

Creating Lessons for Condor2's Flight School

The image shows two overlapping windows from the Condor2 flight simulator. The top window is the main menu, titled "Condor version 2.1.5". It features a pilot selection area with "Pilot: Simon Stannard" and a UK flag. A vertical list of buttons on the left includes: PILOT, FLIGHT SCHOOL, FREE FLIGHT, MULTIPLAYER, VIEW REPLAY, FLIGHT ANALYSIS, SETUP, HELP, and EXIT. The center of the menu displays a silhouette of a condor in flight above the text "CONDOR2 THE COMPLETE SOARING SIMULATOR".

The bottom window is the "FLIGHT SCHOOL" editor, with tabs for "Basic", "Intermediate", "Advanced", and "Acro". The "Basic" tab is active, showing a list of lesson names on the left and a detailed description on the right. The selected lesson is "G-04b Lookout and Scan Cycle".

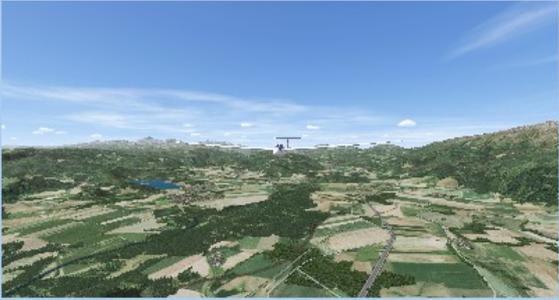
Lesson name:

- 1 Preflight check procedure
- 2 Effects of commands
- 3 Turns
- 4 Winch launching
- 5 Aerotow launching
- 6 Traffic pattern and landing
- 7 Winch launch emergency
- CPH Approach and Land
- CPH Float and Land
- G-03a Using the Lessons
- G-04b Lookout and Scan Cycle**
- G-04c Visual References and the Clockface
- G-04d Who has Control
- G-05a Effect of Controls - Elevator
- G-05b Effect of Controls - Ailerons
- G-05c Effect of Controls - Rudder
- G-06a 2ry Effect of Ailerons
- G-06b 2ry Effect of Rudder
- G-06c Coordinated Rolling
- G-07a Airspeed Monitoring
- G-07b Use of the Trimmer
- G-08a Turning Using All Three Controls
- G-08b The Straight Glide
- G-08c The Straight Glide - XWind
- G-08d The Straight Glide - XWind Turbulence
- G-09a Slow Flight and Stalls
- G-09c Stalls in Steep Turns

Lesson description:

LOOKOUT and SCAN CYCLE

The objective of this lesson is to demonstrate the lookout and scan cycle. This could save your life, and someone else's. The human eye is not very good at seeing other gliders in the sky. When did you see the glider in this picture? How close is it? The small dot that isn't moving much is very hard to see, but can rapidly become a glider seconds away from impact. So we must consciously scan the sky for potential threats. As we are also trying to fly the glider, we do this in an organised way. We lookout, maintain awareness of our position in the sky, check our instruments and look out again. You will get used to managing your position in the sky by use of peripheral vision with reference to the horizon - although this can be tricky in the bigger hills. You'll also learn to judge what the instruments are telling you, without having to stare at them. We aim to spend almost all our time looking outside the glider.



LOOKOUT

Scan the field of view, pausing from time to time, looking above and below the horizon as well as on it. Take time to focus on the distant objects. You'll need to move your head, not just your eyes, to look round far enough each time. Remember to look overhead as well. If you keep your head moving, you will impress your instructor - and remember, she can't see out from the rear seat as well as you can from the front!

SCENARIO

This demonstration is in a valley, in calm conditions, flying a Standard Cirrus.

PRE-FLIGHT CONFIGURATION

Set the trim for 45-50kts (around midway). When doing the exercise try to hold the stick gently, and focus on the lookout manoeuvres.

NOTE

Lookout is part of every exercise.

FURTHER READING AND REFERENCES

Gliding From Passenger to Pilot, 2nd Edition: Pages 82-83

Buttons at the bottom of the lesson editor include "Cancel", "View lesson", and "Try lesson".

Introduction

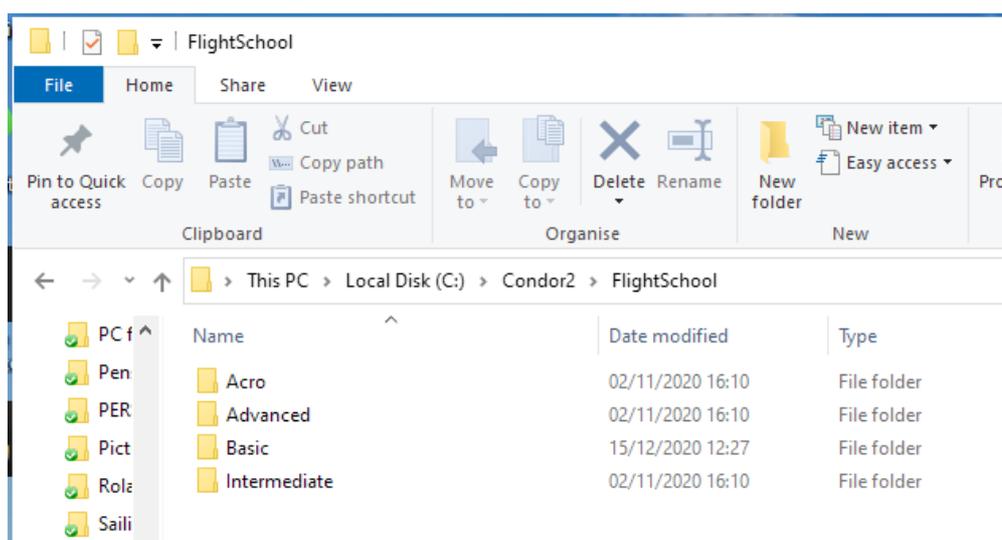
Condor provides a Flight School feature, containing some initial lessons pertinent to flying a glider in the simulator. The important thing is that it provides a structure in which the instructor can implement their own lessons. The student need only to place the relevant files into Condor, to incorporate the lessons into Condor's Flight School. These can be used alongside or instead of the lessons as supplied. This facility opens up many possibilities for individuals and clubs, including:

- Training to national standards (e.g. BGA exercises and patter)
- Site-specific Briefings and Training (e.g. for Flat sites, Ridge sites, non-standard circuits)
- Multi-lingual support
- Instructor Training

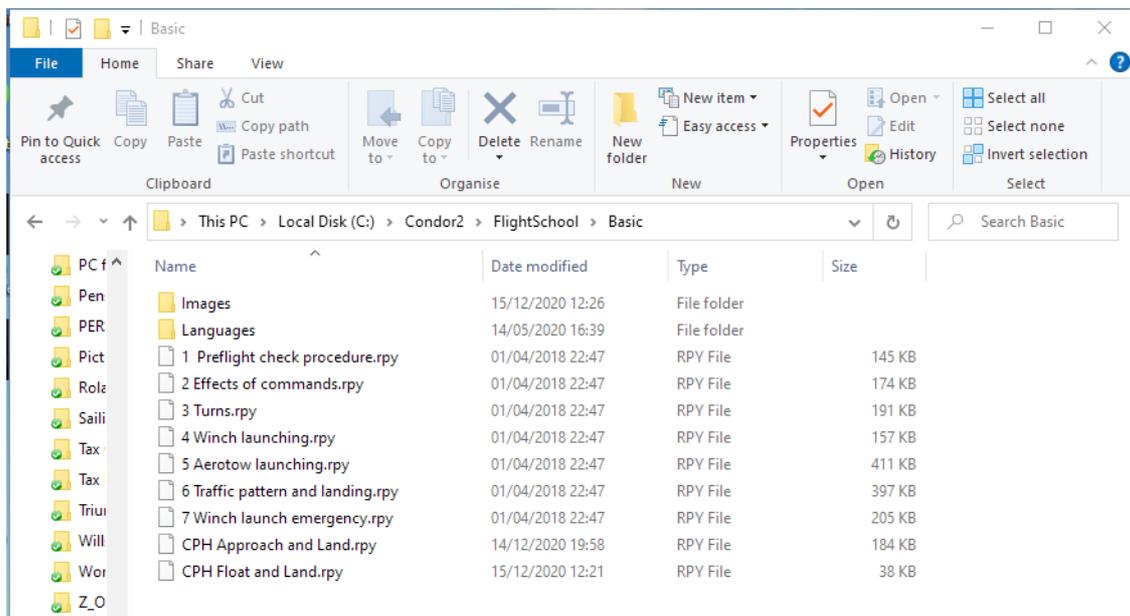
The Flight School is ideally suited to use at clubs in a dedicated simulator. It also works well at home, ideally with a flight joystick and rudder pedals. Thus equipped, and in combination with remote comms such as Zoom, instruction can even be provided to trainees at home by instructors who are located elsewhere. It obviously does not replace instruction in gliders, but it may give trainees a good head start as they learn the terminology, understand what is expected of them, and how to achieve it. This in turn reduces the load on instructors.

Flight School's Structure

Understanding the structure of Flight School's implementation is the key to understanding the opportunities it opens up. Condor's Flight School uses a predefined set of folders, found in Condor's system folder. These reflect the Tabs in the Flight School, so that lessons can be organised - Basic, Intermediate, Advanced and Acro. This structure cannot be changed.



The folder structure is the same within each Tab, e.g. for the Basic lessons:



The trick now is to create and place the required files into the appropriate folders. The sequence does not matter, as long as they are all there. The example for 'CPH Approach and Land' is used here.

The following files must be created and placed correctly:

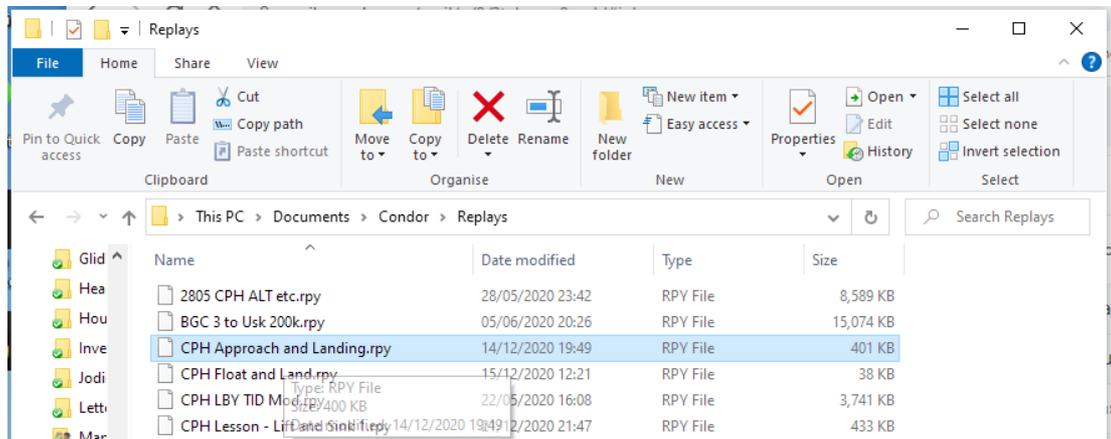
- Briefing file – an html document containing the briefing notes
- Replay file – the demonstration 'video' and also the start point for the exercise
- Image file – to illustrate the briefing
- In-Flight prompts for the demonstration – a text file.

Located as follows:

- Briefing *.htm C:\Condor2\FlightScool\Basic\Languages\English
- Replay *.rpy C:\Condor2\FlightScool\Basic
- Image *.jpg C:\Condor2\FlightScool\Basic\Images
- Prompts *.txt C:\Condor2\FlightScool\Basic\Languages\English

Create the Demonstration, and Start Point for the Exercise

Fly your demonstration flight in Condor, and when finished Save the Replay. The replay file will be in your Documents folder, and will contain the entire flight.



Edit the file, using Condor's 'View Replay' option, to trim off the parts of the flight before and after your most excellent demonstration, and save this as 'CPH Approach and Land'. Move this file into the required folder – as shown in the Basic folder above. This replay will be played when the student clicks the 'View lesson' button for that lesson.

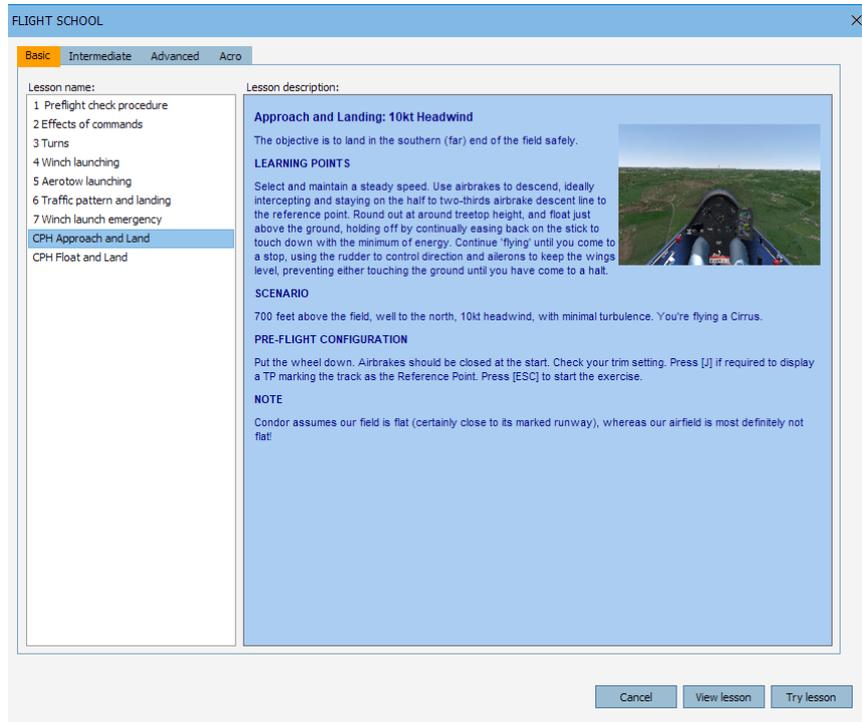
The replay file also sets the start point and conditions for the exercise, activated by the student clicking the 'Try lesson' button. The start point is at the start of the demonstration.

You have now created a repeatable demonstration, and start point for the student to attempt to recreate your perfect flight.

Note: Replays (Demonstrations and Exercises) can include Condor Ghosts – i.e. other gliders, flying pre-recorded routes. However, it does not seem to be possible to transfer these to another computer. It works well on the computer on which it is created, giving realistic gliders to lookout for and avoid.

Create the Briefing (Lesson description)

The briefing is displayed when the student clicks on a lesson in the list beneath the Tab.



This is an html file, stored in C:\Condor2\FlightScool\Basic\Languages\English. Copy an existing one, or for simplicity use my TemplateForCondorFlightLessonDescription.htm as your source, for example:

```
TemplateForCondorFlightLessonDescription - Notepad
File Edit Format View Help
<!-- Comment: Open With Notepad etc to edit, or Web Browser to view -->
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML><HEAD>
<META http-equiv=Content-Type content="text/html; charset=windows-1250">
<META content="MSHTML 6.00.2900.2604" name=GENERATOR></HEAD>
<BODY>

<!-- Comment: Replace LESSON-TITLE-GOES-HERE with your Lesson Title in the next line -->
<P><STRONG><FONT size=4>LESSON-TITLE-GOES-HERE</FONT></STRONG>

<!-- Comment: The next line specifies the name of the picture file for the lesson description -->
<IMG height=141 alt="" hspace=0 src="..\Images\PICTUREFILENAME-GOES-HERE.jpg" width=200 align=right border=0></P>

<!-- Comment: Your introductory text placed here will appear beneath the heading -->
<P>The objective is... BODY-TEXT-GOES-HERE</P>

<P><STRONG>LEARNING POINTS PARAGRAPH-TITLE-GOES-HERE</STRONG></P>
<P>PARA-TEXT-HERE </P>

<P><STRONG>SCENARIO PARAGRAPH-TITLE-GOES-HERE</STRONG></P>
<P>PARA-TEXT-HERE.</P>

<P><STRONG>PRE-FLIGHT CONFIGURATION PARAGRAPH-TITLE-GOES-HERE </STRONG></P>
<P>PARA-TEXT-HERE.<STRONG> </STRONG></P>

<P><STRONG>NOTE PARAGRAPH-TITLE-GOES-HERE </STRONG></P>
<P>PARA-TEXT-HERE.</P>

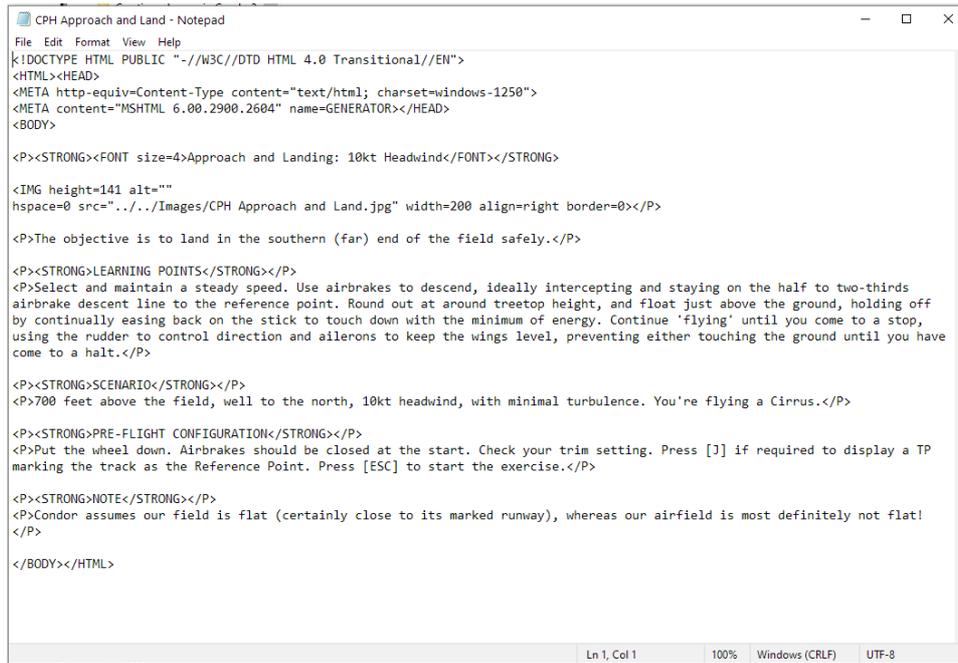
<P><STRONG>5. PARAGRAPH-TITLE-GOES-HERE</STRONG> </P>
<P>PARA-TEXT-HERE.</P>
<P>PARA-TEXT-HERE.</P>
<P>PARA-TEXT-HERE.</P>

</BODY></HTML>

Ln 1, Col 1 100% Windows (CRLF) UTF-8
```

Name the copy with exactly the same name as the replay file (except for the filename extension): e.g. CPH Approach and Land.htm. Copying a file seems to be easier than Save As, so that it retains its type as "html".

Edit this with Notepad etc, tailored for the lesson:



```
CPH Approach and Land - Notepad
File Edit Format View Help
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML><HEAD>
<META http-equiv=Content-Type content="text/html; charset=windows-1250">
<META content="MSHTML 6.00.2900.2604" name=GENERATOR></HEAD>
<BODY>

<P><STRONG><FONT size=4>Approach and Landing: 10kt Headwind</FONT></STRONG>

<IMG height=141 alt=""
hspace=0 src="../../Images/CPH Approach and Land.jpg" width=200 align=right border=0></P>

<P>The objective is to land in the southern (far) end of the field safely.</P>

<P><STRONG>LEARNING POINTS</STRONG></P>
<P>Select and maintain a steady speed. Use airbrakes to descend, ideally intercepting and staying on the half to two-thirds
airbrake descent line to the reference point. Round out at around treetop height, and float just above the ground, holding off
by continually easing back on the stick to touch down with the minimum of energy. Continue 'flying' until you come to a stop,
using the rudder to control direction and ailerons to keep the wings level, preventing either touching the ground until you have
come to a halt.</P>

<P><STRONG>SCENARIO</STRONG></P>
<P>700 feet above the field, well to the north, 10kt headwind, with minimal turbulence. You're flying a Cirrus.</P>

<P><STRONG>PRE-FLIGHT CONFIGURATION</STRONG></P>
<P>Put the wheel down. Airbrakes should be closed at the start. Check your trim setting. Press [J] if required to display a TP
marking the track as the Reference Point. Press [ESC] to start the exercise.</P>

<P><STRONG>NOTE</STRONG></P>
<P>Condor assumes our field is flat (certainly close to its marked runway), whereas our airfield is most definitely not flat!
</P>

</BODY></HTML>
```

Points to include, for example:

- Title Approach and Landing: 10kt Headwind
- Objective The objective is to land in the south end of the field, safely.
- Learning points Main body of the briefing: e.g. Maintain a steady speed, use airbrakes to control descent, the reference point is the track, round-out and float, holding off as long as possible, touchdown fully held off with minimum energy, then manage direction with rudder, keeping wings level.
- Scenario Wind conditions, location, etc, to inform the student.
- Demonstration What the demonstration will show, and what to look out for.
- Exercise How to perform the exercise, and what they should attempt to do.
- Configuration Anything the student must check or set pre-flight, e.g. air-brake setting. Also include any Condor hints, such as the ability to use TP markers, where appropriate.
- Note Any other comments.

I recommend you include any notes the student will require to subsequently fly the exercise – for example, if at this point in the flight you had the wheel down and 4/5 airbrakes open, tell the student to set up in the same way at the start of their exercise (they will be able to do so before commencing flight).

The student may well repeatedly re-fly and practice this exercise without an instructor, so ensure you include all the pertinent teaching points. Set them up to succeed!

Creating a Briefing Document

The Briefings can be printed as PDFs, and hence form the basis of a site training manual, or a visitors' briefing document for example. The images will be included if you put copies in an \Images folder a couple of folders higher in the tree.

Create the In-Flight Prompts for the Demonstration

The in flight prompts appear at the top of the screen during the demonstration. They are displayed for a few seconds, appearing first at the top of the screen. With practice we can get this to match, or precede, the optimal moment in the demonstration.



These are provided in a text file, named to match the lesson, similar to this:

```
File Edit Format View Help
000010 Hello, this is a demonstration of the final approach and landing, in a 10kt headwind.
000050 The Reference Point for this flight is the Cross Track...
000080 ...We would normally aim to land in the closest part of the airfield if it is clear
000110 On this flight, we aim to maintain speed at 50-55 kts
000640 As we intercept the half to two thirds airbrake approach line, we open the airbrakes, and control the speed
000750 Monitor the reference point and adjust the airbrakes as needed
000890 Approaching tree top height, start to roundout
000925 Float 1-2 feet above the ground and continue to ease the stick back to hold off
001000 Touched down - keep flying the glider until you come to a standstill
001100 We touched down too soon - we will have to hold off a little more next time!
```

Copy an existing one, and 'save as' exactly the same name as the replay file (except for the filename extension): e.g. CPH Approach and Land.txt. The numbers on the left define the timing for when the text appears. The numbers are relative time positions from the start of the lesson – they are not real times in any sense.

An easy way to get the timing right is to use the 'message' feature during the replay. When you have the replay showing the demonstration as you want it, run it again and at the point you would like a message to appear, press [Backspace] to pause the replay. Enter a piece of text at that point. This need only be a placeholder as you can edit the text and amend the timing later.

Save the replay as a temporary name - open this replay file with Notepad. You will see your timings and messages at the top. Carefully select only the first message numerals, through to the end of your last message, and nothing either side. Copy this section and paste it into the .txt file created above, replacing its previous content. Edit them as needed. Save the .txt file and discard the temporary replay file.

Create an Image for the Lesson Briefing

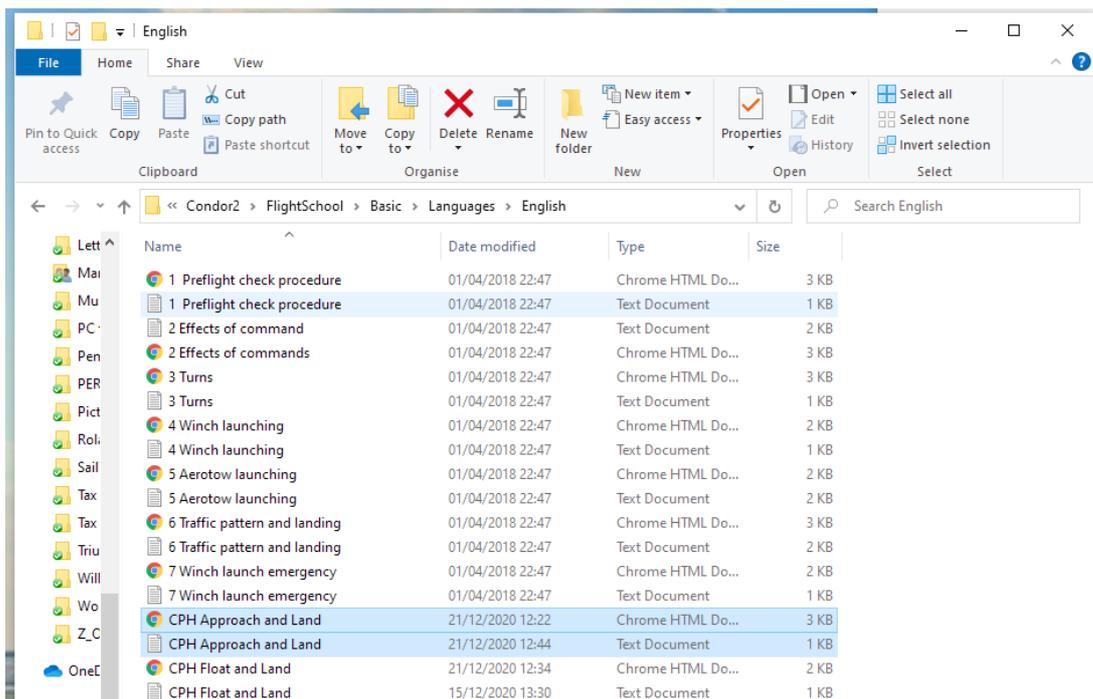
Take a Condor screenshot relevant to the lesson. You'll find it in your documents folder, the default being C:\Users\username\Documents\Condor\Screenshots. Other images can be used - .jpg files, ideally resized as required.

Put / Check all the files are in their right places (e.g. for a Basic lesson)

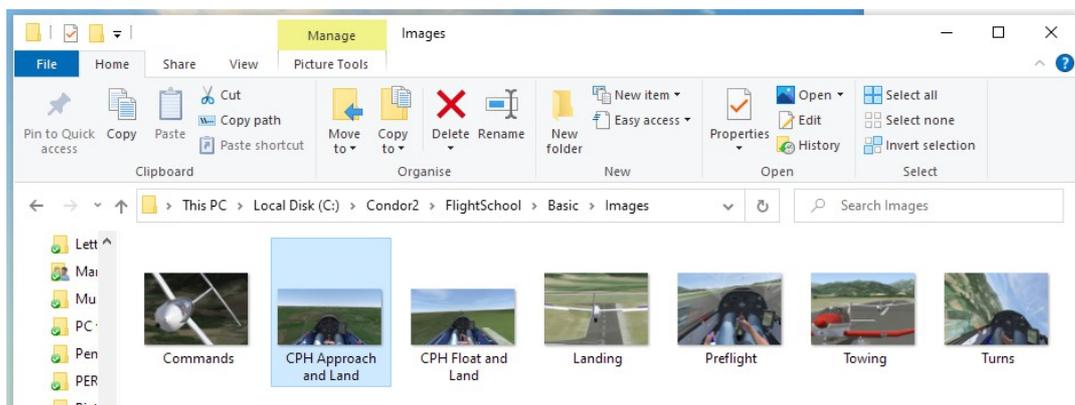
The Replay file should be placed in Condor's FlightSchool\Basic folder.

Condor's FlightScool\Basic\Languages\English folder must contain the

- html file for the Briefing, and the
- text file for the Demonstration's In-Flight Prompts



The image file should be put in Condor's FlightScool\Basic\Images folder:



Finally

With the four files in their places, go back to Condor's main menu and select Flight School.

Adding Your Lessons to Flight School

When receiving new lessons from an instructor for example, first check you have four files per lesson, as below, each with identical file names (with different extensions).

- Replay *.rpy C:\Condor2\FlightScool
- Briefing *.htm C:\Condor2\FlightScool\Basic\Languages\English
- Prompts *.txt C:\Condor2\FlightScool\Basic\Languages\English
- Image *.jpg C:\Condor2\FlightScool\Basic\Images

You will need to copy or move the supplied files into the Condor Flight School folders, similar to this. See immediately above for more info.

Multiple Languages and Variations on the Screen Messages

It is possible to create alternative versions of the text, for the Lesson Briefings and Demonstration Prompts. This facilitates the creation of:

- Multi-lingual versions
- Prompts in various forms: Long, Short, or None
- Instructor Patter

Language is relevant to the Lesson Briefing and Lesson Prompts. Multiple versions of each can be created, e.g. obviously for multi-lingual briefings and prompts, but also for variations of the prompts, such as Short bullet points to prompt an instructor for timing and what's about to happen, or Long(er) messages that explain more detail to the student. Instructor Patter could be used for instructor training.

Each version can loaded as needed (see below), or they could be assigned to the Tabs already in Flight School, e.g.

- Basic - Long Prompts
- Intermediate - Short Prompts
- Advanced - No Prompts (e.g. for use with audio playback)
- Acro - Instructor Patter

My current understanding is that only those files in the \English subfolder (within Basic, etc) are used when Flight School runs. Whatever is in that folder at the time of the lesson will be displayed. If the Tabs are not permanently assigned as above the alternative messages and languages can be switched for display at run-time:

- Create the alternatives (.htm and .txt files), and store them elsewhere.
- Copy them into the required \English folder prior to running Flight School.

It would be simple to automate this to some extent, e.g. using a .bat file to copy the required files from a known source to the required target.

Adding Audio Playback to a Lesson Replay

Dave Salmon has suggested a method to play pre-recorded audio alongside the lesson replay e.g. for the purpose of instructor commentary: Make a recording whilst watching the replay, timed to start together. If you have nothing to say for the first while, start recording at the beginning of the lesson replay anyway – this ensures your timings are correct

thereafter. When starting the lesson, start the playback to coincide.

Wouldn't it be nice if this could be incorporated into Condor, using an extension of the folder structure and/or presence of an audio file therein to trigger playback.

Video

Russ Holtz of GliderBooks.com has created a video describing the basics of the process:
<https://youtu.be/L0hAaiFWId8>