

KPCrew 2.3-alpha3 (10/2022)

FlyWithLua scripts to simulate a virtual first officer in X-Plane 11. THIS IS A COMPLETE REWRITE AND STILL IN ALPHA. PLEASE REMOVE ANY OLDER KPCREW FILES FROM SCRIPTS AND MODULES FOLDER!

Introduction

Coming from the FSX/P3D world I know the FS2Crew products which I had for all payware aircraft if available. I always wished that I could get something like that for X-Plane. FlyWithLua turned out to be a great programming environment for X-Plane and I decided to try replicating something like FS2Crew for the Zibo B738.

Why the Zibo? Because it is the most accessible and function-rich freeware aircraft in X-Plane and I love the Boeing 737s.

What does it do?

Basically you have a helping hand, a virtual first officer which is able to run procedures on your command. These procedures are as close as I can have them to real procedures, partially I get inspiration from FS2Crew (a great tool I would always recommend).

There are other tools out there which do similar things, the most versatile one being XFirstOfficer. I had a KPCrew version with XFirstOfficer but it turned out a lot of work and although quite versatile, restricted me at some locations due to the way the steps are defined. Still XFirstOfficer is great and I can recommend it to people who want to quickly bring together small procedures without programming.

Having said that, KPCrew is one big programming exercise and I can understand that it will be difficult for people without experience in Lua programming to change or extend things. If you want to do that then look at other tools as mentioned above.

Other Aircraft Supported?

Will there be other aircraft? Yes, it will also contain the FJS B737-200 and many other planes if I have the addon and find the time to research it.

History of KPCrew

KPCrew went through several iterations, initially I called it Zibocrew. The initial concept was clunky and inflexible. I think I now have a good enough concept to easily extend the scripts. I even have now background events. As it is with Lua, you can see all that I did but when you change code you are on your own – I will not have the time to support this or hold hands with the installation. This is one of the reasons why I hesitated to release this publicly.

Code from other developers used in KPCrew:

- xml2lua (<https://github.com/manoelcampos/xml2lua>) from manoelcampos to read the simbrief XML
- metar (<https://github.com/tjormola/metar>) from tjormola which I have changed slightly to embed it and improve the parsing
- weatherlib (<https://github.com/tjormola/weatherlib>) needed by metar.lua

Installation

Video Manuals

- Installation EN: <https://youtu.be/iyKS1WWdwpg>
- Installation DE: <https://youtu.be/iowFI55s-io>

Prerequisites

You need to have the freeware FlyWithLua NG plugin minimum version 2.8.x but I recommend to download the latest version. See [FlyWithLua on the Forum XP11](#) or [FlyWithLua on the Forum XP12](#)

And get yourself BetterPushback if you really are one of those that have missed out on this great tool :-)
[BetterPushback](#)

The KPCrew-x.x.x.zip File

KPCrew comes in a Zip-file and needs to be manually installed under your X-Plane-11 folder. The ZIP contains the following folders:

- kpcrew
 - aircraft --> contains aircraft specific files such as Flows or Honeycomb profiles
 - KPCrew v2.3 B738 Flows.pdf --> current flows and checklists for Zibo Mod
 - KPCREW Alpha Default.json --> a generic Honeycomb Alpha profile - works only with KPHardware
 - KPCREW Bravo Profile.json --> a generic Honeycomb Bravo profile - works only with KPHardware
 - documentation --> documentation for KPCrew
 - KPCrew Flows.xlsx --> The Flows for all supported aircraft
 - manual.md --> this manual
 - manual.pdf --> PDF version of this manual
 - modules --> files to go in the FlyWithlua module folder; all the KPCrew and aircraft modules
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 - briefings --> briefing related files and saved briefings
 - checklists --> checklist functionality
 - hardware --> hardware modules
 - honeycombAlpha.lua --> commands for Alpha Yoke
 - honeycombBravo.lua --> commands for Bravo Throttle
 - preferences --> preference related functions and saved preferences
 - procedures --> procedure related functionality
 - sop --> Standard Operating Procedures logic and aircraft modules
 - systems --> all aircraft systems and functions (also for kphardware)
 - B738 --> Zibo module
 - DFLT --> XP11 default aircraft module
 - .lua files with general logic
 - .lua
 - scripts --> files to go in the FlyWithlua module folder; the main lua script
 - kpcrew23.lua --> the main script to start KPCrew with supported aircraft
 - kphardware.lua --> if you choose to install this as well
 - readme.md --> a readme file
 - LICENSE --> the license terms

How to Install

Modules and Scripts are FlyWithLua specific folders. Find them here:

- Your X-Plane-11/12 Root Folder
 - Resources
 - plugins
 - FlyWithLua
 - scripts --> put kpcrew2.lua here (overwrite older versions)
 - modules --> put all lua files in modules folder here

Make sure that you removed any older files from previous versions of KPCrew (2, 2.1 and 1.x also called Zibocrew)

How to Uninstall

Simply remove all the above lua files from the **scripts** and **modules** folder.

X-Plane Commands

You can assign commands to buttons or keys for most of the above items:

- **kp/crew/master** = KPCrew Masterbutton
- **kp/crew/next** = KPCrew Nextbutton
- **kp/crew/prev** = KPCrew Prevbutton
- **kp/crew/flowwindow** = KPCrew Toggle Flow Window
- **kp/crew/sopwindow** = KPCrew Toggle SOP Window
- **kp/crew/openmaster** = KPCrew Open Master Window (Control window)
- **kp/crew/briefwindow** = KPCrew Toggle Briefing Window

FlyWithLua Macros

You can also perform certain actions from the FlyWithLua Macro section:

- **KPCrew Toggle Control Window** Makes control window visible when completely hidden

How does KPCrew Work?

Video Manuals

- Overview EN: https://youtu.be/0Cx_MhlDruQ
- Overview DE: <https://youtu.be/ui8vP0OSKLA>

More to follow....

Startup

Once you have installed the lua files in the correct places, next time your X-Plane starts it will also automatically start KPCrew. If you have loaded one of the supported aircraft add-ons (currently the Zibo Mod B738) you can call up the control window on the bottom right of the X-Plane window. Either use a custom key/button with command *"kp/crew/openmaster"* called *"KPCrew Open Master Window"* or find the Macro *"KPCrew Toggle Control Window"*.



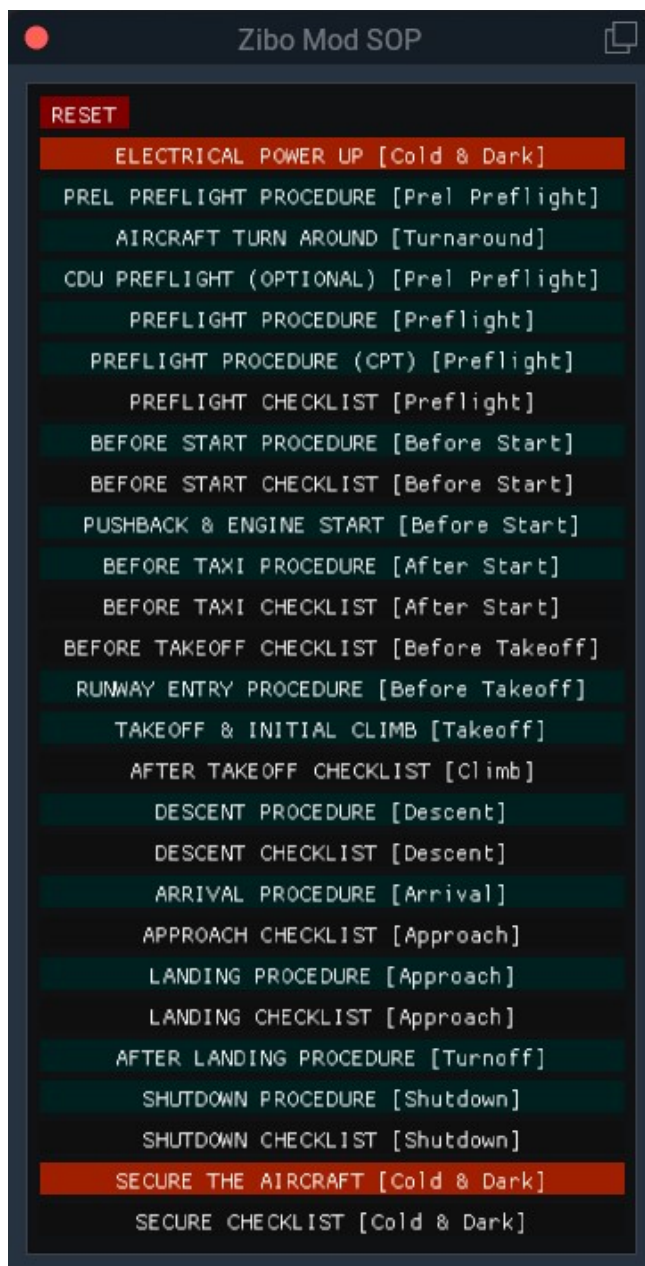
The Control Window

These are the elements of the Control Window:

- **[SOP]**: Opens the Standard Operating Procedure window with all associated flows
- **[FLOW]**: Opens the currently selected flow (Procedure or Checklist)
- **[<]**: Select previous item
- **[FLOW WINDOW]**: Information where in the flow you are and the status of the flow item. Click to execute master button.
- **[>]**: Select next item. Can also be used to skip flows and flow items
- **[RESET]**: Resets the currently selected flow
- **[BRIEF]**: Shows the flight briefing window to provide information to KPCrew
- **[PREF]**: Shows the preferences to set for KPCrew
- **[>]**: Minimize the control window (master window)

Listing and Selecting Flows

Each supported aircraft has an SOP defined which can be looked at by opening the SOP window.



By double-clicking on a line, you select the respective flow. It should show in the control window. You can also use the [←] and [→] button in the control window to move through flows. Red means the flow selected or the cursor over it, green means the flow was executed in an automatic mode and is finished. Dark green background mark procedures, black background are checklists. There are slightly different rules with checklists and procedures.

The Flow Window

Each procedure or Checklist can be displayed in the Flow Window.



```

ELECTRICAL POWER UP

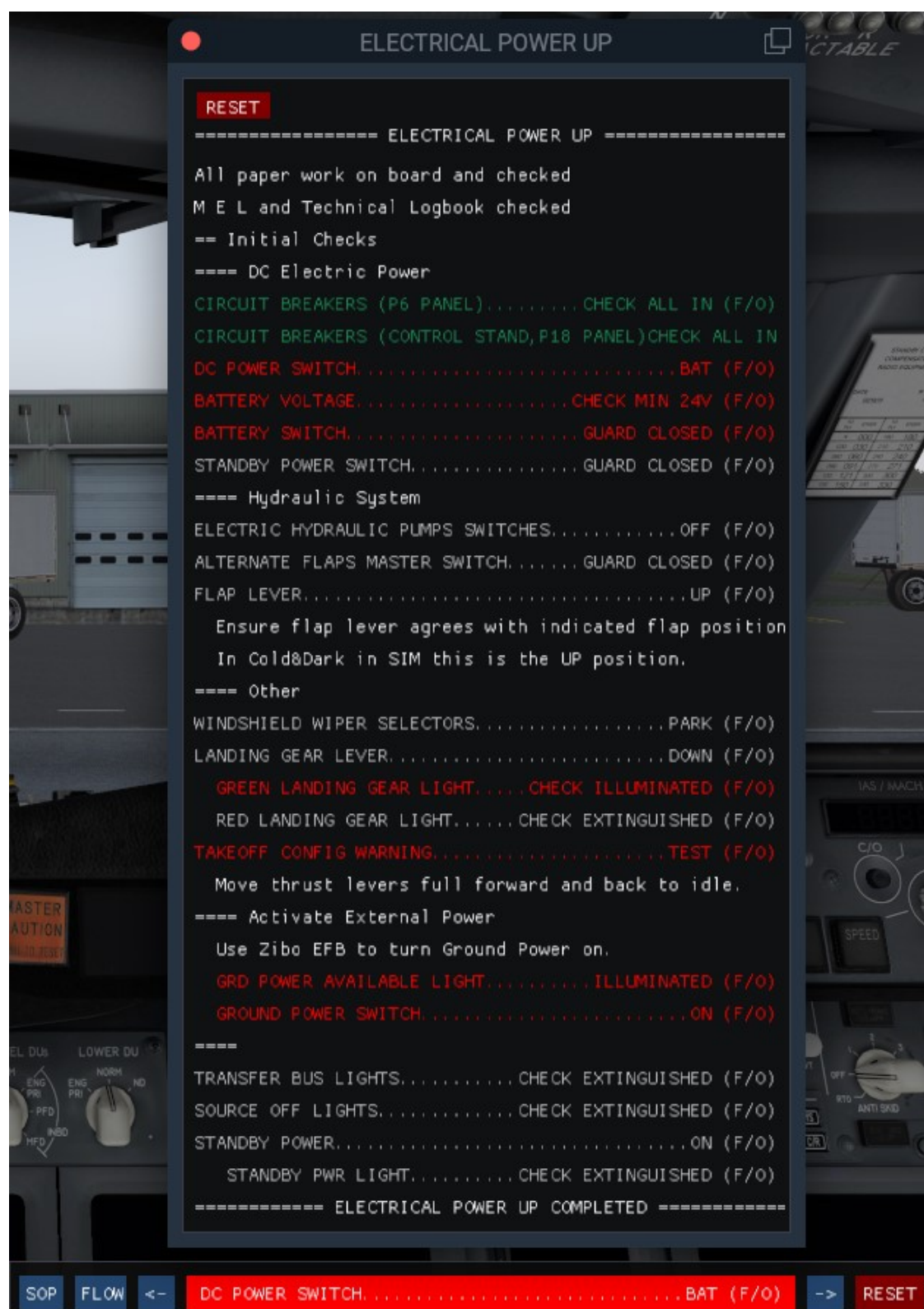
RESET

===== ELECTRICAL POWER UP =====

All paper work on board and checked
M E L and Technical Logbook checked
== Initial Checks
---- DC Electric Power
CIRCUIT BREAKERS (P6 PANEL).....CHECK ALL IN (F/O)
CIRCUIT BREAKERS (CONTROL STAND,P18 PANEL)CHECK ALL IN
DC POWER SWITCH.....BAT (F/O)
BATTERY VOLTAGE.....CHECK MIN 24V (F/O)
BATTERY SWITCH.....GUARD CLOSED (F/O)
STANDBY POWER SWITCH.....GUARD CLOSED (F/O)
---- Hydraulic System
ELECTRIC HYDRAULIC PUMPS SWITCHES.....OFF (F/O)
ALTERNATE FLAPS MASTER SWITCH.....GUARD CLOSED (F/O)
FLAP LEVER.....UP (F/O)
  Ensure flap lever agrees with indicated flap position
  In Cold&Dark in SIM this is the UP position.
---- Other
WINDSHIELD WIPER SELECTORS.....PARK (F/O)
LANDING GEAR LEVER.....DOWN (F/O)
  GREEN LANDING GEAR LIGHT.....CHECK ILLUMINATED (F/O)
  RED LANDING GEAR LIGHT.....CHECK EXTINGUISHED (F/O)
  TAKEOFF CONFIG WARNING.....TEST (F/O)
  Move thrust levers full forward and back to idle.
---- Activate External Power
  Use Zibo EFB to turn Ground Power on.
  GRD POWER AVAILABLE LIGHT.....ILLUMINATED (F/O)
  GROUND POWER SWITCH.....ON (F/O)
=====
TRANSFER BUS LIGHTS.....CHECK EXTINGUISHED (F/O)
SOURCE OFF LIGHTS.....CHECK EXTINGUISHED (F/O)
STANDBY POWER.....ON (F/O)
  STANDBY PWR LIGHT.....CHECK EXTINGUISHED (F/O)
===== ELECTRICAL POWER UP COMPLETED =====

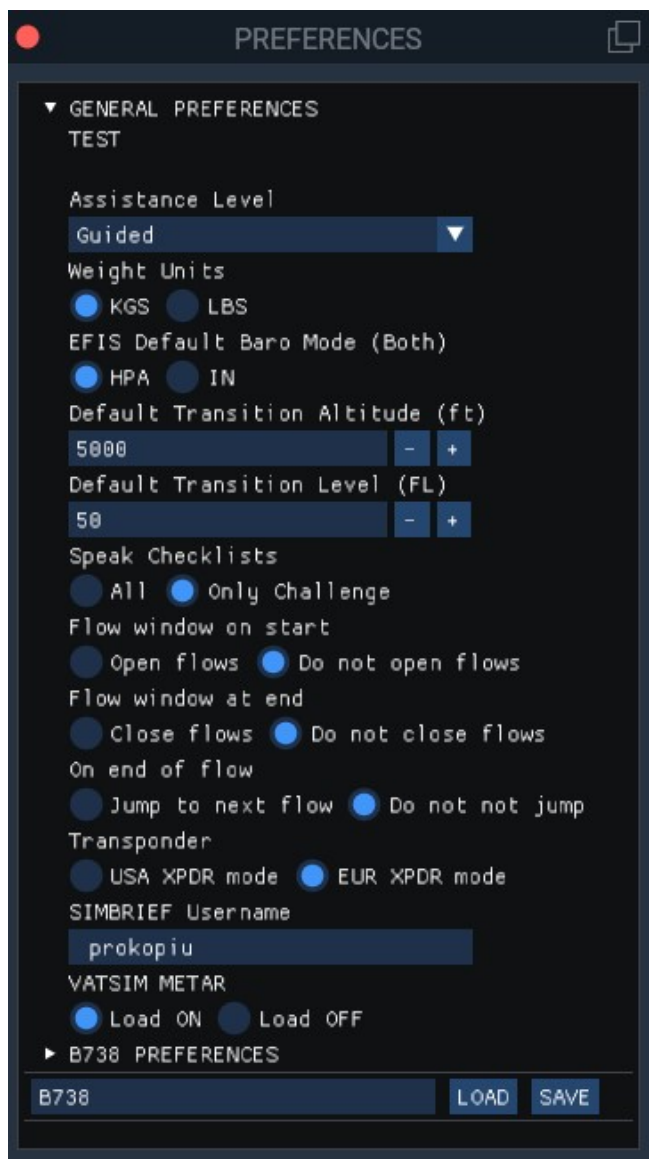
```

When opened for the first time in a session, you can immediately see which items are ok and which items you need to check/attend to. The open items are in RED. All the other lines in white. White lines are comments/instructions or anything not part of an automated flow. If you use any of the automated modes and let a procedure/checklist be run, all correct items will be colored green when executed. Outstanding items are grey or red. Incorrect items stay red and the flow will stop. In this example DC POWER SWITCH is the next item to attend to and it is not correctly set. You can reset the displayed flow by pressing on the RESET button. The flow can then be restarted again.



Preferences Window

You can set a number of KPCrew preferences which will apply to all aircraft modules and some aircraft specific preferences which depend on the selected aircraft. For this you can open the PREFERENCES window:



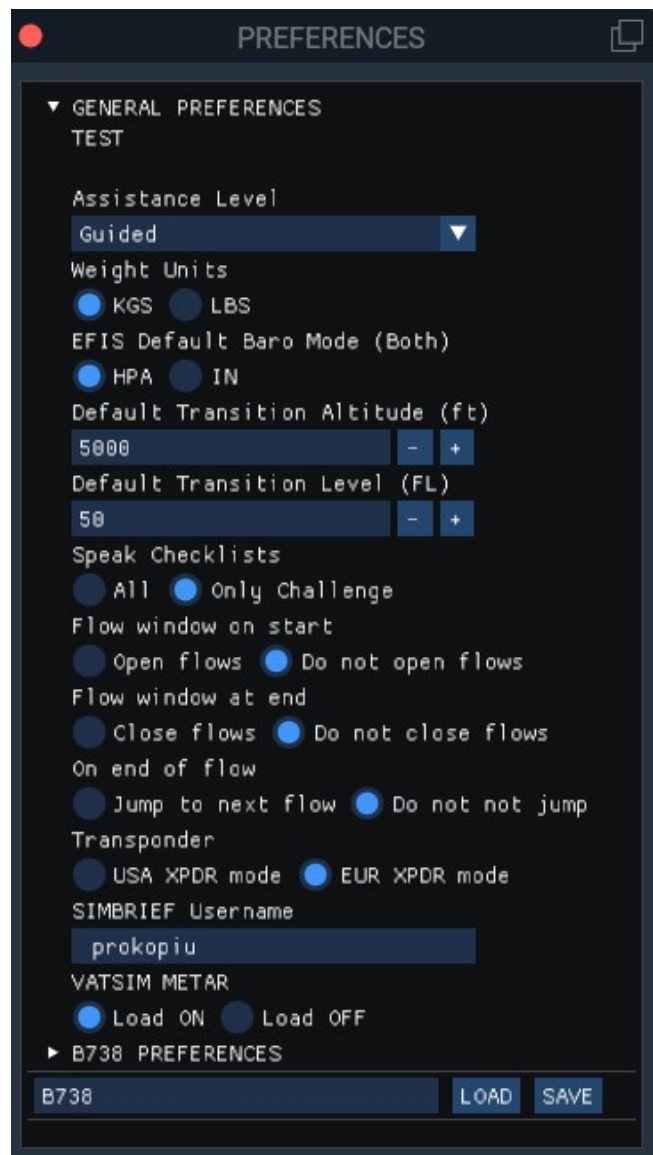
The **GENERAL PREFERENCES** section applies to the application in general, Below you will see a **ICAO PREFERENCES** which covers the selected aircraft. Click on it to open.

Since Markdown accepts plain HTML and CSS, simply add this line wherever you want to force page break.

Preferences

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GENERAL PREFERENCES

- **Assistance Level:** [No assistance][Guided][Some automation][Fully automatic]
 - **No assistance:** To execute on a flow will only open the flow window and show the procedure/checklist with all open items in red, otherwise in grey.
 - **Guided:** When starting the flow with the Master button, it will go through all items and stop at red ones waiting for you to fix the item. You can skip it with the Next button [->].
 - **Some automation:** When starting the flow with the Master button, it will go through all items and execute logic (if available) if it is not one of your tasks (your role being CPT, PF,...). Items that are your

responsibility still need to be fixed by yourself.

- **Fully automatic:** When starting the flow with the Master button, it will go through all items and execute logic (if available). Ideally you will not have to intervene in this mode and can concentrate on other things. Note, checklists still need your intervention - the other role speaks the challenge and you have to check and answer.
- **Weight Units:** [KGS / LBS] Displays and treats all weights either as KG or LBS
- **EFIS Default Baro Mode(Both):** [HPA / IN] Sets the default mode on the EFIS to either HPA (mb) or IN (inchHg)
- **Default Transition Altitude (ft):** Set the transition altitude default. Use the TALT of the region your are flying in mostly
- **Default Transition Level (FL):** Set the transition level default. Use the TLVL of the region your are flying in mostly
- **Speak Checklists:** (deprecated) Speak either all sides of the checklist (will be disabled in next release) or only challenge.
- **Flow window on start:** When you start a flow with the master button you can force the Flow window to open. Default is not to open windows.
- **Flow window at end:** At the end of a flow you can automatically close the Flow window or leave it open to deal with it yourself.
- **On end of Flow:** At the end of a flow you can jump to the next flow to avoid you having to call up each flow manually. If you want to be in control then use *Do not jump option*.
- **Transponder:** In USA mode it will turn on the transponder at beginning of taxi and at the end with shutdown mode. In EUR mode it will turn on XDPR when entering runway and when exiting the runway in cleanup mode.
- **SIMBRIEF Username:** enter your username so that KPCrew can pull your latest filed OFP
- **VATSIM METAR:** When you turn Load ON then KPCrew will load the VATSIM METARs from airports in your flight briefing every couple of minutes. If you turn this option off KPCrew will generate some METAR based on the local weather. When you have Real Weather Download on in X-Plane, it wil lonly display the local METAR for your origin. Otherwise the same METAR applies to destination and alternate airport.