



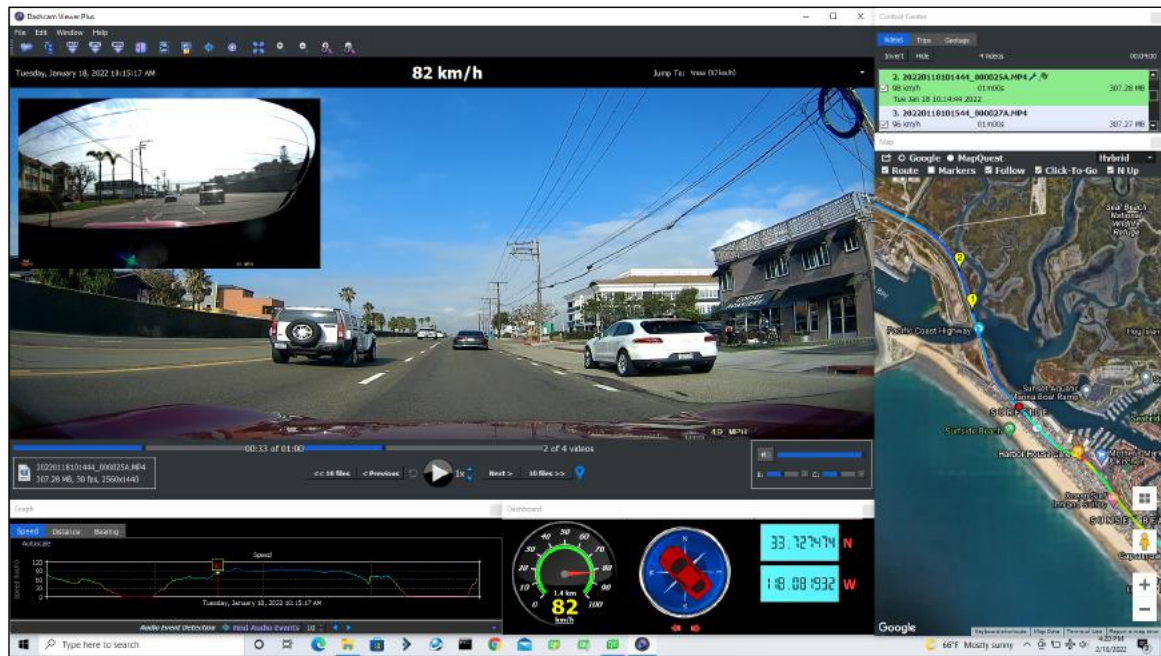
Dashcam Viewer

Free, Plus & PRO versions

USER'S MANUAL v4.0.6 15 March 2025

Welcome to Dashcam Viewer!

Dashcam Viewer is a macOS and Windows application for viewing videos, GPS data, and G-force data recorded by dashcams and action cams. With Dashcam Viewer you can play your videos on the main screen while watching your vehicle's speed, distance, position, bearing, and G-sensor data update on graphs, data displays, and maps. You can group your videos into trips, geotag key points in your route for later review, and export your route to common file formats such as comma-separated value (CSV) and GPS-exchange (GPX), or Google Earth (KML), for further data analysis. Read on to learn more of Dashcam Viewer's extensive capabilities.



Dashcam Viewer on Windows showing 2-channel player window, dashboard display, speed graph, map route, and control panel

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FEATURES

- Resizable main viewing screen.
- Zoomable and translatable video view.
- Heads-up display of current date, time, speed, distance, position, and bearing.
- Heads-up display of altitude, HDOP, and Satellites-in-View (some dashcam models).
- Geotag key points in your route, title them, and jump to these points instantly. Reverse geocode your geotags.
- Save geotags to a text file. Import geotags back into Dashcam Viewer.
- See a listing of all video files you load and hide files that are not of interest.
- Front/rear camera view switching for selected dual-camera dashcams, and picture-in-picture mode.
- “Real time” display of vehicle’s location, speed, and route on a Google Map (Mac) or Mapquest Map. OpenStreetMap is available in **PRO** version.
- Audio event detection.
- Trip binning and statistics.
- GPS data caching for lightning-fast reloads.
- Map pans automatically to keep vehicle centered, or you can keep map fixed.
- Click on vehicle’s map route to jump to that position in video.
- Click on vehicle’s Graph trace to jump to that position in video.
- Audio event detection.
- Support for GPS-enabled GoPro HERO action cams. Includes geoid altitude correction.
- Graphical displays of speed, distance, bearing, altitude, HDOP, Satellites-in-View, and X, Y, Z shock sensor data.
- User-configurable speedometer
- Auto-scaling of graph data.
- Weather display widget for retrieving weather conditions at the location and date of the currently-playing video.
- Automatic transition between sequential video files.
- Optionally skip the first n seconds of consecutive videos during playback.
- Variable playback speed control.
- Jump to fastest part of route, or to any loaded video file instantly.
- Slider controls for direct access to any video file or any position in a video file.
- User-configurable instant replay button
- User-selectable compass pointer
- Navigation buttons to jump ahead or back by one or ten video files.
- Display of current video file name, duration, frame rate, and file size.
- Drag and drop loading of video directories.
- Dark Mode support on Mac *and* Windows.
- Export video segments of user-selectable duration, playback rate, (and direction in **PRO** version).
- GPS data export to CSV, GPX, KML, and GeoJSON file formats.
- Export current video window to PNG or JPG file.
- Provide or override native GPS data with user-supplied data in GPX or custom DTS data formats.
- Merge multiple sequential videos into a single large video at one of 7 playback rates.
- Click to reveal currently-playing video in Finder.
- Support for km/h or mph units.
- Support for time biasing to sync videos and data.
- Keyboard and mouse shortcuts.
- Support for MP4, MOV, TS, and AVI videos.

- Graph's data traces are color-coded based on vehicle speed.
- Compass display of vehicle's direction.
- Controls for video brightness and contrast (Windows version only).
- Support for internet connection via proxy server.
- Multi language support: English, Arabic, Chinese, Dutch, French, German, Hungarian, Italian, Polish, Spanish, Russian, Turkish, Vietnamese.

DASHCAM COMPATIBILITY

Dashcam Viewer is compatible with the following popular dash cams and action cams. New dashcams are constantly being released and this list is may not be current. If you do not see your dashcam here, it may already be supported. If your dashcam videos play correctly in Dashcam Viewer but you do not see GPS data, we may be able to add support if you provide sample videos and GPS data.

- [70mai Dash Cam Pro](#)¹
- [amiGO! DC710](#)
- [Abee V51](#)
- [Akaso Dash Cam V1](#)
- [Akeeyo AKY-D9](#)
- [Alfawise LS02](#)
- [Alpine F800 Pro](#)
- [Aukey DR02](#)
- [Ausdom A261 Car DVR](#)
- [Auto-Vox X1, X2](#)²
- [Azdome BT07](#)
- [Azdome GS63H](#)
- [BlackBox B40 A118](#)
- [BlackVue DR400, DR500, DR550GW-2CH, DR650GW-2CH, DR750LW-2CH, DR750S-1CH, DR750S-2CH, DR900X-2CH](#)
- [Blaupunkt BP 3.0 \(Mac only\)](#)
- [BlueSkySea B1M 2CH \(pre-20200707 f/w\)](#)
- [BlueSkySea B4K](#)
- [Navicam NC1000W](#)
- [Nanoq 0903](#)
- [Nexar Beam](#)
- [NextBase 302G \(Windows\), 380GWX, 412G, 412GW, 512G, 512GW, 522GW, 612GW](#)
- [Novatek A118C](#)
- [Papago GS S780 2CH and 34G](#)
- [Polaroid E272S](#)
- [Polaroid PD-G55H](#)
- [Porsche Dashcam](#)
- [Powerucc Panorama II, Panorama S, Panorama X2](#)
- [RAC02, RAC210, other RACs](#)
- [RedTiger F7N](#)
- [Rexing V1LG](#)
- [Rexing V1P](#)
- [Roadhawk HD, HD-2, DC-2](#)
- [ROAV C1 Pro, C2 Pro](#)
- [Rollei DVR 110 \(Mac version only\)](#)
- [ROVE R2-4K](#)
- [ROVE R3](#)

¹ The 70mai Dash Cam Pro encodes using the HEVC (h.265) codec. Video playback in Dashcam Viewer will require a 2016 or later model Mac. To date, no other model from 70mai works with Dashcam Viewer due to an incompatibility with the way GPS data is encoded.

² Auto-Vox X2 and JADO D860 **only**: All GPS data has been cracked, except the longitude sign. So as a workaround for now, the longitude value is interpreted as positive every other time DCV is started and negative every time else. So if your position is incorrect on the map, just quit and restart DCV and it will be ok. Once the longitude sign has been cracked, I will remove this workaround.

- [BOBLOV F2](#)
- [BMW Advanced Car Eye 3.0 Pro](#)
- [CAMDII K2S](#)
- [Cobra CDR855BT](#)
- [Contour+2 Action Cam](#)
- [Cooau Dash Cam D30](#)
- [Crosstour CR750](#)
- [Crosstour CR900 \(early versions\)](#)
- [DC710 Ambarella A7](#)
- [DOD 512G](#)
- [DOD GS600](#)
- [DOD GS980D](#)
- [DOD LS460W, DOD LS470W, DOD LS475W](#)
- [DOD RC500S 2CH](#)
- [E-prance 1296P Super HD dashcam \(1080p mode\)](#)
- [E-PRANCE 3H2F GS6000](#)
- [Falcon Zero F170HD](#)
- [Garmin Dashcam 20 \(Windows\), 35, 45, 55, 56, 57](#)
- [Gator GHDVR410](#)
- [GoPro HERO action cams \(GPS-enabled\)](#)
- [Guardian G1 Bodycam](#)
- [GRDIAN Defendr](#)
- [GS1000 "Orange Menu" family of dashcams](#)
- [HP f800x, HP F210, HP F310 \(Mac Version\), HP F520G \(Mac version\)](#)
- [INNOVV K1, K2, K3, and K5 dual](#)
- [INNOVV K6 \(no GPS, only playback\)](#)
- [ION Adventure CamION Dashcam Wifi \(Mac version\)](#)
- [iSymDVR \(iPhone-based DVR app\)](#)
- [iTracker MINI 0906 \(TS Format\)](#)
- [JADO D860¹](#)
- [Junsun 4K Dash Cam, S590](#)
- [SeeZeus GT680W](#)
- [Silent Witness SW010.1](#)
- [SONY AS-100V Action Cam](#)
- [SpyTec A119](#)
- [Street Guardian SGZC12SG, SG9665GC, SG9663DC \(possibly other models as well\)](#)
- [SuperEye RJ0090](#)
- [Thinkware F200 2CH](#)
- [Thinkware F550 \(Mac only\)](#)
- [Thinkware F750, F770](#)
- [Thinkware F800Pro Dual Channel](#)
- [Thinkware U3000 dual-channel](#)
- [Thinkware X1000 and U1000](#)
- [Transcend DrivePro 220](#)
- [Transcend DrivePro 230](#)
- [Transcend DrivePro 250](#)
- [Transcend DrivePro 520](#)
- [Transcend DrivePro 550](#)
- [Uniden iGO Cam 60](#)
- [V-SYS P6FL, M6](#)
- [Vantrue Element 1 \(E1\)](#)
- [Vantrue N2 dual-channel](#)
- [Vantrue N2S](#)
- [Vantrue N4 \(front/center\)](#)
- [Vantrue X4 UHD](#)
- [Vantrue X4S](#)
- [Vicovation Vico-Marcus1, Vico-Marcus3, Marcus4, and Marcus 5](#)
- [Vicovation Opia2](#)
- [Viofo A119, A119S, A119G](#)
- [Viofo A119 Mini2](#)
- [Viofo A129, A129 Duo, A129 Plus Duo](#)
- [Viofo A129 Pro, A129 Pro Duo \(Windows\)](#)
- [Viofo A139 Dual](#)
- [Viofo A139 PRO](#)
- [Viofo A229 Dual](#)
- [Viofo A229 PRO](#)

- [Kaisser Baas R20 \(Mac Only\)](#)
 - [Karkam M1](#)
 - [KDLinks R100 Dual-Channel](#)
 - [Kenwood DRV-320](#)
 - [Kenwood DRV-A510W](#)
 - [Koonlung K1S](#)
 - [LAMAX S9 Dual](#)
 - [LUKAS LK-7200 Car DVR](#)
 - [Maisi E720](#)
 - [Mini 0801, 0803, 0805, 0806, 0806S, 0807, 0826, and 0906 Dual-Channel](#)
 - [Miofive S1, Miofive S1 Ultra](#)
 - [MiVue 698D, 792](#)
 - [MiVue 388, 580, 658, 680](#)
 - [MiVue 955WD](#)
 - [MiVue J60, J85](#)
 - [NavGear Super-HD-Dashcam MDV-3300](#)
 - [Viofo G1W-S](#)
 - [Viofo MT1 Dual](#)
 - [Viofo T130](#)
 - [Visiondrive VD-9600 Dual Channel \(Requires front/rear channel separation. Visit \[dashcamviewer.com\]\(http://dashcamviewer.com\) to download the free movie separator application for Mac\)](#)
 - [VSYSTO B6 Dual](#)
 - [WASPcam 9401 P.O.D](#)
 - [WheelWitness HD Pro \(Mac version. Windows version untested\)](#)
 - [WheelWitness HD Pro Plus](#)
 - [Whistler D28RS](#)
 - [Wileye DV-1 2-channel](#)
 - [YEECORE D21](#)
 - [YEECORE D22](#)
 - [Zetronix zBlackBox-HD3](#)
-

DUAL CAMERA SUPPORT

Some dashcam models support front and rear cameras. Dashcam Viewer allows you to select the front or rear channel for display in the main player window. In addition, Dashcam Viewer can display both front and rear videos simultaneously in a picture-in-picture mode.



2-channel, front and rear, Picture-in-Picture (PiP) mode (Mac version)

EXTENDED GPS COMPATIBILITY

Almost all dashcams and action cams record clock time and vehicle position (latitude and longitude) at a data rate of 1 Hz. Many also record G-force data from internal accelerometers. Some dashcams, including the BlackVue, HP F210, Vicovation, and others, record extended GPS information including vehicle altitude, HDOP, and Number of Satellites in View. When extended data readily available in the data stream, Dashcam Viewer will process and display it in the Graph window.

SYSTEM REQUIREMENTS

MAC VERSION

- macOS 10.14 (Mojave) or later. Intel or Apple Silicon CPU.
- Mac models earlier than 2016 may not be able to play videos encoded using the HEVC (h.265) codec. Use h.264 if your dashcam supports it.
- Internet connection for Mapquest/Google Maps/OpenStreetMaps functionality
- 1600x1200 or higher screen resolution recommended

WINDOWS VERSION

- Windows 10 or 11 recommended but Dashcam Viewer may also work under Windows 7 and 8 but these are not recommended.
- Requires [K-Lite Codec Pack Basic](http://www.codecguide.com/download_k-lite_codec_pack_basic.htm)³ to be installed first. This pack includes codecs Dashcam Viewer requires to play the various multimedia formats. Other codec packs, like LAVfilters, may work but have not thoroughly tested. Earthshine Software is not affiliated with the makers of K-Lite Codec Pack.
- Intel i7 processor or better, with nVidia or AMD graphics card recommended, although it may run on lower-end systems
- 1600x1200 or higher screen resolution recommended
- Internet connection for Maps functionality

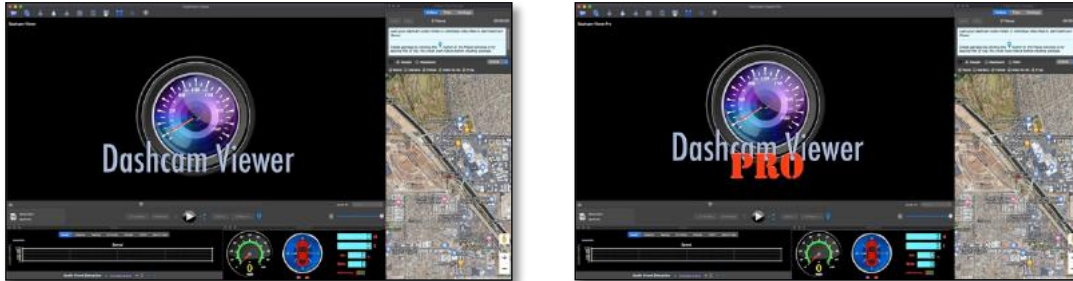
³ K-Lite Codec Pack URL is http://www.codecguide.com/download_k-lite_codec_pack_basic.htm

DASHCAM VIEWER VERSIONS – FREE, PLUS, PRO

Dashcam Viewer is available in three versions: Free, Plus, and Pro. All versions share the features listed above, with the differences between versions listed below.

Feature	Free	Plus	PRO
Number of videos	2	600	1200
Number of Geotags	2	10	100
Audio event detection	1 video	5 videos	100 videos
GoPro HERO support	30 secs	1 video	100 videos
OpenStreetMap display	No	No	Yes
Compass Icons	2	2	24
Size of GPS data cache (files)	1,000	1,000	10,000
Video merging	2 videos	No limit	No limit
Video clip export duration	5 secs	No limit	No limit
Video clip export features	Basic	Free+Image Sequence (up to 1 fps)	Plus+Image Sequence (all frames), reverse video
Data Export	Current video only	Current, all enabled	Current, all enabled, current trip, all videos
JPG image export contains GPS data in EXIF block of file	No	Yes	Yes
Trip Gap–Time control	No	No	Yes
Annoying Startup Window	Yes	No	No
License	Personal	Personal	Commercial or Personal

All licenses are per person (or per seat). By purchasing a license you are authorized to install on up to two computers you operate. The versions are activated by applying the registration code you purchased. You can differentiate the Free/Plus versions from the Pro version by the startup screen:



Startup screens for Dashcam Viewer Free/Plus (left) and Pro (right)

Upgrades from the Plus version to the Pro version are available. Please visit <https://dashcamviewer.com/resources/pro-upgrade/> for more details. Include your Plus version proof-of-purchase info in the email.

BEFORE YOU BEGIN...

1. Before you start, make sure your dashcam's internal clock is set to the correct time zone for your area. Dashcam Viewer relies on the video file creation timestamps to sync the video to the GPS data so this setting is important. If your camera's time zone has not been set correctly or if you are viewing videos and GPS data from someone outside your time zone, the time bias can be compensated for. See the Preferences and FAQ sections below on time zone biasing.
2. For best performance, copy the contents of your dashcam's SD card to your computer's hard drive. Alternatively, if your Mac or PC has a built-in SD card slot, insert your SD card directly into your computer. As a fallback you can insert your dashcam's SD card into a USB card reader attached to your Mac or PC, but this may result in video stuttering, poor performance, or "timeout error" if you USB bus is not fast enough.

INSTALLATION GUIDE

Installing Dashcam Viewer takes just a few simple steps:

INSTALLING DASHCAM VIEWER ON MACOS

1. Double-click on the .dmg file to mount the Dashcam Viewer disk image in the Finder. You should now see the Dashcam Viewer window in the Finder.



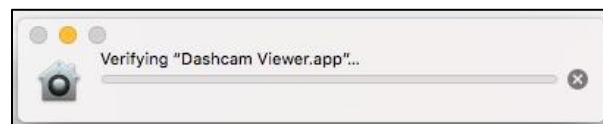
The contents of the Dashcam Viewer .dmg file after mounting in the Finder.

2. Drag **Dashcam Viewer** on to of the **Applications** folder shortcut. This will copy Dashcam Viewer to your Applications Directory.
3. **Double-click** on the **Dashcam Viewer** icon. The first time Dashcam Viewer is run, you'll see a window similar to this:



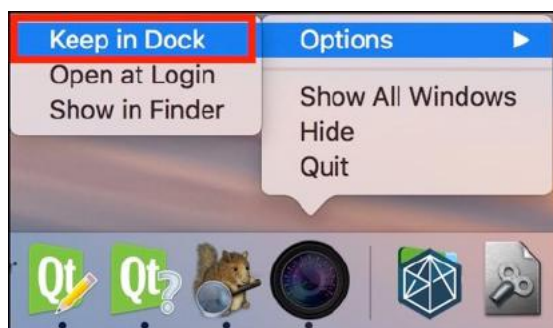
Message from macOS when Dashcam Viewer is first run.

4. The first time you run Dashcam Viewer, the macOS may display the “**Verifying...**” window for a minute or so. This is normal. Please be patient!



The first time you run Dashcam Viewer, macOS ‘verifies’ it. This may take a minute or so.

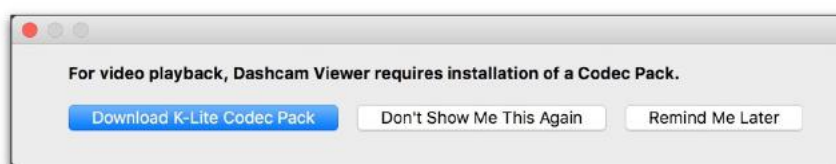
5. All done! The next time you run Dashcam Viewer it should start-up immediately. To keep Dashcam Viewer in the Dock, right-click its icon in the Dock and choose “Keep in Dock”.



Right-click on the Dashcam Viewer icon in the Dock to keep there.

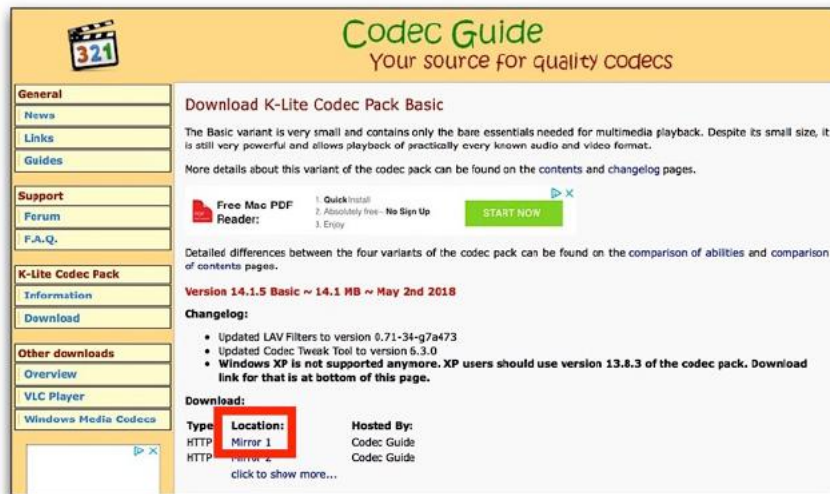
INSTALLING DASHCAM VIEWER ON WINDOWS

1. After downloading, run the setup.exe installer. Follow the prompts to complete the installation. Upon completion you should see a **Dashcam Viewer** icon on your Desktop.
2. The first time you run Dashcam Viewer, you will be prompted to install the **K-Lite Codec Pack Basic**. This is required because Microsoft’s DirectShow media layer does not include many of the codecs used by dash cams, like MP4. This is a free install that includes the codecs Dashcam Viewer requires to play the various multimedia formats. Other codec packs may work, but K-Lite is the only one tested.



Click on the “Download K-Lite Codec Pack” button to be directed to the Codec Guide website.

3. Click on the ‘**Mirror 1**’ link to download the Pack and follow the installation instructions. **Warning:** the Codec Guide website has links that read “Start Now”. These are advertising links and will not download the codec pack.



Click the Mirror 1 or Mirror 2 link to download the codec pack installer.

4. After codec installation, re-run Dashcam Viewer. Upon startup, click the ***“Don’t Show Me This Again”*** button. This will prevent Dashcam Viewer from repeatedly reminding you to install the codecs.

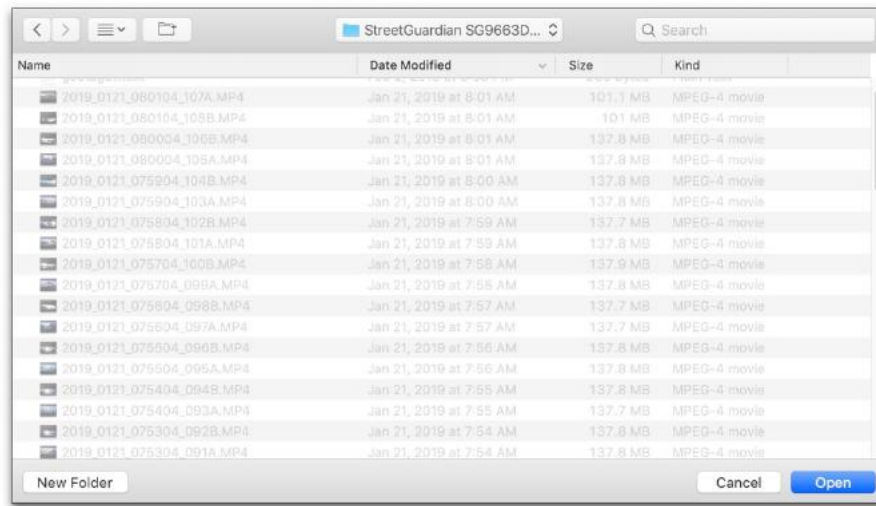


QUICK START GUIDE

1. Run Dashcam Viewer and load your video files via the *Open Video Folder* or *Open Video Files* menu or toolbar button. Dashcam Viewer will auto-detect your dashcam model by examining the middle video of the set. Once it detects the dashcam model it will find the GPS data associated with the videos file(s) you selected. **Therefore it is critical that the middle file loaded have valid GPS data associated with it or Dashcam Viewer won’t know how to load the GPS data for any of the files.**

If you have a dual-channel dashcam, load from the directory containing your Front channel videos. You load videos by either selecting individual video files or by selecting the video files’ parent folder. You can load them in three ways:

- a. Select the *Open Video Folder...* option from the menu or toolbar. Navigate to your SD card's video folder. Click the Choose button.



*Choosing the **video** folder for a StreetGuardian SG9663DC dashcam on the Mac. On Windows, you would not see the video files listed in the browser—you would only see folders listed.*

- b. Drag and drop your SD card's video folder or individual video files into a gray area of the Dashcam Viewer's main window.
 - c. Select the *Open Video Files...* from the menu or toolbar. Navigate to your video folder and select the individual video files you want to play (you can choose either MP4, MOV, TS, or AVI files). For dual-channel dashcam, select both the front and rear videos. If you select front videos only, Dashcam Viewer will try to find the corresponding rear videos.
 - d. To abort importation of a large set of videos, click the "Cancel" button and importation will halt leaving just the set of videos that has been processed so far.
2. **That's it!** Dashcam Viewer will begin playing the first video in the folder or in the list of videos that was selected. By default files are loaded according to file modification date (this can be changed to *name ordering* in the Preferences). When Dashcam Viewer reaches the end of the video it will jump to the next video in the list and continue playing. It will do this until all videos have been played. Keep reading to learn more about Dashcam Viewer's features and options.

IMPORTING GPS DATA FROM GPS-ENABLED GOPRO HERO CAMERAS

To load the navigation data embedded in GPS-enabled GoPro Action Cam videos (currently the GoPro HERO5 and above), simply select your file(s) from the File->Open menu or drag the files onto Dashcam Viewer. The data will be located, processed, and displayed.

GoPro HERO cameras store altitude data relative to the WGS84 ellipsoid. This is different than Mean Sea Level and can result in negative altitudes for activities that actually occur on the Earth's surface. Dashcam Viewer solves this problem by applying a Mean Sea Level (MSL) correction (known as a geoid undulation) to the GoPro altitude data. If you do not want Dashcam Viewer to apply the MSL correction, remove or rename the "egm96-15.pgm" located in Dashcam Viewer's "*geoid*" directory (Windows) or in the *Dashcam Viewer.app/Contents/Resources/geoid* directory (Mac).

The unregistered version of Dashcam Viewer will display GPS data for the first 30 seconds of each video loaded. The Plus version will display the GPS data for 1 complete video, and the **PRO** version will show GPS data for up to 100 videos loaded at a time.

FEATURES AND CONTROLS

After loading a series of videos, there are a number of features you can use. Most features are common in both Mac and Windows versions, although a few features are available only in one or the other platform.

MAIN VIEWER WINDOW



1. SELECT VIDEO FOLDER

Click this button to load a new folder of videos into Dashcam Viewer.

Tip: You can drag a video folder into the player window to load the video folder.

2. SELECT VIDEO FILES

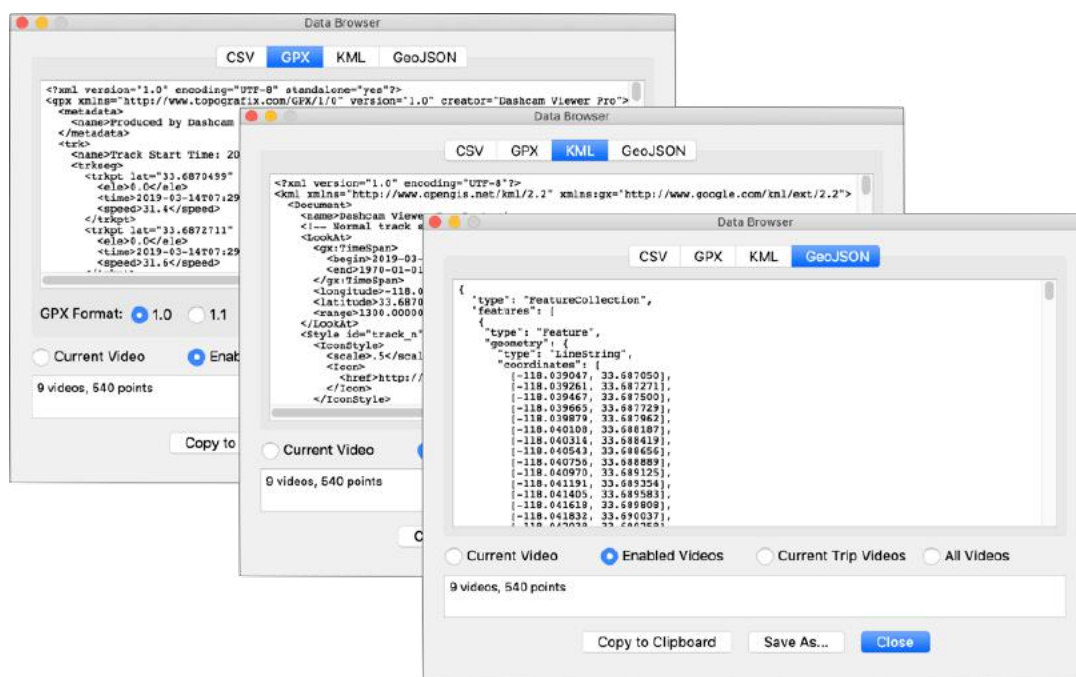
Use this button to load one or more individual video files from a folder.

Tip: You can drag video files into the player window to load them.

3. DATA BROWSER

Select this option to examine and export your GPS track data in different formats. The available formats are (1) comma-separated-value, CSV, which is compatible

with Microsoft Excel, (2) GPX, which is compatible with Garmin BaseCamp (3) KML, for Google Earth, and (4) GeoJSON. See the **Data Browser** section for more information.



Data Browser and Exporter

4. EXPORT VIEWER WINDOW TO JPG OR PNG IMAGE FILE ON DESKTOP

Click this button to take a screenshot of the main window. The image file will be written to the destination of choice with the video name, latitude, longitude, and time-of-video embedded in the filename. For example, "AMBA1412.MOV_33.639860,-117.973782@0m1.25s.png".

In the Plus and Pro versions, if you select JPG, the latitude and longitude will be written into the EXIF block of the JPG.

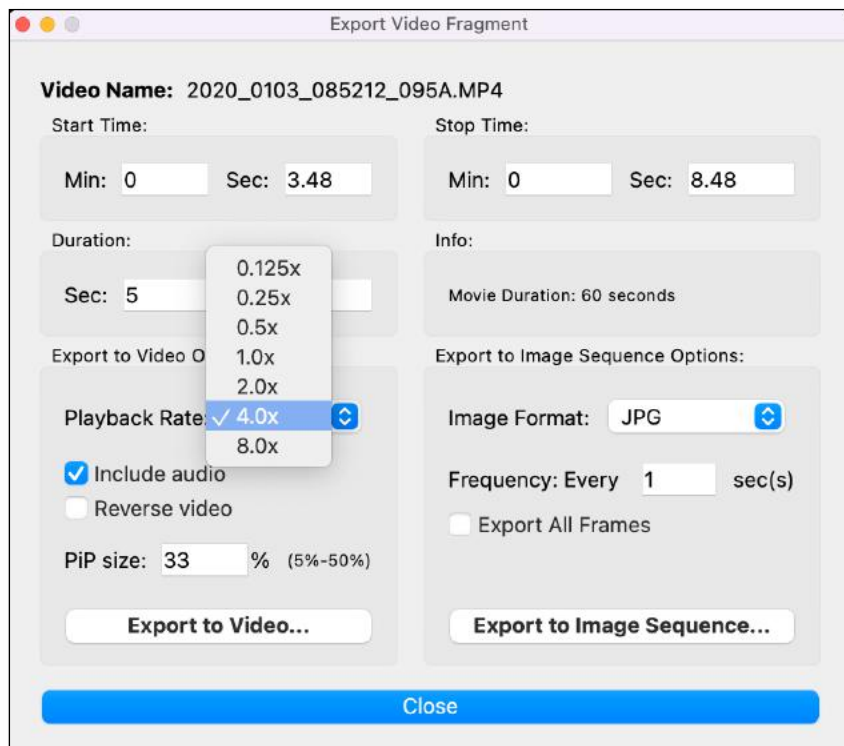


Your position is embedded in the filename (as well as the EXIF section of the JPG image in the Mac version).

Image viewer applications that are EXIF-savvy, like Preview on the Mac, will automatically display the vehicle position in a map.

5. EXPORT A PORTION OF THE CURRENT VIDEO TO A SEPARATE VIDEO FILE OR IMAGE SEQUENCE.

Use this feature to export a fragment of a video to a separate video file or series of images. When you click this button you will be asked to enter the start time, duration, and/or stop time for the clip fragment.



After clicking the Export Video button you enter the start time and duration for the new video or image sequence.

Export To Video Options: For video clip exportation, you also have the option to exclude the audio track, resize PiP video frame, and change the playback rate. Slowing-down the playback rate will produce a slow-motion effect useful for isolating short events, like a collision. **PRO** version users can also export clips in reverse.

Important: When experimenting with playback rate, be sure to use the GPL version of ffmpeg. Dashcam Viewer ships with the LGPL version. The GPL version has a much better default encoder and will produce superior video quality. The process for obtaining and installing the GPL version is listed in the FAQ section.

Note that playback rates other than 1x are not supported when exporting PiP clips.

Exporting a clip to video respects the currently-selected Dual-Channel Mode. For example, if the current dual-channel mode is rear/front picture-in-picture, then the clip will be exported in the same mode. Note that the free version of Dashcam Viewer is limited to no more than 5-second clips. Also, please ensure that the file path names to your videos do not include quotes or Unicode characters. If you see a duration of -0:01 seconds, this is indicative of path names that have quotes or non-ASCII characters in them.



*Example of varying the **PiP Sizes** in a clip export.
From top-left, clockwise: 5%, 15%, 35%, and 50%.*

Important: The PiP mode exports require the GPL version of FFmpeg, not the LGPL version that comes with Dashcam Viewer. Download the [Mac GPL ffmpeg here⁴](https://evermeet.cx/pub/ffmpeg/snapshots/) and the [Windows GPL ffmpeg here⁵](https://github.com/BtbN/FFmpeg-Builds/releases). See the FAQ section below for how to replace the LGPL version that comes with Dashcam Viewer with the GPL version. Note that PiP exporting takes significantly longer than single channel exporting.

Export To Image Sequence Options: This feature will export individual frames of the video to a destination folder, beginning at the current video time. This capability can be useful for including key action sequences in emails, presentations, hard copies, or other media where including video clips is unfeasible. User options include the choice of image format (JPG, PNG, or BMP) and the frequency of image export. The highest frequency is one frame every

⁴ <https://evermeet.cx/pub/ffmpeg/snapshots/> (get the latest .zip file)

⁵ <https://github.com/BtbN/FFmpeg-Builds/releases> (get the latest win64-gpl version, e.g.: ffmpeg-n4.3.1-20-g8a2acdc6da-win64-gpl-4.3.zip)

0.25 seconds. Due to the way seeking is performed, the beginning of the image sequence may not match exactly the current time of the video. If this is a problem, simply rewind the video back a few seconds and repeat the export.

If *Export All Frames* is checked, all frames of the video, starting at the current time, will be exported to images. This can produce a LOT of images so be sure you use it wisely. *Export All Frames* is only available in the **PRO** version.

By default, the start time is the current point in the video. You cannot extend the duration beyond the end of the current clip. Note that the GPS data will not be preserved in video clips.

6. DUAL-CHANNEL MODES

Click this toolbar button to switch between the dual-channel display modes. There are four modes supported by Dashcam Viewer: **Front**, **Rear**, **Front/Rear (PiP)** and **Rear/Front (PiP)**.



When the dual-channel button is clicked Dashcam Viewer will switch modes, maintaining the current position in the video.

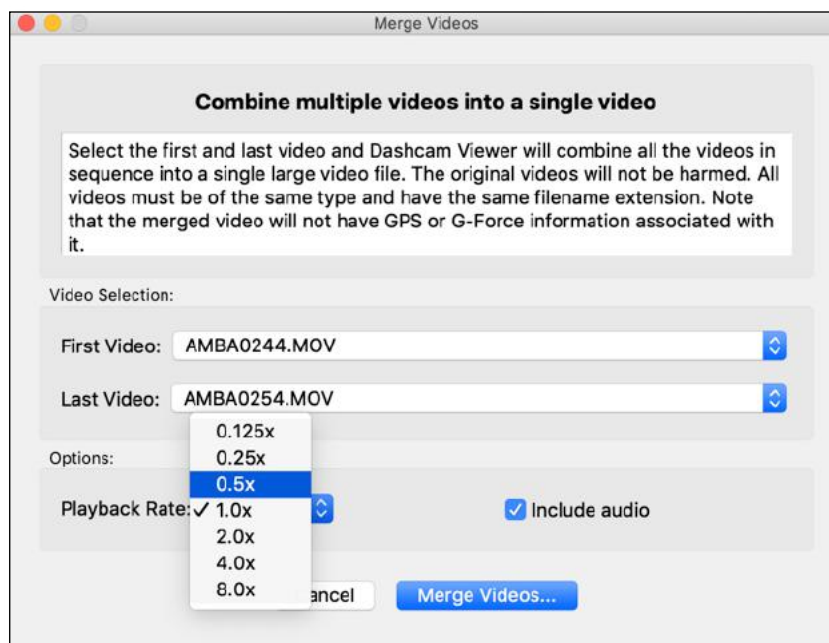
This feature does not apply to single-channel dashcams and the toolbar button is therefore unselectable.

7. MERGE MULTIPLE VIDEOS INTO A SINGLE LARGE VIDEO

By clicking the Merge button you can combine multiple videos into a single large video file. In addition, Dashcam Viewer will create a GPX file containing the GPS data from the selected videos. Since the GPX file will have the same base name as the combined video file, you can load the video file back into Dashcam Viewer and the GPX file will be detected and loaded as well. This can be useful for consolidating or organizing routes.

Additional options include the removal of the audio track and adjustment of the playback rate. If you choose a playback rate other than 1x, Dashcam Viewer will create a second combination video that plays back at the desired rate. Choosing accelerated playback rates is useful for condensing long journeys into short travel vignettes. *Important:* When experimenting with playback rate, be sure to use the GPL version of ffmpeg. Dashcam Viewer ships with the LGPL version. The GPL

version has a much better default encoder and will produce superior video quality. The process for obtaining and installing the GPL version is listed in the FAQ section.

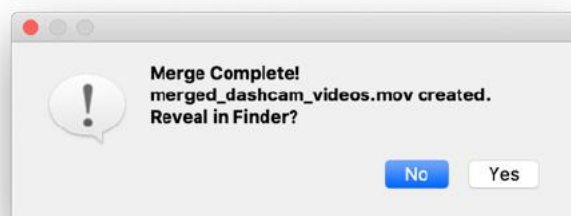


Merge Videos window

Select the first video and the last video. Only videos that are *enabled* in the Control Center Window will be available for merging. Videos that are disabled will not be a part of the merged video, nor will their GPS data be exported.

Click the **Merge Videos...** button and enter the destination for the combined video.

Dashcam Viewer will use ffmpeg to combine all the videos between your first and last selections into a single big video. There will be no loss in video quality so make sure your video destination has enough space to hold the entire merged video. Also, make sure there are no quotes or commas in the source video files' path. Upon completion the following window will appear:



All done!

Click **Yes** to go see your video file and GPX file.

In 2-channel dashcams, the video channel displayed in main screen, either front or rear, will be merged (unfortunately picture-in-picture merging is not supported at this time).

Note that in the free version of Dashcam Viewer you are limited to merging only two videos. The paid versions do not have this restriction. Also, please ensure that the file path names to your videos do not include quotes or Unicode characters.

8. [SYNC WINDOW MOVEMENT](#)

If this option is toggled ON, all the windows will move together if any one of them is moved. If the option is OFF, then the windows can be repositioned independently. The idea is to first position the windows independently the way you like, then “lock” them into position by toggling this option on.

9. [DETECT AUDIO EVENTS](#)

This option scans the videos’ audio track in search of sudden sounds, such as horns, brake squeals, or collisions. On quiet tracks it will also identify subtler audio events such as a loud voice or even turn blinkers. This feature is thoroughly discussed in the Audio Event Detection section.

10. [MODIFY PREFERENCES](#)

This toolbar button opens the Preferences window. See the section on the Preferences Window for more details.

11. [RE-CENTER VIDEO\(S\)](#)

This option re-centers the video in the window. This is useful if you had previously zoomed or panned the video and now want to return to the nominal state. If you have a 2-channel camera, this button also puts in the 2nd channel video in the top left of the main video. Re-centering can also be invoked by double-clicking in the main viewer window.

Tip: On the PC version, clicking this button may clear the “black screen” issue seen sometimes when animation is paused.

12. [ZOOM IN \(MAIN VIDEO\)](#)

This toolbar button zooms into the main video, making the details in the video easier to read. You can also use the mouse scroll wheel to zoom in/out.

13. [ZOOM OUT \(MAIN VIDEO\)](#)

This toolbar button zooms out of the main video, making the video window smaller. You can also use the mouse scroll wheel to zoom in/out.

14. [ZOOM IN \(2ND CHANNEL VIDEO\)](#)

This toolbar button zooms into the 2nd channel video, making the details in the video easier to read. You can also use the mouse scroll wheel to zoom in/out if the mouse is in the 2nd channel video frame. Note: You will only see this toolbar button if using a dual-channel dashcam.

15. ZOOM OUT (2ND CHANNEL VIDEO)

This toolbar button zooms out of the 2nd channel video, making the video window smaller. You can also use the mouse scroll wheel to zoom in/out if the mouse is in the 2nd channel video frame. Note: You will only see this toolbar button if using a dual-channel dashcam.

16. CURRENT SPEED

The current vehicle speed is displayed in the top-center of the Main Window. The units of speed can be changed in the *Preferences*.

17. CURRENT DATE/TIME

The day, date, and time are shown in the top-left of the Main Window. DCV uses the modification date of the video to determine the time since GPS data may not be available at all times. Sometimes the modification date/time of a video can change if the file is copied. Use the Clock Bias setting to compensate for this.

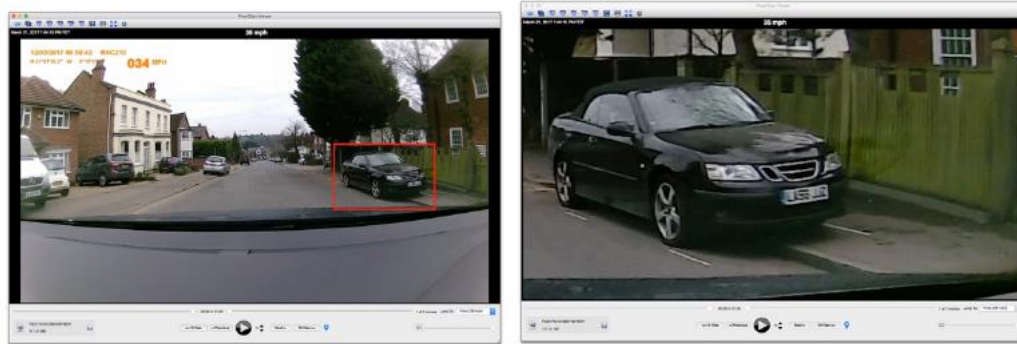
18. MAIN WINDOW

For a single-channel dashcam, the Main Window displays the dashcam's videos in sequence. For dual-channel dashcams that are supported by Dashcam Viewer, the front and rear channel videos can be swapped using the Dual Channel Modes button. Front/rear and rear/front picture-in-picture modes are supported.



Customized 2-channel display configuration (Mac version). Rear-channel on left, Front-channel on right

Tip: You can zoom in/out of the video using the mouse wheel. This works in both the primary and secondary video windows.



Use the mouse scroll wheel to zoom in to see detail

Tip: You can pan the video by click-dragging it in the Main Window.

Tip: Use the Re-center toolbar button to reset the zoom/translation settings.

19. CURRENT VIDEO SCRUBBER

This slider bar is used to scrub through the currently playing video. The graphs, map, and dashboard displays dynamically update as the video is scrubbed.

20. REVEAL VIDEO BUTTON

Click this button to reveal the current video file in the Finder (Mac) or Explorer (Windows).

21. CURRENT VIDEO FILENAME, FILE SIZE, AND FRAME RATE

This box displays the current video filename, file size, and frame rate.

22. PLAY PREVIOUS VIDEO

Use these buttons to jump back either 1 or 10 videos in the sequence.

23. INSTANT REPLAY

Click this button to quickly replay the last few seconds of the video. This is useful to review key events, such as a collision. The replay time can be set in the Preferences.

24. PLAY/PAUSE VIDEO

Toggle the play/pause button to start/stop the video (s). You can also use the spacebar to toggle play/pause.

25. INCREASE/DECREASE PLAYBACK RATE

Increase or decrease the video playback rate. Playback rates of 1/16x to 5x are supported. Note that some stuttering may occur if the playback rate is too fast for the computer.

26. PLAY NEXT VIDEO

Use these buttons to jump ahead 1 or 10 videos in the sequence.

27. CREATE GEOTAG

Clicking this button adds a new Geotag to the Control Center Window Geotag list. A Geotag is a bookmark that allows you to quickly jump to a particular point in the video sequence. Geotags are shown as numbered markers in the Map Window. You can double-click on a Geotag within the Geotag list to instantly jump to that particular time in the video sequence. By default, the Geotag title is the street address of the tag's location. The free version of Dashcam Viewer is limited to creating 2 Geotags. See the section on the Control Center Window for more information.

28. VOLUME AND MUTE CONTROLS (WINDOWS VERSION HAS ADDITIONAL COLOR CONTROLS)

Click the speaker to mute the volume, or adjust the slider to change the volume. On the Windows version there are additional controls to adjust the brightness, and contrast.

29. VIDEO FILE SELECTOR

This slider allows you to jump to a specific video in the sequence.

30. JUMP TO PULLDOWN MENU

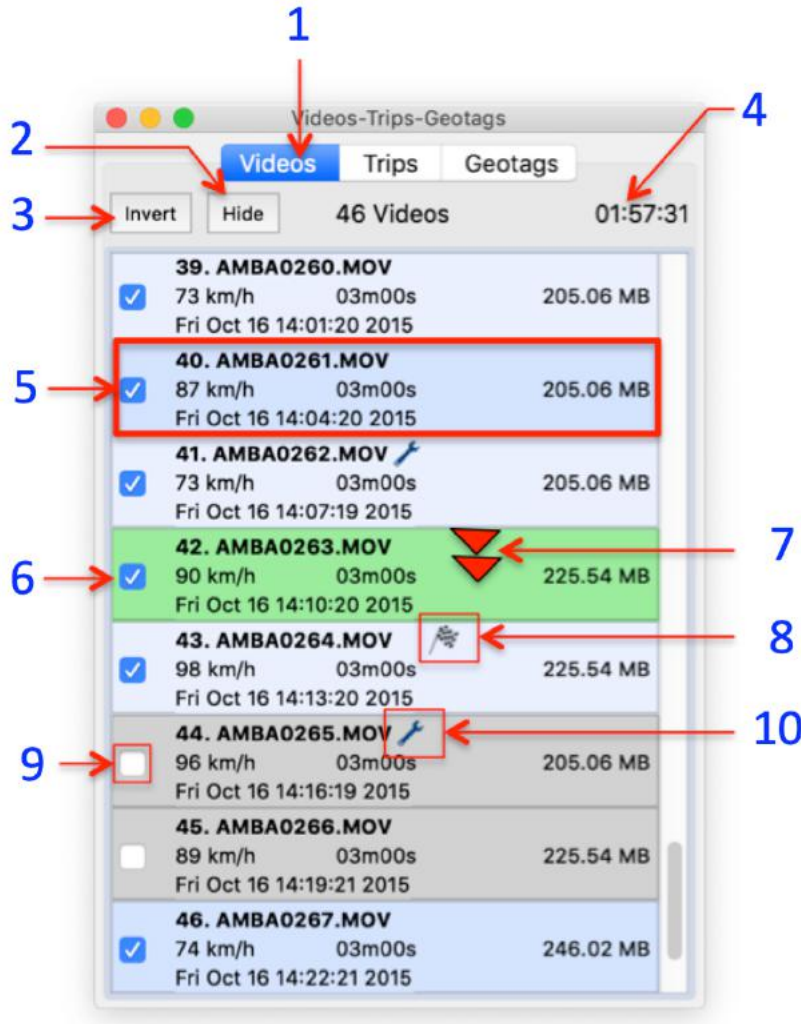
Use this menu to instantly jump to a specific video, or to jump to the fastest point in the video sequence. The list shows the video filename, start date, and duration.

CONTROL CENTER WINDOW


The Control Center provides instant access to your videos, trips, and geotags. The features and capabilities of each list are explained below.

VIDEOS


The Videos list populates itself immediately after loading a series of dashcam videos. Each video is analyzed upon loading and summary information for each video is displayed. This information includes the filename, video duration, file size, file start date, and maximum speed. The currently-playing video has a green background. Videos can be started by double-clicking a video list item.



The Control Center's Videos List. In the list above, videos 44 and 45 are inactive and the currently-playing video is 42.

A wrench  icon to the right of the filename indicates that post-processing was performed on the video's GPS data due to some problem with the integrity of the data. Hover the mouse over the wrench icon to learn more information about the type of problem(s) encountered. A complete list of integrity codes is listed near the end of this document.

Dashcam Viewer does its best to patch the problem but you may still notice data issues with these particular files.

The checkered flag  is displayed to the right of the video filename having the fastest speed in the series.

You can remove a video from the series by clicking off its checkbox. When you do this, its background will turn grey, it will not be double-clickable, its data will be removed from the Map and Graphs, and, if it was the high-speed video, the checkered flag will

find a new home. Click the *Hide* button to remove these inactive videos from the list. Click the *Show* button to bring these items back. The *Invert* button inverts the selection of inactive and active videos.

Features of the Videos list are itemized below:

1. VIDEOS LIST

Click this tab to toggle between the Videos, Trips, and Geotags lists

2. HIDE/SHOW BUTTON

Clicking the Hide button will remove the inactive videos from the list. Click it again to reveal the inactive videos.

3. INVERT BUTTON

Invert will make the inactive videos active, and the active videos inactive.

4. VIDEO COUNT AND DURATION

The information line shows the number of active videos and their total duration.

5. VIDEO INFORMATION

Each item in the list shows the video filename, video duration, file size, file date, and maximum vehicle speed. Note that the file date is retrieved from the file system so if the file was modified in any way the date displayed here may not correspond to the actual date/time of the recording.

6. CURRENTLY-PLAYING VIDEO

The currently playing video has a green background. Double-click on any *active* (non-gray) video to make it the currently playing video.

7. DOUBLE-CLICK VIDEO ITEM

You can double-click an active video item in the list to jump to it. If playback was previously on, the video will start playing immediately.

8. CHECKERED FLAG

The checkered flag is awarded to the video with the fastest speed. Sorry, no prizes are given.

9. ACTIVE/INACTIVE CHECKBOX

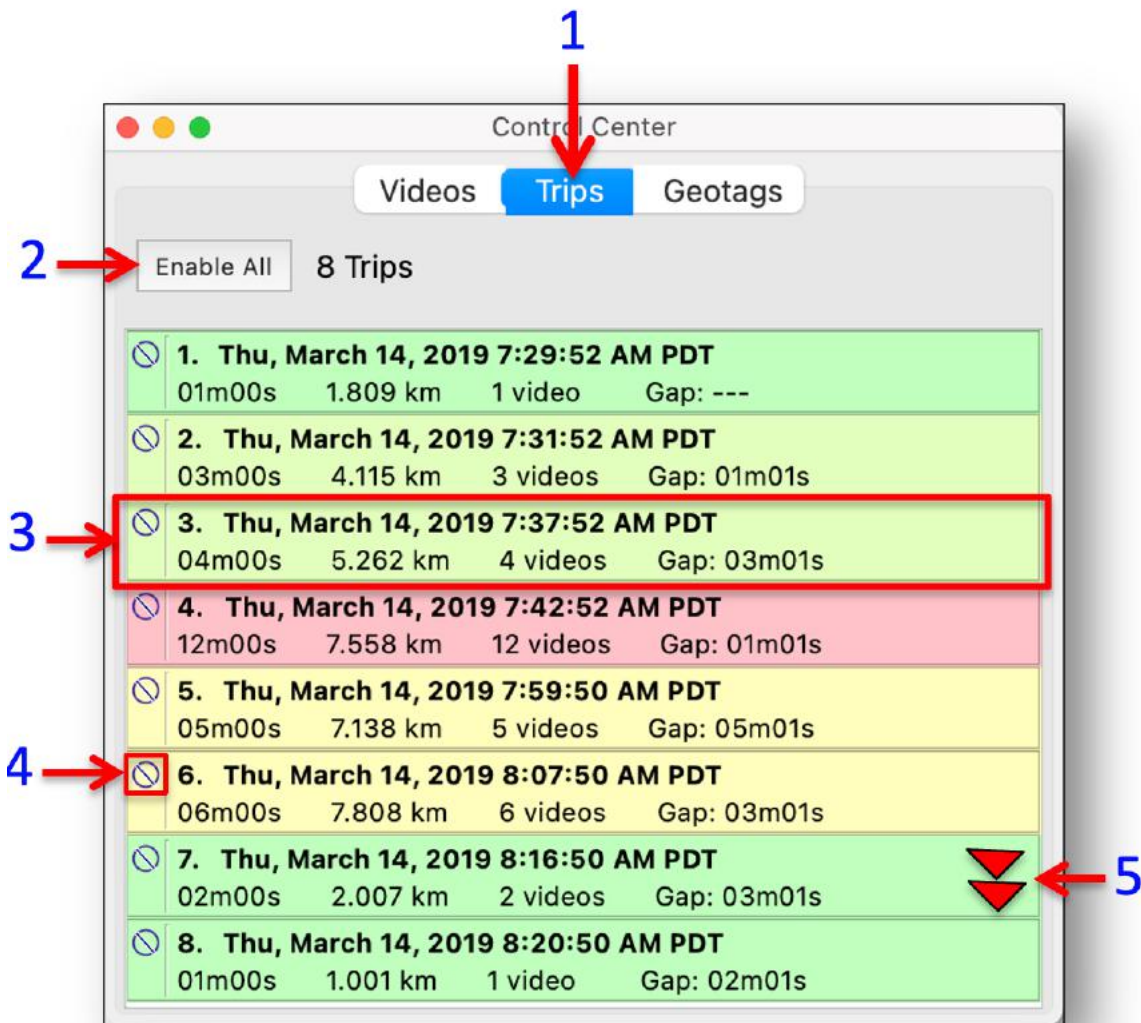
Clicking the checkbox *off* makes the video inactive. Inactive videos are removed from the playback sequence and are shown with a gray background in the list. Their GPS data is also removed from the Map route and Graphs. Use this feature to remove uninteresting videos from the playback sequence. Click the checkbox on to make the video active again.

10. WRENCH ICON


The wrench icon appears next to videos whose GPS data needed some kind of post-processing. Hover the mouse on top of the icon to see a short explanation. A complete list of data integrity error codes is presented near the end of this document.

TRIPS

When the videos are first loaded, Dashcam Viewer bins them into “trips”. By default, a “trip” is defined as a contiguous set of 1 or more videos with no breaks of greater than 1 minute. For example, a drive to work with no stops would constitute 1 trip. If there was a stop at a grocery store, this would constitute 2 trips.



There are several reasons why binning videos into trips is useful. Dashcam Viewer computes statistics for each trip, including the beginning date/time, the duration of the trip, the amount of gap time between trips, and the number of videos in a trip.

All videos constituting a trip can be hidden by clicking the  icon. A trip can be played by double-clicking on it. To only show a single trip, *Enable All* trips, go to the Videos tab and select *Invert*, then double-click on the Trip you want to view.

Features of the Trip list are itemized below:

1. [TRIPS LIST](#)

Click this tab to toggle the Trip list.

2. [ENABLE ALL](#)

To show all trips (and unhide all videos), click this button.

3. [TRIP INFORMATION](#)

The trip list item provides the following information:

- a. **Trip start date/time:** The date/time listed is based on the video file timestamp.
- b. **Trip duration:** The total amount of trip time.
- c. **Trip distance:** The total distance of the teip.
- d. **Count:** Number of videos in the trip
- e. **Gap time:** The amount of time between the end of the previous trip and the start of the current trip. Note that the Gap time is computed using the GPS data of the videos, not the file timestamp.

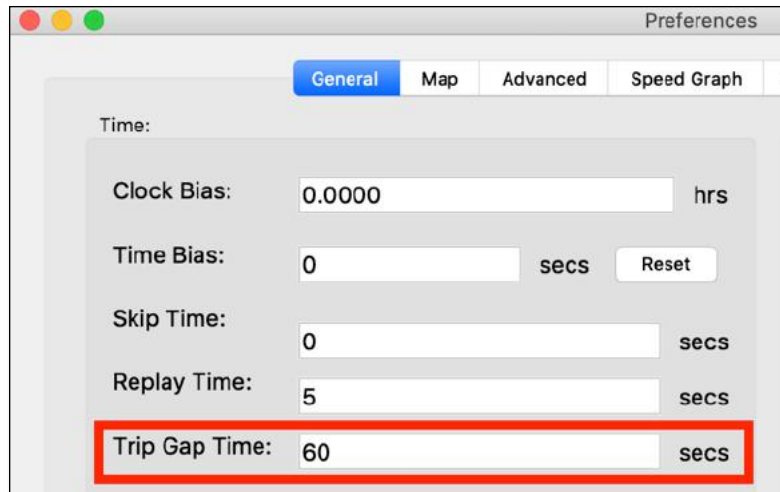
4. [DOUBLE-CLICK TRIP ITEM](#)

Double-click a trip in the list to begin playing it in the Viewer.

Trips items are color-coded based on duration. Longer trips are red and shorter trips are green.



Although the default trip gap time of 60 seconds is adequate for most cases, advanced users may desire fine control of this value. The **PRO** version supports user-customization of the trip gap time in the Preferences. The shortest allowable trip gap time is 1 second.

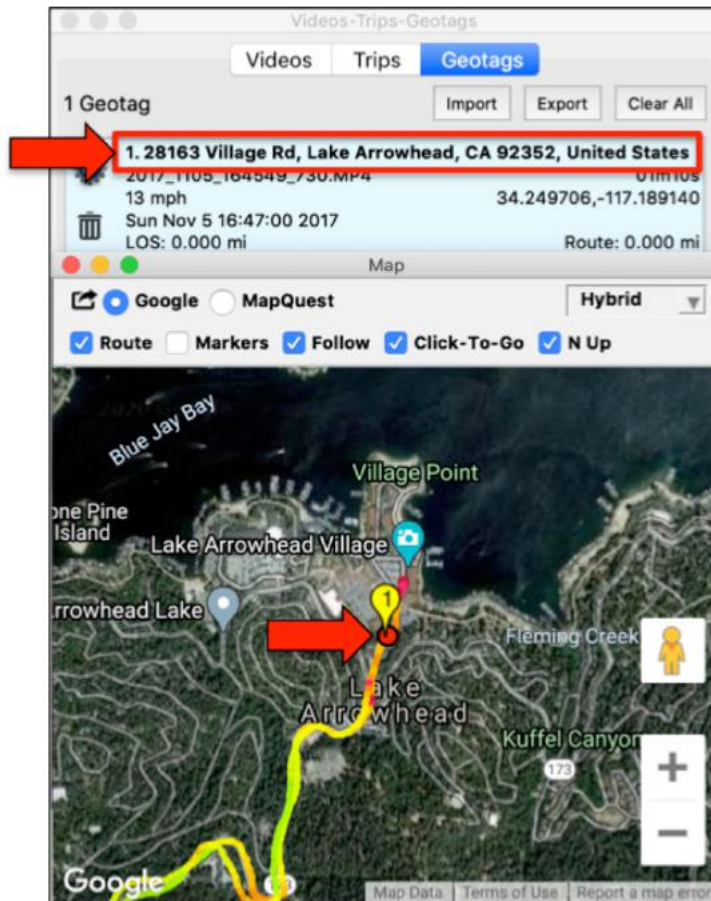


Trip Gap Time customization (PRO version only)


Once this value is changed, Dashcam Viewer immediately re-calculates and re-populates the Trip window with the updated list of Trips.

GEOTAGS

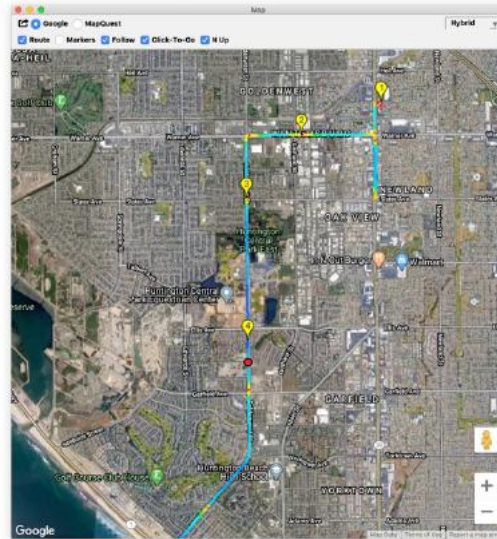
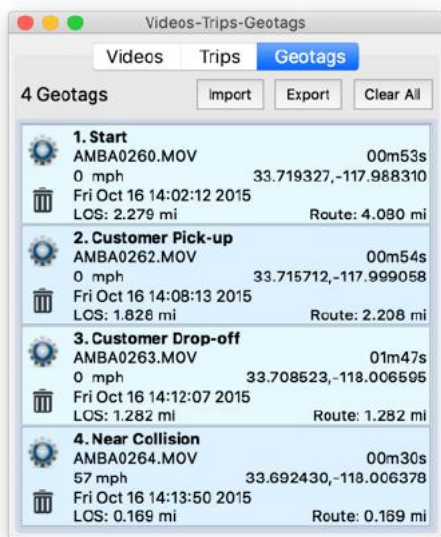
Geotags are key points in the video sequence that you can highlight and return to instantly. They can represent important points in your journey, such as the location of a good restaurant, a clear view of a drunk-driver's license plate, the location of a deep pothole in the road, or your awesome pass on the racetrack. Of course these are just examples. The use for geotags is limited only by your imagination.



Dashcam Viewer uses a reverse-geocoding service to determine the address of the tag location. This address becomes the Geotag title. A marker is also shown in the Map view.

To create a geotag you simply click the  icon in the Main Window at the point of interest. Alternatively, you can tap the 'g' key on the keyboard. This will add an item to the Geotag list. By default, Dashcam Viewer will attempt to find the local address of the location and use this as the Geotag's title (you can override this behavior in the Advanced Preferences).

A numbered marker will also be added to the Map. For reference, the video name, date/time, vehicle speed, location, and video time will be shown in the list item.



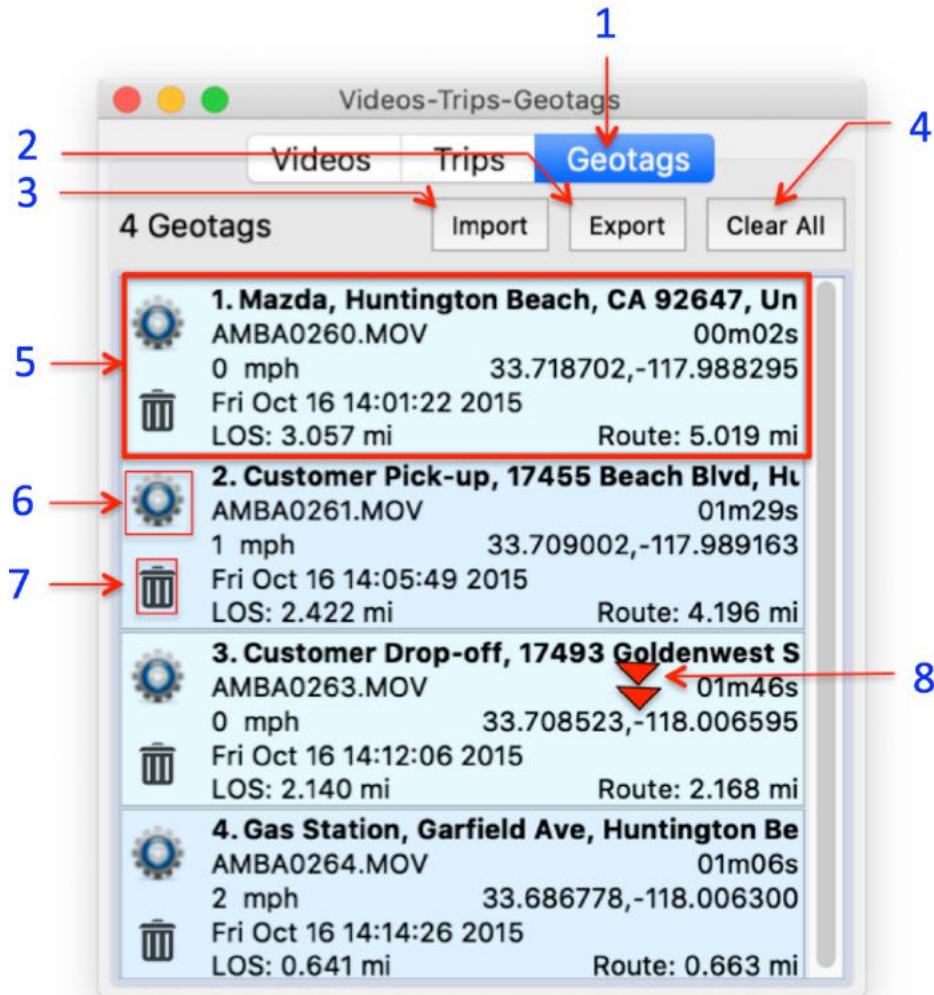
(Left) Geotag list, (Right) Geotags in the Map window

Double-click on a geotag in the list to jump to that point in the video sequence. You can give each geotag a custom title by clicking on the gear icon. To delete a geotag, click the trashcan icon. To delete all the geotags in the list, click the *Clear All* button.

You can export your geotag data to a tab-delimited text file for external processing in Excel or another program. To do this, click the *Export* button and a *.text file will be produced. You can also load the geotag *.text file back into Dashcam Viewer to see your saved geotags. **When exporting, it is important to save the geotag file to the same directory as the video files if you want to reload it later.** Be sure to load the videos first before loading the geotag file. Geotags that refer to a video that is not loaded will have a gray background and will not be selectable.

You can create two geotags with the Free (unregistered) version of Dashcam Viewer, up to 10 with the Plus version, and 100 with the **PRO** version.

The Geotag functions are itemized below:



Geotags List

1. GEOTAGS LIST

Click this tab to toggle between the Videos, Trips and Geotags lists.

2. EXPORT BUTTON

Export the geotags to a tab-delimited file. If you plan to import these geotags back into Dashcam Viewer be sure to save the geotags file to the same directory as your dashcam videos.

3. IMPORT BUTTON

Click this button to load a geotag file back into Dashcam Viewer. Be sure to load your videos that are referenced by the geotag file first, then load the geotag file. If the geotag file references videos that are not loaded, they will appear in the list with a gray background.

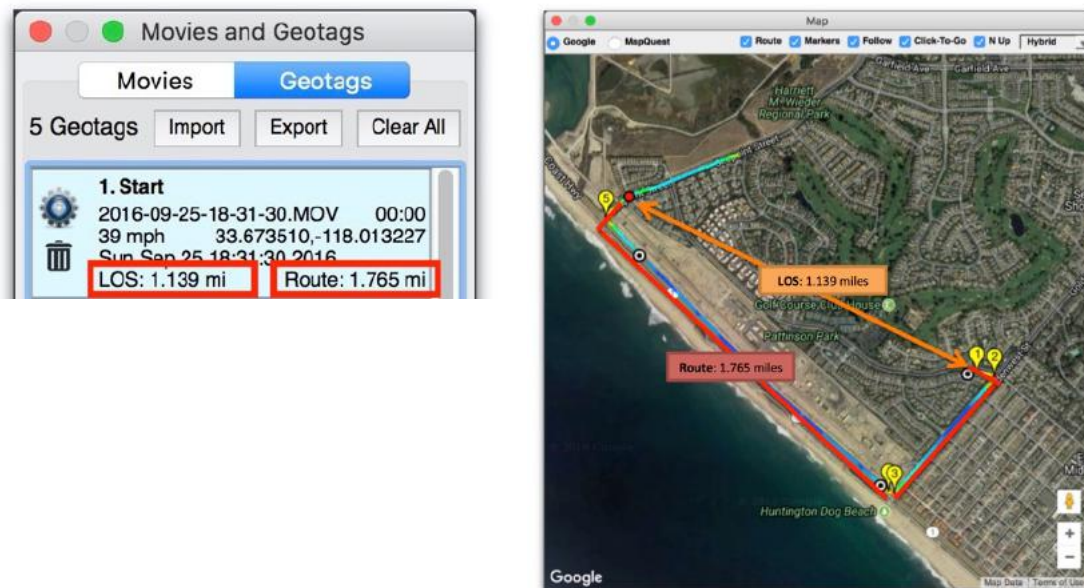
4. CLEAR ALL BUTTON

The *Clear All* button will delete all geotags in the list.

5. GEOTAG INFORMATION

The geotag list item displays meta information about the event including title, video filename, time in video, vehicle speed, date/time, and latitude and longitude.

In addition, the meta information includes two “live” distance measurements. The first is the Line-Of-Sight (**LOS**) distance magnitude from the geotag to the current position of the vehicle. This distance includes the altitude difference, if altitude data is available. The **Route** distance is the distance to from the geotag to the vehicle current position as measured along the route line.



Line-of-Sight (LOS) and Route distances explained

LOS distance is useful for to determine distance “as the crow flies”.

6. CHANGE TITLE

You can edit the default title of a geotag by clicking the gear icon.

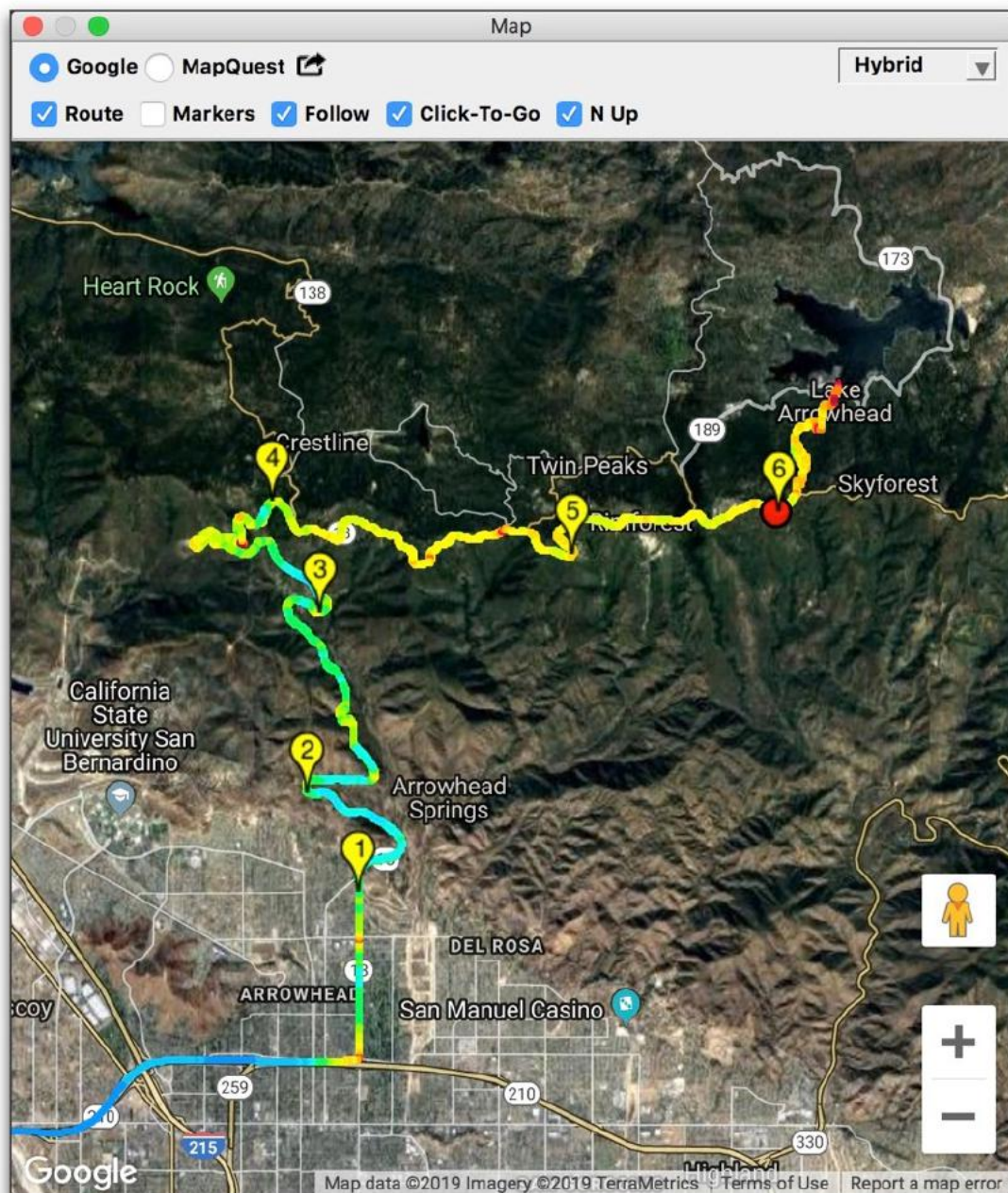
7. DELETE GEOTAG

Delete a geotag by clicking the trashcan icon.

8. GO TO A GEOTAG


Double-click a geotag to jump to that point in the video sequence.

MAP WINDOW



Google hybrid map showing vehicle position, speed, route, and geotags

The Map view displays the time-history of vehicle's route as well as its current position and speed. You can choose between Google and Mapquest map services, as well as Satellite, Road, and Hybrid map renderings. **PRO** users will also have the option to display Open Street Maps (OSM) maps.

Clicking the  button will export the current vehicle location to Google Maps (using your default web browser).

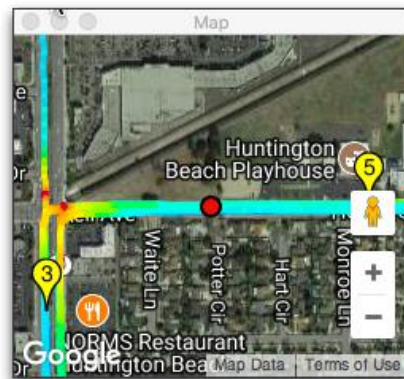
The *Route* line and video start *Markers* can be individually toggled on or off in the view using the checkboxes at the top of the window.

Selecting the *Follow* checkbox will automatically pan the map to follow the vehicle. Unselecting this checkbox will freeze the map and the placemark point will move with the vehicle.

When the *Click To Go* button is checked, clicking on the map near vehicle's route line will make Dashcam Viewer jump to that time in the video sequence. This way you can quickly jump to any point in the video sequence by simply clicking your position on the map. Deselect the *Click To Go* button to disable this feature.

The *N Up* button controls whether the map is oriented in the North Up direction (the default) or is oriented dynamically based on the vehicle's direction. This feature only applies to Google Maps and only for certain regions that have high-resolution 3D imagery available. Regular "road" maps and "satellite" maps don't support rotation. Zoom-in deep to see if "3D imagery" mode appears for your region.

The Map window can be shrunk to a small size. If the window width is smaller than the minimum size for the control bar, then the controls will hide themselves. You can access the controls by simply increasing the width of the map.



Small map with controls hidden. Simply widen the window to see the controls.

The vehicle's speed throughout its journey is reflected in the color of the route line. Faster speeds are bluish and slower speeds are reddish. The color scale can be adjusted in the Map Preferences (see above).



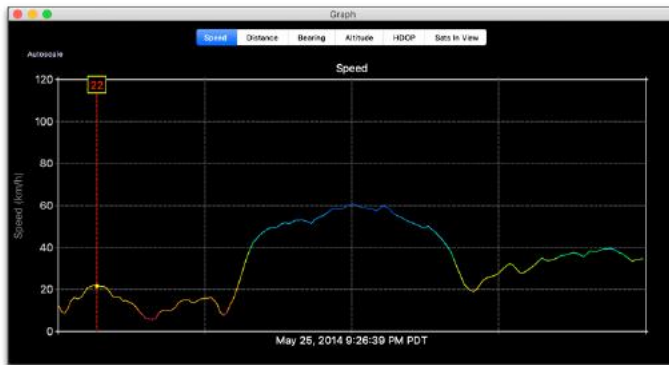
Map preferences for the route color scale

Choices include the number of colors in the scale and whether the maximum speed of the scale is based on a fixed speed or the fastest speed in the current journey.

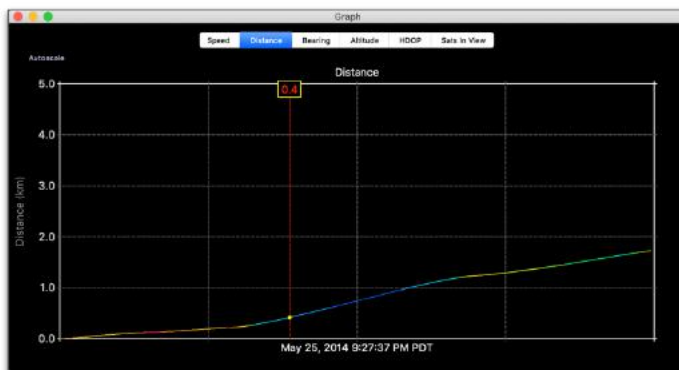
Standard Map controls apply (zoom in/out, switch from map to satellite layers). You can choose between Google and Mapquest map APIs. If you change the map type, please reload your dashcam files to refresh the routes and markers.

GRAPHICAL DATA DISPLAYS

Tip: You can click in the Graph view to jump to a specific time in the video sequence (on the Windows version, two clicks may be required)



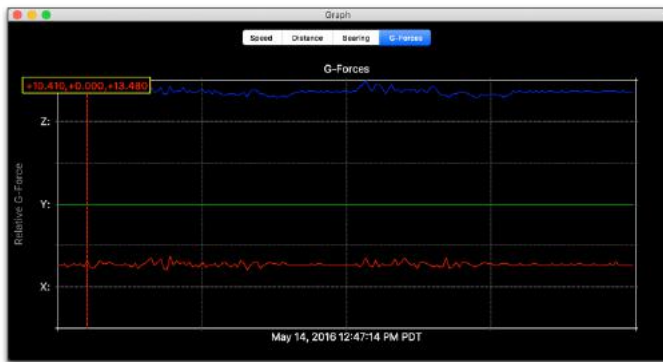
The **Speed** graph displays the combined time-history of the vehicle's speed over all of the data in the video folder.



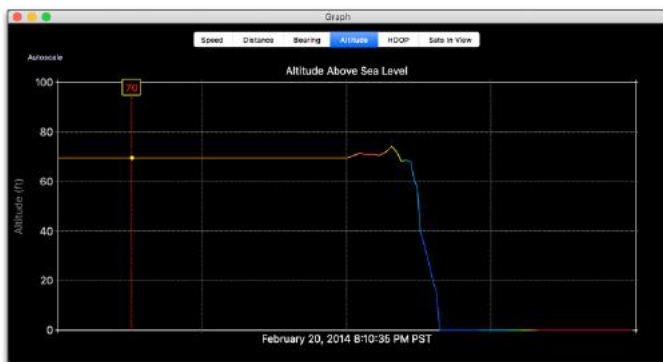
The **Distance** graph displays the distance covered by integrating the vehicle's speed over time. The color-coding indicates vehicle speed at the time.



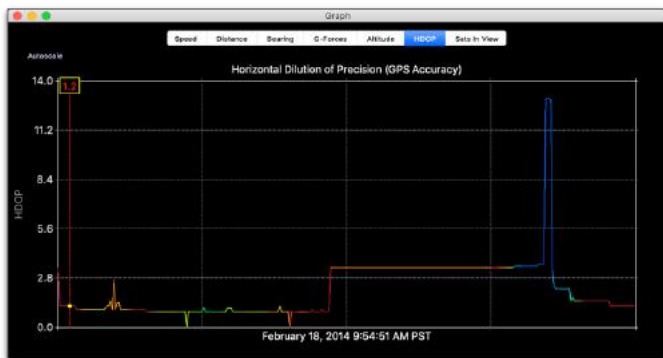
The **Bearing** graph shows the history of direction for the vehicle. North is 0 or 360-deg, East is 90-deg, South is 180-deg, and West is 270-deg.



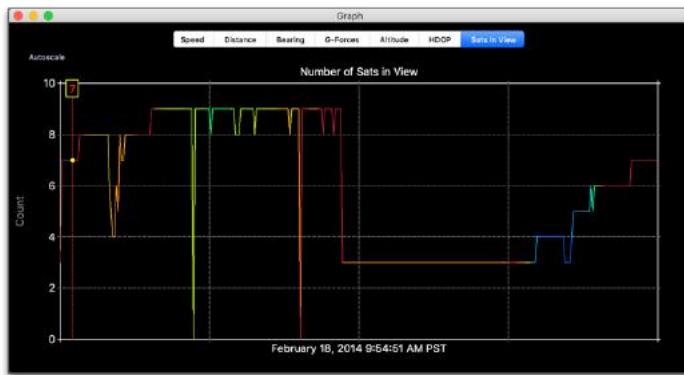
The **G-Forces** graph displays the X, Y, and Z components of acceleration from the dashcam's shock sensor. The G units vary from manufacturer to manufacturer so the plots should be considered relative G-force, scaled from minimum to maximum observed value. Not available for all dashcams.



The **Altitude** graph displays the elevation of the vehicle above sea level. Not all dashcams capture this parameter.



The **HDOP**, or Horizontal Dilution of Precision, is a measure of GPS accuracy at the receiver. Lower numbers are better and indicate higher confidence in the positional fix. Higher values indicate a poor dispersion of satellites in view and/or a low number of satellites in view. Not all dashcams save this metric.

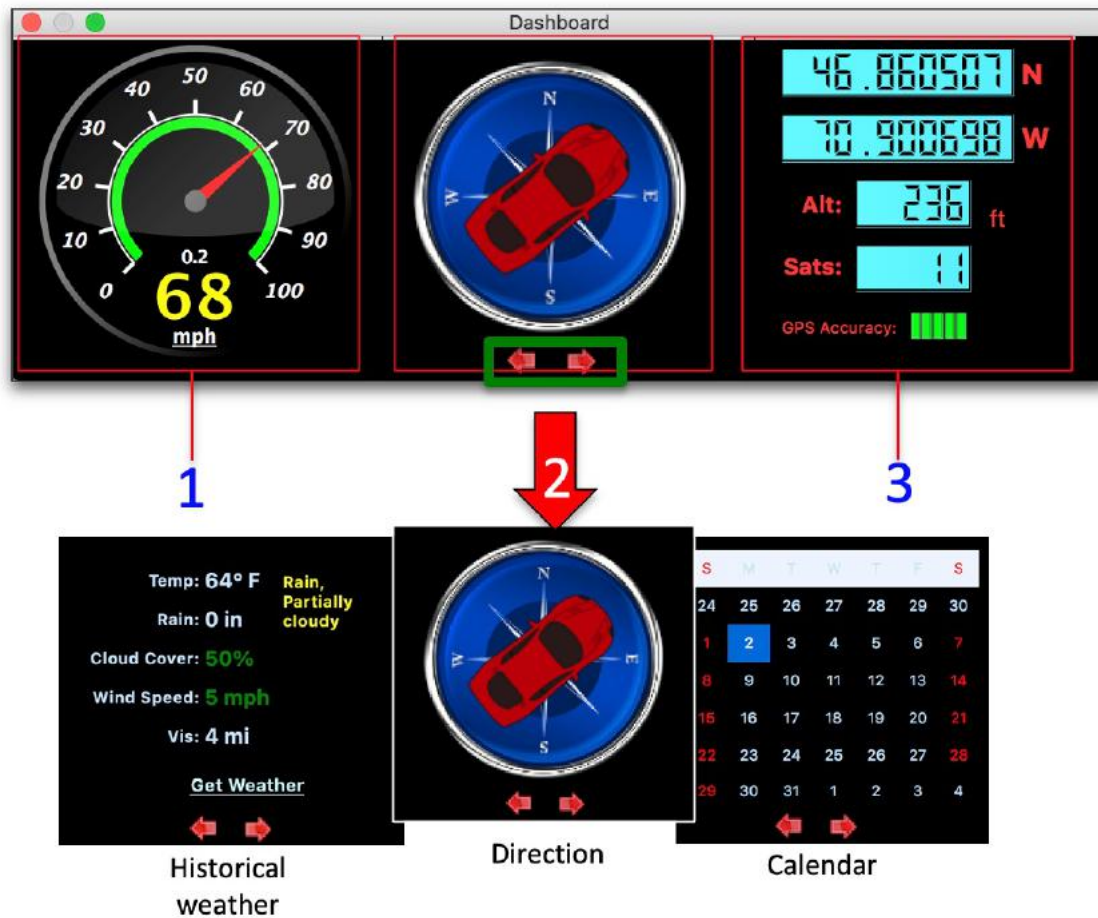


The **Sats In View** graph shows the time history of available GNSS satellites used to make the geolocation “fix”. In general, the more satellites in view the better the fix (and lower the HDOP). GNSS satellites are constantly in motion so the 7 satellites in view now may be a different 7 in an hour or so. Terrain and urban canyons will block visibility to the weak GPS signals and worsen geolocation accuracy. Not all dashcams save this metric.

The data in the Speed, Distance, Altitude, HDOP, and Sats in View graphs can be automatically scaled by clicking the *Autoscale* button in the top left of the graph. You can click in the graphs to jump to that time in the video sequence (two clicks may be required in the Windows version).

DASHBOARD WINDOW

The Dashboard displays current information about the vehicle's position, speed, and distance. In addition, the Dashboard can be used to switch speed units, show the weather at the time and place of the drive, and show the driving day on a calendar.



1. Computed speed, total elapsed distance, current date/time, mph/kph toggle
2. Current vehicle direction (bearing). Click the **arrows** to change this widget to weather or calendar views. Click on the car image to switch compass pointing icons.

If the "Get Weather" button is clicked, DCV will attempt to retrieve the historical weather conditions at the vehicle's latitude/longitude (#3) for the given date displayed (#1). DCV uses VisualCrossing.com for the weather data.

3. Current vehicle position (latitude/longitude). Also, vehicle altitude, number of GNSS satellites used in geolocation, and GPS accuracy (HDOP) meter (if data available).

Note that bearing is only updated when vehicle speed is greater than 3 mph (or km/h) to avoid jitter.

A single click on the speedometer face will toggle speed and distance units between mph and km/h.



Single-click on the speedometer face to change speed and distance units from imperial to metric and back.

Additionally, you can **double-click on the speedometer to reconfigure the maximum speed.**



Double-click on the speedometer to alter its maximum speed behavior.

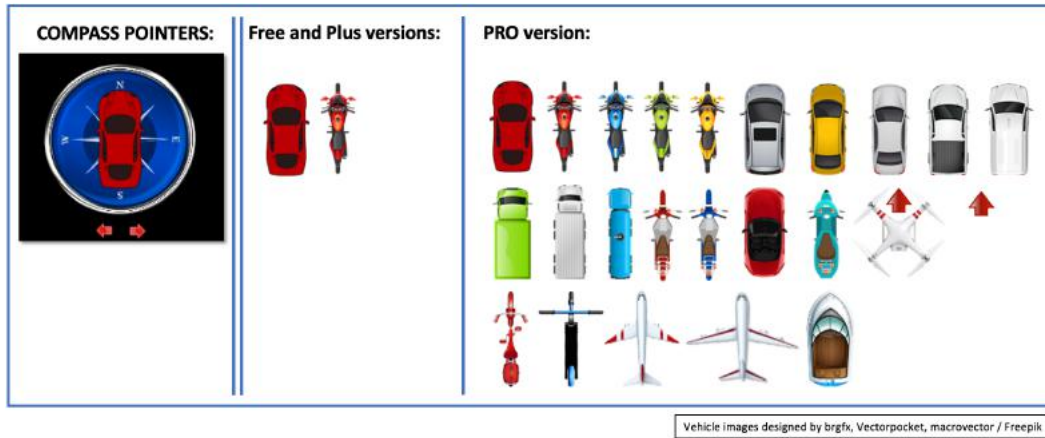
You can manually enter a maximum speedometer speed between 10 and 300 (mph or km/h), or you can choose *Auto*, which choose the maximum speed for you based on the videos you've loaded.

You can change the compass pointer icon by clicking on the icon itself. For example, the figures below show the available compass pointers for the Free and Plus versions of Dashcam Viewer.



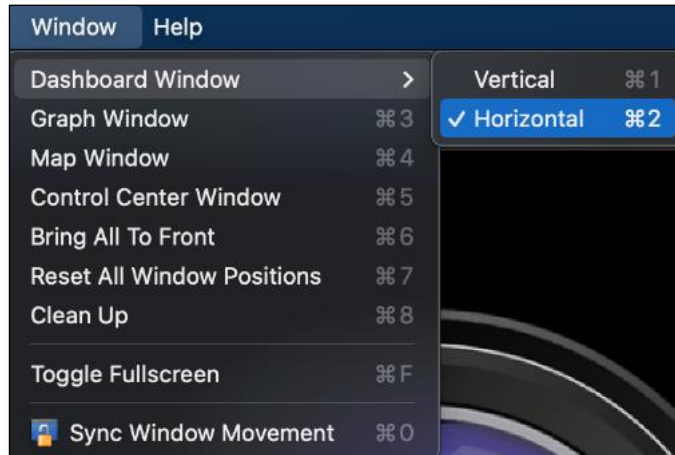
Red car and motorcycle compass icons available in the Free and Plus versions. Click on the icon to switch images.

The **PRO** version expands the list of compass icons to 24. The menagerie of available icons is shown below:



Compass icons available in the Free, Plus and PRO versions. Click on the compass to toggle among the various choices.

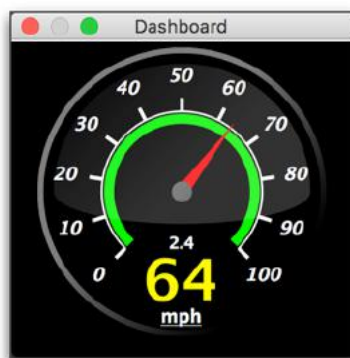
The selection of compass icon is persistent between runs of Dashcam Viewer.



Use the Windows menu to orient the Dashboard horizontally or vertically.

Don't like the horizontal orientation of the Dashboard? You can orient the Dashboard vertically by choosing "Vertical" from the *Windows* menu.

You can reduce the width of the Dashboard widget until only the speedometer is shown. This minimalist size may be preferable for small displays.



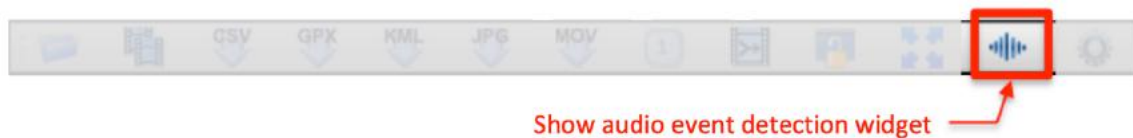
Dashboard resized to only show the speedometer.

AUDIO EVENT DETECTION

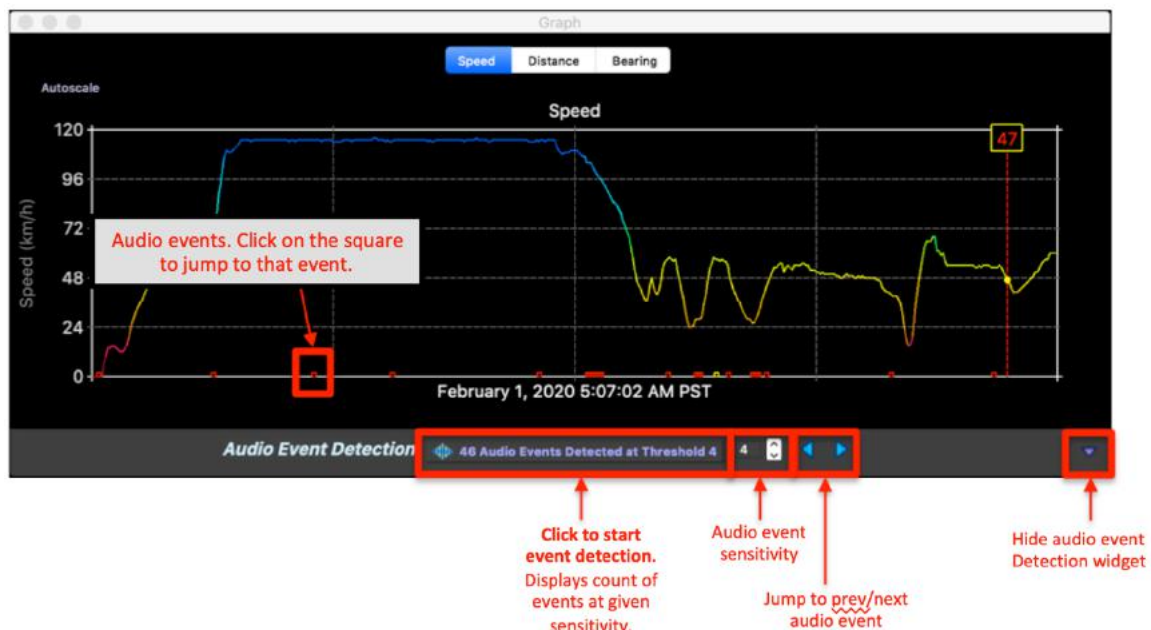
Important events in the video series are often characterized by sudden changes in volume. For example, the sound of a collision or the sound of a horn can be heard against the normal driving noise background. Dashcam Viewer's Audio Event Detection can assist in locating key sound events in a series of videos.

To activate this feature:

1. Load the series of videos.
2. Click the Audio Event Detection toolbar button. This will reveal the Audio Event Detection controls at the bottom of the Graph Window.



3. Click the Find Audio Events button. Dashcam Viewer will proceed to scan the audio tracks for unusual audio events.



Audio events will appear as little squares along the graph time axis. You can quickly jump to an event by using the blue forward and back buttons. The detection algorithm sensitivity can be varied by increasing or decreasing the sensitivity control from 1 to 10.

As the control value is decreased, more squares will appear. Red squares indicate the most significant events, yellow less significant, and green squares are the least significant events. The detection algorithm is applied independently to each video so red squares in one video may not have the same event significance as those in a different video.

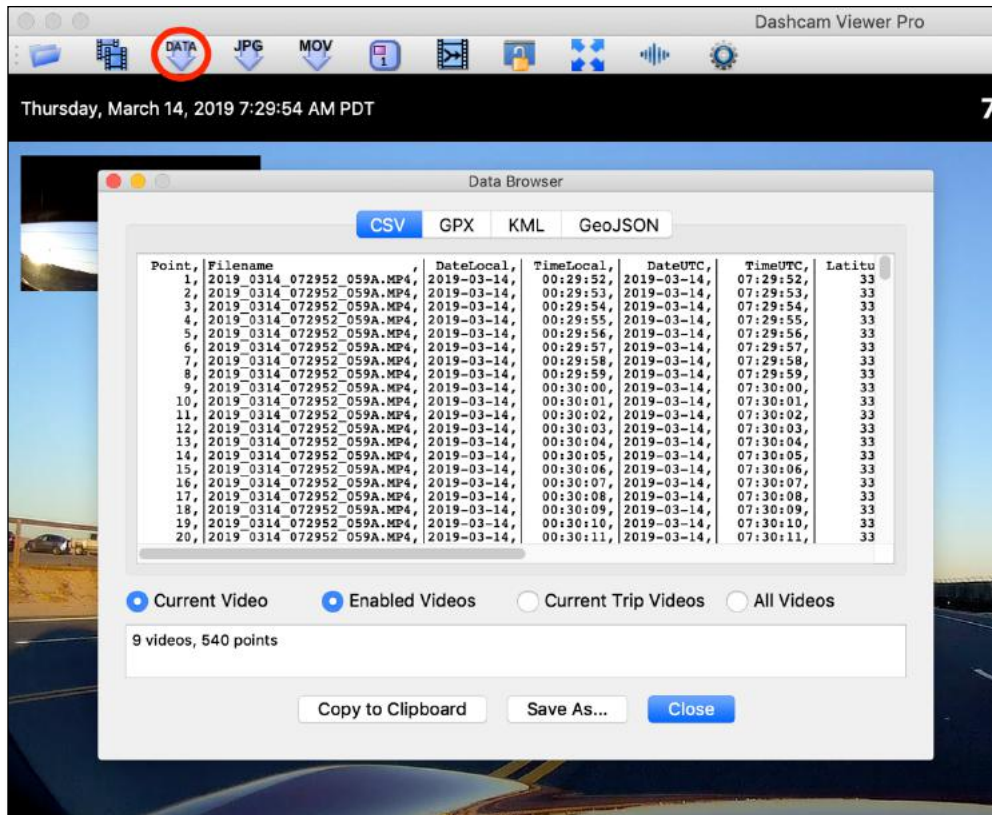
Sudden sound events do not need to be loud to be detected by the algorithm. The sound of a car blinker or a sudden voice can stand out against the background if the background is quiet enough. This could be either desirable or undesirable depending on what the user is looking for in the audio track. Behind the scenes, Dashcam Viewer uses [ffprobe](#) to assist in event detection. Event detection will continue to be refined based on user feedback.

Dashcam Viewer will process all the videos that are loaded, up to the limit imposed by the version. The Free version has a limit of 1 video, the Plus version has a limit of 5 videos, and the **PRO** version has a limit of 100 videos.

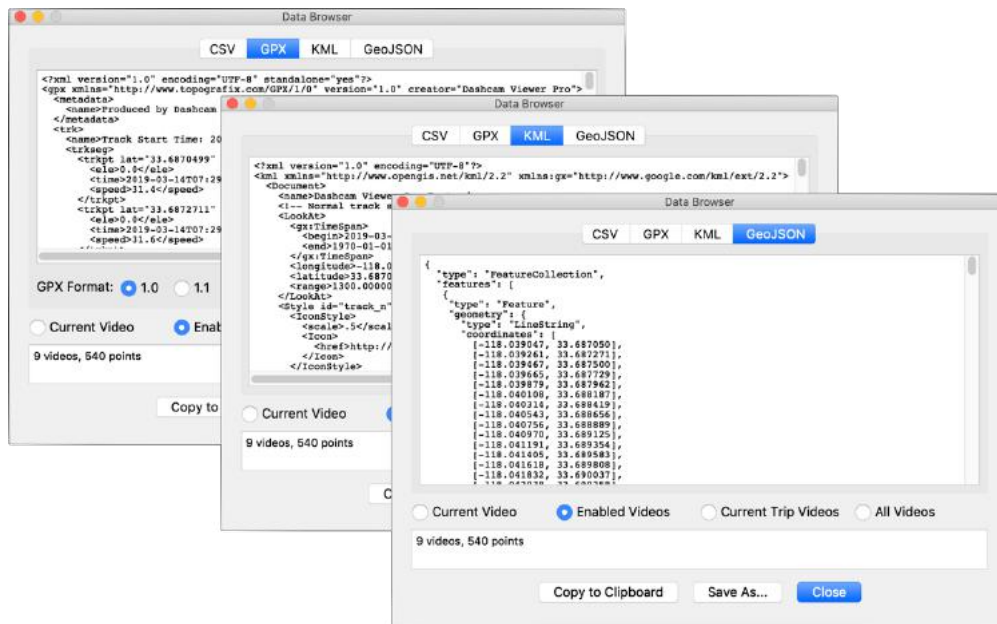
THE DATA BROWSER

The Data Browser allows you to examine and export your dashcam's GPS track data in a variety of formats. The available formats are (1) comma-separated-value, CSV, which is compatible with Microsoft Excel, (2) GPX, which is compatible with Garmin BaseCamp (3) KML, used in Google Earth, and (4) GeoJSON, which is used in GIS applications.

To invoke the Data Browser, click the **DATA** toolbar button or select **Data Browser** from the File menu. The Data Browser window appears and, by default, displays CSV data for the current video being played.



The Data Browser Window showing CSV data



Click on the tabs to reveal the other data formats (GPX, KML, and GeoJSON)

EXPORT FORMATS:

CSV – data is displayed in comma-separated value format. If Dashcam Viewer can decode your dashcam's altitude, G-force, HDOP, and/or Satellite Count data, these data will also appear in columns. CSV format is useful for display in Microsoft Excel.

A CSV file will be produced from the GPS data and include the following fields as columns:

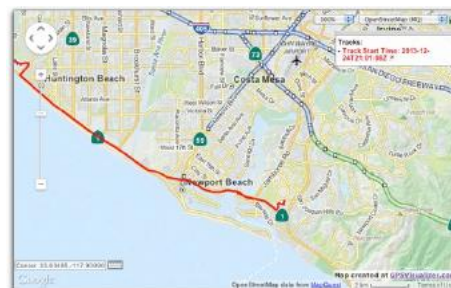
- Video filename
- Date (Local)
- Time (Local)
- Date (UTC)
- Time (UTC)
- Latitude (Degrees)
- Longitude (Degrees)
- Speed (from Dashcam, in output units)
- Distance (Computed from waypoints)
- Bearing
- Shock sensor X [horizontal] (some dashcam models)
- Shock sensor Y [horizontal] (some dashcam models)
- Shock sensor Z [vertical] (some dashcam models)
- Altitude above Sea Level (some dashcam models)
- GPS HDOP (some dashcam models)
- Number of GPS satellites used in geolocation (some dashcam models)

CSV files can be imported into a variety of programs for further data analysis.

Note: If the UTC date and/or time is not correct in the CSV file, you can apply an offset using the *UTC Offset* setting in the Advanced Preferences.

GPX – GPS Exchange Format is an XML format designed to serve as a common GPS data exchange format for software applications.

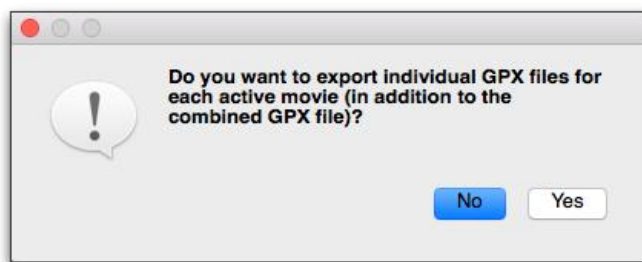
The GPX file format is widely supported in the commercial GPS receiver market. For example, tracks in GPX format can be displayed in Garmin BaseCamp. There are a number of interesting websites that can analyze your data. One of my favorites is <https://www.gpsvisualizer.com>, which has a plethora of GPS data analysis tools, maps, and plots.



Vehicle's track exported to GPX file and viewed into [GPS Visualizer](#).

Choose either GPX v1.0 or v1.1 format by clicking the appropriate button. If the data will be imported into Garmin BaseCamp, use v1.0.

When you click Save, Dashcam Viewer will export the entire route as a single GPX file. You will also have the option to export each video's individual track data to separate GPX files. The files will be named based on the video names.



Click Yes to create individual GPX files for each video segment, as well as a large GPX file for the entire route. Click No to create just the large GPX file for the entire route.

Since Dashcam Viewer reads GPX files too, the single-file export feature can be used to load the GPS data back into Dashcam Viewer. GPX files placed inside the video directory are loaded ahead of the embedded GPS data in the video, so you can use this method to 'override' the GPS data for a given video. This allows you to filter out bad data or insert corrected GPS information into Dashcam Viewer.

Another note about GPX files: Some popular activity cameras, like the GoPro Hero 4 or lower series, do not have a built-in GPS receiver. However, if you are operating an external GPS receiver, like a Garmin eTrex or equivalent, in tandem with your activity camera you can export your GPS route from your receiver into GPX format. Give your GPX file the same base name as the activity camera video file and make sure the two files are in the same directory (for example, "MyGoProVideo.MP4" and "MyGoProVideo.GPX"). When the video is loaded into Dashcam Viewer, Dashcam Viewer will load the corresponding GPX file and use this as the GPS data source for the video. If you need to make time offset corrections, you can do this using either the Graph shortcuts or the Preferences.

Note: If the UTC date and/or time is not correct in the GPX file, you can apply an offset using the *UTC Offset* setting in the Advanced Preferences.

KML – like GPX, KML is an XML-based data format used to display geographic data in an Earth browser such as Google Earth.

GeoJSON – GeoJSON is yet another format for encoding a geographic data into a file for use in GIS applications. Altitude will be exported if available. Also, Geotags will be exported as Point features.

EXPORT MODES:



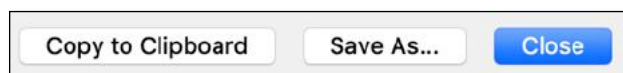
Current Video – this mode displays GPS data for the currently-playing video in the Player window.

Enabled Videos – this mode displays GPS data for all of the enabled videos in the Control Center window. Enabled videos are those that have a check box next to their name. This mode is only available in the Plus and **PRO** versions.

Current Trip Videos – this mode displays the GPS data for all videos in the currently playing Trip. This mode is only available in the **PRO** version.

All Videos – this mode displays the GPS data for all videos that have been loaded, regardless if they are enabled or not. This mode is only available in the **PRO** version.

EXPORT OPTIONS:



Copy to Clipboard – click this button to copy all of the data in the active Browser window to the system clipboard, where it can be pasted into the application of your choice.

Save As... – click the Save As button to save all of the data in the active Browser window to a file. In the case of GPX, you will also be given the option of saving each video's GPX data to a separate file.

Close – Close the Data Browser window.

IMPORTING CUSTOM GPS AND ACCELEROMETER DATA (DTS FORMAT)

Dashcam Viewer can ingest custom geolocation and g-force data. This feature makes it possible to supplement action-cam video with user-defined GPS/G-Force. The video/data file pair can then be loaded and displayed in Dashcam Viewer.

To use the feature, user-supplied GPS and G-Force data must be formatted in the XML format specified below (known as DTS format). Unlike GPX format which only specifies date/time, latitude, longitude, altitude and speed, the DTS format adds XYZ G-force acceleration as well as two other GPS-specific metrics, HDOP and “Number of Sats In View”.

A single `<trip>` tag must be followed by a `<name>` tag. A *name* usually corresponds to the name of the video file. After the *name* is a `<segments>` tag, which denotes an array of `<segments>` to follow. A `<segment>`, or array element, is described below.

There should be one *segment* tag for every second of video (thus a data cadence of 1 Hz). If the data is specified at greater than 1Hz, then it will be filtered to 1Hz.

A *segment* tag consists of the following attributes:

Table 1: Segment tag attributes

Attribute	Required	Examples	Notes
date	Yes	date="2020-11-10"	UTC
time	Yes	time="00:46:58.1"	UTC
lat	Yes	lat="N33.757805" lat="33.757805" lat="S05.862762" lat="5.862762"	In degrees. Use at least 6-digits of precision past the decimal point.
lon	Yes	lon="W118.088675" lon="-118.088675" lon="E012.294458" lon="12.294458"	In degrees. Use at least 6-digits of precision past the decimal point.

spd	No, but recommended	spd="12.34"	Units of meters/sec. If not provided, speed will be calculated based on lat/lon points.
alt	No	alt="56.78"	Units of meters
head	No	head="120.45"	Heading or bearing, in units of degrees (0–360). If not provided, bearing will be computed.
hdop	No	hdop="1.45"	Horizontal Dilution of Precision. Unitless.
sats	No	sats="12"	Number of GNSS satellites in view.
accx	No	accx="0.52234"	Acceleration or G-Force in X direction. Arbitrary units.
accy	No	accy="0.230468"	Acceleration or G-Force in Y direction. Arbitrary units.
accz	No	accz="–0.8002930"	Acceleration or G-Force in Z direction. Arbitrary units.

An example of valid and complete DTS file for a short 3-second video is shown below:

```
<?xml version="1.0" ?>

<trip>

  <name>2022_0127_092502_F.MP4</name>

  <segments>

    <segment date="2022-11-10" time="00:47:20.0" lat="N33.757757" lon="W118.088728"
alt="0.22" spd="1.0" head="0.0" hdop="0.8" sats="12" accx="0.5234" accy="0.2294"
accz="-0.7993"/>

    <segment date="2022-11-10" time="00:47:21.0" lat="N33.757760" lon="W118.088733"
alt="-1.07" spd="1.5" head="0.0" hdop="0.8" sats="11" accx="0.5235" accy="0.2284"
accz="-0.7983"/>

    <segment date="2022-11-10" time="00:47:22.0" lat="N33.757753" lon="W118.088733"
alt="-1.07" spd="1.0" head="0.0" hdop="0.8" sats="11" accx="0.5239" accy="0.2291"
accz="-0.7993"/>

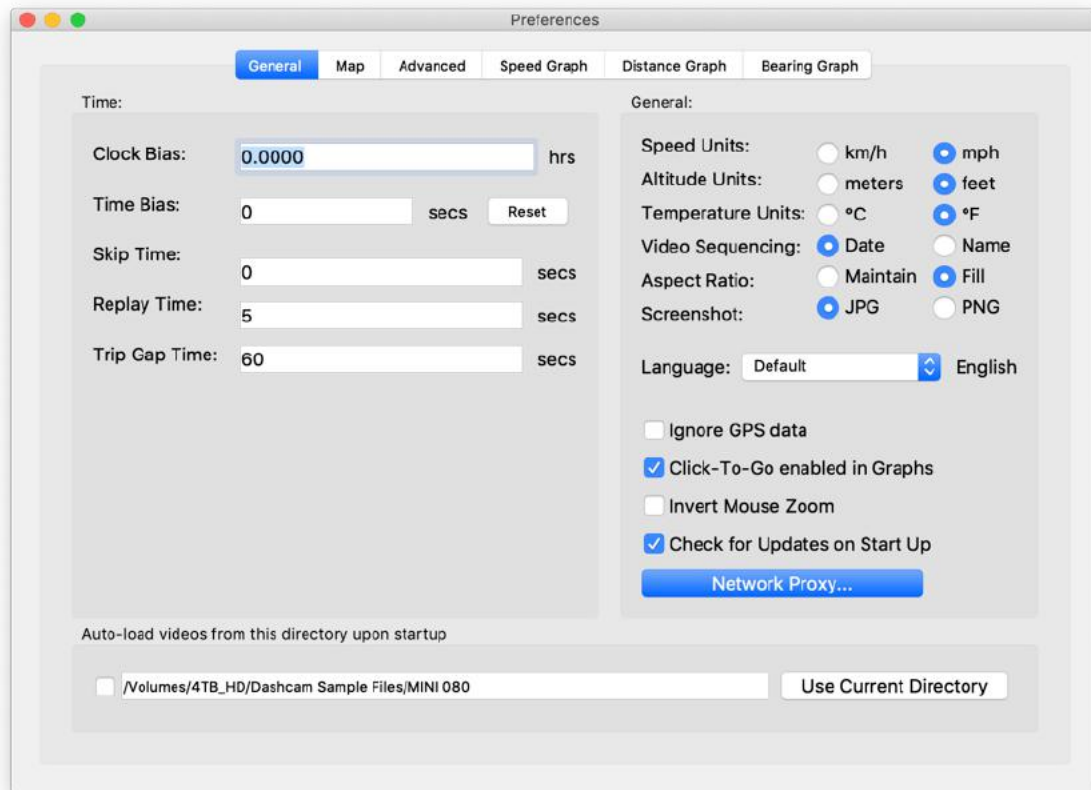
  </segments>

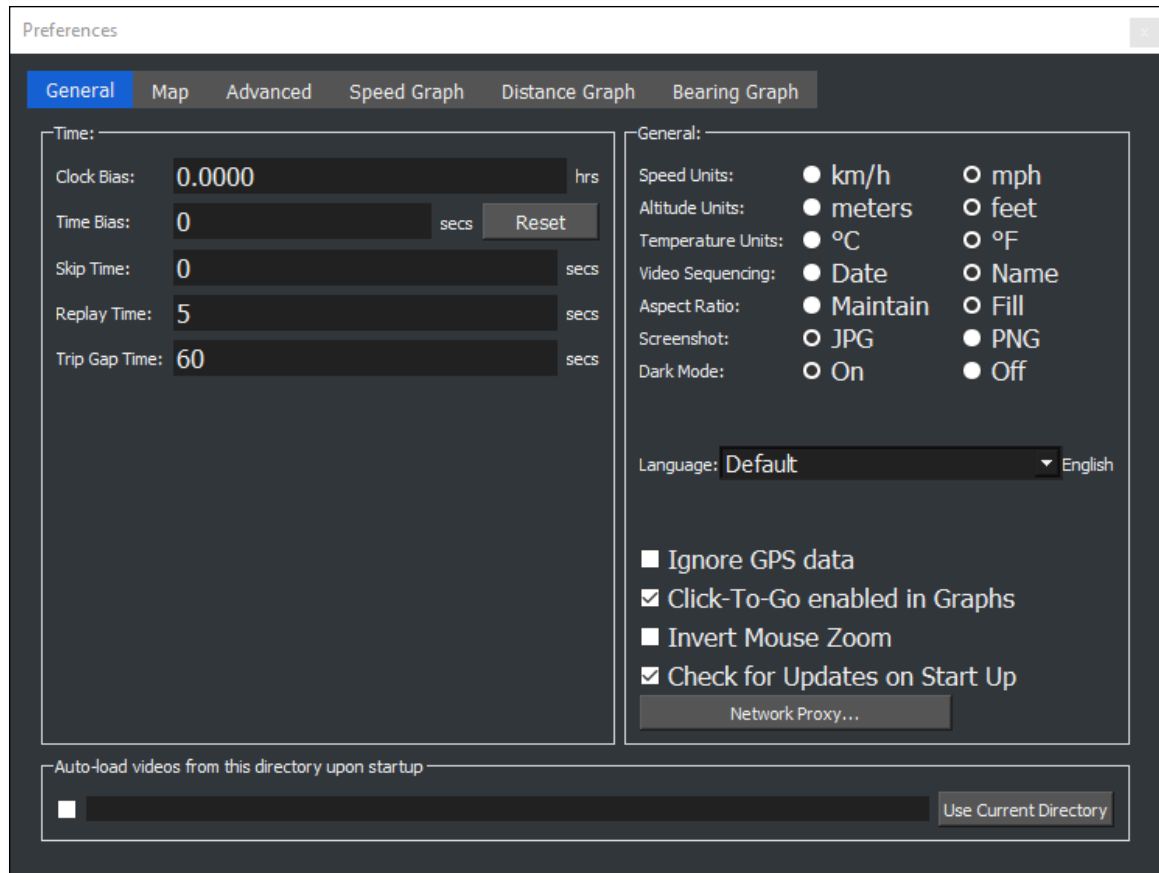
</trip>
```

Sample DTS file content for 3-second video

The name of the DTS file must match the name of the video file it represents. For example, if the video is named “2022_0127_092502_F.MP4” the corresponding DTS file must be named “2022_0127_092502_F.dts”.

PREFERENCES WINDOW





The Preferences window

TIME PREFERENCES:

- *Clock Bias* – bias used to synchronize the embedded video timestamp with the displayed time. Use this setting to match the embedded video timestamp to the timestamp displayed by Dashcam Viewer. This setting does not affect the time biasing between the video and the GPS data. For that, use the *Time Bias*.
- *Time Bias* – bias, in seconds, used to synchronize the GPS data and the video. This is useful if the dashcam video is out-of-sync with the Map, or the timezone is incorrectly set for your timezone, or if you are viewing videos creating by someone in a different timezone.
Tip: If the Graph view is selected, you can use the “,” and “.” keys to adjust the Time Offset plus or minus 1-second. Similarly, you can use the “m” or “/” keys to adjust the Time Offset by 10-seconds.
- *Skip Time* – this setting tells Dashcam Viewer to skip the first n seconds of each video during playback. Some dashcams have a built-in overlap of a second or so

between consecutive videos. Enter the overlap time for (near) seamless playback between consecutive videos.

- *Replay Time* – enter the amount seconds that the Instant Replay feature goes back in time.
- *Trip Gap Time* – if the amount of time between two consecutive videos exceeds this value, then a new Trip is created in the Trip list. The default value is 60 seconds. If this value is changed, the Trip list is immediately recomputed. This setting is only available in the **PRO** version.

GENERAL PREFERENCES:

- *Speed Units* – select the units for the speed and distance displays.
- *Altitude Units* – select the units for the altitude graph and data display.
- *Temperature Units* – select the desired units for the temperature display in the historical weather widget.
- *Video Sequencing* – This setting controls the play order of the videos. “By Date” is a better option for dashcams that write video files in a continuous loop (i.e, new files overwrite older files as the SD card fills up). “By Name” is a better option for viewing a series of miscellaneous videos in a folder.
- *Aspect Ratio* – You can choose to have the video fill the viewer window or maintain its native aspect ratio. In the latter case you will see black bars filling the unused space.
- *Screenshot* – Chose the desired image type for screenshots (invoked from toolbar in Main window). PNGs are lossless but take up about 8x the disk space. To the naked eye, JPG is almost identical to PNG and much smaller file size. On the Plus and PRO versions, the GPS coordinates of the vehicle are saved to the EXIF block of the JPG file.
- *Dark Mode (Windows Only)* – Enabling dark mode applies a dark theme to all of Dashcam Viewer’s windows and widgets. Dark mode is preferred since it focuses attention on the window contents rather than the window controls. Changing this setting requires Dashcam Viewer to be restarted. Note that Dark Mode is supported on the Mac via the System Preferences.
- *Language* – This setting allows you to change the language of the text and phrases used in Dashcam Viewer. After making a change, restart Dashcam Viewer to see the change. The *Default* setting will attempt pick a translation based on your computer’s system setting. If a default translation is not available, then English will be used. Currently, Arabic, English, Dutch, Chinese, German, Hungarian,

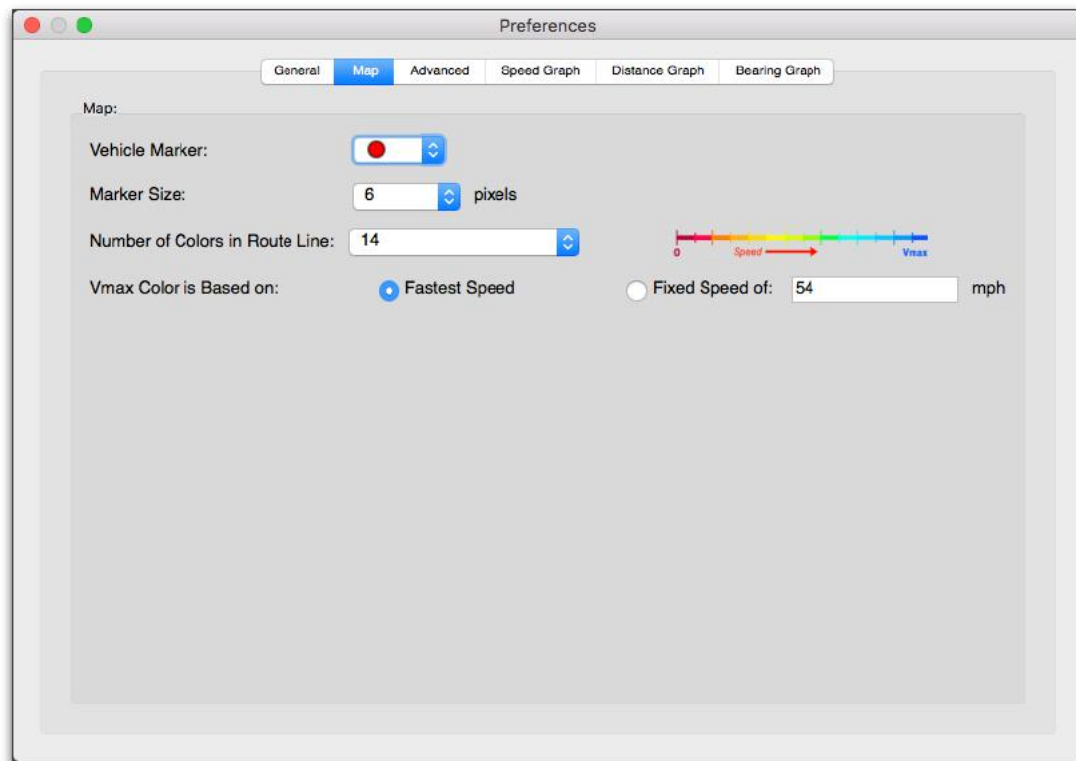
Italian, Polish, Spanish, Russian, Turkish, and Vietnamese are available. Special thanks to the dashcam community for providing the translations (see Thanks section below).

- *Ignore GPS Data* – Use this option to load videos without attempting to load their GPS data. This will allow you to quickly load videos for viewing, but will not show their GPS data. The message “NO GPS LOADED” will appear at the top of the player window when this option is invoked. To prevent use, this option is set to OFF each time Dashcam Viewer is run.
- *Click-To-Go Enabled in Graphs* – If this option is selected then clicking the mouse button in the Graph window will make DV jump to that point in the video sequence (approximately). This is useful for immediately jumping to a point of interest in video sequence, such as a sudden stop.
- *Invert Mouse Zoom* – This checkbox inverts the direction of zoom when using the scroll wheel to zoom in/out of the video window.
- *Network Proxy Settings* – If you connect to the internet via a proxy server, you can enter the server settings here. Restart Dashcam Viewer after making changes for them to take effect.
- *Check for Updates on Startup* – If this button is checked, Dashcam Viewer will check its server to see if a newer version is available. You can also invoke this option manually via the Help menu.

AUTOLOAD VIDEO DIRECTORY UPON START-UP PREFERENCES:

- It can be useful to have Dashcam Viewer load a specific directory of videos upon startup. This can be achieved by typing the video directory in the *Autoload Directory* field. Alternatively, you can click the *Use Current Directory* to automatically input the current video directory into the field. To enable this feature make sure the checkbox to the left of the field is checked.

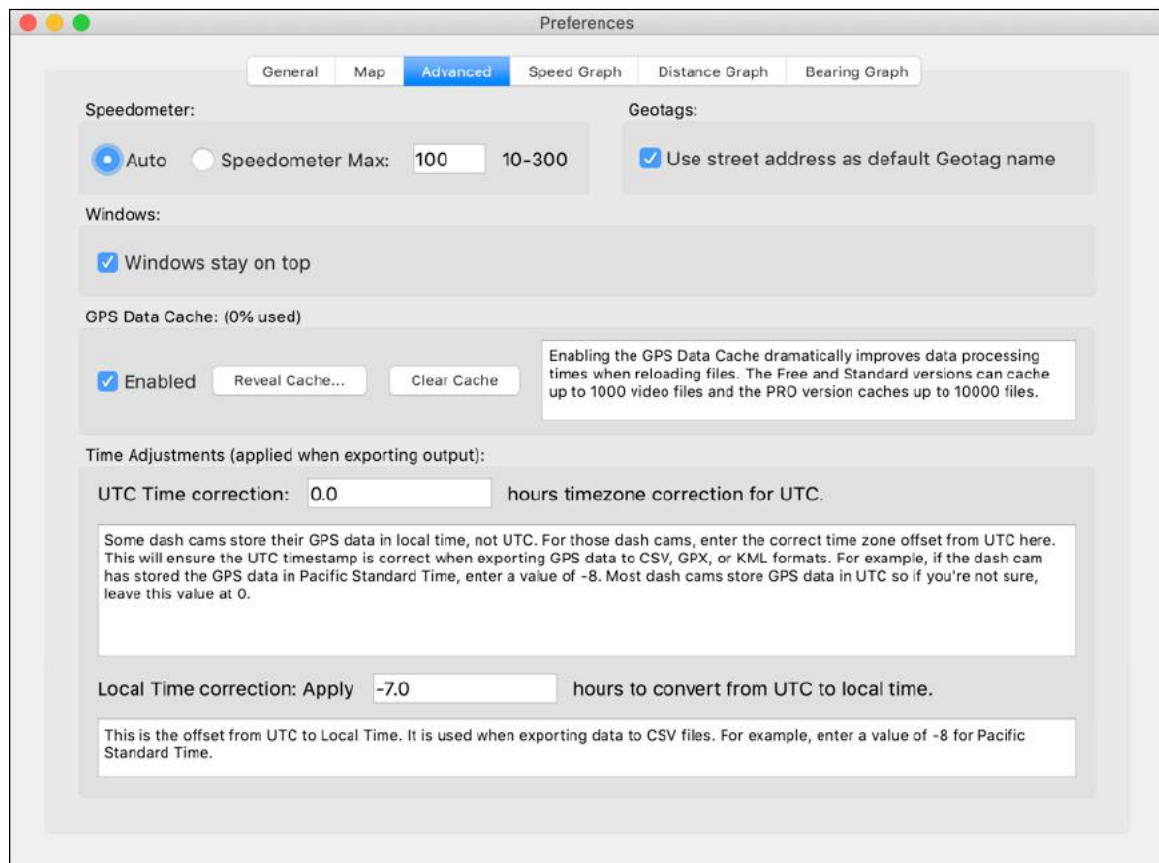
MAP PREFERENCES:



Map Preferences Window

- *Vehicle Marker* – choose either a colored round marker or default map placemark for the vehicle location.
- *Marker Size* – select a size for the round vehicle marker.
- *Number of Colors in Route Line* – choose between 1, 5, 10 or 14 colors in the color scale used to indicate vehicle speed. A key of the colors used is shown to the right of the selection combo box. The scale ranges from a speed of 0 (red) to the maximum speed (blue, defined below)
- *Vmax Color is Based on* – In the color scale, blue indicates the fastest speeds in the vehicle's route. You can define the speed the blue color represents, either by a fixed value or the maximum speed achieved for the entire journey. The fixed value method is useful for comparing the speeds of one journey against the speeds of another journey.

ADVANCED PREFERENCES:



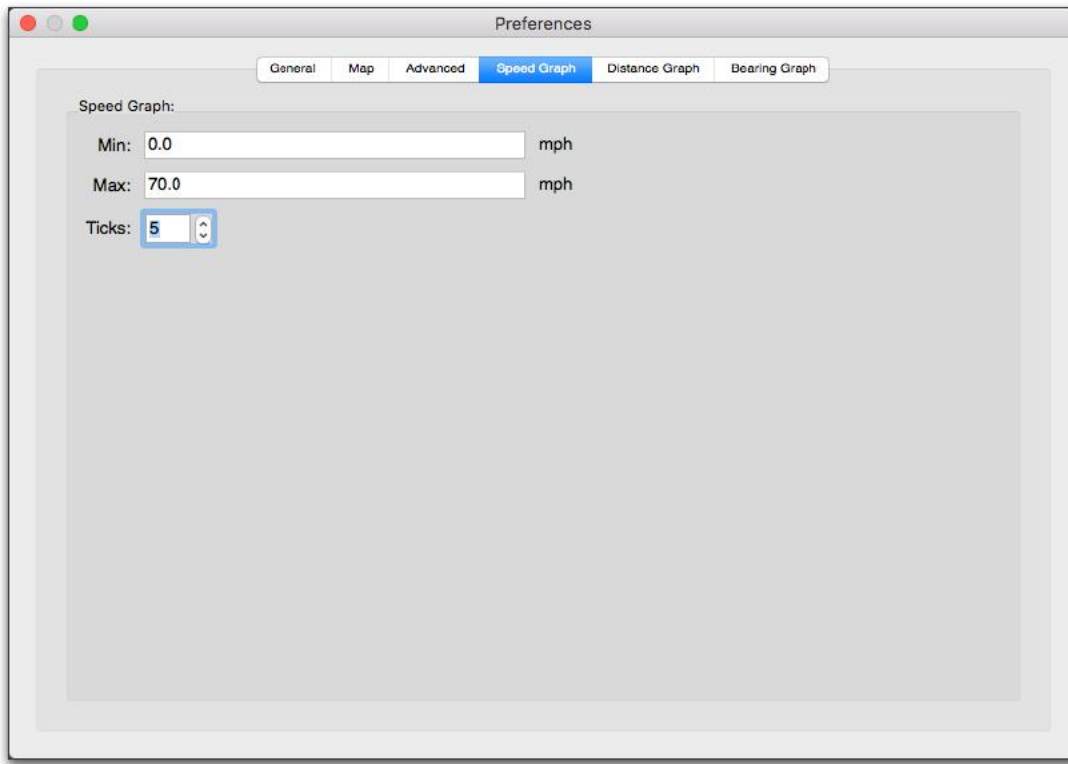
Advanced Preferences Window

- *Speedometer Auto* – Choose this option to have Dashcam Viewer auto-select the maximum speed on the speedometer widget. The maximum speed is chosen based on the current series of videos loaded.
- *Speedometer Max* – Alternatively, you can enter a maximum value for the speedometer between 10 and 300 (mph or km/h). A quick way to edit the maximum is to double-click on the speedometer face.
- *Use street address as default Geotag name* – When creating a Geotag, Dashcam Viewer will try to use the vehicle's current address as the tag's title. If you uncheck this box, Dashcam Viewer will simply call the tag "Untitled Event".
- *Windows Stay On Top* – This option controls whether the ancillary windows (Map, Dashboard, etc.) float on top of the Main Window. When the ancillary windows float on top of the Main window, you have more control of the window configuration. However, on some computers (Windows Surface) this feature may

not be advantageous. If you deselect this checkbox, the Main Window can be placed on top of the ancillary windows. You must restart Dashcam Viewer to make this change take effect.

- *GPS Data Cache* – The GPS Data Cache will dramatically improve data load performance for dashcams that embed their GPS data in the video itself. The first time a video is loaded the GPS data is extracted from the video, which can be time-consuming if many videos are being loaded at once. With GPS Data Caching enabled, the next time any of these videos are loaded the data will be read from the cache in a compressed format. This can reduce the load times by a factor of 100 or more. The Free and Plus versions cache up to 1,000 files and the **PRO** version caches up to 10,000 files. Once the limit is reached, the oldest files in the cache will be deleted to make room for the newer ones being loaded. The current cache usage is shown as a percentage in the *GPS Data Cache* title. A typical one-minute video uses approximately 4kB of space in the cache.
- *Reveal Cache...* – Click this button to open the GPS Data Cache folder on the Desktop.
- *Clear Cache* – Use this button to delete all the cache files in the GPS Data Cache folder.
- *Hide windows when application is put in background* – [**Windows Only**] If checked, the Map, Graph, Dashboard, and Control Center windows will hide if Dashcam Viewer is put in the background. Sometimes this is desirable to eliminate desktop clutter when not using Dashcam Viewer. If unchecked, these windows will remain visible when Dashcam Viewer is put in the background.
- *UTC Time correction* – Although most dashcams store their GPS data relative to UTC time, some store their GPS data in local time. For those dashcams, enter the correct time zone offset from UTC here. This will ensure the UTC timestamp is correct when exporting GPS data to CSV, GPS, or KML formats. **For most dashcams this preference should be left at 0.** But if your dashcam records GPS data in local time, say Pacific Standard Time, you would enter a value of -8. This setting is applied when exporting data to CSV, GPX, and KML files.
- *Local Time correction* – Enter your timezone offset from UTC here. For example, if you were in the Pacific Standard Time zone you would enter a value of -8. Dashcam Viewer will enter a default value based on your current timezone. This value is used when exporting data to a CSV file.

GRAPH PREFERENCES:



Graph Window settings

The y-axis scale and number of tick marks can be controlled independently for each graph. By default you will have settings for the Speed Graph, Distance Graph, and Bearing Graph. If your dashcam model supports Altitude, HDOP, or Number of Sats-in-View, then you will see additional tabs for these graphs as well.

Min – choose the minimum value for the plot

Max – choose the maximum value for the plot

Ticks – select the number of gridlines/ticks for the plot

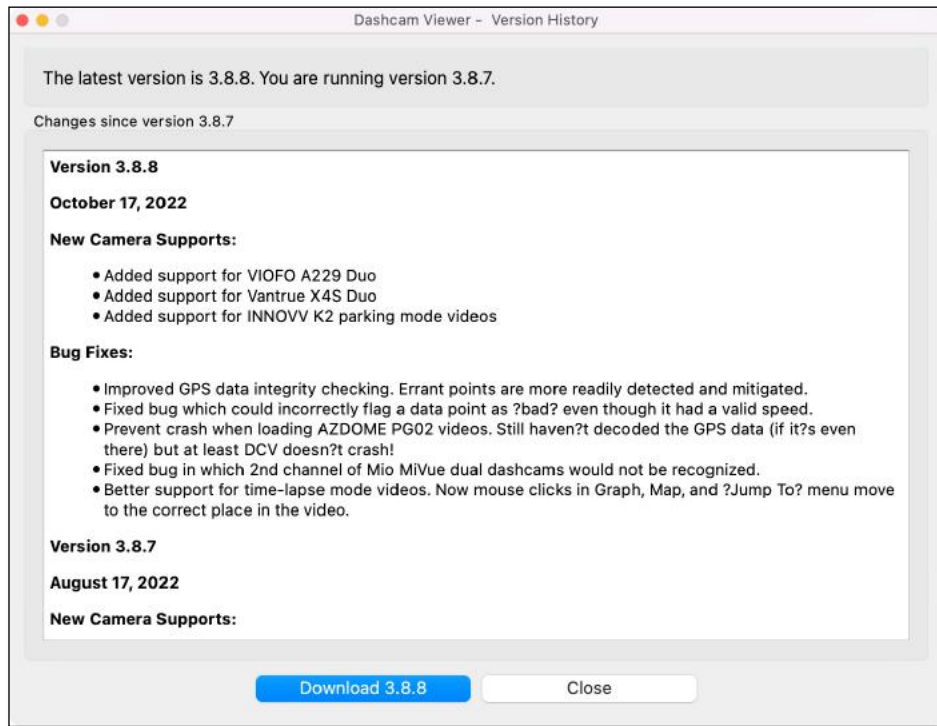
Tip: When a graph view is selected, the “1” and “2” keyboard keys will decrease/increase the Max value of the plot. The “3” and “4” will decrease/increase the number of gridlines.

Tip: You can click in a graph to jump to that point in the video sequence. See the *Click-To-Go Enabled in Graphs* option above.

Note: Settings are preserved from run to run of Dashcam Viewer.

ADDITIONAL MENU OPTIONS

CHECK FOR NEW VERSION



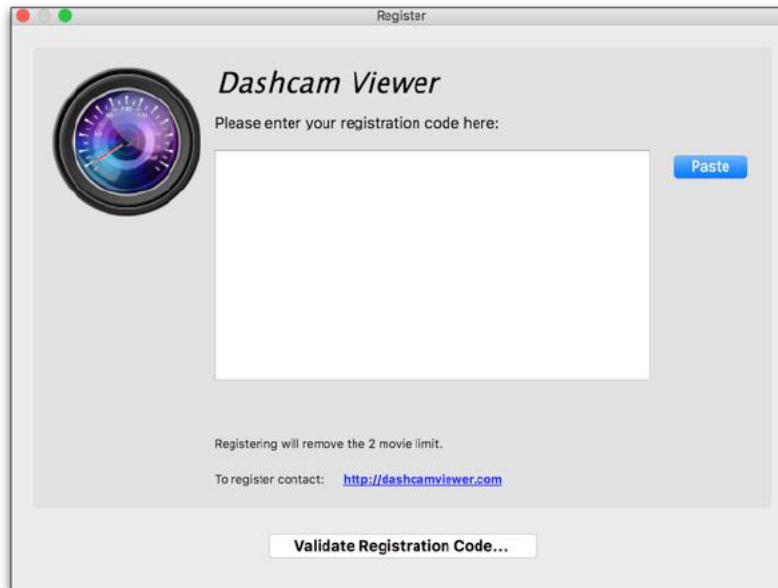
Check for New Version window

Check for New Version (under the Help menu) will go online to check if a newer version of Dashcam Viewer is available. If so, clicking the bottom left button will download it to your computer. If you are up-to-date the features in the current version will be shown. This feature can be toggled to run at program startup in the Preferences.

The modification history for Dashcam Viewer can be found [here](https://www.dropbox.com/s/jsfvrfrnrgr4dsa2/history.pdf?dl=0)⁶.

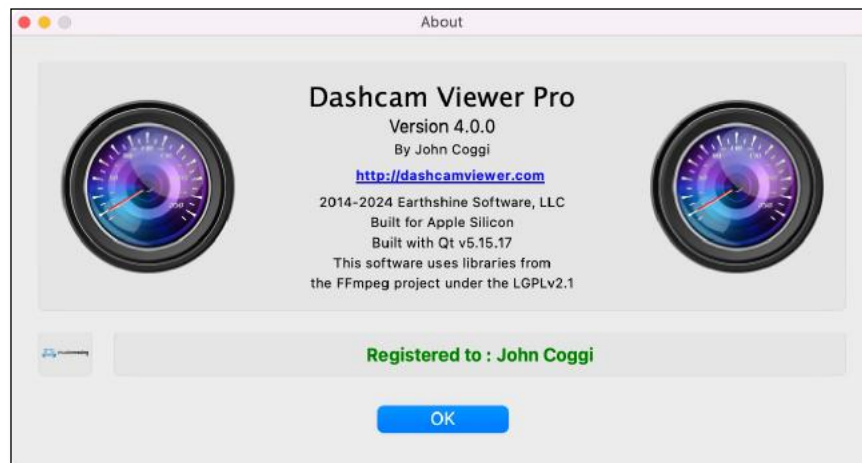
⁶ <https://www.dropbox.com/s/jsfvrfrnrgr4dsa2/history.pdf?dl=0>

REGISTER DASHCAM VIEWER



Register Dashcam Viewer to remove the 2-video limitation

The **Register** option is located under the Help menu. After purchasing the Plus or Pro version of Dashcam Viewer from our [website](http://dashcamviewer.com)⁷, you will be sent a registration code which will remove the limitations. Use Command-C to copy the code to the clipboard and the **Paste** button to enter it in the Register field. A video tutorial on how to register Dashcam Viewer is [here](https://youtu.be/CMP7FaQScE)⁸. Registering will personalize Dashcam Viewer and your name will appear as the registered user under the About menu:



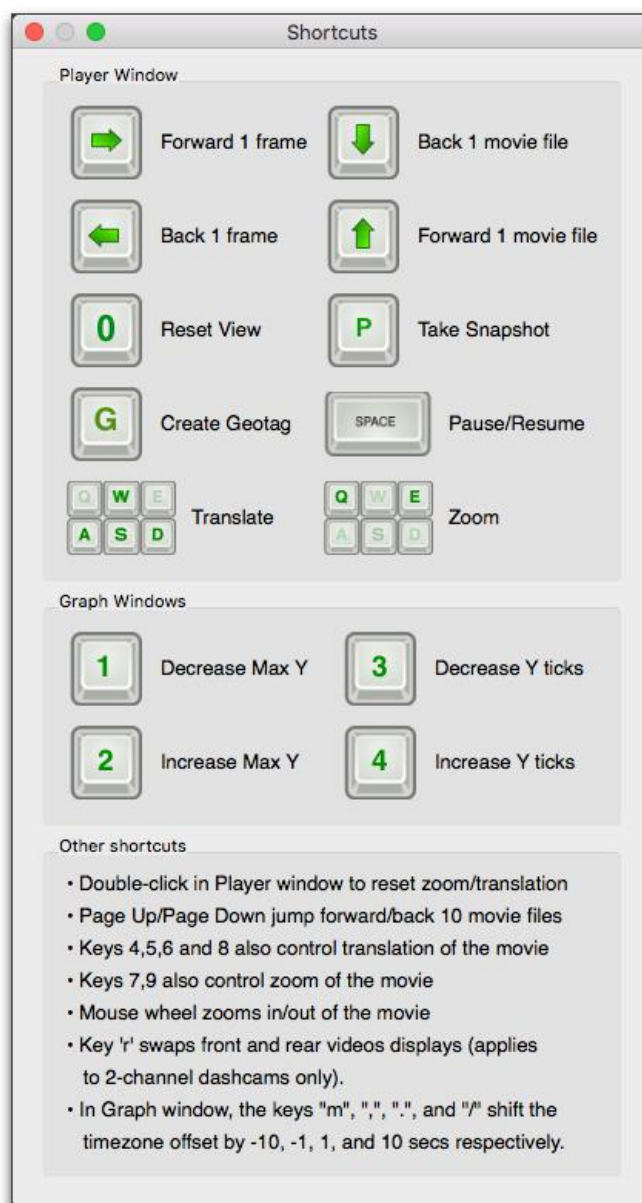
⁷ <http://dashcamviewer.com>

⁸ <https://youtu.be/CMP7FaQScE>

The About window displays the Dashcam Viewer version and registration status

SHORTCUTS

A number of shortcuts have been added to facilitate use of the program. These include buttons to move forward second-by-second, take a screenshot, pause/resume, and more. Please see the list below:



Shortcuts window

PLAYER WINDOW:

- When the Main Window is selected, the spacebar will start/stop the video player and the arrow keys will jump 1 or 10 files forward or reverse as indicated above.
- The P key will take a snapshot of the viewer window and save it to the directory last specified when clicking the Export Image toolbar button. If no directory has been specified, the P key will write the screenshot to the Desktop.
- The A,S,W,D (and 4,5,6,8) keys will translate the video in the video frame. The Q and E (and 7 and 9) keys will zoom out/in of the video. The 0 key resets the zoom and translation to default values.
- Click the “g” key to create a Geotag at the current location.
- Click the “r” key to swap front and rear videos in the Main Window (applies to dual-channel dashcams only).
- Click the “c” key to copy the current vehicle location (latitude,longitude) into the clipboard.
- Cmd-F, F11, and Alt-Return (Windows) will toggle Fullscreen mode.

GRAPH WINDOW:

- When in a graph view, the “1” and “2” keyboard keys will decrease/increase the Max value of the plot. The “3” and “4” will decrease/increase the number of gridlines.
- The “m”, “,”, “.”, and “/” adjust the Time Offset by -10, -1, +1, and +10 seconds, respectively. This is useful for graphically synchronizing the video to the cursor in the graphs.
- Click anywhere in the data portion of the graph to jump to that point in the video sequence. This feature can be turned off in the Preferences.

ARRANGING WINDOWS



Options available under the Window menu.

Dashcam Viewer allows you to move, resize, and gather its 5 main windows. Sometimes the windows can become hidden or overlap in an inconvenient way. To quickly bring all the windows back to their nominal positions, select *Reset Window Positions* from the Window menu.

This will rearrange the program's windows to their original configuration as shown below.



Dashcam Viewer after Reset Window Positions was selected.

To maintain relative positioning of the windows, select the *Sync Window Movement* option and all 5 windows will move together if any one of them is dragged.

Use the *Toggle Fullscreen* option (Cmd-F) to expand the Main window to fullscreen and hide the ancillary windows. To return to the previous state, simply choose Cmd-F again (or F11 or Ctrl-F on Windows).

“CLEAN UP” WINDOWS

Sometimes it's useful to gather the ancillary windows around the Main window, without the Main window changing position. To do this, select *Clean Up* from the “Windows” menu.

To control whether the Dashboard and Graph windows appear above or below the Main Window, simply move the Dashboard window anywhere above or below the Main window before selecting “Clean Up”. Similarly, place the Dashboard window to the left or right of the Main window to make the Dashboard clean up to the left or right.

The Control Center and Map windows will clean up to the left or right of the Main Window depending on where the Control Center window was before the Clean Up command was issued. Similarly, the Control Center window will clean up to the top or bottom depending on where it was relative to the Main Window before the Clean Up command was issued.

Examples of the Clean Up function are shown below.

BEFORE Clean Up

AFTER Clean Up



Using "Clean Up Windows" command to gather all windows around Main window.

FAQ

Note: Additional FAQ items are listed online [here](#)⁹.

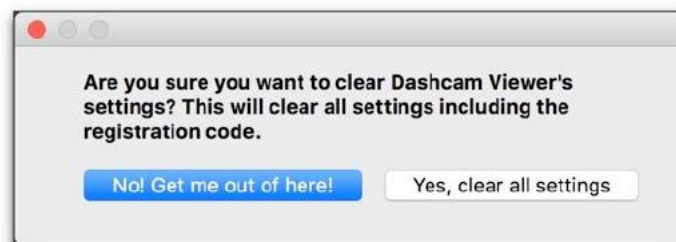
***Q:** I'm seeing the message "No GPS Data for this segment" on the Graph display. What does it mean?*



A: The "No GPS Data" error message will be shown if Dashcam Viewer cannot find a corresponding GPS log file for the currently playing video. If this happens the speed, latitude, longitude, etc, readouts will indicate 0. It can also happen if the first video file loaded has no GPS data associated with it. Try removing the first video file from the folder and reloading the folder. Although infrequent, this can happen under normal dashcam operation.

***Q:** Something is wrong. I can no longer see my videos or see my GPS data. How to I revert all of Dashcam Viewer's settings?*

A: Run Dashcam Viewer with the Shift-key held down. You will be presented with the following dialog.



Clicking 'Yes' will erase all the stored settings, such as window positions, window sizes, button settings, map settings, and preferences. These settings will revert to defaults. A

⁹ <https://dashcamviewer.com/resources/frequently-asked-questions/>

video describing this process is here: <https://www.youtube.com/watch?v=Ki5YASpxAaA>. Also note that your registration code will need to be re-entered if you select this option.

Q: When I merge videos nothing happens.

A: Be sure that the file directory path to the source videos does not have quotes, commas, or Unicode characters in it.

Q: When I load a video nothing happens.

A: This can happen if you load only the rear or “B” channel video (s) from a 2-channel dashcam. To avoid this, load the corresponding front or “A” channel video. Loading the front channel automatically loads the rear channel.

Q: In the video window the player shows my vehicle moving but my speed is indicated as 0 mph.

Q: I see data plotted in the graphs but the cursor isn't moving.

A: Could be a couple of things. When the dashcam unit is first powered up after being off for a long period of time, it requires a minute or so to acquire signals from the GPS satellites. During this time the vehicle's latitude, longitude, and speed are unknown and are displayed as “0” in Dashcam Viewer.

This could also happen if the dashcam's timezone is set incorrectly. DV relies on the accuracy of the video file's timestamp to sync the video with the GPS data. The dashcam's timezone should be set to the computer's timezone. If not, the difference in timezones should be entered in the Time Bias Preferences.

A third possibility is that the video's original timestamps have been altered. This can happen if the files were copied from the SD card to another location. In some cases the copy process changes the file modification date. To avoid this issue, open the original SD card's video folder in DV rather than opening a copy of the folder on a hard drive. The downside is that this may affect playback performance if the SD card is connected via a slow USB reader.

Another possibility is that DV is confused by extraneous files in the video directory. Be sure not to add any files to the dashcam's video directory.

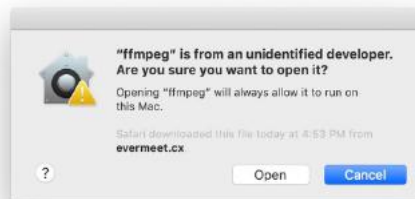
Lastly, if nothing seems to fix the issue, try loading the set of videos files again but this time skip the first video file. In other words, load all the video files except the first one.

If none of these tips work, try the hard reset procedure noted above.

Q: When I use Dashcam Viewer to export a video clip from my dual-channel dashcam, how come I don't get a picture-in-picture video as a result?

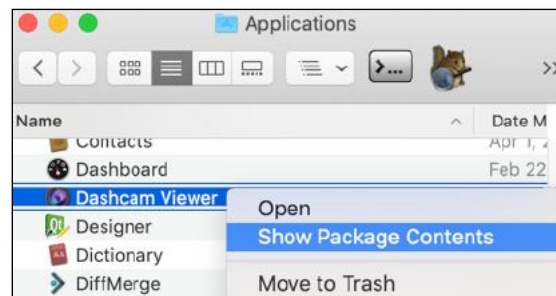
Dashcam Viewer ships with the LGPL version of [FFmpeg](http://ffmpeg.org)¹⁰. The LGPL version will only export the front channel to your video clip when you choose the Export Video option. The solution is to replace the LGPL version of FFmpeg with the GPL version off the internet. You can download the [Mac GPL ffmpeg here](https://evermeet.cx/pub/ffmpeg/snapshots/)¹¹ and the [Windows GPL ffmpeg here](https://github.com/BtbN/FFmpeg-Builds/releases)¹².

Mac GPL ffmpeg installation: The GPL Mac FFmpeg download comes as a zip file. Select the most recent ffmpeg .zip file (not the .zip.sig file) and download it. On newer macOSs, applications downloaded from the internet need to be verified the first time they are run. To do this, immediately right-click on the ffmpeg icon and choose Open. You should see a dialog that looks like this:



Open ffmpeg manually after it is first downloaded.

Click "Open" and it will run in the Terminal and immediately quit. Now you are ready to replace the old version as follows:



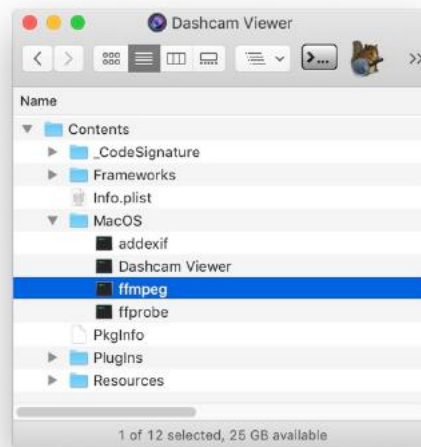
Right-click on Dashcam Viewer and select Show Package Contents

- 1) Right-click on the Dashcam Viewer icon and select *Show Package Contents*. This will open the contents in a new window.

¹⁰ <http://ffmpeg.org>

¹¹ <https://evermeet.cx/pub/ffmpeg/snapshots/> (get the latest .zip file)

¹² <https://github.com/BtbN/FFmpeg-Builds/releases> (get the latest win64-gpl version, e.g.: ffmpeg-n4.3.1-20-g8a2acdc6da-win64-gpl-4.3.zip)



Locating ffmpeg in the Mac version of Dashcam Viewer

- 2) Open the **Contents/MacOS** folder. You will see the LGPL version of `ffmpeg`. Move it to a safe location outside of the package.
- 3) Now move the GPL version of `ffmpeg` into the MacOS folder. Close the package window and you're good to go!

Windows GPL ffmpeg installation: Unzip the ffmpeg package and copy the `ffmpeg.exe` (located in the `bin` directory) to the Dashcam Viewer directory. You will be asked if you want to replace the existing `ffmpeg.exe`. Click Yes.

One caveat. Since each version of Dashcam Viewer ships with the LGPL version, you will need to repeat this process every time you update Dashcam Viewer.

Q: I'm using the Mac version of Dashcam Viewer and sometimes, after loading a video, I only see part of the video frame because the video is too large for the window.

This is a bug in the 3rd-part video library used by Dashcam Viewer. To restore the video to its proper size, simply double-click in the Main Window.

Q: The timing between the video and the vehicle's position on the map is slightly off. How do I fix it?

This can happen if the dashcam's clock is slightly off. To compensate for it, go to the Preferences and disable the *Always Auto-Fix Timezone Offset* option. Then bring the Graph window to the foreground. Use the `,` and `.` keys to dynamically adjust the time cursor position until the Map position of the vehicle and the video match. To compensate plus or minus 10-seconds at a time instead of 1 second at a time, use the `'m'` and `'/'` keys. When the vehicle's position on the Map matches its position in the video, you can click the Save Settings in the Video window so that when this video is played again the same adjustments will be applied.

Q: [Windows version] I get an error when I run Dashcam Viewer, "The ordinal 4369 could not be located in the dynamic link library LIBEAY32.dll". What is causing it?

This problem seems to be related to multiple versions of LIBEAY32.dll on your system. Please see <http://superuser.com/questions/272752/intelligence-server-configuration-and-libeay32-dll-registration-error-microstr> for a solution.

Q: [Windows] Videos appear to stutter during playback.

A: This occurs on some Windows PCs, usually the lower-end models or older models. It is due a technical issue with the 3rd party video library used in Dashcam Viewer. The ideal PC system is an i7 processor running Win10 and an nVidia or AMD processor.

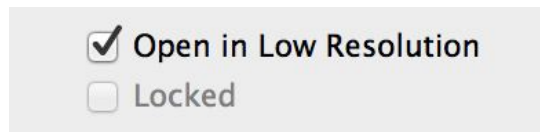
Q: The Map shows me driving on the sidewalk. What's up with that?

A: Could be a number of things. For starters, obscuration of the sky by buildings and terrain can block line of sight to the GPS satellites. Fewer GPS satellites translates to higher dilution of precision (DOP) and less positional accuracy at the dashcam. Also, the GPS receivers and antennas in these cameras are commercial units are not designed for high accuracy. Lastly, you may actually be driving on the sidewalk. Please watch out for pedestrians.

Q: Dashcam Viewer is hanging on my MacBook Pro with Retina display running Yosemite (OS X 10.10). Any idea why?

We have found that the Graphs display on Dashcam Viewer has an issue with some Retina Macs. Try this tip from <https://support.apple.com/en-us/HT202471>.

Open the Dashcam Viewer using Low Resolution mode:




- 1) Quit the application if it is currently open.
- 2) In the Finder, choose Applications from the Go menu.
- 3) In the Applications folder that opens, click the application's icon so it is highlighted.
- 4) Choose Get Info from the File menu.
- 5) Place a checkmark next to "Open in Low Resolution" to enable Low Resolution mode.

Close the window and double click the Application to reopen it.

DATA INTEGRITY CODES

Occasionally the GNSS trajectory data stream produced by your dash cam will contain errors or be incomplete. Dashcam Viewer attempts to detect and workaround these errors, if possible.

When a problem is detected, a small wrench  icon will appear next to the video filename in the Control Center View.



Hover the mouse over the wrench icon to disclose the integrity check issue.

Hover the mouse over the wrench icon to learn more information about the type of problem(s) encountered. The list of integrity issues is detailed below:

1. Some GPS data points out of chronological order. Sorting required.

This error is issued if the data are out of order or there are duplicate points.

2. Bad GPS time value detected in at least one point

This error will be reported if the time code is earlier than 01-Jan-2010 or greater than 19-Jan-2038, AND the latitude and longitude values of one or more points are null (0.0).

3. The latitude and longitude of at least one point are null.

This error will be issued if the latitude and longitude values of one or more points are null (0.0).

4. Bad GPS time value detected in at least one point.

This error will be reported if the time code is earlier than 01-Jan-2010 or greater than 19-Jan-2038, AND two consecutive longitude values are more than 5 degrees apart.

5. Encountered invalid longitude value.

This error will be reported if two consecutive longitude values are more than 5 degrees apart

6. At least one point required an artificial time code.

This error is issued if two consecutive waypoints in a video's data stream have a difference in time of greater than 5 minutes. If this situation is detected, new time codes are issued at one-second cadence starting at the last 'valid' point and ending with the last point in the file. Thus, all original time points starting at the point in which the invalid time was detected are replaced by time values that 'make sense' but may still not be correct. This video's data should be considered suspect.

7. At least one point required an artificial time code.

If a point with a time value outside the range of 01-Jan-2010 and 19-Jan-2038 is detected, this integrity code is issued. An attempt is made to assign the point a new time value and latitude, longitude, and speed values of the last 'good' point.

8. Lat and lon are zero. Revert to last good lat and lon.

This error is issued if both the latitude and longitude values of a point are zero. In this case the last 'valid' latitude/longitude values are assigned to this point.

9. Erroneous speed value detected. Revert to last good speed.

This error is reported if the speed value of a point is greater than 500 km/h. If this situation is detected, the last 'good' speed is used instead.

10. Missing points in data stream. Front-loading with filler points.

A discrepancy between the number of points in the data stream and the duration of the video was detected. If there is more than one point missing, front-load the data array with dummy points. The number of dummy points is equivalent to the number of missing data points. The assumption is that the missing points are at the front of the file, not at the back or in the middle.

11. First data point is out-of-scope. Interpolating a correction.

This integrity code is issued if the horizontal distance between the first two consecutive points is greater than 5.0 km. If this is the case, the first point is extrapolated based on points 2 and 3.

12. At least one point is out-of-scope. Interpolating a correction.

Some dashcams have been found to output a sudden single non-sensical erroneous latitude or longitude value. This integrity check finds singleton points that are actually valid lat/lon values, but are out-of-scope of the data set. In other words, it flags outlier points that don't belong in the data. The definition of outlier is a point 5.0 km beyond its neighboring points (this would require a speed of 18,000 km/h!). If this is detected, the outlier point is given a corrected position based on linear interpolation of its neighboring points. This check will not catch the case of two *consecutive* points being out of scope out-of-scope. In this case, errant lines will be seen on the Google Map. If such lines are present, this could indicate a bad dashcam GPS unit or problem in camera firmware.

13. Last point is out-of-scope. Interpolating a correction.

This integrity code is issued if the horizontal distance between the last two consecutive points is greater than 5.0 km. If this is the case, the last point is extrapolated based on the previous two points.

INTERNET SERVICES

Dashcam Viewer requires internet connectivity for full functionality. The following are the web services Dashcam Viewer uses and their functions:

1. Google Maps API: this web API is required to display Google Maps in a window.
2. Mapquest API: this web API is required to display Mapquest Maps in a window.
3. Visualcrossing.com: this web API is used to fetch historical weather data (used in the Dashboard widget).
4. Here.com: this web API is used for reverse-geocoding of lat/lon locations. Used in Geotags.
5. Amazon web services: this service is used to check for updates and for license validation checking.

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Thank you!

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