
Ubisoft Shot Manager

Julien Blervaque - Ubisoft

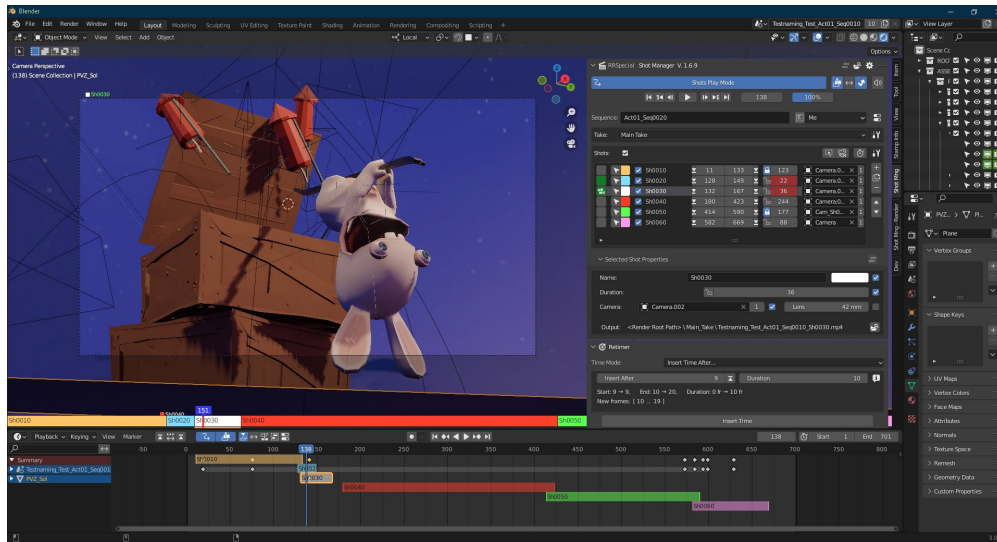
Jun 22, 2022

CONTENTS

| | |
|--------------------------------------|-----------|
| 1 Disclaimer | 3 |
| 2 Getting started | 5 |
| 2.1 — General philosophy – READ ME — | 5 |
| 2.2 What’s new | 6 |
| 2.3 Installation | 6 |
| 2.4 First steps | 7 |
| 2.5 Glossary | 8 |
| 2.6 Features and limitations | 8 |
| 2.7 Main panel | 9 |
| 2.8 Feature Toggles | 9 |
| 2.9 Overlay tools | 16 |
| 2.10 Add-on Preferences | 19 |
| 2.11 Project | 19 |
| 2.12 Keymap | 19 |
| 2.13 How to master the basics | 19 |
| 2.14 How to toggle advanced features | 20 |
| 2.15 How to use in production | 20 |
| 2.16 Tips | 21 |
| 2.17 Frequently asked questions | 22 |
| 2.18 Reporting an issue | 22 |
| 2.19 Pre-releases and experimental | 22 |
| 2.20 Source code on GitHub | 22 |
| 2.21 Other add-ons from Ubisoft | 22 |
| Bibliography | 25 |



Manage the cameras and the editing of your scenes inside **Blender**. in real time and with great simplicity.
Current version is 1.7. The currently supported Blender versions are 3.1, 3.0 and 2.93 LTS
Version 2.0 beta is available. See [What's new](#) for the upcoming features



DISCLAIMER

Shot Manager is a pre-production tool that was initially developed to support the previz of an animated TV series we did at Ubisoft between January 2020 and February 2021. We believe it can be very interesting for the Blender community so we shared it as an open source project and we keep supporting it.

Since it was dedicated to our production needs some limitations may appear for a more general purpose. Quality of the code is also probably arguable. In spite of all our efforts to make it reliable, it may in some circumstances corrupt you Blender scenes data. Be aware that neither Ubisoft nor Ubisoft employees can be taken as responsible in such cases. Use it at your own risks.

This said, we will do our best to listen to your feedback and improve this add-on accordingly in order to provide a robust and flexible production tool. Have fun !

GETTING STARTED

It is highly recommended to start by reading the *Shot Manager General Philosophy* to clearly understand the purpose of this tool !

Read this article to see how this tool was used in production: [User Stories - Blender and the Rabbids](#).

Then:

- *Download* the Shot Manager zip file,
- *Install* Shot Manager as a Blender addon,
- Mind the *features* and the *vocabulary*,
- ... And at last *try out* your installation !

2.1 — General philosophy – READ ME —

Before starting to use Shot Manager it is very important to understand what this add-on is about and what you will be able to achieve with it.

Basically it is based around **2 very simple concepts**. Many tools and features have been added around them to push their logic to something incredibly powerful for storytelling and animation though, which can make Shot Manager appear complex.

2.1.1 1 - Making the edit in the 3D scene

In order to let the director experiment and concretize his vision in a short amount of time it is crucial to iterate fast in the way an action is edited. And is there a better way to do so than directly in the 3D scene?

So the key idea lies in the analogy with shooting a continuous live action from several real cameras:

- In a Blender scene we create an action, usually corresponding to what would be a sequence in terms of narration, this with a plausible timing;
- Next we introduce several cameras and we define from the tool when the cameras are recording and in which order they appear in the edit;
- Then by playing the edit and iterating on the tweaks on the action, the record timings and the order of apparition of the point of views we polish it and finalize the way we want the whole sequence to appear on the scene.

Notion of “Shot”

A [Shot] is the basic entity manipulated by the Shot Manager user interface. As for a live footage it is made of a point of view, thanks to a camera, and a “record duration”, defined by a start time and an end time.

Notion of “Take”

A [Take] is an ordered list of shots. Basically **a take is an edit** where shots are played one after the other, in the order set in the take and independently from the time at which they start in the time of the 3D scene.

In practice - or in a production context - a take would generally refer to what is commonly called a sequence, that's to say a small edit of shots that are tied together in the narration.

2.1.2 2 - Playing the edit in real-time

To view this edit in real-time we introduced a new play mode. When this mode is activated doing a play in the viewport will play the scene animation from shot to shot, switching the point of view from one camera to another according to the one associated to the current shot.

With camera binding the time is played linearly, so the point of view simply changes from one specified camera to another.

This new play mode goes far beyond that since it allows time jumps (called ellipses) and jumps back into time, to play the scene action again from another camera. And that's the essence of Shot Manager!

2.2 What's new

2.2.1 Shot Manager 2.0 is on the way!

...and it's now also covering storyboard!

(page currently in development - features and teasing video to be added soon)

Although not released yet you can already play with the *beta version*.

2.3 Installation

2.3.1 Supported versions

Shot Manager is developed and actively tested on Windows 10. Community users reported successful usage on Linux platform.

The currently supported Blender versions are 3.1, 3.0 and 2.93 LTS.

2.3.2 Download

Open the [latest release](#) page from the Shot Manager Github [releases](#) page. Download the zip file listed in **Assets** that has the package icon: .

2.3.3 Install of Shot Manager

Note: Shot Manager needs to download some external Python dependencies in order to be fully functional. Hence, when launching the installation of this add-on, be sure to match these conditions:

- **Run Blender with elevated privileges (or in Administrator mode)**
 - **Be connected to the internet**
 - **Be sure the firewall is not blocking the requests (use OpenVPN or equivalent if needed)**
-

Launch Blender, open the **Preferences** panel and go to the **Add-ons** section. Press the **Install** button located at the top of the panel. A dialog box opens, pick the Shot Manager zip file you previously downloaded and validate. The add-on will be installed. Click on the checkbox at the left side of its name to enable it.

Once the addon is enabled, a Shot Manager tab is displayed in the 3D viewport N-Panel.

2.3.4 Install of complementary add-ons

Shot Manager can work as is. Nevertheless we've developed 2 additional add-ons that are considerably expanding the features and capabilities of this tool. It is strongly advised to install them too to get the full experience.

- Download Ubisoft Stamp Info here: [Stamp Info latest release](#)
- Download Ubisoft Video Tracks here: [Video Tracks latest release](#)

2.4 First steps

If you haven't done it yet, it is time to read the *Shot Manager General Philosophy* to clearly understand the purpose of this tool.

Some video tutorials are currently being made to help getting started fast and easily.

2.5 Glossary

2.5.1 General terminology

2.5.2 Storyboard entites

2.6 Features and limitations

2.6.1 Overview

- Creation of shots from scene cameras and of sequences from those shots
- Non-linear real-time play of the sequences
- *Action and edit global retime*
- Global control on camera video backgrounds
- Global control on camera sound backgrounds
- Sequence batch rendering, with Eevee, Cycle and custom playblast
- Edit file import and export based on OpenTimelineIO
- Grease pencil sketching per shot (experimental)
- Edit forth and back with VSE (experimental)
- ...

2.6.2 Latest improvements

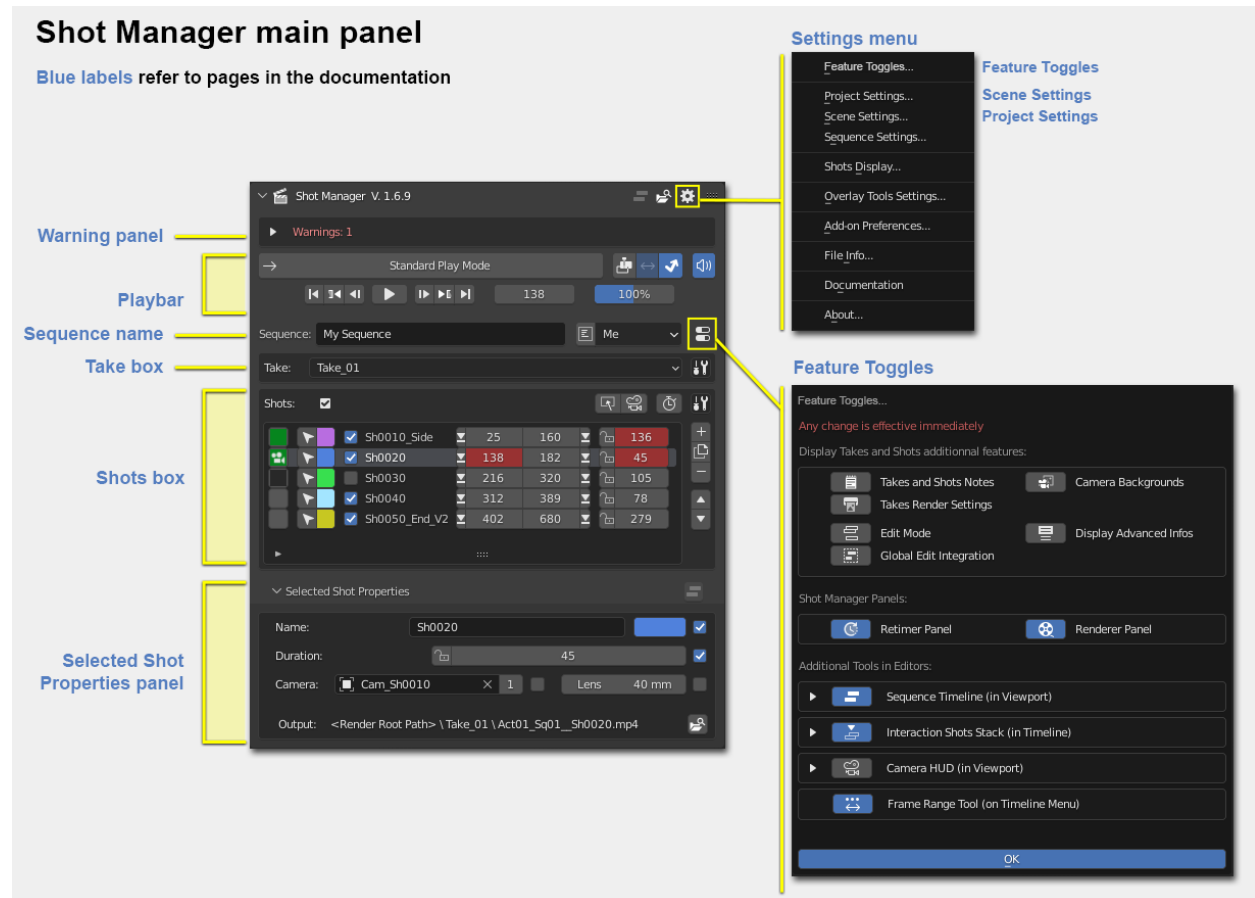
See the [detailed changelog](#) on the GitHub project.

2.6.3 Limitations

Warning:

- Shot Manager is not compatible with camera binding. Indeed the *Shots Play Mode* overrides the standant play mode and has its own way of changing the viewport camera. Good news is this mode is far more powerfull than the camera binding approach :)
- Use the conversion tools available in the Warning area of the add-on panel to convert the bound markers to shots.
- Actions are not supported by the Retimer tool.

2.7 Main panel



- *Feature Toggles panel*

2.8 Feature Toggles

2.8.1 Feature Toggles panel

Feature toggles are a set of toggles that can be triggered to display additional features extending the capabilities of Shot Manager. When activated a module and its related graphics components will become visible in the main panel, at various places according to its way of working.

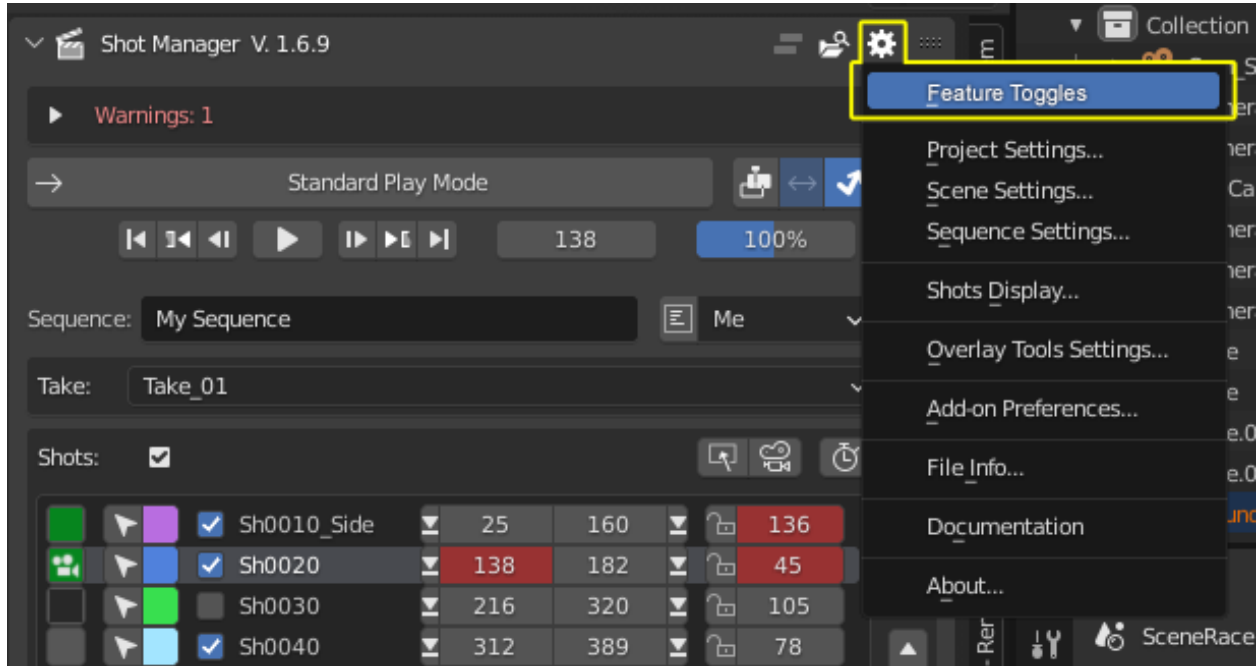
Modules are not enabled by default because they can add a significant complexity to the general interface of Shot Manager. It is then strongly advised to activate only the ones you need, at the time you need. You can reactivate them at will.

Modules are just UI components. Disabling a module will not change anything in the scene or in the current configuration of Shot Manager.

Opening the Feature Toggles panel

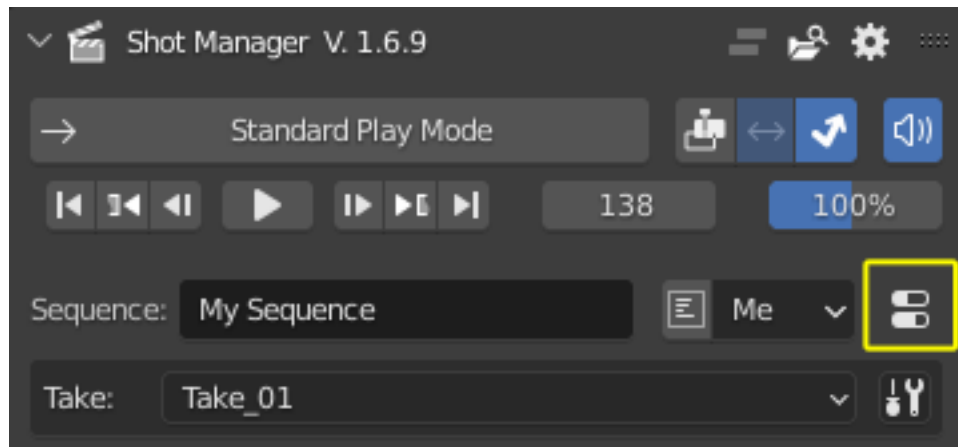
There are 2 ways to open the Feature Toggles panel:

- Click on the panel Settings button to open the Settings menu and choose *Feature Toggles*:

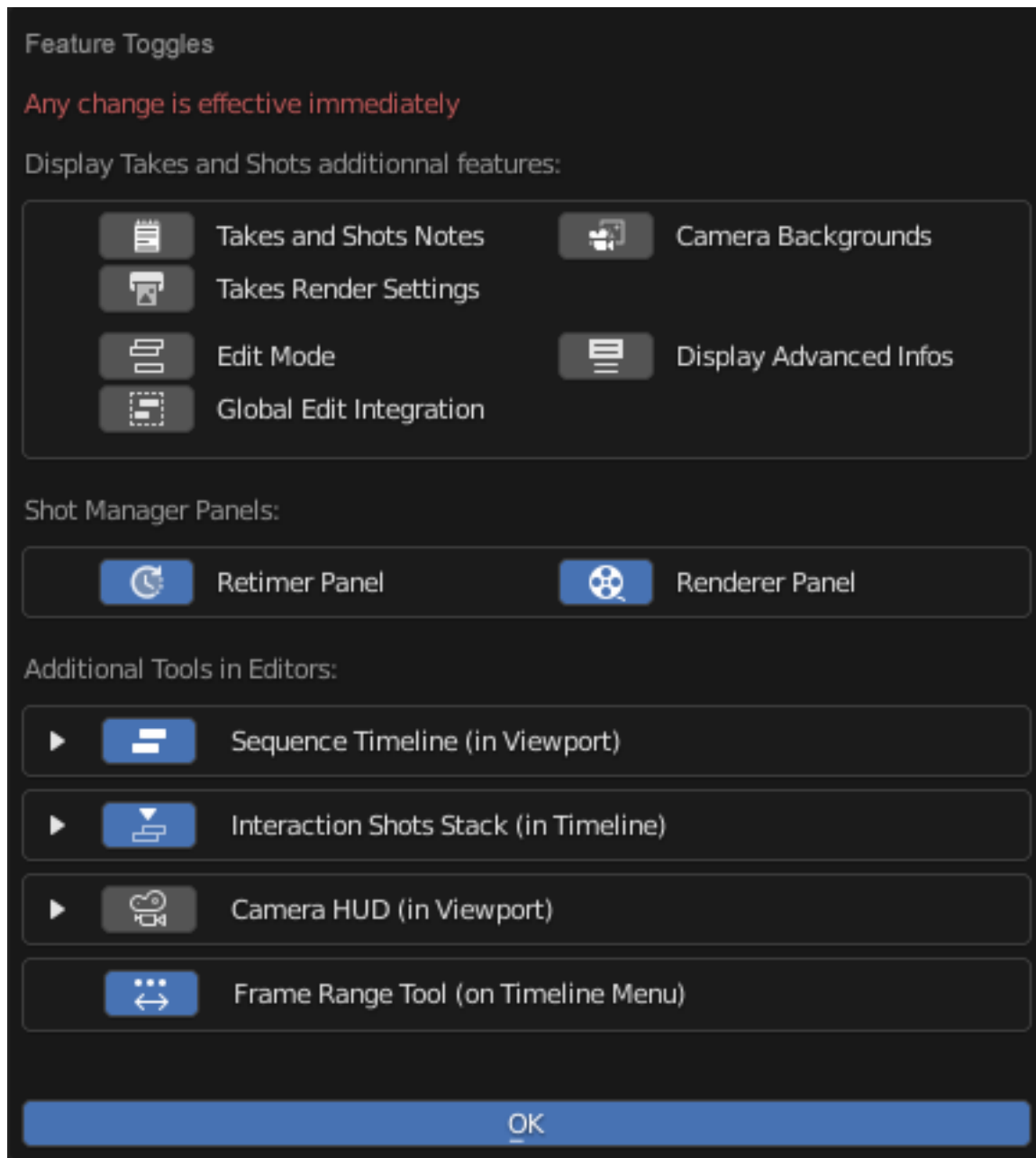


- Or directly click on the *Feature Toggles* button.

This button offers a quick access to the Features dialog box, which you may find convenient when you often toggle some features in order to keep the UI light.



The Feature Toggles panel gets opened. It allows the listed features to be toggled by a simple click on they associated button.



2.8.2 Shot and take notes

Doc to come...

2.8.3 Camera backgrounds

Doc to come...

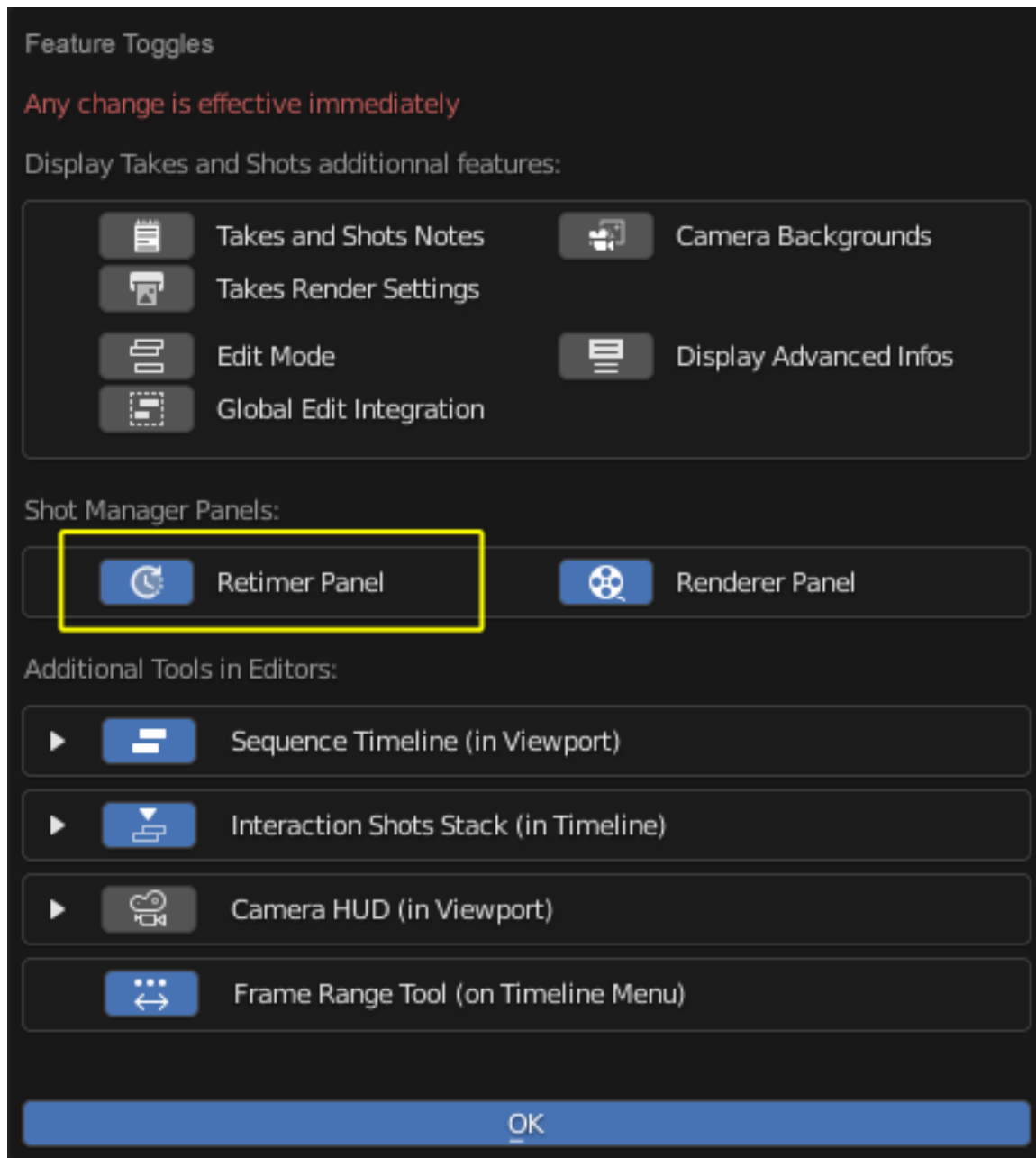
2.8.4 Retimer

See also *How to retime the edit or the action* for a practical use of the retiming tools.

Retimer is a set of tools that can be used independently from the use of the shots in the scene. This allows you to change the time of the action, either globally or on selected objects, without having to create a set of shots.

The Retimer panel

To display the Retimer panel open the *Feature Toggles panel* and click on *Retimer*.



The panel then appears below the Shot Manager main panel.

The screenshot displays the Shot Manager V. 1.6.9 interface. At the top, it shows 'Standard Play Mode' with playback controls and a progress bar at 100%. Below this, the 'Sequence' is set to 'My Sequence' and the 'Take' is 'Take_01'. A table of shots is visible, with the following data:

| Shot Name | Start | End | Duration |
|---------------|-------|-----|----------|
| Sh0010_Side | 25 | 160 | 136 |
| Sh0020 | 138 | 182 | 45 |
| Sh0030 | 216 | 320 | 105 |
| Sh0040 | 312 | 389 | 78 |
| Sh0050_End_V2 | 402 | 680 | 279 |

The 'Retimer' panel is highlighted with a yellow border. It shows 'Time Mode' set to 'Global Offset Time'. The 'Ref. Frame' is 45, and the offset is 100. The summary text reads: 'Origin: 0 → 100, Ref. Frame: 45 → 145, Offset: 100'. There is an 'Offset Time' input field and an 'Apply to...' button.

Insert, scale or delete time

In the Retimer panel choose the action you want to do by specifying it in the *Time Mode* dropdown component.

Then set the start time, either in the panel itself or by moving the Current Time main cursor and then pressing on the up arrow near the time component.

A text line will inform you of the changes that are about to be made, anticipating the new time values.

Then press the button to apply the changes in the scene.

For some reasons this may create several Undos in the Blender Undo stack. Be cautious when undoing things then.

Working on the whole scene timing

By default, or in other words if all the checkboxes of the panel *Apply to* are checked except the checkbox *Selection Only*, time modifications affects the whole scene. This concerns every animated objects, materials, entity having an animation track. It also concerns the Video Sequence Editor content (if you use sound clips for example) and the Grease Pencil animations.

Actions are not supported: If the scene contains some actions they will not be retimed as expected and it will very likely break the animation

Working of a selection of objects or on some entities only

Expand the *Apply to...* panel to get access to the proerties to control the scope of the time change.

Selection only

If checked only selected objects or entities will be affected by the change. This is very useful to modify the animation onto only some objects of the scene for example.

If not checked then the change will concern all the entities of the scene, even if they are hidden. It will then be a global time change.

Filter checkboxes

Each checkbox correspond to a category of entity on which the change will be applied to. It is then possible to change the animation only on shots, or on objects, on Grease Pencil...

Limitations

Warning:

- **Actions are not supported:** Changing time in the scene will not affect the Blender animation clips named “actions”, if the scene contains some. This is because retiming these entities (as well as VSE clips by the way) is a difficult paradigm. It raises a lot of questions that we haven’t tackled.

The following features add their UI control components into the Take and the Shots panels:

- *Shot and take notes:* Add notes on shots and takes to better manage your scene content.

- *Camera backgrounds*: Use and toggle camera backgrounds.

Retimer is a tool on its own. When turned on a new panel named *Retimer* will appear below the Shots panel.

- *Retimer*: Insert, delete or scale time globally or on selected entities of the scene.

2.9 Overlay tools

These tools are based on OpenGL. They are displayed over some editors such as the 3D viewports, the timeline or the dopesheets.

There are 3 overlay tools:

- *Sequence Timeline*: Add notes on shots and takes to better manage your scene content.
- *Interactive Shots Stack*: Use and toggle camera backgrounds.
- *Camera HUDs*: Use and toggle camera backgrounds.

2.9.1 Sequence timeline

To do

2.9.2 Interactive Shots Stack

To do

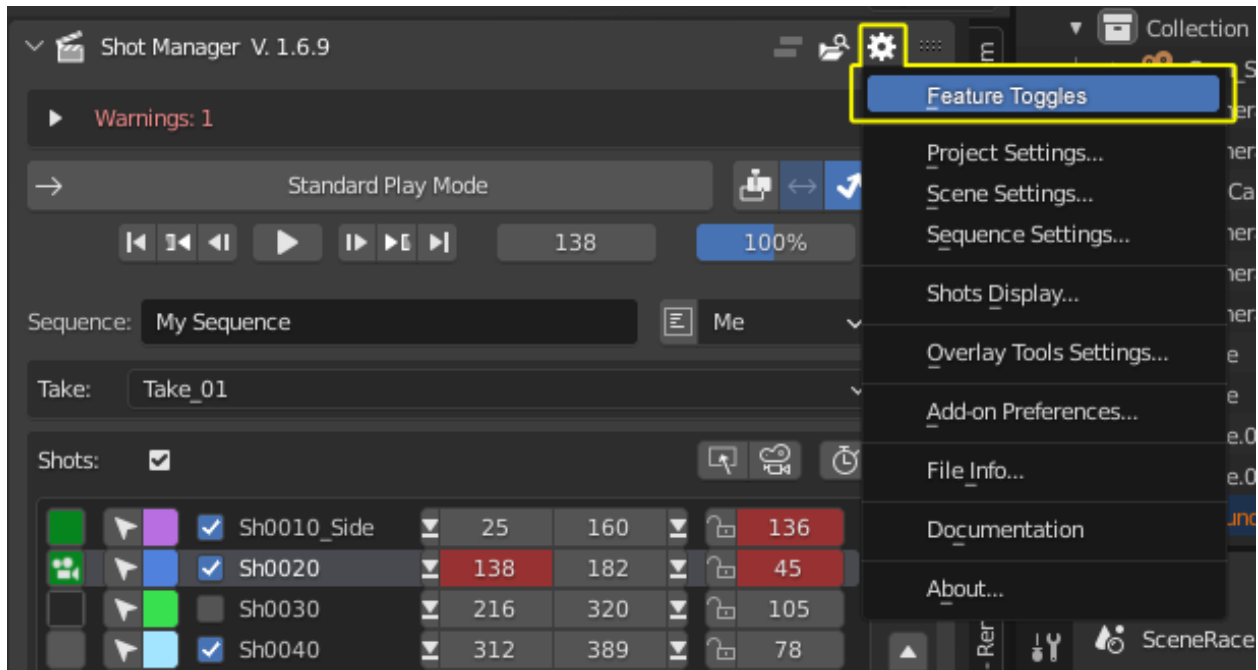
2.9.3 Camera HUD

To do

2.9.4 Displaying the overlay tools

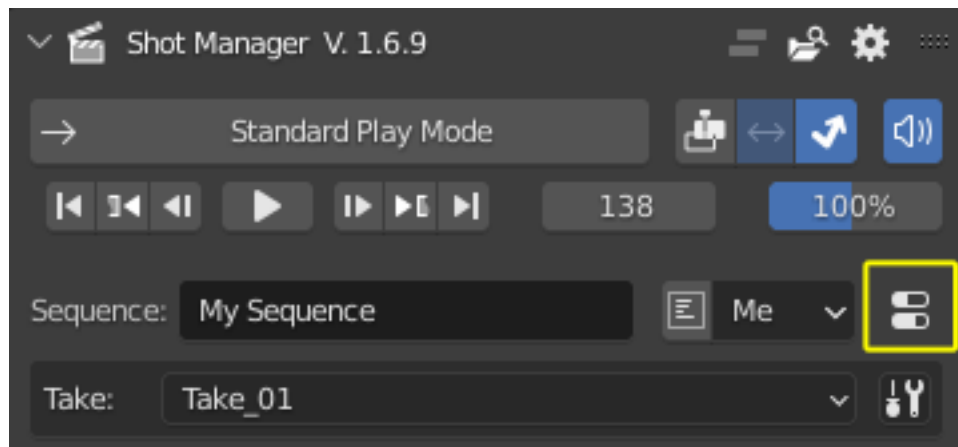
There are 2 ways to open the Feature Toggles panel:

- Click on the panel Settings button to open the Settings menu and choose *Features*:

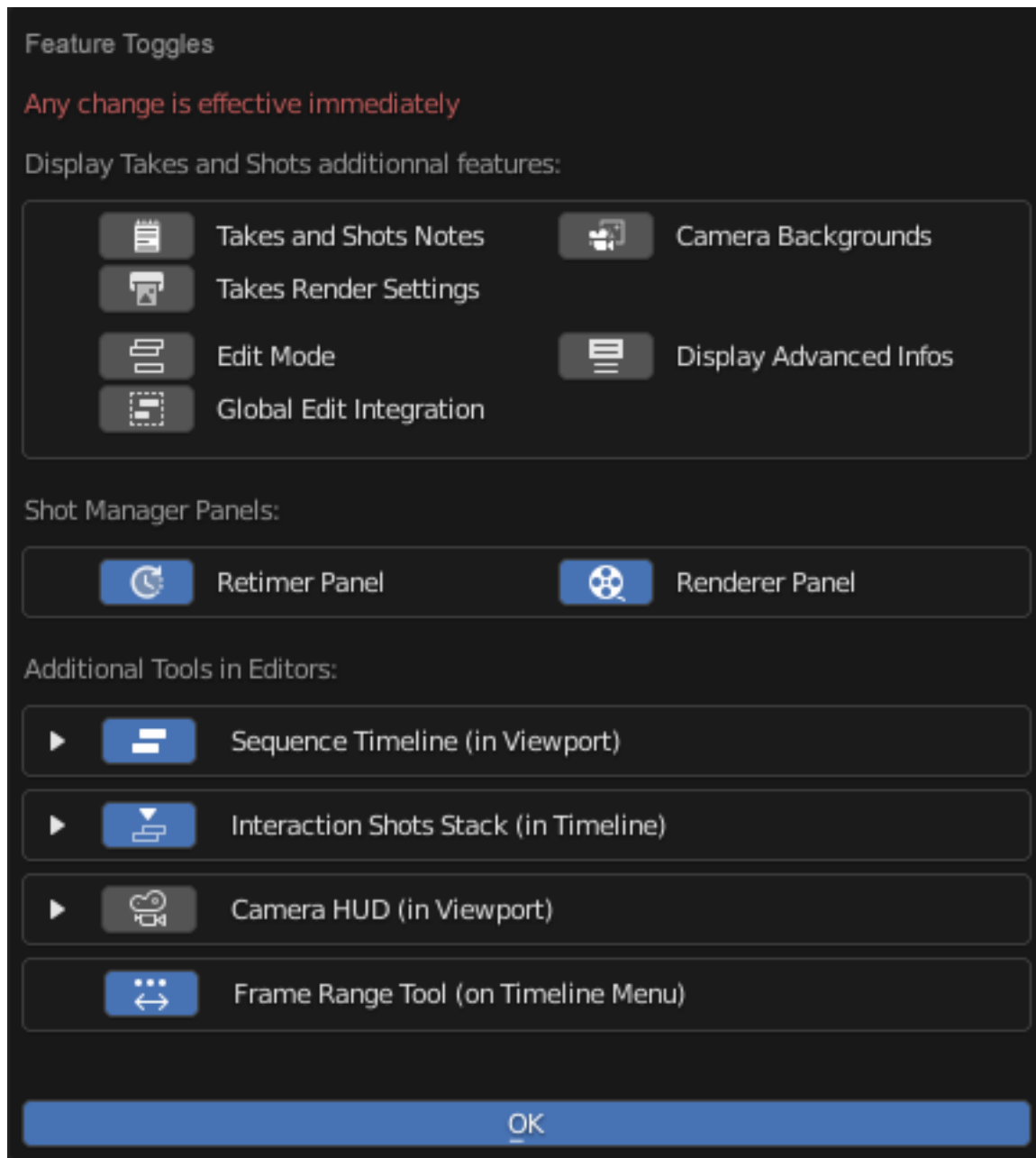


- Or directly click on the *Features* button.

This button offers a quick access to the Feature Toggles panel, which you may find convenient when you often toggle some features in order to keep the UI light.



The Feature Toggles panel gets opened. It allows the listed features to be toggled by a simple click on they associated button.



2.9.5 Overlay tools settings

The settings can be accessed from here:

2.10 Add-on Preferences

To do

2.11 Project

To do

2.12 Keymap

Shot Manager currently exposes the following key maps.

<>: The action has been exposed but no mapping is configured for it by default.

| Keymap | Action | Description |
|-------------|-----------------------|---|
| Alt + Space | Shots Play Mode | Toggle the Shots Play Mode |
| <> | Display Overlay tools | Toggle the display of the overlay tools (sequence timeline, interactive shots stack...) |

2.13 How to master the basics

A lot of things still to be added here...

2.13.1 How to create new shots

Press on the + button on the right side of the shots lists.

2.13.2 How to create take variations

Open the Take Tools menu from the Take Tools button located at the right side of the take title line and choose *Add...*. This will create a new take and you will be able to switch from one to another thanks to the take dropdown component.

Takes are completely autonomous one from each other. **Nevertheless the shots they contain may refer to the same cameras, so modifying a camera in the scene may affect several takes!**

2.13.3 How to render the shots

In the right toolbox of the viewport you will find a tab named *Shot Mnger - Render*. This opens the Shot Manager rendering panel.

From there you will be able to render a single image, a shot, the whole take, and to control the rendering settings.

2.14 How to toggle advanced features

2.14.1 Manage cameras

- *How to use camera backgrounds*

How to use camera backgrounds

wip

Go to *Camera Backgrounds*.

2.14.2 Manage shots and takes

- *Shot and take notes*

2.14.3 Retime the scene content

- *How to retime the edit or the action*

How to retime the edit or the action

Note: We use here the term “action” to designate what is happening in the scene, this as an analogy to live shooting. We do not refer here to the “action” entities used by Blender as animation clips (which are not supported).

More explanations to come soon.

Go to *Retime* for details on the Retime tool.

2.15 How to use in production

Shot Manager was designed by the production, for the production. It can be used from the scale of a simple scene to the one of a feature film, splited in many files.

2.15.1 Project settings

For large-scale productions it is important that each instance of Shot Manager, in every scene of every file, use the same settings, that those settings cannot be modified by mistake by a user and that they all come from the same source so that any change is propataged all over the production easily.

To do so Shot Manager has a notion of “Project”, in other words a set of settings covering the shot naming conventions, output resolution, file formats... All that can be also set by a production tool when a scene is opened for example.

2.15.2 API

Shot Manager also has its own API. This would allow you to integrate it into your pipeline, or to pilot it from another add-on, by calling functions that will not change even if the architecture of the add-on is modified for whatever reason.

2.16 Tips

2.16.1 Markers, camera binding and shots

Markers bound to cameras are not compatible with the way Shot Manager works. When such markers are found in the scene most of the content of the add-on gets disabled and a warning appears, all along with a button allowing the conversion of such markers to shots.

2.16.2 Tooltips and Quick Doc

An important focus has been set to make the UI intuitive and the properties of the add-on as predictable as possible. This reduce the need for documentation as well as the user memory load.

Tooltips are everywhere! When you are wondering what a parameter is about start by reading the tooltip.

Some special and more complete documentation has been introduced also at required places of the UI. They look like buttons and their action is to open a message window with more detailed information than usual tooltips could handle.

2.16.3 Shots and cameras

A shot is an association of a point of view in space and a time range, defining when this point of view is used. It is equivalent to a Record session for a video camera.

A shot can have one and only one camera. At the contrary a camera can be used by several shots. For example if you shoot a field against field sequence, 2 persons dialoging for example, you would use 2 cameras and create a set of shots that would alternate between one and the other camera.

It is highly not advised to use the same camera for every shot. In fact Shot Manager has been developed to avoid exactly that. Indeed when you do such an approach every modification of the camera affects every shots, changing the animation must be done very carefully to avoid breaking other shots and modifying the range of a shot requires to change the animation of the camera as well as possibly to retime the whole scene after the considered shot end.

We recommend to use one camera per shot and to name it after the name of the shot. Not only this would make every shots perfectly independent one from each other but it would also create a level of abstraction between the action in the scene and the way it is shot, hence avoiding to retime the scene when a shot duration is extended.

We also recommend - in most of the cases - to use the duplicate option for the cameras when duplicating a take. This will make takes completely independent and you will avoid breaking a take silently when modifying a shared camera in another one.

The number of shots using a given camera is exposed in the UI, in the shot list as well as in the shot properties. When a camera is shared by more than a single shot this information is highlighted in red.

2.17 Frequently asked questions

2.17.1 General

Why are there so few questions in the FAQ?

That's because very few users ask questions. Feel free to share with us your questions, comments, feedback on this page: [issue](#) on GitHub.

2.18 Reporting an issue

Before reporting an issue, please make sure that you are using the *latest version* and check the *faq*.

If you think you have found a bug or would like to propose a new feature, please report an [issue](#) on GitHub.

2.19 Pre-releases and experimental

2.19.1 Shot Manager 2.0 pre-releases

A new major version of Shot Manager is on the way. Already used in production it is also currently available as beta pre-releases.

Latest pre-release:

- [Shot Manager V2.0.102 Beta](#)

See also:

[What's new in Shot Manager 2.0](#)

2.20 Source code on GitHub

The source code of the whole add-on as well as some development notes are available here: [Shot Manager on GitHub](#)

2.21 Other add-ons from Ubisoft

At Ubisoft we developed several other Blender add-ons that may also interest you a lot. They were designed to answer real production needs, they may well suit yours!

As this one they are free and open-source. Enjoy!

2.21.1 Stamp Info

Write scene information onto the rendered images. This is an excellent complementary tool for Shot Manager. [Stamp Info on GitHub](#)

2.21.2 Video Tracks

Add track headers to the channels of the Video Sequence Editor, as well as tools To navigate between markers. **This add-on is experimental and maintained intermittently.** [Video Tracks on GitHub](#)

2.21.3 Mixer

Real-time collaboration between Blender users, enabling them to work together on the same data, on different computers.

This add-on is not maintained anymore. [Mixer](#)

2.21.4 Asset Bank

Manage asset banks and import or link 3D objects into Blender scenes. **This add-on is not maintained anymore.** [Asset Bank on GitHub](#)

BIBLIOGRAPHY

- [Shot] A shot is the basic entity manipulated by the Shot Manager user interface. As for a live footage it is made of a point of view, thanks to a camera, and a “record duration”, defined by a start time and an end time.
- A shot has one and one only camera. When it is not associated to a camera, or if this camera is missing, the shot is considered as invalid and cannot be used in the [Take].
- [Take] A take is an ordered list of shots. Basically **a take is an edit** where shots are played one after the other, in the order set in the take and independently from the time at which they start in the time of the 3D scene.
- In practice - or in a production context - a take would generally refer to what is commonly called a sequence, that's to say a small edit of shots that are tied together in the narration.
- In order to preserve the parallel with live shooting the take entity could probably have been named edit or sequence. The term take fits quite well nonetheless since, as for live shots, we can easily create variations of the edits, this so as to compare several ideas in the direction without having to “break” the settings. Duplicating takes and switching from one to another is one of the major strengths of Shot Manager to explore the narrative possibilities of the scene and offer to the director a lot of flexibility to find her final cut.
- [Handles] The handles are the amount of spare images let at the start and end of the shot when the shot is rendered. They are quite helpful for the artist doing the movie edit since she can get more time before or after each shot to polish the cuts and transitions.
- Handles are not played in the viewport playback since they are not really part of the edit.
- Unless you are in a production context the duration of the handles is usually left to 0.
- [Project] A project is a set of settings defining the configuration of your production, such as the project name, image output resolution, aspect ratio, framerate, sequences naming convention...
- These settings can be entered manually in the Project Settings dialog box of the Shot Manager panel, in which case they are set only for the current scene. In production these settings would be set by a custom script, written specifically for your own pipeline and automatically run when the Blender file is opened.
- For a local use of Shot Manager it is not necessary to define a project. The settings of the scene will then be used.
- [Storyboard_Shot] We call a storyboard shot a shot of type Storyboard. Its camera has a storyboard grease pencil parented to it. It is identified by a small icon with a character in a frame.