Hey there!

v. 1.4.1.0

Huge thanks for purchasing **Maintainer**, your attentive Unity3D projects housekeeping assistant!

This is an editor extension made of three separate modules:
Issues Finder, **Project Cleaner**, **References Finder** (requires Unity 5.6+).

Please read carefully through this document in order to know more about each module and plugin in general.
See more details about each module at the "**Features**" section below.

Installation and setup

IMPORTANT:

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

It will let you avoid different compatibility issues and errors.

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

- **Tools > Code Stage > Maintainer > Show** (CTRL / CMD + SHIFT + ALT + `)
  Opens Maintainer window at last opened tab.
- **Tools > Code Stage > Maintainer > About**
  Opens Maintainer window at the About tab.
- **Tools > Code Stage > Maintainer > Find Issues** (CTRL / CMD + SHIFT + ALT + F)
  Starts Issues Finder module search and shows Maintainer window with results.
- **Tools > Code Stage > Maintainer > Find Garbage** (CTRL / CMD + SHIFT + ALT + G)
  Starts Project Cleaner module search and shows Maintainer window with results.
- **Tools > Code Stage > Maintainer > Find All References** (CTRL / CMD + SHIFT + ALT + R)
  Starts References Finder module global search and shows Maintainer window with results.

In addition, this item at the Assets / Project Context menu appears:

- **Assets / Project Context menu > Maintainer > Find References in Project** (CTRL / CMD + SHIFT + ALT + S)
  Starts References Finder module search for the selected item(s) and shows Maintainer window with results.

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/MaintainerMap.dat**
  This is a Maintainer-optimized Assets Map of your project, which some modules create and use. It's a binary file.
- **YourProject/Temp/Maintainer*Results.bin and MaintainerReferencesSelection.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

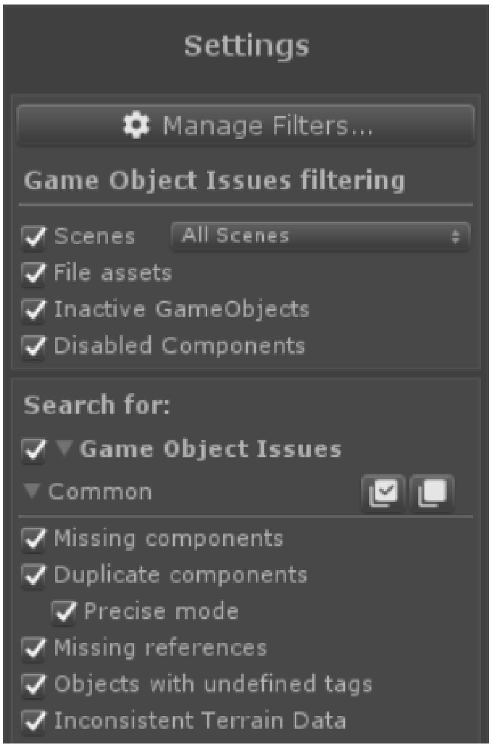
Issues Finder

This module allows to find different issues within your Unity3D project, like missing scripts, unused components, and much, 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'll 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.

Settings

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


Settings

Manage Filters...

Game Object Issues filtering

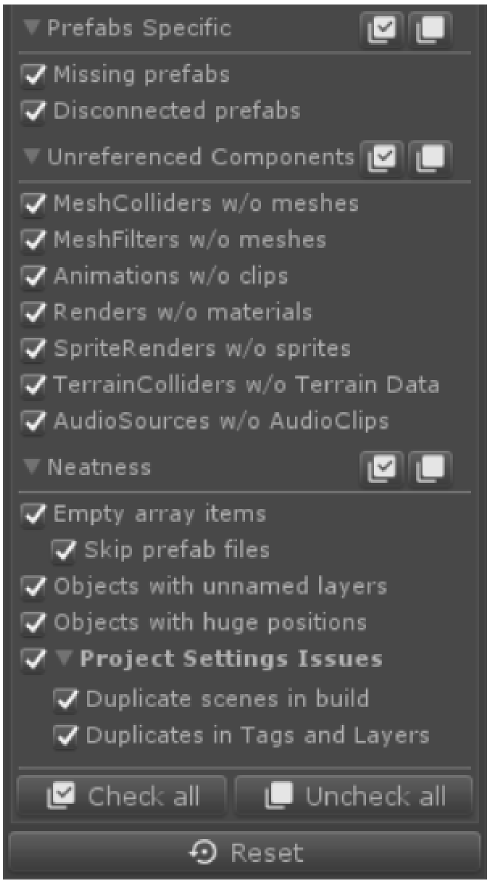
☑ Scenes — All Scenes
☑ File assets
☑ Inactive GameObjects
☑ Disabled Components

Search for:

☑ ▼ Game Object Issues

▼ Common

☑ Missing components
☑ Duplicate components
  ☑ Precise mode
☑ Missing references
☑ Objects with undefined tags
☑ Inconsistent Terrain Data


▼ Prefabs Specific

☑ Missing prefabs
☑ Disconnected prefabs

▼ Unreferenced Components

☑ MeshColliders w/o meshes
☑ MeshFilters w/o meshes
☑ Animations w/o clips
☑ Renders w/o materials
☑ SpriteRenders w/o sprites
☑ TerrainColliders w/o Terrain Data
☑ AudioSources w/o AudioClips

▼ Neatness

☑ Empty array items
  ☑ Skip prefab files
☑ Objects with unnamed layers
☑ Objects with huge positions

☑ ▼ Project Settings Issues

  ☑ Duplicate scenes in build
  ☑ Duplicates in Tags and Layers

Check all — Uncheck all

Reset

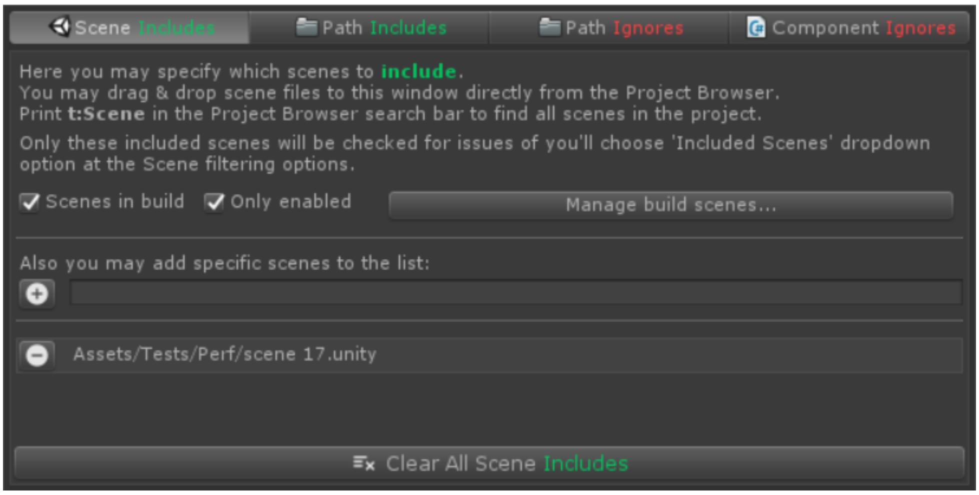
Here you can see different settings available for the Issues Finder module.

Settings are made of two separate groups: different filtering and ignoring settings and "what to look for" settings. Let me just describe them one-by-one, in their exact order.

- **Manage Filters…** button. Opens Filters window with four tabs – **Scene Includes**, **Path Includes**, **Path Ignores** and **Component Ignores**.

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



Here you may specify which scenes to **include**.
You may drag & drop scene files to this window directly from the Project Browser.
Print **t:Scene** in the Project Browser search bar to find all scenes in the project.

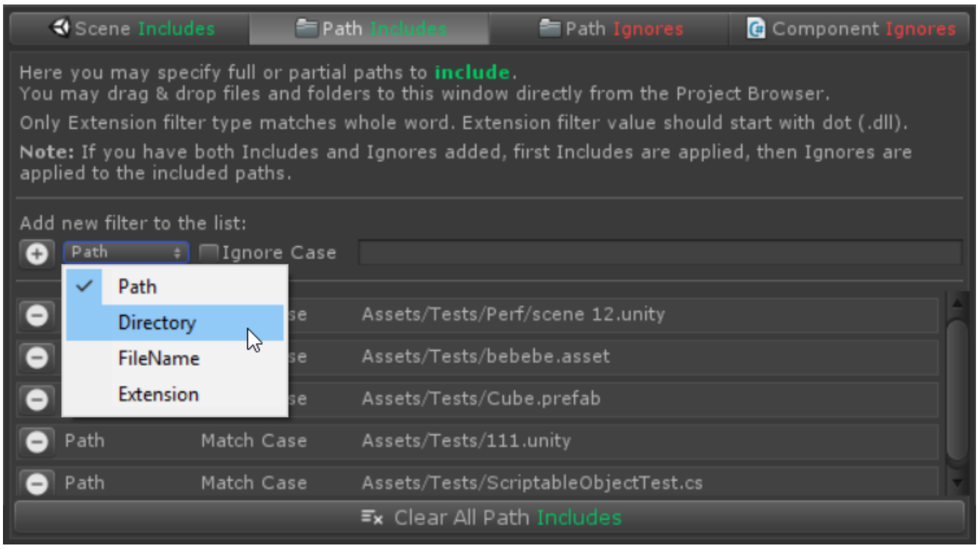
Only these included scenes will be checked for issues of you'll choose 'Included Scenes' dropdown option at the Scene filtering options.

☑ Scenes in build ☑ Only enabled

Also you may add specific scenes to the list:

Assets/Tests/Perf/scene 17.unity

- **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.



Here you may specify full or partial paths to **include**.
You may drag & drop files and folders to this window directly from the Project Browser.

Only Extension filter type matches whole word. Extension filter value should start with dot (.dll).

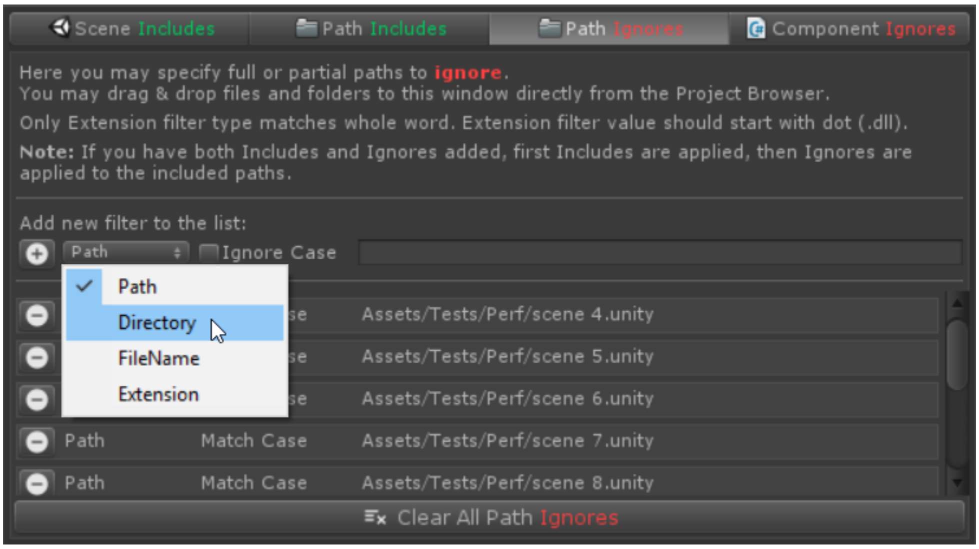
Note: If you have both Includes and Ignores added, first Includes are applied, then Ignores are applied to the included paths.

Add new filter to the list:

Path □ Ignore Case

se Assets/Tests/Perf/scene 12.unity
se Assets/Tests/bebebe.asset
se Assets/Tests/Cube.prefab
Path Match Case Assets/Tests/111.unity
Path Match Case Assets/Tests/ScriptableObjectTest.cs

- **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.



Here you may specify full or partial paths to **ignore**.
You may drag & drop files and folders to this window directly from the Project Browser.

Only Extension filter type matches whole word. Extension filter value should start with dot (.dll).

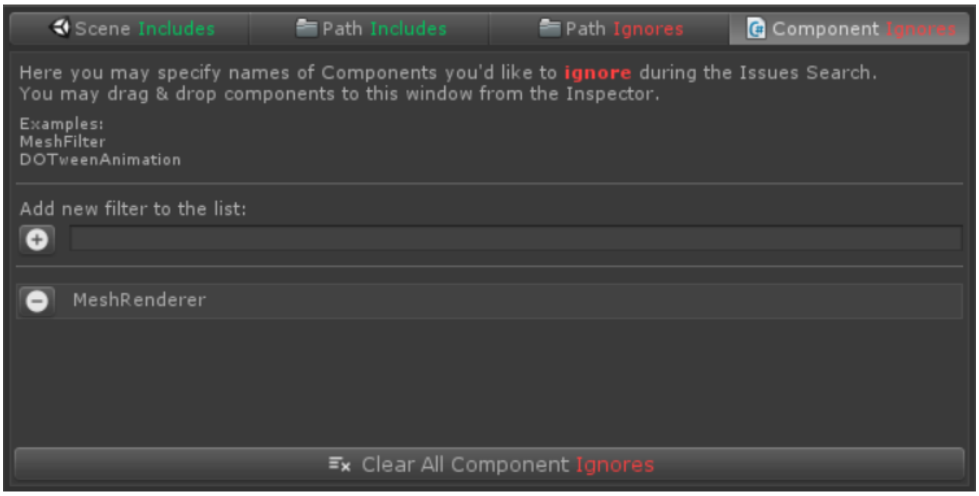
Note: If you have both Includes and Ignores added, first Includes are applied, then Ignores are applied to the included paths.

Add new filter to the list:

Path □ Ignore Case

se Assets/Tests/Perf/scene 4.unity
se Assets/Tests/Perf/scene 5.unity
se Assets/Tests/Perf/scene 6.unity
Path Match Case Assets/Tests/Perf/scene 7.unity
Path Match Case Assets/Tests/Perf/scene 8.unity

- **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.



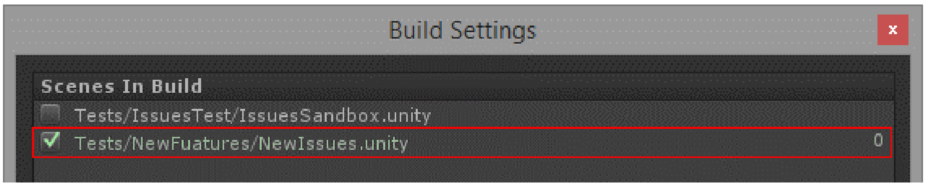
Here you may specify names of Components you'd like to **ignore** during the Issues Search.
You may drag & drop components to this window from the Inspector.

Examples:
MeshFilter
DOTweenAnimation

Add new filter to the list:

MeshRenderer

- **Scenes**. Should we check scenes at all?
- **Scenes filtering selector:**
  - **All Scenes**. Performs search in all scenes in the project.
  - **Included Scenes.** Checks only those scenes you've included at the Scene Includes filters. By default, all enabled scenes from the "Scenes in build" are included.


Build Settings

Scenes In Build
☐ Tests/IssuesTest/IssuesSandbox.unity
☑ Tests/NewFuatures/NewIssues.unity 0

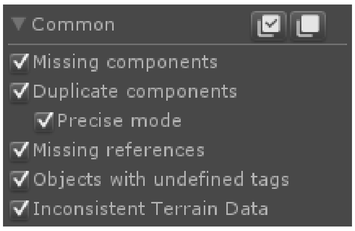
  - **Opened Scenes Only**. Performs search only in currently opened scenes (multi-scene setup is supported). Path Ignores will not affect such search.
- **File assets.** Should we include file assets files (like prefabs)?

  IMPORTANT:
  In-scene prefabs instances objects nested on 0 or 1 level which have no changed (overriding prefab) properties will be skipped when this option is checked since all such objects will be scanned as prefab assets.
- **Inactive GameObjects.** Should we include any inactive Game Objects?
- **Disabled Components.** Should we include any disabled (unchecked) Components?

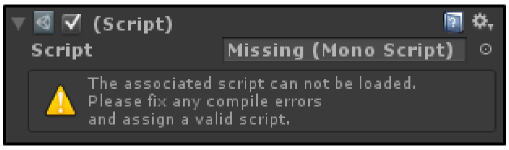
Next we see **"Search for"** settings divided into 2 main sections: **Game Object Issues** and **Project Settings Issues**.

Game Object Issues

- **Common** group. Here we have most serious issues, which can affect your game behavior and stability.

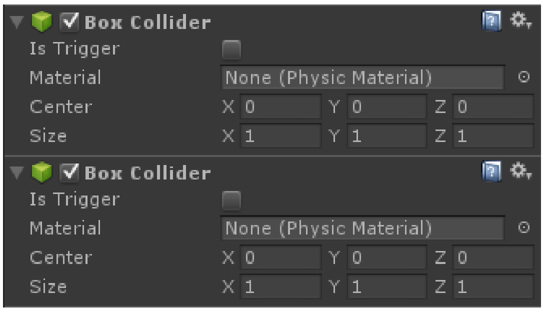

Common
☑ Missing components
☑ Duplicate components
  ☑ Precise mode
☑ Missing references
☑ Objects with undefined tags
☑ Inconsistent Terrain Data

  - **Missing components.** Search for the missing components on the Game Objects. Often happens when you delete some MonoBehaviour script placed on the Game Object from your project.


☑ (Script)
Script Missing (Mono Script)
The associated script can not be loaded.
Please fix any compile errors
and assign a valid script.

- **Duplicate components.** Search for the multiple instances of the same component on the same object, optionally taking into account values of the components (***Precise mode***).

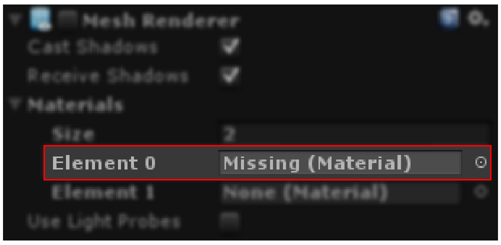
  IMPORTANT:
  Gradient values are not supported for now (so you may get false positives if you have similar components with only differed gradients).



Box Collider
Is Trigger □
Material None (Physic Material)
Center X 0 Y 0 Z 0
Size X 1 Y 1 Z 1

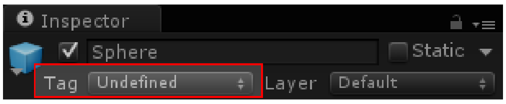
Box Collider
Is Trigger □
Material None (Physic Material)
Center X 0 Y 0 Z 0
Size X 1 Y 1 Z 1

- **Missing references.** Search for any missing references in the serialized fields of the components. Often happens when you remove referenced item from the project.



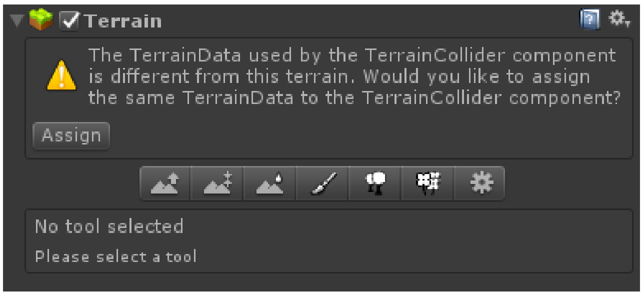
Mesh Renderer
Cast Shadows ☑
Receive Shadows ☑
Materials
Size 2
Element 0 Missing (Material)
Element 1 None (Material)
Use Light Probes □

- **Objects with undefined tags.** Search for GameObjects without any tag. May happen if you use some custom tag and remove it from Tag Manager afterwards. It may be dangerous since you'll get exception if you'll try to access tag of such object.



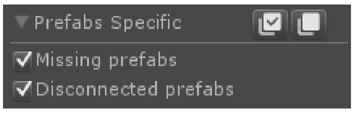
Inspector
☑ Sphere □ Static
Tag Undefined Layer Default

- **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.



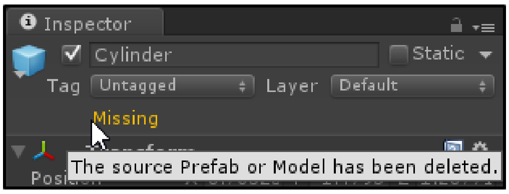
☑ Terrain
The TerrainData used by the TerrainCollider component is different from this terrain. Would you like to assign the same TerrainData to the TerrainCollider component?
Assign
No tool selected
Please select a tool

- **Prefabs Specific** group. Contains different issues related to the prefabs.



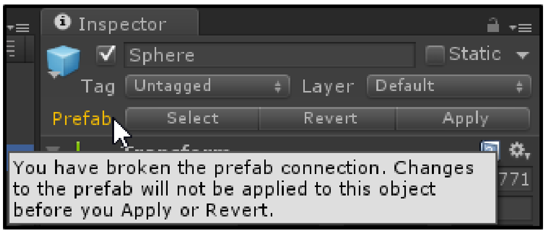
Prefabs Specific
☑ Missing prefabs
☑ Disconnected prefabs

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



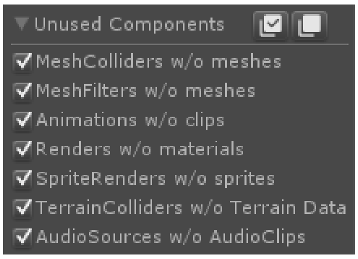
Inspector
☑ Cylinder □ Static
Tag Untagged Layer Default
Missing
The source Prefab or Model has been deleted.

- **Instances of disconnected prefabs.** Search for disconnected prefabs instances. Happens when you delete some nested object from the prefab instance for example.



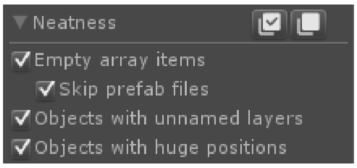
You have broken the prefab connection. Changes to the prefab will not be applied to this object before you Apply or Revert.

- **Unused Components** group. Contains different self-explanatory issues about not used by purpose components.



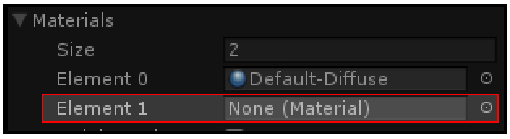
☑ MeshColliders w/o meshes
☑ MeshFilters w/o meshes
☑ Animations w/o clips
☑ Renders w/o materials
☑ SpriteRenders w/o sprites
☑ TerrainColliders w/o Terrain Data
☑ AudioSources w/o AudioClips

- **Neatness** group. Contains different issues related to the overall orderliness and neatness of the project.



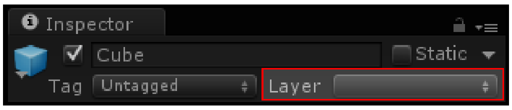
☑ Empty array items
  ☑ Skip prefab files
☑ Objects with unnamed layers
☑ Objects with huge positions

  - **Empty array items.** Look for any unused items in arrays. All prefab files can be ignored using **Skip prefab files** toggle.

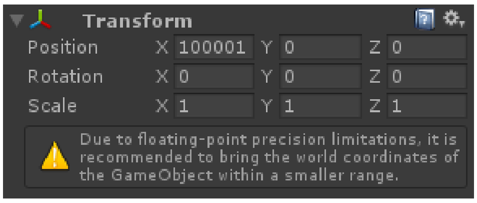


Size 2
Element 0 Default-Diffuse
Element 1 None (Material)

  - **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.

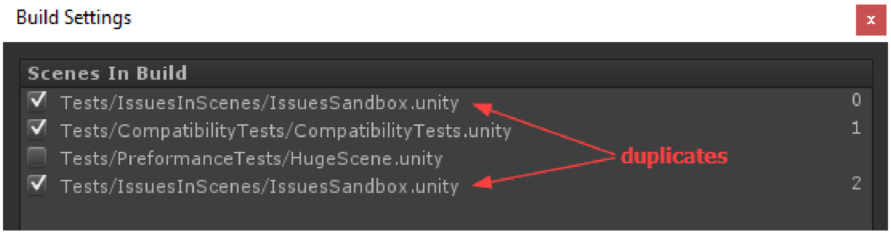


Position X 100001 Y 0 Z 0
Rotation X 0 Y 0 Z 0
Scale X 1 Y 1 Z 1

Due to floating-point precision limitations, it is recommended to bring the world coordinates of the GameObject within a smaller range.

Project Settings Issues

- **Duplicate scenes in build**. Looks for the duplicate entries at the *Scenes In Build* section of the Build Settings.



☑ Tests/IssuesInScenes/IssuesSandbox.unity 0
☑ Tests/CompatibilityTests/CompatibilityTests.unity 1
□ Tests/PreformanceTests/HugeScene.unity
☑ Tests/IssuesInScenes/IssuesSandbox.unity 2

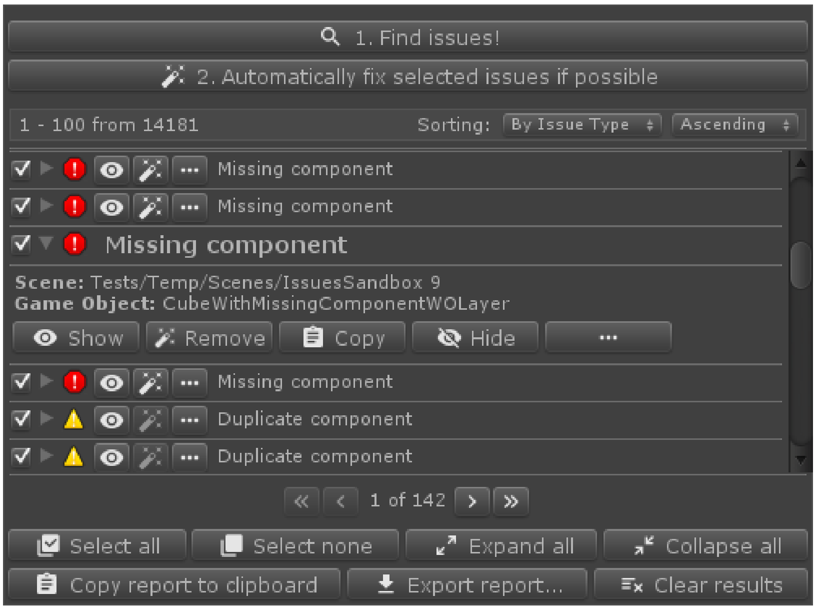
- **Duplicates in Tags and Layers**. Looks for the duplicate entries at the *Tags and Layers* settings of the project.

Use **Check all** and **Uncheck all** buttons to quickly check and uncheck all **"Search for"** options.
Use **Reset** button to quickly reset all **Issues Finder** settings to defaults.

Usage

After you've done with settings, just press "**1. Find Issues!"** button or **CTRL / CMD + SHIFT + ALT + F** shortcut to start issues search. If you have any unsaved changes in current scene, you'll be prompted to save them before search starts in case you didn't choose Current Scene Only filtering option.

You'll see search progress indicating current search phase and giving you some insight on what's currently happening. After search you'll see search results in the Maintainer.



1 - 100 from 14181

☑ Missing component

☑ Missing component

☑ Missing component

Scene: Tests/Temp/Scenes/IssuesSandbox 9
Game Object: CubeWithMissingComponentWOLayer

☑ Missing component

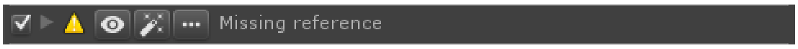
☑ Duplicate component

☑ Duplicate component

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

- **1. Find issues!** button. Starts the Issues Finder search.
- **2. Automatically fix…** button. Tries to automatically fix selected issues. For more details, see the **Automatic fixes** section below.
- 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).
- Some self-describing helper buttons.

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



☑ Missing reference

Compact record view has such elements:

- Selection box. Allows to select items for the auto-fix.
- Expand arrow. Allows to expand a record to the detailed view.
- Severity icon. Shows severity (importance) level. Info, Warning or Critical.
- Optional Prefab icon for issues found in prefab file assets.
- **Show** button (eye icon). Navigates you to the issue as close as possible. Works differently for issues from different sections.

  For Game Object Issues:

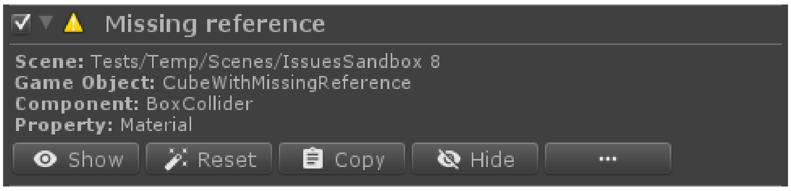
  Selects Game Object with issue in the scene Hierarchy or Project Browser. Opens scene with needed Game Object if necessary and highlights this scene in the Project Browser.
  If target Game Object is nested within Prefab file asset deeper than 2nd level, prefab asset will be highlighted in Project Browser.
  It also tries to collapse all components on the Game Object keeping expanded target component if record has it.

  For Project Settings Issues:

  Opens or highlights desired section of the Project Settings.
- **Fix** button (magic wand icon). Applies suitable auto-fix for the issue, if possible. Over cursor to see the tooltip with description of the applied fix.
- **More** button (dots icon). Shows menu with additional functionality, 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.

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:



Scene: Tests/Temp/Scenes/IssuesSandbox 8
Game Object: CubeWithMissingReference
Component: BoxCollider
Property: Material

Detailed record view has such elements:

- Selection box. Allows to select items for the auto-fix.
- Collapse arrow. Allows to collapse a record to the compact view.
- Severity icon. Shows severity (importance) level. Info, Warning or Critical.
- Optional Prefab icon for issues found in prefab file assets.
- 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.
- 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'll see the (ID: ***) 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 issue

- **Show** button. See the compact view description for details.
- **Fix** button with proper caption, depending on the issue kind. See the compact view description for details.
- **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.
- **More** button. See the compact view description for details.

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 different garbage, unused stuff in your project and lets you clean it up with few clicks.

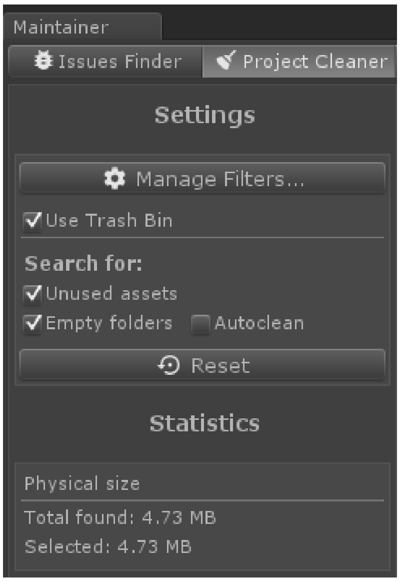
IMPORTANT:

- **Please note, this module can remove files and folders physically from your system. Please always make a backup of your project before using Project Cleaner! I'm not responsible for any data loss due to use of the Project Cleaner!**
- **Keep in mind that Project Cleaner looks for the garbage which is not referenced anywhere in the project. However, it 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'll 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.

Settings

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



☑ Use Trash Bin

Search for:

☑ Unused assets

☑ Empty folders □ Autoclean

Physical size

Total found: 4.73 MB

Selected: 4.73 MB

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.

- **Manage Filters…** button. Opens Filters window with two tabs – **Scene Ignores and Path Ignores**.

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

  Tabs are equal to the ignore tabs from the **Issues Finder** module.

  Scene Ignores tab allows to exclude 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 Ignores tab allows to exclude specified files, folders or partial paths from the Garbage Search.

- **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.

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

  IMPORTANT:
  Assets garbage search 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.

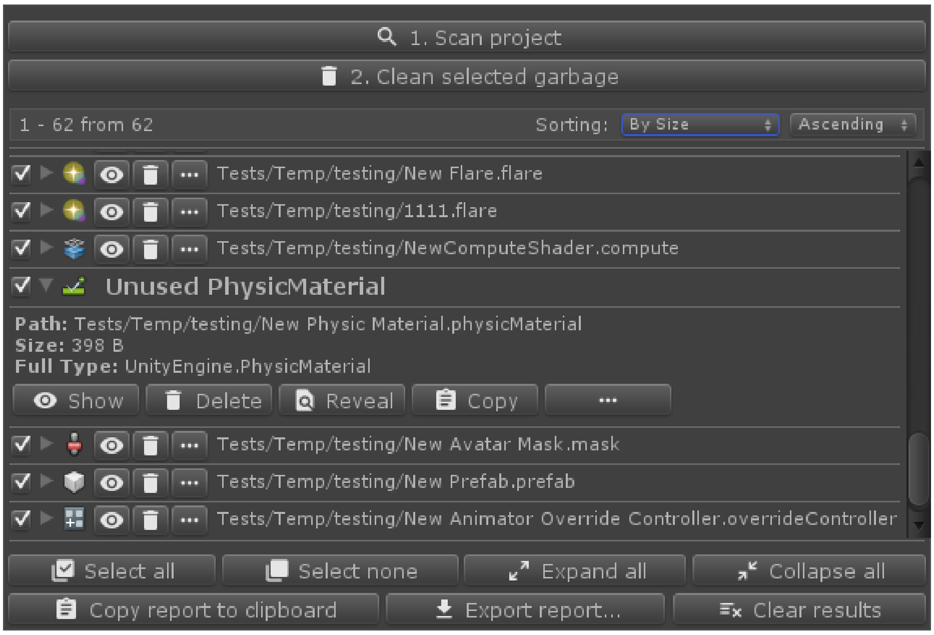
Also, to avoid false positives, Project Cleaner skips some special folders like Plugins and Editor.

- **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 which don't sync empty folders. It allows to automatically clean empty folders for all your colleagues as soon as they get the Maintainer with configured settings from the repository.

Usage

After you've done with settings, just press the "**1. Scan project**" button or **CTRL / CMD + SHIFT + ALT + G** short key to perform garbage search.

You'll see search progress indicating current search phase and giving you some insight on what's currently happening. After search you'll see search results in the Maintainer.



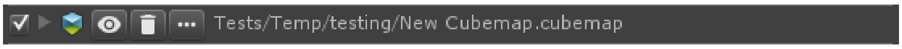
1 - 62 from 62 Sorting: By Size Ascending

Tests/Temp/testing/New Flare.flare
Tests/Temp/testing/1111.flare
Tests/Temp/testing/NewComputeShader.compute
Unused PhysicMaterial
Path: Tests/Temp/testing/New Physic Material.physicMaterial
Size: 398 B
Full Type: UnityEngine.PhysicMaterial
Tests/Temp/testing/New Avatar Mask.mask
Tests/Temp/testing/New Prefab.prefab
Tests/Temp/testing/New Animator Override Controller.overrideController

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

- **"1. Scan project"** button. Starts the garbage search.
- **"2. Clean selected garbage"** button. Starts the cleanup of the selected items.
- Currently shown items indexes and total items count.
- Sorting options. You may sort by path, size, and type both ascending and descending.
- Found garbage 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 garbage records. Records are collapsed to the compact view by default and look like this:



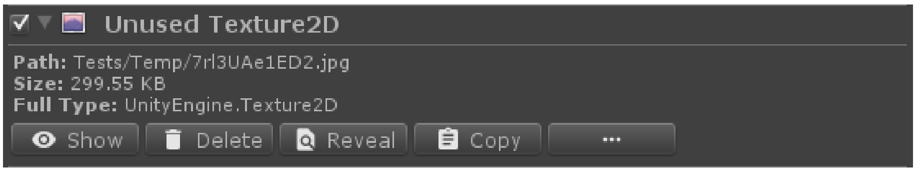
Tests/Temp/testing/New Cubemap.cubemap

Compact record view has such elements:

- Selection box. Allows to select items for the cleanup. Only checked items will be deleted on the cleanup phase.
- Expand arrow. Allows to expand 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.
- **More** button (dots icon). Shows menu with additional functionality, as quick add to the ignores.
- Garbage 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:



Path: Tests/Temp/7rl3UAe1ED2.jpg
Size: 299.55 KB
Full Type: UnityEngine.Texture2D

Detailed record view has such elements:

- Selection box. Allows to select items for the cleanup. Only checked items will be deleted on the cleanup phase.
- Collapse arrow. Allows to collapse a record to the compact view.
- Asset icon. Shows icon similar to what you see at the Project Browser for each asset.
- Caption. Usually describes the type of found garbage.
- Garbage asset path relative to the Assets folder.
- Asset size (if it's not an empty folder).
- Full type (if it's not an empty folder).
- **Show** button. See the compact view description for details.
- **Delete** button. See the compact view description for details.
- **Reveal** button. Shows file or folder in the system File Manager (Explorer on Windows, Finder on Mac, etc.).
- **Copy** button. Copies garbage record description to the clipboard.
- **More** button. See the compact view description for details.

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 garbage, just check desired items and clean them up using the "**2. Clean selected garbage**" button.

References Finder

IMPORTANT:
Unity 5.6 or newer required for this module. This module will be disabled in older versions.

This module allows to accurately find references to any asset in any other assets in your project to let you quickly find out where exactly this or that asset is referenced in your project, if referenced at all.

For example, you may check where selected Texture asset is used and see list of references with detailed path to the reference including scene (if it's not a prefab), object, component, property name if possible.

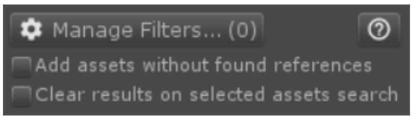
Some specific corner cases are treated with care, for example, in-scene lighting settings and game object icons are checked for references, settings references (like scenes in build scenes and icons in player settings) are checked too, even hidden prefabs modifications are "in the game".

Search algorithm was developed with performance in mind making it effective and reducing time of the repeating searches dramatically (first run will be significantly slower, especially if it's a project-wide search of all assets references).

You can use this module both from Maintainer window and via menu command / shortcut (see **Installation and setup**).
If you'll use it via main (top) menu command / shortcut, it will perform project-wide search of all assets references.
If you'll use it from Assets (Project view context) menu, it will perform search of selected assets references, which is much faster usually when searching for the first time.
In both cases latest (or default) settings will be used and results will show in the Maintainer window after search.

Settings

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



□ Add assets without found references
□ Clear results on selected assets search

Here you can see few settings available for this module.

- **Manage Filters…(0)** button. Opens Filters window with one tab – **Path Ignores**. Number in braces shows amount of added filters.

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

  Path Ignores tab allows excluding specified files, folders, extensions or partial paths from the References Finder. It will exclude items both from target and from source of the reference.

  This tab is similar to same tab at the Issues Finder module filters.

- **Add assets without found 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 results on selected assets search**. Enable to automatically clear previous search results before making new search of assets selected in Project view. If you keep it disabled, each new search will add new results to the previous results.

Usage

After you've done with settings, you have two options how to use the module next:

1. If you wish to run project-wide scan of all assets for references in all project just press "**Find all assets references"** button or **CTRL / CMD + SHIFT + ALT + R** shortcut to start global project-wide references search.

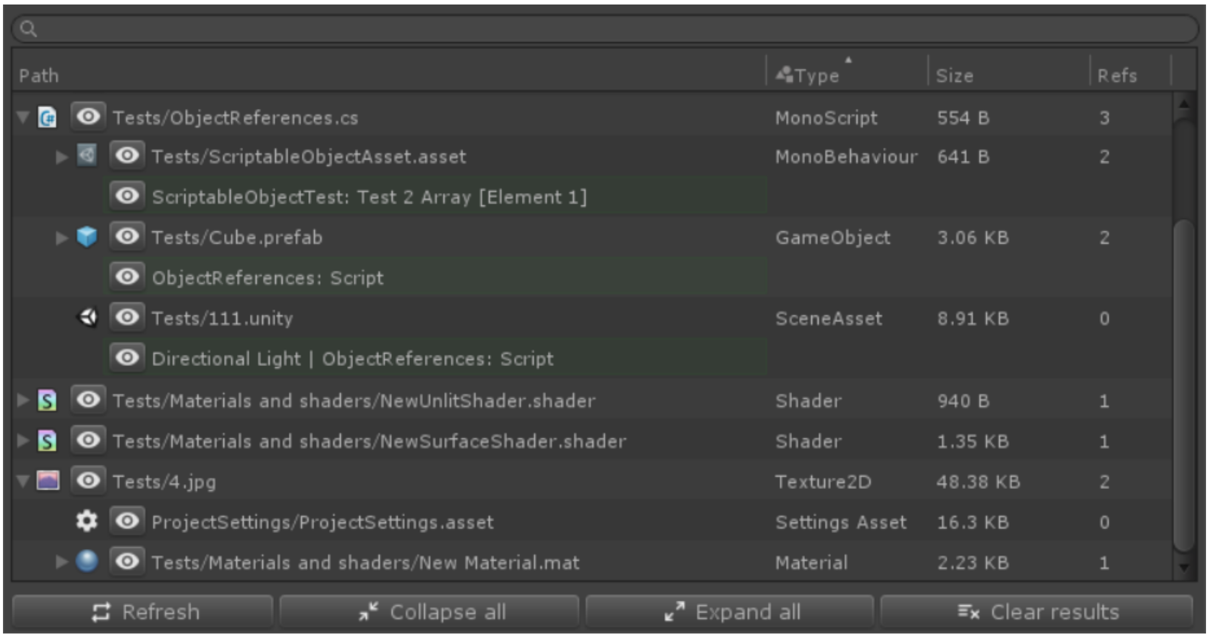
   IMPORTANT:
   Project-wide search of all assets references usually takes more time to complete comparing to the selected assets references search. It may take significant amount of time for huge projects. Therefore, please be patient and let References Finder finish initial search (it will take much less time for any subsequent searches).
   Alternatively, avoid project-wide search and use only selected assets references search (explained below) to speed up the search process.

2. If you wish to check few specific assets for references in project, you may do this with one of these options:

   - Select them at the Project explorer view and select context menu item "**Maintainer > Find References in project**" or press **CTRL / CMD + SHIFT + ALT + R** shortcut**.**
   - Select them at the Project explorer view and press "**Find selected assets references**" button at the Maintainer window with References Finder tab open or press **CTRL / CMD + SHIFT + ALT + R** shortcut**.**
   - Drag them from the Project explorer view to the Maintainer window with References Finder tab open.

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

You'll see search progress indicating current search phase and giving you some insight on what's currently happening.
After search you'll see search results in the Maintainer.

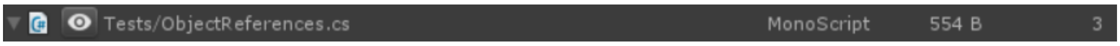


Path	Type	Size	Refs
Tests/ObjectReferences.cs	MonoScript	554 B	3
Tests/ScriptableObjectAsset.asset	MonoBehaviour	641 B	2
ScriptableObjectTest: Test 2 Array [Element 1]			
Tests/Cube.prefab	GameObject	3.06 KB	2
ObjectReferences: Script			
Tests/111.unity	SceneAsset	8.91 KB	0
Directional Light | ObjectReferences: Script			
Tests/Materials and shaders/NewUnlitShader.shader	Shader	940 B	1
Tests/Materials and shaders/NewSurfaceShader.shader	Shader	1.35 KB	1
Tests/4.jpg	Texture2D	48.38 KB	2
ProjectSettings/ProjectSettings.asset	Settings Asset	16.3 KB	0
Tests/Materials and shaders/New Material.mat	Material	2.23 KB	1

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.
- **Refresh** button. This button restarts last search and refreshes contents of the results if something changed.
- **Collapse / Expand** buttons. Just collapses or expands all results items.
- **Clear results** button. Clears last search results.

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

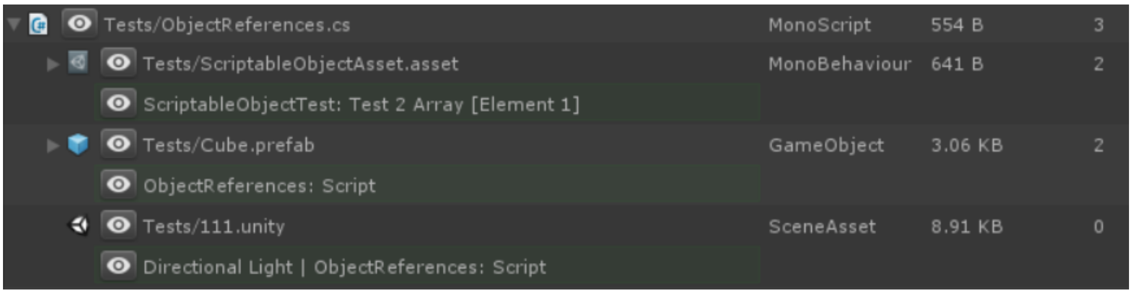


Tests/ObjectReferences.cs	MonoScript	554 B	3

Each Asset Row has:

- **Expand / Collapse arrow**, if any references were found to this asset.
- Asset **icon** or special icon (e.g. in case of recursion).
- **Reveal button**. 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.
- **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).

Asset Row will have expand / collapse arrow in case there are any references found to the source asset.
You may expand row to see found references:

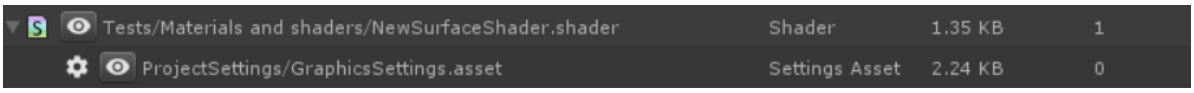


Tests/ObjectReferences.cs	MonoScript	554 B	3
Tests/ScriptableObjectAsset.asset	MonoBehaviour	641 B	2
ScriptableObjectTest: Test 2 Array [Element 1]			
Tests/Cube.prefab	GameObject	3.06 KB	2
ObjectReferences: Script			
Tests/111.unity	SceneAsset	8.91 KB	0
Directional Light | ObjectReferences: Script			

All found references are represented as separate **Reference Items**, nested with indentation at the parent source Asset Row.
Each Reference Item has Asset Row, which indicates asset file where reference was found.
Such row may be expanded further to look at the references of this asset if it has any references found too. This behavior is recursive and allows traversing whole dependency graph of single asset file.

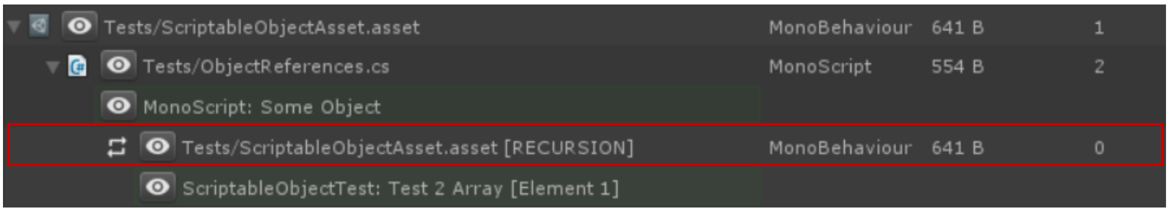
In addition to the Asset Row, Reference Item may have detailed reference **Location Rows** (with green background).
Such Location Rows indicate where exactly the reference was found.
Generally, it has such mask: Transform Path | Component: Field [Array item], but it may vary for different kind of references. For example, reference on root prefab file asset will omit first transform part as prefab itself is a root transform for the reference.

If reference was found at the project or scene settings, you'll see the gear icon next to it:



Tests/Materials and shaders/NewSurfaceShader.shader	Shader	1.35 KB	1
⚙ ProjectSettings/GraphicsSettings.asset	Settings Asset	2.24 KB	0

In case of recursive reference, you'll see the recursive icon next to the Asset Row and special [RECURSION] postfix in path:



Tests/ScriptableObjectAsset.asset	MonoBehaviour	641 B	1
Tests/ObjectReferences.cs	MonoScript	554 B	2
MonoScript: Some Object			
Tests/ScriptableObjectAsset.asset [RECURSION]	MonoBehaviour	641 B	0
ScriptableObjectTest: Test 2 Array [Element 1]			

Keep in mind, References Finder performance for items you've already searched will be much better for all subsequent searches.

Tips section

- Don't forget to configure filters in all modules! It's 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. It allows you to call modules from your code which may be useful when you wish to integrate Maintainer's modules into your build pipeline.

See online API docs for details:
http://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'll try to help (see Support contacts below).
- **I can't see issue at the specified object.**
  - Try to enable Debug Inspector mode, some issues may be not visible in Normal Inspector mode.
- **I can't 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 switch inspector to the Debug mode and find desired component looking at the **Local Identifier In File** or **Instance ID** fields.
- **I can't 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's not an actual bug. However, if you face such cases too often - just let me know and we'll think how to deal with it.
- **References Finder can't 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 (psst, don't tell anyone!) debug menu with few helpful buttons which may help fix some show-stopping issues to let you 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'll 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.
- **Remove Settings and Close**
  Deletes settings file 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 my 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

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 to me.

Final words

I hope you will find **Maintainer** useful and helpful in your daily work with Unity and it will save you 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!

Maintainer links:

Asset Store | Web Site | Forum | YouTube

Support contacts:
E-mail: focus@codestage.net
Other: codestage.net/contacts

Best wishes,
Dmitriy Yukhanov
Asset Store publisher
codestage.net
@dmitriy_focus

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!*