Quick Start

Don't want to read all this? You have a .DAT file and just want to get the .csv so you can use Dashware? Do this:

1. Click in the .DAT field at the top and then select the .DAT file in the resulting file chooser.
2. Click in the Output Dir field and then select the directory where you want the .csv to be written
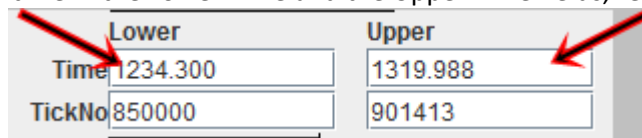3. Click the GO! Button towards the bottom

Introduction

DatCon reads a .DAT and then creates output files that contain information extracted from the .DAT. The user interface is divided into panels, each with their own function. Normally, the workflow consists of

1. Selecting the .DAT
2. Selecting the output directory if necessary
3. Setting options in the Time Axis Panel
4. Selecting which outputs you want in the CSV Panel, LogFiles Panel, and KML Panel
5. Pushing the GO! Button
6. Viewing the outputs using the View It buttons.

Time Axis Panel

After the user selects .DAT file, a preliminary inspection is done that will be used to choose the settings in this panel. The casual user can safely accept these choices and proceed to the panels where output choices are made.

This panel provides the means to select a time interval in order to reduce the output size. Selecting an interval can also be done to focus on a particular event. The interval start and end times can be set by entering the desired time in the Lower Time and the Upper Time fields, respectively.
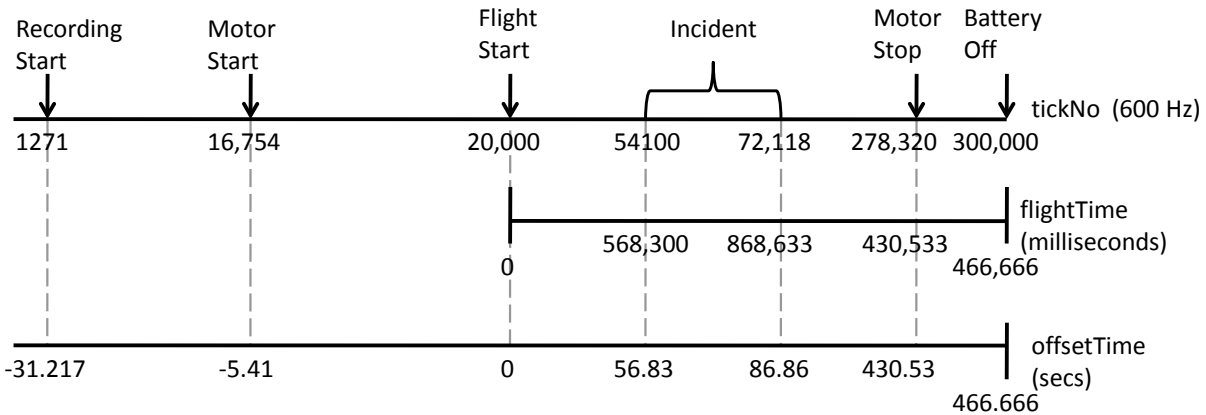

 Alternatively, use the buttons below the time fields to set the start time to Recording Start, Motor Start, or GPS Lock. Similarly, the end time can be set to Motor Stop or Recording Stop.
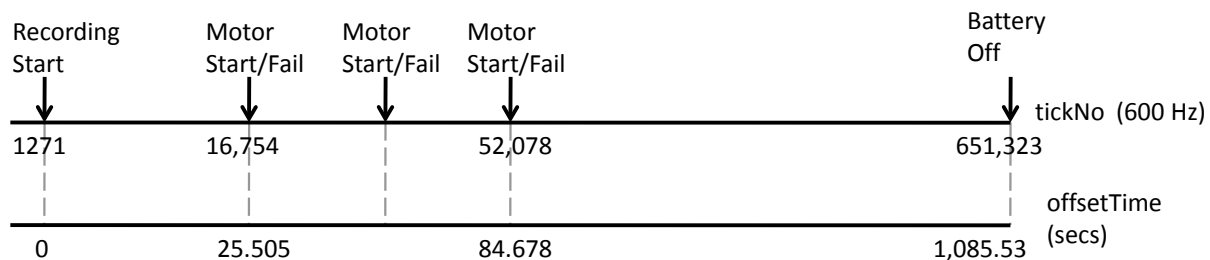
It is often desirable to use DatCon in conjunction with apps that get data from the RC/tablet such DJI Go App, HealthyDrones, or Litchi. This requires that DatCon use the time scale used by these apps. Consider a "normal" flight:

Recording Start — Motor Start — Flight Start — Incident — Motor Stop — Battery Off

tickNo (600 Hz)

1271 16,754 20,000 54,100 72,118 278,320 300,000

flightTime (milliseconds)

0 568,300 868,633 430,533 466,666

offsetTime (secs)

-31.217 -5.41 0 56.83 86.86 430.53 466.666

There are three time scales

1. tickNo - 600 Hz. Originates from the P3's internal bus clock. Starts at 0 when the battery is turned on. This time scale exists in every flight.
2. flightTime – milliseconds. Starts at 0 when a flight begins (i.e., the P3 is launched). This time scale will match the time scale of the RC tablet and the .txt produced by the tablet app. This time scale exists only if an actual flight occurs.
3. offsetTime – seconds. Computed from the tickNo scale and the flightTime scale (if it exists). If the flightTime scale does exist then this time scale is offset so that 0 on both the flightTime and offsetTime scales coincide. Note that the offsetTime scale includes the negative times from recordingStart to 0. The alignedTime scale should be used when 1) using Dashware, 2) synchronizing with the other apps, or 3) communicating results with others.

Some .DAT files do not have flightTime values. For example, consider the case where the motors wouldn't start and DatCon is being used to determine the cause. There won't be a flight and consequently the flightTime scale can't be used. Here is an example

Recording Start — Motor Start/Fail — Motor Start/Fail — Motor Start/Fail — Battery Off

tickNo (600 Hz)

1271 16,754 52,078 651,323

offsetTime (secs)

0 25.505 84.678 1,085.53

In this case the offsetTime scale can be offset so that time = 0 aligns with recordingStart (tickNo = 1271) on the tickNo scale.

The Time Offset subpanel tells you where the origin (time = 0) of the offsetTime scale was set. DatCon makes this choice with these criteria:

Flight Start	If the .DAT contains a flight
Motor Start	If the .DAT does not have a flight, but has a motor start
Recording Start	If the .DAT contains neither a flight nor a motor start.

This choice can be overridden by selecting a different choice.

Dashware Panel

This panel tells you if the .DAT file in conjunction with the settings in the Time Axis Panel will produce a .csv that is compatible with Dashware. This is shown by the compatibility indicator that will either be green and say "Dashware Compatible"

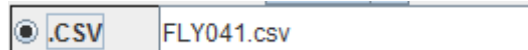or will be red and say "Not Dashware compatible"

When a .DAT is selected it is inspected to see if it can produce a Dashware compatible .csv and the indicator will be set appropriately. Usually, a .DAT file will be incompatible because the P3 didn't get enough GPS satellites to determine its position. Prior to gpsLock the latitude-longitude values will be 0.0 which will cause the Dashware profile to not work properly.

If the .DAT file is Dashware compatible the interval in Time Axis Panel will be set such that the maximum amount of data is included in the .csv yet still be Dashware compatible. If the Time Axis Panel settings are modified such that Dashware compatibility is violated the compatibility indicator will be set appropriately. Pushing the "Make it Dashware Compatible" button will then reset the Time Axis Panel to achieve Dashware compatibility.

CSV Panel

The size of the .csv can be adjusted by specifying a sample rate which can range from 5 Hz to 200Hz. Lower sample rates produce a smaller but less precise .csv. Conversely, a higher sample rate will produce a larger but more precise .csv. The default, 30 Hz, is usually a good comprise.

Selecting the .CSV option will cause the indicated file to be generated when the GO! Button is pushed.

If desired, the file name can be modified.

After the GO! Button is pushed the View It button will be enabled. Pushing it causes the generated .csv to be displayed in Excel.

The Event Log option causes the event log entries to be included in the .csv under the column heading "eventLog". See the discussion of the EventLog in the Log Files panel. Multiple events can occur for a single row in the .csv. In this case the events are concatenated using the "|" character as a separator.

Log Files Panel

In addition to the binary data the .DAT contains two text streams. DatCon refers to these, somewhat arbitrarily, as the ConfigLog and the EventLog. This panel allows you to specify which, if any, of these two logs are to be generated as result of pushing the GO! Button. It also shows the file names that will be generated. These file names can be modified by clicking in the file name and entering a different name. View It buttons are provided that, when clicked, will display the log in a text file viewer (such as NotePad).

The ConfigLog contains information used to initialize the P3, such as acceptable values for the compass mod. The ConfigLog begins at recordingStart and lasts for about 20 seconds. The last lines of the ConfigLog contain the serial number of the MC board which is effectively the serial number of the P3. Also, the build date that was obtained from a different part of the .DAT file is inserted before the first line of the ConfigLog.

In the EventLog each line represents an event such as switching to ATTI mode, go home initiated, etc. The values from both the offsetTime and tickNo scales are inserted at the beginning of each entry. For example, the EventLog entries

```
1.978 : 110607 :    8988 [Ctrl<2>] REQ_RC_COMMAND ASST_TAKEOFF_HOLD ctrl_asst_takeoff
3.598 : 111579 :    9069 CTRL reset all by assisted takeoff finish
```
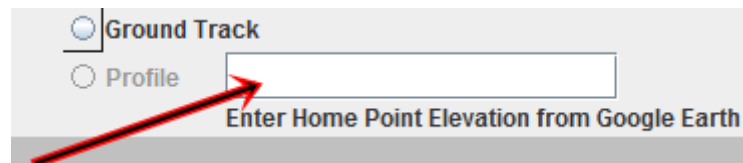
describe an assisted takeoff starting at time = 1.978 seconds and finishing at time = 3.598 seconds.

KML Panel

A .kml file can be generated that can then be viewed using Google Earth. There are two options

GroundTrack – When viewed by Google Earth the ground track is displayed. The track is "clamped" to the ground.

Profile – When viewed by Google Earth the 3D track is displayed. To use this option you **must** know and specify what Google Earth thinks is the elevation at the Home Point. The easiest way to obtain this value is to first use the GroundTrack option and then place the cursor in Google Earth over the Home Point. The elevation is then displayed in the lower right corner in Google Earth. Enter this value in the text field to the right of the profile button which will then be enabled.

The track generated with either option will be restricted to the interval specified in the Time Axis Panel. After the conversion is run the View It button can be used that will cause Google Earth to display the track.

Reporting a bug

Bug reports should be sent to bug@flylog.info
1. Attach the file .dotdat that will be found in your home directory
2. Include as many details and be specific as possible.

Retrieving a .DAT from the P3

1. Go to the DJI GO App and connect to the P3

2. MC Settings -->
   select Advanced Settings Advanced Settings --> Enter flight data
   mode
3. wait until you get a dialog telling you that the P3 is in flight data mode.
4. Connect a USB cable from the USB plug in the nose of the P3 to your computer. This is not the USB connector on the side of the camera. Your P3 should have come with the required USB cable
5. The data drive should mount and be available.
6. Use the date on the FLYXXX.DAT files to pick the one you want and copy it to your computer