

16 Feb 2020

## **LINDA 3.1.x - INSTALLATION INSTRUCTIONS AND NOTES**

LINDA 3.1.x provides Flight Simmers an easy and convenient way of supporting a wide variety of joystick devices, VRInsight Combo panels and aircraft add-ons with sophisticated functions in the easy to learn LUA programming language.

**This version is compatible with FSX, FSX-SE and P3Dv3.4 (32-bit) and P3Dv4 (64-bit) using registered version of FSUIPC4 and FSUIPC5 respectively.**

**THE MINIMUM VERSION OF FSUIPC HAS BEEN CHANGED TO THE LATEST VERSION. ENSURE THAT YOU HAVE AT LEAST FSUIPC4 4.974 OR FSUIPC5 5.153 INSTALLED. LINDA WILL NOT RUN OTHERWISE.**

LINDA provides full compatibility with all variants of the VRInsight Combo panel: the original MCP1, the Combo II MPC (Boeing) and Combo FCU (Airbus).

This version supersedes all previous versions and incorporates a number of detailed changes to improve its operation and stability. Many of these changes are under the bonnet in the GUI designed to support LINDA module developers. Other changes have been added to fix annoying anomalies or to handle new user hardware. See notes below for full list.

These notes cover the installation and key changes of LINDA 3.10 (Build 842).

All bug and issues should be reported on the project thread on the **LINDA Support sub-forum**.

### **Backup**

**BEFORE INSTALLING THIS VERSION YOU SHOULD BACKUP YOUR COMPLETE CURRENT LINDA AND FSUIPC INSTALLATION. BACKUP THE COMPLETE MODULES FOLDER FROM YOUR MAIN FSX/FSX-SE/P3D FOLDER.**

**NO RESPONSIBILITY OR LIABILITY CAN BE TAKEN FOR ADVERSE AFFECTS ON YOUR INSTALLATION.**

**This release contains functionality to carry out backup and installation automatically. However, a manual installation is required if you are currently using 2.8.x or earlier.**

### **Installation**

Un-zip the folder and copy the \Modules and \Sound folders into your main Flight Simulator folder (ie. c:/FSX/). Answer Yes to all overwrite requests and tick the apply to all boxes.

Separate installs are required for each Flt Sim you are using. Also ensure that you run the correct installed LINDA for the Flt Sim you are using.

**If you carried out a full delete, copy your backup aircraft modules and configurations into the new folders. You will need to restore the contents of \linda\aircrafts and \linda-cfg\aircrafts. Additionally, you should restore a copy of the file config-hid.lua from \linda-cfg\system\. This is essential to ensure that all previously used joystick devices are properly recorded and no error appear in the logs.**

**IMPORTANT:** In order to avoid conflicts you should only have ONE aircrafts folder in folders \linda-cfg\aircrafts and \linda\aircrafts containing 'Aerosoft Airbus' in its name. Any older folders should be renamed to 'OLDAirbus ...'.

You must have also installed the VRInsight software and drivers for the correct operation of the VRInsight Combo 2 Boeing or Airbus FCU from [http://vrinsight.com/devel\\_shot/](http://vrinsight.com/devel_shot/) under the link

“Install Base Package VRiSim”. However, once installed you **should not** run the VRiSim software at the same time as LINDA.

## Key Changes

The following key changes have been made to the LINDA GUI and core functionality:

- Fixes to Fault Diagnosis Mode (on Maintenance page) [3.1.1].
- Fixes to Splash Screen closure error [3.1.1].
- Fixes to Edit Aircraft Module [3.1.1].
- Internal GUI changes [3.1.0].
- Added Fault Diagnosis Mode [3.1.0].
- Improved module selection [3.1.0].

See Annex C for details of previous changes.

## Notes on Core Features

A number of changes have been made to the core LINDA EXE and LUA files:

### Fault Diagnosis Mode

LINDA provides detailed error logging to aid fault diagnosis when problems are reported. An automated Fault Diagnosis Mode has been added to ensure that full detailed (VERBOSE) logging is switched on.

When reporting problems click on the *Maintenance* link on the main LINDA GUI page and click *Turn ON Fault Diagnosis Mode*. Copy the resulting FSUIPC.LOG file and email to LINDA@awginfosys.net.

Turn off the Fault Diagnosis Mode when no longer required.

### Improved Module Selection

An improved module selection method has been added to allow more accurate discrimination between different loaded aircraft. This can be used in the Edit Aircraft Module form.

Two new tags (\* = asterisk and # = hash/pound) can be used to ‘and’ and ‘not’ parts of the search string in Aircraft Search String. For example, “PMDG 737\*NGX#NGXu allows LINDA to reference the PMDG 737 NGX but exclude the NGXu variants.

### Joystick HAT Handle

A fix was required to correctly handle Joystick HAT changes. The HAT is the thumb operated control normally used to change the point of view (POV) or for trimming. The POV can be assigned in FSX/P3D options or in FSUIPC axis assignment (Pan View). LINDA can also be used to assign functions to the 4- or 8-positions. The positions are highlighted as lines H1 to H8 where H1 is up (N), H3 is right (E), H5 is down (S) and H7 is left (W). The even numbers are the intermediate position (NE, SE, SW, NW). If discrete functions (ie. elevator trim) are being assigned, it is recommended that only the odd (N/E/S/W) positions are used and the even (NE/SE/SW/NW) positions are left unassigned/empty.

Note: For CH HATs there is an issue with the operation of position H8 (NW) where the position is not recognised by LINDA and cannot be used.

## **Combined 32-bit and 64-bit Compatibility**

LINDA is now compatible with 32-bit FSX, FSX-SE and P3Dv3.4 and 64-bit P3Dv4 flight simulators using the latest versions of FSUIPC4 or FSUIPC5 (fully registered) respectively.

LINDA will detect the version of Flight Simulator in use and configure itself automatically.

Users wishing to keep their existing aircrafts and joystick configurations will need to copy the /linda and /linda-cfg folders from the existing 32-bit flight simulator /modules folder to the new installation. Users should note that only updated those add-on aircraft updated for P3Dv4 should be used.

## **Full Saitek Panel Integration**

Support and handling of Saitek Panels is now provided within the LINDA GUI to provide more responsive operation and use.

***The Saitek Radio and Multi Panels only work with the default aircraft. Additionally, code and functions will be required to work with more sophisticated aircraft like the Aerosoft Airbus and PMDG 737/777/747. These will be issued as updates to LINDA aircraft modules in due course.***

The new functionality requires the user to tick the Saitek Panels checkbox on the Setup LINDA page. Also user need to disable the Radio and Multi Panels on the Setup Joystick page.

The switches for the Saitek Switch Panel should be programmed as required. The On and Off functions needs to be assigned to the OnPress and OnRelease actions respectively.

On starting or restarting LINDA, there is a need to operate at least one button/switch on each panel for their current state to be recognised. To prompt the user, the Switch Panel Gear Lights with flash green/red, the Multi Panel AP lights will cycle and Radio Panel will display dashes. These warnings will disappear when a button in operated.

Users wishing to used Spad or SpadNXT to control their Saitek panels need to untick the Saitek Panels checkbox (on Setup LINDA page) AND disable each panel on the Setup Joysticks page by unticking the checkbox.

## **AircraftTimer10Hz() Function**

A new timer function can be added to the aircraft user.lua file to add functionality called at 10Hz. This can, for example, be used to synchronise the Saitek panel inputs for sophisticated aircraft.

## **Restart Lua Engine Hotkey**

Pressing the keys CTRL+ALT+R allows the user to restart the Lua Engine from the keyboard. This may not work with P3Dv4/Win10.

## **Automatic Installation, Backup and Restore Functionality**

A new Maintenance page has been added providing access with functionality to automatically install new LINDA core software releases and Aircraft Modules and to Backup and Restore the entire \modules folder.

Full instructions are provided at Annex A.

## **Configuration Backup**

All HID and MCP configuration files (config-hid and config-mcpX) are now moved and saved to a folder BACKUP in the aircraft configuration folder (/linda-cfg/aircrafts/{your aircraft}/).

## **Editing User Aircraft Functions**

Users can now directly access the user and main functions for the current aircraft by clicking on Edit (top row left) and clicking Edit User or Edit Actions to open user.lua or actions.lua in the LINDA Editor. It is strongly recommended that user only use the user.lua for their own functions. Any function with the same name will override those in the actions.lua.

## **Frame Rate and Available Virtual Address Space (VAS)**

A new option has been added for VRInsight Combo MCP Boeing and Airbus panel users to display the current Frame Rate and available Virtual Address Space (VAS) on the radio display (top right). This can be turned on/off by ticking/unticking the checkbox on the Setup LINDA page.

There are 3 functions in the LIB: Special Functions library to allow the user to turn this display on or off by assigning to a joystick button (FSVAS\_on, FSVAS\_off and FSVAS\_toggle).

Due to the enormous size of the available memory in P3Dv4 under 64-bit, no VAS is displayed.

## **Combo MCP Boeing and Airbus - LAMP Button**

The VRInsight Combo LAMP button has been moved to USER block from the RADIO block for Boeing and Airbus panels. This means that the LAMP assignment can be made in all 3 modes. One effect of this change is that previous assignment like Lights\_Default\_Panel may be lost when an aircraft is first selected. The user will need to re-assign the desired function for each mode.

## **Configuration Files**

The standard installation will not overwrite your existing VRInsight Combo MCP panel and HID configuration files (config-mcp\*.lua and config-hid.lua respectively) or your LINDA system setup options.

If the config-mcp\*.lua files are missing they will be created automatically using .default files issued with the aircraft module. The config-mcpX.default files contains the basic configuration of functions for the aircraft in use and the Combo MCP in use. These basic assignments may not suit all users. If the .default files are not present, LINDA will create them from basic templates.

The config-hid.lua files are created for the user's own joysticks and devices. It is for the user to make their own assignments for these devices to suit personal need. It is important that these are created for the FSX Default aircraft and each aircraft in use. Otherwise errors may be reported. Go to the Joystick page and make at least one assignment (ie. zoom in/out) on at least one device.

A user.lua for each add-on aircraft allows users to modify existing or add new functions to their setup. The aim is to avoid changing the aircraft specific and common function files and allow easy update in future. See User Functions below.

Additionally, a config-user.lua file has been added which defines a range of parameters which will enable the aircraft state to be saved automatically when the conditions are met. For example, when the aircraft is shutdown. See Autosaving Flights below.

## **VRInsight Combo Panel Setup**

Start FSX and LINDA.

Select 'Setup MCP Combo'. Under 'MCP Combo settings' tick Enabled, select the appropriate MCP Combo (MCP1 - Original, MCP2 - Boeing MCP and MCP2a - Airbus FCU Airbus) in the Type field and the COM Port is set to your com port (usually COM 3). Then click SAVE. Make sure that the VRinsight MCP Combo is connected to LINDA (ie. Device enabled, COM Port assigned and

FSUIPC setup done). Normally, the Panel can be found on COM3 (check Windows Device Manager if not). After setting the MCP type, close and re-open FSX and LINDA.

## **FSUIPC Program Shutdown Options**

When setting the option to start LINDA automatically with your Flight Simulator (FSX, FSX-SE or Prepar3D), you will be offered the option of setting how closing the Flight Simulator will affect LINDA. You can opt to close LINDA normally (CLOSE), immediately stop LINDA processing (KILL) or leave LINDA running. The CLOSE option is recommend as it ensures LINDA saves its configurations on closing. In some cases LINDA may generate an error on exit, this only occurs after all processing complete but you may wish to set the KILL option. This option automatically writes the correct entry into the fsuipc4.ini file and can be reset by deselecting and reselecting the LINDA Starts with Fit Sim checkbox in LINDA Setup.

## **User Functions**

User module functions are now accessible from the button/knob assignment popup menu. User-written functions should be placed in either `\modules\linda\aircrafts\{your aircraft}\user.lua` or `\modules\linda\libs\lib-user.lua`. These functions apply to individual aircraft or all aircraft respectively. Functions can use unique names or those of existing functions which will override (replace) the existing ones. Users are recommended not to modify the core LUA files directly because these will be overwritten when the next LINDA version is installed.

## **System HID Configuration**

Users with many Joysticks/HID devices should have all plugged when first starting LINDA. Otherwise, errors may be reported in the Console log and prevent correct operation. A new check and on-screen is displayed if unrecognised devices are found in the selected aircraft configuration. You need to copy your backup copy of the system HID configuration file (`config-hid.lua`) from `\modules\system\` folder to the new one. Alternatively, you need to edit the file to remove the conflicting device blocks.

## **Runaway Repeating Button Functions**

A number of fixes have been added to prevent runaway repeating buttons pushes that occur where users use the SHIFT function for operations like elevator trim. Problems can still occur with the Saitek Multi Panel trim wheel but these are automatically trapped. A new function *ClearRepeatingButtons* is available in the Library *Default FSX* under *System Functions* should the problem persist.

## **Splash Screen**

A new LINDA splash screen has been added. Users can deselect this in the LINDA Setup page.

## **Uniquely Identifying Multiple HIDs of Same Type**

Many users are using USB interface cards to build their own cockpits. Although LINDA could identify multiple cards of the same type, if these were to become unplugged the assignments made could be misallocated to the wrong card. LINDA now uses the serial number allocated to these cards (like the Leo Bodnar USB cards) to uniquely identify the cards so that the assignment remain consistent if unplugged and reconnected. The serial number is displayed in the Setup Joystick page.

## **Enable/Disable Joystick Buttons**

The buttons on a connected joystick HID device can now be disabled by unticking the checkbox on the Setup Joystick page.

## Dynamic Devices Connection/Disconnection

A facility to allow the limited dynamic connection and disconnection of HID Devices/joysticks has been added. This switchable function avoids the display of the popup warning dialog when USB devices are added or removed from your system. The mode can be switched on by ticking the Dynamic HID box on the Setup LINDA page.

This change is aimed at those users with USB keyboard switches and similar devices that repeatedly connect/disconnect during a flight. It will also allow joysticks to be removed or added. However, certain devices will not reconnect and operate correct following their or other device removal (notably the Saitek Throttle Quadrant is affected in this way).

***Users are strongly recommended not to regularly connect/disconnect joysticks during a flight. Should a device adversely affect operations then LINDA should be restarted.***

## Global and Local Multiple Shift

The multiple shift function has been extended to apply globally across all HID devices/joysticks as well as locally. The shifted functions are assigned on pages controlled by radio buttons at the bottom of the Joysticks page.

This is aimed at owner's of the CH Eclipse Yoke and Saitek Yoke with a mode switch. These consist of a 3 position switch that appears as 3 buttons which can be assigned to UNSHIFTED, SHIFTED\_ONE and SHIFTED\_TWO. A confirm beep will sound when selecting SHIFTED\_ONE and SHIFTED\_TWO and a double beep on return to UNSHIFTED. *The Apply Shift Globally must be ticked and LINDA restarted for all devices to be shifted.*

A SHIFT\_CYCLE option is provided for users who wish to use the global shift by pressing a single button to cycle through the 3 shifted modes. Note there is no visual feedback so users will need to manually check the current shifted state.

For functions that are required at all times (eg. trim, view), these must be assigned on all shift pages to be available at all times.

***Note: Saitek Pro Flight Yoke users may find that the Mode Switch (right-hand front top selector switch) is not visible to LINDA due to problem with Saitek driver software. To solve this issue go to ..Windows\System32 and search for SaiD0BAC.pr0 and rename it SaiD0BAC.pr0.off.***

## Global and Local Shift

The normal single Global and Local shifts have been modified to ensure correct operation.

Global Shift is a latching mode with a one push required to activate it and one to cancel. If the user wishes it to only be in shift mode while a trigger or button is held pressed, the GLOBAL SHIFT must be assigned to both OnPress and OnRelease.

Local Shift is non latching and will only operate while the trigger or button is held pressed.

## Saving 2D Window Positions and Hiding Windows Titles

The use of HotKeys to save the position of FSX 3D windows (such as Airbus MCDU) has been reintroduced. The following key combinations are available:

- CTRL+SHIFT+ALT+F1 - saves the positions and sizes of 2D panels that have been opened in a separate (detached) windows and moved to a new location or screen. The next time the 2d

Panel is detached or Windows is opened, it will be placed in the saved position. This is aircraft specific with the positions and sizes saved in \linda-cfg\linda-gui.ini.

- CTRL+SHIFT+ALT+F2 - removes the FSX top title bar similar to full screen mode but with windows features (ie. resize). Caution: this function also hides FSX menu. Right-click on main window to unhide titles.
- CTRL+SHIFT+ALT+F3 - hides the Windows frame and titles of all detached panels and views. Caution: this function also hides FSX menu. Right-click on main window to unhide titles and menus. It can also blank open 2D windows.

## List of Current Aircraft Modules and Assignments

Three types of report can be generated for the selected aircraft detailing the functions contained in the currently selected Aircraft module and the button/knob assignments to the HID/Joysticks and VRInsight MCP panels. The List Functions report is generated by clicking on the label of the same name on the Settings/Summary page. The HID and MCP assignments reports are generated by clicking on the appropriate buttons under the respective Setup pages. The resulting text files can be found in the Aircraft folder located in \FSX\Modules\linda\aircraft\{current aircraft}\{current aircraft}-Functions.txt.

## Autosaving Flights

The facility has been added to allow the Autosaving of flights when certain conditions are met.

A new user configuration file (\linda-cfg\system\config-user.lua) has been added where constants can be set to enable Autosave and set up to 5 conditions that need to be met for the aircraft state to be saved. The parameters and triggers that can be set by the user for each aircraft are:

AUTOSAVE_ENABLE	Set to 1 to enable Autosave, 0 to disable.
AUTOSAVE_DEFAULT_FLIGHT	Set to 1 to force LINDA to save the flight as a default (named “_linda_default”) so that it will load in the same place when the Flt Sim is restart. <b>Note:</b> This is not recommended for sophisticated aircraft like Aerosoft Airbus or PMDG 737NGX where the developer recommends starting with a default FSX aircraft.
AUTOSAVE_PLANE_FLIGHT	Set to 1 to force LINDA to save the aircraft as a default (named “_linda_lastpos_AircraftID”) so that it will load in the same place and state when the Flt Sim is restart. <b>Note:</b> This is not recommended for sophisticated aircraft like Aerosoft Airbus or PMDG 737NGX where the developer recommends starting with a default FSX aircraft.
AUTOSAVE_EACH_AIRFIELD	Set to 1 to force LINDA to save separate files for each airport (logfile mode)
AUTOSAVE_ENGINE_CHECK	Set to 1 to trigger the autosave action when the engines are set to off.
AUTOSAVE_MAGNETO_CHECK	Set to 1 to trigger the autosave action when the magnetos are set to off.
AUTOSAVE_BATTERY_CHECK	Set to 1 to trigger the autosave action when the battery is set

to off.

AUTOSAVE\_LIGHT\_CHECK Set to 1 to trigger the autosave action when the lights are set to off.

AUTOSAVE\_PARKING\_CHECK Set to 1 to trigger the autosave action when the parking brake is applied.

These settings can be overridden for specific aircraft by copying the config-user.lua to the corresponding aircraft's configs folder (ie. FSX\modules\linda-cfg\aircrafts\Cessna 172\config/user.lua). A blank template file can be found at FSX\modules\linda\templates\users. If no user configuration file is present for the loaded aircraft one will be generated from the templates folder.

Functions for SaveFlight and SaveDefaultFlight are available in FSX Default library module.

Autosaved flights can be loaded by going to the FSX Flights/Load menu.

### **Known Issues**

When using LINDA to control the Saitek Pro Flight Panels (Switch, Radio and Multi), it is necessary to operate one switch/button on each panel prior to take off to ensure that the panel state is correctly read.

The Saitek Multi Panel alphanumeric display is blank.

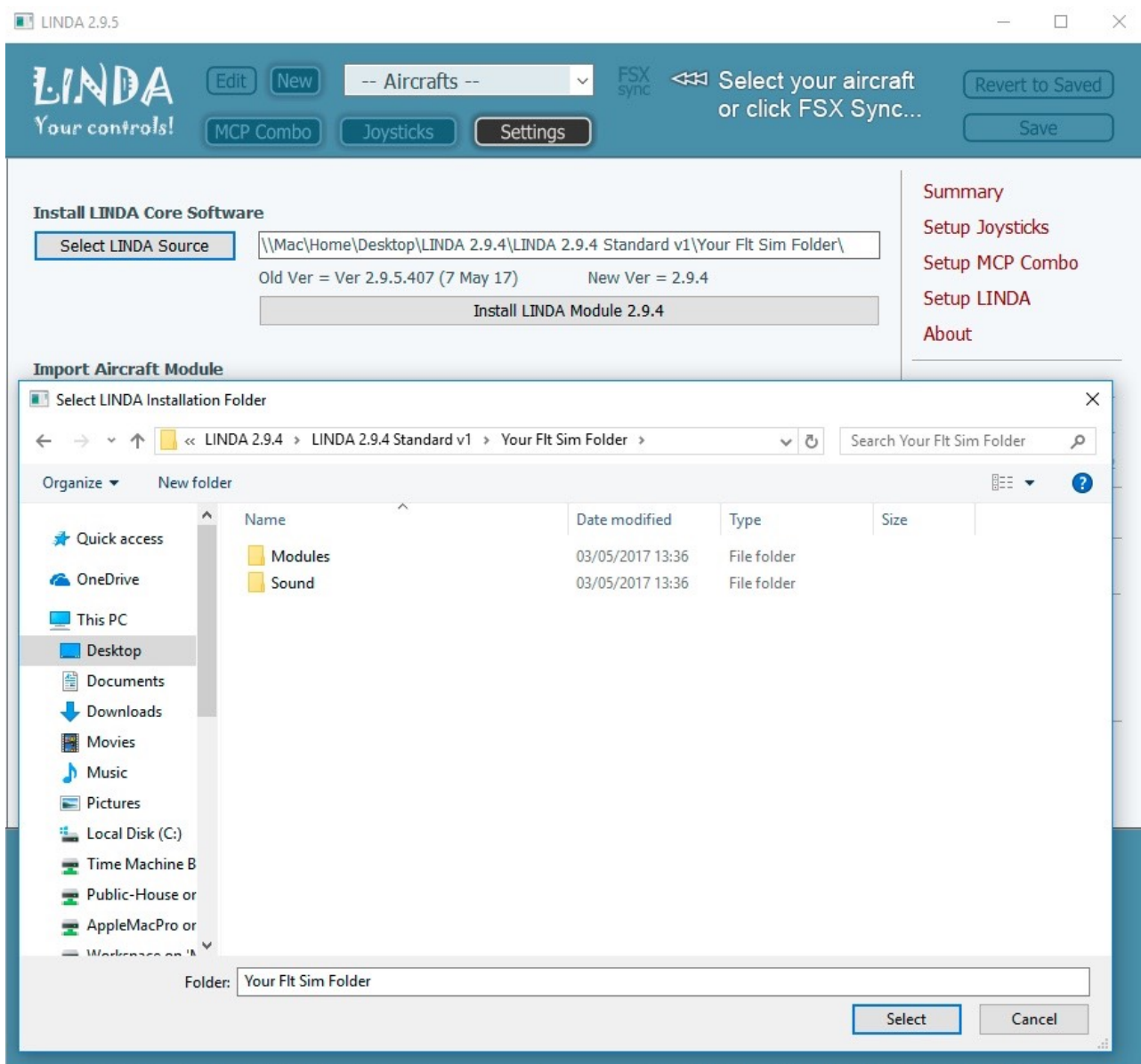
Hotkeys may not work with P3Dv4 / Win10.

### **Acknowledgements**

I fully acknowledge the excellent work done by Artem Crum, Günter Steiner and others for bringing LINDA out many years ago to support Flight Simmers. I am grateful to them for LINDA GUI and the existing Lua coding which I have freely copied and modified. I would also like to thank Leo Bodnar for the generous loan of USB cards.







## Import Aircraft Module

New and updated LINDA aircraft modules (available on the AVSIM LINDA Community Download sub-forum) can be installed automatically.

Ensure the FSXSync is turned off (no orange box) and — Aircraft — (no aircraft) is selected.

Open the **Maintenance** page and click on the **Select Source Folder** under Import Aircraft Module. This opens an Explorer window so that you can select the downloaded aircraft module folder. Locate the download aircraft module folder (eg. Aerosoft Airbus 4.4) and select. The name, version and date of the module should be displayed and the **Import Module** button enabled. If the button is not enabled, click on the **Select Source Folder** button again and drill down one further level to the folder containing **Linda** and **Linda-cfg**.

Clicking on the **Import Module** will automatically install the selected module overwriting the existing module if already installed.

## Backup/Restore Modules Folder

Before installing any new LINDA core software or aircraft modules it is strongly recommended that you make a backup of the \modules folder.

The Backup/Restore Modules Folder function will make a full copy of the \modules folder and contents including FSUIPC, LINDA, LINDA configurations and associated files.

Click on the **Select Backup Target** to define where you wish to place the backup. It is recommended that you create a new folder called **LINDA Backup** on your local or network drive. If a valid target folder is selected, the **Backup Modules Folder & LINDA** button will be enabled. Clicking on this button will create a new date/time stamped folder entitled LINDA-XXX-YYMMDDHHMM (eg. LINDA-294-1705041230) and copy the entire contents of \module folder. The XXX is the version of LINDA which created the backup.

Clicking on **Select Backup Target** button and selecting the date/time stamped backup folder (eg. LINDA-294-1705051730) will enable **the Restore Modules Folder & LINDA** button. Clicking on this button will restore the \modules folder overwriting all files except **LINDA.exe**, **LINDA2.log** and **Fonts**. You have the option to delete the existing \modules folder before restoring.

A warning is displayed requiring you to close LINDA to do the final part manually. Exit LINDA and delete the **LINDA.exe** and rename the file **LINDA\_XXX.exe** (eg. LINDA\_294.exe) to **LINDA.exe**. **This step is not required if the version of LINDA has not changed from the version backed up.**

Then start LINDA and use as normal.

## Manual Installation

LINDA can be installed manually by opening the LINDA installation folder and selecting the **modules** and **sound** folders and dragging them into your Flt Sim top level directory (eg. c:\fsx\). You then need to reply YES to all requests to overwrite the existing files.

## **ANNEX B - SAITEK RADIO PANEL AND MULTI PANEL CONFIGURATIONS**

LINDA provides support for the Saitek Panels in one of 2 ways - using LUA or GUI. The GUI implementation is more responsive.

Users wishing to use the LUA Saitek Panel implementation should use the following configurations assigned to the Saitek Radio, Multi and Switch Panels either manually or cutting-and-pasting these lines into your config-hid.lua file. Users also need to untick the Saitek Panels checkbox on the LINDA Setup page and enable all panels on the Setup Joystick page.

Users wishing to use the GUI Saitek Panel implementation should only use the Switch Panel assignments below. In this case, the Saitek Panels checkbox on the LINDA Setup page should be ticked and the Radio and Multi Panels disabled on the Setup Joystick page.

These settings can also be found in file config-hid-saitek.lua in folder /FSX/Modules/linda/aircrafts/Default FSX. Functions may be changes except for those beginning SAI\_ which can be found in the Saitek Library file (lib-saitek.lua).

```
-- ## Radio Panel ## (06A30D050) #####  
JSTK["06A30D050"][1]="SAI_RADIO1_MODE_com1"  
JSTK["06A30D050"][2]="SAI_RADIO1_MODE_com2"  
JSTK["06A30D050"][3]="SAI_RADIO1_MODE_nav1"  
JSTK["06A30D050"][4]="SAI_RADIO1_MODE_nav2"  
JSTK["06A30D050"][5]="SAI_RADIO1_MODE_adf"  
JSTK["06A30D050"][6]="SAI_RADIO1_MODE_dme"  
JSTK["06A30D050"][7]="SAI_RADIO1_MODE_xpdr"  
JSTK["06A30D050"][8]="SAI_RADIO2_MODE_com1"  
JSTK["06A30D050"][9]="SAI_RADIO2_MODE_com2"  
JSTK["06A30D050"][10]="SAI_RADIO2_MODE_nav1"  
JSTK["06A30D050"][11]="SAI_RADIO2_MODE_nav2"  
JSTK["06A30D050"][12]="SAI_RADIO2_MODE_adf"  
JSTK["06A30D050"][13]="SAI_RADIO2_MODE_dme"  
JSTK["06A30D050"][14]="SAI_RADIO2_MODE_xpdr"  
JSTK["06A30D050"][15]="SAI_RADIO1_toggle"  
JSTK["06A30D050"][16]="SAI_RADIO2_toggle"  
JSTK["06A30D050"][17]="SAI_RADIO1_kHz_inc"  
JSTK["06A30D050"][18]="SAI_RADIO1_kHz_dec"  
JSTK["06A30D050"][19]="SAI_RADIO1_MHz_inc"  
JSTK["06A30D050"][20]="SAI_RADIO1_MHz_dec"  
JSTK["06A30D050"][21]="SAI_RADIO2_kHz_inc"
```

JSTK["06A30D050"][22]="SAI\_RADIO2\_kHz\_dec"  
JSTK["06A30D050"][23]="SAI\_RADIO2\_MHz\_inc"  
JSTK["06A30D050"][24]="SAI\_RADIO2\_MHz\_dec"

-- ## Multi Panel ## (06A30D060) #####

JSTK["06A30D060"][1]="SAI\_MULTI\_MODE\_alt"  
JSTK["06A30D060"][2]="SAI\_MULTI\_MODE\_vs"  
JSTK["06A30D060"][3]="SAI\_MULTI\_MODE\_ias"  
JSTK["06A30D060"][4]="SAI\_MULTI\_MODE\_hdg"  
JSTK["06A30D060"][5]="SAI\_MULTI\_MODE\_crs"  
JSTK["06A30D060"][6]="SAI\_MULTI\_increase\_value"  
JSTK["06A30D060"][7]="SAI\_MULTI\_decrease\_value"  
JSTK["06A30D060"][8]="Autopilot\_MASTER\_toggle"  
JSTK["06A30D060"][9]="Autopilot\_HDG\_hold"  
JSTK["06A30D060"][10]="Autopilot\_NAV\_hold"  
JSTK["06A30D060"][11]="Autopilot\_AIRSPEED\_hold"  
JSTK["06A30D060"][12]="Autopilot\_ALT\_hold"  
JSTK["06A30D060"][13]="Autopilot\_VS\_hold"  
JSTK["06A30D060"][14]="Autopilot\_APR\_hold"  
JSTK["06A30D060"][15]="Autopilot\_LOC\_hold"  
JSTK["06A30D060"][16]="Autopilot\_ATHR\_arm"  
JSTK["06A30D060"][16]="Autopilot\_ATHR\_disarm"  
JSTK["06A30D060"][17]="Flaps\_decr"  
JSTK["06A30D060"][18]="Flaps\_incr"  
JSTK["06A30D060"][19]="Elevator\_Trim\_dn"  
JSTK["06A30D060"][19]="Elevator\_Trim\_dnfast"  
JSTK["06A30D060"][20]="Elevator\_Trim\_up"  
JSTK["06A30D060"][20]="Elevator\_Trim\_upfast"

```
-- ## Switch Panel ## (06A30D670) #####  
JSTK["06A30D670"][1]="Battery_on"  
JSTKrl["06A30D670"][1]="Battery_off"  
JSTK["06A30D670"][2]="Alternator_on"  
JSTKrl["06A30D670"][2]="Alternator_off"  
JSTK["06A30D670"][3]="Avionics_MASTER_on"  
JSTKrl["06A30D670"][3]="Avionics_MASTER_off"  
JSTK["06A30D670"][4]="ALL_FuelPumps_on"  
JSTKrl["06A30D670"][4]="ALL_FuelPumps_off"  
JSTK["06A30D670"][6]="Delce_PITOT_on"  
JSTKrl["06A30D670"][6]="Delce_PITOT_off"  
JSTK["06A30D670"][8]="Lights_PANEL_on"  
JSTKrl["06A30D670"][8]="Lights_PANEL_off"  
JSTK["06A30D670"][9]="Lights_BEACON_on"  
JSTKrl["06A30D670"][9]="Lights_BEACON_off"  
JSTK["06A30D670"][10]="Lights_NAV_on"  
JSTKrl["06A30D670"][10]="Lights_NAV_off"  
JSTK["06A30D670"][11]="Lights_STROBE_on"  
JSTKrl["06A30D670"][11]="Lights_STROBE_off"  
JSTK["06A30D670"][12]="Lights_TAXI_on"  
JSTKrl["06A30D670"][12]="Lights_TAXI_off"  
JSTK["06A30D670"][13]="Lights_LANDING_on"  
JSTKrl["06A30D670"][13]="Lights_LANDING_off"  
JSTK["06A30D670"][14]="Engine_stop"  
JSTK["06A30D670"][15]="ENG1_magneto_R"  
JSTK["06A30D670"][16]="ENG1_magneto_L"  
JSTK["06A30D670"][17]="ENG1_magneto_Both"  
JSTK["06A30D670"][18]="ENG1_start"  
JSTKrp["06A30D670"][18]="ENG1_start"  
JSTK["06A30D670"][19]="Gears_up"  
JSTK["06A30D670"][20]="Gears_down"
```

## **ANNEX C - PREVIOUS CHANGES**

- Fixed issue with Rotorcraft not appearing in New Aircraft Module list [3.0.12].
- Added Default Baro Reference setting (inHg/hPa) [3.0.11].
- Added New GSX (GSX-lib.lua) v.12 [3.0.10].
- Fixed LUA version number to 3.0.9 [3.0.9].
- Fixed issue with sounds function [3.0.8].
- Fixed issue with hotkeys [3.0.8].
- Fixed new Aircraft Module available aircraft searching [3.0.8].
- Fixed issue with identifying aircraft add-ons [3.0.8].
- Added extra device logging [3.0.8]
- Added Sounds function with ability to locate .wav files [3.0.7].
- Added additional Sounds function that direct where to find .wav is found. [3.0.6].
- Updated oldest FSUIPC version required (ensure 4.972 or 5.122 installed). [3.0.5]
- Added prompt for Sync To Sim in LINDA Summary. [3.0.5]
- Changes to Edit/New Aircraft Module to engage Sync to Sim on exit. [3.0.5]
- Change to un-pause Console of LINDA Restart. [3.0.5]
- Fix to Default Fuel Pump Switch operation (lib-fallback.lua). [3.0.5]
- Added aircraft name and LINDA version to config-xxx.lua files. [3.0.5]
- Fix to ensure only valid MCP knob fast functions automatically assigned. [3.0.5]
- Fix to error initialising new P3Dv4 add-on location aircraft like FSLabs A320X and A2A [3.0.4].
- Changed handling of Saitek Panels between GUI and LUA to remove possible duplication [3.0.4].
- Fix to correctly handle Joystick HAT changes [3.0.3].
- Changed FSXSync to Sync to Sim to reflect common use of P3D [3.0.3].
- Fixed issue with Install LINDA Core software not displaying the new version number [3.0.3].
- Fix to Not Enough Timers Available error message on closing LINDA [3.0.2].
- Added compatibility for operation with P3Dv4 (64-bit) and FSUIPC5 (64-bit). Requires latest beta version of FSUIPC5 5.103j or later [3.0.1].
- Added Full Saitek Panel support and handling within LINDA GUI [3.0.1].
- Added AircraftTimer10Hz() function (if present in aircraft user.lua) for synchronizing Saitek panels with non-standard aircraft [3.0.1].
- Added visible prompts to Saitek Panels to remind user to active panel on start up [3.0.1].
- Fix to Import LINDA aircraft module to correctly handle regional settings using comma decimal points [3.0.1].
- Fix to stop module instances of LINDA running [3.0.1].

- Fix to Tracer Add Watch and Delete Offset favourites [3.0.1].
- Added dividers to Library pop up menus [3.0.1].
- Changes to internal timers to improve overall performance [3.0.1].
- Added hot key to Restart Lua Engine from the keyboard (uses Ctrl+Alt+R) [3.0.1].
- Fixed issue with Hot Key for bringing LINDA to front not saving [3.0.1].
- Fixed problem with Console opening on start up [3.0.1].
- Fixed issue with not locating correct FSUIPC files [3.0.1].
- Fixed search issue with Editor [3.0.1].
- Fixed issue with AP data synchronisation with MCP2a panels [3.0.1].
- Fixed error with Saitek Multi Panel Elevator Trim down [3.0.1].
- Fixed issue with Editor [3.0.1].
- Fixed issue with Tracer mode - LVar/Offset watches restart when in Verbose or Debug mode [3.0.1].
- Fixed Invalid Argument error stopping LUA restart [3.0.1].
- Added P3Dv4 Add-on search for aircraft to New Module listing [3.0.1].
- Fixed failure to go to sub-block title in Editor [3.0.1].
- Fix to Import LINDA aircraft module to correctly handle regional settings using comma decimal points [2.9.6].
- Fix to Install LINDA Software when selected directory can not be accessed [2.9.6].
- Fix to Create LINDA Aircraft Module code (developer) [2.9.6].
- Added Hotkey (CTRL+ALT+R) to Restart Lua Engine [2.9.6].
- Fix to Saitek Radio Panel Radio 1 1kHz increment error [2.9.6].
- Fix to Import LINDA aircraft module when reading multiple point version numbers (ie. 1.0.3) [2.9.5].
- Updated LUA file version numbers and MCP version number display [2.9.5].
- Fix to missing application icon [2.9.5].
- Added option to create VRInsight MCP Combo configurations for Airbus from Boeing variant (2.9.4).
- Rework of internal VRInsight MCP Combo configurations management (2.9.4).
- Fix to creation of VRInsight MCP Combo configuration creation from .default and templates (2.9.4).
- Fix to resizing of GUI form when used on screens less than 840 pixels height (2.9.4).
- Fix to hide commented out functions from various menus and Edito (2.9.4).
- Added reload of LUA engine when starting LINDA GUI (2.9.4).
- Added test display and blanking of Saitek Radio and Multi Panels on closing LINDA GUI (2.9.4).
- Fix to error when joystick HID device plugged in (Dynamic HID) (2.9.4).
- Added functionality to install new LINDA software updates (2.9.4).
- Added functionality to import and create aircraft modules (2.9.4).
- Added functionality to backup and restore /modules directory and LINDA (2.9.4).



- Fixed opening of current aircraft README.TXT file on CTRL+Click on Edit button (2.9.4).
- Added extra dividers in pop-up menus for better grouping when — \$\$ label used (2.9.4). Added option to edit aircraft user written functions (user.lua) from Edit Aircraft Module dialog. (2.9.3)
- Fix to correct error creating user.lua for selected aircraft from template. (2.9.3)
- Fix to ensure Settings page correctly displayed on start up and when no aircraft selected. (2.9.3)
- Fix to ensure FSXSync state correctly remembered. (2.9.3)
- Fix to errors and LINDA closure when FSX Default aircraft config-hid.lua file was missing. (2.9.3)
- Added separate configuration file backup folder and functionality to reduce clutter and numbers of backup files created. (2.9.3)
- Added a new page holder for maintenance operations (for future development). (2.9.3)
- Fix to setting Apply Shift Globally to all devices on restarting LINDA. (2.9.2)
- Fix to correct display of MCP Combo DME/CRS assignments after saving and remove assignment corruption. (2.9.2)
- Added Available Virtual Address Space (VAS) display on VRI Combo MCP Boeing and Airbus panels (radio display top right). Set in SetupLINDA. (2.9.1)
- New functions to switch Flt Sim Available VAS display in MCP2/MCP2a in LIB:SPECIAL (VAS\_on, VAS\_off, VAS\_toggle). (2.9.1)
- Updated LIB:Aiviasoft and EFIS presets for DOORS and EFB. (2.9.1)
- Fix to occasional display of fsuipc4.ini file not found message during start up. (2.9.1)
- Fix to reinstate MCP default configuration (config-mcpX.lua) files in aircraft folders. (2.9.1)
- Fix to MCP2 and MCP2a Radio Panel configuration functionality and presets. LAMP assignment moved from RADIOS to USER blocks and may need to be re-assigned. (2.9.1)
- Added facility to generate MCP1 and MCP2 configuration files from the loaded panel type (ie. MCP1 to MCP2 or MCP2 to MCP1). Use <CTRL>+Click on Save button. (2.9.1)
- Added user accessible Timer function (LibUserTimer1Hz()) in LIB:User allowing user to add timed functions called at 1Hz. (2.9.1)
- Fix to VRi Combo MCP Boeing and Airbus DME CRS assignments saving and execution. Required for advanced aircraft like PDMG 737NGX and Aerosoft Airbus. (2.9.1) to improve Saitek Multi Panel display update frequency including updates to VRi Combo MCP Panels (except MCP Radio display) (2.8.9).
- Fix to ensure saved Joystick assignment configuration is correctly on restarting Flt Sim (2.8.9).
- Changed and simplified Saitek Panel function names and ordering (copy from config-hid-saitek.lua required) (2.8.9).
- Fix to configuration file template operation (removes need for .default files) (2.8.9).
- Fix to clear red highlighting when changes to MCP Combo saved (2.8.9).
- Fix to ensure New Module creates user.lua file and prevents fatal termination (2.8.9).
- Fix for Saitek Panel checkbox in LINDA Setup not saving after restarting LINDA (build 446) (2.8.9).
- Fix to aircraft module Timer() calling when VRI Combo panel not used.
- Fix to FSX Sync and Joystick OnRelease on startup. FSX Sync defaults to ON if aircraft load. DSX Sync can be deselected but this also inhibits all HID (joystick) input.
- Fix to Edit Aircraft Module form to allow selected aircraft actions.lua to be opened in Editor.
- Fix to various debug reporting errors.
- Fix to ensure first button/switch operation correctly actioned.
- Fixes to VRInsight MCP Lamps not displaying correctly.

- Changes to VRInsight MCP Preset Save logic.
- Fixes for error handling device button repeats.
- Fixes to ensure correct display of Aircraft Module Information.
- Removed redundant LUA executable files (incorporated in FSUIPC4).
- Fixes accuracy of Site Multi Panel ALT display (removes rounding error).
- Fixes crash when executing function in Editor with Right Click.
- Fixes a configuration error with MCP2 panel LAMP values.
- Fixes crash when Joystick unplugged and plugged in again.
- Fixes problem with FSX Sync when changing aircraft type.
- Fixes error on shutdown caused by System Tray Icon.
- Added option to select FSUIPC4.ini [Program] entries (CLOSE, KILL or no action) in LINDA setup.
- Added confirmation beeps when using the UNSHIFTED, SHIFTED\_ONE and SHIFTED\_TWO functions.
- Added additional error checking for file access.
- Added user module functions to MCP and Joystick popup menus options.
- Added Saitek Rudder Pedals to the excluded device list.
- Changed logic of Saitek Panels checkbox in LINDA Setup to support future development. When ticked, Saitek display output is handled by LINDA GUI. When unticked, control is passed to the LINDA LUA code.
- Fixes switching between Joystick/HID devices when unsaved changes present.
- Fixes long standing fault where VRInsight MCP1 CRS knob assignments were not display after change.
- Fixes issue causing corruption of known Joystick/HID device configuration file and erroneous warning dialog.
- Fixes issue loading and saving configurations for VRInsight MCP1 (original) panels.
- Fixes issue synchronising to the current aircraft on starting LINDA.
- Fixes unnecessary and repetitive HID configuration loading from disk.
- Fixes unnecessary Joystick 'Requires Setup' indication on start up.
- Improved operating speed and start up time.
- Major internal GUI housekeeping exercise to improve reliability and supportability.
- Added ability to set Global Shifted option to operate without need to restart LINDA.
- Added extra standard alternative functions to buttons (eg. \_inc to \_incfast & \_dec to \_decfast).
- Added ability to define Debug Level and scope from Setup LINDA page (Default Standard).
- Added F3 and F4 key shortcuts to open Console lower and righthand panels.
- Added ability to assign function to Lamp button on VRInsight Combo 2 (Boeing and Airbus panels).
- Added check and warning for unrecognised Joystick/HID devices in the selected aircraft configuration file.
- Fixes issue with runaway inputs, especially trim functions assigned to OnRepeat, when using Shifted functions.
- Fixes issue with spurious (yen) characters on VRInsight MCP Combo 2 (Boeing) panel on initialisation.
- Fixes issue with displaying DME/ADF Course (CRS) label on VRInsight MCP Combo 2 (Airbus) panel.

- Fixes issue with GO Flight devices with identical serial numbers (0008 7).
- Fixes error message in cases where duplicate device serial numbers are present.
- Fixes issue with Tracer not selecting first item in selected LVars to watch.
- Fixes issue when assigning standard alternative functions to buttons (\_dn to \_dnfast).
- Fixes error opening FSUIPC Macro assignment form when no .MCRO files present.
- Fixes to Console LVars and Offset tracking display and operation.
- Fixes error when passing mouse over MCP graphic selector.
- Fixes problem of the Console autoscrolling when user inspecting earlier logs.
- Changes to Console to improve operation and flexibility.
- Changes to FSX Sync indicator and button to show correct Sync status.
- Changes to Setup LINDA page to improve user interaction.
- Fixes issue with HID Device scrolling on Joystick page when more than 10 devices connected.
- Fixes issue of multiple LINDA icons in System Tray with application restarted. Fixes the identification and operation of HID devices with long serial numbers like the Saitek Flight Instrument Panel (FIP) dials.
- Adds ability to define Saitek Panel types in Joystick Setup.
- Adds more representative HID icons displays on the Joystick page.
- Adds ability to assign standard alternative functions to buttons (eg. \_on to \_off, \_up to \_upfast, etc).
- Fixes to cancel runaway OnRepeat calls.
- Fixes missing HID icons for some new device types.
- Adds Flaps lever functions to Saitek Multi Panel default configuration (config-hid-saitek.lua).
- Added functionality to uniquely identify multiple HID's of same type with serial numbers (for Leo Bodnar USB cards).
- Added ability to enable/disable HID (joystick) device button presses. Does not affect axis.
- Added ability to disable LINDA control of Saitek ProFlight Panels (this is a beta implementation and further work is planned).
- Fix for Manual.pdf opening.
- Fix for range check errors.
- Fix for Flightdeck Solutions CDU (may affect Leo Bodnar USB cards) and HP Wireless Keyboard/Mouse.
- Fix for Aerosoft Airbus TRK/FPA display on VRInsight Combo Airbus FCU panel.
- Fix for FSUIPC4 version number display.
- Fixes to Saitek Multi, Radio and Switch Panels to improve operation with Default FSX compatible aircraft (requires cut and paste to config-hid.lua).
- Fix to ensure display output on original VRI Combo MCP1 panels.
- Fix to HID (joystick) handling to allow Joystick HATs to work correctly with OnRepeat conditions.
- Fix to prevent OnRepeat runways with Trim Wheels (Saitek Multi-Panel & CH Yokes). Should the trim runaway occur then a movement in the same sense/direction will cancel repeat function.
- Fix to activate Joystick assignments on start up without need to select Joystick page.
- Fix to system timing for Majestic DH8 Q400 aircraft and FS2Crew Voice not working correctly when used with the VRI Combo panels. Problem still remains with '1000ft to go. Alt Sel' call repeating. Target altitude must be changed to 1600ft above required height to silence call. Q400 aircraft module update 2.x.
- Fixed issue where FSX/P3D crashed on start up when VRI Combo panel not used.

- Fixed issue that caused Range Error when double clicking FSUIPC offset of type STR.
- Fixed delay in LINDA starting with non-standard HID devices.
- Fixed issue which prevented the Summary page Joysticks/HID devices box scrolling.
- Improved format of MCP assignment report.
- Fixed range check error when selecting Joystick page.
- Added dynamic connection and disconnection of devices/joysticks (switchable).
- Added Saitek Multi and Radio Panels as joysticks with display output.
- Added Multiple Shift across single or globally across all devices.
- Fixed issues with Global and Local Shift (modified operation).
- Reintroduce Hot Keys to save 2D panel positions and hide windows titles.
- Added new ATC Library to interface with FSX ATC functions.
- Fixed issue with saving and reloading of amended Joystick/Device names.
- Fixed issues with Light functions to remove unwanted interaction.
- Added option to generate list of current aircraft module functions as a text file.
- Added option to generate list of assignments made to selected aircraft HID/Joystick devices.
- Added option to generate list of assignments made to selected aircraft and VRInsight MCP panel.
- Added robust error handling for HID devices that fail to open.
- Improved error reporting when VRInsight MCP panels are not used.
- Fixed an issues with the display and programming of multi-position HAT controls.
- Fixed scroll bar issue on News Panel.
- Updated LINDA Graphical User Interface (GUI).
- LAMP button on Combo II (Boeing) can now be programmed to work with panel lights.
- Improved compatibility with the MCP1 (original) and MCP2 (Combo II (Boeing)) panels.
- Changes to the MCP2a (FCU Airbus) display design for non-Airbus aircraft.
- Added longer timeout for sub-panel MODE changes (now 40 secs).
- Added beep for sub-panel MODE changes and double beep on auto/manual return to MODE 1. Two sound files (modechange.wav and moderates.wav) have been added.
- Added facility to programmed time out simulator keyboard input.
- Improvements to reduce LCD display flickering.
- A force output option has been added to display functions to ensure certain outputs are displayed on the LCD.
- A date/time stamped backup of the MCP Configuration file is made each time a new configuration is saved.
- Updated Weather Library.
- Addition of Autosave functions and User-Config modules.
- A major fault with the Radio DME FREQ Knob operation has been fixed.
- The number of aircraft included has been reduced to the A2A Cessna 172, Aerosoft Airbus, iFly 737NG, PMDG 737NGX and default Microsoft Aircraft (C172, Beech King Air 350 and Beech Baron 58). Config-mcp\* files have the extension .default to avoid overwriting user setups.
- The user joystick configuration file (CONFIG-HID.LUA) is no longer overwritten.
- Fixed issue requiring Joystick page to be open for repeating and on-release functions to work correctly.
- Fixed display of erroneous altitude in Flight Info mode.
- Added Saitek Pro Flight Instrument Panel to Joystick options (12 buttons only).

- Added feature to use Default aircraft MCP panel configuration (config-mcp\*.default) when user configuration (config-mcp\*.lua) does not exist. If neither exists a new configuration is created from templates.
- Added feature to set up user functions file (user.lua) in aircraft folder from templates.
- Fixed OnRelease and OnRepeat HID button functions.
- Fixed GLOBAL SHIFT not latching problem.
- Fixed HID out of range errors.
- Updated LINDA version number during MCP panel initialisation.
- Fixed issue with DME-CRS knob operation.
- Added FS2Crew Library functions.
- Further fixes to DMS/CRS knob operation.
- Fixed issue with managing Presets.
- Added second shift mode for HID devices (ie. joystick, throttles, etc).
- Possible fix for Device Not Found errors.
- Fixed issue where certain devices caused Range Check Errors.
- Fixed issue affecting HID devices with multiple HATs.