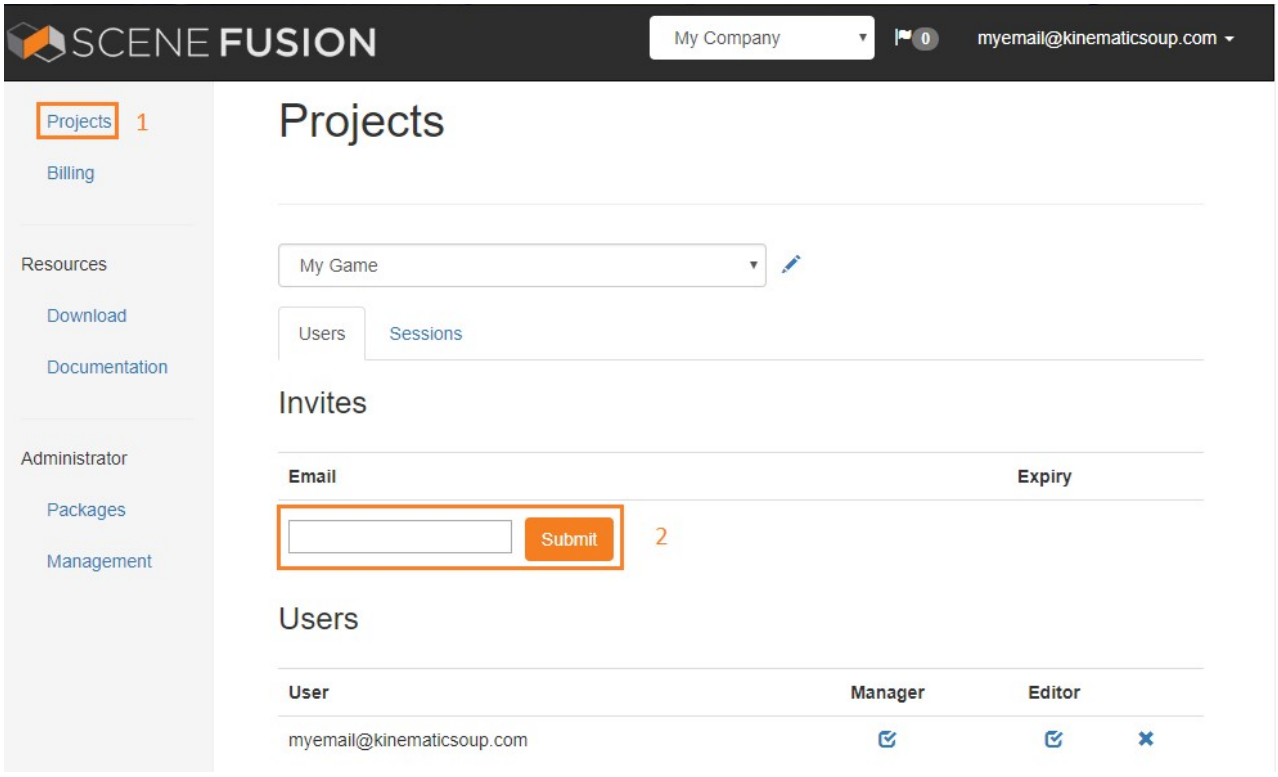
Getting Started With Scene Fusion for Unreal

System Requirements

- Windows 10 x64 (Earlier versions have not been tested)
- Unreal Engine 4.19 and above.
- Visual Studio 2015 or above as required by Unreal.

Adding Teammates to Your Project

Create an account or log in to an existing account at console.kinematicsoup.com. Be sure to check for you activation email.



1. Open the Projects page.
2. Add teammates by entering their email address and pressing the Submit button.

Teammates will receive an invite via email. If not, they should check their junk folder, or create their own accounts.

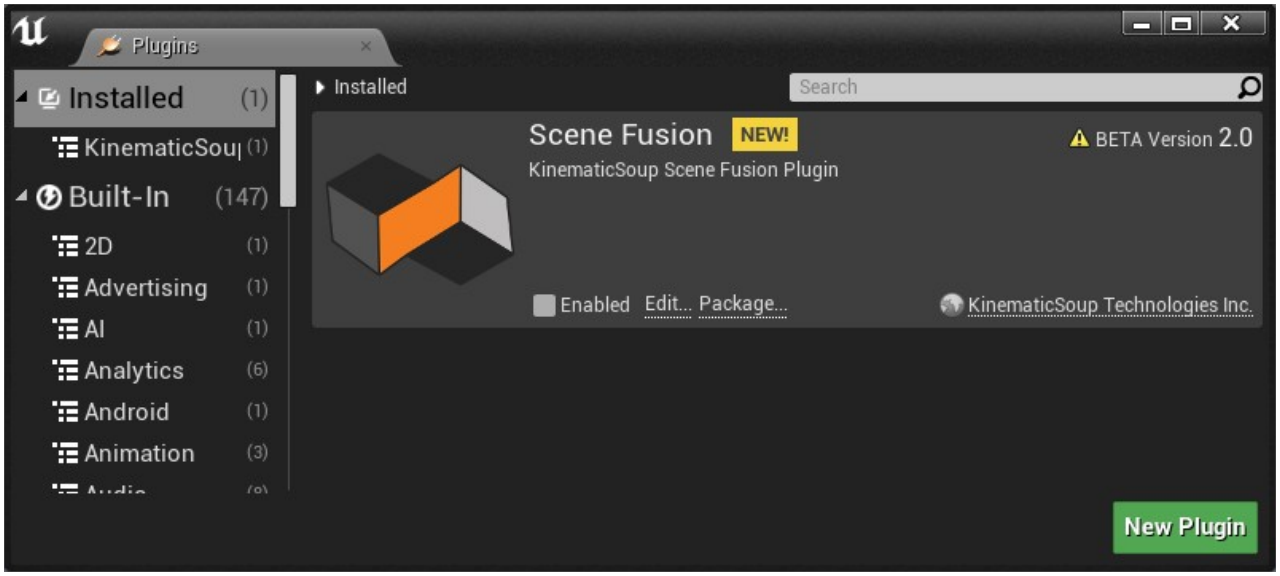
NOTE: If you have not done so, contact KinematicSoup to ensure Scene Fusion for Unreal has been activated on your account.

Installing the Plugin

The plugin can be installed either as an engine plugin or a project plugin. Engine plugins are available to all projects, whereas project plugins are only available in the projects they are installed in.

Intalling as an Engine Plugin

1. Unzip SceneFusion.zip.
2. Move or copy the unzipped SceneFusion folder to **[Unreal Engine Directory]/Engine/Plugins/SceneFusion**.
3. Open your Unreal project.
4. Open the Plugins panel (**Edit > Plugins**) and find the Scene Fusion plugin under **Installed > KinematicSoup**
5. Check the Enabled checkbox and click yes when prompted.
6. You will be prompted to restart the editor for the plugin changes to take effect. Restart the editor.



Installing as a Project Plugin

1. Unzip SceneFusion.zip.

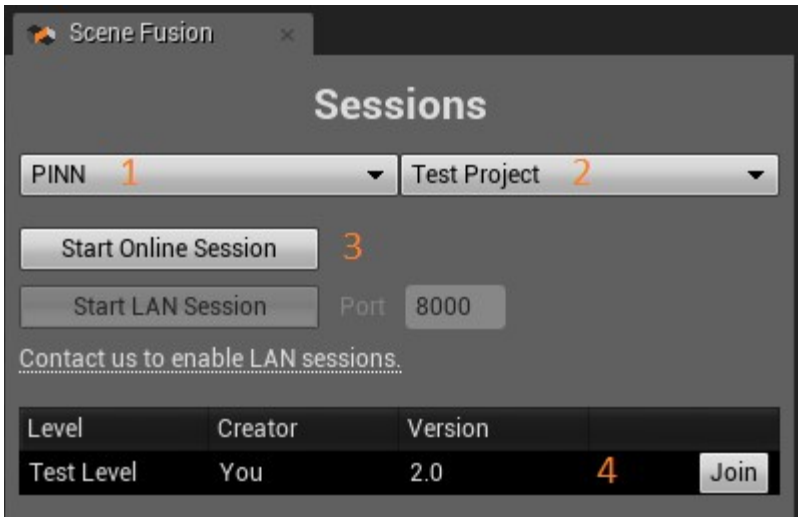
2. Move or copy the unzipped SceneFusion folder to **[Your Project Directory]/Plugins/SceneFusion**.
3. If your project contains C++ code, regenerate your solution files by right-clicking **[Your Project Directory]/[Your Project Name].uproject > Generate Visual Studio project files**.
4. Open your Unreal project. If your project contains C++ code and you did not rebuild your project, you will be prompted to rebuild missing modules. Click yes.

Getting Ready to Use Scene Fusion

1. Before starting or joining a session, all teammates should have the same version of your project with the same assets.
2. Other users' changes can cause possible hitches on your side when it triggers loading sublevels or uncached assets. To reduce interruptions, assets are only loaded when you are idle (not interacting with the UI for a short time). To modify the idle delay, open the SceneFusion.ini config file located at **[Engine installation folder]/Config/Windows/SceneFusion.ini** and change the IdleTime value. The value is in seconds. After modifying the config file you will have to restart Unreal for the changes to take effect.

Starting or Joining a Scene Fusion Session

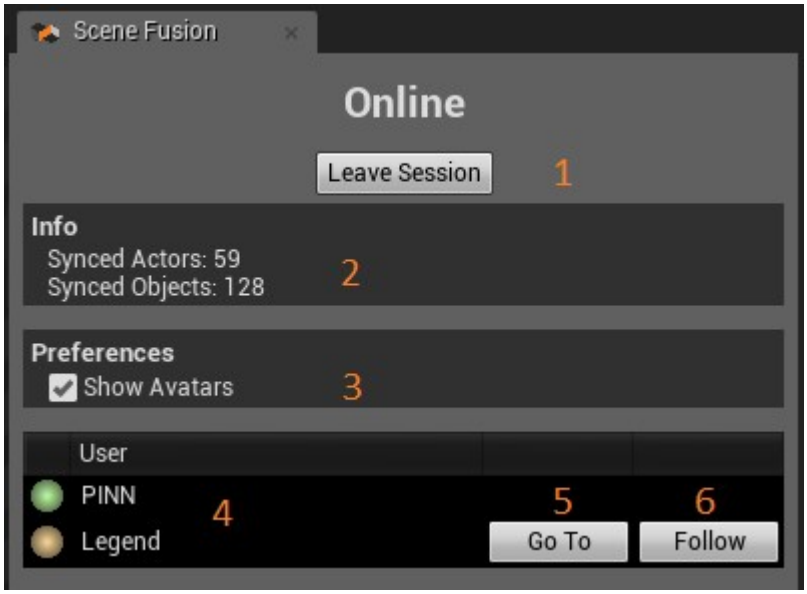
1. If the plugin was installed correctly, you should see a Scene Fusion button. Click it to open the Scene Fusion tab.
2. The first time you open the Scene Fusion tab you will be prompted to log in to your Scene Fusion account. Login using the credentials you use for console.kinematicsoup.com.



Once you log in, you will see the Sessions panel.

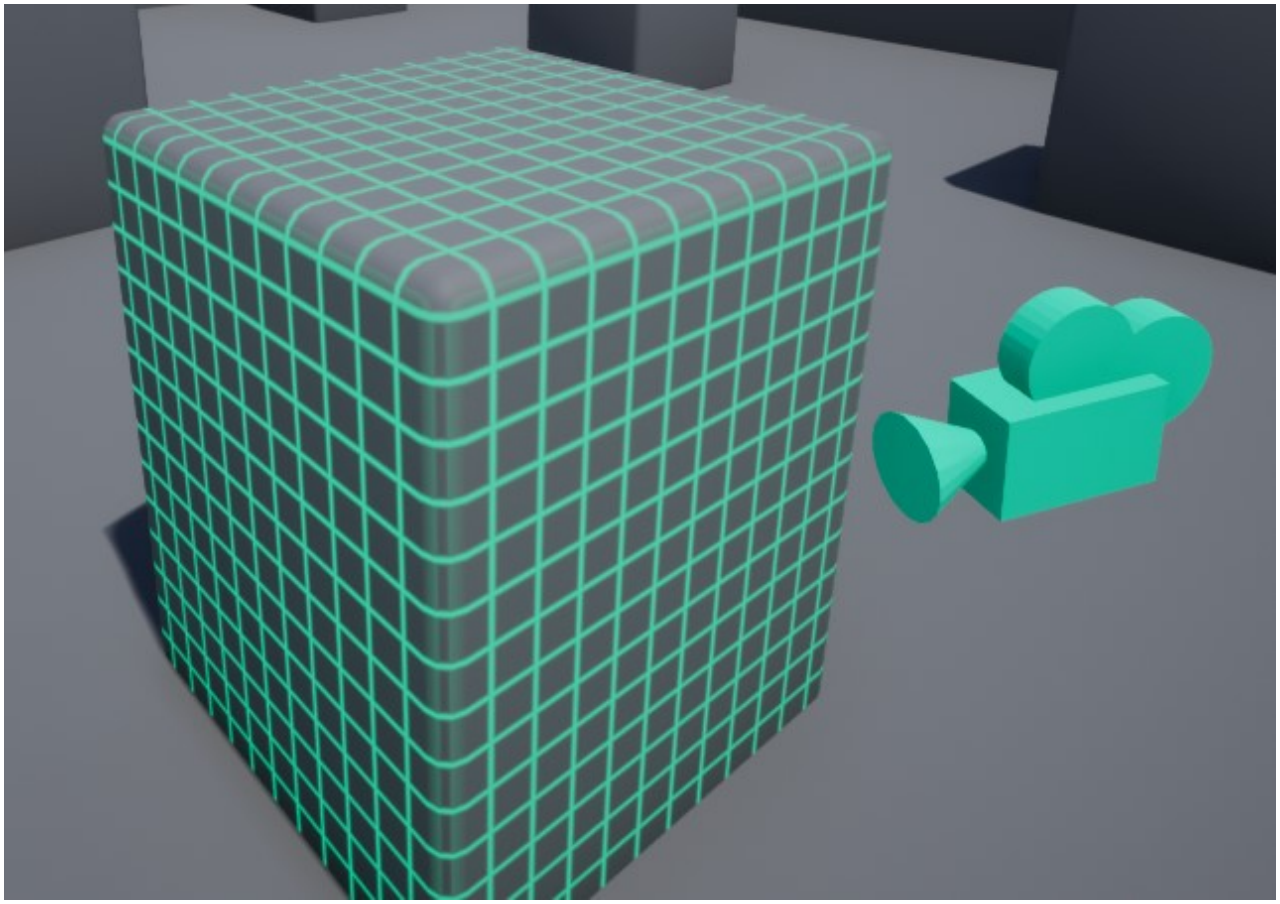
1. The top left drop down shows your username and allows you to logout.
2. The top right drop down shows which company/project you have active and allows you to switch projects.
3. The Start Session button will start an online session with the levels you have opened.
4. The table at the bottom shows running sessions you can join by clicking the join button.

During a Session



While you are in a session you will see the Online panel.

1. The Leave button allows you to leave the session.
2. The info section show how many actors and objects are syncing in the current session.
3. The show avatars checkbox in the preferences section allows you to show/hide the avatars that show where your teammates are in the level.
4. The user section shows the users who are connected to the session. You are always the first user in the table. The colored dot next to each user shows what color objects selected by that user will appear. Clicking the dot next to your name allows you to change your color.
5. Beside each user name is a Go To button. Clicking it will sync your current viewport with theirs once.
6. The follow button function similarly to Go To, however it continues to keep your viewport in sync with the other user.



Objects selected by other users are highlighted with a grid shader in the user's color that turns opaque as it gets farther away. These objects are locked and cannot be edited until

the other user deselects them. Each user has a camera with their color that shows where they are in the viewport.

Alpha-3 Scene Fusion Features and Behaviors

Currently Scene Fusion syncs actors and components and most of their properties. The following property types do not sync:

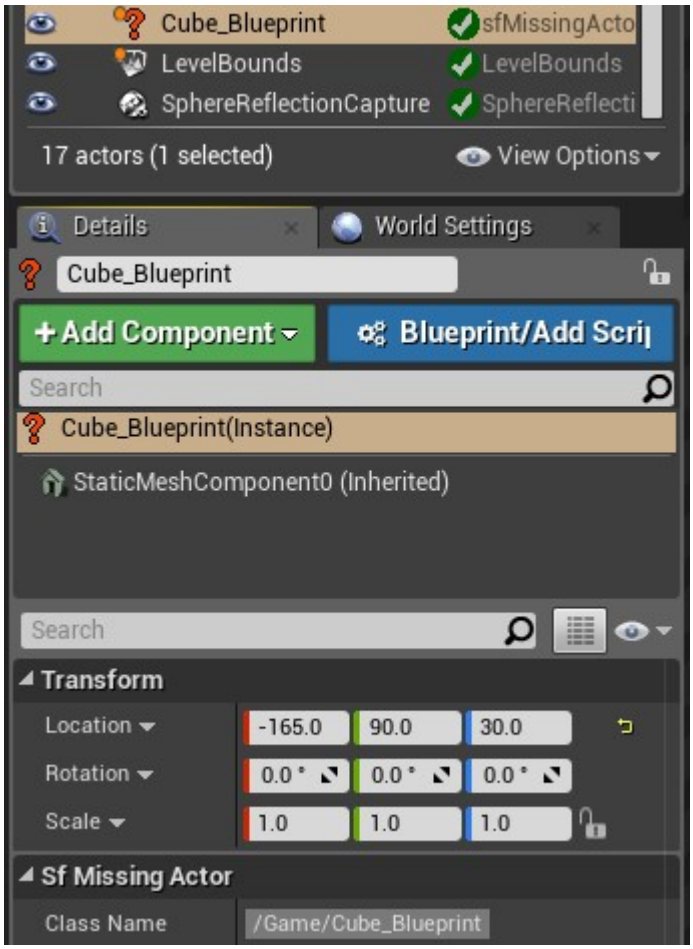
- Weak pointers
- Lazy pointers
- Delegates and multicast delegates
- Interfaces
- Instanced sub-objects

All other types of properties will sync. If you find an actor or component property that doesn't sync that is not one of these types, it may be because the property does not have flags that make it editable in the details panel, but there is an IDetailCustomization for the object that allows you to edit the property anyway. You can force a property to sync regardless of its property flags by modifying the plugin source to call **sfPropertyUtil::AddPropertyToForceSyncList(className, propertyName)**, where className is the name of the class the property belongs to without the U/A prefix.

The level hierarchy is synced, so it is possible to open multiple levels at the same time in a session. Level details and world settings are synced. If World Composition is disabled (found under Window > WorldSettings), all teammates will have the same levels open. Loading or unloading a level will load or unload it for everyone. When World Composition is enabled, each teammate can have their own set of levels open, but will always have the same persistent level.

Hidden actors (not shown in the world outliner) will not be synced.

Missing asset stand-ins.



If an asset is added to the level that you are missing, you will get a stand-in asset in its place. If the asset is an actor or component class or blueprint, the actor or component stand-in will have a question-mark icon in the details panel and world outliner. The details panel will show the name of the missing class or path of the missing blueprint in the Sf Missing Actor of Sf Missing Component category. For other kinds of assets, the property referencing the missing asset in the details panel will say "Missing_[type of asset]+[path to asset]+[sub asset name]". Missing mesh assets will render as translucent boxes with question marks matching the dimensions of the missing mesh. If, during a session, the missing asset becomes available, by pulling from source control or compiling code to get a new class or any other means, all references to the stand-in for that asset are automatically replaced with the correct asset.

Ending a Session

When you've finished an editing session, all users should leave the session. Choose one user to save and commit the the level to source control.

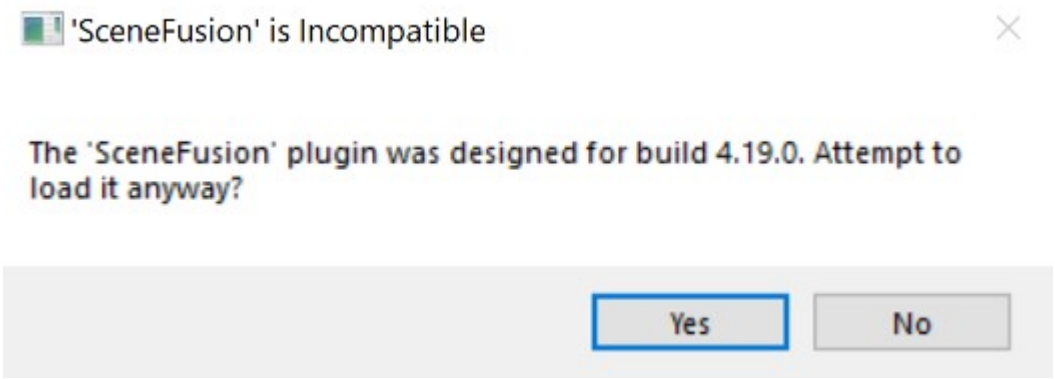
Troubleshooting

Incompatible Package

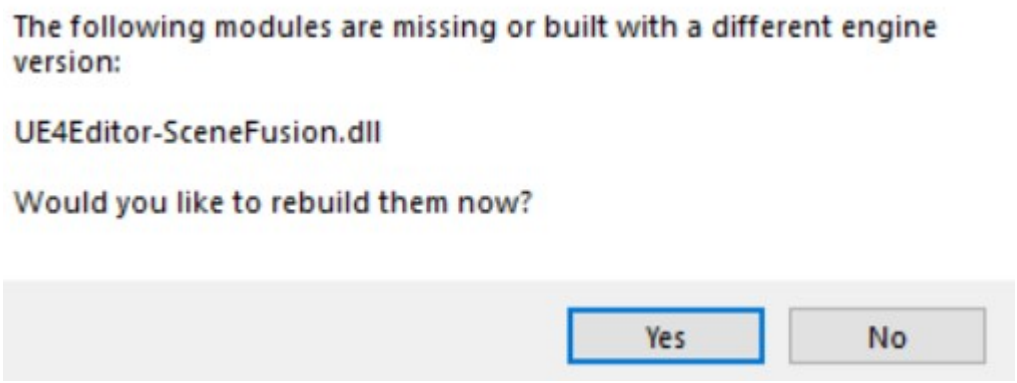
If the plugin is incompatible with your Unreal version, try rebuilding the plugin using the following steps:

1. Create a C++ basic code project.
2. Follow the steps above to install the plugin to this new C++ project.
3. Double click the uproject file to open the newly created project.

4. You will see a pop up message as below. Click yes to load the plugin.



5. Then you will see another pop up message as below. Click yes to rebuild the plugin.



6. If the rebuild succeeded, then you will have a compatible plugin in your project's plugins folder. Now you can copy it to your other projects or Engine's plugins folder. Otherwise, contact us for support.

Connection Problems

If you are unable to connect to a session it may be because of a firewall. There are two types of firewalls that can block Scene Fusion: Local software firewalls, such as the ones you find in Antivirus (AV) software like Windows Defender Firewall or BitDefender, and corporate/router-based firewalls such as those with dedicated hardware. To determine if the connection issue is due to local software, you simply need to try using Scene Fusion while the local AV/firewall software is temporarily disabled. If this fails to fix the issue, you likely have a corporate firewall.

Sometimes, Scene Fusion is blocked by corporate firewalls. In most cases, your IT department should be able to modify the firewall rules to allow traffic to and from the few ports used by the Scene Fusion server. The ports to unblock are:

- TCP 1025-1100

Known Issues

- Adding a component to a locked actor and immediately hitting enter crashes Unreal.
- Deleting assets from the file system that are used in a session may crash Unreal.
- Only the string portion of FText is synced. Advanced text settings are not synced.
- The level details window is disabled if you join a session that has world composition enabled while you had world composition disabled and you had a sub-level loaded that was also loaded on the server.
- Changing a transform by right-clicking an actor -> Transform -> Delta Transform doesn't sync. This is because Unreal doesn't call the OnActorMoved event.
- Added/Removed components only sync when the actor is selected. If you lock the details panel to an actor and add, remove, or rearrange components without selecting the actor, the changes will not sync until you select the actor.