

AI Spline System Unity Manual

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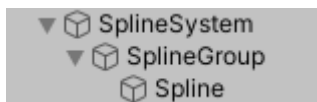
Description

A system for making NPCs move around a spline system from node to node and make a decision at each node and in between. The AI can either have a set action at each node.

Importing information

Scripts will be imported with Unity packaging.

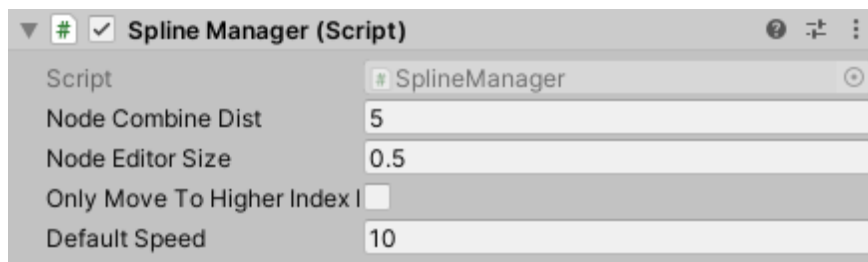
AI Spline System Skeleton



This is how the Spline System objects will need to be setup. Explanations below.

SplineSystem

SplineSystem object contains the SplineManager script which the AI agents use and in children objects contain spline groups.



Property:	Function:
Node Combine Dist	Distance between Nodes before the combine with other nodes from the same or other splines.
Node Editor Size	How large the nodes appear in the Scene window.
Only Move To Higher Index Node	It true: The AI will only move to a random connected Node that has an index that is higher than its current node on that nodes Spline. If False: The AI will move any connected Node at random other than the last Node it was on unless there is no other node to move to.
Default Speed	Default speed of the AI Agents using this Spline Manager.

SplineGroup

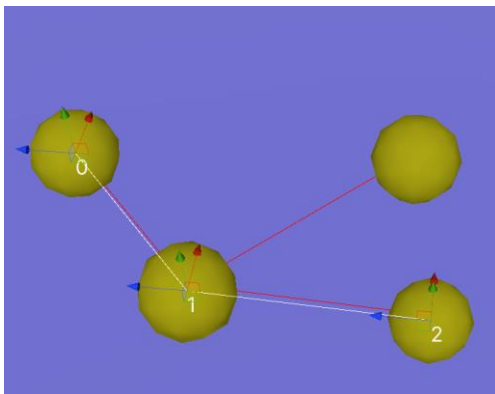
A blank object that is a child of an object that contains SplineManager script. It contains child objects that use UISpline and NodeAction scripts. Multiple can be made as children of an object that contains SplineManager script. Its Transform properties Position X, Y and Z and Rotation Y can be changed to move and rotate its child splines.

Spline

Spline Object contains scripts UISpline and NodeAction variants (NodeWait, NodeWaitFace and NodeWaitFaceObject)



Property:	Function:
Points	Increase the size to add more nodes the spline where they connect from lower index to higher.
Index Speed	Changes the speed of the AI agent at the chosen index. Otherwise get's set to Default Speed from the Spline Manager.



Example with two splines where one is selected. As shown individual nodes can be selected and moved in the Scene window. They are made to have different nodes from different splines put over each other under the same Spline Manager.

Waits at node for a set random time between two numbers with option to set off Animation Trigger Name

Property:	Function:
Index	What Node this action is attached to.
Priority	What order this action played (lower is better priority).
Stop	If no wait time this may be set to false.
Animation Trigger Name	Animation trigger name
Wait Time Min	How long this action will take minimally.
Wait Time Max	If set above 0 seconds a random time will trigger each time.

Waits at node for a set random time between two numbers with facing a set direction and option to set off Animation Trigger Name

Property:	Function:
Index	What Node this action is attached to.
Priority	What order this action played (lower is better priority)
Stop	If no wait time this may be set to false.
Animation Trigger Name	Animation trigger name.
Wait Time Min	How long this action will take minimally.
Wait Time Max	If set above 0 seconds a random time will trigger each time.
Face Direction	Will face this way in degrees till the end of wait time.

Property	Value
Script	NodeWaitFaceObject
Index	0
Priority	1
Stop	<input checked="" type="checkbox"/>
Animation Trigger Name	
Wait Time Min	1
Wait Time Max	-1
Face Game Object	None (Game Object)
Face Direction Offset	0

Waits at node for a set random time between two numbers with facing a set object and offset direction and option to set off Animation Trigger Name.

Property:	Function:
Index	What Node this action is attached to.
Priority	What order this action played (lower is better priority).
Stop	If no wait time this may be set to false.
Animation Trigger Name	Animation trigger name.
Wait Time Min	How long this action will take minimally.
Wait Time Max	If set above 0 seconds a random time will trigger each time.
Face Game Object	Will face this object till the end of wait time.
Face Direction Offset	Degrees off to facing the object.

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Node Wait Giveway (Script)

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Script

NodeWaitGiveway

Index

0

Priority

1

Stop

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Animation Trigger Name

Wait Time Min

1

Wait Time Max

-1

▼ Wait For

Size

1

▼ Element 0

UI Spline

None (UI Spline)

Index Min

0

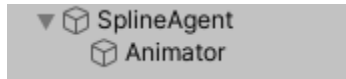
Index Max

0

Waits at node for a set random time between two numbers with facing a set direction and option to set off Animation Trigger Name. It also waits for any other AI Agents that are between nodes on set splines.

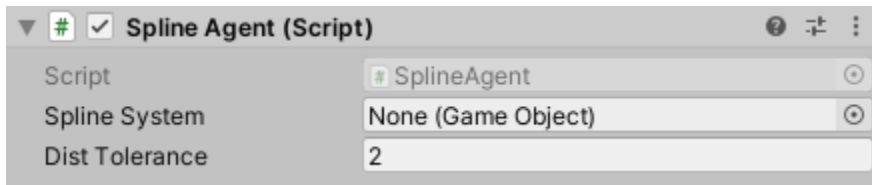
Property:	Function:
Index	What Node this action is attached to.
Priority	What order this action played (lower is better priority).
Stop	If no wait time this may be set to false.
Animation Trigger Name	Animation trigger name.
Wait Time Min	How long this action will take minimally.
Wait Time Max	If set above 0 seconds a random time will trigger each time.
UI Spline	Game object with UI Spline.
Index Min	Minimum node index to give way to.
Index Max	Maximum node index to give way to.

AI Spline Agent Setup



SplineAgent

SplineAgent object contains a NavmeshAgent component and must run on a working Navmesh. It also contains a SpineAgent script where the SplineSystem object is attached. The AI Spline Agent will move to the closest node on the attached SplineSystem.



Property:	Function:
Spline System	Object that contains the SplineManager script.
Dist Tolerance	What order this action played (lower is better priority).

Animator

The Animator object contains and Animator component for the animations and the model of the AI Spline Agent.