

Flightcell

Viewing Flight Data from the Flightcell SmartHUB and Camera



Revisions & Approval

Revision	Effective Date	Approved By	Reasons for Change
1.0	23 May 2023	James Mace	First issue

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The Flightcell SmarHUB and Camera

The Flightcell SmarHUB is a Flight Data Recorder, recording critical flight data including

- » Video and ambient audio from one or two cameras installed in the cockpit and/or cabin
- » Radio and ICS audio from the aircraft audio system
- » Flight data from its inbuilt flight data recorder using the built-in accelerometer and gyros
- » Ambient air pressure - barometric altitude for unpressurised aircraft or cabin altitude for pressurised aircraft
- » GPS data.

The Flightcell Camera monitors a fixed field of view, capturing video and ambient audio.

Exporting flight files from the SmarHUB

Data is stored on the SmarHUB SD card.

While the SD card can be removed to access the data, this is not normally necessary, nor recommended, as the data can be downloaded by other means.

Download onto a USB memory stick

- » Insert a memory stick in one of the SmarHUB USB ports.
- » Repeat press **MENU** until the display shows *USB drive mounted, long press to select data file to download.*
- » Longpress to show the first file, then long press to confirm download or short press and follow the on-screen prompts to advance to the next file to be downloaded.

This may take 1 to 5 minutes per GB, depending on the write speed of the memory stick.

Data files (apart from the current file) are named with date and time stamp in the format YY-MM-DD_HH-MM-SS.

Download via SmarHUB Connect

- » Connect a laptop to the SmarHUB via Ethernet or Wi-Fi
- » Open SmarHUB Connect
- » Login as a User or Installer
- » Go to *Flight Explorer*. All the data files currently on the SmarHUB memory card will be shown.
- » Click on the flight you wish to download. This may take 1 to 5 minutes per GB, depending on your connection.

Removing the SD card

- » With the unit off, remove the cover plate for the card slot
- » As this is fastened by captive screws, unscrew the top screw halfway, then fully unscrew the bottom screw, then finish unscrewing the top screw
- » Push and release the memory card to remove.

SmartHUB and Camera flight files

The folder exported from the SmartHUB will contain the following files: each is date stamped with the end time for the recording:

- *cam0_XXXXXX.ts* - video and audio from the primary camera
- *cam1_XXXXXX.ts* - video from the second camera (if installed)
- *flight_audio_in_XXXXX.wav* - pilot audio from the aircraft audio system (ICS)
- *flightdata.txt* - raw data from the SmartHUB gyro, accelerometer, and barometric pressure sensor
- *gps_flight* - data from the SmartHUB GPS
- *FlightMonitor.txt* - processed data from the SmartHUB GPS, gyro, accelerometer, and barometric pressure sensor.

Note: Data from the Flightcell cameras is recorded on a .TS file. This file type writes the data to the SmartHUB SD card in real time, so no data is lost when the SmartHUB is shut down or stops recording.

Viewing SmartHUB data

Files downloaded from the SmartHUB can be reviewed individually using specialised video, audio and flight data management software, for example after an accident or incident.

An integrated view of a flight can be played back using the Flightcell SmartHUB Flight Viewer.

Smart Hub Flight Viewer plays back a flight, with:

- » Video and audio from installed cameras
- » Pilot audio from the radios and intercom
- » Display of instantaneous flight data, including position data (from the GPS) and motion data (from the motion capture system).

The SmartHUB Flight Viewer

The SmartHUB Flight Viewer provides an integrated view of a flight, playing back cockpit video, ICS and ambient audio, and flight data.

Using SmartHUB Flight Viewer

SmartHUB Flight Viewer is a web application, so does not need to be installed on a computer or device.

To use the SmartHUB Flight Viewer, go to <https://smart-hub-flight-viewer.web.app/home>. It is recommended to use the Google Chrome browser.

If using for the first time, you will be prompted to register. Click on *REGISTER* and follow the prompts to set up a username and password.

Once you have registered, click on *SIGN IN* and enter your username and password.

Note: Data viewed by the SmartHUB Viewer application is not loaded onto the internet, so there is no risk of it being seen by unauthorised parties

Processing files to view in SmartHUB Flight Viewer

Before the files can be viewed in SmartHUB Flight Viewer, it is necessary to convert the .ts files to MP4 format.

This is done using the Flightcell TS2MP4 file conversion utility.

Download this utility from

<https://downloads.flightcell.com:9443/dzmx/Flightcell%20TS2MP4%20installer-2.0.0.exe> and install.

Converting a TS file

- » Open the TS2MP4 utility
- » Locate the data folder that was downloaded from the SmartHUB; if this was downloaded onto a laptop using Smart HUB Connect, this will be a compressed (zip) file, which will need to be unzipped
- » In the TS2MP4 application
 - » Click on *Browse*
 - » Navigate to the directory where the flight folders are located
 - » Select the flight folder (but don't open it)
 - » Click on *Select Folder* then click on *Convert*
- Or
 - » Drag and drop the folder to the top window in the utility
 - » Click on *Convert*.

The TS file will now have been converted to MP4.



Playing back the flight

You can now play back the flight.

- » Open SmartHUB Flight Viewer and log in
- » Click on *Browse* and navigate to the folder where the flight folders are stored
- » Click on the folder for the flight to be viewed (but don't open it)
- » Click on *Upload*.

The viewer will now playback the flight.

The Viewer controls allow you to:

- » Move forward or backward in the flight
- » Adjust audio and video quality
- » Change track views between standard map view and 3D track view
- » View flight data or a flight display.



GPS		
Time/Date	26/01/22 22:59:15.0000	
Position	-63.6130729, -172.7949174	
Altitude	1554 (473.6)	ft (m)
Speed	113.9	knots
Heading	98	°
Barometric		
Pressure	959.73	mbar
Pressure Altitude	1493 (455)	ft (m)
Vertical Rate		
GPS	394	ft/min
Barometric	554	ft/min
Orientation		
Pitch	-2	°
Roll	0	°
Stress		
G Force	1.28	g

Transport 14:32/27:16

Audio (Ambient) [mute] - +

Audio (Cockpit) [mute] - +

Brightness (%) [slider]

Contrast (%) [slider]

Saturation (%) [slider]

Obtaining Documentation and Information

Documentation

Comprehensive documentation is available on the Flightcell website at www.flightcell.com/resources.

Technical support

For technical support contact Flightcell

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