currently reloading?

Aim Down Sights (ADS)

FUNCTION	RETURNS	DESCRIPTION
Start ADS	-	Start aiming
Stop ADS	-	Stop aiming
Toggle ADS	-	Toggle aim on/off
Is Aiming	bool	Currently aiming?
Get ADS Alpha	float 0-1	Smooth value for animations & FOV lerp

Weapon Management

FUNCTION	PARAMETERS	RETURNS	DESCRIPTION
Add Weapon	WeaponID, InitialAmmo (-1=full), InitialReserve (-1=full)	bool	Add weapon to inventory
Remove Weapon	WeaponIndex	bool	Remove by index
Drop Current Weapon	-	bool	Remove current weapon
Equip Weapon	WeaponIndex	bool	Equip by index (0, 1, 2...)
Equip Next Weapon	-	-	Cycle next
Equip Previous Weapon	-	-	Cycle previous
Has Weapon	WeaponID	bool	Is weapon in inventory?
Get Weapon Count	-	int	Weapons in inventory

Ammo (on Weapon Component)

FUNCTION	PARAMETERS	RETURNS	DESCRIPTION
Get Current Ammo	-	int	Bullets in magazine
Get Reserve Ammo	-	int	Reserve for current weapon type
Get Magazine Size	-	int	Magazine capacity
Add Ammo	Amount	int	Add ammo to current weapon
Add Ammo By Type	AmmoType, Amount	int	Add ammo to specific type pool

Data Getters

FUNCTION	RETURNS	DESCRIPTION
Get Current Weapon Data	ShooterWeaponData, bool	Full DataTable row for current weapon
Get Weapon Data By ID	ShooterWeaponData, bool	DataTable row by weapon name
Get Current Weapon Instance	ShooterWeaponInstance	Current weapon runtime state (ammo, stats)
Get All Weapons	Array of ShooterWeaponInstance	Entire weapon inventory
Get Current Weapon Index	int	Index of equipped weapon (-1 = none)
Get Weapon State	EShooterWeaponState	Idle, Firing, Reloading, Equipping, Holstering, Charging
Get Current Spread	float	Current spread angle (degrees)
Get Current Recoil	Vector2D	Accumulated recoil (X=horizontal, Y=vertical)

Attachments

FUNCTION	PARAMETERS	RETURNS	DESCRIPTION
Attach Attachment	AttachmentID	bool	Add attachment to current weapon
Remove Attachment	Slot	bool	Remove from slot
Get Attachment In Slot	Slot	Name	What's in this slot? (None = empty)

Weapon Events

● HOW TO BIND EVENTS IN BLUEPRINT

Select WeaponComp → Details panel → scroll to Events → click + next to event name
OR: Event Graph → drag from component → "Assign On Weapon Fired"

EVENT	PARAMETERS	WHEN
On Weapon Fired	WeaponID, RemainingAmmo	Shot fired
On Reload Started	WeaponID, ReloadTime	Reload begins
On Reload Finished	WeaponID, NewAmmo	Reload done
On Reload Cancelled	WeaponID	Reload cancelled
On Weapon Equipped	WeaponID, WeaponIndex	Weapon equipped
On Weapon Holstered	WeaponID	Weapon put away
On Ammo Changed	CurrentAmmo, ReserveAmmo	Ammo count changes
On Hit Registered	FShooterHitResult	Bullet hits something
On ADS Changed	IsAiming, ADSAlpha	ADS state changes
On Empty Clip	-	Fire with no ammo
On Charge Changed	ChargePercent, FullyCharged	Charge weapon progress
On Movement Speed Multiplier Changed	Multiplier (float)	Weapon/ADS affects walk speed. Bind to update MaxWalkSpeed
On Scope Overlay Requested	OverlayClass, bShow	Scope overlay show/hide. Bind in HUD widget



Health & Damage System

Health, shields, damage types, regen, death & revival.

Health Functions

FUNCTION	PARAMETERS	RETURNS	DESCRIPTION
Apply Damage	DamageEvent (FShooterDamageEvent)	float	Full damage event (weapon system calls this automatically)
Apply Simple Damage	Amount, DamageType, Causer	float	Quick damage for environmental/fall damage
Heal	Amount	float	Restore HP. Returns actual healed
Heal To Full	-	-	Instant full health
Add Shield	Amount	float	Add shield points
Kill	Killer (optional)	-	Instant kill
Revive	HealthPercent (default 0.3)	bool	Revive dead character at % HP

Health Getters

FUNCTION	RETURNS	DESCRIPTION
Get Current Health	float	Current HP
Get Health Percent	float 0-1	HP as percentage (use for progress bars)
Is Alive	bool	Is character alive?
Has Shield	bool	Has active shield?

● BLUEPRINT: HEALTH BAR WIDGET

Event Tick → Get HealthComp → **Get Health Percent** → Set Progress Bar Percent

Health Events

EVENT	PARAMETERS	WHEN
On Health Changed	CurrentHealth, MaxHealth, Delta	Any HP change
On Shield Changed	CurrentShield, MaxShield, Delta	Any shield change
On Damage Taken	FShooterDamageEvent	Damage received
On Death	FShooterDamageEvent (killing blow)	Character dies
On Revived	-	Character revived

Damage Types & Body Parts

Damage Types

Bullet, Explosive, Fire, Electric, Melee. Each can have a resistance multiplier (0.5 = 50% damage).

Body Parts

Head (headshot mul), Torso (full), LeftArm, RightArm, LeftLeg, RightLeg (limb mul), Generic (full).



Ammo, Grenades & Powerups

Ammo Types

TYPE	TYPICAL WEAPONS
Pistol	Pistols, some SMGs
Rifle	Assault Rifles
Shotgun	Shotguns
Sniper	Sniper Rifles
Heavy	LMGs, Miniguns
Explosive	Rocket Launchers
Energy	Plasma Weapons
Infinite	Melee (never runs out)

Ammo Functions

FUNCTION	PARAMETERS	RETURNS	DESCRIPTION
Add Ammo	AmmoType, Amount	int	Add reserve ammo
Consume Ammo	AmmoType, Amount	bool	Use ammo. False if not enough
Get Ammo Count	AmmoType	int	Current reserve

Grenade Functions

FUNCTION	PARAMETERS	RETURNS	DESCRIPTION
Add Grenades	GrenadeID, Amount	int	Add grenades
Consume Grenade	GrenadeID	bool	Use one grenade
Get Grenade Count	GrenadeID	int	How many left
Get Grenade Data	GrenadeID	ShooterGrenadeData, bool	Full grenade info from DataTable

Powerup Functions

FUNCTION	PARAMETERS	RETURNS	DESCRIPTION
Activate Powerup	PowerupID	-	Activate powerup (duration from DataTable)
Has Active Powerup	PowerupType	bool	Is this powerup active?
Get Powerup Multiplier	PowerupType	float	Active multiplier value

Ammo Events

EVENT	PARAMETERS	WHEN
On Ammo Reserve Changed	AmmoType, Current, Max	Reserve changes
On Grenade Count Changed	GrenadeID, Current, Max	Grenade count changes
On Powerup Activated	PowerupID, Duration	Powerup starts
On Powerup Expired	PowerupID	Powerup ends

Powerup Types

DamageBoost

More damage

SpeedBoost

Faster movement

Invulnerability

Zero damage

InfiniteAmmo

Never reload

QuadDamage

4x damage

Invisibility

Can't be seen

Regeneration

Rapid HP regen



HUD Component

Hitmarkers, damage numbers, crosshair, kill feed - visual feedback for your shooter.

 **How it works:** The HUD Component provides **data and events**. Your UMG Widget reads them to display the UI. You build the look - the component handles the logic.

Hitmarker

FUNCTION	RETURNS	DESCRIPTION
Trigger Hitmarker	-	Show hitmarker (bKill, bHeadshot params). Auto-called on hits
Is Hitmarker Active	bool	Is hitmarker showing?
Get Hitmarker Alpha	float 0-1	Use to fade your hitmarker image
Is Kill Confirm	bool	Was it a kill? Show red X
Is Headshot Confirm	bool	Was it a headshot?

● BLUEPRINT: HITMARKER WIDGET

Tick → **Get Hitmarker Alpha** → Set Image Opacity
Tick → **Is Kill Confirm** → Branch: Set Color Red/White

Damage Numbers

FUNCTION	PARAMETERS	DESCRIPTION
Spawn Damage Number	Damage (float), WorldLocation (Vector), bCritical (bool)	Create floating damage number

Crosshair

FUNCTION	DESCRIPTION
Set Crosshair Spread	Set spread angle (auto-called from weapon system)
Get Crosshair Spread	Get current spread. Use to position crosshair lines

BLUEPRINT: DYNAMIC CROSSHAIR

Tick → Get Crosshair Spread → Multiply by 5.0 → Set Padding on crosshair lines

Kill Feed

FUNCTION	DESCRIPTION
Add Kill Feed Entry	Add entry (killer, victim, weapon icon)
Get Kill Feed	Get all entries for display
Clear Kill Feed	Clear all entries

HUD Events

EVENT	PARAMETERS	WHEN
On Hitmarker Triggered	bKill, bHeadshot	Hit confirmed
On Damage Number Spawned	Damage, WorldLocation	Damage number appears
On Kill Feed Added	FShooterKillFeedEntry	New kill feed entry
On Crosshair Spread Changed	SpreadAngle	Spread changes



All Events - Quick Reference

Weapon (13)

EVENT	PARAMETERS
On Weapon Fired	WeaponID, RemainingAmmo
On Reload Started	WeaponID, ReloadTime
On Reload Finished	WeaponID, NewAmmo
On Reload Cancelled	WeaponID
On Weapon Equipped	WeaponID, WeaponIndex
On Weapon Holstered	WeaponID
On Ammo Changed	CurrentAmmo, ReserveAmmo
On Hit Registered	FShooterHitResult
On ADS Changed	IsAiming, ADSAlpha
On Empty Clip	-
On Charge Changed	ChargePercent, FullyCharged
On Movement Speed Multiplier Changed	Multiplier
On Scope Overlay Requested	OverlayClass, bShow

♥ Health (5)

EVENT	PARAMETERS
On Health Changed	CurrentHealth, MaxHealth, Delta
On Shield Changed	CurrentShield, MaxShield, Delta
On Damage Taken	FShooterDamageEvent
On Death	FShooterDamageEvent
On Revived	-

✳ Ammo (4)

EVENT	PARAMETERS
On Ammo Reserve Changed	AmmoType, Current, Max
On Grenade Count Changed	GrenadeID, Current, Max
On Powerup Activated	PowerupID, Duration
On Powerup Expired	PowerupID

📺 HUD (4)

EVENT	PARAMETERS
On Hitmarker Triggered	bKill, bHeadshot
On Damage Number Spawned	Damage, WorldLocation
On Kill Feed Added	FShooterKillFeedEntry
On Crosshair Spread Changed	SpreadAngle



How-To Guides

Ammo Pickup

1 Create BP_AmmoPickup (Actor Blueprint)

Add Sphere Collision (OverlapAllDynamic) + Static Mesh for visual.

2 Event Graph:

● BP_AMMOPICKUP

On Begin Overlap → Other Actor → **Get ShooterAmmoComponent**
→ Is Valid? → **Add Ammo (Rifle, 30)** → **Destroy Actor**

Health Pickup

1 Same setup, but:

● BP_HEALTHPICKUP

On Begin Overlap → **Get ShooterHealthComponent**
→ Is Valid? → **Heal (50.0)** → **Destroy Actor**

Number Key Weapon Switching

● CHARACTER EVENT GRAPH

Key 1 → Equip Weapon (Index: 0)
Key 2 → Equip Weapon (Index: 1)
Key 3 → Equip Weapon (Index: 2)

Mouse Wheel Switching

● CHARACTER EVENT GRAPH

Scroll Up → Equip Next Weapon
Scroll Down → Equip Previous Weapon

Ammo Counter HUD

1 Create Widget with AmmoText and ReserveText

Two Text Blocks in your HUD widget.

2 Bind On Ammo Changed:

● WIDGET EVENT GRAPH

Construct → Get WeaponComp → Assign On Ammo Changed

On Ammo Changed (CurrentAmmo, ReserveAmmo)

→ Set AmmoText = CurrentAmmo

→ Set ReserveText = ReserveAmmo

Environmental Damage

● DAMAGE VOLUME BLUEPRINT

On Overlap → Get HealthComp → Apply Simple Damage

Amount: 10.0, Type: Fire, Causer: Self

💡 Use `Apply Simple Damage` for traps/environment. Use `Apply Damage` only when you need body part detection.

Detect Headshots

● CHARACTER EVENT GRAPH

On Hit Registered → Break FShooterHitResult → Body Part
→ Branch: == Head?
True → Play Headshot Sound
False → Play Normal Sound



Quick Reference

All Enumerations

ENUM	VALUES
EShooterWeaponType	Pistol, SMG, AssaultRifle, Shotgun, SniperRifle, LMG, Launcher, Melee
EShooterFireMode	Single, Burst, Auto, Shotgun, Charge
EShooterAmmoType	Pistol, Rifle, Shotgun, Sniper, Heavy, Explosive, Energy, Infinite
EShooterDamageType	Bullet, Explosive, Fire, Electric, Melee
EShooterBodyPart	Head, Torso, LeftArm, RightArm, LeftLeg, RightLeg, Generic
EShooterAttachmentSlot	Optic, Barrel, Underbarrel, Magazine, Stock, Grip
EShooterGrenadeType	Frag, Flashbang, Smoke, Incendiary, EMP, Sticky
EShooterPowerupType	DamageBoost, SpeedBoost, Invulnerability, InfiniteAmmo, QuadDamage, Invisibility, Regeneration
EShooterWeaponState	Idle, Firing, Reloading, Equipping, Holstering, Charging
EShooterPickupType	Weapon, Ammo, Health, Armor, Grenade, Powerup

All Structures

STRUCTURE	PURPOSE
FShooterWeaponData	Weapon definition (DataTable row)
FShooterWeaponInstance	Runtime weapon state
FShooterAttachmentData	Attachment definition (DataTable row)
FShooterRecoilData	Recoil configuration
FShooterSpreadData	Spread/accuracy configuration
FShooterADSData	ADS configuration
FShooterDamageEvent	Full damage information
FShooterHitResult	Hit detection result
FShooterHealthRegenData	Health regen settings
FShooterShieldData	Shield configuration
FShooterDamageResistance	Damage type resistance
FShooterGrenadeData	Grenade definition (DataTable row)
FShooterPowerupData	Powerup definition (DataTable row)
FShooterActivePowerup	Active powerup instance
FShooterAmmoReserve	Ammo reserve entry
FShooterGrenadeInventory	Grenade inventory entry
FShooterPlayerStats	Player statistics
FShooterKillFeedEntry	Kill feed entry

STRUCTURE

PURPOSE

FShooterSurfacelImpact

Surface impact effects (DataTable row)



Troubleshooting

Weapon won't fire

Check:

1. Weapons Data Table set on component?
2. Called Add Weapon with ID matching a DataTable row?
3. Has ammo in magazine?
4. HealthComponent present and Is Alive = true?
5. Weapon in Idle state? (can't fire while Reloading/Equipping)

Damage not applied

Check:

1. Target has ShooterHealthComponent?
2. Invulnerable = false?
3. Collision set up? Target needs collision channel for line trace
4. Base Damage > 0 in DataTable?

Reload not working

Check:

1. Magazine already full? Can Reload returns false
2. Reserve ammo for this weapon's ammo type?
3. Reload Time > 0 in DataTable?

Events not firing

Check:

1. Used Assign node (green)? Not Call (blue)
 2. Binding before event fires? Bind in BeginPlay or Construct
 3. Multiplayer: events fire on server. Use Multicast to replicate
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Support

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