

```
1 using System;
2 using UnityEngine;
3
4 /// <summary>
5 /// GridMaintenance instantiates and maintains the visible grid in the editor and preview scenes.
6 /// </summary>
7 public class GridMaintenance : MonoBehaviour
8 {
9     // Singleton state reference
10    private static GridMaintenance instance;
11
12    /// <summary>
13    /// The global height that all in-scene placements are placed at.<br/>
14    /// The game calculates the x and z positions by raycasting to an x-z plane located at this height.
15    /// </summary>
16    [SerializeField]
17    float gridHeight;
18
19    /// <summary>
20    /// The prefab that displays the in-scene grid.
21    /// </summary>
22    [SerializeField]
23    GameObject gridReference;
24
25    /// <summary>
26    /// The instantiated grid; a copy of <seealso cref="gridReference"/>.
27    /// </summary>
28    private GameObject grid;
29
30    /// <summary>
31    /// The material of the grid.
32    /// </summary>
33    private Material gridMaterial;
34
35    /// <summary>
36    /// The material texture offset of the grid.<br/><br/>
37    /// Because the grid follows the camera, its material must move opposite to the direction of camera movement to create an illusion of it standing still.
38    /// </summary>
39    private Vector2 materialOffset;
40
41    /// <summary>
42    /// Utilized to calculate the delta position between frames.
43    /// </summary>
44    private Vector3 currentPos;
```

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45
46     // Enforces a singleton state pattern.
47     private void Awake()
48     {
49         if (instance != null)
50         {
51             Destroy(this);
52             throw new Exception("GridMaintenance instance already established; terminating.");
53         }
54
55         instance = this;
56     }
57
58     // Instantiates the grid and its respective values.
59     private void Start()
60     {
61         grid = Instantiate(gridReference);
62         grid.name = "Grid";
63         grid.transform.position = new Vector3(transform.position.x,
64             gridHeight, transform.position.z);
65         grid.transform.eulerAngles = Vector3.zero;
66         gridMaterial = grid.GetComponent<MeshRenderer>().material;
67         currentPos = transform.position;
68         materialOffset = gridMaterial.GetTextureOffset("_MainTex");
69     }
70
71     // Obtains the change in position from the last frame and alters
72     // materialOffset by an opposite value.
73     private void Update()
74     {
75         grid.transform.position = new Vector3(transform.position.x,
76             gridHeight, transform.position.z);
77
78         Vector3 oldPos = currentPos;
79
80         currentPos = transform.position;
81
82         Vector3 deltaPos = currentPos - oldPos;
83         Vector2 realDeltaPos = new Vector2(deltaPos.x, deltaPos.z);
84
85         materialOffset += realDeltaPos;
86         materialOffset = new Vector2(materialOffset.x % 1, materialOffset.y
87             % 1); // The grid is 1x1, therefore it can be clamped.
88         gridMaterial.SetTextureOffset("_MainTex", materialOffset);
89     }
90
91     // Getter methods
92     public static GridMaintenance Instance { get { return instance; } }
```

89

90 public float GridHeight { get { return gridHeight; } }

91 }