

Simple Monster AI

Advanced AI Component for Unreal Engine — No NavMesh Required

v2.1.0

UE 5.3 – 5.7+

Threat System

Multiplayer

What's Inside



Souls-like Combat

Telegraphed attacks: Windup → Active → Recovery. Parry system with stun.



Emotional AI

5 emotions: Calm, Curious, Aggressive, Frightened, Enraged. Each changes behavior.



Hearing / Stealth

AI hears noise based on player movement type. Sprint is loud, crouch is silent.



Threat / Aggro **NEW**

Full threat table. AI tracks who's the biggest threat. Taunt, decay, healer aggro.



Multiplayer **NEW**

Server-authoritative AI. Health, state, emotion replicate to all clients. One checkbox.



Multi-Target NEW

AI detects and tracks all players. Picks best target using threat or distance.



Knowledge Sharing

Monsters tell each other where the player is. Pack hunting without complex code.



Adaptive Difficulty

AI adjusts to player skill automatically. Dying a lot? AI gets easier.



Scripted Encounters

JumpScare, Dramatic reveal, Ambush. Trigger when you want.



Day / Night

AI gets more aggressive, faster, and detects further at night.



Health System

Built-in HP with regen. Events for damage, healing, death. No extra components.



Debug Visualization

See detection radius, attack range, hearing, FOV, state, HP — all in editor.

Quick Start — 3 Minutes Setup

1. Enable the Plugin

- 1 In Unreal, go to Edit → Plugins
- 2 Search "Simple Monster AI" → check the box → restart editor

2. Add Component to Your Enemy

- 3 Open your enemy Character Blueprint (must be a Character, not just an Actor)
- 4 Click Add Component → search "Simple Monster AI v2.1" → add it

3. Tag Your Player

This is the #1 mistake! Without the Player tag, the AI will never detect you.

- 5 Open your Player Character Blueprint
- 6 Click Class Defaults in the toolbar
- 7 In Details, search "Tags" → find Actor → Tags → click + → type `Player`
- 8 Compile & Save both Blueprints

4. Test It

Place your enemy in the level → Press Play → Walk close → The monster chases you!

Default settings: Wanderer mode, 1500cm detection, 200cm attack range, 400cm/s chase speed. Tweak everything in the Details panel.

How-To Guide (Blueprints)

Step-by-step Blueprint recipes. All function and event names are exact — search them in your Blueprint.

How to Deal Damage TO the Monster

The plugin does NOT automatically take damage from your weapons. You call the function yourself.

- 1 In your weapon/projectile Blueprint, when you detect a hit on the enemy
- 2 Get the hit actor → Get Component by Class → select `SimpleMonsterAIComponent`
- 3 Drag from the component pin → call Take Damage (input: `Damage Amount` as float)

Tip: If using Threat System, also call Add Threat right after, passing the player as `Source` and the damage as `Amount`.

How to Deal Damage FROM the Monster to the Player

Important: The plugin fires On Attack Started but does NOT automatically damage the player. You decide what happens.

- 1 In your enemy Blueprint Event Graph, right-click → search "On Attack Started" → add the event
- 2 From that event, call Get Detected Player on the AI component to get the target
- 3 Call Get Effective Damage on the AI component for final damage (includes all modifiers)
- 4 Apply damage to the player using your own health system (e.g. Apply Damage or a custom function)

How to Set Up Parry (Souls-like)

- 1 On the AI component, enable `bUseSoulsLikeCombat` and add attacks to the `Attacks` array

- 2 In your player Blueprint, when the parry button is pressed:
- 3 Get a reference to the enemy AI component → call Try Parry → returns a `bool`
- 4 If `true`: parry succeeded! Monster is stunned for `ParryStunDuration` seconds. Play your parry effect.
- 5 You can also check Is In Parry Window to show a UI indicator while parry is possible

How to Make Monsters Alert Each Other

- 1 On ALL monster AI components, enable `bUseKnowledgeSharing`
- 2 Make sure all monsters have the same `AllyTag` (default: `Monster`)
- 3 Done. When one monster sees the player, nearby allies investigate the same location.

How to Make Monsters Enrage When an Ally Dies

- 1 Enable `bUseEmotionalAI` on all monsters
- 2 Enable `bEnrageOnAllyDeath` (on by default)
- 3 Same `AllyTag` on all, within `AllyDeathDetectionRadius` (default: 1000cm)
- 4 Kill one → nearby allies become Enraged (+50% damage, +30% speed, -20% defense) for `EnragedDuration` seconds

How to Create a Jump Scare

- 1 Enable `bUseScriptedEncounter`, set `EncounterType` to Jump Scare
- 2 Enable `bWaitForTrigger` — monster stays dormant until triggered
- 3 Optionally assign `EncounterMontage` and `EncounterSound`

- 4 Place a Trigger Box in the level. On overlap → get AI component → call Trigger Encounter

How to Use Threat / Taunt in Multiplayer Co-op

- 1 Enable `bUseThreatSystem` and `bEnableMultiplayer`
- 2 Tag ALL player characters with `PlayerTag` (default: `Player`)
- 3 AI automatically tracks all players. Whoever deals most damage gets most threat.
- 4 Tank ability: call Taunt on AI component, passing tank actor as `Source` and desired `Duration`
- 5 Healer: on heal, call Report Heal Threat with healer actor and heal amount

How to React to AI State Changes

All events are on the AI component. In your enemy Blueprint Event Graph:

- 1 Right-click → search the event name (e.g. "On State Changed", "On Death", "On Emotion Changed")
- 2 Event node appears with output pins for parameters (see Events table)
- 3 Connect your logic: play effects, update UI, trigger sounds

Example: On Emotion Changed → Switch on `NewEmotion` → play different particles for Enraged vs Frightened.

How to Read AI Info at Runtime

Pure functions — call them any time, no side effects:

FUNCTION	RETURNS	USE FOR
GetCurrentState	EAIState	Show state on UI
GetCurrentEmotion	EMonsterEmotion	Change enemy aura by emotion
GetDetectedPlayer	Actor or null	Who is AI targeting?
IsAIActive	bool	Is AI running?
GetHealthPercent	float 0.0–1.0	Health bar widget
IsInParryWindow	bool	"Parry Now!" UI prompt
GetEffectiveChaseSpeed	float	Debug speed display
GetEffectiveDamage	float	Show effective damage
GetThreat (Source)	float	Threat meter per player
GetHighestThreatTarget	Actor	Who has aggro
GetThreatTableSize	int	How many targets tracked
IsServer	bool	Multiplayer authority check

Core Systems

Health System

Enable: `bUseHealthSystem = true` (on by default)

PROPERTY	DEFAULT	DESCRIPTION
<code>MaxHealth</code>	100.0	Maximum HP
<code>CurrentHealth</code>	100.0	Current HP (read-only, replicated in multiplayer)
<code>HealthRegenRate</code>	0.0	HP per second (0 = no regen)
<code>HealthRegenDelay</code>	3.0	Seconds after damage before regen starts

Detection & Field of View

PROPERTY	DEFAULT	DESCRIPTION
<code>DetectionRadius</code>	1500.0	How far AI can see (cm)
<code>PlayerTag</code>	"Player"	Tag on players the AI looks for
<code>DetectionInterval</code>	0.5	Seconds between detection checks
<code>bRequireLineOfSight</code>	false	Needs clear line to target?
<code>FieldOfView</code>	0.0	View angle (0 = 360°, 90 = forward cone, 180 = front half)

Movement

PROPERTY	DEFAULT	DESCRIPTION
PatrolSpeed	200.0	Speed when patrolling (cm/s)
ChaseSpeed	400.0	Speed when chasing (cm/s)
RotationSpeed	5.0	How fast the AI turns
AcceptanceRadius	100.0	How close = "reached target" (cm)
bStickToGround	true	Keep AI on ground with raycasts
ObstacleCheckDistance	150.0	Obstacle avoidance look-ahead (cm)

Behavior Modes

Set BehaviorMode to choose idle behavior:

MODE	BEHAVIOR
Idle	Stands still. Waits for player.
Wanderer	Walks to random points within WanderRadius . Pauses if bPauseWhileWandering is on. Interval: WanderInterval . Pause: WanderPauseDuration .
Spline Patrol	Follows PatrolSpline component. Loops (bLoopPatrol) or ping-pongs. Waits PatrolWaitTime at each point.

Basic Combat

PROPERTY	DEFAULT	DESCRIPTION
AttackRange	200.0	Distance to start attacking (cm)
AttackCooldown	2.0	Seconds between attacks
BaseDamage	20.0	Base damage per attack
bStopOnAttack	true	Stop moving while attacking
GiveUpDistance	0.0	Stop chasing if player this far (0 = never)

Animations & Sounds

Assign in the Details panel. All optional — AI works without them.

SLOT	WHEN IT PLAYS
AttackMontage / AttackSound	Basic attack (non Souls-like)
PlayerFoundMontage / DetectionSound	First time AI spots player
DeathMontage / DeathSound	AI dies
StunnedMontage	AI gets stunned
FleeMontage / FleeSound	AI starts fleeing
InvestigateMontage	AI investigates a noise
EnragedSound	AI enters Enraged state
EncounterMontage / EncounterSound	Scripted encounter triggers

DestroyDelay (default: 5.0) — seconds before actor is destroyed after death.

Debug Visualization

PROPERTY	DEFAULT	DESCRIPTION
bShowDebug	true	Show spheres/lines in editor
bShowDebugInGame	false	Also show during Play In Editor
bShowEmotionDebug	true	Show emotion text above AI

Souls-like Combat

Enable: `bUseSoulsLikeCombat = true`

Every attack goes through 3 phases:

- 1. Windup — telegraph, player can see it coming. Parry window active during first `ParryWindow` seconds.
- 2. Active — damage lands. On Attack Started fires here.
- 3. Recovery — AI is vulnerable, player can counter-attack.

Attack Definition (Attacks Array)

Add entries to `Attacks`. Each entry is an `FMonsterAttack`:

PROPERTY	DEFAULT	DESCRIPTION
<code>AttackName</code>	"BasicAttack"	Name for debugging
<code>WindupTime</code>	0.5	Telegraph duration (seconds)
<code>ActiveTime</code>	0.3	Damage window (seconds)
<code>RecoveryTime</code>	0.8	Vulnerability window (seconds)
<code>Damage</code>	20.0	Damage of this attack
<code>Range</code>	200.0	Attack reach (cm)
<code>AttackMontage</code>	none	Animation for this attack
<code>WindupSound</code>	none	Sound during telegraph
<code>AttackSound</code>	none	Sound on hit
<code>bCanBeParried</code>	true	Can player parry this?
<code>SelectionWeight</code>	1.0	Higher = AI uses this more often

Parry Settings

PROPERTY	DEFAULT	DESCRIPTION
ParryWindow	0.3	How long player can parry (seconds)
ParryStunDuration	2.0	How long AI is stunned after parry

Visual Indicators

PROPERTY	DEFAULT	DESCRIPTION
bShowAttackIndicator	true	Show debug circles during attacks
WindupIndicatorColor	orange (1, 0.5, 0, 0.5)	Circle color during windup
AttackIndicatorColor	red (1, 0, 0, 0.7)	Circle color during active attack

Emotional AI

Enable: `bUseEmotionalAI = true`

EMOTION	TRIGGER	EFFECT
Calm	Default	Normal behavior
Curious	Heard a noise	Investigates cautiously
Aggressive	Sees a player	Chases and attacks
Frightened	HP below threshold	Runs away, speed × <code>FrightenedSpeedMultiplier</code>
Enraged	Ally died nearby	Damage/speed/defense multiplied

Settings

PROPERTY	DEFAULT	DESCRIPTION
<code>FrightenedHealthThreshold</code>	0.25	HP % to trigger fear
<code>FrightenedSpeedMultiplier</code>	1.5	Speed boost when fleeing
<code>EnragedDamageMultiplier</code>	1.5	+50% damage
<code>EnragedSpeedMultiplier</code>	1.3	+30% speed
<code>EnragedDefenseMultiplier</code>	0.8	Takes 20% more damage
<code>EnragedDuration</code>	15.0	Rage duration (0 = ends naturally)
<code>bFleeWhenFrightened</code>	true	AI runs when Frightened
<code>bEnrageOnAllyDeath</code>	true	Enrage when ally dies
<code>AllyDeathDetectionRadius</code>	1000.0	Range to detect ally death (cm)

Hearing & Stealth

Enable: `bUseHearingSystem = true`

PROPERTY	DEFAULT	DESCRIPTION
<code>HearingRadius</code>	2000.0	Max hearing distance (cm)
<code>HearingSensitivity</code>	1.0	Hearing multiplier
<code>SprintNoiseRadius</code>	1500.0	How loud sprinting is (cm)
<code>WalkNoiseRadius</code>	500.0	How loud walking is
<code>CrouchNoiseRadius</code>	100.0	How loud crouching is
<code>InvestigateTime</code>	5.0	How long AI searches (seconds)
<code>InvestigateSpeed</code>	150.0	Speed when investigating (cm/s)

Reporting Custom Sounds

Call Report Noise from any Blueprint:

Report Noise

Noise Location : FVector

– where the sound came from

Loudness : float

– 0.0-1.0+ multiplier (default: 1.0)

Noise Type : EMonsterNoiseType

– Footstep, Gunshot, Explosion, Voice, Impact, Custom

Noise Instigator : Actor

– who made the noise (optional)

Threat / Aggro System

NEW v2.1

Enable: `bUseThreatSystem = true`

Every player in range builds threat. AI focuses whoever has the most. Threat decays when a target leaves range.

Settings

PROPERTY	DEFAULT	DESCRIPTION
<code>ThreatPerDamage</code>	1.0	Threat per 1 damage dealt to AI
<code>PassiveThreatPerSecond</code>	0.5	Threat/sec just for being in range
<code>ThreatDecayRate</code>	2.0	Threat lost/sec when out of range
<code>ThreatSwitchThreshold</code>	20.0	Extra threat needed to switch targets (prevents flickering)
<code>HealThreatMultiplier</code>	0.5	Threat per 1 HP healed
<code>DefaultTauntDuration</code>	5.0	Taunt length when Duration=0

Threat Functions

FUNCTION	TYPE	DESCRIPTION
<code>AddThreat</code> (Source, Amount)	Callable	Add threat from an actor
<code>ClearThreat</code> (Source)	Callable	Remove all threat from one actor
<code>ClearAllThreat</code>	Callable	Reset entire threat table
<code>Taunt</code> (Source, Duration)	Callable	Force AI to attack Source for Duration seconds
<code>GetThreat</code> (Source)	Pure	Get current threat for an actor
<code>GetHighestThreatTarget</code>	Pure	Get actor with most threat
<code>GetAllTargetsByThreat</code>	Callable	Array sorted by threat (highest first)
<code>GetThreatTableSize</code>	Pure	How many actors tracked
<code>ReportHealThreat</code> (Healer, HealAmount)	Callable	Healer gains threat

Multiplayer

NEW v2.1

Enable: `bEnableMultiplayer = true`

AI logic runs on the server only. Key state replicates to all clients automatically.

What Replicates

PROPERTY	CLIENT EVENT
<code>CurrentHealth</code>	On Health Changed fires on clients
<code>CurrentState</code> (EAISState)	On State Changed fires on clients
<code>CurrentEmotion</code>	On Emotion Changed fires on clients

Setup

1. Enable `bEnableMultiplayer` on the AI component
2. Enemy Character must have `bReplicates = true` (Class Defaults → Replication)
3. Tag ALL player characters with `PlayerTag`
4. Movement replication handled by UE's Character Movement Component — no extra work

Best combo: Enable both `bUseThreatSystem` and `bEnableMultiplayer` for full multiplayer AI with tank/healer/DPS dynamics.

Use `Is Server` (returns bool) to check authority in your own Blueprints.

Advanced Systems

Adaptive Difficulty

Enable: `bUseAdaptiveDifficulty = true`

AI adjusts speed and damage based on player performance.

PROPERTY	DEFAULT	DESCRIPTION
<code>PlayerSkillRating</code>	1.0	Current rating (read-only; 0.5=easy, 2.0=hard)
<code>MinSkillRating</code>	0.5	Floor
<code>MaxSkillRating</code>	2.0	Ceiling
<code>AdaptationRate</code>	0.1	How fast it adjusts
<code>bAdaptSpeed</code>	true	Adjust AI speed
<code>bAdaptDamage</code>	true	Adjust AI damage
<code>bAdaptAccuracy</code>	true	Adjust AI timing

Call from your game logic: Report Player Death, Report Player Hit AI, Report AI Hit Player

Knowledge Sharing

Enable: `bUseKnowledgeSharing = true`

PROPERTY	DEFAULT	DESCRIPTION
<code>KnowledgeSharingRadius</code>	1500.0	Range for sharing (cm)
<code>KnowledgeRetentionTime</code>	10.0	How long knowledge lasts (sec)
<code>AllyTag</code>	"Monster"	Tag identifying allies

All monsters must have the same AllyTag to share knowledge!

Scripted Encounters

Enable: `bUseScriptedEncounter = true`

PROPERTY	DEFAULT	DESCRIPTION
<code>EncounterType</code>	Normal	Normal / JumpScare / Dramatic / Ambush
<code>bWaitForTrigger</code>	false	AI stays dormant until Trigger Encounter
<code>EncounterMontage</code>	none	Animation on trigger
<code>EncounterSound</code>	none	Sound on trigger
<code>EncounterDelay</code>	0.5	Seconds between trigger and AI activation

Day / Night Behavior

Enable: `bUseTimeOfDayBehavior = true`

PROPERTY	DEFAULT	NIGHT EFFECT
<code>NightDetectionMultiplier</code>	1.5	+50% detection range
<code>NightAggressionMultiplier</code>	1.5	+50% damage
<code>NightSpeedMultiplier</code>	1.2	+20% speed

Call Set Night Time (bool) from your day/night system. `bIsNightTime` is also directly writable.

All Blueprint Events

Bind in your enemy Blueprint Event Graph. Right-click → search the name.

EVENT	PARAMETERS	WHEN IT FIRES
On Player Detected	—	Player entered detection range
On Player Lost	—	Player escaped detection
On Attack Windup Started	—	Souls-like telegraph began (parry window open)
On Attack Started	—	Attack executes — apply damage to player here!
On Death	—	AI died
On State Changed	NewState (EAIState)	Patrolling, Chasing, Attacking, Investigating, Fleeing, Stunned, Dead
On Emotion Changed	NewEmotion (EMonsterEmotion)	Calm, Curious, Aggressive, Frightened, Enraged
On Health Changed	NewHealth, MaxHealth (float)	HP changed (damage or heal)
On Damage Taken	DamageAmount (float)	AI took damage
On Noise Heard	NoiseLocation (FVector)	AI heard a sound
On Encounter Triggered	—	Scripted encounter activated
On Knowledge Received	PlayerLastKnownLocation (FVector)	Got player info from ally
On Target Changed	NewTarget, PreviousTarget (Actor)	AI switched targets (threat system)
On Threat Changed	ThreatSource (Actor), NewThreatValue (float)	Threat value updated

All Blueprint Functions

AI Control

FUNCTION	DESCRIPTION
StartAI	Activate the AI
StopAI	Deactivate the AI
Die	Kill the AI (death anim, On Death event, destroy after delay)

Health

FUNCTION	DESCRIPTION
TakeDamage (DamageAmount)	Apply damage
Heal (HealAmount)	Restore health
GetHealthPercent	Returns 0.0–1.0

Combat

FUNCTION	DESCRIPTION
ForceAttack	Attack now (ignores cooldown)
Stun (Duration)	Stun AI for seconds
TryParry	Attempt parry → bool (true = success)
IsInParryWindow	Is parry currently possible?
GetEffectiveChaseSpeed	Chase speed with all modifiers
GetEffectiveDamage	Damage with all modifiers

State & Info

FUNCTION	DESCRIPTION
<code>GetCurrentState</code>	EAIState
<code>GetCurrentEmotion</code>	EMonsterEmotion
<code>GetDetectedPlayer</code>	Current target Actor (or null)
<code>IsAIActive</code>	Is AI running?
<code>SetEmotion</code> (NewEmotion)	Force emotion change

Threat / Aggro

FUNCTION	DESCRIPTION
<code>AddThreat</code> (Source, Amount)	Add threat from actor
<code>ClearThreat</code> (Source)	Remove threat from one actor
<code>ClearAllThreat</code>	Reset entire table
<code>Taunt</code> (Source, Duration)	Force target (Duration=0 uses DefaultTauntDuration)
<code>GetThreat</code> (Source)	Threat value for actor
<code>GetHighestThreatTarget</code>	Top-threat actor
<code>GetAllTargetsByThreat</code>	Sorted array (highest first)
<code>GetThreatTableSize</code>	Number of tracked targets
<code>ReportHealThreat</code> (Healer, HealAmount)	Healer generates threat

Systems

FUNCTION	DESCRIPTION
<code>ReportNoise</code> (Location, Loudness, Type, Instigator)	Make AI hear a sound
<code>ShareKnowledge</code> (PlayerLocation)	Share player position with allies
<code>ReceiveKnowledge</code> (PlayerLocation, KnowledgeAge)	Receive from ally
<code>TriggerEncounter</code>	Start scripted encounter
<code>SetNightTime</code> (bNight)	Toggle night mode
<code>ReportPlayerDeath</code>	Adaptive difficulty: player died
<code>ReportPlayerHitAI</code>	Adaptive difficulty: player hit AI
<code>ReportAIHitPlayer</code>	Adaptive difficulty: AI hit player
<code>IsServer</code>	Running on server? (multiplayer)

Troubleshooting

AI doesn't move

- Check `bAutoStart` is enabled
- Enemy must be a Character (with Character Movement Component), not a plain Actor
- Speeds (`PatrolSpeed` , `ChaseSpeed`) must be greater than zero
- Spline Patrol mode: assign a `PatrolSpline` component

AI doesn't detect player

#1 issue: Player missing `Player` tag. Player Blueprint → Class Defaults → Tags → add "Player".

- Check `DetectionRadius` is large enough
- If using FOV: player must be in front of AI
- If using Line of Sight: nothing blocking the view
- Enable `bShowDebug` + `bShowDebugInGame` to see detection sphere

AI doesn't attack

- Player must be within `AttackRange`
- Souls-like: `Attacks` array must have at least one entry
- Check `AttackCooldown`

Animations not playing

- Montages assigned in Details panel?
- Character has Animation Blueprint?
- Test montages manually first

Knowledge Sharing not working

- All monsters need same `AllyTag`

- `bUseKnowledgeSharing` enabled on ALL monsters
- Check `KnowledgeSharingRadius`

Multiplayer: AI only works on host

- Enable `bEnableMultiplayer`
- Enemy Character: `bReplicates = true`
- AI logic is server-only by design — clients get replicated state

Performance tips

- Increase `DetectionInterval` to 1.0+ for many AI
- Disable `bShowDebug` in shipping builds
- Disable unused systems (hearing, knowledge, emotional, etc.)

Simple Monster AI v2.1.0

Created by Erak Dev / Adrenaline Games

Compatible: UE 5.3 – 5.7+

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