AudioClip Explorer
for Unity (4.x and 5.1)

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1 Introduction

AudioClip Explorer is an editor extension for Unity 4.1 (and higher) and Unity 5.1 (Unity 5.0 is not supported). It works with Unity personal and professional versions.

AudioClip Explorer for Unity empowers you to **edit multiple AudioClip importer settings simultaneously**, change settings from thousands of clips with little to no effort.

It provides an **excellent overview of AudioClip's** available in the project, a certain folder, the current scene or any selected asset in the Hierachy- and Project-View. You can sort every column, which makes it enormously easy to find which clips consume the most memory for example.

2 Features

- ✔ Modify settings of multiple AudioClips simultaneously.
- ✔ Provides all audio clip settings in one view, very useful to tweak/optimize clips.
- ✔ Sort by settings, for example find clips with a certain setting.
- ✔ Find prefabs that use a particular AudioClip.
- ✔ List clips from your project, a folder or of any selected asset.
- ✔ Export content as CSV.

AudioClip Explorer works with large amounts of audio files. It's been tested in a project with 20000 audio clips, that make up more than 16 GB of imported data.

3 Installation

Before importing the AudioClipExplorer package, make sure your project does not have any compile error.

Files in the „AudioClipExplorer" package import to "Assets/Editor/AudioClipExplorer" by default. Once you imported the package, you can find "AudioClip Explorer" in the main menu under the "Window" popup.

In case you want to it be located in a different popup, you can change the location in "Assets/Editor/AudioClipExplorer/AudioClipExplorerMenuItem.cs". Simply change the line `[MenuItem("Window/AudioClip Explorer")]` to whatever fit your needs.

3.1 Source Code

If you've purchased "AudioClip Explorer Pro", the package also contains the full C# source code to build AudioClip Explorer. The source code is stored in a separate zip archive found in the installation directory. If you use the default installation directory, it is: "Assets/Editor/AudioClipExplorer/AudioClipExplorerSource.zip".

The source code can be built using Microsoft Visual Studio or Mono Develop. I tested it with VS 2012 Express and MonoDevelop that comes with Unity 4.2.1. You can find instructions how to build the project in the "readme.txt", which is part of "AudioClipExplorerSource.zip".

Do not unzip the source code to any directory under the "Assets" folder of your project, as this will conflict with the prebuilt DLL version.

4 The first start

Starting AudioClip Explorer after you imported it from the Asset Store, will first display an "Installation window", which is responsible to install the correct plugin version for your Unity installation. The installation usually takes a few seconds only and does not need any user interaction.
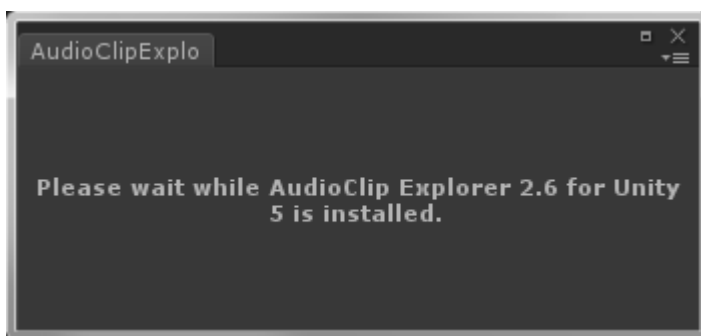
After the installation has been completed, AudioClip Explorer automatically opens, starts to read audioclip settings from your project and stores them in a persistent Cache File. Reading audio clip settings might take a while, depending on the number of audio clips in your project (from a few seconds to several minutes).

However, the next time you open the plugin, it will be much faster (instant)!

4.1 Cache File (the technical part)

AudioClip Explorer automatically creates a file called "AudioClipExplorer.cache" in the projects "Library" directory.

"AudioClipExplorer .cache" should not be added to revision control (Subversion, Perforce, Git, Mercurial, etc). This file is very specific to the state of the Unity project on your computer only.

The .cache file contains audio clip settings that have been read by AudioClip Explorer. Caching this information allows AudioClip Explorer to start much faster when you open it another time, since the plugin does not need to read all the audio clip settings over and over again, which is an expensive operation. Instead, it only needs to check if audio clips have been modified since the last start of the plugin. If clips have not changed, AudioClip Explorer can use settings from the cache file, which is fast. If a clip did change, AudioClip Explorer will read the new settings and update its cache file, which is slower.

5 Usage

AudioClip Explorer displays AudioClip import settings as a table view. Each column represents one setting you also find in the Unity AudioClip Import Inspector and AudioClip Preview Window.

5.1 Changing AudioClip Settings

In order to change audio clip settings, you have to select the item you want to change. You can select multiple items, which will then change settings of the entire selection. This makes it quite easy to change settings from hundreds of AudioClips with little effort.

As soon as you change settings, modifications are highlighted in a different color and an 🟢 (Apply) and 🔵 (Revert) button appear in the left most column. Use the Apply button to commit the changes to Unity.

If you want to apply or revert multiple clips at once, you can either select the items and then click Apply/Revert, or use the "Apply all" / "Revert All" buttons from the "Tools" popup in AudioClip Explorer.
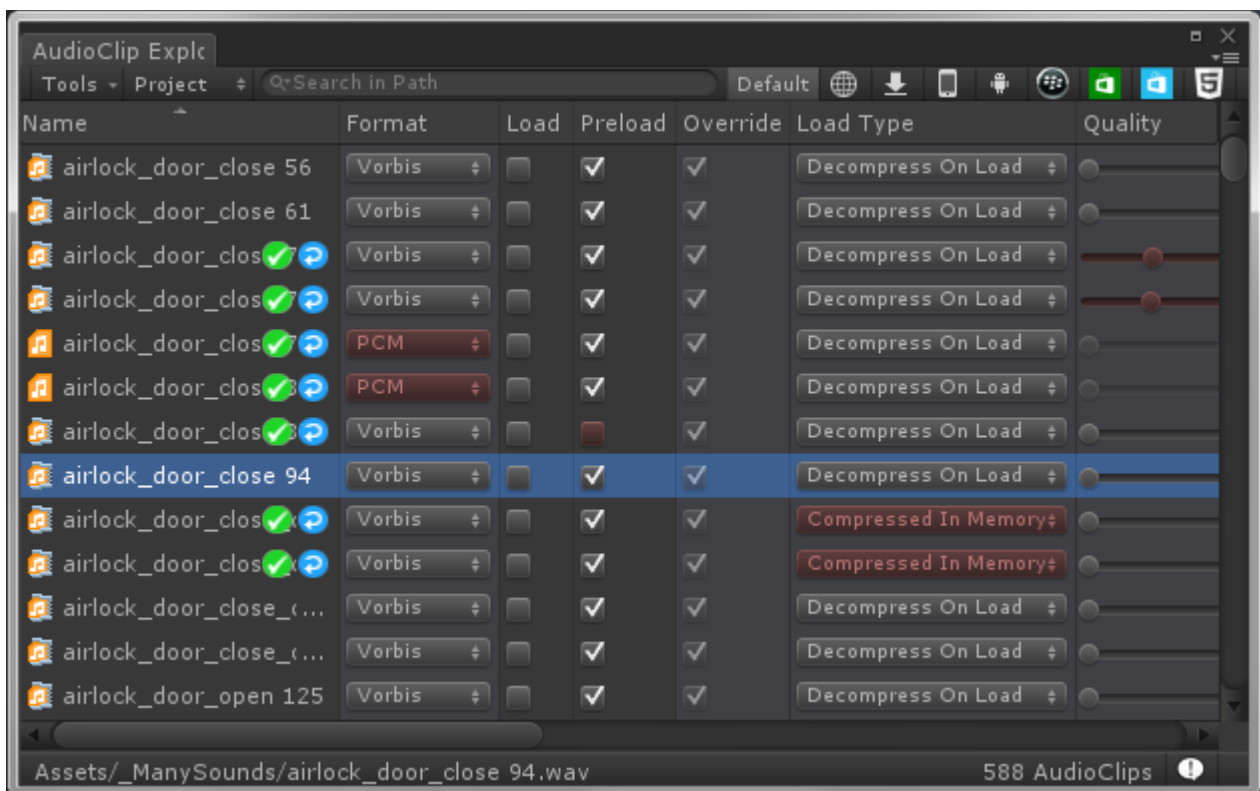
Columns with a slightly blue tint represent platform specific audio clip settings.

Sample Rate	Force Mono	Frequency	Channels	Bits per Sample	Duration	Storage Size	Original S
Preserve	☐	44,100 Hz	Mono	16 bit	00:01.483	7.2 KB	130.8 KB
Preserve	☐	44,100 Hz	Mono	16 bit	00:01.483	7.2 KB	130.8 KB
Preserve	☐	44,100 Hz	Mono	16 bit	00:01.483	7.2 KB	130.8 KB
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Preserve	☐	44,100 Hz	Mono	16 bit	00:01.483	7.2 KB	130.8 KB
Preserve	☐	44,100 Hz	Mono	16 bit	00:01.483	7.2 KB	130.8 KB
Preserve	☐	44,100 Hz	Mono	16 bit	00:01.483	7.2 KB	130.8 KB
Preserve	☐	44,100 Hz	Mono	16 bit	00:02.549	12.2 KB	222.5 KB
Preserve	☐	44,100 Hz	Mono	16 bit	00:02.549	12.2 KB	222.5 KB
Preserve	☐	44,100 Hz	Mono	16 bit	00:02.549	12.2 KB	222.5 KB
Preserve	☐	44,100 Hz	Mono	16 bit	00:02.549	12.2 KB	222.5 KB
Preserve	☐	44,100 Hz	Mono	16 bit	00:01.680	8.0 KB	147.8 KB

Assets/_ManySounds/airlock_door_close 94.wav   588 AudioClips ❗

5.2 Columns available in Unity 4 and 5

AudioClip Explorer displays settings using columns. Several columns are hidden by default, which can be activated by clicking with the right-mouse-button on the column header.

Please note that AudioClip Explorer displays different columns depending on the Unity version it is running on. AudioClip Explorer supports to display the following settings:

Name
Asset filename without file-extension.

Path
The full asset path relative to the project directory, eg "Assets/SFX/Explosion.wav".

Format
The format that will be used for the sound at runtime.

Force Mono
Whether the AudioClip will be down-mixed to a single channel sound.

Load Type
The method Unity uses to load audio assets at runtime, such as "Decompress on load", "Compressed in memory" and "Stream from disc".

Frequency
Sample frequency of the AudioClip in Hz.

Channels
The number of channels in the AudioClip, such as Mono, Stereo or multiple channels like 5.1.

Bits per Sample
Bits per sample, like 16bit.

Duration
The duration of the audio clip.

Storage Size
How many space the asset consumes on the storage device (disk).

Original Storage Size
How many space the source asset, prior import in Unity, consumes on the storage device (disk).

Extension
File-extension of the source asset, eg "wav".

5.3 Columns available in Unity 5 only

Load in Background
When this flag is set, loading of the clip will happen delayed without blocking the main thread.

Preload Audio Data
Preloads audio data of the clip when the clip asset is loaded. When this flag is off, scripts have to call AudioClip.LoadAudioData() to load the data before the clip can be played. Properties like length, channels and format are available before the audio data has been loaded.

Quality
Audio compression quality amount of compression. The value roughly corresponds to the ratio between the resulting and the source file sizes.

Sample Rate
Defines how the sample rate is modified (if at all) of the importer audio file. The "Sample Rate" column in AudioClip Explorer combines the "Sample Rate Setting" and "Sample Rate" properties in Unity's AudioClip Inspector. It can be used to optimize, override and preserve the sample rate.

5.4 Columns available in Unity 4 only

3D
Whether the AudioClip will play back in 3D space.

Runtime Size
How many space the asset consumes during runtime in memory.

Compression
Amount of Compression to be applied to a Compressed clip.

Hardware Decoding
(iOS only) Whether apple's hardware decoder will be used, resulting in lower CPU overhead during decompression.

Gapless Looping
(Android/iOS only) Use this when compressing a seamless looping audio source file (in a non-compressed PCM format) to ensure perfect continuity is preserved at the seam. Standard MPEG encoders introduce a short silence at the loop point, which will be audible as a brief "click" or "pop".

5.5 Navigation

You can scroll the list using the scroll-bars, but you can also hold down the middle mouse button and move the mouse to scroll the view.

5.6 Toolbar

In Unity 5, you find several platform related buttons on the right side of the toolbar. These are used to switch between platform specific audio clip settings inside AudioClip Explorer. Platform specific settings also have slightly blue-ish tint in the list.
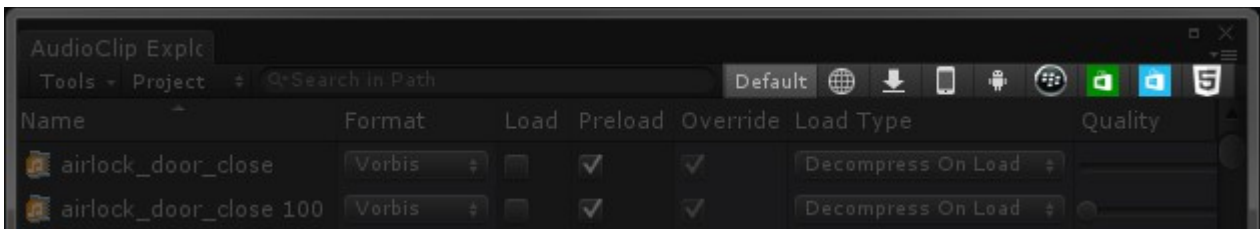
You find several helpers under the „Tools" popup menu in AudioClip Explorer, as shown below.
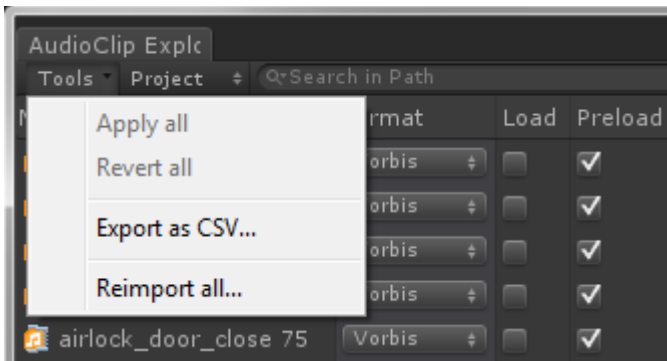
Apply/Revert all

If you want to apply or revert all modifications at once, you can use the „Apply all" and „Revert all" buttons.

Export CSV

Exports the list content as CSV (comma separated, text put in quotes). The exported CSV file can be used in spreadsheet applications to generate fancy graphs about memory usage for example.

If you use Open Office to view the CSV file, these are the CSV import settings:


Reimport all

This button forces a reimport of all audio clips listed in AudioClip Explorer. Depending on the number of audio clips in your project, reimporting all clips can take a significant amount of time.

5.7 Project, Scene and Selection Mode

AudioClip Explorer can display clips from the entire Project, the currently opened scene or any

selected asset.

You can switch the mode using the popup shown below.
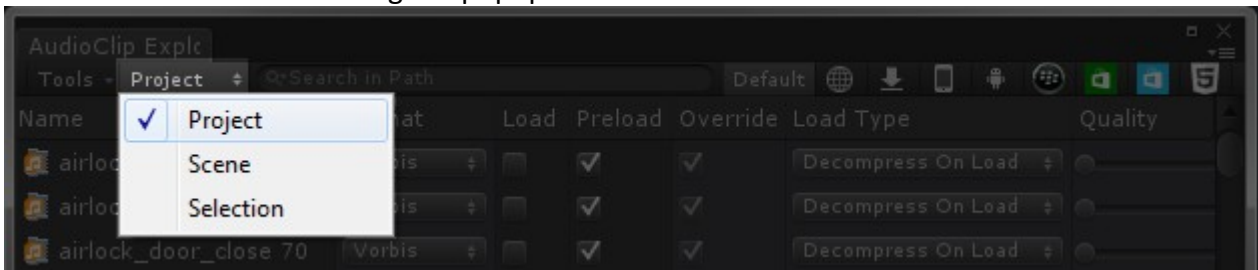
Project Mode
The "Project" option lists all clips which are available in the project, this is all clips located under the projects „Assets" folder.

Scene Mode
"Scene" lists all clips that are currently referenced in the opened scene by active GameObject's.

Changes to the scene or prefabs are not automatically reflected in the AudioClip Explorer view, because finding which clips are used in a scene is an expensive operation (usually 1sec, but depends on your scene complexity).

Therefore you find a "Refresh" button that appears when you switch to "Scene" mode. Pressing "Refresh" gets a new snapshot of all clips that are referenced in the scene at the moment you press the button.

Note for programmers: If you know how to find objects of inactive GameObject's, please drop me an email. I wasn't able to figure it out, but would love to support that, if possible.

Selection Mode
"Selection" can be used to make AudioClip Explorer listen to selection changes in Unity. Whenever an asset gets selected in the Project-, or a GameObject in the Hierachy-window, AudioClip Explorer checks which clips this particular asset is using and displays those.

The complexity of an selected object corresponds to the time AudioClip Explorer needs to figure out which clips are used. For prefabs this is usually to neglect and quite fast, but selecting a scene file can cause AudioClip Explorer to „think" for a few seconds.

If you want to stick with a selection, click the „Lock" button. If locked, selection changes in the Project- and Hierachy-window don't change the list in AudioClip Explorer anymore.
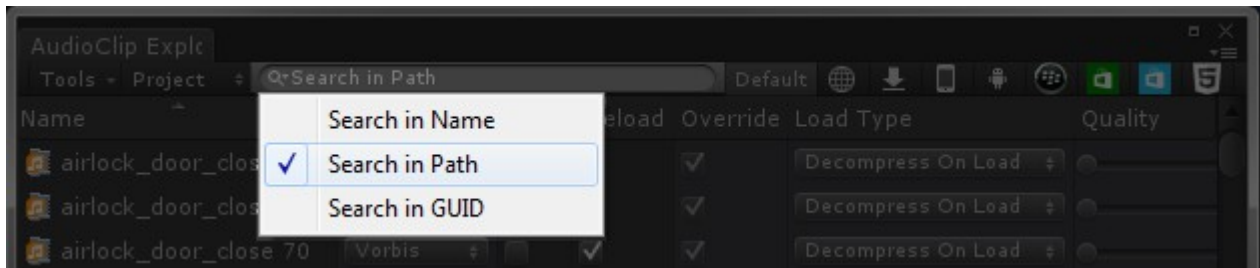
5.8 Search

The textfield in the top bar can be used to search the list. The search checks if any of the provided words occur in the „Name" for example (depends on search mode). The search performs case

insensitive.

Provide multiple words, separated by a space character, to narrow the search even further. If you need to search for a name that contains a space character, you can put the word in quotes, „like this".

Search Modes

The magnifying glass next to the search field can be used to choose on which property of a clip the search term is tested against.

Search in Folders

If you want to search for items in a certain folder, you can switch the search mode to „Path" and then simply drag&drop one or multiple folders from the Unity project window into the search field in AudioClip Explorer.

The following search shows all items that are located either in a folder under „Assets/Sounds/Enemy" or „Assets/Sounds/Player".
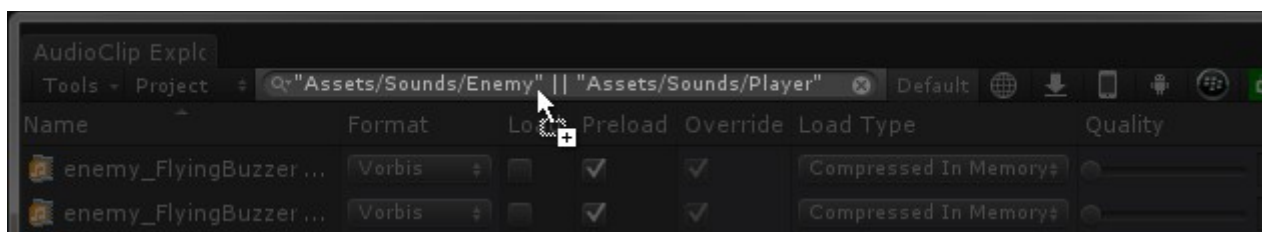
Search Operators

If you're not finding what you're searching, try a search operator. Add these symbols to your search terms in the search field to gain more control over the results.

These search operators are heavily influenced by the C# and Java language, because Unity users are most likely familiar with one of these languages.

| Search for either word a || b	If you want to search for items that may have just one of several words, include || between words. Without the || symbol, your results would only items that match both terms.

Exclude a word !a	Add an exclamation mark (!) before a word to exclude all results that include that word.
Search for both words a && b	The „and" operator is the default when no operator is specified. If you want to search for items that contain both words, either include the && between words or simply leave it out.

Search Examples

Find all items that contain „fs" and „cat" in their name:
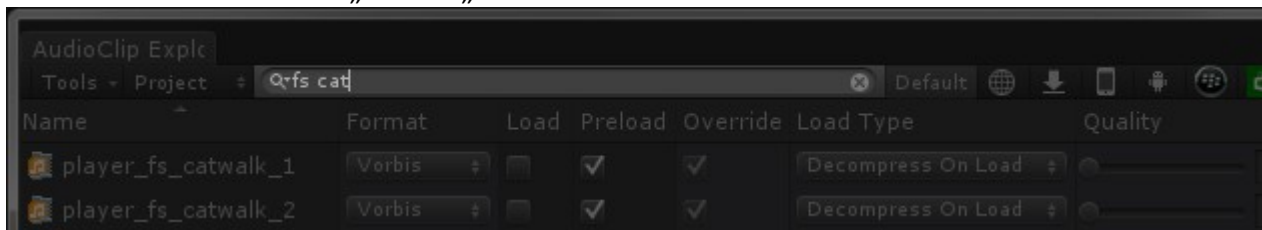
Find all items that contain „player" or „enemy" and „1" in their name:
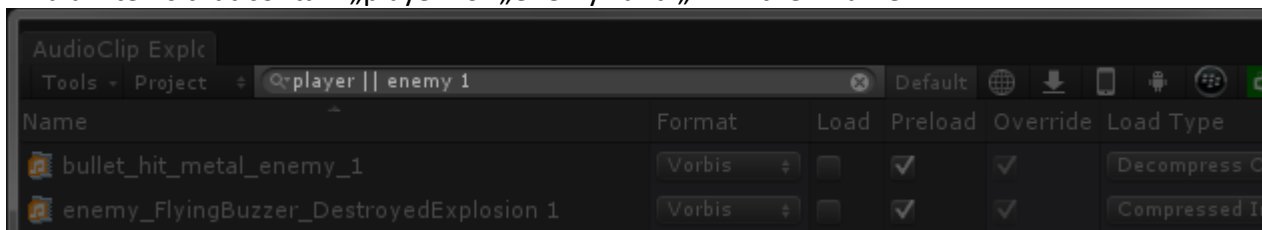
Find all items that contain „player" and „cat" and not „1" and not „2" in their name:
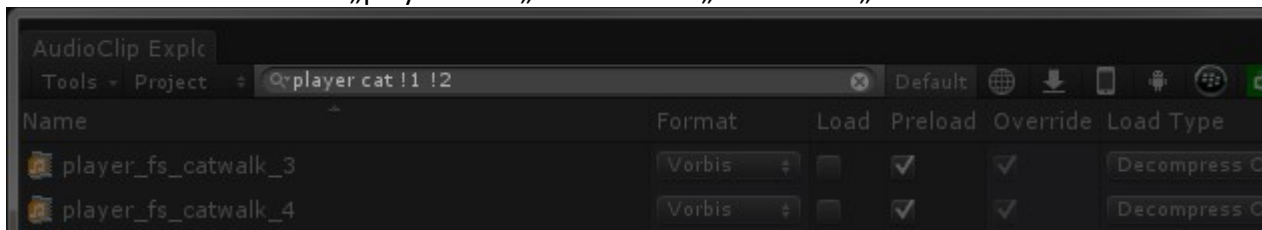
These terms are equivalent, because the AND operator (&&) is the default one that gets substituted when no operator is specified:

fs cat	fs && cat
player || enemy 1	player || enemy && 1
player cat !1 !2	player && cat && !1 && !2

5.9 Sorting

Each column can be sorted in ascending and descending order by simply clicking with the left mouse button on the particular column header. An up/down arrow icon indicates the sort mode.
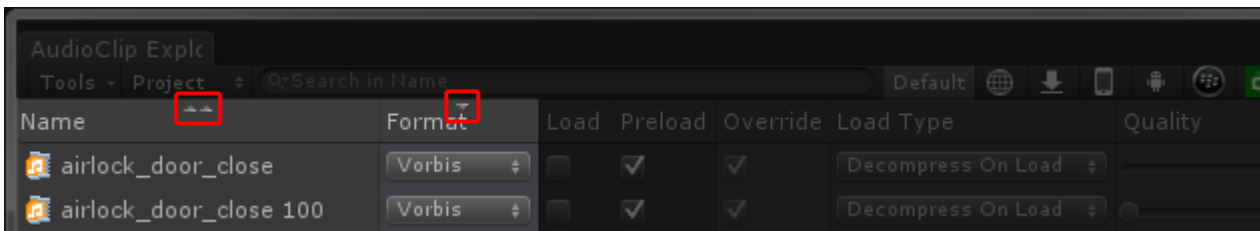
You can add an additional sort criteria by holding down the Control-key and clicking another column header. This comes in handy if you sort by Format for example, but still want to see clips sorted alphabetically by their name. In this case, you sort by Format first and add the Name column as second sort criteria.

Sorting is a very powerful feature and can be used to find which audioclips consume the most memory very easily.

5.10   Context Menu

Click with the right mouse button on a clip to display the context menu. The context menu provides various tools related to the current selection you might find useful, such as copying the clip name into the clipboard, showing the clip file in Explorer/Finder or selecting all prefabs in your project that use the selected clips.
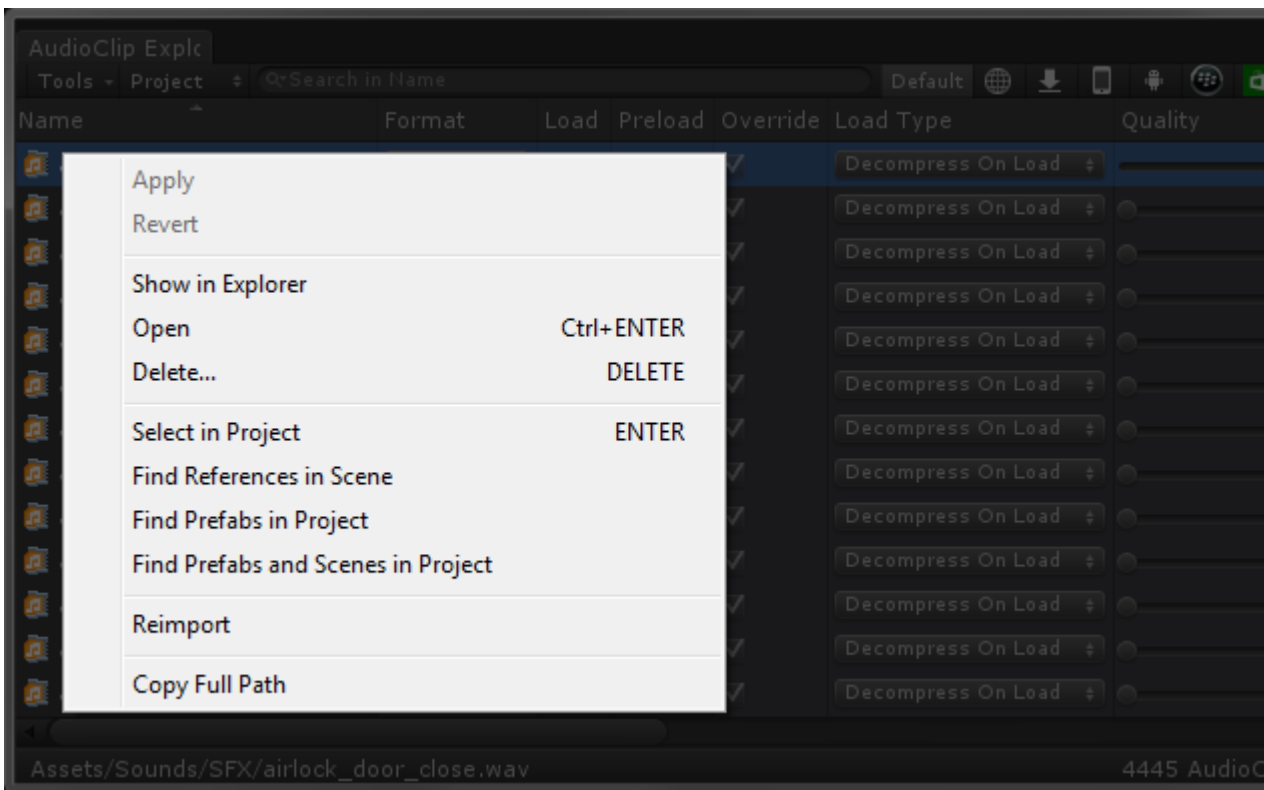
Apply

Apply modifications of selected audio clips in AudioClip Explorer to Unity. This will make all modifications "visible" to Unity.

Revert

Revert modifications of selected audio clips.

Show in Explorer / Reveal in Finder

Opens a file-browser and displays the directory where the selected audio clips are located.

Open

Opens the selected audio clips with the default application.

Delete

Deletes the selected audio clips from the Unity project.

Select in Project

Selects the selected audio clips from AudioClip Explorer in the Unity project window.

Find References in Scene

Highlights GameObject's in the Scene-View that use the selected audio clips.

Find Prefabs in Project

Checks every prefab file in the project if it's referencing any of the selected clip(s). The result is displayed in the Find Usage Results window. This function can take a while to complete, depending on the number of prefabs in the project, but it can be canceled at any time. You can select multiple audio clips to search for, without a performance penalty. Subsequent searches are usually also a lot faster.

Find Prefabs and Scenes in Project

Checks every prefab and every scene file in the project if it's referencing any of the selected clip(s). The result is displayed in the Find Usage Results window. This function can take a while to complete, depending on the number of prefabs and scenes in the project, but it can be canceled at any time. You can select multiple audio clips to search for, without a performance penalty. Subsequent searches are usually also a lot faster.
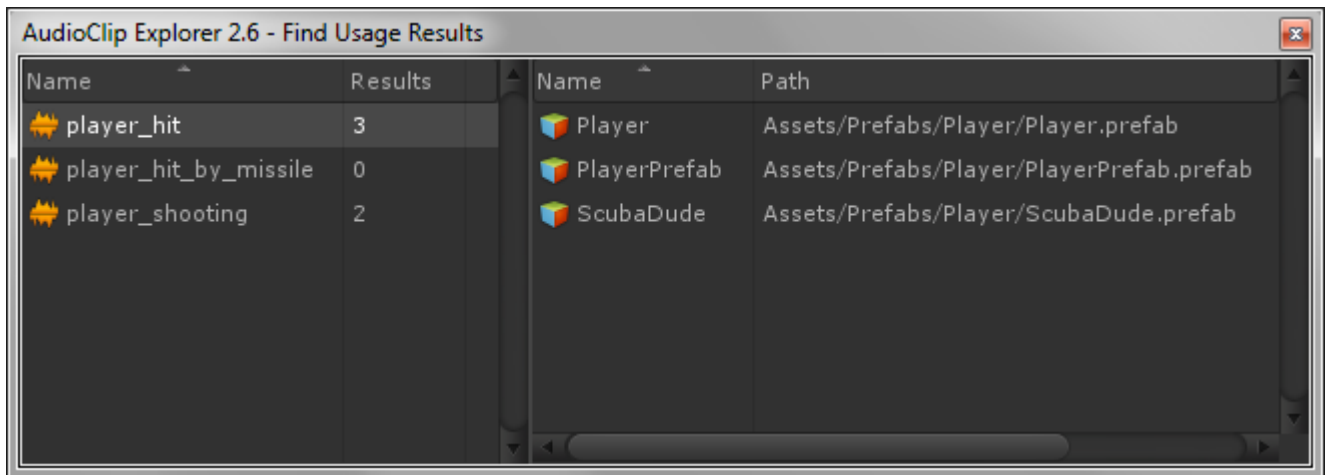
Reimport

Forces a re-import on the selected audio clips.

Copy Full Path

Copies the full asset path, relative to the "Assets" folder, to the clipboard.

5.11   Find Usage Results

The "Find Usage Results" window displays the result of a "Find … in Project" operation, such as "Find Prefabs in Project".

The list at the left side contains the audio clips you searched for. The list at the right side, displays which assets (prefabs, scenes) use the selected clip in the left list.

The "Results" column in the left list displays how many assets have been found, that use the particular clip.

A right-click with the mouse opens a context-menu with helpers functions, such as showing the asset in Explorer/Finder.

A double-click with the left mouse button assigns the selected asset to the Unity Inspector-window.

5.12   Organize Header Columns

Click with the right mouse button on a column header and a context-menu will show up where you can select which columns to show. At the buttom of the context-menu you can select „Organize Column" to change the column order.

6 Changelog

6.1 Version 2.6

- **New: Unity 5 compatibility!!! :)** I had to remove „Runtime Size" for the Unity 5 plugin for now. I'm trying to get it in again.

- New: Added progress dialog when applying audioclip modifications (Unity 5 only)

- Change: Moved .cache file from plugin installation directory to project „Library" directory. AudioClip Explorer 2.6 will automatically move this file from the old to the new location.
- Fix: Fixed rare issue where the .cache file wasn't updated after an audio clip import.

6.2 Version 2.5

- New: Added „Find Usage Results" window, which displays the result of „Find Prefabs in Project" and „Find Prefabs and Scenes in Project" search operations.
- Fix: The plugin was ignoring clips with the file-extension .aiff (.aif worked though)
- Fix: The Apply and Revert icons were missing sometimes when switching playmode.
- Fix: The plugin displayed the following error using Unity 4.6 open beta, which caused the plugin to start much slower than usual: "Library/assetDatabase3 not supported, seems not to be an assetDatabase3 file."

6.3 Version 2.4

- Fix: Don't crash AudioClip Explorer if an AudioImporter cannot be loaded, output an error message and display the item in red instead.
- Fix: "NullReferenceException at AudioClipExplorer.MainWindow.OnSelectionChange" occasionally occured when pressing Play in the editor.
- Fix: OSX displays a resize grabber in the lower right corner of the AudioClip Explorer window, which was overlapping the "Info" button. Added some space to prevent that overlap.
- Fix: „Name" column were using CurrentCultureIgnoreCase for comparison, but it's recommended to compare path names using OrdinalIgnoreCase. This fix also makes sorting by „Name" significantly faster when the project contains 10000 and more audio clips.

6.4 Version 2.3

- New: AudioClip Explorer **Pro** now contains the full C# source code to build AudioClip Explorer.
- New: Last column sorting information now gets restored when the plugin starts.
- Fix: „Export to CSV" generated broken CSV when a comma was in the asset path.
- Change: I replaced 3rd party icons with selfmade ones to not cause any license issues, now that the source code is available and therefore the icons as well.

6.5 Version 2.2

- Fix: Plugin starts much quicker now, see Cache File (the technical part) section in this document. Only the first start might take a while to complete. I also removed the „Load Details" functionality, which is no longer needed with the cache file.
- Fix: The „Playmode tint" setting in Unity Preferences is now correctly handled in AudioClip Explorer.
- Fix: The „Color Space" player-setting no longer impacts the icons in AudioClip Explorer.
- Fix: „Unable to find style '' in skin 'DarkSkin' used" warning sometimes turned the plugin being unresponsive.
- New: Added „Export CSV" to „Tools" popup-menu. The exported CSV (comma separated)

file can be used to generate fancy graphs in spreadsheet applications to visualize memory usage for example.

- New: Pressing a key, while the list has the focus, jumps to the item of the clip that starts with the key.
- New: Added key shortcuts for a few context-menu functions (Open, Select in Project, Delete)
- New: Pressing „Enter" now assigns the selected clips to the Unity inspector.
- New: Added links to AudioClip Explorer asset store and forum pages in About Dialog.

6.6 Version 2.1

- New: The search field accepts drag&drop from the Unity project window. This makes it much easier to filter clips by path, no typing needed anymore.

- New: The search supports basic search operators now: „add", „or" and „not"

- Fix: The „Load all" button caused an „Out of Memory" error when several thousand clips were in the project and memory consumption went near 4 GB. Now, clips get properly unloaded once their properties have been read and thus are no longer required. AudioClip Explorer has been successfully tested with a project containing more than 20000 clips that make up more than 16 GB of imported data.

- Fix: When AudioClip Explorer was docked but hidden, an NullReferenceException occured during playmode-changes.

- Fix: The summed „StorageSize" and „RuntimeSize „in the bottom bar shows incorrect sizes when the project contains more than 2 GB of clips.

- Fix: The filter mode (Filter by Name, Path, GUID) has been lost every time AudioClip Explorer has been closed.

- Change: The „Loading" progressbar now also displays the number of remaining items to load.

- Change: Increased the width of the filter textfield.

- Change: Context menu button „Find References in Scene" gets disabled when more than one clip is selected.

- Change: Renamed „Filter by Name" etc to „Search in Name".

- New: If a search yields no results, the list displays a note that different search modes are available.

6.7 Version 2.0

- New: Added "Load all automatically" option to the "Tools" pop-up. If checked, AudioClip Explorer loads clip details automatically (the details where otherwise the "Load" button is displayed).
- New: Added a cancable progress bar while audio clip importer settings are loaded, which happens when you start the plugin or on play-mode changes.
- New: Added "Reimport all" option to the "Tools" pop-up. This will force a reimport of all clips listed in AudioClip Explorer.

- Fix: Context menu item "Delete" didn't work when the Unity project pane was using "Two Column Layout" and a folder was selected. In this case AudioClip Explorer asked to delete the folder, rather than the clips selected in AudioClip Explorer.
- Fix: Context menu item "Show in Explorer" wasn't shown as "Reveal in Finder" when running Unity editor on MacOS.
- Fix: Text inside the list was sometimes cropped vertically.
- Fix: Inactive selection color when using pro skin (dark theme) didn't really match the color used in Unity itself for an inactive selection.

6.8 Version 1.9

- New: Added 'Find Prefabs in Project' context menu button.
- Fix: Sorting by 'Load Type' column works now.
- Fix: Clips in 'Audio Format = MPEG' were displaying '0 Bits' as 'Bits per Sample' . Now an empty string is displayed, to match the Unity behaviour (Bits per sample isn't displayed in the unity preview pane for clips in MPEG format).
- Change: Moved 'About' button from the tools menu to the lower-right window corner, to be consistent with my other plugins.

6.9 Version 1.8

- Initial public release

7 Contact

If you have a question, want to give feedback or maybe suggest a new feature, contact me at
unitytools@console-dev.de

You can also write me a message in the official AudioClip Explorer thread in the Unity forums or send me a private message using the forum.

http://forum.unity3d.com/threads/186018-Plugin-AudioClip-Explorer-%28edit-multiple-clips-simultaneously%29