

YOUTUBE VIDEO 360 WITH BLENDER

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On GitHub in the Exe4_360vid folder



CREATE A 360DEG RENDERING




BLENDER

In Blender you can render a 360deg view representing (1) a panoramic image or (2) a 3D scene. In both cases the scene can be static or animated. (The panoramic image can be a background in a scene with animated objects)


We will explore the 360 panoramic image rendering (less heavy to render).

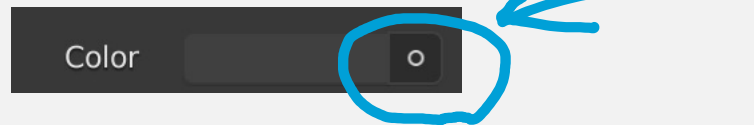
However, if you want to explore 3D scenes, existing scenes are available in Blender's demo site <https://www.blender.org/download/demo-files/>

RENDER ENGINE AND CAMERA SETTINGS

1. Go to Render Properties and choose Cycles
In Blender you can render 360 view only with Cycles render engine.
 2. Click on the Camera in the Scene Collection
 3. Go to the Camera Properties 
 4. In the Cam. Prop. You can now select
 - Type: Panoramic
 - Panorama Type: Equirectangular
- (With Eevee this camera's panorama type is not available)

USE IMAGE AS ENVIRONMENT TEXTURE

5. If no more selected, click (again) on the Camera in the Scene Collection
6. Go to the World Properties 
(the icon looks similar to the material prop. of a mesh)
7. In Surface → Color click on the dot near the empty entry, then from the menu select Environment Texture



8. Now click on “Open Image” and choose the Panoramic Image you have
9. Switch to the Rendered View to check the result (nothing is shown in Solid view)

OUTPUT PROPERTIES

10. Go to Output Properties:

Video 360 deg must have a resolution 2:1

- Resolution Y: 2048
- Resolution X: $2048 * 2$

You can write a multiplication that will be automatically performed by Blender instead of writing a value.

You can use different resolution values; however they should always be 2:1 ratio.

11. Set your preferred Frame Rate, in this exercise we choose 30 fps

OUTPUT PROPERTIES

12. Set the Output Folder
13. Leave the File Format as it is (PNG) or if it is different, change to PNG
14. Set the Start and End frames in the Timeline
15. Now in the Render dropdown menu → Render Animation (or hotkey ctrl + F12)

For simplicity, in this example we will render only one frame, so on the Timeline Start = End: 1 frame.

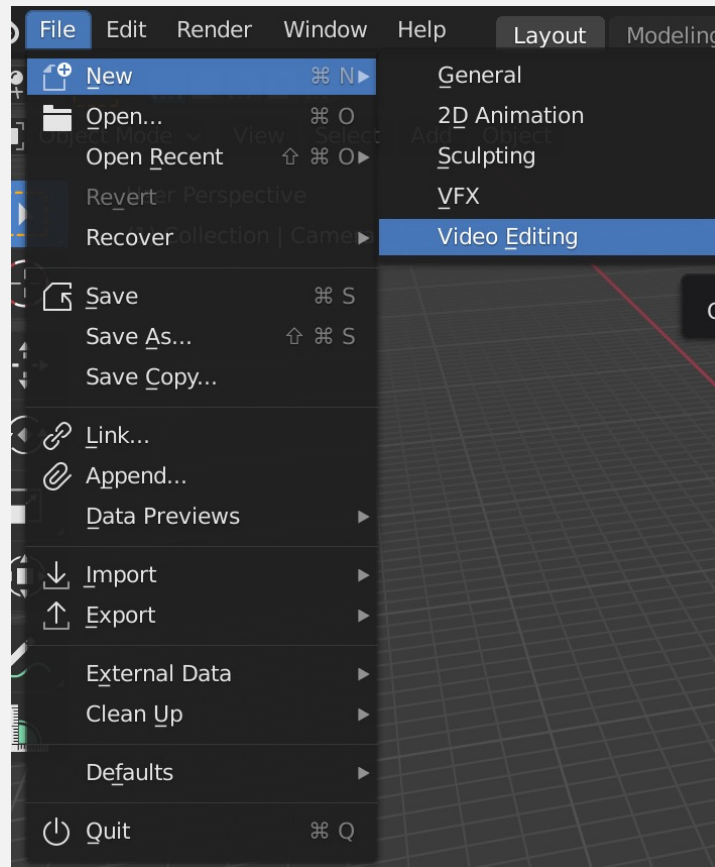
Since we will Render only one frame of a static scene (one PNG), you can also skip steps (11, 14, 15) and simply Render as Image (hotkey F12)

MAKE THE 360DEG VIDEO



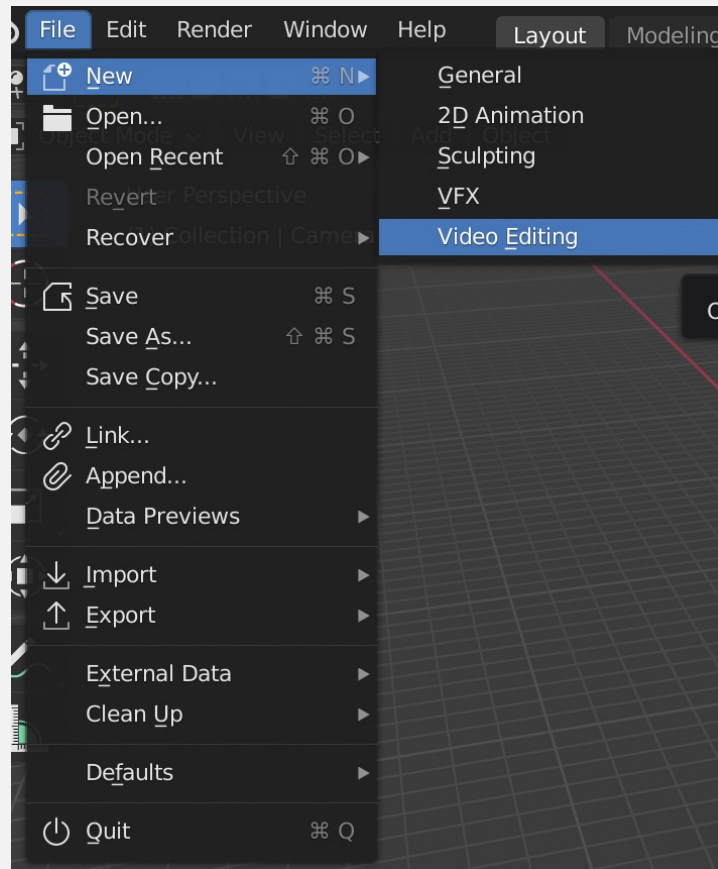
OPEN NEW VIDEO EDITING PROJ.

1. Save the Blend Project: File dropdown menu → Save
2. Open a new Project: File dropdown menu → New → Video Editing



EDIT THE VIDEO

3. Click on Add → Image / Sequence and select the rendered PNG



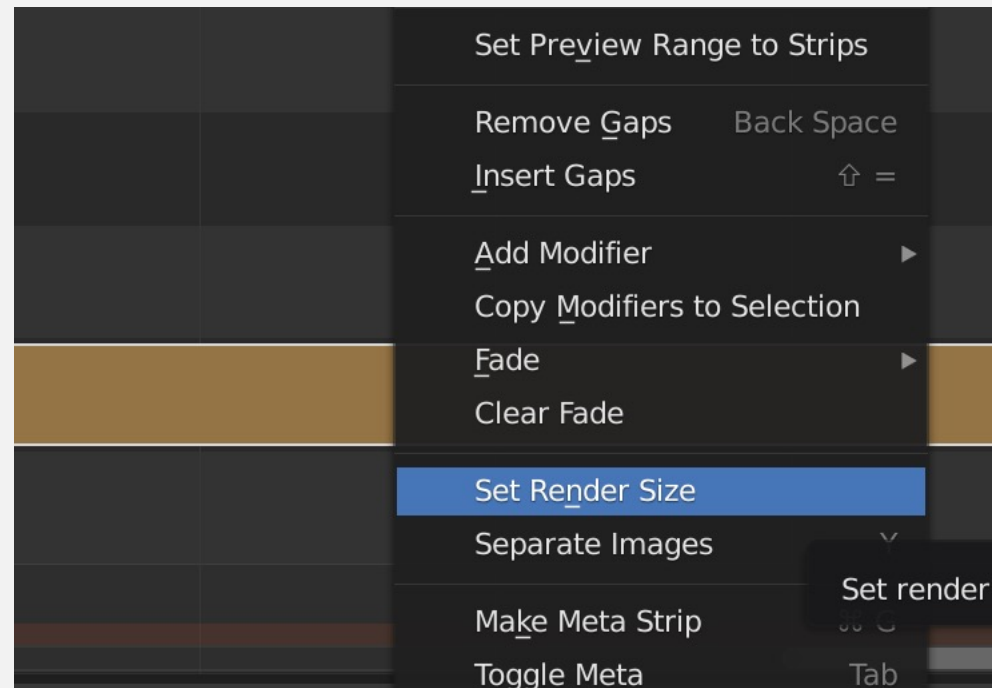
EDIT THE VIDEO – ONE IMAGE VIDEO

4. Click on the Timeline and choose an End frame value, we will choose 600
5. Click and drag the white border of the png until the end of the timeline



OUTPUT PROPERTIES

6. Right click on the png to open the Sequencer Context Menu
7. Select the option “ Set Render Size”
With this option, the Resolution X,Y in the Output Properties is updated with the resolution you used to render the image



OUTPUT PROPERTIES - SAVE THE VIDEO

8. In the Output Properties select the same framerate you have chosen before (in the previous blend proj)
9. Select the Output Folder
10. Select the Output Format Ffmpeg video
11. Select the Encoding Container as QuickTime or MP4,
Choose Codec Video as H.264 (it is the default value no need to change it)
12. Now in the Render dropdown menu → Render Animation (or hotkey ctrl + F12)

INJECT METADATA BEFORE
UPLOADING ON YOUTUBE



INJECT METADATA (I)

In the [YouTube guide](#) it is explained how to load 360 deg video.

In particular, before loading a 360 video on YouTube, it should be injected with Metadata to make it recognizable as 360 deg video.

Google's Github repository offers a UI released version for the Spatial Media Metadata Injection (it is also linked in the step 2 of the YouTube guide):

- <https://github.com/google/spatial-media/releases/tag/v2.0>

After downloaded it, you can just launch the executable and follow the instruction.

INJECT METADATA (2)

In the same repo, you can also download the zip source code and inject metadata by terminal

- <https://github.com/google/spatial-media/releases/tag/v2.0>

Python 2.7 is required (on Ubuntu/Mint/Debian 'sudo apt-get install python' should install everything for you.)

Once you have unzipped the file, open the terminal, then

1. 'cd' to the root of the unzipped folder
2. Run command:

```
python spatialmedia -i --stereo=none /path/to/input.mp4 /path/to/output.mp4
```

(before running it, you can run: `python spatialmedia -h` to have info about that command)

Blender documentation

- Latest version (the latest version at today is 2.91)
<https://docs.blender.org/manual/en/latest/index.html#>
- 2.83
<https://docs.blender.org/manual/en/2.83/index.html#>