



# Multi Scene (Offline)



For full docs, please see the online documentation! What is provided here is just a summary giving you just the info to use the asset in a basic setup.

[Online Documentation](#) | [GitHub Repository](#) | [Carter Games](#)

## Summary

Multi Scene is a tool for handling game development with more than 1 scene loaded at once. So you can spread out elements of your game into separate scenes. While some other solutions to this problem exist, most if not all them are paid solutions or kept privately. The purpose of this project to provide a free alternative that can accomplish the same kind of results with as little extra work as possible.

## Thanks

Thank you for deciding to use my asset for your project. If you like my asset, feel free to leave a review! or give us a on the GitHub repository, it really helps and gives me more of a reason to further develop this solution. If you find that our asset is not up to scratch or find an issue, please do let me know either via our email: [hello@carter.games](mailto:hello@carter.games) and I will do my best to help you with the issues you are facing. I can't read minds, so if you don't speak up, it won't get fixed 😊



## Support The Dev

I don't normally ask for support or anything as I use these projects to experiment & to improve my coding in live projects. But all my assets take a lot of my time to develop & maintain throughout the years & I do all this for free in my spare time. So if you find that one or many of my assets useful, please do consider supporting me by buying me a virtual cuppa via the link below:

Carter Games is creating video games & developer tools  
We are a game publisher/game developer based in the UK. We work on a variety of projects, from mobile/indie games to assets/tools for devs. Want to support our work even when we provide it for free? You can <https://www.buymeacoffee.com/cartergames>



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# Installing

## Unity Package

If installing from off the asset store, such as git, itch.io or the carter games website. You'll simply get a .unitypackage file. To import the .unitypackage into your project just double click it with your project open or use the import custom package option in Unity under

Right click in Project Tab → Import Package → Custom Package

Extension packages can be installed by simply double clicking the package file for the relevant extensions.

## ▲ Updating to a newer version

If you are updating the asset from an older version it is best to delete the asset folder & do a clean install for the least amount of friction with the new version. If the update is just a patch you should be good to just import on top of the old files, but consider a clean install if the asset doesn't work as intended or throws an unknown error.

## ⚙️ Asset Settings

### 📍 Location

The settings for the asset can be access via the following methods and has the icon shown on the right. This asset holds all settings, if deleted the asset will regenerate a new one with default settings when you next use the asset.

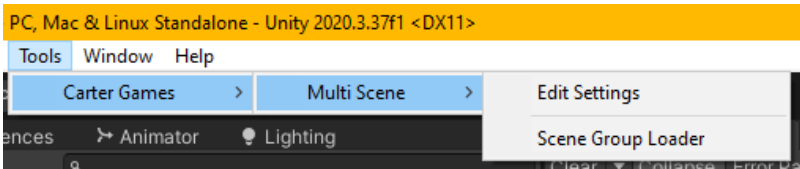


## Project Settings Window



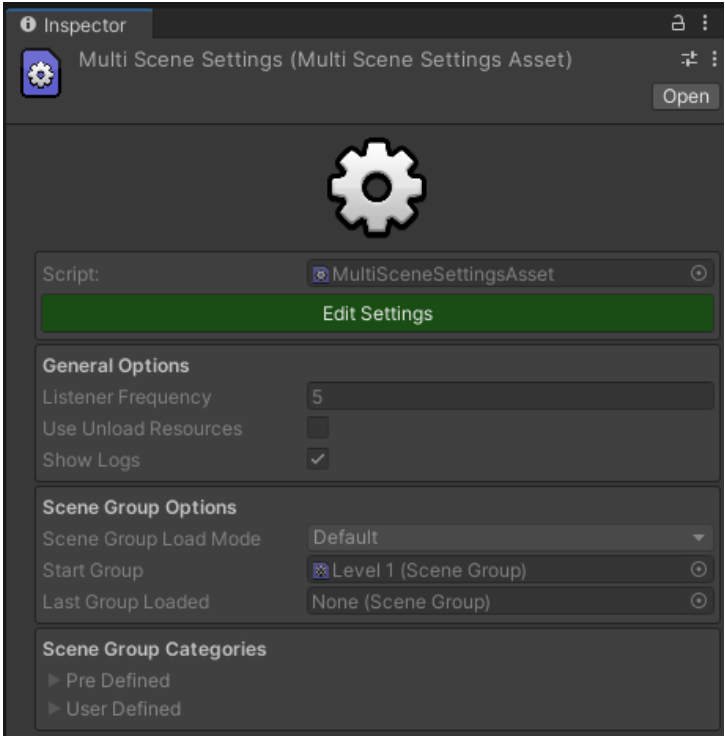
You can edit the settings via this window. It can be found under Project Settings/Carter Games/Multi Scene This window also shows the version number of the asset, release date & some helpful links as well as the settings for the asset. See what each option does here: ⚙️ Options.

## Menu Item



You can access the settings via a menu item on the top bar navigation menu which can be found under Tools/Carter Games/Multi Scene/Edit Settings This will open the project settings window on the multi scene settings.

## Settings Asset Button



The settings asset can be found under `Assets/Resources/Carter Games/Multi Scene/Multi Scene Settings Asset`. This is the scriptable object that controls the settings of the asset. You can only view the settings from there. To actually edit the settings, press the `Edit Settings` button in the inspector of the asset.

## Options

### General Options

#### Listener Frequency

`int`

This controls the frequency at which the system calls the `IMultiSceneAwake`, `IMultiSceneEnable`, `IMultiSceneStart` interface methods when a scene group is loaded. If you have a lot of logic in your game that relies on this system or if the logic is intensive, it is good to have this at a low number. The higher the number, the more will run per frame after the scene group is loaded. If you don't want to use this value, set it to `0` and the system will ignore the value & run all logic per interface at once. But note this may have performance consequences in larger projects.


#### Use Unload Resources


`bool`

This controls whether or not the system is to call the `Resources.UnloadUnusedAssets()` method built in to unity or not. If true it will run when a scene group is loaded/unloaded. See more on what this method does below:

**Resources.UnloadUnusedAssets**

Suggest a change Thank you for helping us improve the quality of Unity Documentation. Although we cannot accept all submissions, we do read each suggested change from our users and will make updates where applicable. For some reason your suggested change could not be submitted. Please try again in a few minutes.

 <https://docs.unity3d.com/ScriptReference/Resources.UnloadUnusedAssets.html>



#### Show Logs

`bool`

This controls whether or not to show debug messages for the asset. These are handy if you are having issues with the asset and are not sure why. But it helps to have this off when you want to clear the console a little.

## Scene Group Management

### Scene Group Load Mode

enum

This tells the system how it should load the scene group when entering play mode in the editor. There are 3 options for this setting which are:

Setting	Description
Default (Default)	Loads the default group defined in the settings. This will normally be a group for your game menu or something.
Last Loaded	Loads the last group you have loaded in the edit. This will be the group you are currently in. Handy if you want to quickly test something in the current scene group your are working in.
Disabled	Doesn't load any scene groups on play, so your normal play mode behaviour.

### Start/Default Group

SceneGroup

This defines the default group to be loaded when you enter play mode in the editor & the default group to be loading on your build unless you change the load mode to be disabled. If the load mode is disabled you will have to add your own functionality to load the first scene group.

### Last Group Loaded

SceneGroup

This defines last scene group loaded in the editor. This is used when the Scene Group Load Mode is set to Last Loaded

## Scene Group Categories

### Pre-Defined Groups

These are a selection of pre-defined scene group categories that are once I'd expect users to need. You can only edit the ordering of these in the settings inspector but they cannot be removed. These are:

Category	Default Order
	0
Menu	0
Game	0
Levels	0
Player	0
Enemies	0
World	0
UI	0

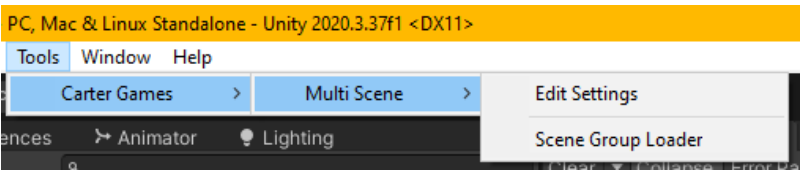
Editing the order only updated the order that the categories appear in the scene group loader and nothing else.

### User-Defined Groups

These are extra scene group categories that you can define. They will appear in the popup boxes to select scene group categories once defined. You can add and remove these at will and removing a category that is in use will cause all the groups using said category to be set to the default `unassigned` category.

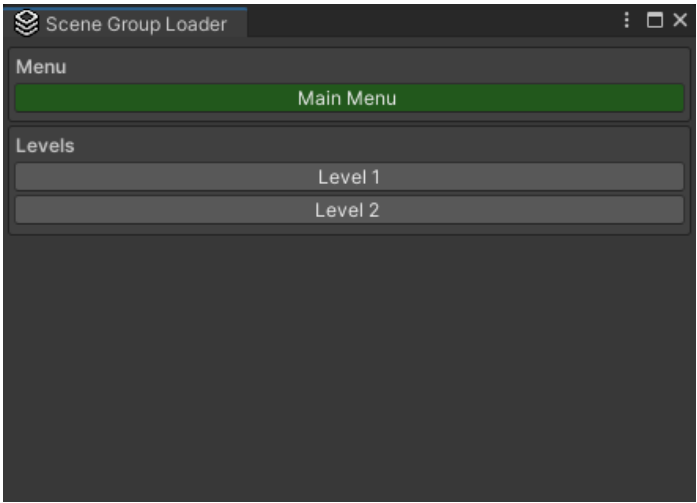
# Menu Items

Accessed under `Tools/Carter Games/Multi Scene/...` there are extra options & windows to help you use the asset. Below are all the options and what they do.

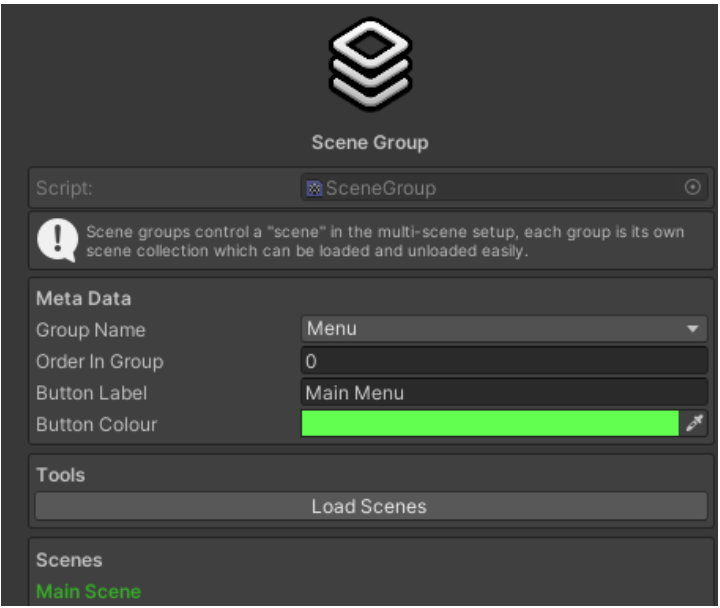


## Scene Loader

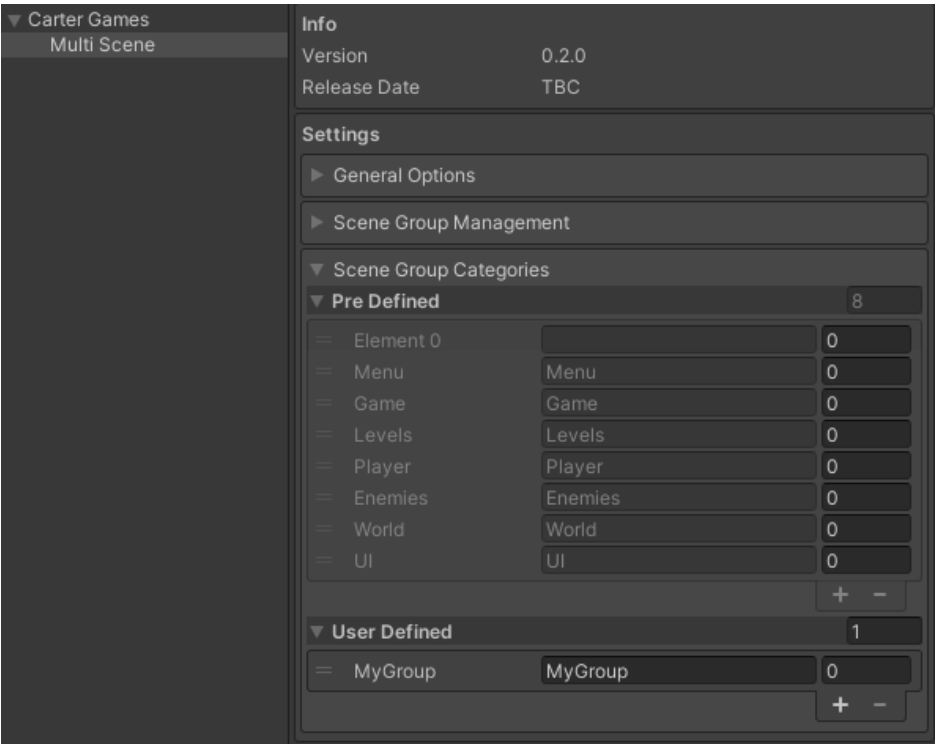
This opens the multi scene loader, an editor window that lets you load any scene group in your project. Note that groups that are not setup correctly will have their button disabled until you setup the group correctly. A correctly setup group will have at-least a base scene selected and no scenes set as `Unassigned`



By default the scene group will show with the name of the group and a standard button. The button will appear under the `No Category` group unless you have assigned a group in the scene group meta data. If you want to customise the look & category of a group you can do so in the scene group inspector under `Meta Data`








There are several common groups given in the asset as default categories to choose from. You can see these in the settings window of the asset and add your own groups view the `User Defined` section. You can also reorder and of the categories in this window including the default ones should you need to.



## Quick Start

Once you've installed this asset, you're probably thinking now what? This is the page for you! Below are some of the steps you should now take to get started with the asset.

1. Make a scene group or two (See  [What are Scene Groups & how to set them up?](#) for information on how to set them up)
2. Open & dock the scene loader window somewhere useful (See  [Multi Scene Group Loader Window](#) for information on this.
3. Update any references to work with the new multi scene setup, if you are mid project while starting to use the asset that is. See  [How do I reference something in another scene?](#) &  [How to run logic when all scenes have loaded?](#) for guides on how to accomplish this.
4. Update any settings that you may want & assign a default scene group to load on entering play mode. See  [Asset Settings](#) for more on this.
5. ★ Enjoy  
*Obviously if you have any questions or need something clarifying feel free to get in touch with me. Links can be found here: [? Support](#)*

## Scene Groups

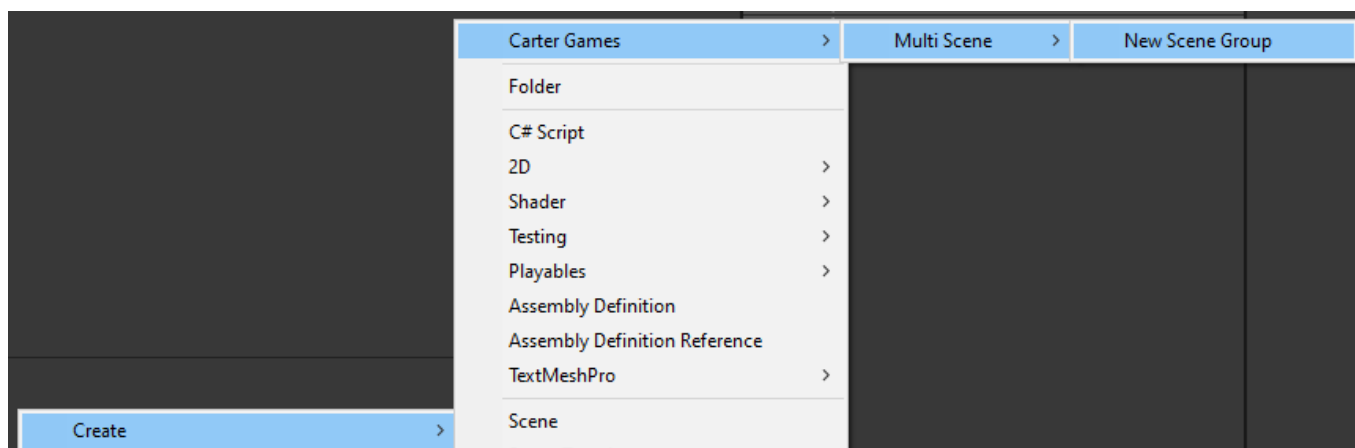
A scene group, denoted by the icon on the right is a scriptable object that holds a collection of scenes to load together. The groups are the main way to load scenes in the asset. The asset provides a custom inspector to make setting up a group super easy.




### Creating a group

You can create a new scene group via the create asset menu.

Create → Carter Games → Multi Scene → New Scene Group

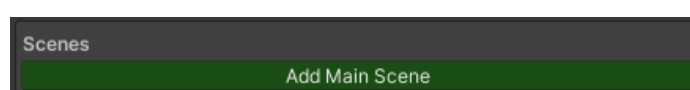


You can store the asset generated anywhere in the project. The name of the asset will be the default label for the button in the  [Multi Scene Group Loader Window](#).

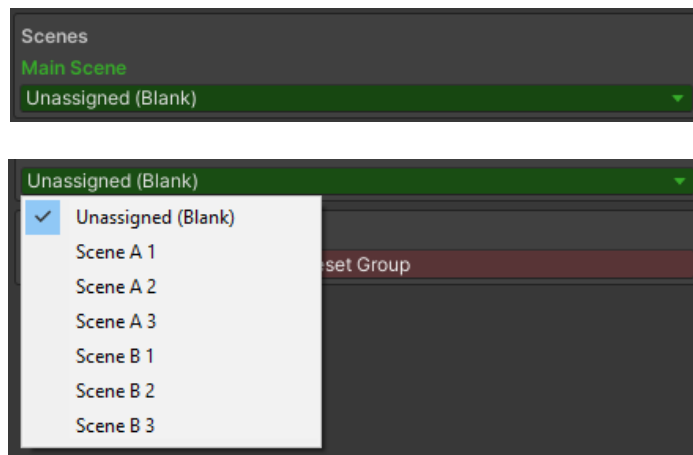
### Setup a group


The setup a scene group you will need to select a main scene. This scene acts as the active scene as far as Unity is concerned and all object instantiations etc will go to this scene by default. It is also the first scene of a group that is loaded.

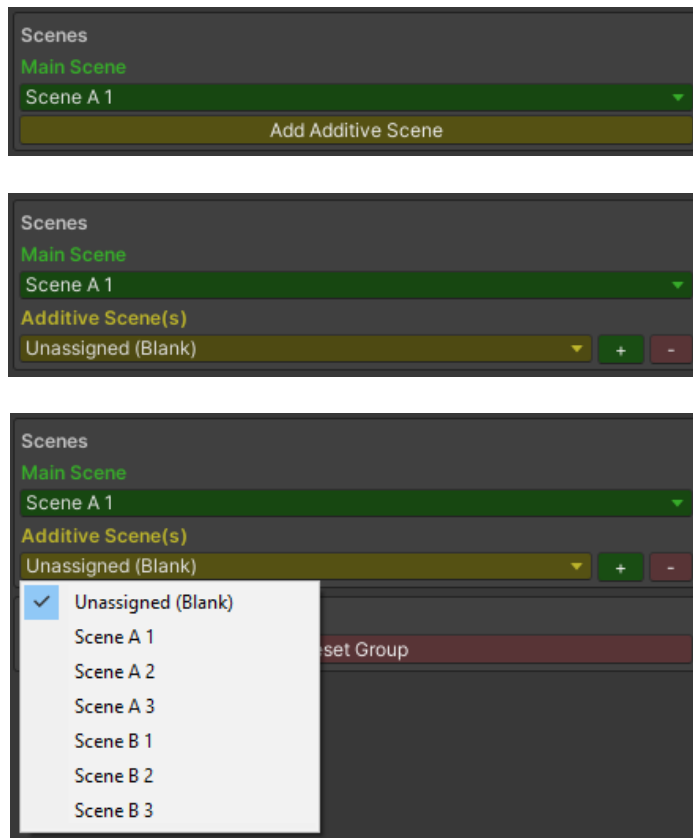
To add a main scene, press the add main scene button:



This opens up a new section with a dropdown to let you select a scene, simply select a scene from the dropdown to set the main scene for this group. If you don't see your scene here you will need to add it to the build settings for it to show up.




Once a valid scene is selected you can then select additive scenes to also load with the main scene in this group. This also makes the scene group valid so it can be loaded via the  [Multi Scene Group Loader Window](#) & the tools section of the scene group itself. To add more scenes press the add additive scene button.






This will add a new field which you can select another scene from. If you select a scene already selected in this group, it will become invalid until you correct the issue. You can add use the + & - buttons next to any additive scene field to add or remove scenes from the group.

## Referencing

The multi scene asset currently only support hard coded references in your scripts. An inspector option is planned once I figure out a nice enough solution for the problem. To reference between scenes you will need to use the  [MultiSceneRef.cs](#) class & its methods.

From here you can use a [GetComponent](#) style of referencing with the option to pass through particular scenes, the active scene or all loaded scenes. You can also use a [FindObject](#) style as well but not that it will be a lot less performant, so use it sparingly as it goes through each object in every scene including children to find objects.



One thing to note when using the  [MultiSceneRef.cs](#) class is that you will need to make sure the scene the reference is in is actually loaded when the reference is made. It is recommended you use the  [Multi Scene Listener Interfaces](#) or the post scenes loaded event from the multi scene manager. While you can use the standard unity awake/enable/start methods for these references you will need to make sure the scene is loaded after the scene with the reference in it to get the reference correctly. You can also get references within the same scene using the same class for cross scene references should you wish.

More details & example code can be found in the scripting API page:  [MultiSceneRef.cs](#)

## Listen for all scenes loaded

When using the asset, it is useful to check for this as a lot of your projects logic will require another scene to be loaded in order to function correctly. One the best ways to work around the limitation in code is to use an observer pattern in your code where you listen to events in other classes instead of a direct reference where possible. This along with some static elements can make using this asset a lot easier. However you'll still need to know when all scene are loaded in some places, so here is how you can do that:

### **PostScenesLoaded** event

The post scenes loaded event is in the  [MultiSceneManager.cs](#) and runs when all scenes in a scene group have been loaded. This event is using the custom events system for this asset, which you can read about in the  [Multi Scene Scripting API](#).

## IMultiScene Interfaces



The multi scene interface setup lets you listen in to when the scenes of a group and run logic in a method. These can be ordered using the custom attribute `MultiSceneOrdered(x)` which functions like the `DefaultExecutionOrder(x)` attribute in Unity for classes, but on the interface method instead of the whole class. More on this can be found in the scripting api [here](#).

## ? Support

### Email

You can email me any time through the support email: [support@carter.games](mailto:support@carter.games) and I aim to get back to you with 72 hours. Note I may be away for an extended period and may not be able to offer support instantly on some occasions.

### Discord

You can join the community discord server and react with the assets  role in the:   
 `server-info-rules` channel to gain access to support channels for each asset. Like with emails I aim to get back to you within 72 hours, but it may not always be possible.

Join the Carter Games Discord Server!

Check out the Carter Games community on Discord - hang out with 65 other members and enjoy free voice and text chat.

 <https://carter.games/discord>

