

M&Scam-GPS Data Logger and Video Composition Tool

User's Manual



For macOS / VER 1.0

25.August.2021

SPEC PLANNING

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1 Introduction

Thank you very much for purchasing our company product 'M & Scam dualstream'.
We are confident that this software will help you enjoy your motorsport life.
Read the instruction manual carefully before use.

1-1 What You Can Do with the Software

You can combine driving data based on GPS data with video from the in-vehicle camera.



You can check the running line, how G is applied, comparison with the best lap and the best sector on the spot, and save it as a video file.



It can be recorded and distributed on DVD, etc. or shared on a video sharing site, so it can be used for the next ride.

2 Software Operation Description

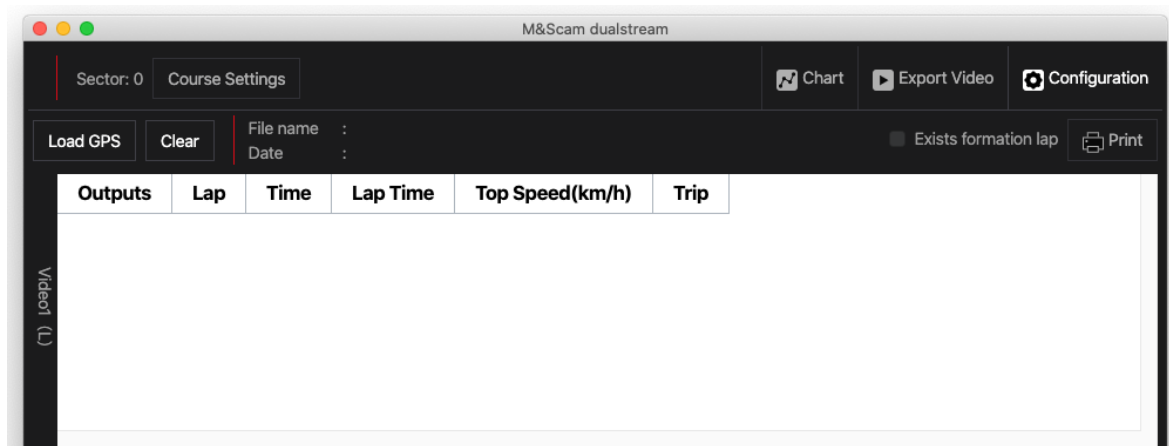
2-1 Basic operation flow

The operation flow of this software is as follows.

1. Select image data
2. Set Course (or Set Control Line)
3. Select the LAP data you want to output.
4. The arrangement of information that is composited into an image
5. Preview
6. Video output

The following pages describe each step.

2-1-1 Select image data

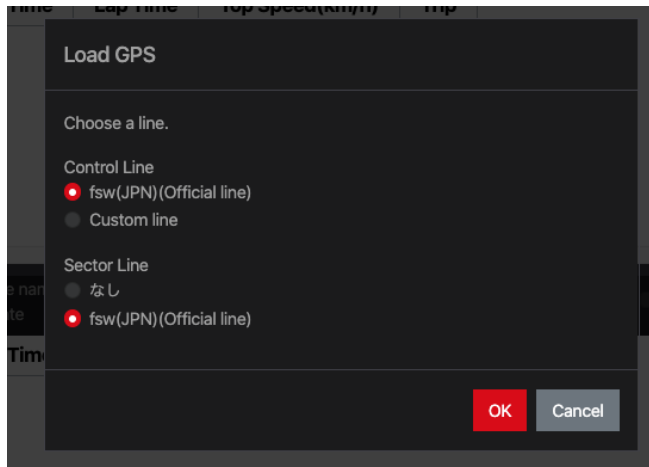


Click "Load GPS" in Video1 to specify the video data to be composited.

① When a course is automatically selected

The travel data is displayed.

② Multiple Course Choices



Select the course sector displayed and click "OK".

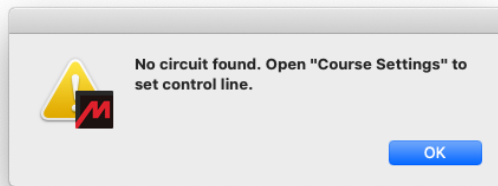
If it is not included in the candidates or if you want to set it manually, select "Cancel" to display the course setting screen.



POINT

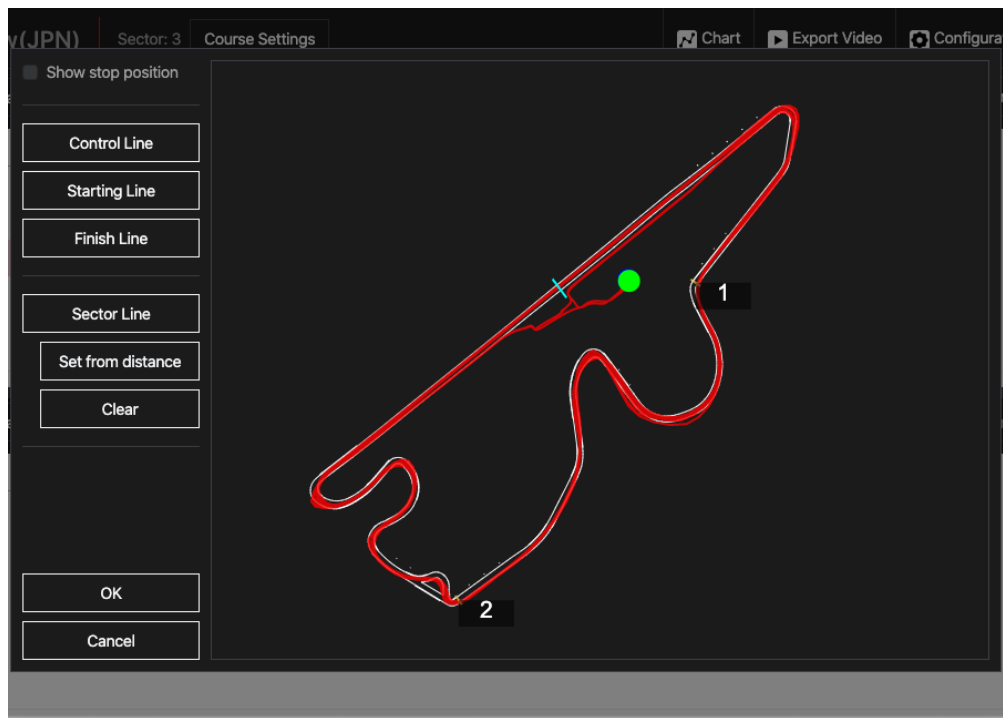
You can delete the lines that you saved on this screen.
See Chapter 4, "Configuration".

③ If you cannot find the course or choose Cancel from the selection screen



Press "OK" to display the course setting screen.

2-1-2 Set Course




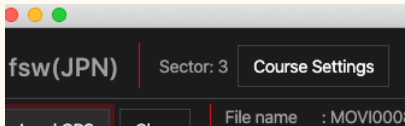
Sets the control line and start/finish line.

For each line, click the button on the left to make it selected, and then drag on the course to draw the line.

Press "OK" to save the line setting and close the setting screen.

- When "Show Stop Position" is selected, the stop position is indicated by △.
- You can zoom in and out by moving the mouse wheel over the course.
- You can also move the map by dragging while zooming in when no lines are selected to draw.
- You can also "Set from distance" sector lines.

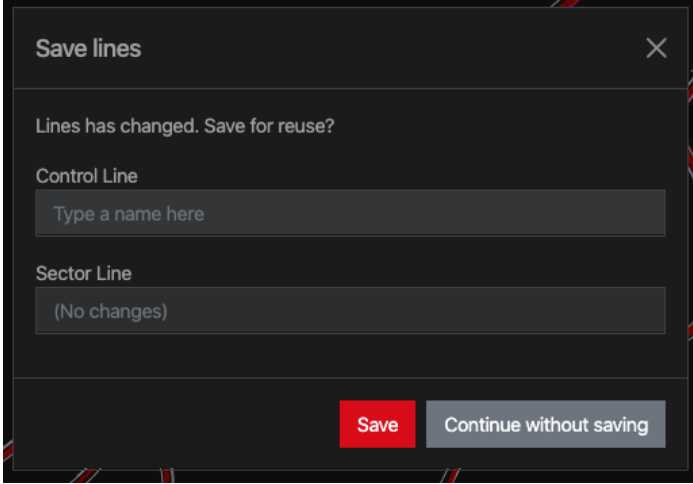




Even after you close this setting screen, you can access it from "Course Settings" on the main window.

2-1-3 Save Line

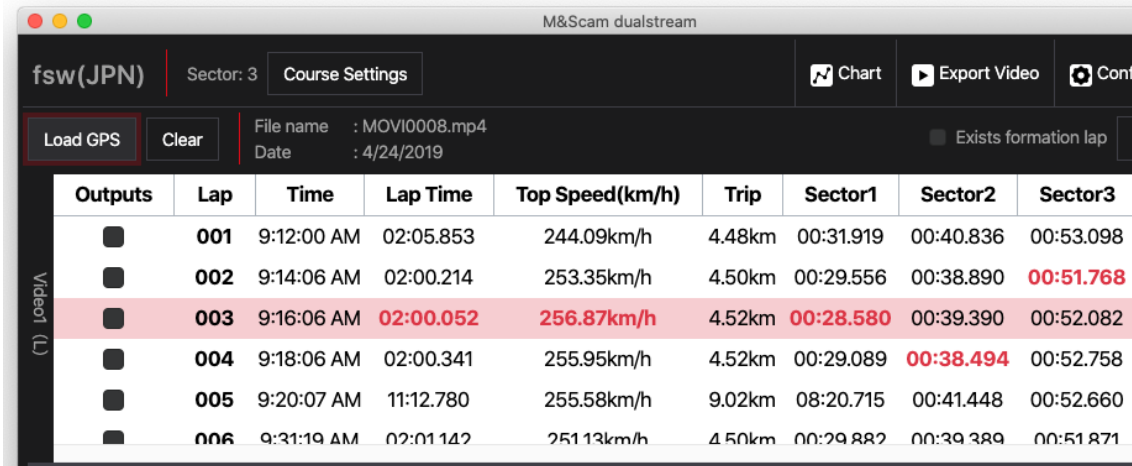
If you edit a line on the course setting change screen and close it with "OK", a message to save appears.

A screenshot of a dark-themed dialog box titled "Save lines" with a close button (X) in the top right corner. The dialog contains the text "Lines has changed. Save for reuse?". Below this, there are two input fields. The first is labeled "Control Line" and contains the placeholder text "Type a name here". The second is labeled "Sector Line" and contains the text "(No changes)". At the bottom of the dialog, there are two buttons: a red "Save" button and a grey "Continue without saving" button.

If you save the line now, it will be recalled the next time you load the same course.
If you enter a name that already exists, you can save it.

2-1-4 Select the LAP data you want to output

The speed and G display of the LAP data selected here are composited over the video.



| Outputs | Lap | Time | Lap Time | Top Speed(km/h) | Trip | Sector1 | Sector2 | Sector3 |
|-------------------------------------|-----|------------|-----------|-----------------|--------|-----------|-----------|-----------|
| <input type="checkbox"/> | 001 | 9:12:00 AM | 02:05.853 | 244.09km/h | 4.48km | 00:31.919 | 00:40.836 | 00:53.098 |
| <input type="checkbox"/> | 002 | 9:14:06 AM | 02:00.214 | 253.35km/h | 4.50km | 00:29.556 | 00:38.890 | 00:51.768 |
| <input checked="" type="checkbox"/> | 003 | 9:16:06 AM | 02:00.052 | 256.87km/h | 4.52km | 00:28.580 | 00:39.390 | 00:52.082 |
| <input type="checkbox"/> | 004 | 9:18:06 AM | 02:00.341 | 255.95km/h | 4.52km | 00:29.089 | 00:38.494 | 00:52.758 |
| <input type="checkbox"/> | 005 | 9:20:07 AM | 11:12.780 | 255.58km/h | 9.02km | 08:20.715 | 00:41.448 | 00:52.660 |
| <input type="checkbox"/> | 006 | 9:31:19 AM | 02:01.142 | 251.13km/h | 4.50km | 00:29.882 | 00:39.389 | 00:51.871 |

Select the check box for the LAP you want to print.

- Output LAP Selection Methods

Select the [Outputs] check box for the first LAP data you want to print.

All LAPs after the selected LAP data are selected.

Select the [Outputs] check box for the following LAP data for the final LAP you want to print.

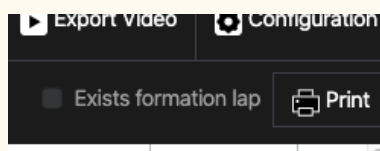
Example) If you want to output the 4th LAP from the 2nd LAP

Click to select the 2nd row [Outputs] checkbox.

Click the checkbox in line 5 [Outputs] to deselect it.

Example) If you want to output everything from the third LAP.

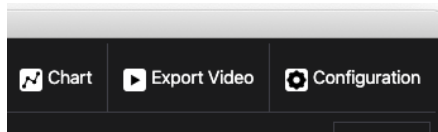
Click to select the 3rd row [Outputs] checkbox.



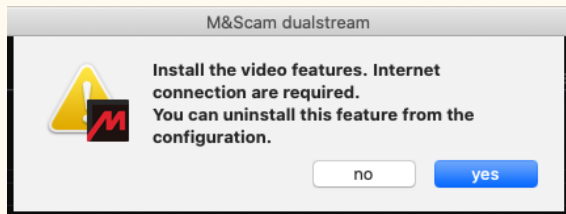
If the first LAP is a formation wrap, select [Exists formation lap].

This makes the first LAP "0 LAP".

2-1-5 The arrangement of information that is composited into an image

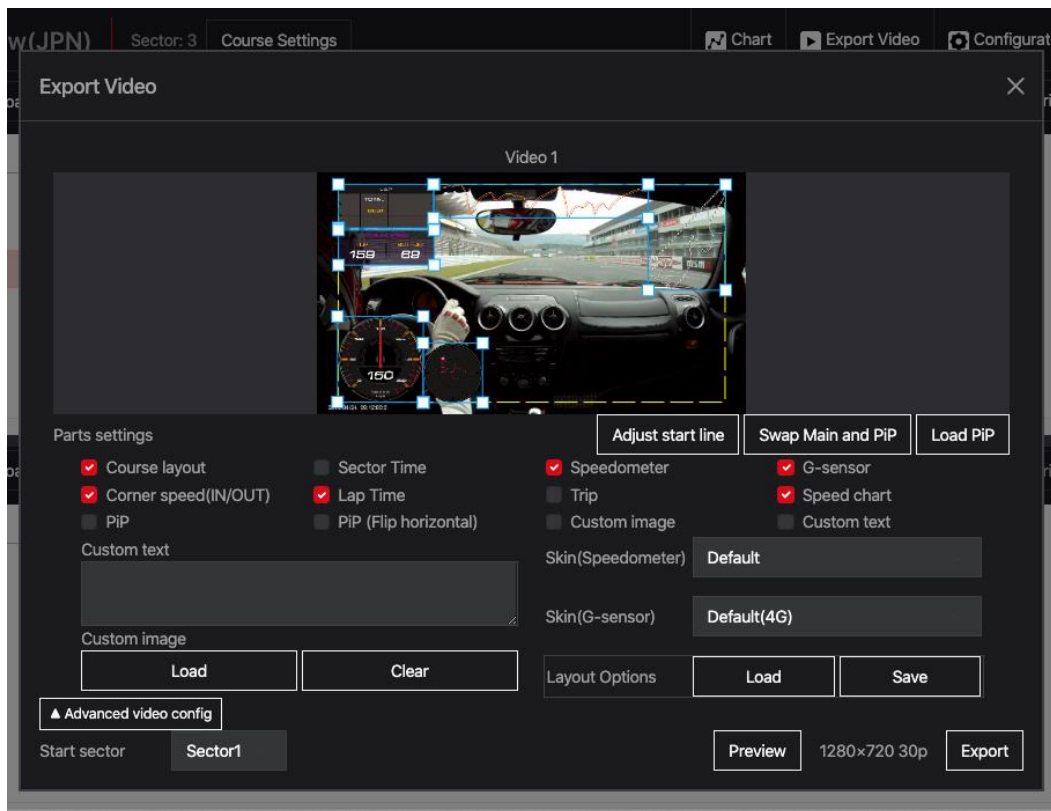


Press "Export Video" on the upper right of the main screen.



The first time you use the movie output feature, you must set it up. Press "OK" and wait for a while.

This requires Internet connection.



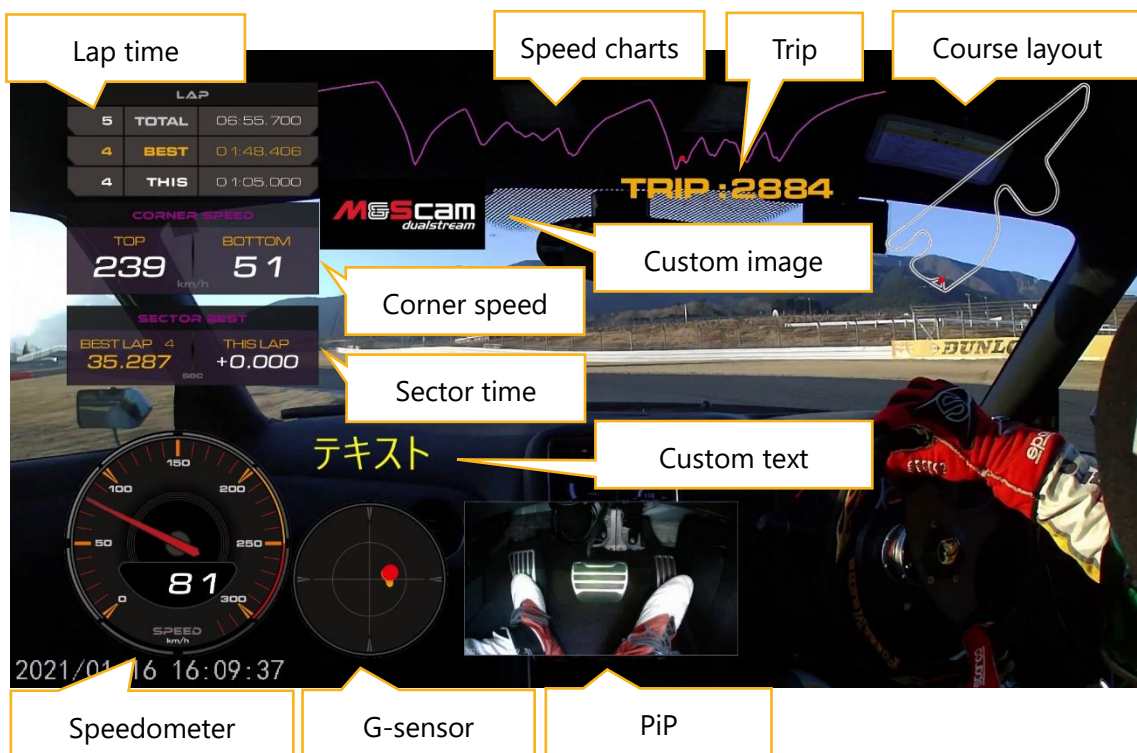
In this screen, you can arrange and preview the information to be composited into the movie and output the movie.

You can change the display position and scale by dragging each information.

The visibility check box allows you to change the visibility of each type of information.

POINT

- If you watch the composite image on some televisions, the information may be hidden at the edges. In this case, place the information within the dotted lines on the screen.
- You can save your customized information location from "Layout Options" in "Save".



- Course layout
Course diagrams are displayed for supported courses. Otherwise, the running trail is displayed.
- Sector time
Displays the sector time. Displays the Gap Time for the Best Gap Sector.
- Speedometer
Represents the instantaneous speed. You can change the design from "meter design".
- G-sensor

The vertical axis represents acceleration/deceleration G, and the horizontal axis represents cornering G.

● moves downward during acceleration and moves upward during deceleration. The stronger G is applied, the more it moves.

G display afterimage is displayed, so acceleration/deceleration and cornering transition can be confirmed.

You can change the design from "meter design".

- Corner Speed (IN/OUT)

Displays the corner velocity. When the speed difference of the display threshold of corner speed is detected, it is displayed for the display time of corner speed.

You can change the display threshold and display time from "Movie settings".

The default display threshold is 40 km/h and the display time is 5 seconds.

- Lap time

Displays the LAP time.

The first column shows the total LAP information including the number of LAPs and the total time from the 0th LAP.

The second column displays the best of all LAP.

The third column displays the current LAP information. Displays the best LAP and the time difference between the LAP completion and the display time.

You can change the display time from "Movie settings".

The default display time is 5 seconds.

- Speed Charts

Displays a chart with distance on the horizontal axis and degrees on the vertical axis.

The graph is currently displayed in pink for the LAP and green for the best wrap for 1 LAP. The graph also switches when the LAP switches.

When 2 GPS data is displayed, 2 GPS comparison wrap is displayed in green.

The current running position is indicated by ● to confirm the difference from the comparison data.

- TRIP

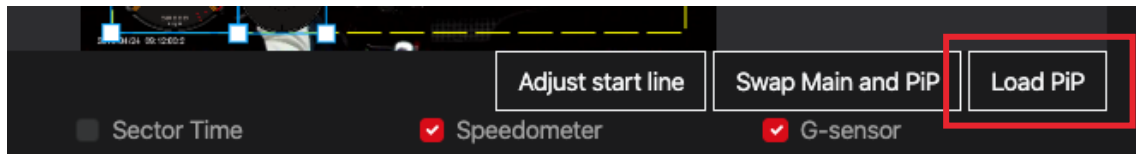
Displays TRIP from the start line.

- PiP · PiP (Flip horizontal)

Picture-in-picture. Appears when a movie is selected in "Load PiP". You can also mirror movies (Reverse Side View).

- Custom image
Displays any image. You can scale the image.
- Custom Text
You can display multiple line titles on a movie by entering a title in the movie title.

2-1-5 Load Sub-Video



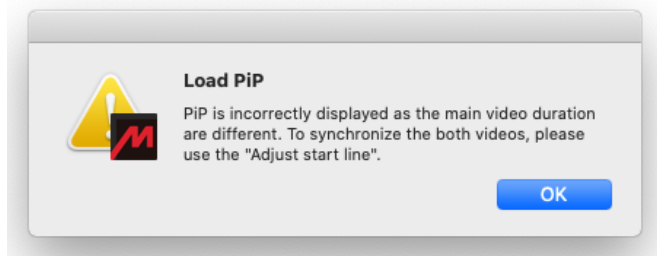
You can import sub images displayed in "PiP".

When recording with 2 cameras using M & Scam dualstream, the sub image is automatically set, so no operation is required.

POINT

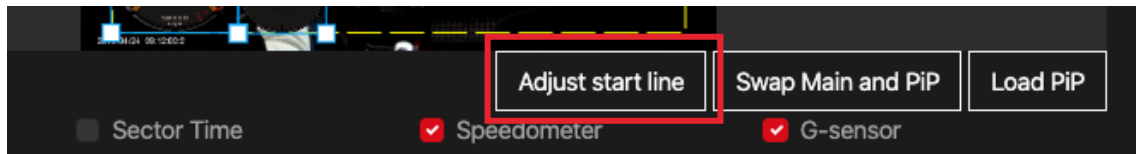
- If you change the name of the recorded video file, it is not set automatically, so set it manually.
- You can import movie files with the extension "mp4, avi, wmv, asf, mts".
However, note that some supported extensions may not be loaded correctly depending on the device used for recording.

If you select a video file that was not recorded with M & Scam dualstream or was not recorded at the same time, a warning dialog appears.

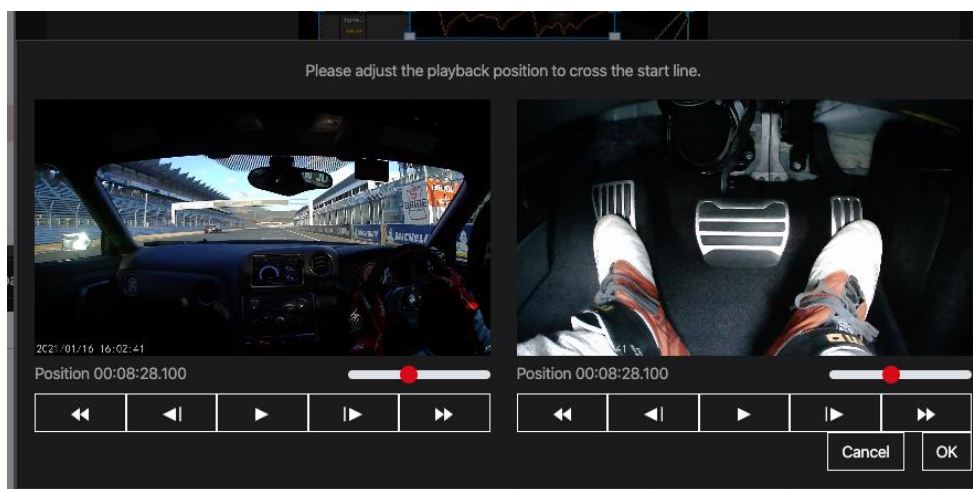


In this case, there will be a gap between the main image and the sub image, so adjust the start line.

2-1-6 Start line adjustment

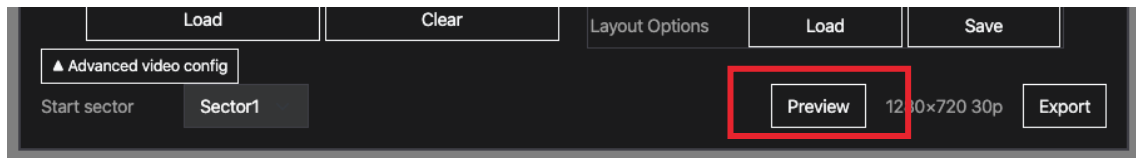


If the main image and sub image are displayed at different positions, or if the GPS information and main image are displayed at different positions, this function can be used to adjust them.

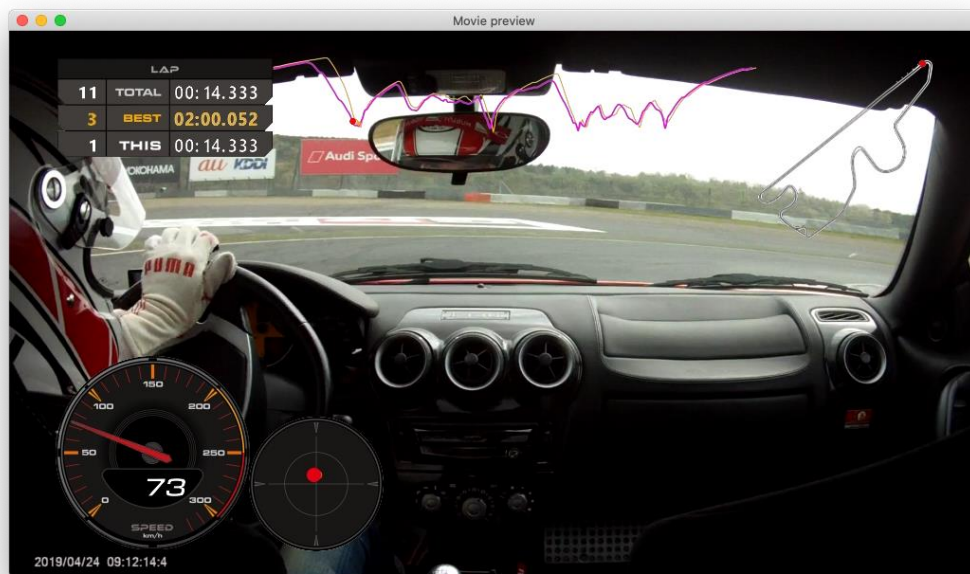


Set the playback position of the displayed image to "position across the starting line".
If sub images are loaded, set both images.

2-1-5 Preview



Select the sector you want to start compositing and press "Preview".



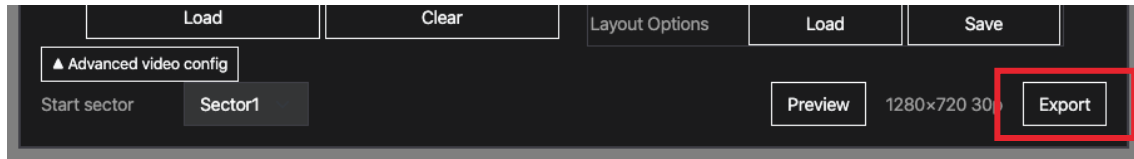
To cancel the preview, close it with "x" in the upper right of the screen.

Press "space key" to pause at the playback point.

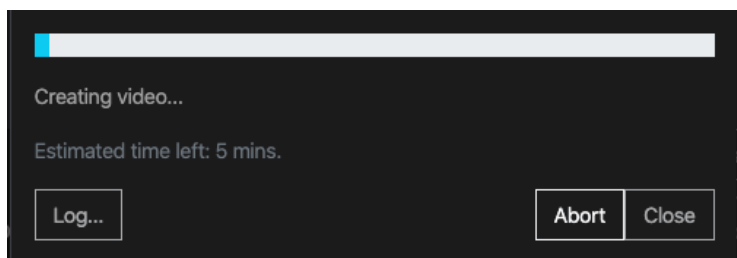
POINT

- Fast forward and fast return are not available.
- The image quality is reduced for preview, so the image may be rough.
- Depending on the performance of your computer and the operating environment, the image or sound may be choppy.

2-1-6 Video output



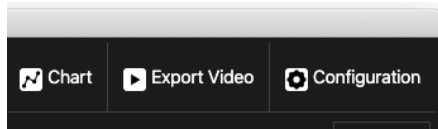
Select the sector and image quality you want to start compositing and press "Export".
In the dialog that appears, select a location to save.



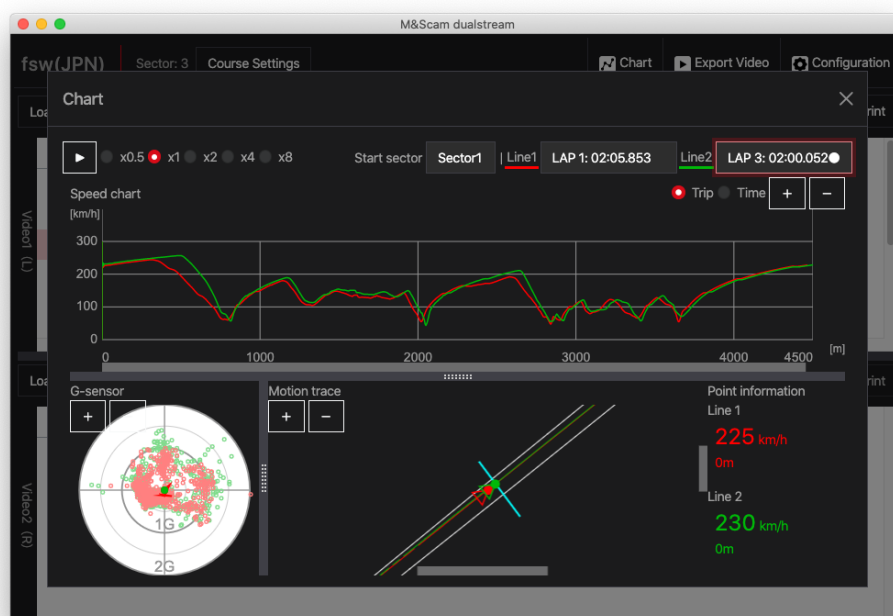
Please wait for the completion message to appear.
If you click "abort", the completed movie data is saved.

3 Chart

You can display GPS data graphically and check it without combining it with movies.



Press "Chart" on the upper right of the main screen.



You can see how the car is running by clicking "▶".

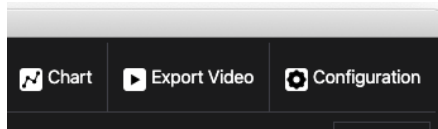
"▶" You can adjust the animation speed by selecting the double speed next to it.

You can check the position with ● on each screen of speed graph, G sensor, and running track.

The data can be compared by overlaying by selecting the wrapping to be displayed in "Line 1" "Line 2" in the upper right of the graph display.

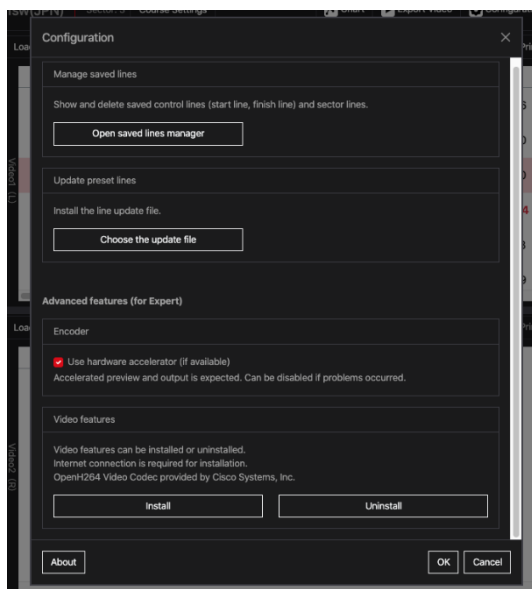
4 Configuration

You can set this tool.



Press "Configuration" on the upper right of the main screen.

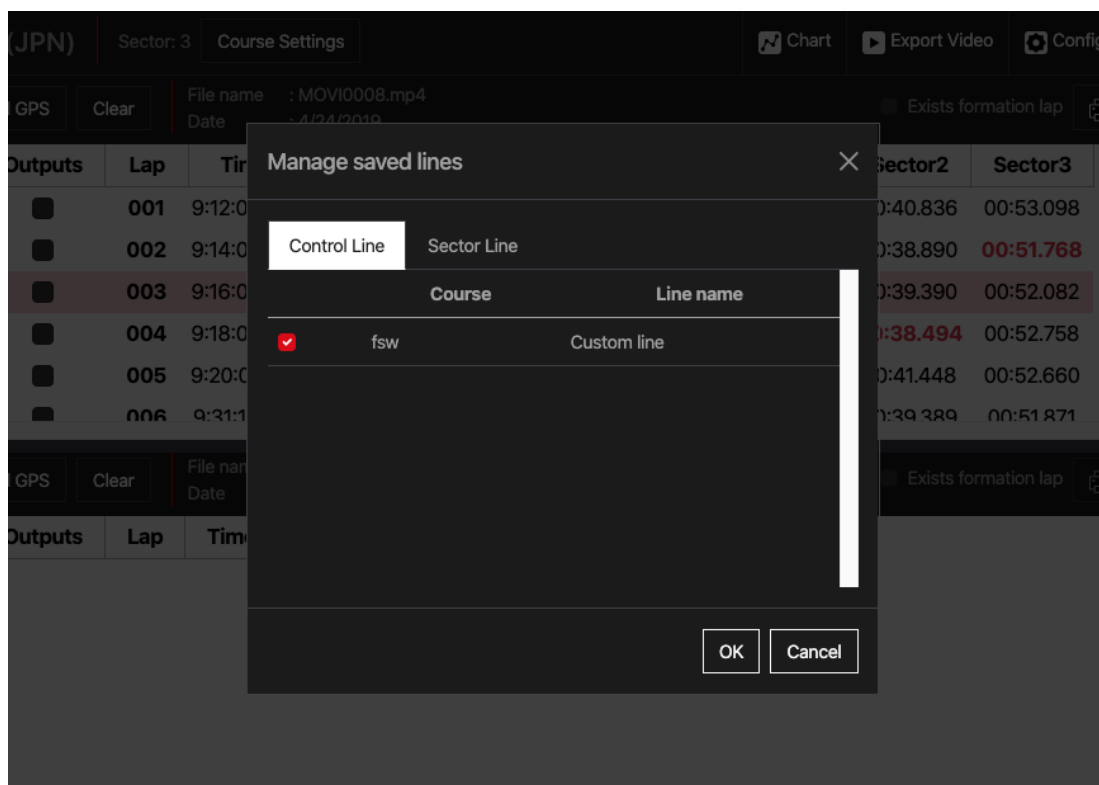
4-1 Main setting screen



- Manage saved lines
You can check or delete the line you edited (control line sector line) from here.
- Update preset lines
If you obtained the update data from the official website, you can install it here.
You must have administrator privileges on the computer for the installation operation.
- Encoder
If you have problems with video output, uncheck this box to output the video without using the hardware encoder.

- Video features
You can install and uninstall the features required for movie output.
However, you usually do not need to do this.
- About
You can view information about the version and license of the tool.

4-2 Saved lines Manager



Uncheck the box of the item you want to delete and press "OK".

6 About Licensing

This product includes software licensed under the GPL/LGPL.

These software are distributed in the hope that they will be useful, but without any warranty.

There are no implied warranties, including implied warranties, of merchantability or fitness for a particular purpose.

Provide source code for at least three years after product launch in exchange for the cost of providing the source code. Please contact us at the following website.

<https://www.gps-nero.com/>

Please note that we cannot answer any questions about the contents of the source code.

Detailed licenses are displayed About.

M&Scam dualstream for macOS GUI Application

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Encoder Application

| | |
|-----------|------------------------|
| FFmpeg | GNU GPLv2 or newer |
| frei0r | GNU GPLv2 |
| msgpack-c | Boost Software License |
| OpenCV | 3-clause BSD License |
| OpenH264 | BSD License |