

## Hey there!

Thank you for your interest in **Maintainer**, your attentive Unity3D projects housekeeping assistant!

This is an editor extension made of three separate modules:

**Issues Finder, Project Cleaner, References Finder.**

See more details about each module at the [Modules](#) section below.



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# Installation and setup

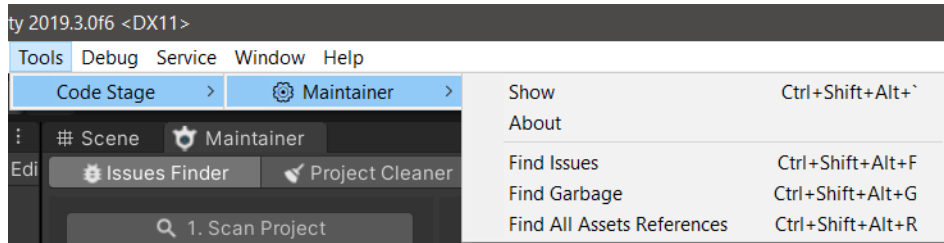
## IMPORTANT:

To avoid different compatibility issues and errors:

- Always close Maintainer window before updating.
- Always remove previous version from project Assets before updating.

## Menus

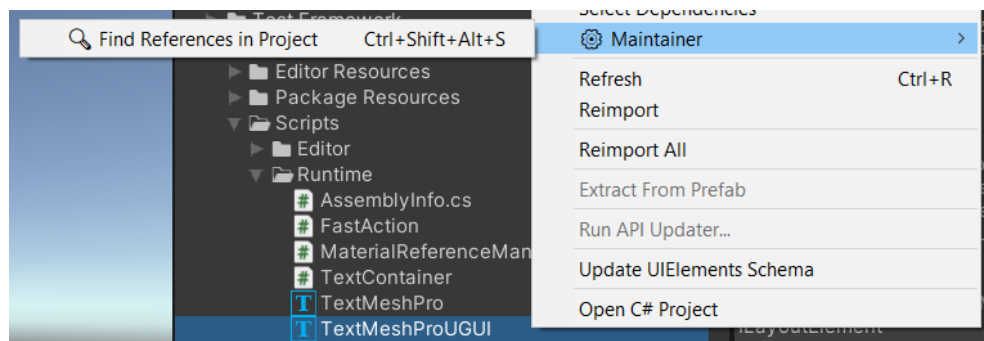
As you import plugin, you will see new menu commands at the top menu:



Tools > Code Stage > Maintainer

- **Show**  
Opens Maintainer window at last opened tab or at the first tab if was not opened before.
- **About**  
Opens Maintainer window at the About tab with helpful links and additional information about extension.
- **Find Issues**  
Starts [Issues Finder](#) module search and shows Maintainer window with results.
- **Find Garbage**  
Starts [Project Cleaner](#) module search and shows Maintainer window with results.
- **Find All Assets References**  
Starts [References Finder](#) module global assets references search and shows Maintainer window with results.

In addition, these menu items appear:



Project View Context Menu (Assets menu) > Maintainer > Find References in Project

Starts [References Finder](#) module search in Assets Scope mode for the selected item(s) and shows Maintainer window with results.

When called for folder, it will check all files in that folder recursively.

Works both with in-project assets (placed in Assets folder) and with package (visible at the Packages Project Browser section) assets.



Component Context Menu

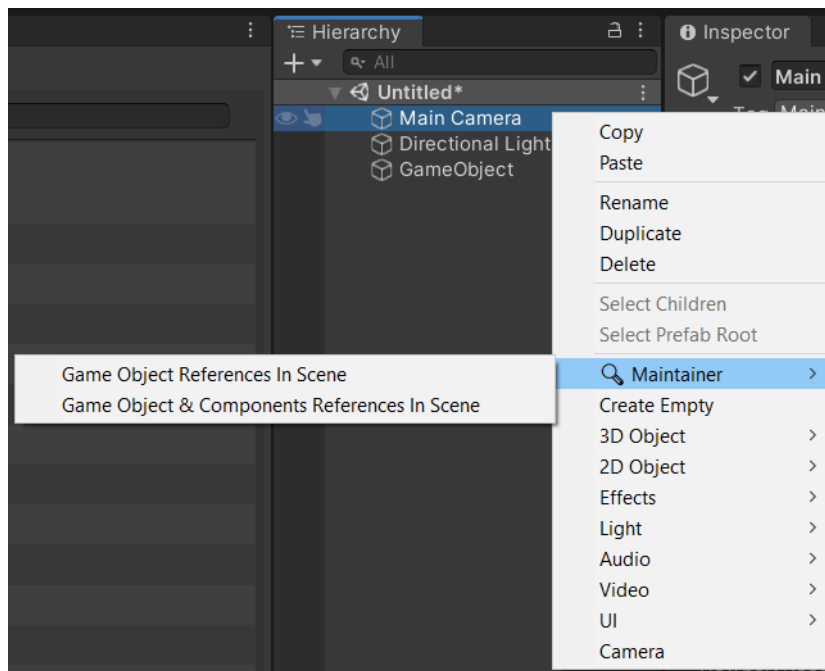
- **References In Scene**

Starts [References Finder](#) module search in Hierarchy Search Scope mode for the component which context menu was called for. Searches references in current Hierarchy for any Game Object components in Scenes or Prefabs.

- **Script File References**

Starts [References Finder](#) module search in Project Assets Search Scope mode for the script file asset which context menu was called for.

Since it looks for the script file references, it will be active only for the components deriving from the [MonoBehaviour](#) or [ScriptableObject](#) and having real script asset file in the project (either in Assets or Packages).



Hierarchy Context Menu (Game Object Menu) > Maintainer

- **Game Object References In Scene**

Starts [References Finder](#) module search in Hierarchy Search Scope mode for the Game Object which context menu was called for. Searches references in current Hierarchy for any Game Object in Scenes or Prefabs.

- **Game Object & Components References In Scene**

Starts [References Finder](#) module search in Hierarchy Search Scope mode for the Game Object which context menu was called for and for all its components as well. Searches references in current Hierarchy for any Game Object and all its components in Scenes or Prefabs.

## Files in your project

Here are the files Maintainer may produce in your project during its activity:

- **YourProject/ProjectSettings/MaintainerSettings.asset**

This is a Maintainer Settings for your project. File is a standard Unity serialized asset (so it may be binary or text depending on your assets serialization settings of the project).

- **YourProject/[Library or UserSettings in 2020.1+]/MaintainerPersonalSettings.dat**

This is a Personal Settings file for your project - such as last open tab, scroll position, sorting orientation, etc. File is a standard Unity serialized asset. Please ignore it in your VCS to reduce chance of merge conflicts (it's a good practice to ignore whole Library \ UserSettings folder actually).

- **YourProject/Library/MaintainerMap.dat**

This is a Maintainer-optimized Assets Map of your project used by all modules. It's a binary file.

- **YourProject/Temp/Maintainer\*Results.bin and MaintainerReferencesLastSearched.bin**

These are Maintainer search results files, which contain last search results of different modules. The Temp folder is deleted by Unity when it exits, so results are stored only for one session and will be erased on Unity restart. These are binary or json-compatible files, depending on module.

## Modules

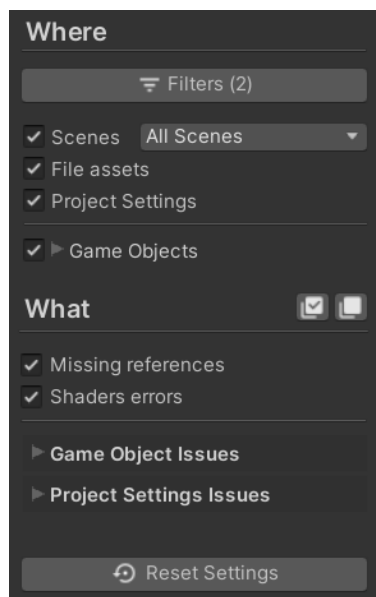
### Issues Finder

This module allows finding different issues within your Unity3D project, like missing scripts, missing references, and much more (see below). It also able to fix some of these issues in one-by-one or batch mode to let you quickly get rid of them.

You can use this module both from Maintainer window and via menu command / shortcut (see [Installation and setup](#)). If you will use it via menu command / shortcut, it will perform search with latest (or default) settings and will show results in the Maintainer window after that.

### ***Issues Finder Settings***

If you wish to tune settings before search, open Maintainer window, at the **Issues Finder** tab and tune them from there:



Settings are made of two separate groups:

- **Where** section with different filtering and ignoring settings allowing to specify where do you wish to perform the issues lookup.
- **What** section with settings allowing to specify what specific issues you would like to look for.

Let's describe them one-by-one, in their exact order.

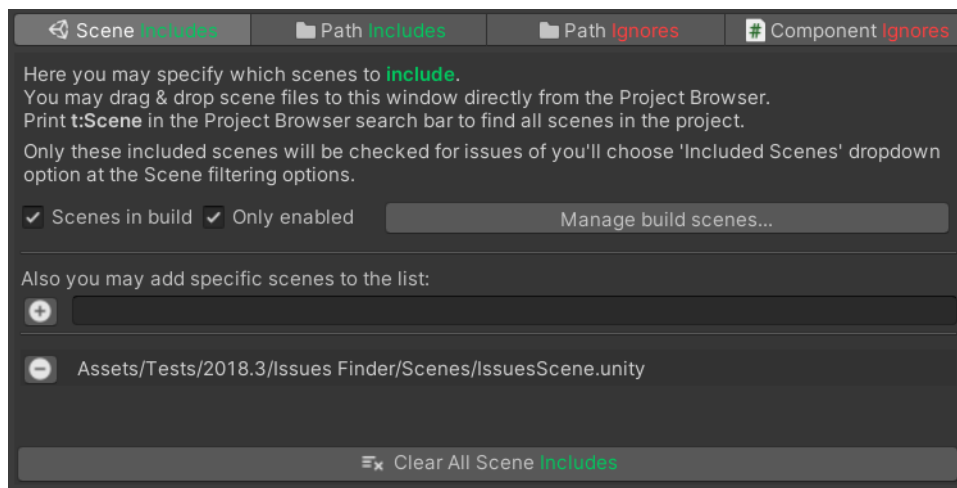
**Filters...** button opens **Precise Filters** window with four tabs: **Scene Includes**, **Path Includes**, **Path Ignores** and **Component Ignores**. See detailed description of each tab below.

*Number in brackets indicate active filters amount.*

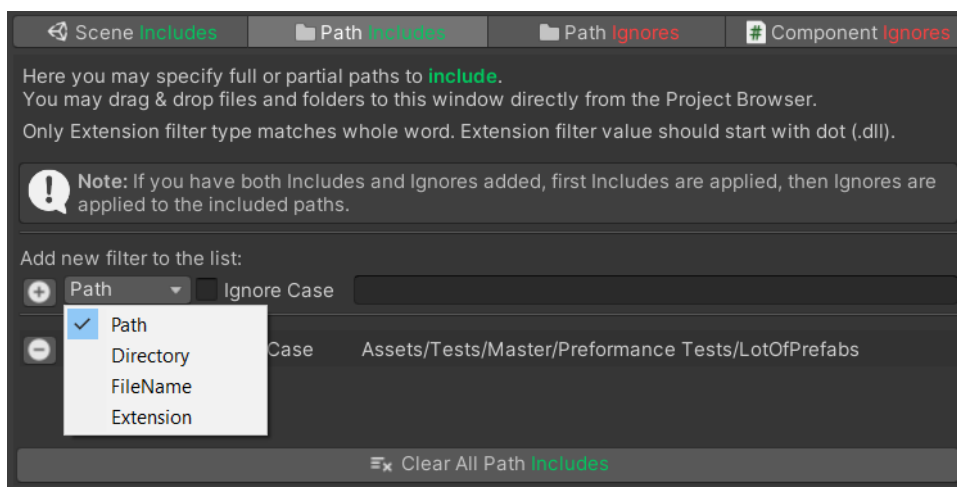
### **Precise Filters tabs**

#### **IMPORTANT:**

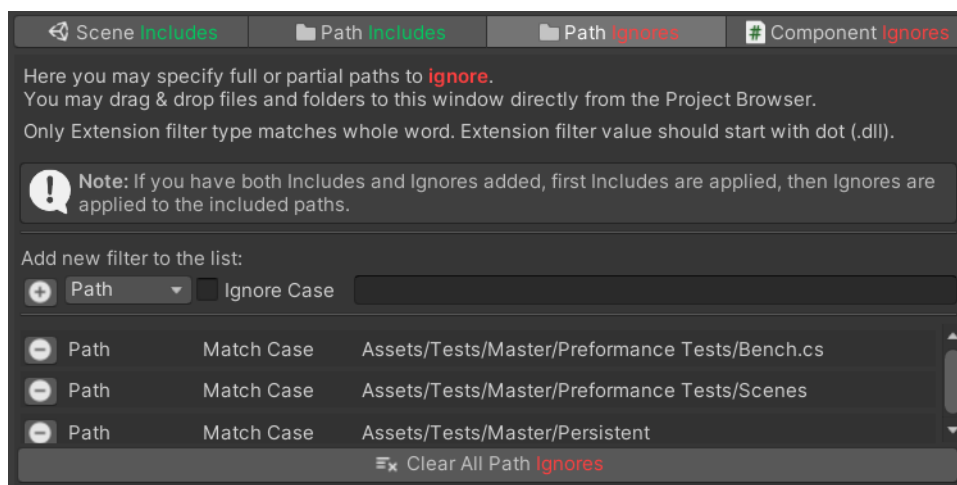
Please keep an eye on your lists of filters to make sure they do not have old and not actual items to avoid extra processing resources waste during the Issues Search.



**Scene Includes** tab allows including specific scenes into the issues search. Here you may easily include all scenes added to the Build Settings and specify if you also wish to include disabled items or not. In addition, you may add specific scenes by dragging them from the Project Browser or by entering their path relative to the project folder. Use "Included Scenes" option for the Scenes setting to search issues only in these included scenes.



**Path Includes** tab allows including specified files, folders, extensions or partial paths to the Issues Search. You may add filters manually or just drag & drop items from the Project Browser. You may include files with specified extension, full or partial paths and names, both with Match or Ignore Case. If you have both **Includes** and **Ignores** added, first Includes are applied, then Ignores are applied to the included items.



**Path Ignores** tab allows excluding specified files, folders, extensions or partial paths from the Issues Search. You may add filters manually or just drag & drop items from the Project Browser. You may exclude files with specified extension, full or partial paths and names, both with Match or Ignore Case. If you have both **Includes** and **Ignores** added, first Includes are applied, then Ignores are applied to the included items.



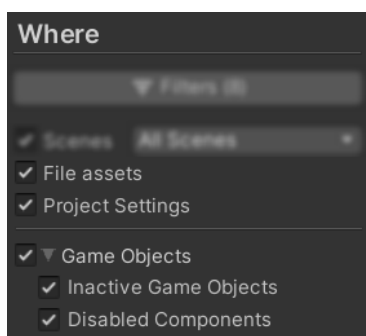
**Component Ignores** tab allows excluding components with specified names from the Issues Search. You may add names by hand or just drag & drop desired component from inspector to this window. In case you'll add component by hands, entered name will be looked in all currently loaded assemblies before saving it to the list to make sure you entered it correctly.

### Where settings section



**Scenes.** Includes scenes. Uncheck to exclude all objects and settings placed in scenes from the Issues lookup.

- **All Scenes.** Performs search in all scenes in the project.
- **Included Scenes.** Checks only those scenes you have included at the Scene Includes filters. *By default, all enabled scenes from the "Scenes in build" are included.*
- **Opened Scenes Only.** Performs search only in currently opened scenes (multi-scene setup is supported). Path Ignores will not affect such search.



**File assets.** Includes file assets (like prefabs or shader scripts).

#### **IMPORTANT:**

In-scene prefab instances, which have no changed (overriding) properties, will be skipped when this option is checked since all such objects will be scanned as File assets.

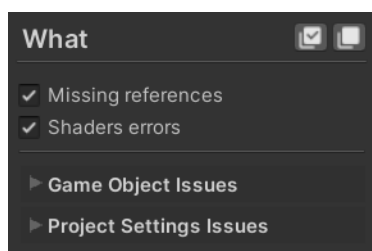
**Project Settings.** Includes Project Settings into the issues search.

**Game Objects.** Includes Game Objects into the issues search (in scenes and prefab assets if scenes and File assets are included).

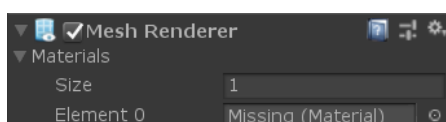
**Inactive Game Objects.** Includes inactive Game Objects.

**Disabled Components.** Includes disabled Components.

### What settings section



Here you can pick desired kinds of issues you would like to check. There are Game Object - specific issues, Project Settings - specific issues, and few common issues out of any groups.

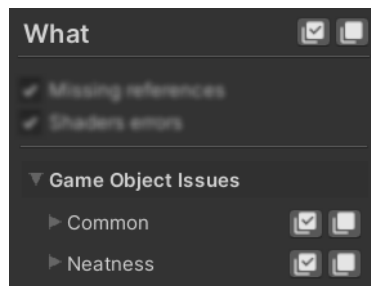


**Missing references.** Search for any missing references across whole project, depending on your "Where?" settings. Reference can miss when you remove referenced asset from the project.

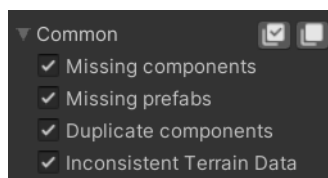


**Shaders errors.** Search for any shader scripts with compilation errors within project assets. Will not work with disabled **File assets** "Where" option.

## Game Object Issues

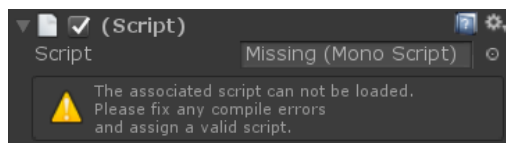


Issues Finder can scan Game Objects for the different issues. You may enable or disable them here, at few organized groups.

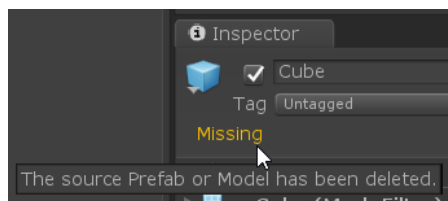


### Common group

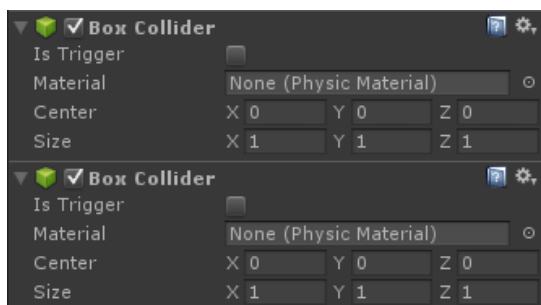
Here we have most serious issues, which can affect your game behavior and stability. See details on each issue below.



**Missing components.** Search for the missing components at the Game Objects or Scriptable Objects. Happens when you delete MonoBehaviour or Scriptable Object scripts, sometimes accidentally.



**Missing prefabs.** Search for instances of prefabs which were removed from project.



**Duplicate components.** Search for the multiple instances of the same component on the same object, taking into account values of the components' properties.

### **IMPORTANT:**

Gradient values are not supported for now (so you may get false positives if you have similar components with only differed gradients).

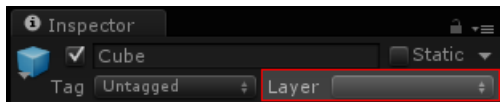


**Inconsistent Terrain Data.** Search for Game Objects where Terrain and TerrainCollider have different Terrain Data. It may lead to the incorrect collisions with your terrain. Though it may be expected in some cases, e.g. when you wish to make separate smoother collision data to reduce resources usage.

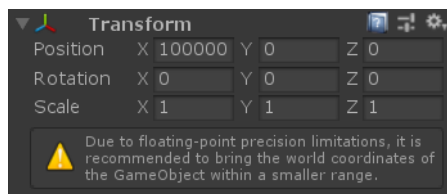
### Neatness group



Contains different issues related to the overall orderliness and neatness of the project.  
See details on each issue below.

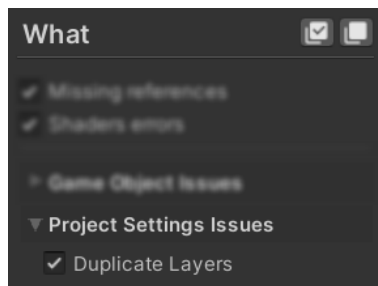


**Objects with unnamed layers.** Search for GameObjects with unnamed layers. Happens when you use some custom layer and remove it from Tag Manager afterwards.



**Objects with huge positions.** Search for GameObjects with too big world positions (more than 100k by any axis). Will check both regular objects and UI objects as well.

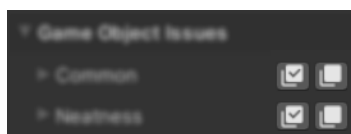
### Project Settings Issues



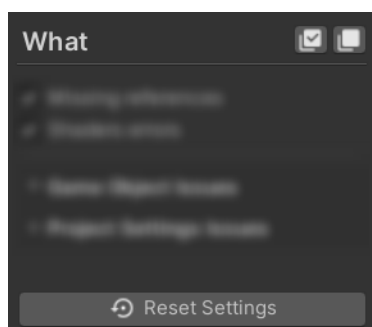
Issues Finder can also check your project settings for possible issues.

**Duplicate Layers.** Looks for the duplicate entries at the *Tags and Layers* settings of the project.

### *Quick selections and reset*



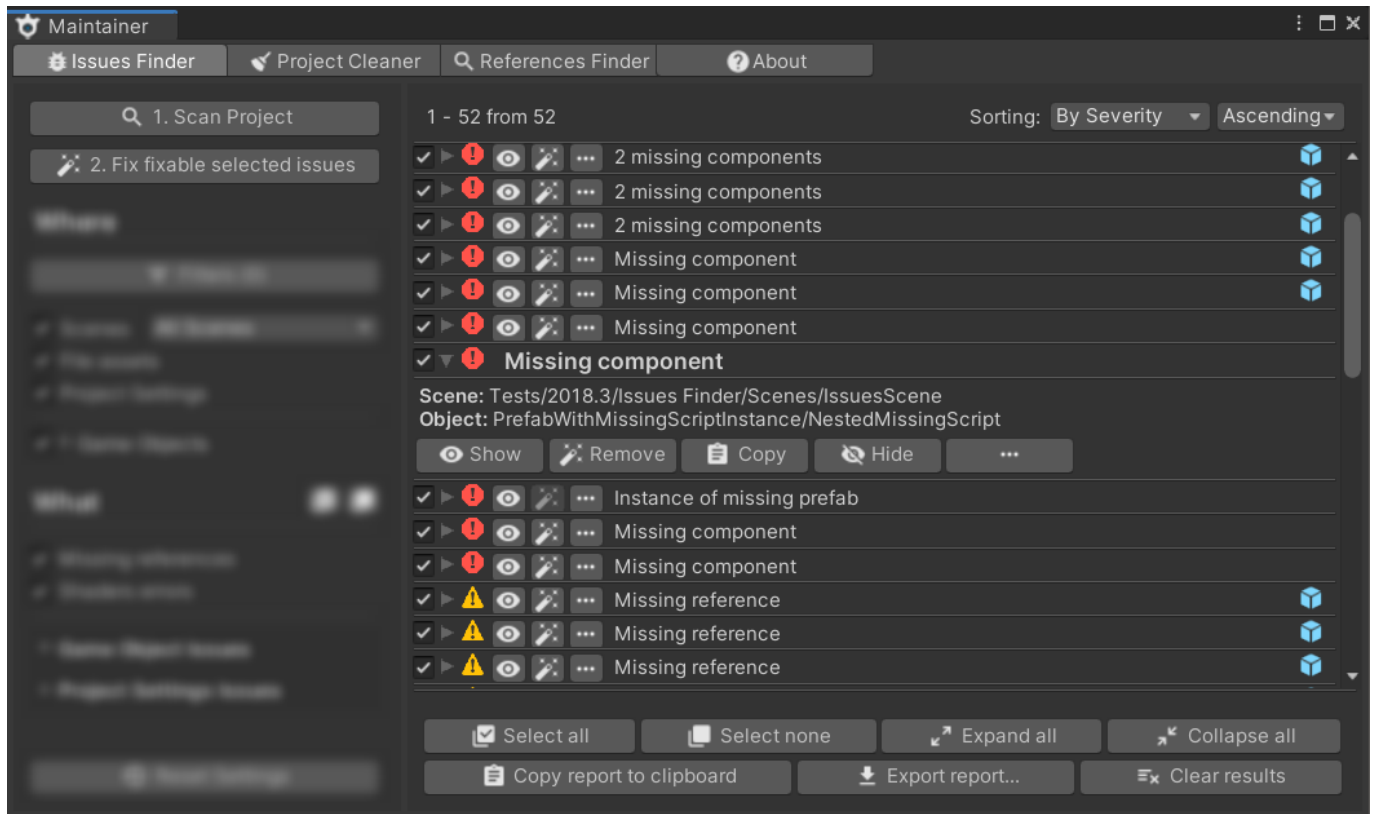
Use **Check** / **Uncheck** buttons placed next to the group label to quickly check and uncheck all settings in the group.



Use **Check All** and **Uncheck All** buttons to quickly check and uncheck all "look for" settings.  
Use **Reset Settings** button to quickly reset all **Issues Finder** settings (except filters) to defaults.



## Issues Finder Usage



After you have done with settings, just press "**1. Scan Project**" button or **CTRL / CMD + SHIFT + ALT + F** shortcut to start issues search. If you have any unsaved changes in current scene, you will be prompted to save them before search starts in case you did not choose Opened Scenes Only filtering option.

You will see search progress indicating current search phase and giving you some insight on what is currently happening. After search, you will see search results in the Maintainer.

Results list has such elements:

- Current page issues indexes and total issues count.
- Sorting options. You may sort by type, severity and path both ascending and descending.
- Found issues list itself (will be covered in more details below).
- Paging controls if there are more than 100 issues found (one page shows 100 issues).
- Few self-describing helper buttons.

Results list consists of separate issues records. Records are collapsed to the compact view by default and look like this:



**Compact record view** has such elements:

- Selection box. Allows selecting items for the auto-fix. Use **2. Fix fixable selected issues** button to fix selected items.
- Expand arrow. Allows expanding a record to the detailed view.
- Severity icon. Shows severity (importance) level. Info, Warning or Critical.
- **Show** button (eye icon). Navigates you to the issue as close as possible.

Works differently for issues from different sections:

### **How Show button works:**

If issue was found in Game Object, Component or Component's field: opens containing Scene or Prefab, pings it at the Project Browser, selects target Game Object in Hierarchy view, tries to collapse all components on the Game Object keeping expanded target component if record has it.

If issue was found somewhere in Project Settings: opens or highlights desired section of the Project Settings.

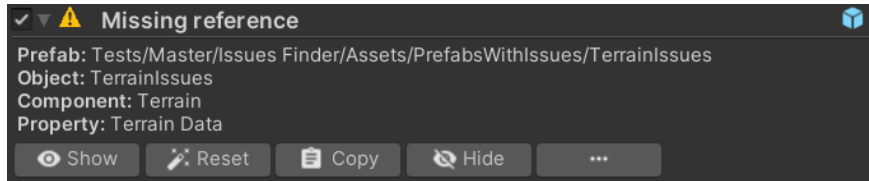
If issue was found in Scene Lighting settings: opens containing scene, pings it at the Project Browser, opens Lighting settings window.

In other cases, it works in similar manner - tries to open and / or select target asset / setting / window and pings objects and / or assets with issue.

- **Fix** button (magic wand icon). Applies suitable auto-fix for the issue, if possible. Hover mouse cursor to see the tooltip with description of the applied fix.
- **More** button (dots icon). Shows menu with additional functionality, such as quick add to the ignores.
- Issue caption. Usually briefly describes issue. May have some useful info like index of the unnamed layer to let you easily locate and name that layer in Tags Manager.
- Optional Prefab icon for issues found in prefab file assets at the right-hand corner of the row.

If you wish to see more details about desired issue, just press at the expand arrow, or click the record itself (except other buttons of course) to expand it to the detailed view.

Detailed view looks like this:



**Detailed record view** has same elements as Compact record view, with additional items:

- Additional info and issue location. Depending on issue kind, can include such levels of precision:

***For Game Object Issues:***

- **Scene** (for objects in scene) / **Prefab** (for objects in prefab file assets) – path to the scene or prefab file.
- **Game Object** - path to the Game Object in the scene.
- **Component** (optional) - name of the Component, which has an issue.

**IMPORTANT:**

If Game Object has more than one of such Components, you will see the (#\*) added to the Component's name. This is a sequence number of the target Component.

- **Property** (optional) - name of the property, which has an issue.

***For Project Settings Issues:***

- Where issue was found
- What exactly wrong there
- May vary for different kinds of issues

- **Copy** button. Copies record text to the clipboard.
- **Hide** button. Hides record from the results list. Useful when you wish to hide appropriate record from the search results after you fixed an issue.

If you wish to see less details about expanded issue, just press at the collapse arrow, or click the record itself (except other buttons of course) to collapse it to the compact view.

# Project Cleaner

This module allows finding unused (unreferenced) assets in your project and lets you clean it up with few clicks.

## IMPORTANT:

- Please note, this module does removes files and folders physically from your system. Please always make a backup of your project before using Project Cleaner! Author is not responsible for any data loss due to use of the Project Cleaner!
- Keep in mind that Project Cleaner looks for the assets which are not referenced anywhere in the project. However, they still may be used dynamically at runtime. Project Cleaner tries to avoid such cases ignoring special folders, but, for example, some custom build systems still may affect this. So please carefully inspect each found item before removing it.

You can use this module both from Maintainer window and via menu command / shortcut (see **Installation and setup**). If you will use it via menu command / shortcut, it will perform garbage search with latest (or default) settings and will show results in the Maintainer window after that.

## Project Cleaner Settings

If you wish to tune settings before search, open Maintainer window first, go to the **Project Cleaner** tab and tune them from there:



Here you can see settings available for this module.

Settings are made of two separate groups: different filtering and ignoring settings and "Search for" settings.

Let me just describe them one-by-one, in their exact order.

**Filters...** button. Opens **Precise Filters** window with three tabs – **Scene Ignores**, **Path Includes** and **Path Ignores**.

*Number in brackets indicate active filters amount.*

### Precise Filters tabs

*Tabs are equal to the filters tabs from the [Issues Finder](#) module.*

**Scene Ignores** tab allows excluding specific scenes from the garbage search. Ignored scenes will be considered needed and everything used in them will be excluded from the garbage search.

**Path Includes** tab allows including paths, extensions etc. which should filter out results by including only what's specified on this tab.

**Path Ignores** tab allows excluding specified files, folders or partial paths from the Garbage Search. Paths from this tab will be ignored from included paths if both Includes and Ignores are specified (includes are applied before ignores).

## IMPORTANT:

Please keep an eye on your lists of filters to make sure they do not have old and not actual items to avoid extra waste of the resources and time during the search.

### Rest of the settings

**Use Trash Bin.** Keep this on checked if you wish to move all garbage to the Trash Bin instead of deleting it permanently. Always recommended setting, it will allow you to recover stuff you deleted by mistake. It may not work in some environments, for example, early Unity builds for Linux ignore this option. Please note, this option reduces cleanup performance, when enabled.

**Rescan after new context ignore.** When checked, garbage scan will be automatically re-started after you add any new ignore filters from the results "More" buttons context menus.

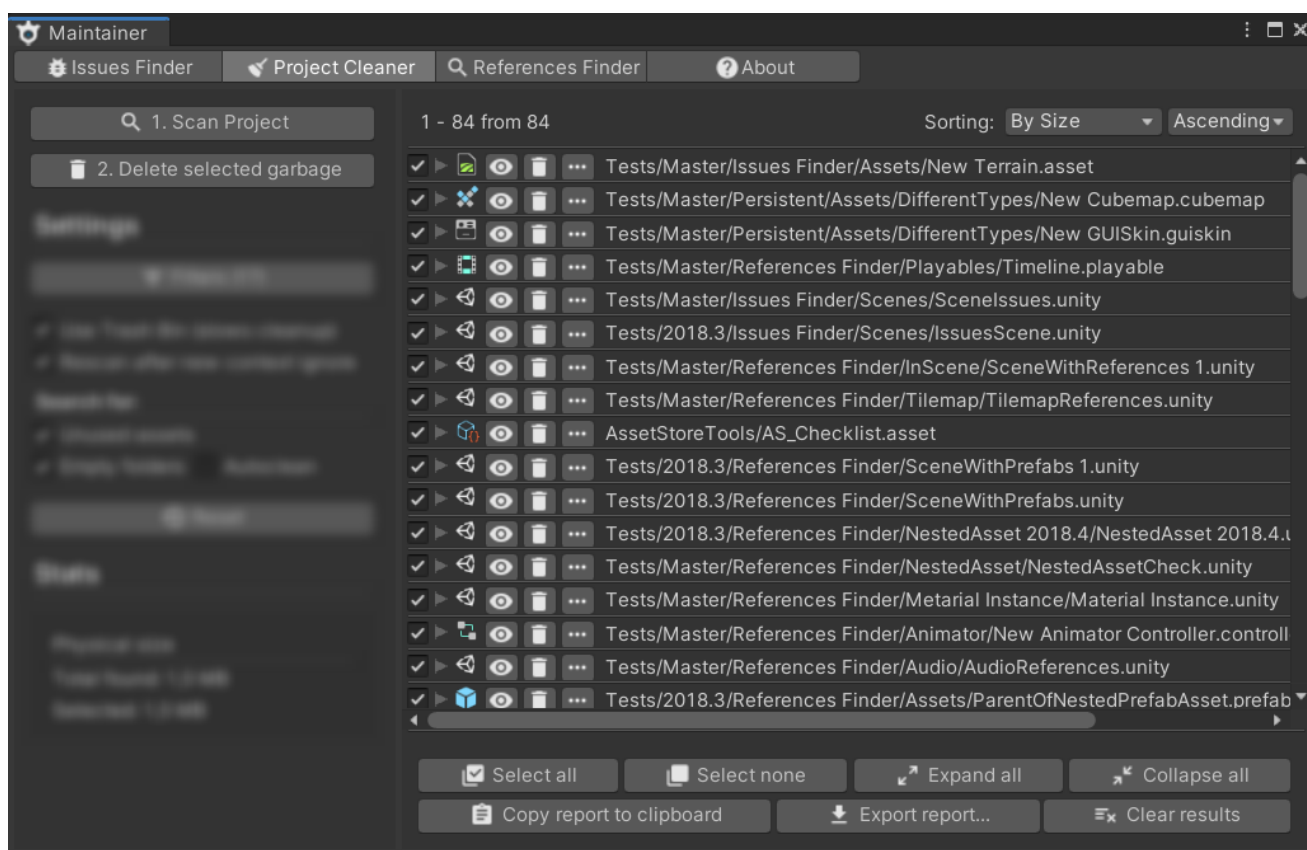
**Unused Assets.** Check to let Project Cleaner look for unused assets in your project.

### IMPORTANT:

- Project Cleaner doesn't look for the unused scripts, since it's nearly impossible to reliably say if some script is used or not because it might be accessed by name or using Reflection at runtime, etc.
- In addition, to avoid false positives, Project Cleaner skips some special folders like Plugins and Editor.
- Unity 2019.3 or newer: Project Cleaner checks your last BuildReport to make search more accurate. Search will be more accurate if you will have build information persisted in your project's Library folder (Unity saves it to the [Library/LastBuild.buildreport](#)). You'll see a warning at the Project Cleaner's left panel if last build report will not be found. Just make a build for the target platform to make use of this feature.

**Empty folders.** Finds empty directories in your project. You also may enable **Autoclean** option to automatically find and delete empty folders on scripts recompile. Useful when you work in big team using GIT or similar VCS that do not synchronize empty folders. It allows to automatically cleaning empty folders for all your colleagues as soon as they get the Maintainer with configured settings from the repository.

## Project Cleaner Usage



After you have done with settings, just press the "**1. Scan project**" button or **CTRL / CMD + SHIFT + ALT + G** short key to perform project-wide search for unused assets.

You will see search progress indicating current search phase and giving you some insight on what is currently happening. After search, you will see search results in the Maintainer.

Results list has such elements:

- Currently shown items indexes and total items count.
- Sorting options. You may sort by path, size, and type both ascending and descending.
- Found unused (unreferenced) assets list itself (will be covered in more details below).
- Paging controls if there are more than 100 items found (one page shows 100 items).
- Some self-describing helper buttons.

Results list consists of separate records. Records are collapsed to the compact view by default and look like this:

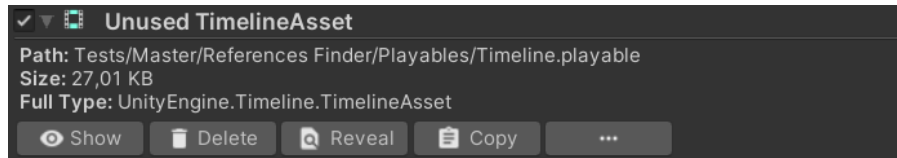


**Compact record view** has such elements:

- Selection box. Allows selecting items for the cleanup. Only checked items will be deleted on the cleanup phase.
- Expand arrow. Allows expanding a record to the detailed view.
- Asset icon. Shows icon similar to what you see at the Project Browser for each asset.
- **Show** button (eye icon). Selects asset at the Project Browser.
- **Delete** button (trash bin icon). Immediately deletes asset and removes item from the results list.
- **More** button (dots icon). Shows menu with additional functionality, as quick add to the ignores.
- Unused asset path relative to the Assets folder.

If you wish to see more details about desired garbage, just press at the expand arrow, or click the record itself (except other buttons of course) to expand it to the detailed view.

Detailed view looks like this:



**Detailed record view** has same elements as Compact record view, with additional items:

- Asset size (if it is not an empty folder).
- Full type (if it is not an empty folder).
- **Reveal** button. Shows file or folder in the system File Manager (Explorer on Windows, Finder on Mac, etc.).
- **Copy** button. Copies record description to the clipboard.

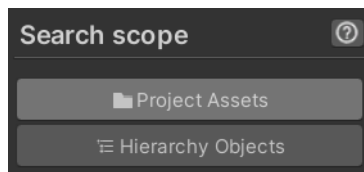
If you wish to see less details about expanded garbage item, just press at the collapse arrow, or click the record itself (except other buttons of course) to collapse it to the compact view.

After you observed found assets, just check desired items and clean them up using the "**2. Delete selected garbage**" button.

## References Finder

This module allows to accurately find references in your project.

There are two references search *scopes* available: **Project Assets** scope and **Hierarchy Objects** scope.



You can switch scope view using Search scope buttons at the left column.

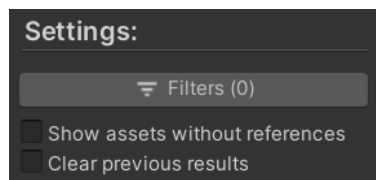
**Project Assets** scope allows looking for assets references in whole project.

**Hierarchy Objects** scope allows looking Game Objects and Components references in current Scene or Prefab.

### Project Assets scope

In this scope, any asset reference can be found in whole project to let you quickly find out where exactly this or that asset is referenced in your project, if referenced at all.

#### Project Assets scope Settings



**Filters** button opens filtering options with **Path Includes** and **Path Ignores** tabs, similar to the precise filters tabs at the [Issues Finder Settings](#) section covered above.

#### IMPORTANT:

Please keep an eye on your lists of the filters to make sure they do not have old and not actual items to avoid extra waste of the resources and time during the References search.

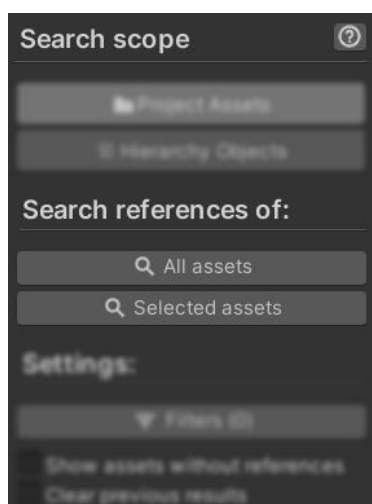
**Show assets without references.** Enable to keep assets without found references in list. They will be just dimmed a bit to indicate they have no references found.

**Clear previous results.** Enable to automatically clear previous search results on new search.

#### PERFORMANCE NOTES:

- First assets references search may run noticeably slower, especially if it is a project-wide search of all assets references.
- Internal assets cross-references map is created on first run.
- **All assets** references search usually runs much slower comparing to the **Selected assets** search.

#### Project Assets scope usage

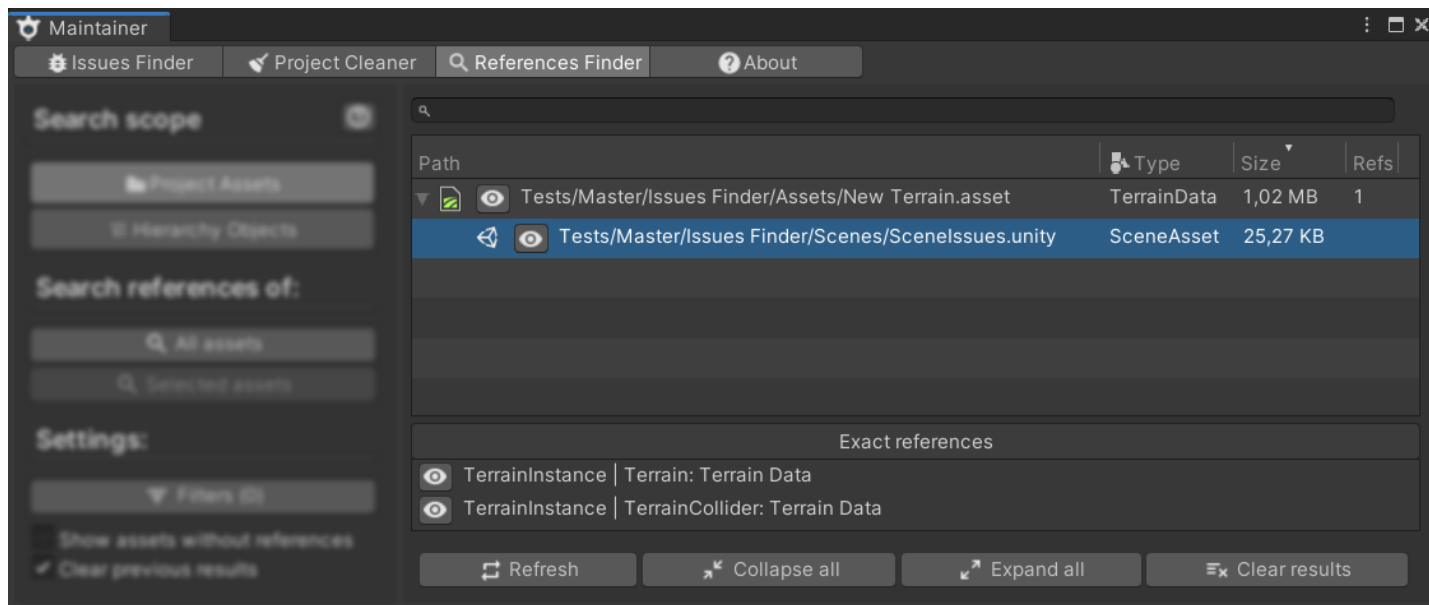


To run asset reference search, use either:

- Main menu command or CTRL / CMD + SHIFT + ALT + R shortcut (see [Installation and setup](#)).
- Project Browser context menu item **Maintainer > Find References in Project** or CTRL / CMD + SHIFT + ALT + S shortcut for selected assets.
- Component context menu **Maintainer: Script File References** for components made from script asset files.
- **All assets** button at the left column.
- **Selected assets** button at the left column for selected assets.
- Drag & drop asset(s) or components created from asset script files right to the right-hand area with results view.

If you have any unsaved changes in opened scenes, you will be prompted to save them before search starts.

You will see search progress indicating current search phase and giving you some insight on what is currently happening. After search, you will see search results in the Maintainer.



Here you can see (from top to the bottom):

- **Search bar.** Use it to quickly filter out results by Path. You may enter any part of the path and search is case-insensitive.
- **Results list.** It has header with few columns: Path, Type, Size and Refs (references count). Results may be sorted by any of these columns. Each column may be resized. Header also has a context menu where you may hide or show columns and auto-resize headers to fit the width. More details on the results in this list please read below.
- **Exact references list.** If asset was referenced from scene or prefab and Maintainer could figure out exact reference location (up to the exact component field), it will add such locations to this list. See more details on this below.
- **Refresh button.** This button restarts last search and refreshes contents of the results if something changed.
- **Collapse all / Expand all buttons.** Just collapses or expands all results items.
- **Clear results button.** Clears last search results.

Results list consists of separate **Source Asset Rows** for each scanned source asset.

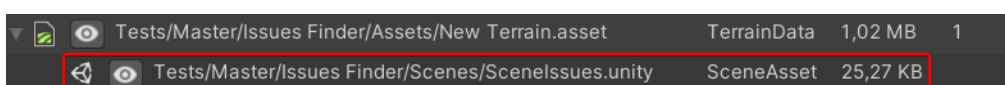


Each source Asset Row has:

- **Expand / Collapse arrow**, if any references were found to this asset.
- **Asset icon.**
- **Show button.** Selects this source asset in the Project Browser.
- **Path** to the source asset file in the project we look for the references to.
- **Type**, file **size** and found **references** count (if all columns are enabled in header context menu).

Source Asset Row will have expand / collapse arrow in case there are any references found to the source asset.

When you expand **Source** Asset Row, you'll see **Reference** Asset Rows – all assets which do reference to the source asset.



If reference was found at the project or scene settings, you will see the gear icon next to it.

Reference Asset Rows are similar to the Source Asset Rows except they cannot be expanded further and they have few additional features:

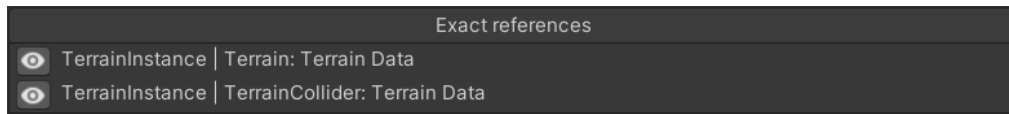


**Show button.** Similar to Source Asset Row's reveal, but also can open Settings windows in case reference was found in settings.

**Find references button.** Searches references of this Reference Asset to see where it is used. Selects it in the results if it's already presents there. It is optional and shows only for referenced assets.

Reference Asset Row has no Refs column value.

Select Reference Asset Row to see where exactly Source asset is referenced, if exact references were found. **Exact references** are printed at the lower resizable pane:



Generally, exact reference has such mask: **[Optional Hint] Transform Path | Component: Field [Array item]**, but it may vary for different kind of references.

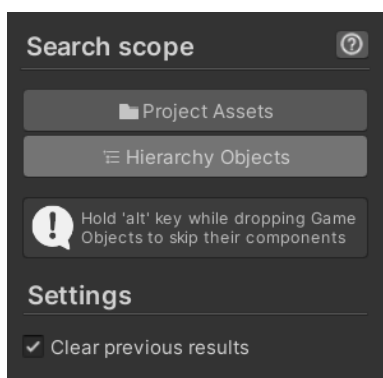
Each exact reference has own **Show** button which navigates to the found reference as closer as possible. It will open settings inspector if reference was found in settings. In case of reference in scene object, it will open the target scene, select target object and fold all components except the target one if necessary, to make it as easy as possible for you to find the reference by the eye.

When navigation needs to open scene, it tries to add it to the current scene setup but uses only 1 extra slot so it will close previously opened scene for navigation before opening new one.

## Hierarchy Objects scope

In this scope, any Game Object or Component reference can be found in current Hierarchy (e.g. Scene, Prefab, multi-scene setup).

### Hierarchy Objects scope Settings



Only one setting is available in this scope mode:

**Clear previous results.** Enable to automatically clear previous search results on new search.

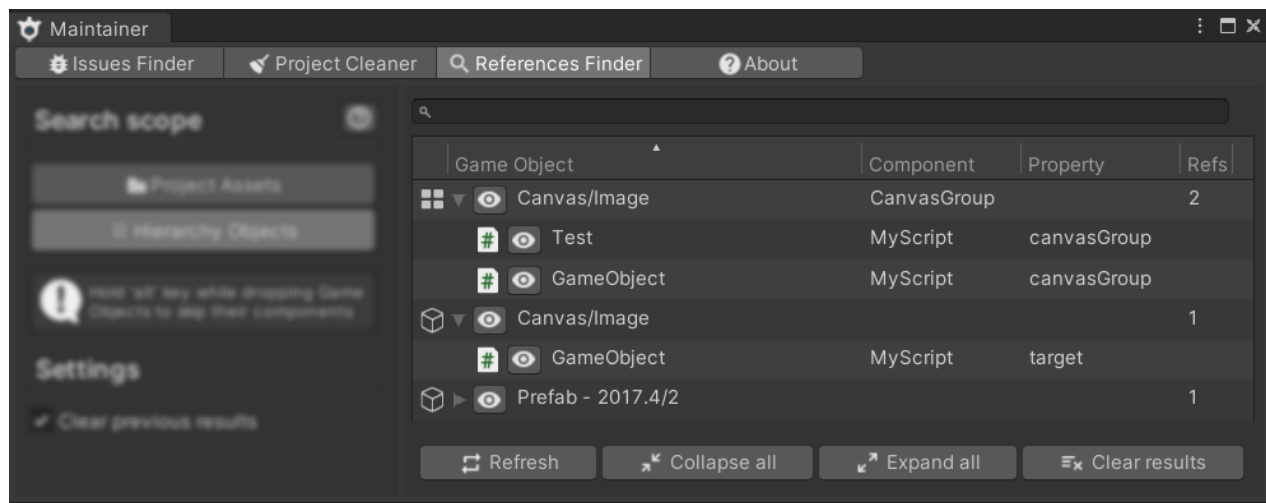
### Hierarchy Objects scope usage

To run Game Object or Component reference search, use either:

- Hierarchy context menu item **Maintainer > Game Object References In Scene** to look for selected Game Objects references in current Hierarchy.
- Hierarchy context menu item **Maintainer > Game Object & Components References In Scene** to look for selected Game Objects and all their components references in current Hierarchy (non-recursive, only selected items will be processed).
- Component context menu **Maintainer: References In Scene** for components.
- Drag & drop Game Objects right to the right-hand area with results view to look for selected Game Objects references in current Hierarchy. Hold ALT key while dropping to include only Game Objects, without their Components.

After search, you will see search results in the Maintainer.





Here you can see (from top to the bottom):

- **Search bar.** Use it to quickly filter out results by Game Object Transform Path. You may enter any part of the path and search is case-insensitive.
- **Results list.** It has header with few columns: Game Object (Transform path), Component, Property and Refs (references count). Results may be sorted by any of these columns. Each column may be resized. Header also has a context menu where you may hide or show columns and auto-resize headers to fit the width. More details on the results in this list please read below.
- **Refresh button.** This button restarts last search and refreshes contents of the results if something changed.
- **Collapse all / Expand all buttons.** Just collapses or expands all results items.
- **Clear results button.** Clears last search results.

Results list consists of separate **Source Rows** for each scanned source Game Object or Component.

Game Object	Component	Property	Refs
Canvas/Image	CanvasGroup		2
Canvas/Image			1

Each Source Row represents source Game Object or source Components and has:

- Game Object or specific Component **icon**.
- **Expand / Collapse arrow**, if any references were found to this Game Object / Component.
- **Show button.** Selects Game Object and collapses all components except Source one if necessary.
- **Transform path** to the source Game Object (or Component's Game Object).
- **Component name** if source is a component.
- **References count** (if all columns are enabled in header context menu).

Source Row will have expand / collapse arrow in case there are any references found to the source object.

When you expand **Source Row**, you'll see **Reference Rows** – all Components which do reference to the source Game Object / Component.

Game Object	Component	Property	Refs
Canvas/Image	CanvasGroup		2
Test	MyScript	canvasGroup	
GameObject	MyScript	canvasGroup	

Reference Rows are similar to the Source Rows and represent exact references to the Source Objects. The only difference is Component's **Property** name where reference to the Source Object was found. Reference Row has no Refs column value.

## Tips section

- Do not forget to configure filters in all modules! It is a great tool to improve modules performance and to reduce amount of not relevant results in all modules.
- You may keep only most important issues for you in Issues Finder module settings to improve search performance and reduce amount of not relevant results.
- All filters windows and References Finder module tab supports drag & drop from the Project view.

## Using Maintainer from code

Maintainer has public API for all modules. APIs allow using and extending modules from your which may be useful when you wish to integrate Maintainer's modules into your pipelines.

### Extending Assets Map dependencies resolve

In order to let Maintainer "know" about custom source dependencies from your assets which are not tracked by `AssetDatabase.GetDependencies()`, inherit your Dependencies Parser from the [DependenciesParser](#) base class. That's all you need to do: Maintainer will automatically find and include your Dependencies Parser extension into the dependencies parsing process.

See online API docs for details:  
[codestage.net/uas\\_files/maintainer/api](https://codestage.net/uas_files/maintainer/api)

## Troubleshooting

- **I have errors in console after importing plugin.**
  - Consider making clean update: delete whole folder with plugin before importing new version into your project.
  - Make sure you have no namespaceless classes in your project which may interfere with some system classes.
  - If errors still there, please contact me, and I will try to help (see Support contacts below).
- **I cannot see issue at the specified object.**
  - Try to enable Debug Inspector mode, some issues may be not visible in Normal Inspector mode.
- **I cannot find target component with issue at the specified object because it has lots of such components.**
  - Check if issue record has (ID: \*\*\*) next to the Component name. In such case it indicates index number of that component in the inspector. Use show button to collapse all components on the Game Object except the target component to quickly distinguish it among others.
- **I cannot find target property with issue at the specified component both in Normal and Debug inspector modes.**
  - In some rare cases, actual property names may be obscured with PropertyDrawers or Editors. It is not an actual bug. However, if you face such cases too often - just let me know and we will think how to deal with it.
- **References Finder cannot find exact references locations for object in .max model (or any other non-native for Unity).**
  - In order to be able to look for the exact references locations of non-native to Unity items, you usually should have third-party software installed, like 3ds Max, which Unity may use to parse such formats as .max models to let References Finder look into it.

### Secret debug menu (*use at own peril!*)

You may activate super-secret (hush-hush, don't tell anyone!) debug menu with few helpful buttons which may help workaround some issues while you're waiting for a fix for example.

To activate this menu just open the About tab and press CTRL / CMD + D hotkey.

You will see these buttons right there, at the About tab:

- **Remove Assets Map**

Deletes Assets Map file. Next demand will re-create Assets Map, possibly fixing itself if something went wrong previously.

- **Measure Assets Map build time**

Deletes and re-creates Assets Map file with creation duration log to the console. Useful for benchmarking or debugging.

- **Remove User Settings and Close**

Deletes User-specific Maintainer settings file and closes Maintainer window. User settings will reset to defaults on next Maintainer launch.

- **Remove All Settings and Close**

Deletes all (both User and Project) Maintainer settings files and closes Maintainer window. All settings will reset to defaults on next Maintainer launch.

- **Re-save all scenes in project**

Iterates all scenes in the project: opens and saves them, one by one. This action has two goals:

- all scenes in project will be updated to the current Unity format if you have some scenes which weren't re-saved in current Unity version yet
- Unity will fix and clean out some garbage and incorrect dependencies in scenes helping References Finder module to be more accurate in some cases

- **Reload settings**

Forces all (both User and Project) Maintainer settings reload.

## Compatibility

Maintainer works with any Unity license and skin.

Maintainer works on all platforms (Windows, OS X, Linux).

Maintainer works fine with new scripting backend (.NET 4+) and Assembly Definition feature.

Plugin takes into account some specific behavior of the third-party plugins and assets to avoid false positives. For example, empty MeshFilters on objects with TextMeshPro or 2DToolkit components will be considered valid.

If you use some third-party assets that make false positives for you because of specific behavior, feel free to report them.

# Final words from author

I hope you'll find **Maintainer** helpful in your daily work and it will save some of your priceless time!

Please, [leave your reviews](#) at the Asset Store, it's really important and any user feedback motivates me to continue my work with extra passion.

Also feel free to drop me bug reports, feature suggestions and other thoughts on the forum or via support contacts you'll find below.

## Maintainer links and support

[Asset Store](#) | [Homepage](#) | [API Reference](#) | [Forum](#) | [YouTube](#)

### Support contacts:

[discord.gg/FRK5HRzVq](https://discord.gg/FRK5HRzVq)

[codestage.net/contacts](https://codestage.net/contacts)

[support@codestage.net](mailto:support@codestage.net)

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Best wishes,  
Dmitriy Yukhanov  
[Asset Store publisher](#)  
[codestage.net](https://codestage.net)

*P.S. #0 I wish to thank my family for supporting me in my Unity Asset Store efforts and making me happy every day!*

*P.S. #1 I wish to say huge thanks to [Daniele Giardini](#) ([DOTween](#), [HOTools](#), [Goscurry](#) and many other happiness generating things creator) for awesome logos, intensive help and priceless feedback on this plugin!*