

EUROHARMONY VA



Flight Logger Mark 4

Beta Test Presentation

Updated: September 16, 2010

Introduction

Note to beta-testers

This document is the start for the future operation manual of the Flight Logger Mark 4. However, this is not yet a full manual, as some features are still subject to possible changes / improvements before reaching the final product.

What to expect?

Flight Logger Mark 4 is a completely new software application. At no time did we try to copy / replicate FL3; instead the concept was to get a fresh approach to the matter.

Therefore the software was built around the core features any flight logger must have:

- Flight setup (aircraft and flight selection)
- Flight monitoring
- Flight outcome reporting

To these, we added some features that we felt the community was missing in FL3. On the other hand, some FL3 features did not find their way into FL4 – or at least not yet.

Concretely, the new features to expect in Flight Logger Mark 4 are:

- Easier and more robust installation and configuration (no more DLLs to register and hopefully no more access right problems on Vista and newer platforms)
- A more intuitive process of planning, performing and reporting a flight
- An actual check of the airport of origin / destination (in case you did not noticed, in FL3 you can plan a flight to LOWI, and report it as such, while actually landing anywhere else)
- Support for full-offline flying, including ProPilot flights
- Possibility to save and resume a flight in progress
- Possibility to do a flight in several legs, or landing at the alternate and later reaching the planned destination

Flight operations

In Flight Logger Mark 4, every flight is considered as a distinct operation, which is initiated, planned, performed and reported. As the flight progresses among these phases, “flight status” information is gathered.

At any time, this information can be saved into a flight file. This file can be later reloaded into Flight Logger Mark 4.

NOTE: The planned behavior is that interrupting and resuming a flight (by saving and reloading the flight file) will be allowed **ONLY** while the aircraft is parked on ground OR airborne and cruising (not in climb or descent). For now there is no hardcoded limitation about this, but attempting to reload a flight file saved while climbing and descending and resume the flight may result in unpredictable behavior.

Two particular situations can be managed by saving and later reloading the flight file:

- A flight set up but not started yet, in the “waiting for startup” condition
- A flight completed, but not reported yet; it is possible to reload the flight file later and submit the PIREP.

IMPORTANT: Auto-save is, for now, implemented in some standard situations, for instance after completing the flight and after submitting the PIREP. In other situations, you must save the flight yourself whenever you feel the need. It's likely that after the beta-test period, we will have the software auto-save the flight file more often, depending on the feed-back we receive from you on this matter.

Installation

The basics

At this time, Flight Logger Mark 4 consists of two files: `FlightLogger4.exe` and `System.Data.SQLite.DLL`, which should be copied to any folder where the user has read and execute access rights. Should this be a problem on more sophisticated Windows platforms, the easiest is to pick “My Documents” or any subfolder of this.

The installation kit contains two versions of the DLL. The one in the main folder (where the executable is) is to use with 32-bit Windows versions, while the one in the “x64” subfolder is to use with 64-bit windows versions. In all cases, one must end up with the executable and the appropriate DLL in the same folder of the local PC.

There are no configuration files to install, but these will be created when the application is first run.

Prerequisites

In order to run, Flight Logger Mark 4 needs two pieces of software installed:

- .Net Framework 2.0 – this is customarily already installed in any Windows configuration (Windows XP Service Pack 2 or later); otherwise it may be downloaded from Microsoft.
- FSUIPC (version 3.75 or higher for FS2004, version 4.60 or higher for FSX). Chances are this has already been installed by your favorite FS add-ons; otherwise it may be downloaded from www.schiratti.com/dowson.

FS installations

NOTE: The software has been developed against Microsoft flight Simulator 2004 “A century of flight” and Microsoft Flight Simulator X. At this time there is limited support for X-Plane too (and the intention to extend it to full support). If you are a X-Plane user, check the separate document “Using Flight Logger 4 with X-Plane” for details and instructions.

Flight Logger Mark 4 is built to run against one or more FS installations, and remembers different settings for each one of these.

IMPORTANT! A FS installation is detected while running when Flight Logger Mark 4 starts. Thus in order to make one FS installation “known” to the software, start FS BEFORE Flight Logger Mark 4.

After there is at least one FS installation known to Flight Logger Mark 4, the last used installation is remembered as “default” and gets used whenever the software is run, even if FS is not started beforehand.

A FS installation is known by the corresponding FS installation folder. Whenever Flight Logger Mark 4 starts and detects a FS running, which is not an already known installation, it prompts the user to configure a new installation.

It is strongly advised NOT to start Flight Logger Mark 4 with more than one FS running.

The first run

IMPORTANT: When running the software for the first time, you need a working Internet connection.

Start your favorite FS version, and after it reaches the main menu, run FlightLogger4.exe.

First the software detects the running FS version, and set it up as default FS installation.

Secondly, Flight Logger Mark 4 initializes the local database. The whole process includes many stages (as shown on the splash screen progress bar) and is likely to take several minutes (as much as 15 minutes on slower machines).

This is the detail of the operations performed:

- Parse the WHOLE scenery used by the current FS installation. This results in a local scenery index, used in later stages to retrieve information about airports. The idea is to work with airport information as defined in the local scenery, which may be quite different from any known default (cases are known, where an airport is located in default FS as far as miles away from its actual location, and this may corrected by custom sceneries).
- Retrieve airport aliases from Euroharmony server. Airport aliasing is the new way to manage a situation that occurred with some airports, physically the same but bearing different ICAO codes in FS9 and FSX.
- Retrieve the aircraft list from Euroharmony server
- Retrieve the flights from Euroharmony server. Within this stage information is recorded, about the origin and destination (as geographical coordinates) of each flight.
- Compute the grand circle distances for each flight.

As a rule of thumb, information from the server is downloaded and processed whenever it changes on the server. The airport index is rebuilt every time something is changed in the local scenery configuration.

The steps involving data download from Euroharmony server are skipped if connection cannot be established, and in this case Flight Logger Mark 4 uses the last known data. However this cannot happen when the software is first run (against one given FS installation), and in this case the initialization fails.

Authentication

After initialization completes, Flight Logger Mark 4 prompts for an EHM number and password (use the same as currently in FL3). These are remembered for the next runs (the prompt still appears, but fields are pre-filled).

When the software is first run, the number and password are validated by the EHM server (which requires an Internet connection). Later on, authentication can be performed against locally stored information, should the connection not be available.

The Flight Logger screen

Organization

After initialization and successful authentication, Flight Logger Mark 4 shows the main screen. This screen is organized as an “instrument stack”. The top “layer” is always present, while the lower “layers” depend on the flight currently in progress.

The main menu

The top layer of the screen shows the currently logged pilot and allows access to the application main menu via the push button on the right side:



Note also the many-digit number shown on the caption bar. This is the unique “flight id” of the current flight. This ID should be used be passed when communicating on any issues related to a submitted PIREP, as this is the means of uniquely identify a PIREP on the Euroharmony server.

The main menu contains the following functions:

- Flight – New, Open (load) , Save and exit the software
- Tools – Unavailable flights (see “Airport aliasing” in the “Advanced” chapter)

When a flight is first saved by the user, this one is prompted to change the file name (by default this is the flight ID with the “EHF” extension).

The general instrument layer

All layers except the top one share the same look and structure, but the precise behavior and usage differs from one type of flight to another (typically “normal” flight versus ProPilot flight):



The activity being performed by this layer is indicated in white font (“Select a flight” in the example above).

The activity status is shown by the leftmost indicator, and can be one of the following:

Label	Color	Meaning
INOP	Red	This activity cannot be performed yet, typically because another activity has to be completed beforehand
READY	Blue	This activity can be performed (but this is yet to do)
RUNNING	Yellow	This activity is in progress. Typically this is shown while performing the flight, and indicates that flight monitoring is active.
COMPLETE	Green	This activity has been completed

The CRT-like display shows additional information about this activity. This information can be displayed in one of three colors:

- White – this is just a label (fixed test)
- Green – this is dynamic relevant information
- Magenta – this is also dynamic information, but indicates an abnormal condition that needs to be fixed in order to advance into the flight

The rightmost button performs an action that is specific to this instrument layer. The possibilities will be explained when going through the normal and ProPilot flight processes.

A full flight

Initialization

At anytime it is possible to initiate a normal flight by means of the main menu, using the Flight / New / Normal command. This initializes the screen with the instrument layers appropriate for this operation.

Step 1 – Select an aircraft

This activity is initially READY, and the push button opens the actual aircraft list for selection. After an aircraft is selected, the CRT shows information about the selected aircraft and the activity becomes COMPLETE.

Step 2 – Select a flight

This activity is initially READY, and the push button opens the actual aircraft list for selection.

The selection list has several tabs, depending on the flight type to perform:

- Scheduled flight – in this case the list is initially empty, and then it gets populated when one or more divisions / classes are selected
- Missions – same behavior as for scheduled flights
- Tours – this tab allows selecting first a tour, and then a leg within the tour.

In all cases, if an aircraft has been selected beforehand, the flight list shows the flight compatibility against that particular aircraft:

- Recommended (bold font) – this is the best match between aircraft and flight
- Allowed – this is not the best match, but Euroharmony R&R allow flying this flight with the selected aircraft
- Not allowed – This flight is not allowed to perform with the selected aircraft

Step 3 – Perform flight

This activity is initially INOP, but status switches to RUNNING when both an aircraft and a flight have been selected. The RUNNING state means that flight information and metrics collection is active (although there is no actual flight yet, engines have not yet been started up).

Note that some of the flight metrics are computed as average values (this is to smooth up flight condition changes, by ignoring short “spikes”). Because of this behavior, when flight monitoring starts, these metrics are only initialized after a few seconds.

This can be visualized on the CRT, which initially shows some metrics in magenta until these eventually turn green.

Also, one should check the status reads “Origin / Parked” before starting up engines. If “origin” is not displayed, this means that the current position of the aircraft does not match the known position of the selected origin airport. Until this problem is solved, no flight recording will occur.

No action is required regarding this activity. The CRT updates the basic flight status and information, and more information can be obtained via the rightmost push button. This toggles a window showing the whole set of information managed by Flight Logger Mark 4.

NOTE: In further versions this window will be replaced by a more user-friendly interface, but for debug purposes it is useful to see the very same information that gets actually processed.

When the aircraft is eventually landed and brought to a halt the status should read “Destination / Parked”. In this condition (and only in this condition), shutting down all engines will result in the activity becoming COMPLETE.

Completing the flight turns off flight monitoring (and as a result, the CRT turns black).

Step 4 – Report flight

This activity is initially INOP, and turns READY when flight performing gets COMPLETE.

Pushing the button brings up the PIREP form. Most information is non-modifiable as the flight Logger already gathered or computed these. Fill in the remaining information and press OK.

The PIREP is submitted and the CRT now shows:

- The confirmation for successfully submitting the PIREP;
- The total time recorded in the pilot account and the corresponding rank (after this flight)
- The Propilot score recorded for this flight and the pilot account total score.

ProPilot

A word of warning

You will not find, in this beta version, an implementation of ProPilot (penalty system) as we know it. Why? That is simply because ProPilot as we know it will cease to exist with Flight Logger Mark 4. A new “skill check” system will replace the penalty system... but this is still work in progress.

In the new system, a pilot will get a small bonus just for flying from origin to destination... in one piece, plus various bonuses for doing so while flying correctly and observing miscellaneous procedures. A flight not completed (or one that just doesn't end well) gives no point at all (but no negative score either).

In this beta version, only the basic “small bonus” (of 50 points) is awarded. To keep balance against other pilots who still use FL3, and get ProPilot points taking a high risk for penalties, this “small bonus” is actually smaller than the score one would get doing the same flight in FL3.

The remaining of the ProPilot features, like locking flights and the travel mode, are unchanged.

ProPilot flight setup

The first step is still locking a flight in the Euroharmony web site.

In Flight Logger Mark 4 it is then possible to initiate the flight by means of the main menu, using the Flight / New / ProPilot command. This initializes the screen with the instrument layers appropriate for this operation.

The “Select an aircraft” and “Select a flight” layers are replaced by a single layer “Lock a flight”. In fact, this activity is about checking there is already a locked flight and, if this is the case, retrieves flight details from the web server.

NOTE: This activity requires an Internet connection. Once the flight is set up, it is possible to continue offline. It is also possible to set up the flight at a time when an Internet connection is available, save the flight file, and then do the actual flight in a later session when no connection is available.

Actual flight

Flight monitoring and PIREP submission occur in the very same way as for a non-ProPilot flight.

Advanced concepts

Airport aliasing

The current client-server system is based on airport ICAO codes managed on the server, which defines, for instance, a flight between EHAM and UGGG. However, this raises a problem because the same airport is known as UGGG and UGTS by different FS versions. This leads to a situation where, no matter which code is known to the server, pilots using one FS version won't be able to do the flight.

The solution, with Flight Logger Mark 4, is to manage "airport aliases". Aliasing allows defining one flight, like EHAM-UGGG in the example above, but when data is downloaded from the server the flight is retrieved as either EHAM-UGGG or EHAM-UGTS depending on the currently used FS installation.

This mechanism applies to all pilots and no special action is required.

Should one pilot use particular scenery, where the same airport has a different ICAO code (than the standard code for his FS installation), there is a "local aliasing" mechanism that can be used to fix the problem. However, as of this beta test period we will not "give away" the procedure of using this mechanism, unless someone has a concrete problem to solve using it.

Airports unknown within the current FS installation result in "unavailable flights". A command within the main menu (in the "Tools" submenu) shows the complete list of unavailable flights and corresponding unknown airports.

The local file and folder structure

All local data are stored in the "My Documents" folder, and more precisely in a subfolder named "FlightLogger4". This root folder contains:

- One subfolder, typically named "FS9.*" or "FSX.*", per known FS installation (i.e. installations that Flight Logger Mark 4 has already been run against)
- A configuration file, named "installations.xml", which defines these known configurations

Although the structure of installations.xml is quite straightforward, it is not advised to change it manually. If FS is uninstalled and later reinstalled in a different folder, simply run Flight Logger Mark 4 against this new installation and it will be automatically added to the configuration.

Each FS installation folder contains the following:

- A local airport scenery index, named "file-index-*.db3", where the variable part indicates the database version for compatibility checking purpose
- A local database named "ehmlocal-*.db3", where the variable part indicates the database version for compatibility checking purpose

- A folder named “temp”, where all auto-save flight files are kept

The flight files bear the extension EHF, and are basically XML files. This option allows having all information in a human-readable form, which is useful for debug purposes.

Note to beta-testers: always include a copy of an updated flight file along with issue reports.

On the other hand, NEVER alter a flight file manually: a checksum system will indicate any manual intervention and the flight file will therefore be refused on any attempt to reload it into the software!

FS versions

Flight Logger Mark 4 has been developed with FS2004 and later tested with FSX too. Technically the solution should work with FS2002 as well, but we don’t know whether anyone still uses this version.

There is also limited support for X-Plane (check the separate document “Using Flight Logger 4 with X-Plane” for details and instructions).