

GameCreator 2 & A* Pathfinding Integration

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A* Pathfinding is a superior AI solution compared to Unity's Navmesh, but it requires more adjustments and is both more complex and sophisticated.

1. Overview

The A* AI Path Agent is a custom character controller that integrates the A* Pathfinding library with the Game Creator 2 framework. It provides advanced navigation and pathfinding options for characters in a Unity game. This integration is compatible to all known Game Creator 2 Multiplayer Solutions (12th Oct 2023)

2. Installation

Import the A* Pathfinding Asset by Aron Granberg into your Unity project.
Ensure you have Game Creator 2 installed and properly set up in your project.
Add this A* Pathfinding integration to your project.

3. Usage

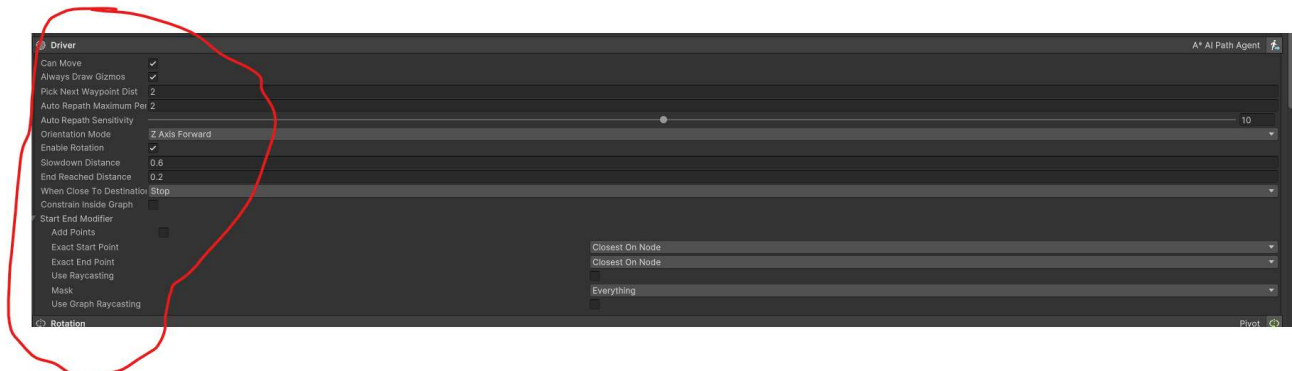
To use the integration, follow these steps:

- In the Unity editor, add the GC2 character you want to use the A* Pathfinding controller with.
- After adding this integration into your project you will find the A* AI Path Agent under Driver (click on green CharacterController Icon to see the menu) in the Character Component of Game Creator 2.
- Modify AI Path Settings using the GC2 instruction named AI Path Settings.



- Configure the serialized fields in the A* AI Path Agent component to customize the character's pathfinding behavior.
- **Add a CharacterController or Rigidbody component to your character**

4. Serialized Fields



- **CanMove:** Enable or disable character movement.
- **AlwaysDrawGizmos:** Enable or disable drawing gizmos for the AIPath component in the editor.
- **PickNextWaypointDist:** Set the distance to the next waypoint before the character starts moving toward it.
- **AutoRepathMaximumPeriod:** Set the maximum period for automatic repathing.
- **AutoRepathSensitivity:** Set the sensitivity for automatic repathing.
- **OrientationMode:** Set the orientation mode for the character.
- **EnableRotation:** Enable or disable rotation for the character.
- **SlowdownDistance:** Set the distance from the target at which the character starts to slow down.
- **EndReachedDistance:** Set the distance from the target considered as "reached".

- **WhenCloseToDestination:** Determine what the character does when close to the destination (e.g., stop or continue to the next waypoint).
- **ConstrainInsideGraph:** Enable or disable constraining the character inside the navigation graph.
- **StartEndModifier:** Modify the start and end points of the generated path.

5. Troubleshooting

- Ensure the A* Pathfinding library and GameCreator framework are correctly installed and configured in your project.
- Check if the navigation graph is set up correctly in the scene.
- Read the manual of A* Pathfinding.
- Check if you have set the correct layers in your scene and in the Pathfinder Component (Gameobject “A*” in Demo Scene)
- Make sure the serialized fields in the A* AI Path Agent component are configured as desired.
- My character is “overshooting” the Game Creator Marker: Increase Slowdown Distance
- My character is not reaching exactly at the Game Creator Marker and the Move To Instruction is stuck in a loophole: Decrease Slowdown Distance and End Reached Distance and set a Stop Threshold in the Move To Instruction of Game Creator 2 of at least 0.1

6. Melee 2 Module & Instructions

A* Pathfinding works with Melee 2 but there are some issues:

1. Game Creator 2 Character initiates everything from the center of the GameObject while A* Pathfinding initiates from the feet of the Character. Neither A* Pathfinding nor Game Creator allow here to set offsets or allow the change of origin point.

This means, we have to lower the height of a Character that uses Melee 2 to 0.01

2. **A* Pathfinding does not support Root Motion.** As a result, we must set all our skills to **use Motion Warping**. Additionally, we need to utilize the **Motion Warping Instruction**, which allows us to modify motion using a curve. **This is similar to the Melee Clip Settings in Game Creator 1.** An example of how to use the Motion Warping Instruction can be found in the Sword Melee Demo Scene.

As an alternative, you can employ the **Transform Position with Collision Instruction**, as demonstrated in the Brawler Demo Scene.

It's worth noting that the Transform Position with Collision Instruction is an older version, retained in the package primarily for compatibility. There are also distinct differences between these two instructions:

- **Motion Warping Instruction** uses **layers** and retrieves the duration from the animation clip
- **Transform Position with Collision** uses **tags**