

SyncGASMover

User Guide

Gameplay Ability System root-motion montage support for Unreal Engine Mover

Version: 1.0. Built for Unreal Engine 5.6 - 5.7 projects using GameplayAbilities and Mover. Check the FAB listing for the latest compatibility notes.

Plugin type	Runtime C++ Unreal Engine plugin
Main purpose	Play root-motion animation montages from Gameplay Abilities using Mover layered moves
Primary Blueprint node	Play Mover Montage And Wait
Required plugins	GameplayAbilities and Mover

1. Overview

SyncGASMover is a bridge between Unreal Engine Gameplay Ability System (GAS) and Epic's Mover plugin. It is designed for projects where abilities need to play animation montages with root motion while the character or pawn is driven by Mover.

The plugin adds a GAS ability task that plays an animation montage and queues the matching Mover root-motion layered move. It also provides a pawn component that can produce Mover input and replicate montage playback state for simulated proxy visuals.

Important: SyncGASMover does not replace GAS or Mover. It expects your project to already use a Gameplay Ability workflow and a Mover-based pawn or character setup.

2. Requirements

- Unreal Engine 5.7 or the engine version listed on the FAB page.
- GameplayAbilities plugin enabled.
- Mover plugin enabled.
- A pawn or character using Mover for movement.
- An Animation Blueprint and skeletal mesh capable of playing the montage you want to use.
- A Gameplay Ability where the montage task will be called.

3. Installation

3.1 Install from FAB

1. Add the plugin to your project through FAB / Epic Games Launcher.
2. Open your Unreal project.
3. Go to Edit > Plugins.
4. Search for SyncGASMover and enable it.
5. Restart the editor when prompted.
6. Make sure GameplayAbilities and Mover are also enabled.

3.2 Source install

1. Copy the SyncGASMover plugin folder into your project Plugins folder.
2. Your folder should look like this:

```
YourProject/  
  Plugins/  
    SyncGASMover/  
      SyncGASMover.uplugin  
      Source/
```

3. Regenerate project files if your project uses C++.
4. Build the project from your IDE or by opening the project in Unreal Editor.
5. Enable the plugin and restart the editor if required.

4. Quick Start

Step 1: Add SGM Pawn Component

Open the Blueprint or C++ class for your Mover-based pawn and add the SyncGASMover pawn component.

- Component name: SGM Pawn Component
- C++ class: USGM_PawnComponent

This component helps the pawn provide Mover input intent and handles replicated montage playback state for simulated proxy visuals.

Step 2: Assign component references

On the SGM Pawn Component, assign the component references that match your pawn setup.

Reference	What to assign
Mover Component Reference	Your pawn's Mover or Character Mover component.
Updated Component Reference	The component Mover updates, commonly the capsule or collision root.
Primary Visual Component Reference	The main visual component used by the pawn.
Montage Mesh Component Reference	The skeletal mesh component that should play the montage.

Step 3: Use the ability task in your Gameplay Ability

Inside your Gameplay Ability Blueprint, use the Play Mover Montage And Wait node instead of a standard montage task when the montage needs to drive Mover root motion.

1. Create or open your Gameplay Ability Blueprint.
2. Add the Play Mover Montage And Wait node.
3. Assign the montage you want to play.
4. Set Play Rate, Start Section, Start Time, and Root Motion Translation Scale as needed.
5. Connect Completed, Blend Out, Interrupted, and Cancelled to your ability flow.

Gameplay authority: Gameplay outcomes such as damage, hit validation, cooldowns, and ability commitment should still be handled by your normal GAS/server-authoritative gameplay flow. SyncGASMover helps with montage playback and Mover root motion, not with replacing your combat authority model.

5. Play Mover Montage And Wait

The main Blueprint-facing feature is the Play Mover Montage And Wait ability task. It is intended to feel familiar if you already use GAS montage ability tasks.

Parameter	Default	Description
Task Instance Name	None	Optional GAS task name.
Mover Component	Auto-resolved if possible	The Mover component that will receive the layered move.
Montage	None	The animation montage to play.
Play Rate	1.0	Playback speed for the montage.
Start Section	None	Optional montage section to start from.
Start Time Seconds	0.0	Optional montage time offset.
Root Motion Translation Scale	1.0	Scales the extracted root-motion translation.
Root Motion Collision Stop Mode	None	Optional collision mode used to stop root motion when blocked.

Callbacks

- Completed: called when the montage finishes normally.
- Blend Out: called when the montage begins blending out.
- Interrupted: called when the montage is interrupted.
- Cancelled: called when the ability task is externally cancelled.

6. Root Motion Collision Stop Modes

The plugin exposes an enum for root-motion collision stop behavior. Use this when an ability should stop its root-motion movement if it hits a blocking obstacle or pawn.

Mode	Behavior
None	Do not use the plugin collision stop check.
Capsule	Stop when the capsule collision is blocked.
Mesh	Stop when the mesh collision is blocked.
Capsule Or Mesh	Stop when either capsule or mesh collision is blocked.

7. Multiplayer and Replication Notes

SyncGASMover includes replicated montage playback state through the SGM Pawn Component. This is mainly for simulated proxy visuals, so remote clients can see the montage playback more accurately.

The replicated state includes montage, play rate, root motion scale, start time, start section, simulation frame, serial, and whether the montage is playing.

The server or authority should still be responsible for gameplay-relevant decisions. Treat the remote montage playback as visual synchronization, not as authority for hit confirmation or damage.

8. Recommended Ability Pattern

1. Commit the ability using your normal GAS rules.
2. Call Play Mover Montage And Wait.
3. Use the montage callbacks to end or branch the ability.

4. Apply gameplay effects, damage, cooldowns, and costs through your existing server-authoritative GAS logic.

5. Use Root Motion Collision Stop Mode only when the ability should stop early due to blocking collision.

Ability Activated

- > Commit Ability
- > Play Mover Montage And Wait
 - > Completed: End Ability
 - > Interrupted: Cancel or clean up
 - > Cancelled: Stop montage / clean up
 - > Blend Out: Optional transition logic

9. Troubleshooting

Problem	Likely cause	What to check
Node does not appear in Blueprint	Plugin or dependencies are not enabled	Enable SyncGASMover, GameplayAbilities, and Mover, then restart the editor.
Montage plays but root motion does not move the pawn	Mover component or mesh reference is not resolved	Check SGM Pawn Component references and make sure the ability uses Play Mover Montage And Wait.
Montage plays on owning client but remote clients look wrong	Replicated montage component is missing or not configured	Add SGM Pawn Component to the pawn and assign the montage mesh reference.
Ability starts from the wrong montage section	Start Section or Start Time is incorrect	Verify the montage section name and time offset.
Root motion moves too far or too little	Translation scale is not tuned	Adjust Root Motion Translation Scale.
Ability does not stop on collision	Collision stop mode is None or collision setup is not blocking	Use Capsule, Mesh, or Capsule Or Mesh and check collision channels.

10. C++ API Reference

USGM_PawnComponent

- RequestMoveIntent(FVector MoveIntent): caches movement input intent for Mover.
- ClearMoveIntent(): clears cached movement intent.
- StartReplicatedMontage(...): starts replicated montage visual playback state.
- StopReplicatedMontage(): stops replicated montage visual playback state.
- GetCharacterMoverComponent(): returns the resolved Character Mover component.
- GetMontageMeshComponent(): returns the resolved mesh used for montage playback.

USGM_PlayMoverMontageAndWait

Blueprint-callable GAS ability task used to play a montage and queue the matching scaled Mover root-motion layered move.

FSGM_ScaledAnimRootMotionLayeredMove

Mover layered move that extracts animation montage root motion, applies optional translation scaling, and can stop root motion based on collision mode.

11. FAQ

Does SyncGASMover replace GAS montage tasks?

Use it when your montage needs to drive Mover root motion. For normal non-root-motion montages, your existing GAS workflow may still be fine.

Does this replace Mover?

No. It works with Mover. Your pawn still needs a working Mover setup.

Can I use it in Blueprint?

Yes. The main ability task is Blueprint-callable.

Is this multiplayer-ready?

It includes replicated montage playback state for simulated proxy visuals. Gameplay authority should remain in your existing server-authoritative GAS logic.

Can it be used for combat abilities?

Yes, it is useful for dashes, lunges, attacks, dodges, reactions, or other abilities where montage root motion should move the pawn through Mover.

12. Support Information

When requesting support, include the following information:

- Unreal Engine version.
- SyncGASMover plugin version.
- Whether the issue happens in single-player, listen server, dedicated server, or client.
- A screenshot of the SGM Pawn Component references.
- A screenshot of the Gameplay Ability graph using Play Mover Montage And Wait.
- The montage settings and whether the montage contains root motion.