



Flightdeck Avionics

User Manual

Version 1.094

27/04/2010



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Introduction

Sim-Avionics Flightdeck Avionics are designed to simulate the avionics and systems of a modern glass cockpit aircraft.

The applications are designed to be run on multiple computers across a network using a TCPIP Protocol, although the software can run on a single computer if the hardware specification will allow.

The software is available under two separate licence schemes: Professional and Home-User. Please contact Sim-Avionics sales for any form of professional usage or application. If in any doubt it is better to check first rather than run into a licensing problem at a later date.

In order to use the software some knowledge of flying or appropriate training manuals will be required further to this software set-up manual. This manual will not in anyway discuss aircraft operations or training. It won't (for example) teach you how to operate a CDU or MCP. The software is highly detailed and requires that the user must either have prior knowledge of similar avionic operations or use the software in conjunction with appropriate training manuals.

As a general rule, none of the information herein and none of the software can be used for real world aviation or navigation. The software is by no means to be considered complete concerning any of the respective aircraft's real systems and operation. The software is designed to give familiarization of those aircraft modeled.

The applications are based on a Client/Server principle meaning that the Server application is the 'main brain' of the system. The other programs are all clients that connect to the Server. Clients receive all of their data from the Server.

The Server is the interface to Flight sim and therefore must be able to connect to flightsim. This is achieved via **FSUIPC** (if the Server is run on the FS PC) or via **WideClient** (if the Server is run on a separate PC to FS). FSUIPC and WideClient are additional programs written by Pete Dowson www.schiratti.com/dowson.html

The Server also contains all of the System Logic and Autopilot Functions.

It is possible to evaluate the basic functions of this software without FlightSim Running

If you find technical errors in this manual please e-mail: support@sim-avionics.com

The Quick Start Guide

[The programs can be started in any order.]

1. The installer will execute \TCP_Client\TCP_Client.exe and ask for the Server IP Address
2. At the Prompt enter the Server IP Address. (The IP Address of the PC that will run the Server Application)
3. Run [Avionics.exe] (icon) - At the prompt select the displays that you want to run
4. Run the Server.exe
5. Press the 'Quick Start' button on the Server Program.
6. Use F1-F7 to enable/disable PFD/ND/EICAS/MFD/Stbys
7. Press F9 to set all windows to the default size and position
8. Use 'A' to select a window to resize
9. Use the arrow keys and numpad - + to resize the selected window. Hold CTRL to increase movement.
10. press 'S' to save the current window sizes and positions to DISPLAY.INI
11. Launch other Clients as desired.

Any additional program files are automatically created when the main .exe is first run.

*** Please be aware that if you are running 'Windows Vista' then depending on which folder location you installed the programs you may have to change the folder permissions and enable 'full control' to the "Sim-Avionics" and sub folders. This is due to Vista's UAC (User Account Control) and will prevent the automatic creation of various config files ***

**** Important for correct Flap display ****

Flap Definitions

The number of flap positions varies between the 777 and 737, also the final flap position varies between aircraft, therefore it is necessary to define the flap positions for your particular aircraft.

To define the flap positions for your aircraft.

Run Flight Sim (and Wideclient if required)

Start the Server. (Ensure it is connected to FS)

Goto Menu Page [**Aircraft Specific**]

In the Flap Definition box press [**Clear All**] to reset the current values

Ensure the aircraft flaps are **UP** in flight sim

The 'live' Flap Trigger and Displayed Positions are shown next to **Current FS Values**

Press **SET** next to the Flaps **UP** position.

Select the first flap position in Flight Sim and press **SET** next to the corresponding flap position.

Repeat this for all flap positions.

If your aircraft does not have one of the values listed then leave it at as zero.

Remember to Save the changes by going to the menu
Aircraft Specific > Save Aircraft

DEMO MODE and Activation

Without an Access Key the Flightdeck Avionics Suite will run in DEMO MODE.

Demo Mode is fully functional with the following exceptions :

- Programs will shutdown after 20 minutes of runtime. They can be restarted.
- Limited geographical test area:

Default Airport = EGCC Manchester, UK

Default Area = Aprx 80 miles around Manchester

| | | |
|-----------|----------|------|
| | Latitude | |
| | 54.0 | |
| Longitude | -3.0 | -1.5 |
| | 52.9 | |

Below 10,000 ft

- Only : Status, Electical, Ground Camera and Maintenance MFD Synoptics Available

Flight Sim is NOT required to test the DEMO, but functionality will be limited. In this scenario you can press 'T' in the AVIONICS.EXE to see some gauge movement.

When starting an unregistered version of the Server you will see this screen.



Select the "Cancel or Demo Mode" button to run the applications in DEMO MODE.

This screen is also used to 'activate' the server once a license has been purchased. Activation involves

1. Purchasing a license from www.sim-avionics.com
2. Running the Server and sending an email to register@sim-avionics.com
From the email address used to purchase the license in Paypal containing
 - Your unique Computer ID as displayed in the activation window.
 - The 'Registration Name' that you wish to register the product to.
3. Once verified we will send you (via return email) a unique Activation Key.
4. You should enter the 'Registration Name' and 'Activation Key' into the appropriate boxes and press OK.
5. You should receive an "Application Successfully Registered" message
 Your registration name and activation key are then stored in a new file within the Sim-Avionics\Server\ folder called **SERVER.SET**

When Flightsim is running and the Server is connected - Press 'Quick Start'. This will position the aircraft on the runway at Manchester with the basic systems enabled.

If you want to start the aircraft systems yourself via the overhead panel then you will need to manually position the aircraft within the DEMO area (EGCC – Manchester, UK) .
Do not press 'Quick Start' after starting the Server.

Update License

Your Activation Key is unique to your Computer ID and Registration Name and will entitle you to run new versions of the Server up to **one year** from purchasing the license.
After this time you will not be able to run newer versions of Server.exe.

Your existing versions prior to your license expiration will continue to run.

Visit www.sim-avionics.com to extend your update license.

Server

This is the centre of the Flightdeck Avionics Suite.
All of the clients connect to the server from which they send and receive all of their data.

Network connectivity

By default data is transferred via a mixture of **TCP and UDP** protocols.
But you can set the system to only use TCP by adding
FD_PROTOCOL=tcp
into the CONFIG.INI in the \TCP_Client Folder

TCP/IP Ports

If you are running firewalls on your PC's then you may need to unblock the ports used by the avionics programs. You will need to open all ports between **689 to 699**

TCP_Client.exe

When a 'client' program is executed it checks that TCP_Client.exe is running and will execute it as necessary.
TCP_Client.exe is used to receive data from the 'Server' and **MUST** be running for a client to receive data.

When TCP_Client is run it checks for the existents of **CONFIG.INI** in the \TCP_Client folder.
If it doesn't exist then a popup will be displayed asking for the 'Server' IP address.
(This is the IP Address of the PC that will be running the 'Server' program. 127.0.0.1 is the default and can be use if the 'Server' and client will be run on the same PC)

TCP_Client is executed automatically at the end of the install to generate this initial CONFIG.INI.

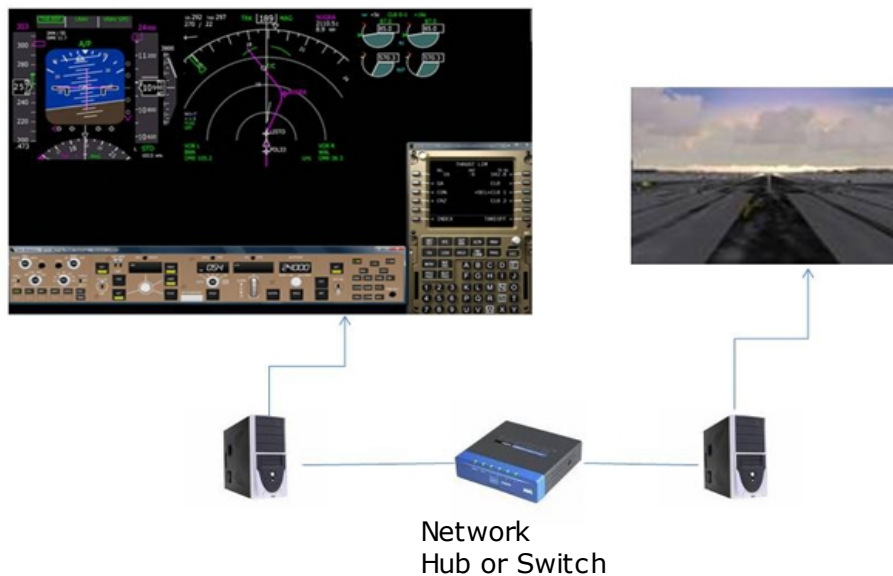
Configuration

Our avionics suite is designed to run on multiple computers over a TCP/IP network.

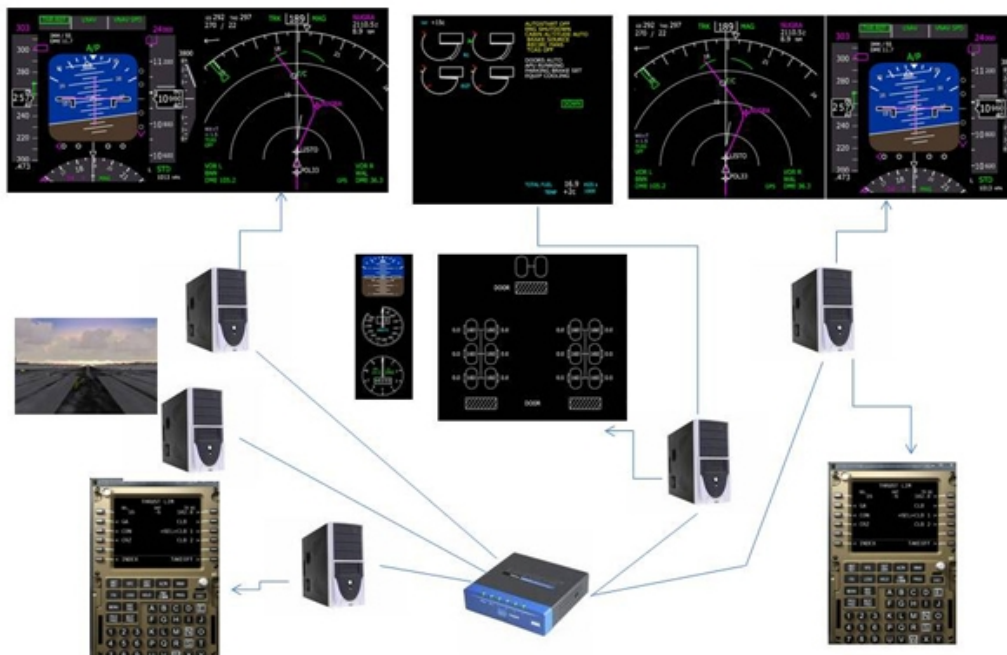
You can run everything on as many PC's as you want, dual monitors are also supported. It is possible to run everything on a single PC, but for performance we recommend that you run Flightsim on a separate PC.

Here are a couple of configuration examples:

Example1 : Avionics running on one PC and Flight sim on another.



Example 2 : Here we've split the functions for use in a full cockpit. Note, we haven't shown the Sound Module, Weather, MCP or Panel Sim as these are optional and can be run anywhere.



AVIONICS.EXE

This is the client program that displays the PFD, ND, EICAS, MFD and Standby Instruments.

B777 Version



B737 Version



If you have purchased a 'Lite' or 'Captain Only' license then you will only be able to run one instance of the avionics program. This will also be limited to run in CAPTAIN mode. If you try and run a second instance of Avionics.exe then the applications will terminate.

If you have purchased a 'Full' or 'Pro' license then an unlimited number of avionics clients can be run in CAPTAIN or FO mode.

All of the avionics functions are controlled via the server and can be mapped to FSUIPC offsets. But the initial configuration will need to be made via a keyboard.

To help you configure the avionics, when executing the application for the first time a popup will ask you which instruments you wish to display and if this is to be a CAPTAIN or FO version. Make your selection and press OK after which a CONFIG.INI will be created in the Avionics directory. Once a CONFIG.INI has been created you will need to manually edit this file to switch between Captain and FO versions.

If you have an F/O license, to enable the PFD and ND in F/O Mode you can edit the CONFIG.INI and set the line :

```
[SETTINGS]
POSITION=FO
```

Valid options are **CPT** = CAPTAIN or **FO** = First Officer

At any time in the avionics application you can press **F11** to display the keyboard shortcuts help page:

Keyboard shortcuts :

| | | |
|------------|--------------------------------|--------------------|
| F1 | : PFD | (Enable / Disable) |
| F2 | : ND | (Enable / Disable) |
| F3 | : EICAS | (Enable / Disable) |
| F4 | : Standby Attitude | (Enable / Disable) |
| SHIFT + F4 | : Standby ISIS | (Enable / Disable) |
| F5 | : Standby Airspeed | (Enable / Disable) |
| F6 | : Standby Altitude | (Enable / Disable) |
| F7 | : MFD | (Enable / Disable) |
| F8 | : 737 Flap Gauge | (Enable / Disable) |
| SHIFT + F8 | : Clock | (Enable / Disable) |
| CTRL + F8 | : Clock Background | (Enable / Disable) |
| F9 | : Default display window sizes | |
| F11 | : Display Key Help | |

Display Resizing and Positioning

| | |
|------------|---|
| A | = Cycle through the displays for adjustment |
| Q | = Reset Size and Position of the selected display |
| Arrow Keys | = Move Selected Display |
| Num Pad - | = Reduce Selected Display Size |
| Num Pad + | = Increase Selected Display Size |
| Hold CTRL | to increase movement |

Additional Keys:

| | | |
|---------------|---|---|
| 0-9 | = | MFD Synoptics |
| Space Bar | = | Alternates between Single or Dual Monitor display |
| S | = | Save Window Positions and Sizes to DISPLAY.INI |
| F | = | Display Frame Rates |
| T | = | Simple Test Mode |
| P | = | Reset Application position to top-left of the screen |
| Escape | = | Close Application |

All avionics display positions and sizes are stored in a DISPLAY.INI after pressing '**S**' but can be manually edited if necessary. If this file is deleted then a new one will be created when the avionics application is next run.

Editing \Sim-Avionics\Avionics\CONFIG.INI

CONFIG.INI**[SETTINGS]**

MAIN_TIMER=10

The main program loop time in ms// Position=CPT or FO (for PFD/ND only)
POSITION=CPT**Captain or FO position**// *** MFD PARAMETERS ***
// L =left 90 degs
// R = right 90 degs
// U = upsidedown rotate 180 degs
// C = normal
MFD_ORIENTATION=C
MFD_TIMER=100**Mouse Orientation for Checklist**
Separate MFD loop Timer – Resource Saver

//NAV_DATA_PATH=..\CDU\Data

Map a custom path to the NavdataUSE_FONT=1
FONT_NAME=verdana
FONT_X_OFFSET=0
FONT_Y_OFFSET=0
FONT_STRENGTH=550
FONT_SIZE_ADJUST=-0.3
ADD_FONT_OUTLINE_PFD=1
ADD_FONT_OUTLINE_ND=1
FONT_OUTLINE_DEVIATION=0.0**Use TTF Fonts**
Install TTF Font
Font Alignment Fine Turning
Font Alignment Fine Turning
Font Strength
Additional Font Sizing
Add a black outline around the font PFD
Add a black outline around the font ND
The accuracy of the outline// Width of checklist - right text position
CHECKLIST_LENGTH_ADJUST=490// Checklist font alignment
// Verdana - default
CHECKLIST_ALIGNMENT=11
// Baloo
//CHECKLIST_ALIGNMENT=13// Background / Sky / Ground RGB - 0..255
BACKGROUND_R=0
BACKGROUND_G=0
BACKGROUND_B=0
SKY_R=0
SKY_G=51
SKY_B=153
GROUND_R=74
GROUND_G=56
GROUND_B=43**Background Color Red**
Background Color Green
Background Color Blue
Horizon Sky Color Red
Horizon Sky Color Green
Horizon Sky Color Blue
Horizon Ground Color Red
Horizon Ground Color Green
Horizon Ground Color Blue

DISPLAY_ADDITIONAL_DATA=1

Airport/Navaid info displayed with DATA selected.// = PFD or ND or EICAS or STBY_ATT or STBY_AIR or STBY_ALT or ALL
TAKE_SCREENSHOT=NONE
// In Seconds
SCREENSHOT_OUTPUT_TIME=10
// Creates: PFD.jpg, ND.jpg, EICAS.jpg, STBY_ATT.jpg, STBY_AIR.jpg, STBY_ALT.jpg
SCREENSHOT_FILENAME=\\127.0.0.1\b777 webcam**Take a Screenshot of the displays****Interval between Screenshots in Sec's**
Output Filepath**[ENGINE]**

EGT_START_MAX=700

EGT Hotstart Max line before engine start

DISPLAY.INI

WINDOW_WIDTH=979
WINDOW_HEIGHT=772
WINDOW_LEFT=0
WINDOW_TOP=0
MAXIMIZED=0
BORDER=1
DISPLAY_PFD=1
DISPLAY_ND=1
DISPLAY_EICAS=0
DISPLAY_STBY_ATTITUDE=0
DISPLAY_STBY_AIRSPEED=0
DISPLAY_STBY_ALTITUDE=0
DISPLAY_MFD=1
DISPLAY_FLAP_GAUGE=0
DISPLAY_CLOCK_GAUGE=0
DISPLAY_CLOCK_BACKGROUND=0
DISPLAY_STBY_ISIS_GAUGE=0
PFD_X=0
PFD_Y=0
PFD_WIDTH=366
ND_X=486
ND_Y=0
ND_WIDTH=366
EICAS_X=486
EICAS_Y=0
EICAS_WIDTH=486
STBY_ATT_X=364
STBY_ATT_Y=0
STBY_ATT_WIDTH=162
STBY_AIR_X=364
STBY_AIR_Y=162
STBY_AIR_WIDTH=162
STBY_ALT_X=364
STBY_ALT_Y=324
STBY_ALT_WIDTH=162
MFD_X=252
MFD_Y=368
MFD_WIDTH=366
FLAP_X=518
FLAP_Y=367
FLAP_WIDTH=123
CLOCK_X=278
CLOCK_Y=247
CLOCK_WIDTH=123
STBY_ISIS_X=278
STBY_ISIS_Y=247
STBY_ISIS_WIDTH=123

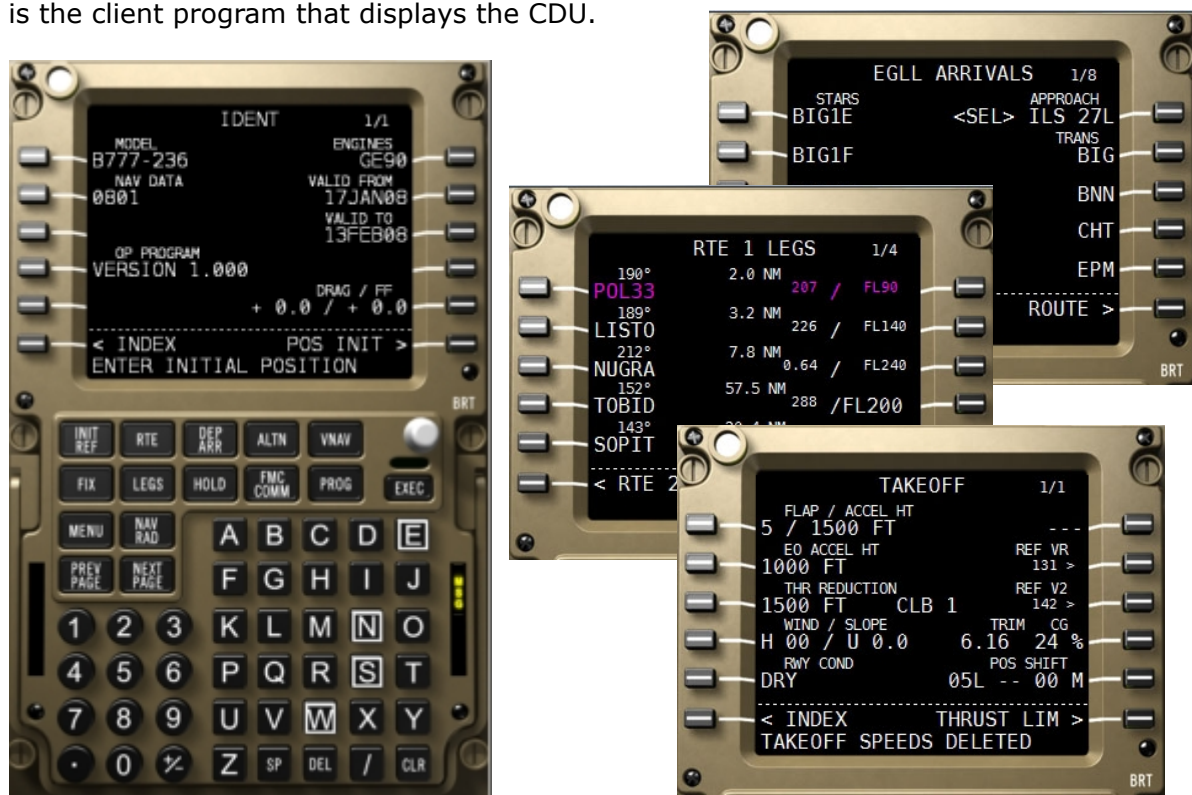
// Screen Rotation in Degrees
ROTATE_PFD=0
ROTATE_ND=0
ROTATE_EICAS=0
ROTATE_STBY=0
ROTATE_MFD=0
ROTATE_FLAP=0
ROTATE_CLOCK=0

Main Window Width
Main Window Height
Main Window Left
Main Window Top
Application is Maximized
Application Borders Displayed
PFD Enabeld
ND Enabled
EICAS Enabled
Standby Attitude Indicator Enabled
Standby Airspeed Indicator Enabled
Standby Altitude Indicator Enabled
MFD Enabled
737 Flap Gauge Enabled
Clock Gauge Enabled
Clock Background Enabled
Standby ISIS Gauge Enabled
PFD Left Position
PFD Top Position
PFD Width
ND Left Position
ND Top Position
ND Width
EICAS Left Position
EICAS Top Position
EICAS Width
Standby Attitude Indicator Left Position
Standby Attitude Indicator Top Position
Standby Attitude Indicator Width
Standby Airspeed Indicator Left Position
Standby Airspeed Indicator Top Position
Standby Airspeed Indicator Width
Standby Altitude Indicator Left Position
Standby Altitude Indicator Top Position
Standby Altitude Indicator Width
MFD Left Position
MFD Top Position
MFD Width

Rotate PFD by x Degrees
Rotate ND by x Degrees
Rotate EICAS by x Degrees
Rotate Standby's by x Degrees
Rotate MFD by x Degrees

CDU.EXE

This is the client program that displays the CDU.



If you have purchased a 'Captain Only' license then you will only be able to run one instance of the CDU program. This will also be limited to run in CAPTAIN mode.

If you try and run a second instance of CDU.exe then the applications will terminate.

If you have purchased a 'Full' or 'Pro' license then an unlimited number of CDU clients can be run in 1xCAPTAIN, 1xFO and unlimited OBS modes (OBS in Pro License Only).

After executing the program for the first time a CONFIG.INI will be created in the CDU directory.

If you have an F/O license, to enable the CDU in F/O Mode you can edit the CONFIG.INI and set the line :

```
[SETTINGS]
POSITION=FO
```

Valid options are **CPT** = CAPTAIN or **FO** = First Officer

The alpha numeric keys (A-Z and 0-9) are mapped to the keyboard as normal.

The 'line select keys' are mapped to the Function keys (F1-F12)

The Left Line Select Keys = F1-F6

The Right Line Select Keys = F7-F12

The other CDU Menu keys can be custom mapped in the CONFIG.INI

CONFIG.INI

[NAVDATA]
//NAVDATA_PATH=..\..\Navigation_Data

Make a custom path to the Navdata

[SETTINGS]
// = CPT or FO or OBS
POSITION=CPT

CDU Position

EVENTS_TIMER=500

Internal Events Loop Timer in ms

// MENU KEY Pages
// 0 = 777
// 1 = 737
// 2 = 737 with NAV RAD instead of N1 LIMIT
KEY_MAP=2

Set the Menu Key to 777 or 737 positions

// Force Manual Radio Tuning
// Inhibits ILS Autotune in 777 mode
NAV_RAD_OVERRIDE=0

// Some CDU interface modules use CAPS LOCK, SCROLL LOCK states to control the output lights
// You can disable this functionality if it causes problems with your setup.
DISABLE_OUTPUT_KEY_LIGHTS=0

[ENGRAVITY]
ENABLED=0
COMPORT=COM?
BAUDRATE=38400

Enable Engravity CDU Support

Engravity CDU ComPort

[ACARS]
PROXY_NAME=
PROXY_PORT=
PROXY_USERNAME=
PROXY_PASSWORD=

Proxy Server Name
Proxy Server Port
Proxy Server UserName
Proxy Server Password

[AIRLINE_POLICY]
DERATE1_PERCENT=5
DERATE2_PERCENT=15
GA_DERATE_PERCENT=5
CON_DERATE_PERCENT=10
CRZ_DERATE_PERCENT=12

% Derate 1 Thrust from T/O thrust
% Derate 2 Thrust from T/O thrust
% Derate Go-Around from T/O Thrust
% Derate Continuous Thrust from T/O
% Derate Cruise Max from T/O thrust

CLB_TRANSITION_SPEED_RESTRICTION=250
CLB_TRANSITION_ALTITUDE_RESTRICTION=10000
ECON_CLIMB_SPEED=310
ECON_CRUISE_SPEED=0.84
DES_TRANSITION_SPEED_RESTRICTION=240
DES_TRANSITION_ALTITUDE_RESTRICTION=10000
TRANSITION_ALTITUDE=18000

Default Transition Speed
Default Transition Altitude
Default ECON CLB Speed @CI 100
Default ECON Cruise Mach @ CI100
Default Descent Transition Speed
Default Descent Transition Altitude
Default Transition Altitude

; 1,5,15 = Flap defaults
; > 15 = Height defaults
THRUST_REDUCTION_DEFAULT=1500
MAX_FUEL_LEFT_WEIGHT=30000
MAX_FUEL_CENTRE_WEIGHT=81100
MAX_FUEL_RIGHT_WEIGHT=30000

Default Thrust Reduction Flaps or Alt
Left Tank Max Fuel (Tonnes)
Centre Tank Max Fuel (Tonnes)
Right Tank Max Fuel (Tonnes)

[USER]

FULL_SCREEN=0

FullScreen or Frontend mode

WINDOW_LEFT=0
WINDOW_TOP=0
WINDOW_WIDTH=650
WINDOW_HEIGHT=520
WINDOW_ROTATE=0

Fullscreen Window Left Pos
Fullscreen Window Top Pos
Fullscreen Window Width
Fullscreen Window Height
Fullscreen Rotation (degrees)

ROTATE_X=0
ROTATE_Y=0

Centre of rotation 0 = default
Centre of rotation 0 = default

FONT_LARGE=Sim-Avionics-CDU
FONT_SMALL=Sim-Avionics-CDU

Installed TTF Font for Large text
Installed TTF Font for small text

[FULLSCREEN]
LINE1=120
LINE2=220
LINE3=320
LINE4=420
LINE5=520
LINE6=620
TITLE=10
PAGE=25
LINE_MARGIN_LEFT=84
LINE_MARGIN_RIGHT=940
LINE_T_MARGIN_LEFT=130
LINE_T_MARGIN_RIGHT=870
SCRATCHPAD=690
FONT_SIZE_LARGE_FULL=36
FONT_SIZE_SMALL_FULL=38
FONT_SIZE_REF_FULL=32

Full Screen Settings
Line 1 Vertical Position
Line 2 Vertical Position
Line 3 Vertical Position
Line 4 Vertical Position
Line 5 Vertical Position
Line 6 Vertical Position
Title Vertical Position
Page Number Vertical Position
Left Margin Horizontal Position
Right Margin Horizontal Position
Left Ref Margin Horizontal Position
Right Ref Margin Horizontal Position
Scratchpad Vertical Position
Font Size Large Text
Font Size Small Text
Font Size Ref Text

; ctrl + shift + alt + xxx key number
KEY_PROG_EXIT=001081
KEY_CLR=000008
KEY_NEXT_PAGE=000033
KEY_PREV_PAGE=000034
KEY_INIT_REF=100112
KEY_ROUTE=100113
KEY_DEP_ARR=100114
KEY_ALTN=100115
KEY_VNAV=100116
KEY_FIX=100117
KEY_LEGS=100118
KEY_HOLD=100119
KEY_FMC_COMM=100120
KEY_PROGRESS=100121
KEY_MENU=100122
KEY_NAV_RAD=100123
KEY_EXECUTE=000110
[WINDOWED]

Key Assignments

Non fullscreen defaults - Same as above

Defining Key Presses

// ctrl + shift + alt + xxx key number

The first 3 chars determine if **CTRL**, **SHIFT** or **ALT** should be held down during the key press.

The last 3 chars are the key number to assign.

0000**65** = a
1000**65** = ctrl+a
0100**65** = shift+a
0010**65** = alt+a
1100**65** = ctrl+shift+a

Remote Key Presses Via FSUIPC

It is possible to control the CDU's via 3 FSUIPC offsets. (CPT, FO,OBS)

Each offset is 1 byte. Set the offset (set in FSUIPC_IO.INI) to the desired keypress number.

This is received by the Server and sent to the CDU's. Once the correct CDU has processed the keypress it will reset the offset value back to 0.

Most of these are the standard windows key numbers 0-9 A-Z, but there are a few additional.

| | | | | | | |
|------|------|------|---------|-------------|----------------|----------------|
| 0=48 | C=67 | O=79 | F1=112 | SP = 32 | INIT REF = 150 | HOLD = 157 |
| 1=49 | D=68 | P=80 | F2=113 | . = 190 | RTE = 151 | FMC COMM = 158 |
| 2=50 | E=69 | Q=81 | F3=114 | / = 191 | DEP/ARR = 152 | PROG = 159 |
| 3=51 | F=70 | R=82 | F4=115 | +/- = 109 | ALTN = 153 | MENU = 160 |
| 4=52 | G=71 | S=83 | F5=116 | DELETE = 46 | VNAV = 154 | NAVRAD = 161 |
| 5=53 | H=72 | T=84 | F6=117 | EXEC = 13 | FIX = 155 | PREV = 162 |
| 6=54 | I=73 | U=85 | F7=118 | (keydown) | LEGS = 156 | NEXT = 163 |
| 7=55 | J=74 | V=86 | F8=119 | CLR = 253 | | |
| 8=56 | K=75 | W=87 | F9=120 | (keyup) | | |
| 9=57 | L=76 | X=88 | F10=121 | CLR = 254 | | Exit = 255 |
| A=65 | M=77 | Y=89 | F11=122 | | | |
| B=66 | N=78 | Z=90 | F12=123 | | | |

Navigation Data

Navigation Data for the CDU and ND is held centrally in the **sim-avionics\Navigation_Data** folder. Place new Navigation databases in here.

The base package comes with some limited Navigation Data, but the full version can be purchased at www.navigraph.com

Place the nd.mdb in the **\Navigation_Data** folder.

User Waypoints

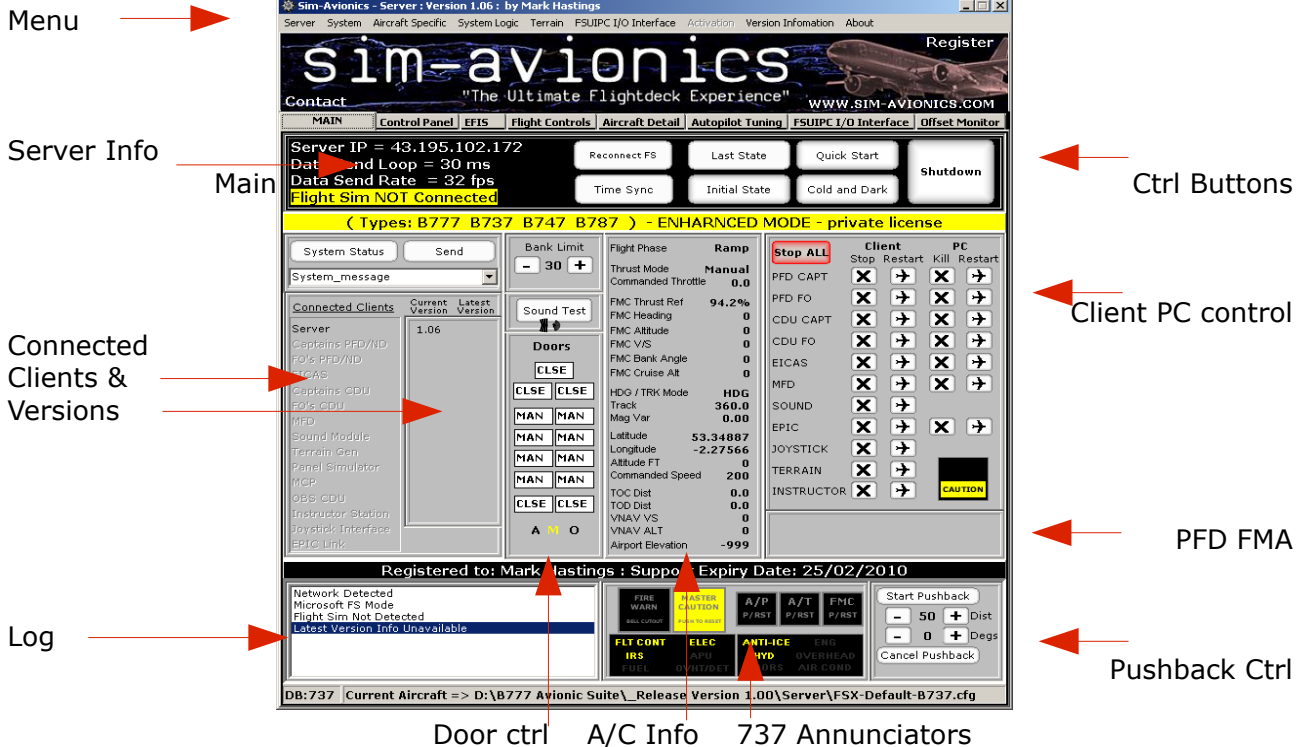
User waypoints can be added to the \Navigation_Data\USER_WAYPOINTS.txt file in the format.

unique id=latitude,longitude

XWPT1=51.4,-0.4

SERVER.EXE

This is the main Server window. It is split into several area's



Shutdown : Closes the Server.
QuickStart : Switches on the main Aircraft Systems.
 (Will position the aircraft to EGCC – Manchester, UK in DEMO mode)
Cold and Dark : Switches OFF the Aircraft Systems.
Last State : Load the Server State from the Server Backup Files.
Initial State : Load the Server State from INITIAL_STATE.INI

Reconnect FS : Tries to Reconnect to FSUIPC or WIDECLIENT
 (Used if FS or WideClient is started after the Server.)
Time Sync : Set's Flight Sim Time to the current Server PC Time.

Server IP : IP Address of the Server.
Data Send Loop : Time in milliseconds that critical flight data is sent.
Data Send Rate : Actual critical data send rate per second.

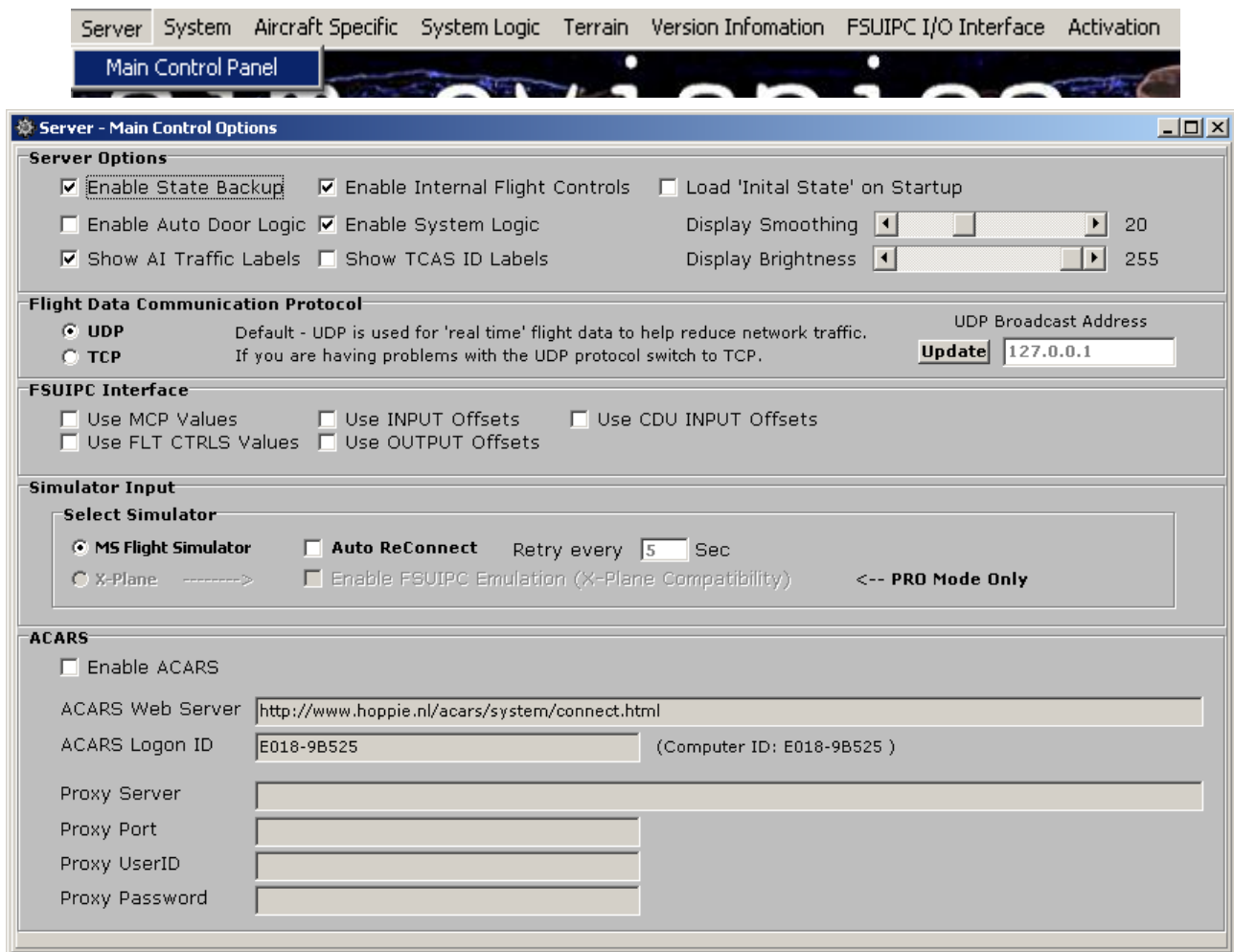
Flight Sim NOT Connected : The server was not able to establish a connection to Flight Sim.
 Check Flight Sim or WideClient is running
 press <Reconnect FS>

DEMO MODE – DATA BLOCKED (A/C OUT OF DEMO AREA) :

The Demo Mode is limited to a geographical area around EGCC Manchester, UK. If you fly out of this area then the flight data transfer will stop. It will restart when you fly back into the demo area.

Time : DEMO MODE has a 20 minute time limit. This shows amount of Demo Time Remaining.

Main Control Panel



Server Options

Enable State Backup : Every 20 seconds the current server state is saved to file
 SERVER_STATUS.DAT = System Data
 SERVER_CRITICAL_STATUS.DAT = Flight Data
 SERVER_CDU_HDR_STATUS.DAT = CDU Data
 SERVER_CDU_RTE_STATUS.DAT = CDU Route Data

Enable Auto Door Logic : Cabin Doors open automatically when:

- Aircraft is on the ground
- Doors are in 'Manual' status
- Both engines are SHUTDOWN
- Parking brake is Set

Enable Internal Flight Controls

: Generally if you have joysticks connected directly to FlightSim then this should be OFF
 If you have I/O hardware writing 'pot' positions to FSUIPC offsets then this functionality can be used to manipulate the flight controls.
 These are configured under the >System > Flight Controls menu

Enable System Logic

: This enables the internal system logic and would usually be switched ON.

Load "Initial State" on Startup

: Sets the initial system switch positions during Server Start using settings from INITIAL_STATE.ini

Display Smoothing

: Smooths the changes on the PFD/ND/EICAS displays. Higher numbers increase the amount of smoothing steps. Setting this too high can make the displays slow to react to aircraft attitude changes.

Flight Data Communication Protocol

UDP : Send highspeed flight data via UDP protocol

TCP : Send highspeed flight data via TCP protocol

By default the UDP broadcast address is 255.255.255.255 but this can be made more specific if required. ie 192.168.0.255

FSUIPC Interface – also see menu FSUIPC I/O Interface**Use MCP Values**

: If external I/O hardware is being used this will map FSUIPC offset values to the internal MCP values.
If you are using the MCP frontend client then this can be set OFF.

Use Flt CTRLS Values

: If external I/O hardware is being used this will map FSUIPC offset values to the internal flight controls.

Use INPUT Offsets

: If external I/O hardware is being used this will map FSUIPC offset values to the internal switch status.

Use OUTPUT Offsets

: If external I/O hardware is being used this will map internal values to FSUIPC offsets.

Use CDU INPUT Offsets

: This allows the CDU's to be controlled via FSUIPC offsets.
(See CDU Key Mapping: Page 16)

Select Simulator

MS Flight Simulator : Connects to MSFS via FSUIPC

ACARS

Enable ACARS

: Used to enable ACARS functionality.
 POS REP
 ETA Times
 ACARS Messaging
 CPLDC Messaging to ATC ground station (coming soon)

ACARS Webserver

: Preferred ACARS service.
 Sim-Avionics provides this web service but others can be used.
 (Protocol based on ACARS system developed by
 Jeroen Hoppenbrouwers (www.hoppie.nl))

ACARS Logon ID

: For Sim-Avionics server this is your unique computer ID.

ACARS PROXY Details

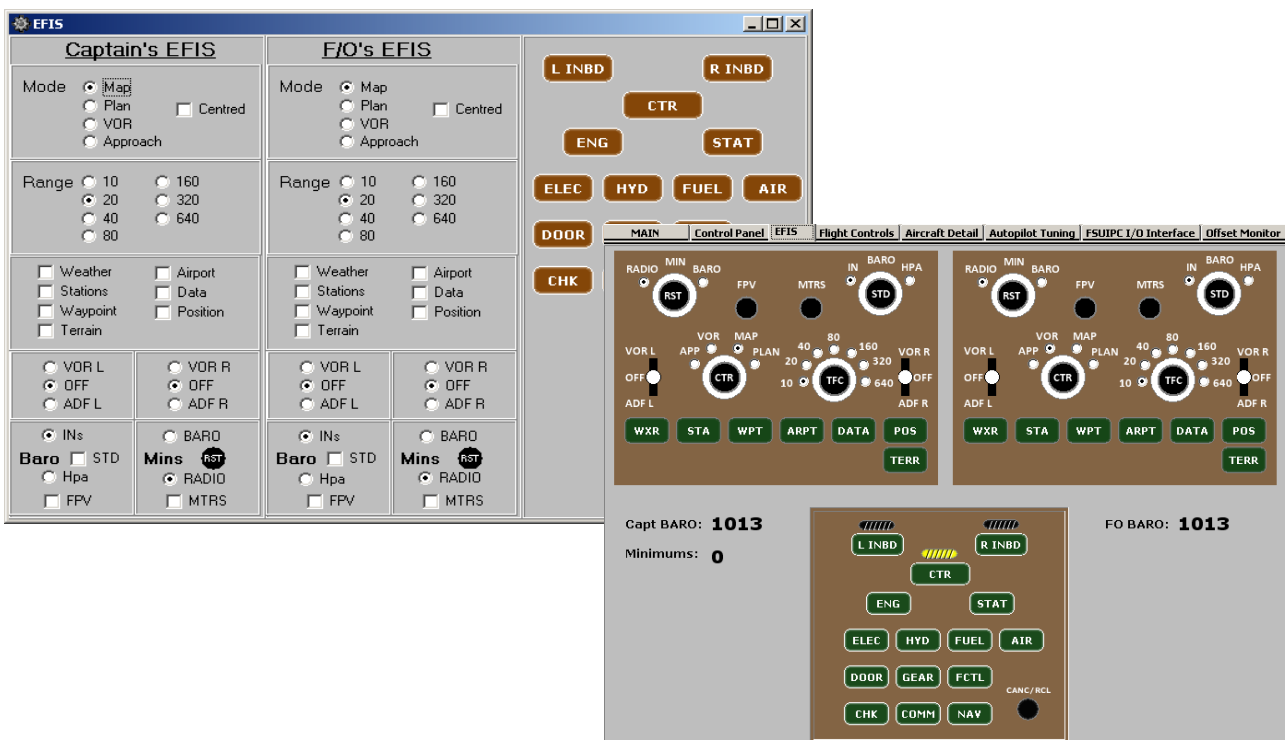
: Complete these details if you use a proxy server.

System



EFIS

Provides a quick way of accessing the Glareshield EFIS and EICAS controls.



TCAS

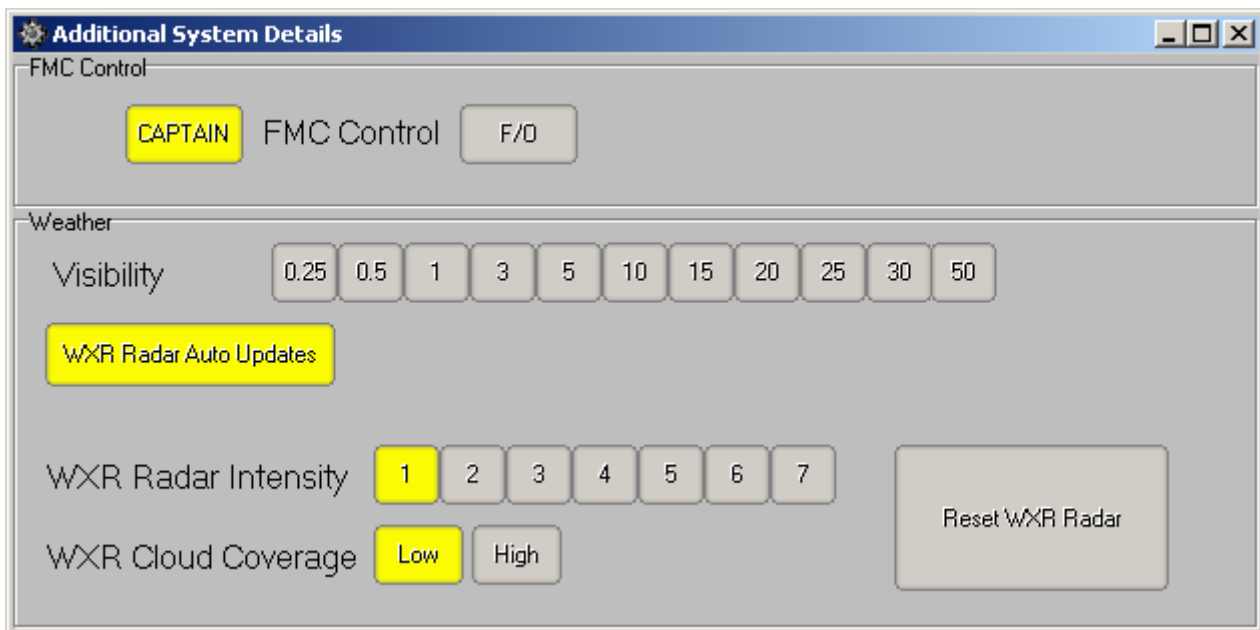
Provides a quick way of accessing the TCAS Controls.



Various modes are provided to select how TCAS traffic is displayed on the ND's and how Audible warnings are handled.

| TCAS Mode | System Mode | Squawkbox Mode |
|-----------|------------------------------|----------------|
| Standby | TCAS OFF | TCAS OFF |
| XPNDR ON | TCAS ON | TCAS ON |
| TFC | TCAS ON – ND Traffic Display | TCAS ON |
| TA | TCAS ON – Audible Warnings | TCAS ON |
| TA/RA | TCAS ON – Traffic Avoidance | TCAS ON |

Additional Systems

**FMC Control**

: Selects which CDU is issuing FMC commands.

Visibility

: A quick way of setting ground visibility in miles.

WXR Radar Auto Updates

: Tells the Weather Radar generator to use Flight Sim's weather to generate weather radar images.
Exact cloud position data is not available from flight sim so the weather radar image is an approximation based on the current clouds coverage.

WXR Radar Intensity

: Flight Sim Cloud coverage is assigned an intensity and weather radar images are compiled based on that intensity.
These buttons allow for manual override of the intensity value.

WXR Cloud Coverage

: Tells the Weather Radar generator LOW or HIGH volumes of clouds on the weather radar.

Reset WXR Radar

: Blanks the Weather Radar and generates a new image based on the current weather intensity.

Internal Flight Controls

This menu was developed to allow mapping of an FSUIPC offset vaule (2 byte word) to a specific flight control.

Many I/O cards now have FSUIPC compatibility and it is possibly to map an analogue potentiometer to an FSUIPC offset. This usually mean the assigned offset will contain a value of -16383 – 16383 depending on the potentiometers actual position.

**We then want to take this value and map it to a flight control.
This page allows some adjustment on how this value is sent to FS.**

Flight controls can be assigned in the FSUIPC_IO.INI

(Please note: The default offset numbers are only a suggestion and can be changed)

If you enable '**Internal Flight Controls**' from the Main Control Panel and do not want to assign all of the flight controls, then set the assigned offset = 0 to ignore the control.

[FSUIPC_FLIGHT_CONTROLS]

ELEVATOR_CPT=5304

ELEVATOR_FO=5304

AILERON_CPT=5300

AILERON_FO=5302

RUDDER_CPT=5306

RUDDER_FO=5308

THROTTLE_L=5310

THROTTLE_R=5312

THROTTLE_REVERSE_L=0

<-- Set to 0 is not being used.

THROTTLE_REVERSE_R=0

<-- Set to 0 is not being used.

SPOILERS=5314

FLAPS=530E

BRAKE_L_CPT=5316

BRAKE_R_CPT=5318

BRAKE_L_FO=531A

BRAKE_R_FO=531C

Why use this page ?

If you move you aileron axis FULL left then FULL right, your I/O will probably write -16383 – 16388 to the assigned offset to match the pot position exactly. But we do not want the aircraft Ailerons to sharply change from FULL left to FULL right, using this page allows us to add some delay and 'soften' the movement to simulate a hydraulic actuator on the real aircraft.

This is similar to the Joystick Sensitivity in MSFS control settings.

The sensitivity can be adjusted in the 'Aircraft Specific Menu' under '**Control Response**'.

Also if you set the **scale** = 1 then the full movement (-16383-16383) is sent to the flight controls. If you set the scale = 0.5 then only -8192 – 8192 is sent to the flight controls.

Offset allows you to adjust the centre point of the movement. (like a trim)

This page was initially developed when I/O software interfaces were very basic. But as things have progressed a lot of interface gui's have good scaling and additional functionality that makes this page obsolete. It really depends on your personal hardware setup whether you need to use this page. Feel free to contact us if you need any advice.

Flt Ctrls will only become active after the Hyd system has been pressurized.

Control Position

Pointer = Target Position
Bar = Actual Ctrl Position

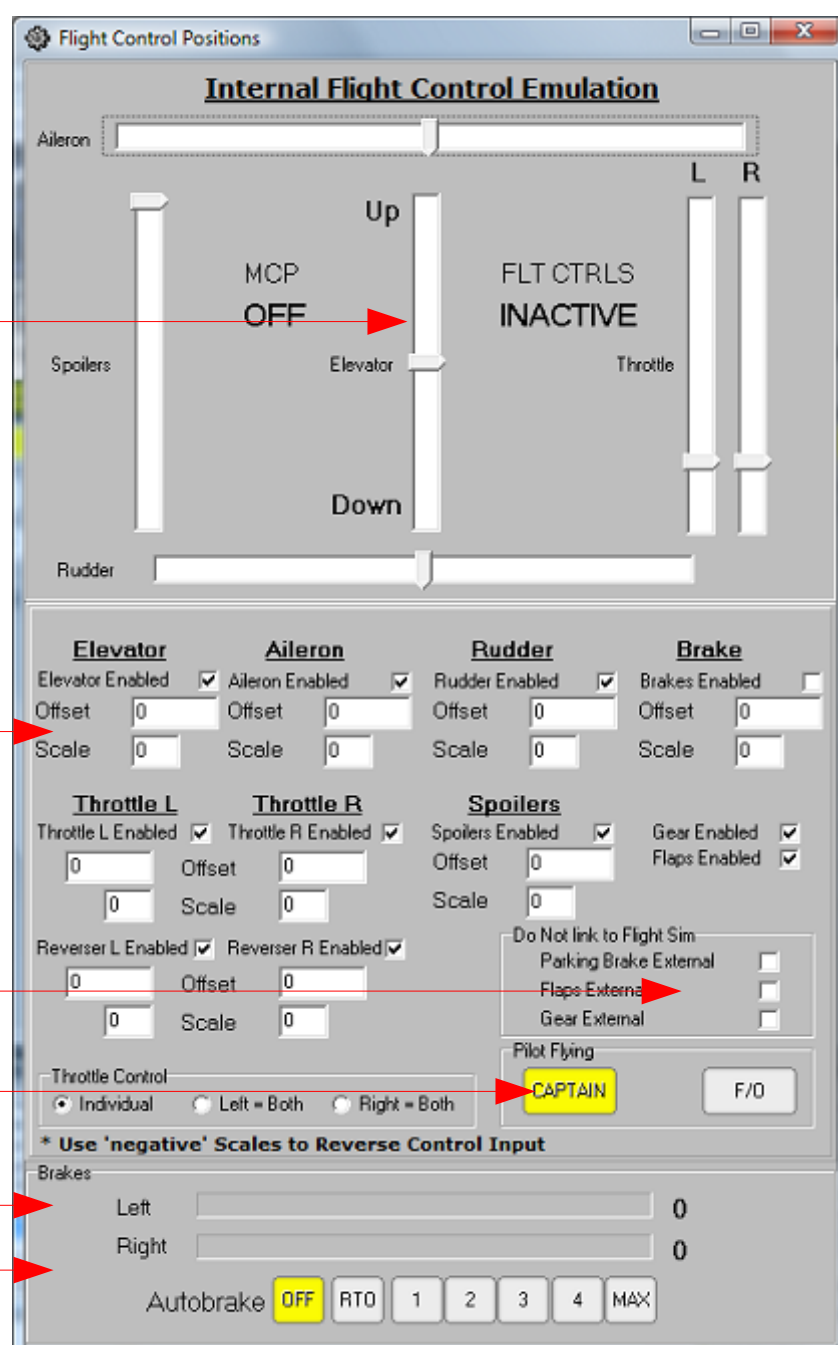
Control Calibrations

If 'un-checked' they will follow the FS controls.

Map CPT or FO offsets to flight controls.

Brake Indications

AutoBrake Selection



Parking Brake External, Gear External and Flaps External

If your hardware currently set's these functions then checkbox = OFF

If your hardware will be setting these functions via a custom offset then checkbox = ON

Aircraft Specific

Configuration specific to a particular aircraft. This information is held in a separate config file.

The default is **MELJET-B777-200.CFG**

This is used to hold (amongst other) :

- Engine Idle values
- Startup Spool time values
- Autopilot Tuning Values

The aircraft config file is loaded when the Server is started and the filename is read from the SERVER.INI

[AIRCRAFT_DETAILS]

AIRCRAFT_CONFIG_FILE=MELJET-B777-200



Load Aircraft

: Loads a different Aircraft Config File

Save Aircraft

: Saves the current Aircraft config details to the Aircraft Config File that is currently loaded.

SaveAs Aircraft

: Saves the current Aircraft config details to a different Aircraft Config File.

Autopilot Tuning

: Use to calibrate the internal Autopilot to a flight model.

Additional Aircraft Details

: Displays the additional aircraft detail menu

Aircraft Details

Sim-Avionics - Server : Version 1.064 : by Mark Hastings

Server System Aircraft Specific System Logic Terrain FSUIPC I/O Interface Activation Version Information About

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Contact

MAIN Control Panel EFIS Flight Controls **Aircraft Detail** Autopilot Tuning FSUIPC I/O Interface Offset Monitor

Engine N1 Idle Speeds

| | | | | |
|-------------|-------------|---------------|-------------------------|------|
| Ground Idle | Flight Idle | Approach Idle | Default T/O N1 (No CDU) | 94.2 |
| 21 | 22 | 22 | Default CLB N1 (No CDU) | 89 |

Engine Start Sequence

| | Start | Spool Time | Shutdown |
|------------------|-------|------------|--------------|
| N1 Target | 20.3 | 35 | N1 60 |
| N2 Target | 60 | 35 | N2 60 |
| EGT Target | 432.9 | 23 | EGT 60 |
| FF Target | 430 | 25 | FF 5 |
| Oil Temp Target | 93 | 25 | Oil Temp 300 |
| Oil Press Target | 22 | 18 | Oil Press 30 |

Aircraft Avionics Options

| | |
|------------------------------|-------------------------------------|
| Flight Director Wing Mode | <input type="checkbox"/> |
| Display AOA Option | <input checked="" type="checkbox"/> |
| Alternate 737 Engine Display | <input type="checkbox"/> |
| Automatic Thrust Reduction | <input checked="" type="checkbox"/> |
| TOGA - HDG Select | <input checked="" type="checkbox"/> |
| CDU - Suggest V1 Speeds | <input checked="" type="checkbox"/> |
| Autoland Enabled | <input checked="" type="checkbox"/> |

Misc

| | | | |
|-------------------------------|-----|---------------------------------|-------|
| Pilot Response Time (Minutes) | 10 | AUTO Seatbelts Trigger Altitude | 10000 |
| Aircraft Height | 8 | Autoland Flare Altitude (RA) | 60 |
| Take Off N1 % Config Trigger | 70 | Autoland Idle Altitude (RA) | 30 |
| Control Response | 400 | | |

Weight

☒ KG's ☐ LB's

Aircraft Type

777 ☐ 737 ☐ **747** ☐ 787 ☐

Flap Definition

| Current FS Values | Trigger | 0 | 0 | Display | Clear All |
|-------------------|---------|-------|---|---------|-----------|
| Flap Position UP | 0 | 0 | | Set | Clear |
| Flap Position 1 | 2047 | 1638 | | Set | Clear |
| Flap Position 2 | 4095 | 1997 | | Set | Clear |
| Flap Position 5 | 6143 | 3071 | | Set | Clear |
| Flap Position 10 | 8191 | 4863 | | Set | Clear |
| Flap Position 15 | 10239 | 7423 | | Set | Clear |
| Flap Position 20 | 0 | 0 | | Set | Clear |
| Flap Position 25 | 12287 | 11007 | | Set | Clear |
| Flap Position 30 | 14335 | 12799 | | Set | Clear |
| Flap Position 40 | 16383 | 16383 | | Set | Clear |

VNAV Parameters

Descent Angles

| | |
|-----------------|-----|
| Above 12,000 FT | 3 |
| 10-12,000 Decel | 2.5 |
| Below 10,000 FT | 3.5 |
| Early Descent | 2.3 |

Ground Idle

: Engine N1 Idle speed on the Ground

Flight Idle

: Engine N1 Idle speed in flight

Approach Idle

: Engine N1 Idle speed when flaps > 20

Please note : Idle references will only be applicable if the Internal Flight Controls are being used. A joystick plugged directly into Flight Sim will use the normal windows calibration.

Default T/O N1 (No CDU)

: Initial Takeoff N1 Thrust Ref – For LITE users
CDU values from Thrust Ref page will overwrite this.

Default CLB N1 (No CDU)

: Initial Climb N1 Thrust Ref – For LITE users
CDU values from Thrust Ref page will overwrite this.

Startup / Shutdown Sequence:

Flight Sims engine spool up on 'engine start' and spool down on 'engine shutdown' is very fast and unrealistic, so the Startup / Shutdown sequence was added to simulate a slower engine spool up /spool down.

The startup sequence is triggered when the FS engine combustion status changes from OFF to ON and similarly the shutdown sequence is triggered when the FS engine combustion status changes from ON to OFF.

You might need test at which N2 for your particular aircraft it's best to set the Engine Fuel Cutoff switches to 'Run' because sometimes FS increases the EGT faster than the startup sequence can be triggered. We've found that by varying the point at which the fuel is added allows for a smoother start

N1 Target

: Target N1 value after engine start.
After Engine Combustion is detected the EICAS N1 will spool to this value.

N1 Spool Time - Start

: The time in seconds from engine combustion to N1 Target value.

N1 Spool Time - Shutdown

: The time in seconds from engine shutdown to 0 N1.

N2 Target

: Target N2 value after engine start.
After Engine Combustion is detected the EICAS N2 will spool to this value.

N2 Spool Time - Start

: The time in seconds from engine combustion to N2 Target value.

N2 Spool Time - Shutdown

: The time in seconds from engine shutdown to 0 N2.

EGT Target

: Target EGT value after engine start.
After Engine Combustion is detected the EICAS EGT will spool to this value.

EGT Spool Time - Start

: The time in seconds from engine combustion to EGT Target value.

EGT Spool Time - Shutdown

: The time in seconds from engine shutdown to 0 EGT.

FF Target

: Target Fuel Flow value after engine start.
After Engine Combustion is detected the EICAS FF will spool to this value.

FF Spool Time - Start

: The time in seconds from engine combustion to FF Target value.

FF Spool Time - Shutdown

: The time in seconds from engine shutdown to 0 FF.

Oil Temp Target

: Target Oil Temperature value after engine start.
After Engine Combustion is detected the EICAS Oil Temp will spool to this value.

Oil Temp Spool Time - Start

: The time in seconds from engine combustion to Oil Temp Target value.

Oil Temp Spool Time - Shutdown

: The time in seconds from engine shutdown to 0 Oil Temp.

Oil Press Target

: Target Oil Pressure value after engine start.
After Engine Combustion is detected the EICAS Oil Pressure will spool to this value.

Oil Press Spool Time - Start

: The time in seconds from engine combustion to Oil Pressure Target value.

Oil Press Spool Time - Shutdown

: The time in seconds from engine shutdown to 0 Oil Pressure.

Pilot Response Time

: The time in minute allowed with no button activity before a PILOT RESPONSE EICAS message is issued.
After x minutes a PILOT RESPONSE EICAS message is displayed
After x+x minutes a MASTER CAUTION is issued
After x+x+x minutes a MASTER WARNING is issued

Aircraft Height

: Height (in Feet) of the cockpit above the ground – when on the ground.
This is used for Radio Altimeter Calibration

Takeoff N1 % Config Trigger

: The N1 percentage required to check for a Takeoff config warning.
A Master Warning is issued if the N1 value is above x % AND
CONFIG SPOILER : Spoilers not down
CONFIG PARKINGBRAKE : Parking brake SET
CONFIG FLAPS : Flap not in Takeoff range - (Flaps UP or > 20)
CONFIG DOORS : A door is open

Auto Seatbelt Trigger Altitude

: Altitude in Feet that Seatbelt signs are triggered if the Seatbelts Signs are set to Auto.
Below Altitude x = Seatbelts ON
Above altitude x = Seatbelts OFF

Flight Director Wing Mode

: Changes the PFD Flight director style from the single magenta bars to the FD Wing style.

Autoland Flare Altitude (RA)

: Radio Altitude in Feet that initiates a Flare during autoland.

Autoland Idle Altitude (RA)

: Radio Altitude in Feet that initiates Idle Thrust during autoland.

Control Response

: Movement sensitivity when using Internal Flight Controls.
Low values will make the control surfaces respond slower.

Aircraft Weight

: Display/Enter aircraft ZFW, Gross Weight and Fuel Weight in KG's or LB's

Alternate 737 Engine Display

: In 737 mode will display the more comprehensive engine display.

Display AOA Option

: Replaces the Radio Altimeter on the PFD with an Angle of Attack Indicator.

Alternate 737 Engine Display

: 737 Engine display containing the secondary engine instruments.

Automatic Thrust Reduction

: Automatic Thrust Reduction occurs at Thr Reduction HT as set on the CDU Take Off page. If this isn't set then uses 1500ft default.

TOGA HDG Select

: Some 737 models do not select a Roll mode during TOGA. Some select HDG Select. Select this option if you want HDG SELECT to be the Roll Mode during TOGA.

CDU Suggests V1 Speeds

: Some airlines configure the CDU to not default a V1 speed, this should be manually calculated and entered by the pilot. Some configure the CDU to suggest a V1 speed. This can still be manually over written by the pilots.

AutoLand Enabled

: Enabled Full Autoland capabilities.
When enabled at 1500ft RA the FMA 'Rollout' and 'Flare' are armed. The aircraft will then perform a full autoland.

Aircraft Type

: Select the Aircraft Type.
This will appropriately change the displays and the system logic. A License upgrade may be required for additional aircraft types.

This will change all of the system logic and display accordingly.

VNAV Descent Angles

: These can be calibrated to you particular flight model, and are used to calculate the VNAV descent path.

Flap Definition

: For defining the flap positions on you aircraft.
The number of flap positions varies between the 777 and 737,
also the final flap position varies between aircraft, therefore it is
necessary to define the flap positions for you particular aircraft. The
positions are stored in the Server Aircraft Config file held in the Server
folder.

To define the flap positions for your aircraft.

Run Flight Sim (and Wideclient if required)

Start the Server. (Ensure it is connected to FS)

Goto Menu Page [**Aircraft Specific**]

In the Flap Definition box press [**Clear All**] to reset the current values

Ensure the aircraft flaps are **UP** in flight sim

The 'live' Flap Trigger and Displayed Positions are shown next to **Current FS Values**

Press **SET** next to the Flaps **UP** position.

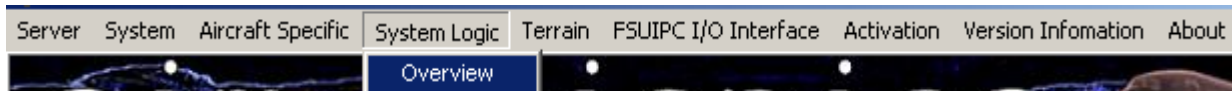
Select the first flap position in Flight Sim and press **SET** next to the corresponding
flap position.

Repeat this for all flap positions.

If your aircraft does not have one of the values listed then leave it at as zero.

Remember to Save the changes by going to the menu

Aircraft Specific > Save Aircraft



9 = Failed

FSUIPC Offset Monitoring

A simple FSUIPC Offset monitoring tool has been added to the server so that you can easily view the value of a particular offset.

You first Enter the Offset to be monitored and the number of bytes to compare, then enable the monitoring. The current value is displayed in the 'Current Value' box.

You can also set an offset value by entering the value in the 'Set Value' box and pressing 'Set'.

Sim-Avionics - Server : Version 1.06 : by Mark Hastings

Server System Aircraft Specific System Logic Terrain FSUIPC I/O Interface Activation Version Information About

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MAIN Control Panel EFIS Flight Controls Aircraft Detail Autopilot Tuning FSUIPC I/O Interface Offset Monitor

Monitor FSUIPC Offsets

| Offsets to Monitor | | | Current Value | | Set Value |
|--------------------|--------------------------|----------------------|----------------------|-----|----------------------|
| Enable | <input type="checkbox"/> | <input type="text"/> | <input type="text"/> | Set | <input type="text"/> |
| Enable | <input type="checkbox"/> | <input type="text"/> | <input type="text"/> | Set | <input type="text"/> |
| Enable | <input type="checkbox"/> | <input type="text"/> | <input type="text"/> | Set | <input type="text"/> |
| Enable | <input type="checkbox"/> | <input type="text"/> | <input type="text"/> | Set | <input type="text"/> |

Bytes Sent: 0 / 600

Bytes Rcvd: 0 / 600

Server.ini

```
[SETTINGS]
MAIN_TIMER=30

ENABLE_SYSTEM_LOGIC=1
ENABLE_SYSTEM_BACKUP=1
ENABLE_AUTOMATIC_DOORS=1

LOAD_INITIAL_STATE_ON_STARTUP=0
// Load a previously saved flight scenario on Server Start.
// 0 = No Scenario Load. > 0 = Scenario Number
LOAD_SCENARIO_ON_STARTUP=0

// Force Manual Radio Tuning
// Allows for manual radio tuning in 777 mode
NAV_RAD_OVERRIDE=0
UDP_BROADCAST_MASK=255.255.255.255

// Show AI Traffic Labels
SHOW_TRAFFIC_LABELS=0

// Show Aircraft ID Labels on TCAS
SHOW_TCAS_ID_LABELS=0
DISPLAY_SMOOTHING=20
SHOW_AI_TRAFFIC_LABELS=1
SHOW_TCAS_ID_LABELS=0

[SIMULATOR]
SIMULATOR=0
MSFS_AUTO_RECONNECT=1
MSFS_AUTO_RECONNECT_INTERVAL=5

[FSUIPC]
ENABLE_FSUIPC_MCP_INPUT=0
ENABLE_FSUIPC_FLTCTRL_INPUT=0
ENABLE_FSUIPC_INPUT=1
ENABLE_FSUIPC_OUTPUT=0
ENABLE_FSUIPC_EMULATION=0
ENABLE_FSUIPC_CDU_INPUT=0

[ACARS]
ENABLE_ACARS=0
ACARS_WEBSERVER=http://www.sim-avionics.com/acars/connect.asp
ACARS_LOGON= [Your unique Computer ID]
PROXY_SERVER=
PROXY_PORT=
PROXY_USERNAME=
PROXY_PASSWORD=

[AIRCRAFT_DETAILS]
AIRCRAFT_CONFIG_FILE=MELJET-B777-200

[AIRCRAFT_CONTROLS]
ENABLE_INTERNAL_FLT_CTRL=0

ELEVATOR_ENABLED=1
AILERON_ENABLED=1
RUDDER_ENABLED=1
BRAKES_ENABLED=0
THROTTLE_L_ENABLED=1
THROTTLE_R_ENABLED=1
SPOILERS_ENABLED=1
GEAR_ENABLED=1
FLAPS_ENABLED=1
COMBINED_THROTTLE_CONTROL=1
PARKING_BRAKE_EXTERNAL=0
```

```
// offset = -16383 to 16383
// scale = control * scale ...ie 0.5 to half the movement or 2 to double the movement
// negative scales 'reverse' the control
ELEVATOR_OFFSET=0
ELEVATOR_SCALE=1
AILERON_OFFSET=0
AILERON_SCALE=1
RUDDER_OFFSET=0
RUDDER_SCALE=1
THROTTLE_L_OFFSET=0
THROTTLE_L_SCALE=1
THROTTLE_R_OFFSET=0
THROTTLE_R_SCALE=1
SPEEDBRAKE_OFFSET=0
SPEEDBRAKE_SCALE=1
BRAKE_OFFSET=0
BRAKE_SCALE=1
GEAR_EXTERNAL=0
FLAPS_EXTERNAL=0
```

Terrain



Reload Terrain : Triggers the Terrain and Weather Radar Program to reload the current terrain file. (Normally it shouldn't be necessary to do this)

Download Terrain : Links to <http://www.ngdc.noaa.gov/mgg/topo/globe.html>
Terrain data can be downloaded from the National Geophysical Data Center.

From this page the current path to the download page is

- [Get GLOBE Data Online]
- [Select you own area]



Select Area

Give it a Name

Choose Your Type Of Area Selection: ☒ Text-Entry ☐ Map-Based (uses a Java applet)

North (+90.0)
90.000000
West (-180.0) -180.000000 180.000000 East (+180.0)
-90.000000
South (-90.0)

Select a region...
Custom... Select!

Export type: FreeForm ND Compression option: Individual files
Data type: int16 Transfer option: FTP
File format: PC binary

File name: UK
Unique title: My Selection
Email address(es): (recommended for large selections or home u)
☐ Show a detailed FreeForm ND Output Format Description.

Output data will be raw binary (with little-endian—Intel PC—byte order), is about a 180 by 360 degree area data value will occupy 2 bytes. The uncompressed data file size will be 1,866,240,000 bytes.

Refresh Get Data Reset

Get Data

Terrain Continued...

Processing Complete!

Please click on the links below to download the results of your request.

- [UK.bin](#) (57,600 bytes)
- [UK.hdr](#) (705 bytes)
- [UK.fmt](#) (435 bytes)

Download the .bin and the .hdr file (right-click – Save Target as) and save them into
.. Sim-Avionics\Terrain and Weather Radar\Terrain

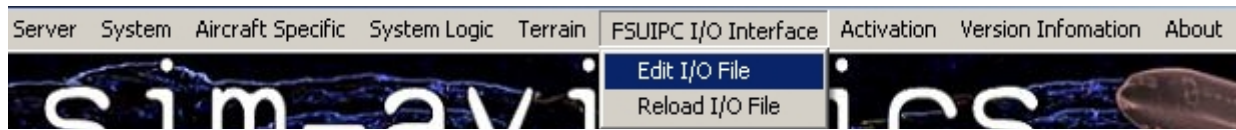
The Terrain and Weather Radar builds a [Terrain.jpg](#) based on this data and copies the .jpg to the location specified in the program.

The file destinations on the Terrain and Weather Radar program are the Captains \Avionics folder and the FO \Avionics folder (if applicable).

Important :

- Keep the .bin files small.
- The .HDR files are checked and the appropriate .bin file is automatically loaded as your aircraft flies into the terrain area.
- You only need terrain data around the airports you are visiting.
- The application may hang if you try to process a very large terrain file on a computer with low resources.

FSUIPC I/O Interface



All of the functions of the avionics suite can be interfaced via FSUIPC offsets.

FSUIPC is an Inter Process Communication interface that runs as part of the flight sim process but allows a block of memory to be accessed by external applications. We can read and write to specific locations in this block of memory via 'offsets'.

An FSUIPC offset is simply a memory location in Hex format.

Some of these memory offsets are populated by FSUIPC with internal Flight sim data such as Altitude, Latitude, Heading, Airspeed. Other locations are not populated and are free for other addon programs to use knowing they will not conflict with any other process.

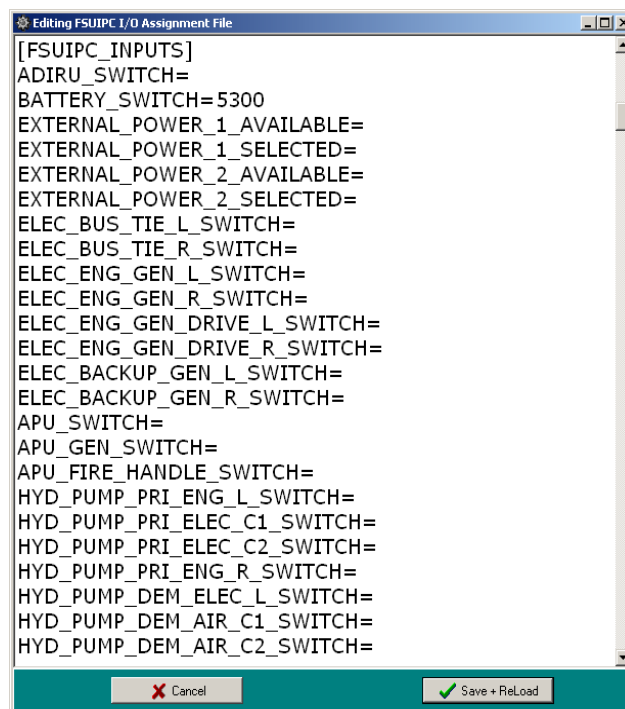
You can freely use offsets **5300-53FF** for Sim-Avionics

So how do you interface with the Sim-Avionics Server ? Simple...

Tell your I/O software to write a value to an FSUIPC offset when a button is pressed and then assign that offset to a function in the Sim-Avionics Server.

You assign Offsets to function via the Server FSUIPC I/O Interface menu.

Select - **[Edit I/O File]**



This window is editing a file in the server folder called FSUIPC_IO.INI

FSUIPC INPUT Offsets

In the above example offset 5300 has been assigned to the **Battery Switch**
And the server is now monitoring the value of this offset.

For switch inputs the server is expecting :

Offset value = 0 means switch = OFF

Offset value = 1 means switch = ON

There are a few additional functions that you can use when assigning an offset but I would see the simple (normal) method as being the most useful.

Syntax : **Item = offset\$invert(1 or 0) b(bit 00000000)**

| | |
|---------------------------------|---|
| BATTERY_SWITCH=5300 | (normal) |
| | (if offset 5300 = 1 then Battery Switch = 1 else Battery Switch = 0) |
| BATTERY_SWITCH=5300\$1 | (inverting) |
| | (if offset 5300 = 1 then Battery Switch = 0 else Battery Switch = 1) |
| BATTERY_SWITCH=5300b00000100 | (bit offset) |
| | (if offset 5300 = 4 then Battery Switch = 1 else Battery Switch = 0) |
| BATTERY_SWITCH=5300\$1b00001000 | (Inverted bit offset) |
| | (if offset 5300 = 8 then Battery Switch = 0 else Battery Switch = 1) |
| BATTERY_SWITCH=5300b2 | (bit offset) |
| | (if offset 5300 = 4 then Battery Switch = 1 else Battery Switch = 0) |
| BATTERY_SWITCH=5300\$1b3 | (Inverted bit offset) |
| | (if offset 5300 = 8 then Battery Switch = 0 else Battery Switch = 1) |

FSUIPC OUTPUT Offsets

These are assigned in the same way as input offsets, with the exception of BIT offsets.

Syntax : **Item = offset\$invert**(1 or 0)

BATTERY=5301 **(normal)**
 (if battery = ON then
 offset 5301 = 1
 else
 offset 5301 = 0)

BATTERY=5301\$1 **(inverting)**
 (if battery = ON then
 offset 5301 = 0
 else
 offset 5301 = 1)

Note

All Outputs are based on single **byte** offsets with the exception of

| | |
|--------------------|------------------------|
| MCP_SPEED | 2 bytes (Word) |
| MCP_HDG | 2 bytes (Word) |
| MCP_VERTICAL_SPEED | 2 bytes (Word) |
| MCP_ALTITUDE | 4 bytes (Dword) |

MCP MACH

MCP_MACH = output / 100

for example:

MACH 0.87 outputs as 87

FSUIPC Fight Controls Values

Flight controls are assigned as 2 byte (Word)

They are expecting a range of movement of -16383 to 16383 and are passed through the internal Flight Controls calibration. If you do not wish all flight controls to be passed through the internal calibrations then you can set the value = 0.

In this example our Elevator and Aileron values are being read from offsets 5304 and 5300, however Throttle_L is controlled by a joystick connected directly to flight sim and therefore needs to be left unaffected.

[FSUIPC_FLIGHT_CONTROLS]

ELEVATOR_CPT=5304

AILERON_CPT=5300

THROTTLE_L=0

All Flight Control Offset lengths are 2 bytes (Word)

FSUIPC Remote CDU Keypresses

Send the virtual key number to these offsets to remotely control the CDU

ie 49 = 1
65 = A

[FSUIPC_CDU_INPUTS]
CAPTAIN=
FO=
OBS=

FSUIPC MCP Values

MCP Values are assigned as 2 byte (Word)

[FSUIPC_MCP_INPUTS]
MCP_SPEED=53A0
MCP_HDG=53A2
MCP_ALTITUDE=53A4
MCP_VS=53A8

Note:

| | |
|--------------|------------------------|
| MCP_SPEED | 2 bytes (Word) |
| MCP_HDG | 2 bytes (Word) |
| MCP_ALTITUDE | 4 bytes (Dword) |
| MCP_VS | 2 bytes (Word) |

// Use FS formatting

// HDG = value / 65536 * 360

MCP_HDG_FS_FORMAT=1

MCP_HDG is expected FS formatting - like offsets 07CC.

ie: $324\text{deg} = 324 / 360 * 65536 = 58982$

write 58982 to the MCP_HDG offset

// ALT = value ft / 3.28084 * 65536

MCP_ALT_FS_FORMAT=1

MCP_ALTITUDE is expected FS formatting - like offsets 07D4.

ie: $31700\text{ft} = 317(00) = 317 * 1997537 = 633219229$

write 633219229 to the MCP_ALTITUDE offset

if **MCP_ALT_FS_FORMAT=0** or **MCP_HDG_FS_FORMAT=0**

you can directly write 317 or 324 to the offsets.

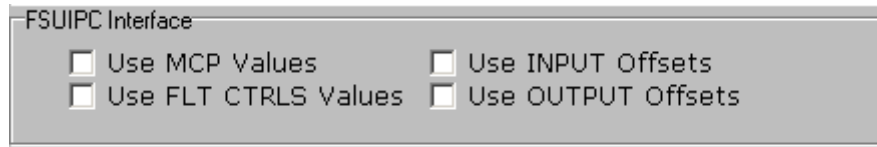
[FSUIPC_EFIS_INPUTS]
CPT_BARO=530A
FO_BARO=530C
MINIMUMS=04FA

All EFIS Inputs Offset lengths are 2 bytes (Word)

MCP_SPEED works slightly differently to the other offsets. To allow this offset to also control MACH the server is looking at the *delta* difference as the value changes. Therefore it is possible for the MCP speed to be out of sync with the value in this offset.

Important

You must enable FSUIPC offset monitoring under the [Main Control Panel] menu

***Additional Offset Detail***

Most offsets with the exception of the one's specified earlier are

byte or length **1**

MFD Display

MFD Display can be controlled by

MFD_DISPLAY_POSITION= & MFD_DISPLAY=

MFD_DISPLAY_POSITION corresponds to the [left] [centre] [right] display buttons on the EICAS Display panel.

MFD_DISPLAY_POSITION = 0 = MFD CENTRE Display

MFD_DISPLAY_POSITION = 1 = MFD LEFT Display (Capt ND)

MFD_DISPLAY_POSITION = 2 = MFD RIGHT Display (FO ND)

Once you've selected which display you're 'talking' to, set

MFD_DISPLAY=

0 = OFF

1 = ENGINE

2 = STATUS

3 = ELEC

4 = HYD

5 = FUEL

6 = AIR

7 = DOOR

8 = GEAR

9 = FCTL

10 = CHKL

11 = COMM

12 = NAV

13 = Camera

14 = Maintenance

Alternatively you can write the above values directly to

MFD_LEFT_DISPLAY=

MFD_CENTRE_DISPLAY=

MFD_RIGHT_DISPLAY=

Specific Offset Mapping

ND_CAPTAIN_RANGE & ND_FO_RANGE

| Range | FSUIPC Value |
|--------------|---------------------|
| 10 | 0 |
| 20 | 1 |
| 40 | 2 |
| 80 | 3 |
| 160 | 4 |
| 320 | 5 |
| 640 | 6 |

ND_CAPTAIN_MODE & ND_FO_MODE

| Mode | FSUIPC Value |
|-------------|---------------------|
| Plan Mode | 0 |
| Map Mode | 1 |
| VOR Mode | 2 |
| APP Mode | 3 |

ND_CAPTAIN_RADIO_L ND_CAPTAIN_RADIO_R ND_FO_RADIO_L ND_FO_RADIO_R

| Mode | FSUIPC Value |
|-------------|---------------------|
| OFF | 0 |
| VOR L/R | 1 |
| ADR L/R | 2 |

APU_SWITCH

| Mode | FSUIPC Value |
|-------------|---------------------|
| OFF | 0 |
| ON | 1 |
| START | 2 |

HYD Demand Pumps

| Mode | FSUIPC Value |
|-------------|---------------------|
| OFF | 0 |
| ON | 1 |
| AUTO | 2 |

Engine Starters

| Mode | FSUIPC Value |
|-------|--------------|
| OFF | 0 |
| START | 1 |
| CON | 2 |

AutoBrake

| Mode | FSUIPC Value |
|------|--------------|
| OFF | 0 |
| RTO | 1 |
| 1 | 2 |
| 2 | 3 |
| 3 | 4 |
| 4 | 5 |
| MAX | 6 |

COMMANDED_GEAR_POSITION

| Mode | FSUIPC Value |
|------|--------------|
| UP | 0 |
| DOWN | 1 |

COMMANDED_FLAP_POSITION

| Position | FSUIPC Value |
|----------|--------------|
| UP | 0 |
| 1 | 1 |
| 5 | 5 |
| 15 | 15 |
| 20 | 20 |
| 25 | 25 |
| 30 | 30 |

No Smoking / Seatbelts / Anti Ice

| Mode | FSUIPC Value |
|------|--------------|
| OFF | 0 |
| ON | 1 |
| AUTO | 2 |

To simulate the A/P **ON** switches use **MCP_ENGAGED=**
Set value **1** when the switch is pressed **0** when it is released

EFIS

For the below assignments you can use

| Function | FSUIPC Value |
|----------|--------------|
| OFF | 0 |
| ON | 1 |
| TOGGLE | 2 |

ND_CAPTAIN_CENTRED=
ND_CAPTAIN_WXR=
ND_CAPTAIN_APT=
ND_CAPTAIN_STA=
ND_CAPTAIN_WPT=
ND_CAPTAIN_DATA=
ND_CAPTAIN_POS=
ND_CAPTAIN_TER=
ND_CAPTAIN_TFC=
ND_CAPTAIN_MTRS=
ND_CAPTAIN_FPV=
ND_FO_CENTRED=
ND_FO_WXR=
ND_FO_APT=
ND_FO_STA=
ND_FO_WPT=
ND_FO_DATA=
ND_FO_POS=
ND_FO_TER=
ND_FO_TFC=
ND_FO_MTRS=
ND_FO_FPV=

DOORS

The Door assignments

| Function | FSUIPC Value |
|---------------------|--------------|
| OPEN | 0 |
| CLOSED MANUAL | 1 |
| CLOSED AUTOMATIC | 2 |

Additional Light and Switch Assignment Information**[FSUIPC_OUTPUTS]**

MCP_ON= MCP ON light
MCP_OPEN_SPEED_WINDOW= if 1 Display MCP_SPEED else Blank display
MCP_HDG_HOLD_ENGAGED= MCP HDG Hold light
MCP_ALT_HOLD_ENGAGED= MCP ALT Hold Light
MCP_IAS_HOLD_ENGAGED= MCP A/T Light
MCP_VS_ENGAGED= MCP V/S Light
MCP_LNAV= MCP LNAV Light
MCP_VNAV= MCP VNAV Light
MCP_FLCH= MCP FLCH Light
MCP_LOC= MCP LOC Light
MCP_APP= MCP APP Light

EXTERNAL_POWER_1_LIGHT= Elec Primary External power Light
EXTERNAL_POWER_2_LIGHT= Elec Secondary External power Light

[FSUIPC_INPUTS]

MCP_ENGAGED= MCP ON Button
MCP_DISCONNECT= MCP Disconnect on the Yoke : pulse 1 the 0 (Double click)
MCP_ON= Direct control Engaged = 1 Disengaged = 0

MCP_AUTOTHROTTLE_ARM_L= Autothrottle Arm L switch
MCP_AUTOTHROTTLE_ARM_R= Autothrottle Arm R switch
MCP_TOGGLE_AUTOTHROTTLE_ENGAGED= MCP Autothrottle Engaged button :Pulse 1 then 0
MCP_AUTOTHROTTLE_DISCONNECT= MCP Autothrottle Disconnect button on the throttles
 pulse 1 then 0 (double click)

MCP_AUTOTHROTTLE_ENGAGED= Direct control Engaged = 1 Disengaged = 0

EXTERNAL_POWER_1_AVAILABLE= Elec Primary External Power is Available
EXTERNAL_POWER_1_SELECTED= Elec Primary External Power switch is selected
EXTERNAL_POWER_2_AVAILABLE= Elec Secondary External Power is Available
EXTERNAL_POWER_2_SELECTED= Elec Secondary External Power switch is selected

If set to 1 they inhibit the GPWS warnings. (0 enables them)

GPWS_INHIBIT_GS=
GPWS_INHIBIT_FLAP=
GPWS_INHIBIT_GEAR=
GPWS_INHIBIT_SINK=
GPWS_INHIBIT_TERRAIN=
GPWS_GROUND_PROX=

FAILURE MODES are not yet implemented.
 They will be used when the **Instructor Station** is released

Multi Function Offset

This is an alternative method of sending switch presses.
Instead of assigning individual offsets to a switch function, ALL switch functions can be controlled via a single offset by setting the offset to specific values.

To enable this functionality:

In the **FSUIPC_IO.INI** add/modify

[FSUIPC_MULTI_FUNCTION]

MULTI_FUNCTION=53FE

(Any spare 2 byte offset)

Ensure that ***Use INPUT Offsets*** is enabled in the Server Main Control Panel

The Multi Function Offset is a **WORD (Length 2 bytes)**

Examples:

Write the value of **4** to offset **53FE** to set the Captains ND Mode to PLAN

Write the value of **43** to offset **53FE** to set the Captains ND Range to 40 nm

Write the value of **90** to offset **53FE** to toggle the STATIONS ON/OFF on the Captains ND

Write the value of **726** to offset **53FE** to set the APU switch to START

As soon as the Server processes the value the offset is reset to **0** ready for the next command.

For easy reading listed below are the assignments for the B777 and B737 aircraft.

B777 Function Mapping

| Value | Description |
|-------|---|
| 1 | ND CAPTAIN MODE = MAP |
| 3 | ND CAPTAIN MODE = VOR |
| 4 | ND CAPTAIN MODE = PLAN |
| 5 | ND CAPTAIN MODE = APP |
| 6 | TOGGLE ND CAPTAIN CENTRED |
| 14 | TOGGLE ND CAPTAIN FPV |
| 41 | ND CAPTAIN RANGE = 10 |
| 42 | ND CAPTAIN RANGE = 20 |
| 43 | ND CAPTAIN RANGE = 40 |
| 44 | ND CAPTAIN RANGE = 80 |
| 45 | ND CAPTAIN RANGE = 160 |
| 46 | ND CAPTAIN RANGE = 320 |
| 47 | ND CAPTAIN RANGE = 640 |
| 50 | TCAS MODE SWITCH = OFF |
| 51 | TCAS MODE SWITCH = 1 (SQUAWKBOX) |
| 52 | TCAS MODE SWITCH = 2 (SQUAWKBOX + ND TRAFFIC) |
| 53 | TCAS MODE SWITCH = 3 (SQUAWKBOX + ND TRAFFIC + AUDIO) |
| 54 | TCAS MODE SWITCH = 4 (SQUAWKBOX + ND TRAFFIC + AUDIO + RESOLUTIONS) |
| 70 | ND CAPTAIN WXR = OFF |
| 71 | ND CAPTAIN WXR = ON |
| 72 | TOGGLE ND CAPTAIN WXR |
| 73 | ND CAPTAIN RADIO L = OFF |
| 74 | ND CAPTAIN RADIO L = ADF |
| 75 | ND CAPTAIN RADIO L = VOR |
| 76 | ND CAPTAIN RADIO R = OFF |
| 77 | ND CAPTAIN RADIO R = ADF |
| 78 | ND CAPTAIN RADIO R = VOR |
| 80 | ND CAPTAIN TER = OFF |
| 81 | ND CAPTAIN TER = ON |
| 82 | TOGGLE ND CAPTAIN TER |
| 90 | TOGGLE ND CAPTAIN STA |
| 93 | TOGGLE ND CAPTAIN WPT |
| 94 | TOGGLE ND CAPTAIN APT |
| 95 | TOGGLE ND CAPTAIN DATA |
| 96 | TOGGLE ND CAPTAIN POS |
| 97 | TOGGLE ND CAPTAIN MTRS |
| 98 | TOGGLE ND CAPTAIN TFC |
| | |
| 101 | ND FO MODE = MAP |

| | |
|-----|-------------------------|
| 103 | ND FO MODE = VOR |
| 104 | ND FO MODE = PLAN |
| 105 | ND FO MODE = APP |
| 106 | TOGGLE ND FO CENTRED |
| 114 | TOGGLE ND FO FPV |
| 141 | ND FO RANGE = 10 |
| 142 | ND FO RANGE = 20 |
| 143 | ND FO RANGE = 40 |
| 144 | ND FO RANGE = 80 |
| 145 | ND FO RANGE = 160 |
| 146 | ND FO RANGE = 320 |
| 147 | ND FO RANGE = 640 |
| 170 | ND FO WXR = OFF |
| 171 | ND FO WXR = ON |
| 172 | TOGGLE ND FO WXR |
| 173 | ND FO RADIO L = OFF |
| 174 | ND FO RADIO L = ADF |
| 175 | ND FO RADIO L = VOR |
| 176 | ND FO RADIO R = OFF |
| 177 | ND FO RADIO R = ADF |
| 178 | ND FO RADIO R = VOR |
| 180 | ND FO TER = OFF |
| 181 | ND FO TER = ON |
| 182 | TOGGLE ND FO TER |
| 190 | TOGGLE ND FO STA |
| 193 | TOGGLE ND FO WPT |
| 194 | TOGGLE ND FO APT |
| 195 | TOGGLE ND FO DATA |
| 196 | TOGGLE ND FO POS |
| 197 | TOGGLE ND FO MTRS |
| 198 | TOGGLE ND FO TFC |
| | |
| 300 | MFD DISPLAY = OFF |
| 301 | MFD DISPLAY = ENGINE |
| 302 | MFD DISPLAY = STATUS |
| 303 | MFD DISPLAY = ELEC |
| 304 | MFD DISPLAY = HYD |
| 305 | MFD DISPLAY = FUEL |
| 306 | MFD DISPLAY = AIR |
| 307 | MFD DISPLAY = DOOR |
| 308 | MFD DISPLAY = GEAR |
| 309 | MFD DISPLAY = FLT CTRLS |
| 310 | MFD DISPLAY = CHECKLIST |

| | |
|-----|---------------------------------------|
| 311 | MFD DISPLAY = COMMS |
| 312 | MFD DISPLAY = NAV |
| 313 | MFD DISPLAY = GROUND CAMERA |
| 314 | MFD DISPLAY = MAINTENANCE |
| 315 | EICAS RECALL (CANCEL / RECALL BUTTON) |
| 316 | MFD DISPLAY POSITION = MFD |
| 317 | MFD DISPLAY POSITION = CPT ND |
| 318 | MFD DISPLAY POSITION = FO ND |
| 422 | NO SMOKING = ON |
| 423 | NO SMOKING = OFF |
| 424 | NO SMOKING = AUTO |
| 425 | SEATBELTS = ON |
| 426 | SEATBELTS = OFF |
| 427 | SEATBELTS = AUTO |
| | |
| 430 | ATTEND CALL |
| 431 | GND CALL |
| | |
| 500 | COMMANDED FLAP POSITION = UP |
| 501 | COMMANDED FLAP POSITION = 1 |
| 503 | COMMANDED FLAP POSITION = 5 |
| 505 | COMMANDED FLAP POSITION = 15 |
| 506 | COMMANDED FLAP POSITION = 20 |
| 507 | COMMANDED FLAP POSITION = 25 |
| 508 | COMMANDED FLAP POSITION = 30 |
| 510 | COMMANDED GEAR POSITION = UP |
| 511 | COMMANDED GEAR POSITION = DOWN |
| | |
| 512 | AUTOBRAKE = OFF |
| 513 | AUTOBRAKE = RTE |
| 514 | AUTOBRAKE = 1 |
| 515 | AUTOBRAKE = 2 |
| 516 | AUTOBRAKE = 3 |
| 517 | AUTOBRAKE = 4 |
| 518 | AUTOBRAKE = MAX |
| | |
| 520 | TOGGLE STD SET CAPT |
| 521 | TOGGLE STD SET FO |
| 522 | CAPT BARO = HPA |
| 523 | CAPT BARO = INS |
| 524 | FO BARO = HPA |
| 525 | FO BARO = INS |
| 526 | MINIMUMS MODE CPT = RADIO |

| | |
|-----|--------------------------------|
| 527 | MINIMUMS MODE CPT = BARO |
| 528 | MINIMUMS MODE FO = RADIO |
| 529 | MINIMUMS MODE FO = BARO |
| 530 | MINIMUMS RESET |
| | |
| 533 | INBOARD DSPL L = MFD |
| 534 | INBOARD DSPL L = NAV |
| 535 | INBOARD DSPL L = PFD |
| 536 | INBOARD DSPL L = EICAS |
| 537 | INBOARD DSPL R = MFD |
| 538 | INBOARD DSPL R = NAV |
| 539 | INBOARD DSPL R = PFD |
| 540 | INBOARD DSPL R = EICAS |
| | |
| 550 | MCP ENGAGED |
| 551 | MCP DISCONNECT |
| 552 | MCP ON = OFF |
| 553 | MCP ON = ON |
| 554 | MCP FLTDIR L = OFF |
| 555 | MCP FLTDIR L = ON |
| 556 | MCP FLTDIR R = OFF |
| 557 | MCP FLTDIR R = ON |
| 558 | MCP AUTOTHROTTLE ARM L = OFF |
| 559 | MCP AUTOTHROTTLE ARM L = ON |
| 560 | MCP AUTOTHROTTLE ARM R = OFF |
| 561 | MCP AUTOTHROTTLE ARM R = ON |
| 562 | MCP AUTOTHROTTLE ENGAGED |
| 563 | MCP AUTOTHROTTLE DISCONNECT |
| 564 | MCP AUTOTHROTTLE ENGAGED = OFF |
| 565 | MCP AUTOTHROTTLE ENGAGED = ON |
| 566 | MCP CLB CON |
| 567 | MCP TOGA |
| 568 | MCP TOGGLE HDG TRACK SELECTOR |
| 569 | MCP HDG TRACK SELECTOR = HDG |
| 570 | MCP HDG TRACK SELECTOR = TRACK |
| 571 | MCP TOGGLE VS FPA SELECTOR |
| 572 | MCP VS FPA SELECTOR = VS |
| 573 | MCP VS FPA SELECTOR = FPA |
| 574 | MCP TOGGLE MACH SPEED SELECTOR |
| 575 | MCP MACH SPEED SELECTOR = IAS |
| 576 | MCP MACH SPEED SELECTOR = MACH |
| 577 | MCP TOGGLE SPEED WINDOW |
| 578 | MCP OPEN SPEED WINDOW = BLANK |

| | |
|-----|---------------------------------------|
| 579 | MCP OPEN SPEED WINDOW = OPEN |
| 580 | MCP HDG HOLD ENGAGED |
| 581 | MCP HDG SELECT ENGAGED |
| 582 | MCP ALT HOLD ENGAGED |
| 583 | MCP ALT SELECT ENGAGED |
| 584 | MCP VS ENGAGED |
| 585 | MCP LNAV |
| 586 | MCP VNAV |
| 587 | MCP FLCH |
| 588 | MCP LOC |
| 589 | MCP APP |
| | |
| 590 | PARKING BRAKE = OFF |
| 591 | PARKING BRAKE = ON |
| | |
| 592 | MASTER WARNING/CAUTION PUSH |
| 601 | A/P Disengage Bar UP |
| 602 | A/P Disengage Bar DOWN |
| | |
| 700 | GROUND POWER PRIMARY SELECTED = OFF |
| 701 | GROUND POWER PRIMARY SELECTED = ON |
| 702 | GROUND POWER SECONDARY SELECTED = OFF |
| 703 | GROUND POWER SECONDARY SELECTED = ON |
| 704 | BATTERY SWITCH = OFF |
| 705 | BATTERY SWITCH = ON |
| 706 | ELEC BUS TIE L SWITCH = OFF |
| 707 | ELEC BUS TIE L SWITCH = ON |
| 708 | ELEC BUS TIE R SWITCH = OFF |
| 709 | ELEC BUS TIE R SWITCH = ON |
| 710 | ELEC ENG GEN L SWITCH = OFF |
| 711 | ELEC ENG GEN L SWITCH = ON |
| 712 | ELEC ENG GEN R SWITCH = OFF |
| 713 | ELEC ENG GEN R SWITCH = ON |
| 714 | ELEC ENG GEN DRIVE L SWITCH = OFF |
| 715 | ELEC ENG GEN DRIVE L SWITCH = ON |
| 716 | ELEC ENG GEN DRIVE R SWITCH = OFF |
| 717 | ELEC ENG GEN DRIVE R SWITCH = ON |
| 718 | ELEC BACKUP GEN L SWITCH = OFF |
| 719 | ELEC BACKUP GEN L SWITCH = ON |
| 720 | ELEC BACKUP GEN R SWITCH = OFF |
| 721 | ELEC BACKUP GEN R SWITCH = ON |
| 722 | ADIRU SWITCH = OFF |
| 723 | ADIRU SWITCH = ON |

| | |
|-----|--------------------------------------|
| 724 | APU SWITCH = OFF |
| 725 | APU SWITCH = ON |
| 726 | APU SWITCH = START |
| 727 | ELEC APU GEN SWITCH = OFF |
| 728 | ELEC APU GEN SWITCH = ON |
| | |
| 730 | HYD PUMP PRI ENG L SWITCH = OFF |
| 731 | HYD PUMP PRI ENG L SWITCH = ON |
| 732 | HYD PUMP PRI ELEC C1 SWITCH = OFF |
| 733 | HYD PUMP PRI ELEC C1 SWITCH = ON |
| 734 | HYD PUMP PRI ELEC C2 SWITCH = OFF |
| 735 | HYD PUMP PRI ELEC C2 SWITCH = ON |
| 736 | HYD PUMP PRI ENG R SWITCH = OFF |
| 737 | HYD PUMP PRI ENG R SWITCH = ON |
| 744 | HYD PUMP DEM ELEC L SWITCH = AUTO |
| 745 | HYD PUMP DEM AIR C1 SWITCH = AUTO |
| 746 | HYD PUMP DEM AIR C2 SWITCH = AUTO |
| 747 | HYD PUMP DEM ELEC R SWITCH = AUTO |
| 748 | HYD PUMP DEM ELEC L SWITCH = OFF |
| 749 | HYD PUMP DEM ELEC L SWITCH = ON |
| 750 | HYD PUMP DEM AIR C1 SWITCH = OFF |
| 751 | HYD PUMP DEM AIR C1 SWITCH = ON |
| 752 | HYD PUMP DEM AIR C2 SWITCH = OFF |
| 753 | HYD PUMP DEM AIR C2 SWITCH = ON |
| 754 | HYD PUMP DEM ELEC R SWITCH = OFF |
| 755 | HYD PUMP DEM ELEC R SWITCH = ON |
| 756 | HYD PUMP RAT SWITCH = OFF |
| 757 | HYD PUMP RAT SWITCH = ON |
| | |
| 760 | FUEL PUMP LEFT FWD SWITCH = OFF |
| 761 | FUEL PUMP LEFT FWD SWITCH = ON |
| 762 | FUEL PUMP LEFT AFT SWITCH = OFF |
| 763 | FUEL PUMP LEFT AFT SWITCH = ON |
| 764 | FUEL PUMP RIGHT FWD SWITCH = OFF |
| 765 | FUEL PUMP RIGHT FWD SWITCH = ON |
| 766 | FUEL PUMP RIGHT AFT SWITCH = OFF |
| 767 | FUEL PUMP RIGHT AFT SWITCH = ON |
| 768 | FUEL PUMP CENTRE LEFT SWITCH = OFF |
| 769 | FUEL PUMP CENTRE LEFT SWITCH = ON |
| 770 | FUEL PUMP CENTRE RIGHT SWITCH = OFF |
| 771 | FUEL PUMP CENTRE RIGHT SWITCH = ON |
| 772 | FUEL PUMP CROSSFEED FWD SWITCH = OFF |
| 773 | FUEL PUMP CROSSFEED FWD SWITCH = ON |

| | |
|-----|--------------------------------------|
| 774 | FUEL PUMP CROSSFEED AFT SWITCH = OFF |
| 775 | FUEL PUMP CROSSFEED AFT SWITCH = ON |
| 776 | FUEL JETTISON ARM SWITCH = OFF |
| 777 | FUEL JETTISON ARM SWITCH = ON |
| 778 | FUEL JETTISON L SWITCH = OFF |
| 779 | FUEL JETTISON L SWITCH = ON |
| 780 | FUEL JETTISON R SWITCH = OFF |
| 781 | FUEL JETTISON R SWITCH = ON |
| | |
| 790 | AIR ENG L SWITCH = OFF |
| 791 | AIR ENG L SWITCH = ON |
| 792 | AIR ENG R SWITCH = OFF |
| 793 | AIR ENG R SWITCH = ON |
| 794 | AIR APU SWITCH = OFF |
| 795 | AIR APU SWITCH = ON |
| 796 | AIR ISLN L SWITCH = OFF |
| 797 | AIR ISLN L SWITCH = ON |
| 798 | AIR ISLN C SWITCH = OFF |
| 799 | AIR ISLN C SWITCH = ON |
| 800 | AIR ISLN R SWITCH = OFF |
| 801 | AIR ISLN R SWITCH = ON |
| 802 | AIR PACK L SWITCH = OFF |
| 803 | AIR PACK L SWITCH = ON |
| 804 | AIR PACK R SWITCH = OFF |
| 805 | AIR PACK R SWITCH = ON |
| 806 | AIR TRIM AIR L SWITCH = OFF |
| 807 | AIR TRIM AIR L SWITCH = ON |
| 808 | AIR TRIM AIR R SWITCH = OFF |
| 809 | AIR TRIM AIR R SWITCH = ON |
| 810 | AIR RECIRCULATION UPPER SWITCH = OFF |
| 811 | AIR RECIRCULATION UPPER SWITCH = ON |
| 812 | AIR RECIRCULATION LOWER SWITCH = OFF |
| 813 | AIR RECIRCULATION LOWER SWITCH = ON |
| 814 | AIR EQUIPMENT COOLING SWITCH = OFF |
| 815 | AIR EQUIPMENT COOLING SWITCH = ON |
| 816 | AIR GASPER SWITCH = OFF |
| 817 | AIR GASPER SWITCH = ON |
| 818 | AIR FLIGHT DECK TEMP INCREASE |
| 819 | AIR FLIGHT DECK TEMP DECREASE |
| 820 | AIR CABIN DECK TEMP INCREASE |
| 821 | AIR CABIN DECK TEMP DECREASE |
| 822 | AIR CARGO FWD TEMP INCREASE |
| 823 | AIR CARGO FWD TEMP DECREASE |

| | |
|-----|--------------------------------------|
| 824 | AIR CARGO AFT TEMP INCREASE |
| 825 | AIR CARGO AFT TEMP DECREASE |
| | |
| 830 | ENGINE L STARTER SWITCH = OFF |
| 831 | ENGINE L STARTER SWITCH = START |
| 832 | ENGINE L STARTER SWITCH = CONTINUOUS |
| 833 | ENGINE R STARTER SWITCH = OFF |
| 834 | ENGINE R STARTER SWITCH = START |
| 835 | ENGINE R STARTER SWITCH = CONTINUOUS |
| 836 | ENGINE AUTOSTART SWITCH = OFF |
| 837 | ENGINE AUTOSTART SWITCH = ON |
| 838 | ENGINE EEC L MODE SWITCH = OFF |
| 839 | ENGINE EEC L MODE SWITCH = ON |
| 840 | ENGINE EEC R MODE SWITCH = OFF |
| 841 | ENGINE EEC R MODE SWITCH = ON |
| 842 | ENGINE L FUEL CUTOFF SWITCH = OFF |
| 843 | ENGINE L FUEL CUTOFF SWITCH = ON |
| 844 | ENGINE R FUEL CUTOFF SWITCH = OFF |
| 845 | ENGINE R FUEL CUTOFF SWITCH = ON |
| | |
| 850 | ENGINE L ANTI ICE SWITCH = OFF |
| 851 | ENGINE L ANTI ICE SWITCH = ON |
| 852 | ENGINE L ANTI ICE SWITCH = AUTO |
| 853 | ENGINE R ANTI ICE SWITCH = OFF |
| 854 | ENGINE R ANTI ICE SWITCH = ON |
| 855 | ENGINE R ANTI ICE SWITCH = AUTO |
| 856 | WING ANTI ICE SWITCH = OFF |
| 857 | WING ANTI ICE SWITCH = ON |
| 858 | WING ANTI ICE SWITCH = AUTO |
| | |
| 860 | WINDOW HEAT L1 SWITCH = OFF |
| 861 | WINDOW HEAT L1 SWITCH = ON |
| 862 | WINDOW HEAT L2 SWITCH = OFF |
| 863 | WINDOW HEAT L2 SWITCH = ON |
| 864 | WINDOW HEAT R1 SWITCH = OFF |
| 865 | WINDOW HEAT R1 SWITCH = ON |
| 866 | WINDOW HEAT R2 SWITCH = OFF |
| 867 | WINDOW HEAT R2 SWITCH = ON |
| | |
| 870 | PASSENGER OXYGEN SWITCH = OFF |
| 871 | PASSENGER OXYGEN SWITCH = ON |
| 872 | THRUST ASYM COMP SWITCH = OFF |
| 873 | THRUST ASYM COMP SWITCH = ON |

| | |
|-----|---|
| 874 | PRIMARY FLIGHT COMPUTERS SWITCH = OFF |
| 875 | PRIMARY FLIGHT COMPUTERS SWITCH = ON |
| | |
| 880 | CARGO FIRE ARM FWD SWITCH = OFF |
| 881 | CARGO FIRE ARM FWD SWITCH = ON |
| 882 | CARGO FIRE ARM AFT SWITCH = OFF |
| 883 | CARGO FIRE ARM AFT SWITCH = ON |
| 884 | CARGO FIRE DISCHARGE SWITCH = OFF |
| 885 | CARGO FIRE DISCHARGE SWITCH = ON |
| | |
| 890 | LIGHTS LANDING = OFF |
| 891 | LIGHTS LANDING = ON |
| 892 | LIGHTS STORM = OFF |
| 893 | LIGHTS STORM = ON |
| 894 | LIGHTS BEACON = OFF |
| 895 | LIGHTS BEACON = ON |
| 896 | LIGHTS NAV = OFF |
| 897 | LIGHTS NAV = ON |
| 898 | LIGHTS LOGO = OFF |
| 899 | LIGHTS LOGO = ON |
| 900 | LIGHTS WING = OFF |
| 901 | LIGHTS WING = ON |
| 902 | LIGHTS RWY TURNOFF = OFF |
| 903 | LIGHTS RWY TURNOFF = ON |
| 904 | LIGHTS TAXI = OFF |
| 905 | LIGHTS TAXI = ON |
| 906 | LIGHTS STROBE = OFF |
| 907 | LIGHTS STROBE = ON |
| | |
| 920 | AIR OUTFLOW VALVE FWD AUTO SWITCH = OFF |
| 921 | AIR OUTFLOW VALVE FWD AUTO SWITCH = ON |
| 922 | AIR OUTFLOW VALVE AFT AUTO SWITCH = OFF |
| 923 | AIR OUTFLOW VALVE AFT AUTO SWITCH = ON |
| 924 | AIR OUTFLOW VALVE FWD OPEN |
| 925 | AIR OUTFLOW VALVE FWD CLOSE |
| 926 | AIR OUTFLOW VALVE AFT OPEN |
| 927 | AIR OUTFLOW VALVE AFT CLOSE |
| | |
| 940 | GPWS INHIBIT GS = OFF |
| 941 | GPWS INHIBIT GS = ON |
| 942 | GPWS INHIBIT FLAP = OFF |
| 943 | GPWS INHIBIT FLAP = ON |
| 944 | GPWS INHIBIT GEAR = OFF |

| | |
|------|---------------------------------|
| 945 | GPWS INHIBIT GEAR = ON |
| 946 | GPWS INHIBIT SINK = OFF |
| 947 | GPWS INHIBIT SINK = ON |
| 948 | GPWS INHIBIT TERRAIN = OFF |
| 949 | GPWS INHIBIT TERRAIN = ON |
| | |
| 1000 | DOOR ENTRY 1L - OPEN |
| 1001 | DOOR ENTRY 1L - CLOSED - MANUAL |
| 1002 | DOOR ENTRY 1L - CLOSED - AUTO |
| 1003 | DOOR ENTRY 2L - OPEN |
| 1004 | DOOR ENTRY 2L - CLOSED - MANUAL |
| 1005 | DOOR ENTRY 2L - CLOSED - AUTO |
| 1006 | DOOR ENTRY 3L - OPEN |
| 1007 | DOOR ENTRY 3L - CLOSED - MANUAL |
| 1008 | DOOR ENTRY 3L - CLOSED - AUTO |
| 1009 | DOOR ENTRY 4L - OPEN |
| 1010 | DOOR ENTRY 4L - CLOSED - MANUAL |
| 1011 | DOOR ENTRY 4L - CLOSED - AUTO |
| 1012 | DOOR ENTRY 1R - OPEN |
| 1013 | DOOR ENTRY 1R - CLOSED - MANUAL |
| 1014 | DOOR ENTRY 1R - CLOSED - AUTO |
| 1015 | DOOR ENTRY 2R - OPEN |
| 1016 | DOOR ENTRY 2R - CLOSED - MANUAL |
| 1017 | DOOR ENTRY 2R - CLOSED - AUTO |
| 1018 | DOOR ENTRY 3R - OPEN |
| 1019 | DOOR ENTRY 3R - CLOSED - MANUAL |
| 1020 | DOOR ENTRY 3R - CLOSED - AUTO |
| 1021 | DOOR ENTRY 4R - OPEN |
| 1022 | DOOR ENTRY 4R - CLOSED - MANUAL |
| 1023 | DOOR ENTRY 4R - CLOSED - AUTO |
| 1024 | DOOR FWD ACCESS - OPEN |
| 1025 | DOOR FWD ACCESS - CLOSED |
| 1026 | DOOR TT ACCESS - OPEN |
| 1027 | DOOR TT ACCESS - CLOSED |
| 1028 | DOOR FWD CARGO - OPEN |
| 1029 | DOOR FWD CARGO - CLOSED |
| 1030 | DOOR AFT CARGO - OPEN |
| 1031 | DOOR AFT CARGO - CLOSED |
| 1032 | DOOR AFT CARGO2 - OPEN |
| 1033 | DOOR AFT CARGO2 - CLOSED |
| | |
| 1040 | DOORS TO MANUAL |
| 1041 | DOORS TO AUTOMATIC |

| | |
|------|--|
| 1200 | DISPLAY BRIGHTNESS CPT PFD LEVEL = LOW |
| 1201 | DISPLAY BRIGHTNESS CPT PFD LEVEL = MED |
| 1202 | DISPLAY BRIGHTNESS CPT PFD LEVEL = HIGH |
| 1203 | DISPLAY BRIGHTNESS CPT ND LEVEL = LOW |
| 1204 | DISPLAY BRIGHTNESS CPT ND LEVEL = MED |
| 1205 | DISPLAY BRIGHTNESS CPT ND LEVEL = HIGH |
| 1206 | DISPLAY BRIGHTNESS FO PFD LEVEL = LOW |
| 1207 | DISPLAY BRIGHTNESS FO PFD LEVEL = MED |
| 1208 | DISPLAY BRIGHTNESS FO_PFD LEVEL = HIGH |
| 1209 | DISPLAY BRIGHTNESS FO ND LEVEL = LOW |
| 1210 | DISPLAY BRIGHTNESS FO ND LEVEL = MED |
| 1211 | DISPLAY BRIGHTNESS FO ND LEVEL = HIGH |
| 1212 | DISPLAY BRIGHTNESS EICAS LEVEL = LOW |
| 1213 | DISPLAY BRIGHTNESS EICAS LEVEL = MED |
| 1214 | DISPLAY BRIGHTNESS EICAS LEVEL = HIGH |
| 1215 | DISPLAY BRIGHTNESS MFD LEVEL = LOW |
| 1216 | DISPLAY BRIGHTNESS MFD LEVEL = MED |
| 1217 | DISPLAY BRIGHTNESS MFD LEVEL = HIGH |
| | |
| 1220 | CLOCK CPT CHR MODE = STOP |
| 1221 | CLOCK CPT CHR MODE = RUN |
| 1222 | CLOCK CPT CHR MODE = RESET |
| 1223 | CLOCK CPT ELAPSED TIME MODE = HOLD |
| 1224 | CLOCK CPT ELAPSED TIME MODE = RUN |
| 1225 | CLOCK CPT ELAPSED TIME MODE = RESET |
| 1226 | CLOCK CPT DATE MODE = TIME |
| 1227 | CLOCK CPT DATE MODE = DATE |
| 1228 | CLOCK CPT TIME MODE = UTC |
| 1229 | CLOCK CPT TIME MODE = MAN |
| 1230 | CLOCK CPT SET MODE = RUN |
| 1231 | CLOCK CPT SET MODE = HLDY (Hold / Year) |
| 1232 | CLOCK CPT SET MODE = SSM (Slow Slew Month) |
| 1233 | CLOCK CPT SET MODE = FSD (Fast Slew Day) |
| 1234 | CLOCK CPT CHR / CLOCK Switch Push |
| 1235 | CLOCK CPT DATE Switch Push |
| | |
| 1240 | CLOCK FO CHR MODE = STOP |
| 1241 | CLOCK FO CHR MODE = RUN |
| 1242 | CLOCK FO CHR MODE = RESET |
| 1243 | CLOCK FO ELAPSED TIME MODE = HOLD |
| 1244 | CLOCK FO ELAPSED TIME MODE = RUN |
| 1245 | CLOCK FO ELAPSED TIME MODE = RESET |

| | |
|------|---|
| 1246 | CLOCK FO DATE MODE = TIME |
| 1247 | CLOCK FO DATE MODE = DATE |
| 1248 | CLOCK FO DATE MODE = UTC |
| 1249 | CLOCK FO DATE MODE = MAN |
| 1250 | CLOCK FO SET MODE = RUN |
| 1251 | CLOCK FO SET MODE = HLDY (Hold / Year) |
| 1252 | CLOCK FO SET MODE = SSM (Slow Slew Month) |
| 1253 | CLOCK FO SET MODE = FSD (Fast Slew Day) |
| 1254 | CLOCK FO CHR / CLOCK Switch Push |
| 1255 | CLOCK FO DATE Switch Push |
| | |
| 1260 | CLOCK CPT CHR Button |
| 1261 | CLOCK CPT ET RUN / HOLD Button |
| 1262 | CLOCK CPT ET RESET Button |
| 1263 | CLOCK CPT DATE / TIME Button |
| 1264 | CLOCK CPT SET Button |
| 1265 | CLOCK CPT SET - Button |
| 1266 | CLOCK CPT SET + Button |
| 1270 | CLOCK FO CHR Button |
| 1271 | CLOCK FO ET RUN / HOLD Button |
| 1272 | CLOCK FO ET RESET Button |
| 1273 | CLOCK FO DATE / TIME Button |
| 1274 | CLOCK FO SET Button |
| 1275 | CLOCK FO SET - Button |
| 1276 | CLOCK FO SET + Button |
| | |
| 2000 | GROUND POWER PRIMARY CONNECTED |
| 2001 | GROUND POWER PRIMARY DISCONNECTED |
| 2002 | GROUND POWER SECONDARY CONNECTED |
| 2003 | GROUND POWER SECONDARY DISCONNECTED |
| 2004 | GROUND AIR CONNECTED |
| 2005 | GROUND AIR DISCONNECTED |
| | |
| 2100 | ACCEPT ACARS REQUEST |
| 2101 | DECLINE ACARS REQUEST |
| 2102 | CANCEL ACARS REQUEST |

B737 Function Mapping

Most of these values are duplicates of the 777's, but some are new for the 737 or have a 737 description.

| Value | Description |
|-------|---|
| 1 | ND CAPTAIN MODE = MAP |
| 3 | ND CAPTAIN MODE = VOR |
| 4 | ND CAPTAIN MODE = PLAN |
| 5 | ND CAPTAIN MODE = APP |
| 6 | TOGGLE ND CAPTAIN CENTRED |
| 14 | TOGGLE ND CAPTAIN FPV |
| 40 | ND CAPTAIN RANGE = 2.5 |
| 41 | ND CAPTAIN RANGE = 5 |
| 42 | ND CAPTAIN RANGE = 10 |
| 43 | ND CAPTAIN RANGE = 20 |
| 44 | ND CAPTAIN RANGE = 40 |
| 45 | ND CAPTAIN RANGE = 80 |
| 46 | ND CAPTAIN RANGE = 160 |
| 47 | ND CAPTAIN RANGE = 320 |
| 48 | ND CAPTAIN RANGE = 640 |
| 50 | TCAS MODE SWITCH = OFF |
| 51 | TCAS MODE SWITCH = 1 (SQUAWKBOX) |
| 52 | TCAS MODE SWITCH = 2 (SQUAWKBOX + ND TRAFFIC) |
| 53 | TCAS MODE SWITCH = 3 (SQUAWKBOX + ND TRAFFIC + AUDIO) |
| 54 | TCAS MODE SWITCH = 4 (SQUAWKBOX + ND TRAFFIC + AUDIO + RESOLUTIONS) |
| 70 | ND CAPTAIN WXR = OFF |
| 71 | ND CAPTAIN WXR = ON |
| 72 | TOGGLE ND CAPTAIN WXR |
| 73 | ND CAPTAIN RADIO L = OFF |
| 74 | ND CAPTAIN RADIO L = ADF |
| 75 | ND CAPTAIN RADIO L = VOR |
| 76 | ND CAPTAIN RADIO R = OFF |
| 77 | ND CAPTAIN RADIO R = ADF |
| 78 | ND CAPTAIN RADIO R = VOR |
| 80 | ND CAPTAIN TER = OFF |
| 81 | ND CAPTAIN TER = ON |
| 82 | TOGGLE ND CAPTAIN TER |
| 90 | TOGGLE ND CAPTAIN STA |
| 93 | TOGGLE ND CAPTAIN WPT |
| 94 | TOGGLE ND CAPTAIN APT |
| 95 | TOGGLE ND CAPTAIN DATA |
| 96 | TOGGLE ND CAPTAIN POS |

| | |
|-----|------------------------|
| 97 | TOGGLE ND CAPTAIN MTRS |
| 98 | TOGGLE ND CAPTAIN TFC |
| | |
| 101 | ND FO MODE = MAP |
| 103 | ND FO MODE = VOR |
| 104 | ND FO MODE = PLAN |
| 105 | ND FO MODE = APP |
| 106 | TOGGLE ND FO CENTRED |
| 114 | TOGGLE ND FO FPV |
| 140 | ND FO RANGE = 2.5 |
| 141 | ND FO RANGE = 5 |
| 142 | ND FO RANGE = 10 |
| 143 | ND FO RANGE = 20 |
| 144 | ND FO RANGE = 40 |
| 145 | ND FO RANGE = 80 |
| 146 | ND FO RANGE = 160 |
| 147 | ND FO RANGE = 320 |
| 148 | ND FO RANGE = 640 |
| 170 | ND FO WXR = OFF |
| 171 | ND FO WXR = ON |
| 172 | TOGGLE ND FO WXR |
| 173 | ND FO RADIO L = OFF |
| 174 | ND FO RADIO L = ADF |
| 175 | ND FO RADIO L = VOR |
| 176 | ND FO RADIO R = OFF |
| 177 | ND FO RADIO R = ADF |
| 178 | ND FO RADIO R = VOR |
| 180 | ND FO TER = OFF |
| 181 | ND FO TER = ON |
| 182 | TOGGLE ND FO TER |
| 190 | TOGGLE ND FO STA |
| 193 | TOGGLE ND FO WPT |
| 194 | TOGGLE ND FO APT |
| 195 | TOGGLE ND FO DATA |
| 196 | TOGGLE ND FO POS |
| 197 | TOGGLE ND FO MTRS |
| 198 | TOGGLE ND FO TFC |
| | |
| 300 | MFD DISPLAY = OFF |
| 301 | MFD DISPLAY = ENGINE |
| 302 | MFD DISPLAY = STATUS |
| 304 | MFD DISPLAY = HYD |
| 305 | MFD DISPLAY = FUEL |

| | |
|-----|---------------------------------------|
| 306 | MFD DISPLAY = AIR |
| 308 | MFD DISPLAY = GEAR |
| 309 | MFD DISPLAY = FLT CTRLS |
| 314 | MFD DISPLAY = MAINTENANCE |
| 315 | EICAS RECALL (CANCEL / RECALL BUTTON) |
| | |
| 422 | NO SMOKING = ON |
| 423 | NO SMOKING = OFF |
| 424 | NO SMOKING = AUTO |
| 425 | SEATBELTS = ON |
| 426 | SEATBELTS = OFF |
| 427 | SEATBELTS = AUTO |
| | |
| 430 | ATTEND CALL |
| 431 | GND CALL |
| | |
| 500 | COMMANDED FLAP POSITION = UP |
| 501 | COMMANDED FLAP POSITION = 1 |
| 502 | COMMANDED FLAP POSITION = 2 |
| 503 | COMMANDED FLAP POSITION = 5 |
| 504 | COMMANDED FLAP POSITION = 10 |
| 505 | COMMANDED FLAP POSITION = 15 |
| 507 | COMMANDED FLAP POSITION = 25 |
| 508 | COMMANDED FLAP POSITION = 30 |
| 509 | COMMANDED FLAP POSITION = 40 |
| 510 | COMMANDED GEAR POSITION = UP |
| 511 | COMMANDED GEAR POSITION = DOWN |
| | |
| 512 | AUTOBRAKE = OFF |
| 513 | AUTOBRAKE = RTE |
| 514 | AUTOBRAKE = 1 |
| 515 | AUTOBRAKE = 2 |
| 516 | AUTOBRAKE = 3 |
| 517 | AUTOBRAKE = 4 |
| 518 | AUTOBRAKE = MAX |
| | |
| 520 | TOGGLE STD SET CAPT |
| 521 | TOGGLE STD SET FO |
| 522 | CAPT BARO = HPA |
| 523 | CAPT BARO = INS |
| 524 | FO BARO = HPA |
| 525 | FO BARO = INS |
| 526 | MINIMUMS MODE CPT = RADIO |

| | |
|-----|--------------------------------|
| 527 | MINIMUMS MODE CPT = BARO |
| 528 | MINIMUMS MODE FO = RADIO |
| 529 | MINIMUMS MODE FO = BARO |
| 530 | MINIMUMS RESET |
| 549 | CMD B Press |
| 550 | CMD A Press |
| 598 | CWS A Press |
| 599 | CWS B Press |
| 551 | MCP DISCONNECT |
| 552 | MCP CMD A = OFF |
| 553 | MCP CMD A = ON |
| 554 | MCP FLTDIR L = OFF |
| 555 | MCP FLTDIR L = ON |
| 556 | MCP FLTDIR R = OFF |
| 557 | MCP FLTDIR R = ON |
| 558 | MCP AUTOTHROTTLE ARM = OFF |
| 559 | MCP AUTOTHROTTLE ARM = ON |
| 562 | MCP AUTOTHROTTLE ENGAGED |
| 563 | MCP AUTOTHROTTLE DISCONNECT |
| 564 | MCP AUTOTHROTTLE ENGAGED = OFF |
| 565 | MCP AUTOTHROTTLE ENGAGED = ON |
| 566 | MCP CLB CON |
| 567 | MCP TOGA |
| | |
| 574 | MCP TOGGLE MACH SPEED SELECTOR |
| 575 | MCP MACH SPEED SELECTOR = IAS |
| 576 | MCP MACH SPEED SELECTOR = MACH |
| 577 | MCP TOGGLE SPEED WINDOW |
| 578 | MCP OPEN SPEED WINDOW = BLANK |
| 579 | MCP OPEN SPEED WINDOW = OPEN |
| 580 | MCP HDG HOLD ENGAGED |
| 581 | MCP HDG SELECT ENGAGED |
| 582 | MCP ALT HOLD ENGAGED |
| 583 | MCP ALT SELECT ENGAGED |
| 584 | MCP VS ENGAGED |
| 585 | MCP LNAV |
| 586 | MCP VNAV |
| 587 | MCP FLCH |
| 588 | MCP LOC |
| 589 | MCP APP |
| | |
| 590 | PARKING BRAKE = OFF |
| 591 | PARKING BRAKE = ON |

| | |
|-----|---------------------------------|
| 592 | MASTER WARNING/CAUTION PUSH |
| 593 | MCP CMD B = OFF |
| 594 | MCP CMD B = ON |
| 595 | A/P P/RST |
| 596 | A/T P/RST |
| 597 | FMC P/RST |
| 600 | Fire Bell Press |
| 601 | A/P Disengage Bar UP |
| 602 | A/P Disengage Bar DOWN |
| 603 | MCP CWS A = OFF |
| 604 | MCP CWS A = ON |
| 605 | MCP CWS B = OFF |
| 606 | MCP CWS B = ON |
| | |
| 666 | ELEC CABIN UTILITY = OFF |
| 667 | ELEC CABIN UTILITY = ON |
| 668 | ELEC IFE / PASS SEAT = OFF |
| 669 | ELEC IFE / PASS SEAT = ON |
| 670 | ELEC DC SELECTOR = STBY PWR |
| 671 | ELEC DC SELECTOR = BAT BUS |
| 672 | ELEC DC SELECTOR = BAT |
| 673 | ELEC DC SELECTOR = TR2 |
| 674 | ELEC DC SELECTOR = TR2 |
| 675 | ELEC DC SELECTOR = TR3 |
| 676 | ELEC DC SELECTOR = TEST |
| 680 | ELEC AC SELECTOR = STBY PWR |
| 681 | ELEC AC SELECTOR = GND PWR |
| 682 | ELEC AC SELECTOR = GEN1 |
| 683 | ELEC AC SELECTOR = APU GEN |
| 684 | ELEC AC SELECTOR = GEN2 |
| 685 | ELEC AC SELECTOR = INV |
| 686 | ELEC AC SELECTOR = TEST |
| 696 | ELEC STANDBY POWER SWITCH = OFF |
| 697 | ELEC STANDBY POWER SWITCH = ON |
| 700 | GND POWER SELECTED = OFF |
| 701 | GND POWER SELECTED = ON |
| 704 | BATTERY SWITCH = OFF |
| 705 | BATTERY SWITCH = ON |
| 706 | ELEC BUS TRANSFER SWITCH = OFF |
| 707 | ELEC BUS TRANSFER SWITCH = ON |
| 710 | ELEC ENG GEN 1 SWITCH = OFF |
| 711 | ELEC ENG GEN 1 SWITCH = ON |

| | |
|------|-----------------------------------|
| 712 | ELEC ENG GEN 2 SWITCH = OFF |
| 713 | ELEC ENG GEN 2 SWITCH = ON |
| 714 | ELEC ENG GEN DRIVE 1 SWITCH = OFF |
| 715 | ELEC ENG GEN DRIVE 1 SWITCH = ON |
| 716 | ELEC ENG GEN DRIVE 2 SWITCH = OFF |
| 717 | ELEC ENG GEN DRIVE 2 SWITCH = ON |
| 722 | ADIRU SWITCH = OFF |
| 723 | ADIRU SWITCH = ON |
| 724 | APU SWITCH = OFF |
| 725 | APU SWITCH = ON |
| 726 | APU SWITCH = START |
| 727 | ELEC APU GEN L SWITCH = OFF |
| 728 | ELEC APU GEN L SWITCH = ON |
| 698 | ELEC APU GEN R SWITCH = OFF |
| 699 | ELEC APU GEN R SWITCH = ON |
| | |
| 730 | HYD PUMP ENG 1 SWITCH = OFF |
| 731 | HYD PUMP ENG 1 SWITCH = ON |
| 732 | HYD PUMP ELEC 2 SWITCH = OFF |
| 733 | HYD PUMP ELEC 2 SWITCH = ON |
| 734 | HYD PUMP ELEC 1 SWITCH = OFF |
| 735 | HYD PUMP ELEC 1 SWITCH = ON |
| 736 | HYD PUMP ENG 2 SWITCH = OFF |
| 737 | HYD PUMP ENG 2 SWITCH = ON |
| 738 | HYD FLT CTRL A SWITCH = OFF |
| 739 | HYD FLT CTRL A SWITCH = ON |
| 740 | HYD FLT CTRL B SWITCH = OFF |
| 741 | HYD FLT CTRL B SWITCH = ON |
| 1050 | HYD SPOILERS A SWITCH = OFF |
| 1051 | HYD SPOILERS A SWITCH = ON |
| 1048 | HYD SPOILERS B SWITCH = OFF |
| 1049 | HYD SPOILERS B SWITCH = ON |
| 742 | HYD ALTERNATE FLAP SWITCH = OFF |
| 743 | HYD ALTERNATE FLAP SWITCH = ON |
| 758 | HYD YAW DAMPRER = OFF |
| 759 | HYD YAW DAMPRER = ON |
| | |
| 760 | FUEL PUMP LEFT FWD SWITCH = OFF |
| 761 | FUEL PUMP LEFT FWD SWITCH = ON |
| 762 | FUEL PUMP LEFT AFT SWITCH = OFF |
| 763 | FUEL PUMP LEFT AFT SWITCH = ON |
| 764 | FUEL PUMP RIGHT FWD SWITCH = OFF |
| 765 | FUEL PUMP RIGHT FWD SWITCH = ON |

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|------|---|
| 766 | FUEL PUMP RIGHT AFT SWITCH = OFF |
| 767 | FUEL PUMP RIGHT AFT SWITCH = ON |
| 768 | FUEL PUMP CENTRE LEFT SWITCH = OFF |
| 769 | FUEL PUMP CENTRE LEFT SWITCH = ON |
| 770 | FUEL PUMP CENTRE RIGHT SWITCH = OFF |
| 771 | FUEL PUMP CENTRE RIGHT SWITCH = ON |
| 772 | FUEL PUMP CROSSFEED FWD SWITCH = OFF |
| 773 | FUEL PUMP CROSSFEED FWD SWITCH = ON |
| | |
| 790 | AIR ENG 1 SWITCH = OFF |
| 791 | AIR ENG 1 SWITCH = ON |
| 792 | AIR ENG 2 SWITCH = OFF |
| 793 | AIR ENG 2 SWITCH = ON |
| 794 | AIR APU SWITCH = OFF |
| 795 | AIR APU SWITCH = ON |
| 798 | AIR ISLN VALVE SWITCH = OFF |
| 799 | AIR ISLN VALVE SWITCH = ON |
| 1122 | AIR ISLN VALVE SWITCH = AUTO |
| 802 | AIR PACK L SWITCH = OFF |
| 803 | AIR PACK L SWITCH = AUTO |
| 804 | AIR PACK R SWITCH = OFF |
| 805 | AIR PACK R SWITCH = AUTO |
| 806 | AIR TRIM AIR SWITCH = OFF |
| 807 | AIR TRIM AIR SWITCH = ON |
| 810 | AIR L RECIRCULATION FAN SWITCH = OFF |
| 811 | AIR L RECIRCULATION FAN SWITCH = ON |
| 812 | AIR R RECIRCULATION FAN SWITCH = OFF |
| 813 | AIR R RECIRCULATION FAN SWITCH = ON |
| 814 | AIR EQUIPMENT COOLING SUPPLY SWITCH = OFF |
| 815 | AIR EQUIPMENT COOLING SUPPLY SWITCH = ON |
| 1052 | TEMPERATURE CONT CABIN = -3 |
| 1053 | TEMPERATURE CONT CABIN = -2 |
| 1054 | TEMPERATURE CONT CABIN = -1 |
| 1055 | TEMPERATURE CONT CABIN = AUTO |
| 1056 | TEMPERATURE CONT CABIN = 1 |
| 1057 | TEMPERATURE CONT CABIN = 2 |
| 1058 | TEMPERATURE CONT CABIN = 3 |
| 1059 | TEMPERATURE FWD CABIN = -3 |
| 1061 | TEMPERATURE FWD CABIN = -2 |
| 1062 | TEMPERATURE FWD CABIN = -1 |
| 1063 | TEMPERATURE FWD CABIN = AUTO |
| 1064 | TEMPERATURE FWD CABIN = 1 |
| 1065 | TEMPERATURE FWD CABIN = 2 |

| | |
|------|--|
| 1066 | TEMPERATURE FWD CABIN = 3 |
| 1067 | TEMPERATURE AFT CABIN = -3 |
| 1068 | TEMPERATURE AFT CABIN = -2 |
| 1069 | TEMPERATURE AFT CABIN = -1 |
| 1070 | TEMPERATURE AFT CABIN = AUTO |
| 1071 | TEMPERATURE AFT CABIN = 1 |
| 1072 | TEMPERATURE AFT CABIN = 2 |
| 1073 | TEMPERATURE AFT CABIN = 3 |
| 826 | AIR EQUIPMENT COOLING EXHAUST SWITCH = OFF |
| 827 | AIR EQUIPMENT COOLING EXHAUST SWITCH = ON |
| 828 | AIR PACK L SWITCH = HIGH |
| 829 | AIR PACK R SWITCH = HIGH |
| 1091 | TRIP RESET |
| 1092 | OVHT TEST |
| 1093 | TEMP ZONE SELECTOR = CONT CAB DUCT SUPPLY |
| 1094 | TEMP ZONE SELECTOR = FWD CAB DUCT SUPPLY |
| 1095 | TEMP ZONE SELECTOR = AFT CAB DUCT SUPPLY |
| 1096 | TEMP ZONE SELECTOR = FWD PASS CABIN |
| 1097 | TEMP ZONE SELECTOR = AFT PASS CABIN |
| 1098 | TEMP ZONE SELECTOR = R PACK |
| 1099 | TEMP ZONE SELECTOR = L_PACK |
| | |
| 830 | ENGINE 1 STARTER SWITCH = OFF |
| 831 | ENGINE 1 STARTER SWITCH = GND / FLT |
| 832 | ENGINE 1 STARTER SWITCH = CONT |
| 833 | ENGINE 2 STARTER SWITCH = OFF |
| 834 | ENGINE 2 STARTER SWITCH = GND / FLT |
| 835 | ENGINE 2 STARTER SWITCH = CONT |
| 838 | ENGINE EEC 1 MODE SWITCH = NORM |
| 839 | ENGINE EEC 1 MODE SWITCH = ALTN |
| 840 | ENGINE EEC 2 MODE SWITCH = NORM |
| 841 | ENGINE EEC 2 MODE SWITCH =ALTN |
| 842 | ENGINE 1 FUEL CUTOFF SWITCH = OFF |
| 843 | ENGINE 1 FUEL CUTOFF SWITCH = ON |
| 844 | ENGINE 2 FUEL CUTOFF SWITCH = OFF |
| 845 | ENGINE 2 FUEL CUTOFF SWITCH = ON |
| | |
| 850 | ENGINE 1 ANTI ICE SWITCH = OFF |
| 851 | ENGINE 1 ANTI ICE SWITCH = ON |
| 853 | ENGINE 2 ANTI ICE SWITCH = OFF |
| 854 | ENGINE 2 ANTI ICE SWITCH = ON |
| 856 | WING ANTI ICE SWITCH = OFF |
| 857 | WING ANTI ICE SWITCH = ON |

| | |
|------|-----------------------------------|
| 860 | WINDOW HEAT L1 SWITCH = OFF |
| 861 | WINDOW HEAT L1 SWITCH = ON |
| 862 | WINDOW HEAT L2 SWITCH = OFF |
| 863 | WINDOW HEAT L2 SWITCH = ON |
| 864 | WINDOW HEAT R1 SWITCH = OFF |
| 865 | WINDOW HEAT R1 SWITCH = ON |
| 866 | WINDOW HEAT R2 SWITCH = OFF |
| 867 | WINDOW HEAT R2 SWITCH = ON |
| 868 | WINDOW HEAT TEST SWITCH = TEST 1 |
| 869 | WINDOW HEAT TEST SWITCH = TEST 2 |
| 859 | WINDOW HEAT TEST SWITCH = OFF |
| 1085 | PROBE HEAT A = OFF |
| 1086 | PROBE HEAT A = ON |
| 1087 | PROBE HEAT B = OFF |
| 1088 | PROBE HEAT B = ON |
| 1089 | ALT HORN CUTOUT = OFF |
| 1090 | ALT HORN CUTOUT = ON |
| | |
| 870 | PASSENGER OXYGEN SWITCH = OFF |
| 871 | PASSENGER OXYGEN SWITCH = ON |
| | |
| 880 | CARGO FIRE ARM FWD SWITCH = OFF |
| 881 | CARGO FIRE ARM FWD SWITCH = ON |
| 882 | CARGO FIRE ARM AFT SWITCH = OFF |
| 883 | CARGO FIRE ARM AFT SWITCH = ON |
| 884 | CARGO FIRE DISCHARGE SWITCH = OFF |
| 885 | CARGO FIRE DISCHARGE SWITCH = ON |
| 888 | EMERGENCY LIGHTS = ON |
| 889 | EMERGENCY LIGHTS = ARMED |
| 890 | LIGHTS LANDING = OFF |
| 891 | LIGHTS LANDING = ON |
| 892 | LIGHTS STORM = OFF |
| 893 | LIGHTS STORM = ON |
| 894 | LIGHTS BEACON = OFF |
| 895 | LIGHTS BEACON = ON |
| 896 | LIGHTS NAV = OFF |
| 897 | LIGHTS NAV = ON |
| 898 | LIGHTS LOGO = OFF |
| 899 | LIGHTS LOGO = ON |
| 900 | LIGHTS WING = OFF |
| 901 | LIGHTS WING = ON |
| 902 | LIGHTS RWY TURNOFF = OFF |

| | |
|------|-----------------------------------|
| 903 | LIGHTS RWY TURNOFF = ON |
| 904 | LIGHTS TAXI = OFF |
| 905 | LIGHTS TAXI = ON |
| 906 | LIGHTS STROBE = OFF |
| 907 | LIGHTS STROBE = ON |
| 908 | LIGHTS LANDING RETRACT L = OFF |
| 909 | LIGHTS LANDING RETRACT L = ON |
| 910 | LIGHTS LANDING RETRACT R = OFF |
| 911 | LIGHTS LANDING RETRACT R = ON |
| 912 | LIGHTS LANDING FIXED L = OFF |
| 913 | LIGHTS LANDING FIXED L = ON |
| 914 | LIGHTS LANDING FIXED R = OFF |
| 915 | LIGHTS LANDING FIXED R = ON |
| 916 | LIGHTS RWY TURNOFF L = OFF |
| 917 | LIGHTS RWY TURNOFF L = ON |
| 918 | LIGHTS RWY TURNOFF R = OFF |
| 919 | LIGHTS RWY TURNOFF R = ON |
| | |
| 924 | AIR OUTFLOW VALVE OPEN |
| 925 | AIR OUTFLOW VALVE CLOSE |
| 928 | AIR OUTFLOW VALVE SWITCH = AUTO |
| 929 | AIR OUTFLOW VALVE SWITCH = ALTN |
| 930 | AIR OUTFLOW VALVE SWITCH = MANUAL |
| | |
| 940 | GPWS INHIBIT GS = OFF |
| 941 | GPWS INHIBIT GS = ON |
| 942 | GPWS INHIBIT FLAP = OFF |
| 943 | GPWS INHIBIT FLAP = ON |
| 944 | GPWS INHIBIT GEAR = OFF |
| 945 | GPWS INHIBIT GEAR = ON |
| 946 | GPWS INHIBIT SINK = OFF |
| 947 | GPWS INHIBIT SINK = ON |
| 948 | GPWS INHIBIT TERRAIN = OFF |
| 949 | GPWS INHIBIT TERRAIN = ON |
| | |
| 980 | WIPER L = OFF |
| 981 | WIPER L = SLOW |
| 982 | WIPER L = FAST |
| 983 | WIPER R = OFF |
| 984 | WIPER R = SLOW |
| 985 | WIPER R = FAST |
| | |
| 1000 | DOOR FWD ENTRY - OPEN |

| | |
|------|------------------------------------|
| 1001 | DOOR FWD ENTRY – CLOSED - MANUAL |
| 1002 | DOOR FWD ENTRY – CLOSED – AUTO |
| 1006 | DOOR WING L - OPEN |
| 1007 | DOOR WING L – CLOSED - MANUAL |
| 1008 | DOOR WING L – CLOSED – AUTO |
| 1009 | DOOR AFT ENTRY - OPEN |
| 1010 | DOOR AFT ENTRY – CLOSED - MANUAL |
| 1011 | DOOR AFT ENTRY – CLOSED – AUTO |
| 1012 | DOOR FWD SERVICE - OPEN |
| 1013 | DOOR FWD SERVICE – CLOSED - MANUAL |
| 1014 | DOOR FWD SERVICE – CLOSED – AUTO |
| 1018 | DOOR WING R - OPEN |
| 1019 | DOOR WING R – CLOSED - MANUAL |
| 1020 | DOOR WING R – CLOSED – AUTO |
| 1021 | DOOR AFT SERVICE - OPEN |
| 1022 | DOOR AFT SERVICE – CLOSED - MANUAL |
| 1023 | DOOR AFT SERVICE – CLOSED - AUTO |
| 1024 | DOOR SERVICE - OPEN |
| 1025 | DOOR SERVICE – CLOSED |
| 1028 | DOOR FWD CARGO - OPEN |
| 1029 | DOOR FWD CARGO - CLOSED |
| 1030 | DOOR AFT CARGO - OPEN |
| 1031 | DOOR AFT CARGO - CLOSED |
| 1040 | DOORS TO MANUAL |
| 1041 | DOORS TO AUTOMATIC |
| 1073 | VHF NAV = NORMAL |
| 1074 | VHF NAV = BOTH ON 1 |
| 1075 | VHF NAV = BOTH ON 2 |
| 1076 | IRS = NORMAL |
| 1077 | IRS = BOTH ON L |
| 1078 | IRS = BOTH ON R |
| 1079 | SOURCE = AUTO |
| 1080 | SOURCE = ALL ON 1 |
| 1081 | SOURCE = ALL ON 2 |
| 1082 | CONTROL PANEL = NORMAL |
| 1083 | CONTROL PANEL = BOTH ON 1 |
| 1084 | CONTROL PANEL = BOTH ON 2 |
| 1100 | IRS DSPL SELECTOR = TEST |
| 1101 | IRS DSPL SELECTOR = TK/GS |
| 1102 | IRS DSPL SELECTOR = PPOS |
| 1103 | IRS DSPL SELECTOR = WIND |
| 1104 | IRS DSPL SELECTOR = HDG/STS |
| 1105 | IRS SYS SELECTOR = L |

| | |
|------|---|
| 1106 | IRS SYS SELECTOR = R |
| 1107 | SERVICE INTERPHONE = OFF |
| 1108 | SERVICE INTERPHONE = ON |
| 1109 | STALL WARNING TEST No 1 = OFF |
| 1110 | STALL WARNING TEST No 1 = ON |
| 1111 | STALL WARNING TEST No 2 = OFF |
| 1112 | STALL WARNING TEST No 2 = ON |
| 1113 | MACH AIRSPEED WARNING TEST No 1 = OFF |
| 1114 | MACH AIRSPEED WARNING TEST No 1 = ON |
| 1115 | MACH AIRSPEED WARNING TEST No 2 = OFF |
| 1116 | MACH AIRSPEED WARNING TEST No 2 = ON |
| 1117 | ALTERNATE FLAPS = UP |
| 1118 | ALTERNATE FLAPS = DOWN |
| 1119 | IGN = L |
| 1120 | IGN = BOTH |
| 1121 | IGN = R |
| 1123 | TAT Test (Test Heat Probes) |
| | |
| 1200 | DISPLAY BRIGHTNESS CPT PFD LEVEL = LOW |
| 1201 | DISPLAY BRIGHTNESS CPT PFD LEVEL = MED |
| 1202 | DISPLAY BRIGHTNESS CPT PFD LEVEL = HIGH |
| 1203 | DISPLAY BRIGHTNESS CPT ND LEVEL = LOW |
| 1204 | DISPLAY BRIGHTNESS CPT ND LEVEL = MED |
| 1205 | DISPLAY BRIGHTNESS CPT ND LEVEL = HIGH |
| 1206 | DISPLAY BRIGHTNESS FO PFD LEVEL = LOW |
| 1207 | DISPLAY BRIGHTNESS FO PFD LEVEL = MED |
| 1208 | DISPLAY BRIGHTNESS FO_PFD LEVEL = HIGH |
| 1209 | DISPLAY BRIGHTNESS FO ND LEVEL = LOW |
| 1210 | DISPLAY BRIGHTNESS FO ND LEVEL = MED |
| 1211 | DISPLAY BRIGHTNESS FO ND LEVEL = HIGH |
| 1212 | DISPLAY BRIGHTNESS EICAS LEVEL = LOW |
| 1213 | DISPLAY BRIGHTNESS EICAS LEVEL = MED |
| 1214 | DISPLAY BRIGHTNESS EICAS LEVEL = HIGH |
| 1215 | DISPLAY BRIGHTNESS MFD LEVEL = LOW |
| 1216 | DISPLAY BRIGHTNESS MFD LEVEL = MED |
| 1217 | DISPLAY BRIGHTNESS MFD LEVEL = HIGH |
| | |
| 1220 | CLOCK CPT CHR MODE = STOP |
| 1221 | CLOCK CPT CHR MODE = RUN |
| 1222 | CLOCK CPT CHR MODE = RESET |
| 1223 | CLOCK CPT ELAPSED TIME MODE = HOLD |
| 1224 | CLOCK CPT ELAPSED TIME MODE = RUN |
| 1225 | CLOCK CPT ELAPSED TIME MODE = RESET |

| | |
|------|--|
| 1226 | CLOCK CPT DATE MODE = TIME |
| 1227 | CLOCK CPT DATE MODE = DATE |
| 1228 | CLOCK CPT DATE MODE = UTC |
| 1229 | CLOCK CPT DATE MODE = MAN |
| 1230 | CLOCK CPT SET MODE = RUN |
| 1231 | CLOCK CPT SET MODE = HLDY (Hold / Year) |
| 1232 | CLOCK CPT SET MODE = SSM (Slow Slew Month) |
| 1233 | CLOCK CPT SET MODE = FSD (Fast Slew Day) |
| 1234 | CLOCK CPT CHR / CLOCK Switch Push |
| 1235 | CLOCK CPT DATE Switch Push |
| 1240 | CLOCK FO CHR MODE = STOP |
| 1241 | CLOCK FO CHR MODE = RUN |
| 1242 | CLOCK FO CHR MODE = RESET |
| 1243 | CLOCK FO ELAPSED TIME MODE = HOLD |
| 1244 | CLOCK FO ELAPSED TIME MODE = RUN |
| 1245 | CLOCK FO ELAPSED TIME MODE = RESET |
| 1246 | CLOCK FO DATE MODE = TIME |
| 1247 | CLOCK FO DATE MODE = DATE |
| 1248 | CLOCK FO DATE MODE = UTC |
| 1249 | CLOCK FO DATE MODE = MAN |
| 1250 | CLOCK FO SET MODE = RUN |
| 1251 | CLOCK FO SET MODE = HLDY (Hold / Year) |
| 1252 | CLOCK FO SET MODE = SSM (Slow Slew Month) |
| 1253 | CLOCK FO SET MODE = FSD (Fast Slew Day) |
| 1254 | CLOCK FO CHR / CLOCK Switch Push |
| 1255 | CLOCK FO DATE Switch Push |
| | |
| 1260 | CLOCK CPT CHR Button |
| 1261 | CLOCK CPT ET RUN / HOLD Button |
| 1262 | CLOCK CPT ET RESET Button |
| 1263 | CLOCK CPT DATE / TIME Button |
| 1264 | CLOCK CPT SET Button |
| 1265 | CLOCK CPT SET - Button |
| 1266 | CLOCK CPT SET + Button |
| 1270 | CLOCK FO CHR Button |
| 1271 | CLOCK FO ET RUN / HOLD Button |
| 1272 | CLOCK FO ET RESET Button |
| 1273 | CLOCK FO DATE / TIME Button |
| 1274 | CLOCK FO SET Button |
| 1275 | CLOCK FO SET - Button |
| 1276 | CLOCK FO SET + Button |
| | |
| 2000 | GROUND POWER CONNECTED |

| | |
|------|---------------------------|
| 2001 | GROUND POWER DISCONNECTED |
| 2004 | GROUND AIR CONNECTED |
| 2005 | GROUND AIR DISCONNECTED |

Save / Load Flight Scenarios

| | |
|------|------------------|
| 3000 | Save Scenario 1 |
| 3001 | Save Scenario 2 |
| 3002 | Save Scenario 3 |
| 3003 | Save Scenario 4 |
| 3004 | Save Scenario 5 |
| 3005 | Save Scenario 6 |
| 3006 | Save Scenario 7 |
| 3007 | Save Scenario 8 |
| 3008 | Save Scenario 9 |
| 3009 | Save Scenario 10 |
| | |
| 3100 | Load Scenario 1 |
| 3101 | Load Scenario 2 |
| 3102 | Load Scenario 3 |
| 3103 | Load Scenario 4 |
| 3104 | Load Scenario 5 |
| 3105 | Load Scenario 6 |
| 3106 | Load Scenario 7 |
| 3107 | Load Scenario 8 |
| 3108 | Load Scenario 9 |
| 3109 | Load Scenario 10 |

Activation

Activation Option is used if you are upgrading you application license.

A backup of your existing SERVER.SET is taken as

SERVER – ddmmyyy hhmm.SET

Server System Aircraft Specific System Logic Terrain FSUIPC I/O Interface **Activation** Version Infomation About

Version Information



Check Version : will check www.sim-avionics.com for the latest version information. It uses the internet (proxy) setting from the Main Control Panel window. This check is also performed when the Server is started.

Your current program versions and the latest versions are displayed on the Server.

| Connected Clients | Current Version | Latest Version |
|--------------------|-----------------|----------------|
| Server | 1.000 | 1.000 |
| Captains PFD/ND | 1.000 | 1.000 |
| FO's PFD/ND | | |
| EICAS | 1.000 | 1.000 |
| Captains CDU | | |
| FO's CDU | | |
| MFD | | |
| Sound Module | | |
| Terrain Gen | | |
| Panel Simulator | | |
| MCP | 1.000 | 1.000 |
| OBS CDU | | |
| Instructor Station | | |
| Joystick Interface | | |
| EPIC Link | | |

This information is also display in the Server log

```
LOG:
Latest Avionics Version = 1.000
Latest CDU Version = 1.000
Latest MCP Version = 1.000
Latest Overhead Panel Version = 1.000
Latest Sound Module Version = 1.000
Latest Terrain and Weather Radar Version = 1.000
```

Latest Version Information

Retrieves latest version information change log.

Aircraft – Gate Pushback

- Set a Pushback distance (Distance travelled before the Turn – aprx 150)
- Set a Pushback Bearing (The delta between your current heading and your desired final heading
-90 (or L90 on the CDU) for a pushback facing 90° to the left)
- Start Pushback

After a few seconds a 'Go Ahead' wav is played...

(Pretend to ask for pushback)

After a few seconds a 'Set Parking Brake' wav is played....

This will loop *until* the parking brake is set

- Set Parking Brake
(Pretend to confirm 'Parking Brake Set')

After a few seconds a 'Towing pin inserted – Please Release Brakes' wav is played....

This will loop *until* the parking brake is released

- Release Parking Brake
(Pretend to confirm 'Parking Brake Set')

Pushback will start

Once the turn is initiated a 'Cleared to start engines' wav is played

When the desired heading is reached pushback stops.

'Set Parking Brake' wav is played...

This will loop *until* the parking brake is set

- Set Parking Brake

'OK Towing system is removed, please wait for my hand signal on the left hand side' wav is played.

Pushback complete.

Press Cancel Pushback at any time to cancel the pushback routine..

Electronic Checklist

The Electronic checklist is a new feature on the 777. It is part of the MFD synoptics and therefore can be display on the MFD and/or either ND.

The Checklist can be modified by updating the Checklist.ini in the Main Server folder.

The Checklist.ini consist of multiple sections. Each section refers to a particular checklist and must have a unique identifier. For example

```
[1]
..
[2]
..
[3]
..
```

Within each section there is a checklist name parameters
CHECKLIST_NAME=....

And Checklist Items

```
10=INSPECTION AND SECURITY$COMPLETED$O
```

The Checklist Item Message Format consists of :

```
A unique index number for it's checklist section
=
Pilot Command
$
Pilot Response
$
O or C
```

O = Open loop items. These responses for checklist items cannot be determined ie INSPECTION AND SECURITY and have a square checkbox next to the Item which must be selected by the pilot to confirm the action has been completed.

C = Closed loop items. Theses responses for checklist items can be determined by the aircraft systems donot have a selectable checkbox next to the item. Once the checklist action has been performed, it will be automatically detected and the checklist item completed.
ie AUTOBRAKE = RTO

Please Note:

Closed Loop items have **hardcoded** index numbers which must not be changed.
But they can be positioned in any checklist.

Closed Loop Items

```
75=TCAS$OFF$C
100=AUTOBRAKE$RTO$C
110=PARKING BRAKE$SET$C
120=FUEL CONTROL SWITCHES$CUTOFF$C
135=SEATBELTS$ON$C
190=BEACON$ON$C
200=DOORS$CLOSED$C
370=STROBES$ON$C
380=LANDING LIGHTS$ON$C
```

390=TCAS\$ON\$C
 400=LANDING GEAR\$UP\$C
 410=FLAPS\$UP\$C
 420=ENGINE ANTI-ICE\$AUTO\$C
 430=ALTIMETERS\$STD(1013)\$C
 525=SEATBELTS\$ON\$C
 550=SPEEDBRAKE\$ARMED\$C
 560=LANDING GEAR\$DOWN\$C
 590=SPEEDBRAKE\$DOWN\$C
 600=STROBES\$OFF\$C
 610=FLAPS\$UP\$C
 620=WEATHER RADAR\$OFF\$C
 630=TRANSPONDER\$TCAS OFF\$C
 640=APU ELECTRICS\$AVAILABLE\$C
 660=DOORS\$MANUAL & CROSSCHECK\$C
 670=PARKING BRAKE\$SET\$C
 680=FUEL CONTROL SWITCHES\$CUTOFF\$C
 690=HYDRAULIC PANEL\$SET\$C (Shutdown)
 691=HYDRAULIC PANEL\$SET\$C (Startup)
 700=FUEL SYSTEM\$SET\$C (Shutdown)
 701=FUEL SYSTEM\$SET\$C (Startup)
 710=SEATBELTS\$OFF\$C
 720=AUTOTHROTTLE ARM L+R\$OFF\$C
 730=FLT DIRECTORS L+R\$OFF\$C
 740=EMERGENCY LIGHTS\$OFF\$C
 750=PACK SWITCHES\$OFF\$C
 760=APU\$OFF\$C
 770=ADIRU SWITCH\$OFF\$C
 780=BATTERY\$OFF\$C

Example Checklists

[1]
 CHECKLIST_NAME=PRE FLIGHT
 10=INSPECTION AND SECURITY\$COMPLETED\$O
 20=OXYGEN\$CHECKED/100%\$O
 30=INSTRUMENTS\$CHECKED\$O
 40=FMC\$LOADED\$O
 50=BRIEFING\$COMPLETED\$O
 60=MEL/AIS/Sig Weather/Return Altn/Runway/Flap\$\$O
 70=Terrain & Perf Restrictions/SSA/MSA/Trans Alt\$\$O
 80=SID/AFDS/Radio Aids/FMC/Emergancies/Review\$O

[2]
 CHECKLIST_NAME=BEFORE START
 90=QNH\$SET & CROSSCHECKED\$O
 100=AUTOBRAKE\$RTO\$C
 110=PARKING BRAKE\$SET\$C
 120=FUEL CONTROL SWITCHES\$CUTOFF\$C
 130=FUEL\$SET\$O
 140=THRUST\$SET\$O
 150=SPEEDS\$SET\$O
 160=LNAV/VNAV\$SET\$O

B777_MCP.EXE

B777_MCP.exe is a 'frontend' glareshield for the B777/737.
It does **not** contain any Autopilot logic.

You only need to run this program if you require access to the Autopilot/EFIS functions and are not interfacing via FSUIPC offsets.

Starting and Stopping this program will have no effect on the Autopilot.

There are 2 display modes, both modes display :

- Captain EFIS Panel, MCP Panel, EICAS Control Panel

But you may also enable the FO EFIS Panel.

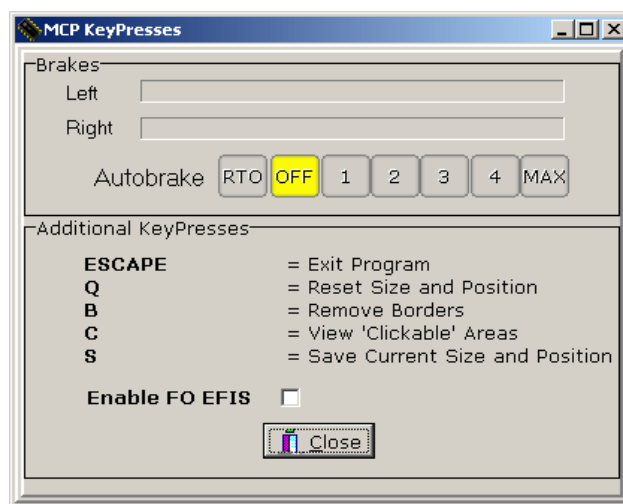


Captain Only Mode



Captain + FO Mode

Pressing **F11** whilst the MCP has focus will display an control popup.



This will allow you to

- set the '**Autobrakes**' and view the applied brake pressures.
- Display Assigned Keypress Information.
- Enable the FO EFIS

MCP Keyboard Assignments

Key presses can be used to control the Glareshield.

MCP Functions

[Slow - Increase/Decrease by 1 unit]

SHIFT + 1 = NAV1 Course Decrease
SHIFT + 2 = NAV1 Course Increase
SHIFT + 3 = MCP Speed/MACH Decrease
SHIFT + 4 = MCP Speed/MACH Increase
SHIFT + 5 = MCP HDG Decrease
SHIFT + 6 = MCP HDG Increase
SHIFT + 7 = MCP Vertical Speed Decrease
SHIFT + 8 = MCP Vertical Speed Increase
SHIFT + 9 = MCP Altitude Decrease
SHIFT + 0 = MCP Altitude Increase
SHIFT + - = NAV2 Course Decrease
SHIFT + + = NAV2 Course Increase

[Fast - Increase/Decrease by 10 units]

CTRL + SHIFT + 1 = NAV1 Course Decrease
CTRL + SHIFT + 2 = NAV1 Course Increase
CTRL + SHIFT + 3 = MCP Speed/MACH Decrease
CTRL + SHIFT + 4 = MCP Speed/MACH Increase
CTRL + SHIFT + 5 = MCP HDG Decrease
CTRL + SHIFT + 6 = MCP HDG Increase
CTRL + SHIFT + 7 = MCP Vertical Speed Decrease
CTRL + SHIFT + 8 = MCP Vertical Speed Increase
CTRL + SHIFT + 9 = MCP Altitude Decrease
CTRL + SHIFT + 0 = MCP Altitude Increase
CTRL + SHIFT + - = NAV2 Course Decrease
CTRL + SHIFT + + = NAV2 Course Increase

[MCP Functions]

SHIFT + A = MCP ENGAGED button
SHIFT + B = MCP FLIGHT DIRECTOR L = OFF
SHIFT + C = MCP FLIGHT DIRECTOR L = ON
SHIFT + D = MCP AUTOTHROTTLE ARM L = OFF
SHIFT + E = MCP AUTOTHROTTLE ARM L = ON
SHIFT + F = MCP AUTOTHROTTLE ARM R = OFF
SHIFT + G = MCP AUTOTHROTTLE ARM R = ON
SHIFT + H = MCP AUTOTHROTTLE button
SHIFT + I = MCP Speed Intervene
SHIFT + J = MCP CLB CON
SHIFT + K = MCP VNAV
SHIFT + L = MCP LNAV
SHIFT + M = MCP FLCH
SHIFT + N = MCP HDG SELECT
SHIFT + O = MCP HDG HOLD
SHIFT + P = MCP VS
SHIFT + Q = MCP ALT HOLD
SHIFT + R = MCP LOC
SHIFT + S = MCP APP

SHIFT + T = MCP FLIGHT DIRECTOR R = OFF
SHIFT + U = MCP FLIGHT DIRECTOR R = ON
SHIFT + V = MCP TOGGLE IAS / MACH
SHIFT + W = MCP TOGGLE HDG / TRK
SHIFT + X = MCP TOGGLE VS / FPA
SHIFT + Y = MCP DISENGAGED BAR = ENABLED
SHIFT + Z = MCP DISENGAGED BAR = DISABLED
SHIFT + BACKSPACE = MCP TOGA

[Captain EFIS Functions]

CTRL + 1 = ND RANGE = 5
CTRL + 2 = ND RANGE = 10
CTRL + 3 = ND RANGE = 20
CTRL + 4 = ND RANGE = 40
CTRL + 5 = ND RANGE = 80
CTRL + 6 = ND RANGE = 160
CTRL + 7 = ND RANGE = 320
CTRL + 8 = ND RANGE = 640
CTRL + 9 = ND MAP MODE = PLAN
CTRL + 0 = ND MAP MODE = MAP
CTRL + - = ND MAP MODE = APP
CTRL + + = ND MAP MODE = VOR
CTRL + A = ND MAP TOGGLE CENTRED
CTRL + B = ND MAP TOGGLE TFC
CTRL + C = ND RADIO L OFF
CTRL + D = ND RADIO L VOR
CTRL + E = ND RADIO L ADF
CTRL + F = ND RADIO R OFF
CTRL + G = ND RADIO R VOR
CTRL + H = ND RADIO R ADF
CTRL + I = ND TOGGLE FPV
CTRL + J = ND TOGGLE MTRS
CTRL + K = MINIMUMS MODE = RADIO
CTRL + L = MINIMUMS MODE = BARO
CTRL + M = MINIMUMS RST
CTRL + N = MINIMUMS DECREASE - 10
CTRL + O = MINIMUMS INCREASE + 10
CTRL + P = BARO HPA
CTRL + Q = BARO INS
CTRL + R = BARO DECREASE - 1
CTRL + S = BARO INCREASE + 1
CTRL + T = BARO TOGGLE STD
CTRL + U = DECREASE ND RANGE
CTRL + V = INCREASE ND RANGE
CTRL + W = DECREASE ND MODE
CTRL + X = INCREASE ND MODE
CTRL + F1 = ND TOGGLE WXR
CTRL + F2 = ND TOGGLE STA
CTRL + F3 = ND TOGGLE WPT
CTRL + F4 = ND TOGGLE APT
CTRL + F5 = ND TOGGLE DATA
CTRL + F6 = ND TOGGLE POS
CTRL + F7 = ND TOGGLE TER

[FO EFIS Functions]

ALT + 1 = ND RANGE = 5
ALT + 2 = ND RANGE = 10
ALT + 3 = ND RANGE = 20
ALT + 4 = ND RANGE = 40
ALT + 5 = ND RANGE = 80
ALT + 6 = ND RANGE = 160
ALT + 7 = ND RANGE = 320
ALT + 8 = ND RANGE = 640
ALT + 9 = ND MAP MODE = PLAN
ALT + 0 = ND MAP MODE = MAP
ALT + - = ND MAP MODE = APP
ALT + + = ND MAP MODE = VOR
ALT + A = ND MAP TOGGLE CENTRED
ALT + B = ND MAP TOGGLE TFC
ALT + C = ND RADIO L OFF
ALT + D = ND RADIO L VOR
ALT + E = ND RADIO L ADF
ALT + F = ND RADIO R OFF
ALT + G = ND RADIO R VOR
ALT + H = ND RADIO R ADF
ALT + I = ND TOGGLE FPV
ALT + J = ND TOGGLE MTRS
ALT + K = MINIMUMS MODE = RADIO
ALT + L = MINIMUMS MODE = BARO
ALT + M = MINIMUMS RST
ALT + N = MINIMUMS DECREASE - 10
ALT + O = MINIMUMS INCREASE + 10
ALT + P = BARO HPA
ALT + Q = BARO INS
ALT + R = BARO DECREASE - 1
ALT + S = BARO INCREASE + 1
ALT + T = BARO TOGGLE STD
ALT + U = DECREASE ND RANGE
ALT + V = INCREASE ND RANGE
ALT + W = DECREASE ND MODE
ALT + X = INCREASE ND MODE
ALT + F1 = ND TOGGLE WXR
ALT + F2 = ND TOGGLE STA
ALT + F3 = ND TOGGLE WPT
ALT + F4 = ND TOGGLE APT
ALT + F5 = ND TOGGLE DATA
ALT + F6 = ND TOGGLE POS
ALT + F7 = ND TOGGLE TER

[MFD Display]

CTRL + SHIFT + A = MFD POSITION = CTR
CTRL + SHIFT + B = MFD POSITION = LEFT
CTRL + SHIFT + C = MFD POSITION = RIGHT
CTRL + SHIFT + D = MFD DISPLAY = ENG
CTRL + SHIFT + E = MFD DISPLAY = STAT
CTRL + SHIFT + F = MFD DISPLAY = ELEC
CTRL + SHIFT + G = MFD DISPLAY = HYD
CTRL + SHIFT + H = MFD DISPLAY = FUEL

CTRL + SHIFT + I = MFD DISPLAY = AIR
CTRL + SHIFT + J = MFD DISPLAY = DOOR
CTRL + SHIFT + K = MFD DISPLAY = GEAR
CTRL + SHIFT + L = MFD DISPLAY = FLT CTRL
CTRL + SHIFT + M = MFD DISPLAY = CHKL
CTRL + SHIFT + N = MFD DISPLAY = NAV
CTRL + SHIFT + O = MFD DISPLAY = COMM
CTRL + SHIFT + P = MFD DISPLAY = CANC/RCL

MCP – CONFIG.INI

[SETTINGS]
STAY_ON_TOP=1
ENABLE_FO_EFIS=0

**Window Stays on Top
Display the FO EFIS Panel**

// Enables OPENGL drawn panel.
// This can be disabled to increase performance and hide the window
// if hardware is being connected.
DRAW_PANEL=1

**Display the Panel
You can disable this if you are using a
hardware solution to improve performance**

// Enable Logging
LOG=0

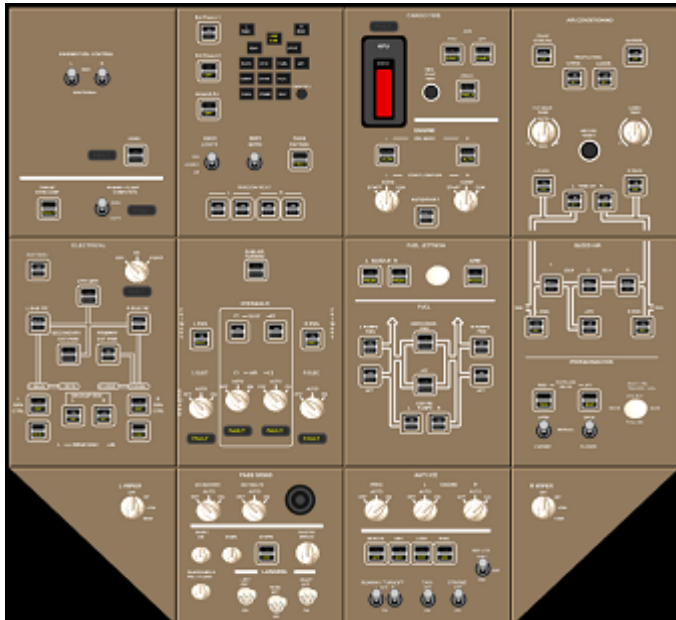
[HARDWARE]
// Enable External Hardware
// 0 = No Hardware Connected
// 1 = CPFlight MCP / EFIS
// 2 = GoFlight MCPro / EFIS
// 3 = VRInsight MCP Combo
// 4 = FDS New Glares
// 5 = FDS G2 Glareshield
ENABLE_HARDWARE_SUPPORT=3
COMMPORT=COM5

**Enables various Hardware Solutions
Hardware Com port**

// Sets the CPT device number is 2 GoFlight EFIS panels are connected
GOFLIGHT_CPT_EFIS_DEVICE_NUMBER=0

Overhead_Panel.EXE

Overhead_Panel.exe is a 'frontend' Overhead Panel. It does **not** contain any Systems logic.



B777 Overhead



B737 Overhead

It shows the current switch and systems status for users that do not have overhead hardware. The type of panel displayed will be determined by the aircraft type selected on the Server.

The panel can be dragged around using the Middle-mouse button by default although this can be edited in the DISPLAY.INI by setting [MOUSE_BUTTONS] PAN_WINDOW = 0 or 1 or 2
You can Zoom using the mouse scroll-wheel or by using Num Pad + and -
If you cannot see the panel press **Q** to centre the panel.

To operate 'switches'

click on a switch with the left mouse-button.

To operate Rotaries switches

click on a switch with the left mouse-button to rotate left

click on a switch with the right mouse-button to rotate right

The overhead is about 90% functional.

Information:

For simulation purposes the Top Left panels contain some additional switches that are not found on the real overhead.

- Engine Fuel Control switches
- External Power Primary
- External Power Secondary
- External Ground Air
- EICAS Controls

TERRAIN.EXE - (Terrain and Weather Radar)

Terrain.exe

The Terrain and Weather Radar program creates Terrain and Weather images that are displayed on the ND.

Terrain images are built from real world elevation data that can be downloaded from <http://www.ngdc.noaa.gov/mgg/topo/globe.html>

Terrain data can be downloaded from the National Geophysical Data Center.

From this page the current path to the download page is

- [Get GLOBE Data Online]
- [Select you own area]

(see section **SERVER: Terrain** for more information.)

Weather images are **NOT** an exact representation of flight sim's weather because exact cloud position information is not available. However they are build based on the current cloud coverage at you current altitude.

So if you load 'realworld' weather into flight sim then the weather radar will show a similar cloud coverage to what is being displayed in flight sim.

The \Terrain and Weather Radar\Clouds folder contains 7 256x256 cloud images. The weather radar selects several of these images based on the current cloud coverage and randomly positions and rotates to generate a radar image.

The more artistic among you may wish to custom these images.

If you have created a good set of custom cloud images and wish to share them with other users, please send them to support@sim-avionics and we will upload the one's we like.

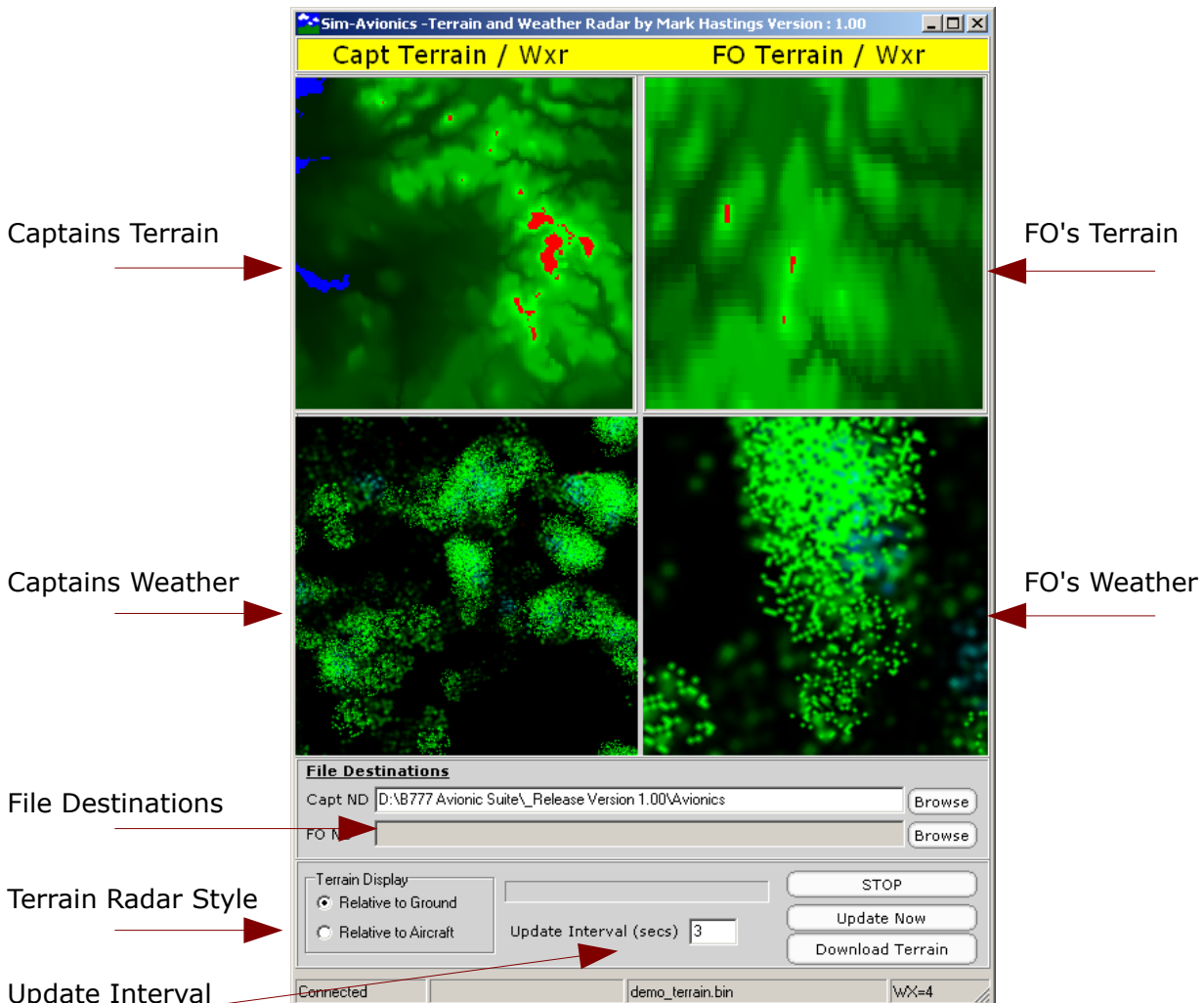
This program is very CPU intensive as it processes large amounts of terrain data.

The program displays 4 individual windows.

The top are the Captains and FO's Terrain Radar.

The bottom are the Captains and FO's Weather Radar.

These images are regenerated as per the set 'Update Interval' and are only generated if the EFIS TERR or WXR options are selected.



When the images have been generated they are copied to the folders specified in the **File Destinations** window. The images are copied as **terrain.jpg** and **wx.jpg** and should be copied to the captains and FO's **\avionics** folder.

If you are only running a single ND then you can disable the image generation by [right-clicking] on the **CAPT ND** or **FO ND** file destination entry box.

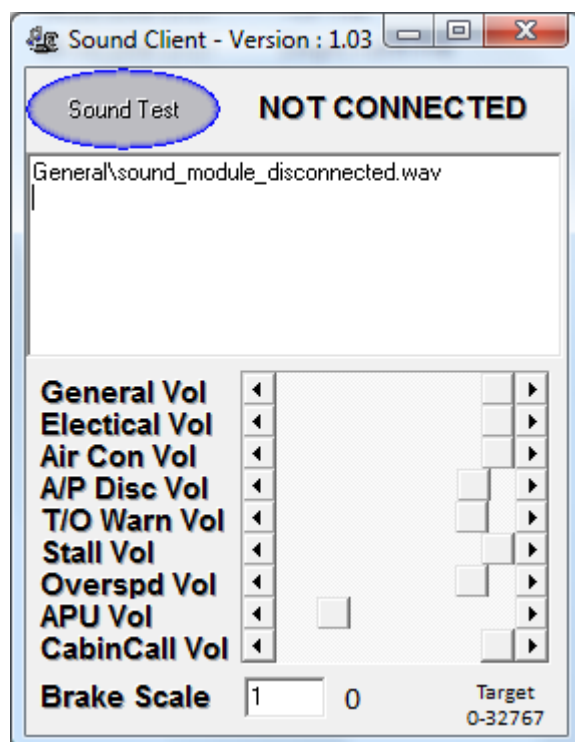
Two terrain styles are available : Relative to Ground and Relative to Aircraft.

Relative to ground will create an image that is black at ground level and gets lighter as the ground elevation increases.

Relative to Aircraft will create an image based on the distance between the aircraft and the ground elevation.

RED – means that the aircraft is below the ground elevation.

SOUND.EXE



The Sound Module is a client that can produce the additional ambient, voice and warning sounds heard in a modern cockpit environment.

The Sound module can be run on multiple machines allowing different sounds to be played through different speakers.

For example in our B777 simulator we run 3 instances of the sound module:

1. Main Cockpit warnings
2. Cabin Calls
3. Pushback calls through cockpit headsets

To prevent certain sounds playing simply delete or rename them. If the filename doesn't exist the the sound module will ignore it.

Various sound groups have their own volume controls so that you can balance the sounds better. These values are saved to \Sound\CONFIG.INI when the client is closed.

To trigger the braking rumble sound ensure that you brakes do now exceed 32767 when both brakes are pressed. If they do then set the brake scale = 0.5 for example until they fall within the 0-32767 limit.

Aircraft Config

MELJET-B777-200.CFG

```
[AIRCRAFT_DETAILS]
// Time in Minutes between pilot response messages
PILOT_RESPONSE_TIME=10

// N1 % limit that triggers Take off 'config' warnings
TO_CONFIG_N1_LIMIT=70

// For Radio Altitude calibration
GROUND_HEIGHT=18

// N1 Idles
GROUND_IDLE=27
FLIGHT_IDLE=33
APPROACH_IDLE=35

// Defaults (No CDU)
DEFAULT_TO_N1=840
DEFAULT_CLB_N1=720

// 0 = KG's   1 = LB's
WEIGHT_UNIT=0

// Control sensitivity when using Internal Flight Controls option
CONTROL_RESPONSE=400

TYPE=737
AUTO_SEATBELT_ALT=10000
WING_AOA=0
FD_WING_MODE=0
AOA_OPTION=1
AUTOLAND_ALTITUDE_FLARE=60
AUTOLAND_ALTITUDE_IDLE=30

AUTOLAND_ALTITUDE_FLARE=70
AUTOLAND_ALTITUDE_IDLE=40

// Flap Target Position : offset 0BDC
[TARGET_FLAP_POSITION]
FLAP_0_VALUE=0
FLAP_1_VALUE=2730
FLAP_2_VALUE=0
FLAP_5_VALUE=5460
FLAP_15_VALUE=8191
FLAP_10_VALUE=0
FLAP_20_VALUE=10992
FLAP_25_VALUE=13652
FLAP_30_VALUE=16383
FLAP_40_VALUE=0
// Flap Display Position
[TARGET_DISPLAY_POSITION]
FLAP_0_VALUE=0
FLAP_1_VALUE=0
FLAP_2_VALUE=0
FLAP_5_VALUE=0
FLAP_10_VALUE=0
FLAP_15_VALUE=0
FLAP_20_VALUE=0
FLAP_25_VALUE=0
FLAP_30_VALUE=0
FLAP_40_VALUE=0
```

```
[ENGINE_START]
TARGET_N1=28.5
TARGET_N2=45
TARGET_EGT=369
TARGET_FF=840
TARGET_OIL_TEMP=56
TARGET_OIL_PRESS=77

// in seconds
N1_SPOOL_TIME=35
N2_SPOOL_TIME=35
EGT_SPOOL_TIME=23
FF_SPOOL_TIME=25
OIL_TEMP_SPOOL_TIME=25
OIL_PRESS_SPOOL_TIME=18

[AUTOPILOT]

// Autothrottle
AT_SENSITIVITY_REDUCTION=8
AT_DAMPING=2
AT_CHANGE_RATE=55

// Thrust Reference
AT_THR_REF_ACCEL=18
AT_THR_REF_ACCEL_BASE=28
AT_THR_REF_CHANGE_RATE=12

//FLCH
// Lower value increase the target acceleration difference
FLCH_SENSITIVITY_REDUCTION=-0.03
FLCH_DAMPING=0.05
FLCH_MINIMUM_ACCEL =-6
FLCH_MAXIMUM_ACCEL=6

// HDG
HDG_TURN_AGGRESSION=800
HDG_ROLL_SPEED=480
HDG_ROLL_STABILIZER=-4
HDG_MAXIMUM_BANK_ANGLE=30

// LNAV off track capture aggresion
LNAV_AGGRESSION_LARGE=1.1
LNAV_AGGRESSION_SMALL=1

// LOC
LOCALIZER_SENSITIVITY_REDUCTION=3.4
LOCALIZER_DAMPING=0.42

// GS
GLIDESLOPE_CAPTURE_AGGRESSION=12
GLIDESLOPE_DAMPING=2.60

// V/S
VS_SENSITIVITY_REDUCTION=19
VS_DAMPING=0.12
VS_MAXIMUM_VS=6000

// ALT HOLD
ALT_CAPTURE_AGGRESSION=2
ALT_DAMPING=0.09
ALT_PITCH_DAMPING=-95
ALT_SCALE=1.1

// Flight Directors
FD_PITCH=0.5
```


FD_BANK=35

FSX-Default-B737.CFG

[AIRCRAFT_DETAILS]

// Time in Minutes between pilot response messages

PILOT_RESPONSE_TIME=10

// N1 % limit that triggers Take off 'config' warnings

TO_CONFIG_N1_LIMIT=70

// For Radio Altitude calibration

GROUND_HEIGHT=18

// N1 Idles

GROUND_IDLE=27

FLIGHT_IDLE=33

APPROACH_IDLE=35

// Defaults (No CDU)

DEFAULT_TO_N1=942

DEFAULT_CLB_N1=890

AUTO_SEATBELT_ALT=10000

CONTROL_RESPONSE=400

WING_AOA=3

FD_WING_MODE=0

TYPE=777

AUTOLAND_ALTITUDE_FLARE=70

AUTOLAND_ALTITUDE_IDLE=40

// Flap Target Position : offset 0BDC

[TARGET_FLAP_POSITION]

FLAP_0_VALUE=0

FLAP_1_VALUE=2731

FLAP_2_VALUE=0

FLAP_5_VALUE=5461

FLAP_10_VALUE=0

FLAP_15_VALUE=8192

FLAP_20_VALUE=10922

FLAP_25_VALUE=13653

FLAP_30_VALUE=16383

FLAP_40_VALUE=0

// Flap Target Position : offset 0BDC

[TARGET_FLAP_POSITION]

FLAP_0_VALUE=0

FLAP_1_VALUE=2048

FLAP_2_VALUE=4096

FLAP_5_VALUE=6144

FLAP_10_VALUE=8192

FLAP_15_VALUE=10239

FLAP_20_VALUE=12287

FLAP_25_VALUE=

FLAP_30_VALUE=14335

FLAP_40_VALUE=16383

// Flap Display Position

[TARGET_DISPLAY_POSITION]

FLAP_0_VALUE=0

FLAP_1_VALUE=0

FLAP_2_VALUE=0

FLAP_5_VALUE=0

FLAP_10_VALUE=0

FLAP_15_VALUE=0

FLAP_20_VALUE=0

FLAP_25_VALUE=0

FLAP_30_VALUE=0

```
FLAP_40_VALUE=0
[ENGINE_START]
TARGET_N1=28.5
TARGET_N2=45
TARGET_EGT=369
TARGET_FF=840
TARGET_OIL_TEMP=56
TARGET_OIL_PRESS=77

// in seconds
N1_SPOOL_TIME=35
N2_SPOOL_TIME=35
EGT_SPOOL_TIME=23
FF_SPOOL_TIME=25
OIL_TEMP_SPOOL_TIME=25
OIL_PRESS_SPOOL_TIME=18

[AUTOPILOT]

// Autothrottle
AT_SENSITIVITY_REDUCTION=12
AT_DAMPING=1
AT_CHANGE_RATE=35

// Thrust Reference
AT_THR_REF_ACCEL=18
AT_THR_REF_ACCEL_BASE=28
AT_THR_REF_CHANGE_RATE=12

//FLCH
// Lower value increase the target acceleration difference
FLCH_SENSITIVITY_REDUCTION=-0.03
FLCH_DAMPING=0.04
FLCH_MINIMUM_ACCEL =-6
FLCH_MAXIMUM_ACCEL=6

// HDG
HDG_TURN_AGGRESSION=800
HDG_ROLL_SPEED=480
HDG_ROLL_STABILIZER=-4
HDG_MAXIMUM_BANK_ANGLE=30

// LNAV track capture aggresion
LNAV_AGGRESSION_LARGE=1.1
LNAV_AGGRESSION_SMALL=1

// LOC
LOCALIZER_SENSITIVITY_REDUCTION=3.4
LOCALIZER_DAMPING=0.42

// GS
GLIDESLOPE_CAPTURE_AGGRESSION=12
GLIDESLOPE_DAMPING=2.60

// V/S
VS_SENSITIVITY_REDUCTION=19
VS_DAMPING=0.12
VS_MAXIMUM_VS=6000

// ALT HOLD
ALT_CAPTURE_AGGRESSION=2
ALT_DAMPING=0.08
ALT_PITCH_DAMPING=-65
ALT_SCALE=1.1

// Flight Directors
FD_PITCH=0.5
```

FD_BANK=35

FS9-PMDG-B737.CFG

[AIRCRAFT_DETAILS]

// Time in Minutes between pilot response messages
PILOT_RESPONSE_TIME=10

// N1 % limit that triggers Take off 'config' warnings
TO_CONFIG_N1_LIMIT=70

// For Radio Altitude calibration
GROUND_HEIGHT=8

// N1 Idles
GROUND_IDLE=21
FLIGHT_IDLE=22
APPROACH_IDLE=22

// Defaults (No CDU)
DEFAULT_TO_N1=942
DEFAULT_CLB_N1=890

// 0 = KG's 1 = LB's
WEIGHT_UNIT=0

// Control sensitivity when using Internal Flight Controls option
CONTROL_RESPONSE=400

TYPE=737
AUTO_SEATBELT_ALT=10000
WING_AOA=0
FD_WING_MODE=0
AOA_OPTION=1
AUTOLAND_ALTITUDE_FLARE=60
AUTOLAND_ALTITUDE_IDLE=30

// Flap Target Position
[TARGET_FLAP_POSITION]
FLAP_0_VALUE=0
FLAP_1_VALUE=2047
FLAP_2_VALUE=4095
FLAP_5_VALUE=6143
FLAP_10_VALUE=8191
FLAP_15_VALUE=10239
FLAP_20_VALUE=0
FLAP_25_VALUE=12287
FLAP_30_VALUE=14335
FLAP_40_VALUE=16383

[DISPLAY_FLAP_POSITION]
FLAP_0_VALUE=0
FLAP_1_VALUE=1638
FLAP_2_VALUE=1997
FLAP_5_VALUE=3071
FLAP_10_VALUE=4863
FLAP_15_VALUE=7423
FLAP_20_VALUE=0
FLAP_25_VALUE=11007
FLAP_30_VALUE=12799
FLAP_40_VALUE=16383

[ENGINE_START]
TARGET_N1=20.3
TARGET_N2=60
TARGET_EGT=432.9
TARGET_FF=500

```
TARGET_OIL_TEMP=93
TARGET_OIL_PRESS=23

// in seconds
N1_SPOOL_TIME=35
N2_SPOOL_TIME=35
EGT_SPOOL_TIME=23
FF_SPOOL_TIME=25
OIL_TEMP_SPOOL_TIME=25
OIL_PRESS_SPOOL_TIME=18
N1_SPOOL_DOWN_TIME=120
N2_SPOOL_DOWN_TIME=60
EGT_SPOOL_DOWN_TIME=180
FF_SPOOL_DOWN_TIME=5
OIL_TEMP_DOWN_SPOOL_TIME=300
OIL_PRESS_DOWN_SPOOL_TIME=30

[AUTOPILOT]
// Autothrottle
AT_SENSITIVITY_REDUCTION=8
AT_DAMPING=2
AT_CHANGE_RATE=35

// Thrust Reference
AT_THR_REF_ACCEL=18
AT_THR_REF_ACCEL_BASE=28
AT_THR_REF_CHANGE_RATE=12

//Flight Level Change
FLCH_SENSITIVITY_REDUCTION=-0.008
FLCH_DAMPING=0.09
FLCH_AGGRESSION=1

//Heading
HDG_TURN_AGGRESSION=600
HDG_ROLL_SPEED=780
HDG_ROLL_STABILIZER=-2
HDG_MAXIMUM_BANK_ANGLE=30

// LNAV Off Track Capture
LNAV_AGGRESSION_LARGE=1.1
LNAV_AGGRESSION_SMALL=1

// LOC
LOCALIZER_SENSITIVITY_REDUCTION=3.4
LOCALIZER_DAMPING=0.52

// GS
GLIDESLOPE_CAPTURE_AGGRESSION=9
GLIDESLOPE_DAMPING=4

//V/S
VS_SENSITIVITY_REDUCTION=5
VS_DAMPING=0.5

// ALT HOLD
ALT_CAPTURE_AGGRESSION=2
ALT_DAMPING=0.8
ALT_PITCH_DAMPING=-200
ALT_SCALE=1.1

// Flight Directors
FD_PITCH=0.5
FD_BANK=35
```

Updating Programs

When a new update is released we will usually post a new '**Full**' installer containing **ALL** of the programs and .dll's

We will do this rather than post individual exe's because all of the programs need to be compiled and running on the same common data structure.

The common data structure will change from time to time as the software develops and new functionality is added and programs will not run on different data structures. Therefore we felt it was best to deploy a complete suite of programs everytime.

There are multiple ways to update the programs and you can decide which is best for your setup.

1. The .ini and config files are self generated by the programs when they are first executed and only create new files if they are not present. Therefore it is safe to just run the latest installer on each of you local PC's. This will overwrite the .exe's and .dll's
2. Run the Installer on you main PC and configure Startup.exe as described below.
3. Run the Installer on you main PC and manually copy the .exe's and .dll's to your client PC's

New Config file values will be published in

\Sim-Avionics\Documentation\LatestVersionInfo.txt

Or can be retrieve by selecting the Server menu

Version Information > Latest Version Information

New lines will need to be added manually to the appropriate .ini or .cfg file so that you do not loose and config changes that you may have previously made.

If you delete the .ini or .cfg file then it will be regenerated with default values.

**** Until you have verified the permissions on your PC, please ensure that the latest AVIONICS_IPC.dll get's copied to your C:\WINDOWS\SYSTEM32 folder.**

This can sometimes get by folder permissions of UAC on Vista

Configuring STARTUP.EXE

This application was written while we were developing the software to aid in keeping all of the software upto date.

The basic principle is:

A shortcut is added to the local Startup.exe in the windows 'startup' folder.

Various applications are then defined in Startup.ini (Avionics.exe, CDU.exe etc)

Startup.exe then checks a specific location for a newer version of the defined programs and copies them to a specified location.

So everytime Startup.exe is run - it checks for a newer version, updates it and executes it.

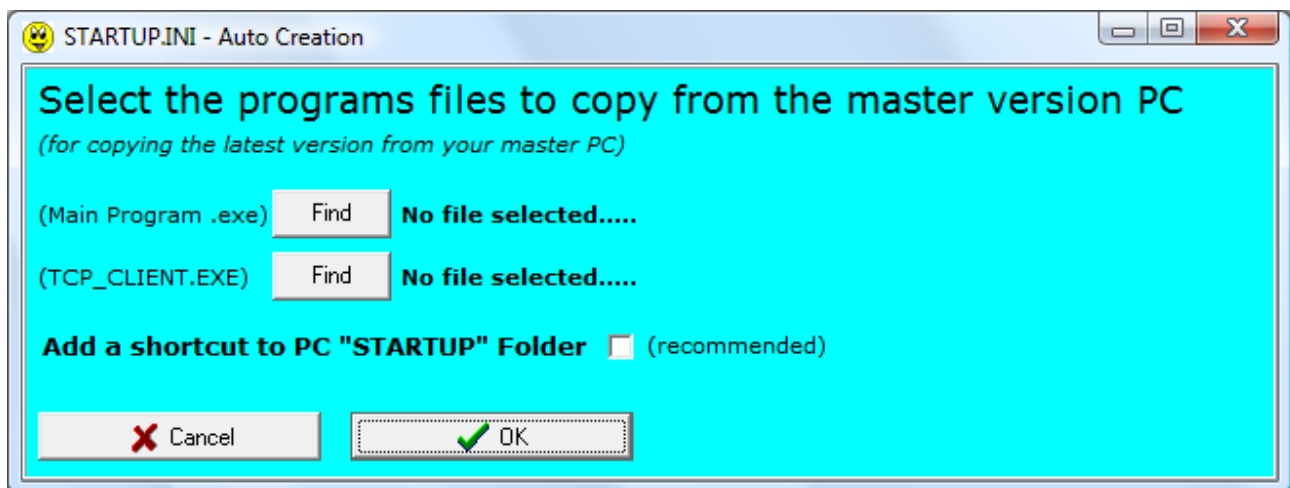
We found this very useful whilst developing in our sim because all of the Startup.exe's checked my development PC for the latest versions and copied them across as required.

We included this application in the package because we thought that this could also be useful to those running multiple PC setups.

When we release a new update you will only need to install the new programs on your main PC. The next time you start the clients they will automatically detect and copy the new program versions.

The Server also has Client 'Restart' buttons in the right hand window. This triggers the Startup.exe contained in the folder of the trigger client and kill the client application.

When STARTUP.EXE is first run it displays a popup window to help you build the STARTUP.INI



Click the 'Find' button to locate the Client application on your main PC.

Click the 'Find' button to locate the TCP_Client application on your main PC.

Select the checkbox to add a shortcut to your startup folder.

Click OK

This will create a STARTUP.INI

A typical STARTUP.INI looks like this:

```
[SOURCE]
1=\\192.168.0.51\Sim-Avionics\Avionics\Avionics.exe
2=\\192.168.0.51\Sim-Avionics\TCP_Client\TCP_Client.exe
3=\\192.168.0.51\Sim-Avionics\TCP_Client\AVIONICS_IPC.DLL

[DESTINATION]
1=
2=..\TCP_Client\TCP_Client.exe
3=C:\Windows\system32\AVIONICS_IPC.DLL

[EXECUTE]
1=C:\Sim-Avionics\Avionics\Avionics.exe
```

[SOURCE] – contains the network locations of the master files.

[DESTINATION] – contains the destination of the master files.

If the Destination is left blank or is not defined then the current working directory is assumed.

[EXECUTE] – contains the Filenames that are to be Executed after the version is checked and copied.

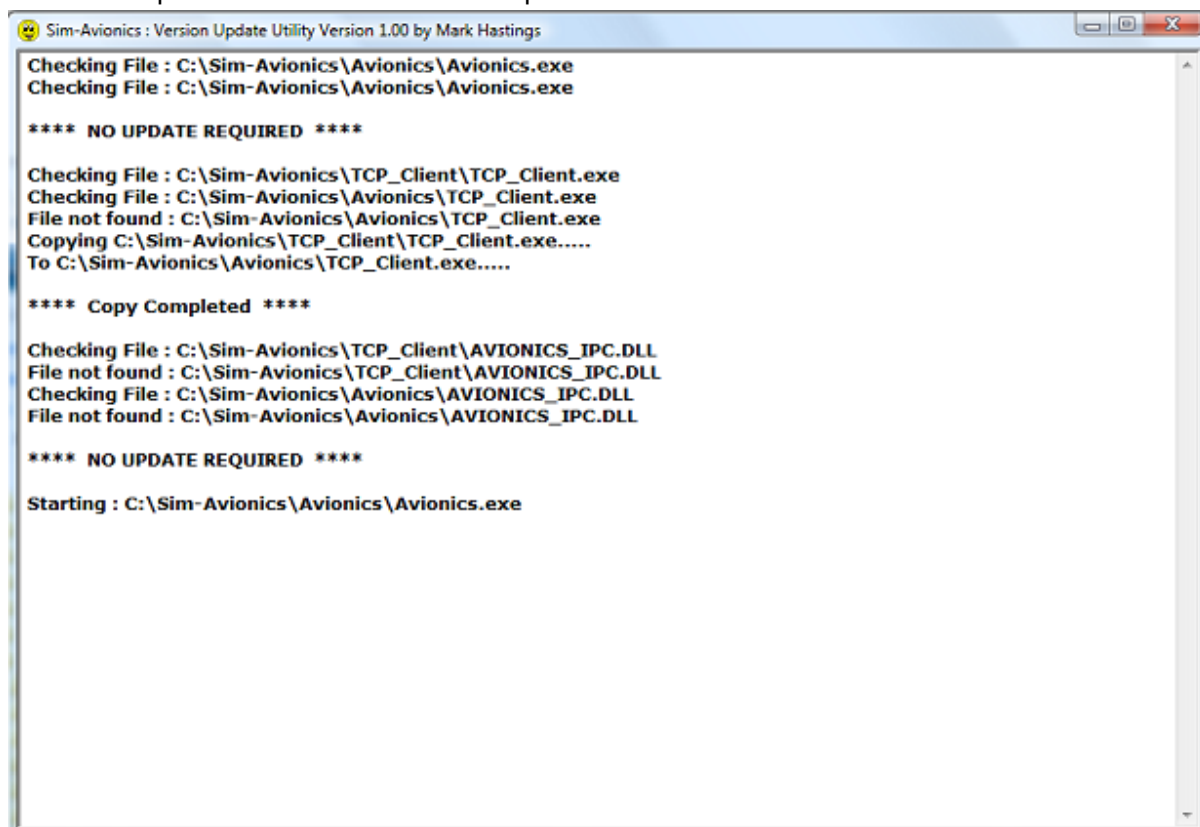
Additional values:

[STARTUP]

DELAY=5000

This will add a 5 second delay after execution before files are checked and copied. This is useful to prevent locking issues if multiple startup's are being run.

This is a sample window from the Startup.exe



Compatibility with 3rd party interfaces

We are aiming to make our software compatible with many current I/O hardware solutions.

Flight Deck Solutions - SYS3 support

Our internal I/O interface that is built into the Server is able to assign system functions to FSUIPC offsets. FDS SYS3 boards also use InterfaceIT software to map I/O to FSUIPC offset. Therefore we have produced two config files to support this hardware.

Copy **\Interface_Files\FSUIPC_IO_B777_FlightDeckSolutions.INI** into the main Server folder and rename it to **FSUIPC_IO.INI** (overwrite the default file)

Copy **\Interface_Files\Sim-Avionics_B777_SDK.ini** into the main InterfaceIT folder.

You may then use the Sim-Avionics menu option in the InterfaceIT software when assigning functions to switch assignments.

Flight Deck Solutions – PnP CDU Support

The latest CDU's from FDS come with their own driver software.

The Sim-Avionics install creates a Registry Entry

- HKLM\Software\TEKWorx Limited\FDS-CDU\Extra Modules\SimAvionics [Install Folder]\CDU

\SimAvionicsCDU.dll is used to interface to the CDU Driver.

After connecting your CDU hardware and starting FDS-CDU.exe you will now be able to assign your hardware as Sim-Avionics Captain, First Officer or Observer CDU.

You should now start the Sim-Avionics CDU on the same PC where the hardware is connected. You must ensure that the Sim-Avionics CDU is in the same mode as the assigned hardware. You can change the CDU mode in the CDU\CONFIG.INI

```
[SETTINGS]
// = CPT or FO or OBS
POSITION=CPT
```

This solutions allows for multiple CDU support on one PC if you have multiple video out's You could for example connect 3 FDS CDU's

```
Run FDS-CDU.exe
Assign each CDU. One as Captain, First Officer, Observer.
Create 3 separate folder copies of \CDU
Edit each CONFIG.INI.
    Set one as CPT, FO, OBS
    edit the WINDOW_LEFT positions so that they display on a separate monitor.
Run each CDU.exe
```


MCP Hardware Support

MCP.exe must be running on the same PC to which the hardware is connected.
Edit the \B777_MCP\CONFIG.INI to enable the required hardware support

- 0** = None
- 1** = CPFlight MCP/EFIS
- 2** = GoFlight MCP Pro/EFIS
- 3** = VRInsight MCP Combo
- 4** = FDS New Glares
- 5** = FDS G2 Glareshield

[HARDWARE]
ENABLE_HARDWARE_SUPPORT=?

Flight Deck Solutions – PnP Glare Support

The latest MCP's from FDS come with their own driver software.

The Sim-Avionics install creates a Registry Entry

- HKLM\Software\TEKWorx Limited\FDS-CDU\Extra Modules\
SimAvionics [Install Folder]\MCP

\SimAvionicsGLARE.dll is used to interface to the MCP Driver.

ENABLE_HARDWARE_SUPPORT=4

Flight Deck Solutions – G2 Support

There is now better support for G2 Glare interface.

ENABLE_HARDWARE_SUPPORT=5
COMMPORT=COMx ←(replace **x** with the com port your hardware is using)

CPFlight MCP/EFIS support

Our MCP is compatible with CPFlight MCP/EFIS
MCP.exe must be running on the same PC to which the CPFlight hardware is connected.

ENABLE_HARDWARE_SUPPORT=1
COMMPORT=COMx ←(replace **x** with the com port your hardware is using)

Note: Press + Hold **VNAV** for Speed Intervention

Backlighting is linked to the Aircraft 'STORM' Lights.

ENABLE_HARDWARE_SUPPORT=1
COMMPORT=COMx ←(replace **x** with the com port your hardware is using)

GoFlight MCPPro/EFIS support

Our MCP is compatible with GoFlight MCPPro + EFIS
MCP.exe must be running on the same PC to which the GoFlight hardware is connected.

ENABLE_HARDWARE_SUPPORT=2

VRInsight MCP Combo support

Our MCP is now compatible with VRInsight MCP Combo
MCP.exe must be running on the same PC to which the VRInsight hardware is connected.

ENABLE_HARDWARE_SUPPORT=3

COMMPORT=COMx ←(replace **x** with the com port your hardware is using)

Dispatcher Console

The dispatcher Console is include from release 1.06.

It allows control of the aircraft systems required to dispatch the aircraft.

It consists of 2 tabbed pages: **Pre-Flight** and **Dispatch**. Each button can either be pressed directly or you can use a keyboard by pressing the underlined letter next to the function.

Pre-Flight

Load Scenario: allows 6 custom 'scenarios' to be saved using the standard server scenario save function. This saves the FS flight details and the System state details. So all switch positions and Route information is saved and can be recalled. When a Scenario is loaded the simulator is automatically 'Paused'.

External Connections: For connection Primary and Secondary external power and Ground Air.

Fuel: Can be loaded immediately or at a realistic flow rate.

Immediate fueling allows fuel to be reduced or added up to the maximum qty.

Realistic fuel loading can only add fuel.

The total amount of fuel should be entered in the popup box. ie the amount show on your flight plan.

It is entered in tonnes and can be in the format of 16 (for 16tons) or 16200 (for 16.2 tonnes)



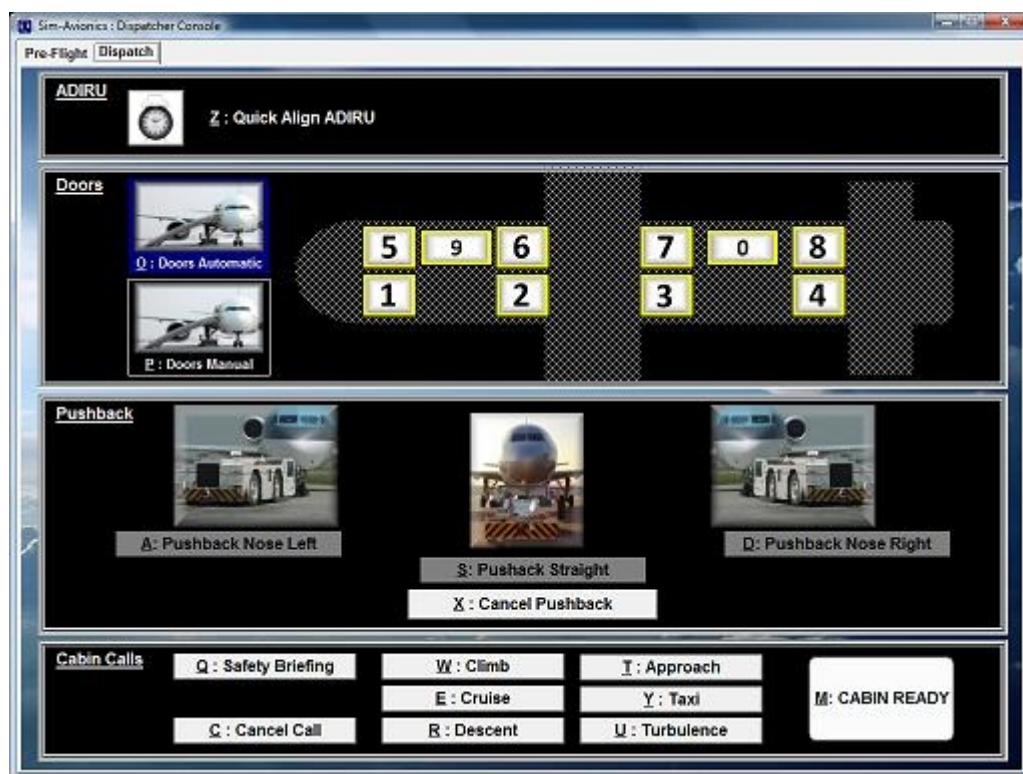
Dispatch

ADIRU: The ADIRU or IRS's can take up to 10 minutes to align, this option allows for a quick alignment.

Doors: Pressing the button or pressing the keyboard 0-9 opens / closes the corresponding door. Door positions, Automatic and Manual status can be viewed on the EICAS and MFD.

Pushback: This triggers the default FS pushback, Nose Left, Straight or Nose Right. External power and air must be disconnected first. The more advanced internal pushback can be triggered from a CDU or via the Server.

Cabin Calls: Triggers the assigned Cabin Call. Cabin Ready displayed on the EICAS for 3 minutes.



END OF MANUAL