

**CMDR Clicker's**  
**Elite Dangerous Target Script**  
**User Reference Guide**  
**(v4.2.0)**

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## Introduction

### PURPOSE:

My script package has been written for a dual purpose.

First, to enhance immersion and control within the game of Elite Dangerous.

Secondly, is to provide [TARGET](#) Script code examples to complement and extend beyond what is covered in the Thrustmaster Scripting guide.

### HISTORY:

Inspiration for this script started with [Aussiedoid's comprehensive Elite Dangerous script](#) (v3.1.0). I then created my own script to mimic my old Saitek X-55 basic configuration. I have since learned and used the advanced abilities of TARGET Script to create a "smart" configuration and have studied and lifted ideas and methods from Aussiedroid and others including Elite Dangerous Forum members, CMDRs Touille, Darkcyde and others.

### PHILOSOPHY:

Whilst convenient, I tend not to use the [HOTAS](#) for non-HOTAS functions (eg I do not currently issue chat macros or fighter instructions etc via TARGET). Rationale behind this is that I do not currently use VR.

I've written the functions to suit my preferences, my play style and my hardware.

### My HARDWARE:

The script and supporting files are written and maintained to work with my current hardware setup.

This includes a [Thrustmaster Warthog HOTAS](#), [Thrustmaster TFRP Pedals](#) and an [EDTracker Pro](#) (wireless). Keyboard and mouse usage is very limited but still required for certain functions.

As it is, my script potentially does not suit playing with a [VR Headset](#).

### COMPATIBILITY:

This script has been designed and tested to work with version 3.7 of [Elite Dangerous Horizons](#)/Fleet Carriers. This script will also work with the non-Horizons version of the game, however, quite obviously, Horizons based features then become somewhat redundant.

I have supplied a 'full' [bind file](#) which will work with or without the pedals, and an additional bind file which excludes the ED Tracker bindings. These should just work 'out of the box'.

### NOTE:

The script uses extensive state tracking via the [status.json](#) journal file which is created and updated whilst the game is running. If this file becomes unreadable or unavailable, the script will abort.

The script requires Thrustmaster's TARGET Script editor ([v3.0.18.328](#)) to load, edit, compile and run and the formatting used suits the GUI console, not the script editor. Therefore, if you intend to edit this software, be careful changing the printf() formatting as output from this script displays differently due to font differences between the two.

I hope you enjoy this script and that it suits your requirements and playstyle. I look forward to any feedback and suggestions you may have for improvement.

Fly dangerously commanders!

[CMDR Clicker](#) o7

## Acknowledgements and credits

Elite Dangerous is a copyright of Frontier Developments plc

T.A.R.G.E.T. and Thrustmaster are copyrights of Guillemot Corporation S.A.

Original script inspiration and functionality by Aussiedroid.

<https://forums.frontier.co.uk/members/aussiedroid.21601/>

<https://forums.frontier.co.uk/threads/aussiedroids-enhanced-thrustmaster-warthog-script.293027/>

<https://github.com/Aussiedroid/AD-EDWarthogEnhancedScript>

Contribution and ideas lifted from Touille and Darkcyde.

<https://forums.frontier.co.uk/members/cmdr-touille.110127/>

<https://github.com/Touille/ED-Warthog-Target-Script>

<https://forums.frontier.co.uk/members/darkcyde.26482/>

Modified target.tmh (if included) was sourced from Sedenion.

<https://forums.eagle.ru/showthread.php?t=171098>

Analogue Slew Controller hardware upgrade – get rid of that crappy ‘mouse nub’ on the Throttle!

<https://deltasimelectronics.com/products/thumbstick-slew-sensor-adapter>

Last but not least, a lot of my learning came from assistance, directly or indirectly by several key people in particular;

On HOTAS/HOSAS/SIMPIT Discord...

@sYfte

@hon0

@dar|{cyde

Over on DCS World forums <https://forums.eagle.ru/> ...

@ivanwfr <https://forums.eagle.ru/member.php?u=82172>

@Sgt Coyle <https://forums.eagle.ru/member.php?u=88210>

@Drakoz <https://forums.eagle.ru/member.php?u=108387>

If you like my work and wish to contribute a small donation, please consider spotting me the price of a coffee!

<https://www.patreon.com/user?u=36436459>

Proceeds will go toward acquiring a T16000 TWCS so I can create a version of this script for the T16000 crowd.

## Script Package Contents

When publishing or sharing this script the following should be included in the zipped package;

- The readme file
- The license file
- This reference manual
- ED\_Main.tmc, ED\_Functions.tmh, ED\_Macros.ttm, ED\_Toggles.tmh, ED\_StateTracker.tmh,
- ED\_MapKeyAssignment.tmh, ED\_Defines.ttm, ED\_GlobalVars.tmh, ED\_UserSettings.tmh
- Voice.exe (users can find this on github and check out the source if they wish)
- sounder.exe (users can find this on github via the same author as voice.exe)
- Windows batch file (SAMPLE\_Launcher.cmd) to use to launch Elite Dangerous, my TARGET script and supporting apps)
- The Elite Dangerous .bind files created to support this script
- The image files created to summarise the Joystick and Throttle button assignments
- The image files created to summarise keyboard key utilisation
- The change log for this version

## Installation

- a. Copy the correct .bind file in the package's 'Bindings' folder to your Elite Dangerous bind file folder. This is usually at ...  
"c:\users\%username%\AppData\Local\Frontier Developments\Elite Dangerous\Options\Bindings"  
As 'AppData' can usually be hidden you may need to unhide it via the folder view options in Windows if navigating via the windows explorer. Or, you should be able to cut/paste the path above into a run box or address bar

### NOTE:

- You should use the bind file in Bindings\Full folder within the zip package even if you don't have a TFRP Pedal controller
  - If you do not have an EDTracker use the bind file present in the Bindings\No EDTracker\ folder
- b. Unzip the script files anywhere on your disk that you can easily find/get to  
Example used in this document is c:\Thrustmaster\ED\_TargetScript  
Substitute your path within this document if you decide to save to somewhere else.
  - c. Copy voice.exe and sounder to c:\Thrustmaster\ED\_TargetScript\ and set correct path in the ED\_UserSettings.tmh file for both VoicePath and VoiceCMD variables
  - d. Copy Sounds folder to c:\Thrustmaster\ED\_TargetScript\sounds\ and set correct path in ED\_UserSettings file
  - e. Print out and study the image files within the 'Maps' folder.
  - f. Before you run the script open the ED\_UserSettings.tmh file in notepad (I recommend using Notepad++) and ensure;
    - the path definitions for 'StatusFile', 'MyStatusFile', 'VoicePath', 'SoundPath' and 'WAVPath' are all correct
    - 'VoiceCMD' is set correctly (you can remove -n \"Microsoft Catherine\" if you have not installed this MS Voice
    - Set 'EnableTFRPRudder' to = 0 if you do not have this rudder controller
  - g. The Preferred method of running the script is via a Windows batch file.  
ED\_Launcher.cmd batch file is included in this package and is best copied to wherever you copied the scripts to in "step 2" above.  
I recommend you create a shortcut to this batch file on your desktop and run it as administrator. Please read the comments in this batch file for more information
  - h. The script MUST be running before you start the game.
  - i. When you run the game for the first time, go to Options | Controls and select the .bind file profile included in the zip package. (example: "Clicker-Warthog-v420")
  - j. If you do not have a TFRP Rudder controller you will need to correct the bindings for the following in game functions;
    - Ship yaw
    - SRV Steering
    - Camera yaw, FSS Camera yaw & SAA Third-Person yaw
  - k. If you do not have an EDTracker, you will need to add bindings for Head look Pitch and Yaw if you intend to use this feature

## Features

- 4 firing modes for both primary and secondary triggers
  - Pulse Wave Scanner mode
  - Normal (press to fire, release to stop)
  - Discovery Scanner mode (simple press/release effectively holds trigger down for 6.1 seconds)
  - Mining Laser Mode (press to fire, press to stop)
- 3 user customisable, change on the fly curve profiles for Joystick and Rudder selectable via the autopilot switch
- FA-OFF automatically applies custom curves to joystick and rudder
- User customisable curve profiles for slew control and slider
- Different flight modes tracked resulting in slider curves (for Radar) to be applied
- Advanced PIP Manager includes 6 PIP modes, all selectable on the fly
- Advanced Counter measures control includes single SCB, SCB with auto heatsink and 'Double Bank' (2 x SCB + 1x heatsink) modes.
- Text-To-Speech engine provides additional voice feedback which can be turned on/off (+volume control), all on the fly (includes a training mode which says what each switch/button does)
- Sound effects engine to add extra feedback in game
- Advanced state processor, which reads status.json twice per second and detects when key flags are changed.
- Additional flags tracked, saved to file and loaded when required, automatically
- Comprehensive print to console messages by most functions
- Turn the Throttle base LEDs on or off on the fly + user customisable brightness.
- Status LEDs accurately synchronised with game states for 5 key ship systems
- Accurate game start and stop detection
- Macros included for;
  - Docking request with auto PIPs to shields
  - NAV Beacon On/Off
  - Report Crimes On/Off
  - Deploy and Recover the SRV
  - Dismiss/Recall Ship
  - Hanger/services which can be set to auto on dock, or via switch
  - Launch+lift off+retract landing gear+25% throttle
  - Fast Game Mode switching (includes anti-clog code)
- Simple, logical target designator functions including system module targeting
- Boost bleed function using timed landing gear deployment/retraction
- Advanced Supercruise / Hyperjump tracking with drop detection
- Fully documented and commented code
- Dedicated User Settings file
- Comprehensive Keyboard map file detailing standard and combo keyboard keys
- 2x comprehensive custom key bind files included
- Joystick, Throttle and Keyboard Image Maps and keyboard usage tables
- ...and more!

## Usage

All user configurable settings are in the ED\_UserSettings.tmh file.

Avoid changing anything in ED\_GlobalVars or ED\_Defines files.

Feel free to use the ideas and methods for your own use in your own scripts and I encourage you to share these with other like minded players.

This software uses the MIT license which can be found at the root of this package/repository.

### Intent

Most buttons and switches do 'something' other than just send a simple keystroke or a Direct-X (DX#) command to the game.

Likewise, most of the axes available have different profiles (behaviours) depending on a user setting, or a specific combination of button presses, or, indeed something that happens in game.

This guide is intended to describe what each button/switch does and how the different Joystick, Throttle, slider and Slew Control (mini stick) axes behave depending on situation or user definable configuration and in game actions.

This document is not intended to teach TARGET Script or walk you through my code. I will try to keep the scripting (code) description to an absolute minimum. Saying that, the script itself should provide to be an excellent resource in itself and provides a lot of comments which can help you if you wish to learn TARGET Script, or modify mine to suit your needs.

### Console

The script will output to the Target Script GUI console the result of many commands. It is not strictly speaking required to play the game, however you can use this feature to ensure you are hitting the correct switch/button or sequence.

Likewise, the script will output error messages to the console and speech engine when you select an invalid button. Example: trying to lower the landing gear when in Super cruise

### Text-To-Speech

I've included a voice feedback feature which uses a Text-To-Speech engine and Microsoft's Voice capability to add more immersion and feedback when you select certain actions.

A lot of the console messages are also converted to speech.

For this to work you need to copy voice.exe to your script folder and correctly set the path inside the ED\_UserSettings.tmh file.

The volume for the Text-To-Speech function can be changed on the fly via FLAPU and FLAPD switch and the feature can be turned off completely via BSF (Boat Switch-Forward).

Refer to the individual switch references in the below chapters for more detail.



## Elite Dangerous Configuration

Additional configuration items I have set/reset in game;  
(included in the bind files – here as a short reference for note)

- Throttle Axis Range = Forward Only
- Flight assist button mode = Toggle
- Rotational Correction = Toggle
- Firing Deploys Hardpoints = OFF
- Silent Running Button Mode = Toggle
- Cargo Scoop Button Mode = Toggle
- Microphone Mute Button Mode = Toggle
- Mute Button Mode = Toggle
- Microphone State Mode = Toggle
- Enable Context Menu = OFF
- UI Focus Mode = Cycle
- Autofocus on Text Input = OFF
- Looking at \* Panel = Does Nothing
- Show CQC Score Screen Button Mode = Toggle
- Headlook Button Mode = Toggle
- Centre when Headlook Inactive = ON
- Headlook Smoothing = ON
- Drive Assist Button Mode = Toggle
- Handbrake Button Mode = Toggle
- Drive Throttle Axis Range = Forward Only
- Drive Throttle Reverse Button Mode = Toggle
- Free Camera Throttle Axis Range = Forward Only
- DSS Front/Back Button Mode = Toggle

## Modifiers

The script uses modifiers which do much the same thing as the 'SHIFT' or 'CTRL' keys do on a keyboard...they change or extend the use of the switch or button.

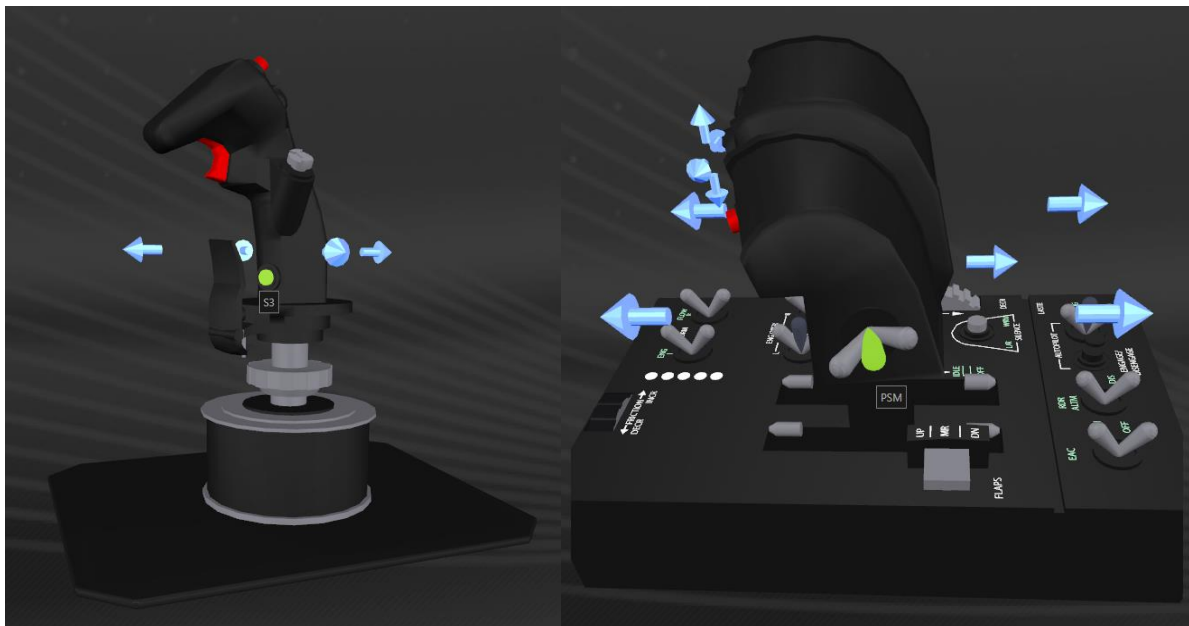
Using modifiers, each button or switch can have up to 6 different functions.

It is worth noting that I do not use modifiers on all switches and buttons ... only about half of the buttons I have mapped use modifiers.

The modifiers use the form I, O, U, M, D. The letters stand for 'In', 'Out', 'Up', 'Middle' and 'Down'

The script uses the Joystick S3 ('Nosewheel') button as the IO modifier. When pressed we are using the 'I' layer. 'O' layer is being used when it isn't pressed.

The script uses the Throttle PSF, PSM, PSB ('Pinky Switch') as the UMD modifier (layers). PSF is the 'U' layer, PSM is the 'M' layer and PSB is the 'D' layer (F=Forward, M=Middle, B=Back)



Joystick S3 'Nosewheel' switch

Throttle PSF/PSM/PSB 'Pinky' switch

In the ED\_MapKeyAssignment.tmh file you will see each switch and button mapped via a MapKey statement. This defines what we want to do when the switch is pressed.

It may look like one of the following four examples;

- a. `MapKey(&Joystick, TG1, <action>);`  
No modifiers used. Press the trigger to do 'action'
- b. `MapKeyIO(&Joystick, TG1, <'I' action>, <'O' action>);`  
Modifier 'IO' in play.  
Press and hold S3, then the trigger to do 'action for I'  
Press the trigger without pressing S3 to do 'action for O' (ie no modifier)

- c. MapKeyUMD(&Joystick, TG1, <'U' action>, <'M' action>, <'D action'>);  
 Modifiers 'UMD' in play.  
 Flick Pinky Switch Forward (PSF) and press the trigger to do 'U action'  
 Leave or move Pinky Switch to Middle (PSM) and press the trigger to do 'M action'  
 Flick Pinky Switch Back (PSB) and press the trigger to do 'D action'
- d. MapKeyIOUMD(&Joystick, TG1, <IU>, <OU>, <IM>, <OM>, <ID>, <OD>);  
 The most complex mapping as you can see and has 6 separate actions depending on both S3 being pressed and/or position of the Throttle pinky switch!

In this user guide, I will list each switch position used in the script and if modified, will use the following example terminology;

<u>Switch</u>	<u>Usage</u>	<u>This means...</u>
TG1 – IU	S3+PSF+TG1	Press+hold S3 (I), Flick PSF (U), then press the main trigger
TG1 – OM	TG1	Just press the Joystick main trigger (no effective modifier) (S3 not pressed and Throttle Pinky Switch in the middle position)
S1 – U	PSF+S1	Flick PSF (U), then press the Joystick S1 ('Master Mode') button
H4P – D	PSB+H4P	Flick PSB (D), then press the Joystick CMS Switch
S4	S4	(no modifiers) ... just press the Joystick S4 switch (pinky lever)

In other words, I'll only describe the modifiers where they are used for that switch mapping in script.

I'll then go on to describe the 'action' or function of each switch in use and I'll include a reference picture of the switch being described.

## Training Mode

Enable 'AnnounceTraining' in ED\_UserSettings file to announce via Voice feedback the selected Training mode status when the script starts.

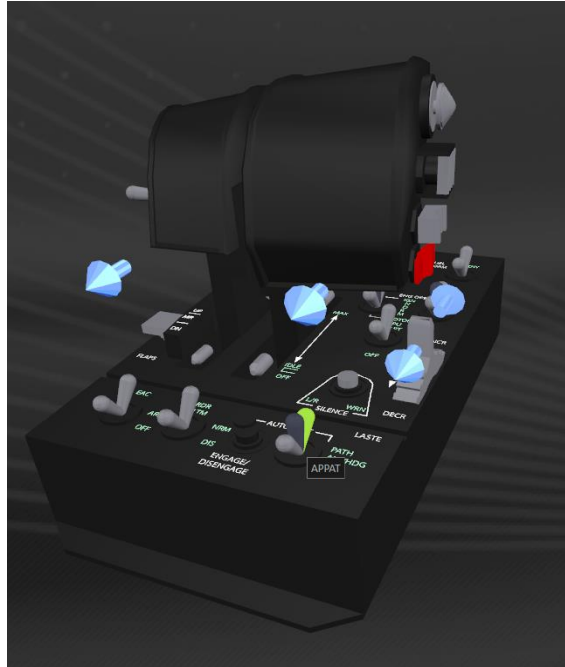
Enable 'TrainingEnabled' in the ED\_UserSettings file to take advantage of a training mode.

When the game is not running, pressing any of the button or switch combinations described in the following chapters will result in both Voice feedback, as well as a console printout of the mapped function. Make sure you also check out the modified buttons and switches!

## Axis Curves and Curve Control

By default, I use a small amount of S-Curve for the X and Y axis on the joystick and rudder. You can turn the curves off via the Throttle APPAT switch as shown below.

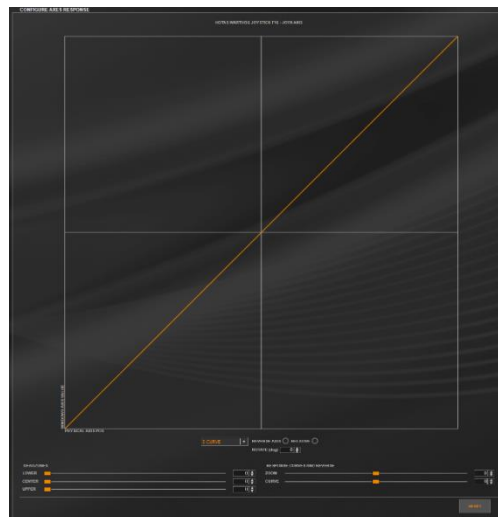
<u>Switch</u>	<u>Usage</u>	<u>Action</u>
APPAT	APPAT	Set Joystick and Rudder curves to OFF (0)



Throttle APPAT (Autopilot Path)

No curves means that the joystick and rudder axes have a linear response. That is, it increases the roll or pitch rate in a consistent manner as you move the stick all the way left, right, up, or down.

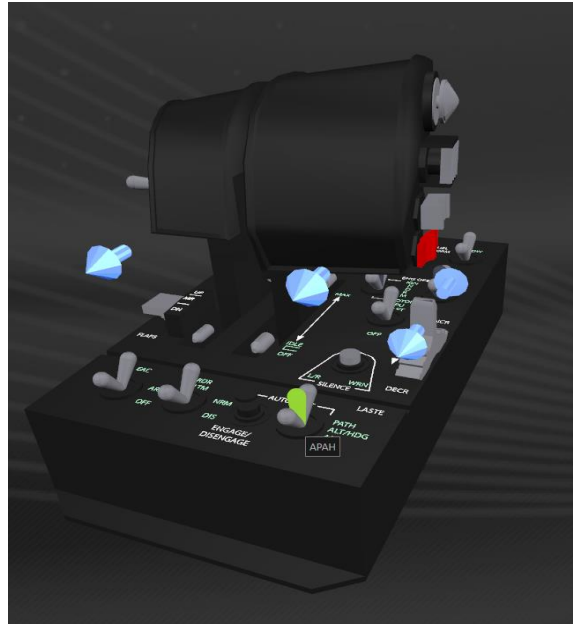
As the script applies the same curve profiles to the joystick and rudder when switching, the same theory applies to the rudder.



Joystick Curves set to 0 (linear response)

(...curves continued)

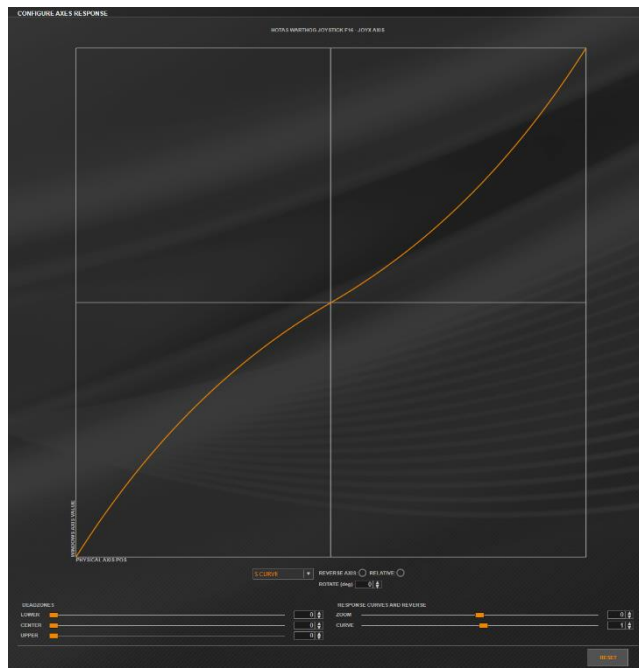
<u>Switch</u>	<u>Usage</u>	<u>Action</u>
APAH	APAH	Set Joystick and Rudder curves to MILD (1)



### Throttle APAH (Autopilot ALT/HDG)

Default position for this switch. I use a small amount of curves applied to the joystick and rudder. The joystick and rudder have a slight non-linear rate of response.

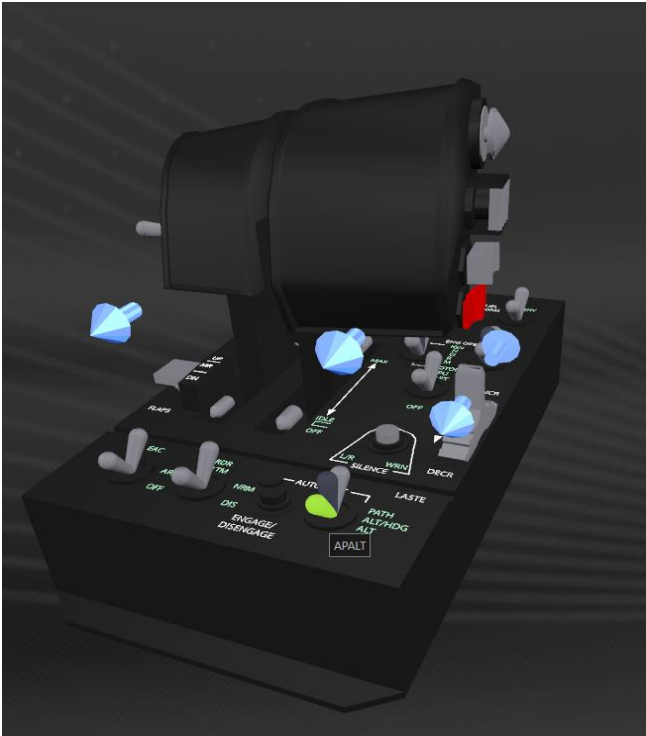
The S-Curve causes the response to be slightly slower at the beginning of travel away from centre and gets faster the further from centre you move the stick (or rudder).



Joystick Curves set to 1 (Non-Linear Response)

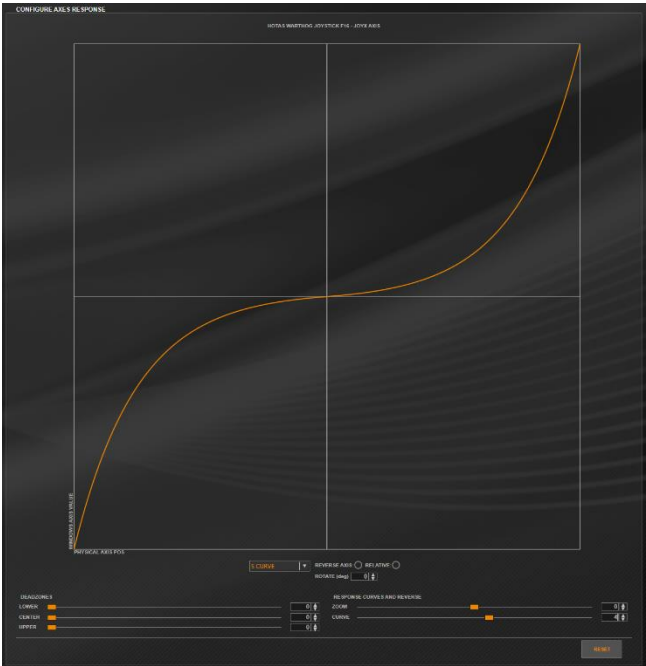
(...curves continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
APALT	APALT	Set Joystick and Rudder curves to MEDIUM (3)



Throttle APALT (Autopilot ALT)

At a curve profile of 'SLOW' (4) the Joystick/Rudder response starts quite a bit slower and then gets a fair bit faster the more you move the throttle or rudder from the centre position. This is most useful when learning and using Flight Assist Off (FA-OFF).



Joystick Curves set to 4 (non-linear response)

(...curves continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
S4	S4	1 <sup>st</sup> press - Toggles FA-OFF and sets joystick & pedal curves to 4 2 <sup>nd</sup> press - Toggles FA-ON and resets curve profile to the associated autopilot switch setting



Joystick S4 (Pinky lever)

FA-OFF:            Status LED 1

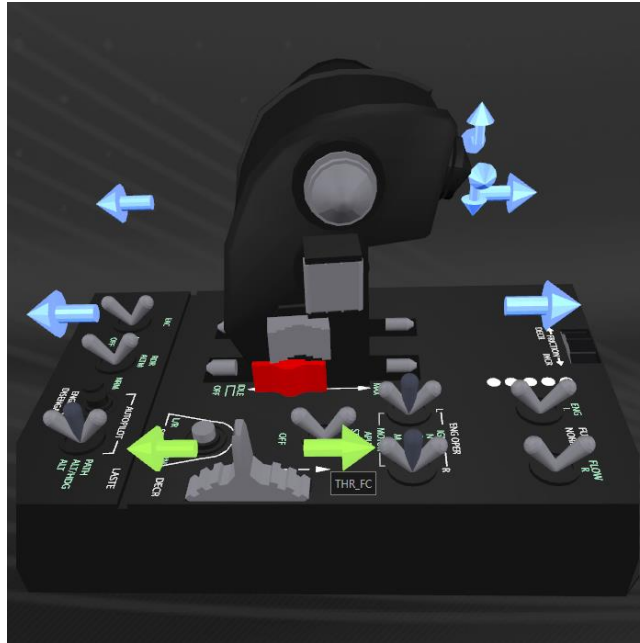
The curves that FA-OFF will use can be set via the 'FAOFFCurves' variable within the ED\_UserSettings.tmh file. Valid settings are 'OFF', 'MILD', 'MEDIUM' or 'SLOW'

Console printout each time curves change can be enabled via 'CurveInfo' variable within ED\_UserSettings.tmh file. Valid settings are 'PRINT' or 'NOPRINT'

Note: The above settings are case sensitive.

(...curves continued)

<u>Axis</u>	<u>Usage</u>	<u>Action</u>
THR_FC	THR_FC	Used to adjust radar range



THR\_FC

This axis requires custom curves which are set automatically depending on flight mode. Flight mode is detected in the script each time your flight mode changes from normal, super cruise, FSS Scanner or DSS Scanning (surface probes, front/rear planet view).

Mode 0: linear. Used for FSS Mode Radar  
Curve Profile 0 = (0,0, 25,25, 50,50, 75,75, 100,100)

Mode 1: non-linear. Used for normal flight and SRV  
Curve Profile 1 = (0,0, 40,25, 75,50, 85,75, 100,100)  
ie. When slider is at 40%, Windows DX value is at 25% etc.

Mode 2: non linear. Used for Supercruise  
Curve profile 2 = (0,0, 50,10, 75,30, 90,50, 100,100)

Note: J-Curve settings (via SetJCurve statement in script) do not work as well as Custom Curves

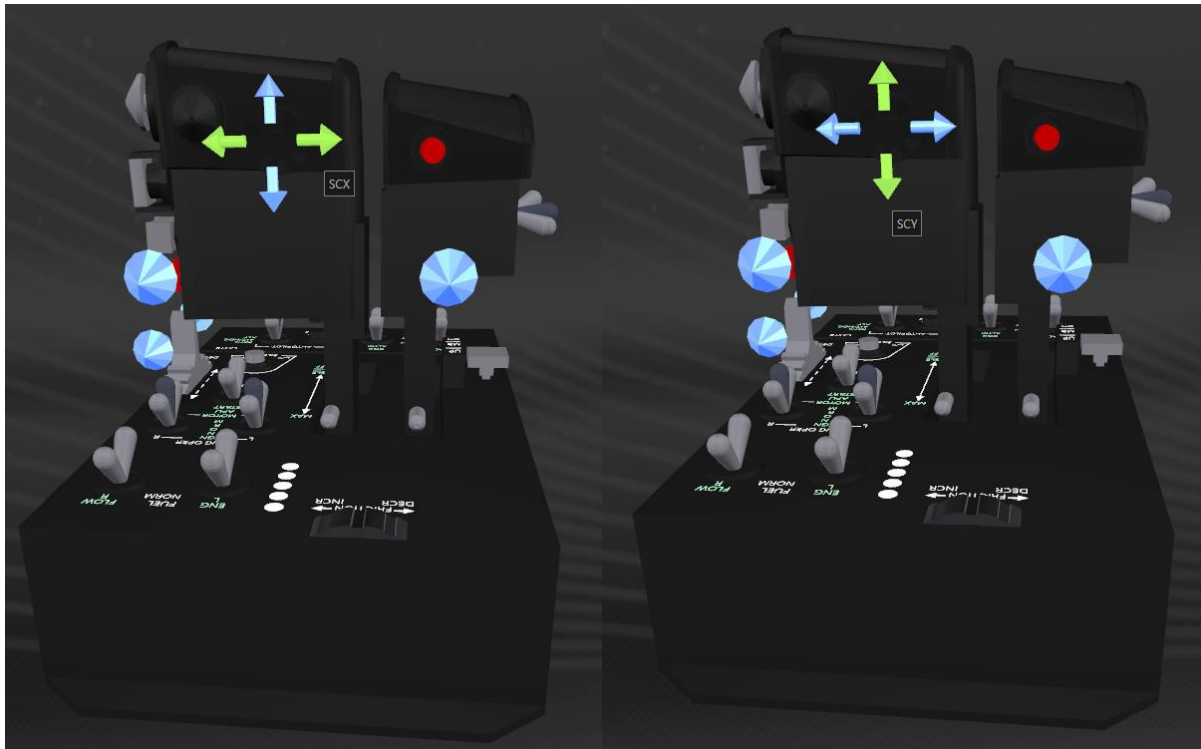
Most of the settings for each of the curve functions can be found within the ED\_UserSettings.tmh file under the 'Axis Curves' section.

Refer 'Axes' chapter starting on p27 in the Target Script Editor Basics Manual v1.5 for more details on 'S', 'J' and 'Custom' curves.



(...curves continued)

<u>Axis</u>	<u>Usage</u>	<u>Action</u>
SCX	SCX	Slew Control X-Axis. Used for Lateral Thrusters
SCY	SCY	Slew Control Y-Axis. Used for Vertical Thrusters



Throttle SCX (Slew Control)

Throttle SCY (Slew Control)

Curves for the Slew Control are also set when we change the Joystick curves.  
The 3 profiles are all set the same (linear) but can be changed via curve arrays within ED\_UserSettings.tmh.

I use a slight centre dead zone as this control is quite sensitive.

NOTE: I have modified my WARTHOG HOTAS by replacing the slew control 'nub' with an analogue control replacement which I obtained from:

<https://deltasimelectronics.com/products/thumbstick-slew-sensor-adapter>

This is a fantastic upgrade to the HOTAS which I heartily recommend.  
It turns what I consider to be a relatively useless control that I did not/would not use, into something supremely useable which I cannot do without!

## Joystick Controller

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
TG1-IU	S3+PSF+TG1	(not mapped)
TG1-OU	PSF+TG1	Primary trigger fires once every 7 seconds. Useful for Pulse wave scanner Press PSF+TG1 again to stop
TG1-IM	S3+TG1	(not mapped)
TG1-OM	TG1	Primary trigger default action (press to fire, release to stop)
TG1-ID	S3+PSB+TG1	Toggle (PSB) Trigger action between 'disco scan' and 'mining laser'
TG1-OD	PSB+TG1	Disco scan. Press to fire. Script releases trigger after 6.1 secs Mining laser. Press to fire, press to stop



Joystick TG1 (Primary Fire)

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
TG2	TG2	(not mapped)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
S1-U	PSF+S1	Toggle HUD between Analysis and Combat Modes
S1-M	S1	Toggle Hardpoints (normal flight mode)
S1-D	PSB+S1	(not mapped)



Joystick S1 (Master Mode Control)

NOTE: When in Super cruise, S1-M toggles HUD mode automatically

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
S2-IU	S3+PSF+S2	(not mapped)
S2-OU	PSF+S2	Secondary fire trigger fires once every 7 seconds. Useful for Pulse wave scanner Press PSF+S2 again to stop
S2-IM	S3+S2	(not mapped)
S2-OM	S2	Secondary fire trigger default action (press to fire, release to stop)
S2-ID	S3+PSB+S2	Toggle (PSB) Trigger action between 'disco scan' and 'mining laser'
S2-OD	PSB+S2	Disco scan. Press to fire. Script releases trigger after 6.1 secs Mining laser. Press to fire, press to stop



Joystick S2 (Secondary Fire/Weapons Release)

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H1U-U	PSF+H1U	Toggle FSS Mode
H1U-M	H1U	Select Next Fire Group
H1U-D	PSB+H1U	Turn off DSS Mode



Joystick H1U (China Hat – Up)

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H1D	H1D	Select Previous Fire Group



Joystick H1D (China Hat – Down)

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H1L	H1L	Tempo. Press and hold for 0.5 seconds toggles landing gear Short press does nothing.



Joystick H1L (China Hat – Left)

Landing Gear: Status LED 5

Press and hold H1L for 0.5 Seconds to toggle the landing gear.

This prevents accidental deployment during combat if you accidentally hit H1L instead of H1U (Next Firegroup) or H1D (Previous Firegroup)

The landing gear is also used as an auto speedbrake via hitting 'Reverse' when in normal flight.

This will automatically deploy the landing gear, then retract 5 seconds later.

Boost-bleeding can be accomplished by hitting boost, then Reverse.

Refer to Throttle Lever Control – SPDF/SPDB (Speedbrake switch) in Section 8

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H1R-U	PSF+H1R	Toggle Night Vision ON/OFF
H1R-M	H1R	Tempo. Press and hold for 0.5 seconds toggles lights Short press does nothing. Prevents accidental toggle of lights
H1R-D	PSB+H1R	(not mapped)



Joystick H1R (China Hat – Right)

Toggle Lights: Status LED 2

Ship Lights simply toggle ON/OFF

SRV lights cycle ON/HI BEAM/OFF



(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H2U-U	PSF+H2U	Toggle Planet View, Front/Back (Must be in FSS Mode)
H2U-M	H2U	Select Target Ahead
H2U-D	PSB+H2U	Select Target Ahead



Joystick H2U (Target Designator – Up)

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H2D-U	PSF+H2D	(not mapped)
H2D-M	H2D	Select Highest Threat
H2D-D	PSB+H2D	Select Wing Man's Target



Joystick H2D (Target Designator – Down)

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H2L-U	PSF+H2L	(not mapped)
H2L-M	H2L	Select next ship
H2L-D	PSB+H2L	Select next wingman (sequences each wingman in turn)



Joystick H2L (Target Designator – Left)

(... JOYSTICK continued)

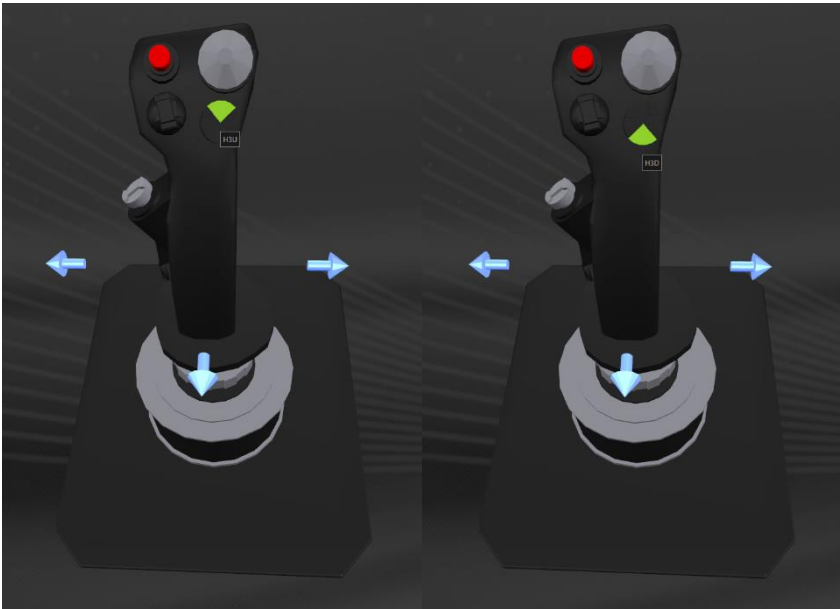
<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H2R-U	PSF+H2R	(not mapped)
H2R-M	H2R	Select next hostile ship
H2R-D	PSB+H2R	Select Wingman's NAV Lock



Joystick H2R (Target Designator – Right)

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H3U	H3U	PIP Management – PIPs to Engines
H3D	H3D	Balance PIPs
H3L	H3L	PIPs to Systems (Shields)
H3R	H3R	PIPs to Weapons



Joystick H3D (Data Mgmt – Up)    Joystick H3U (Data Mgmt – Down)



Joystick H3L (Data Mgmt – Left)    Joystick H3R (Data Mgmt – Right)

The script has 6 PIP Modes selectable via H4P (see below)

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H4P-U	PSF+H4P	Reset PIP Mode to DefaultPIPMoDe (set in ED_UserSettings.tmh)
H4P-M	H4P	Select Next PIP Mode. (0 - 5) (5 wraps to 0)
H4P-D	PSB+H4P	Select Previous PIP Mode (5 - 0) (0 wraps to 5)



Joystick H4P (Countermeasures – Press)

PIP Mode 0:	Single PIPs.	1 press = 1 PIP
PIP Mode 1:	Double PIPs.	1 press = 2 PIPs
PIP Mode 2:	Attack	SYS = [4 0 2], ENG = [0 4 2], WEP = [0 2 4]
PIP Mode 3:	Defend	SYS = [4 2 0], ENG = [2 4 0], WEP = [2 0 4]
PIP Mode 4:	Recharge	SYS = [4 1 1], ENG = [1 4 1], WEP = [1 1 4]
PIP Mode 5:	3+3	SYS = [3 3 0], ENG = [0 3 3], WEP = [3 0 3]

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H4U-U	PSF+H4U	'Double Bank' Fire 2x Shield Cell Banks (SCB) + 1x Heatsink
H4U-M	H4U	Tempo. Short Press = Fire 1x SCB, Long Press = 1x SCB + 1x Heatsink
H4U-D	PSB+H4U	FSS or Camera Zoom - IN



Joystick H4U (Countermeasures – UP)

(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H4D-U	PSF+H4D	(not mapped)
H4D-M	H4D	Fire 1x Heatsink
H4D-D	PSB+H4D	FSS or Camera Zoom – OUT



Joystick H4D (Countermeasures – DOWN)



(... JOYSTICK continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H4L-U	PSF+H4L	(not mapped)
H4L-M	H4L	Electronic Countermeasures (ECM). Hold to charge, Release to Fire
H4L-D	PSB+H4L	Camera Blur – OUT



Joystick H4L (Countermeasures – LEFT)

(... JOYSTICK continued)

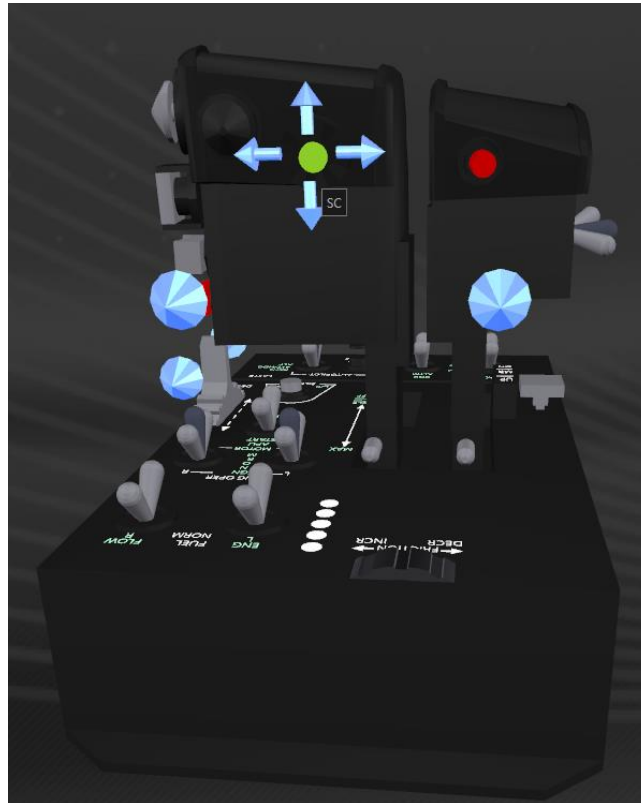
<u>Switch</u>	<u>Usage</u>	<u>Action</u>
H4R-U	PSF+H4R	(not mapped)
H4R-M	H4R	Fire 1x Chaff
H4R-D	PSB+H4R	Camera Blur – IN



Joystick H4R (Countermeasures – RIGHT)

## Throttle Control Lever

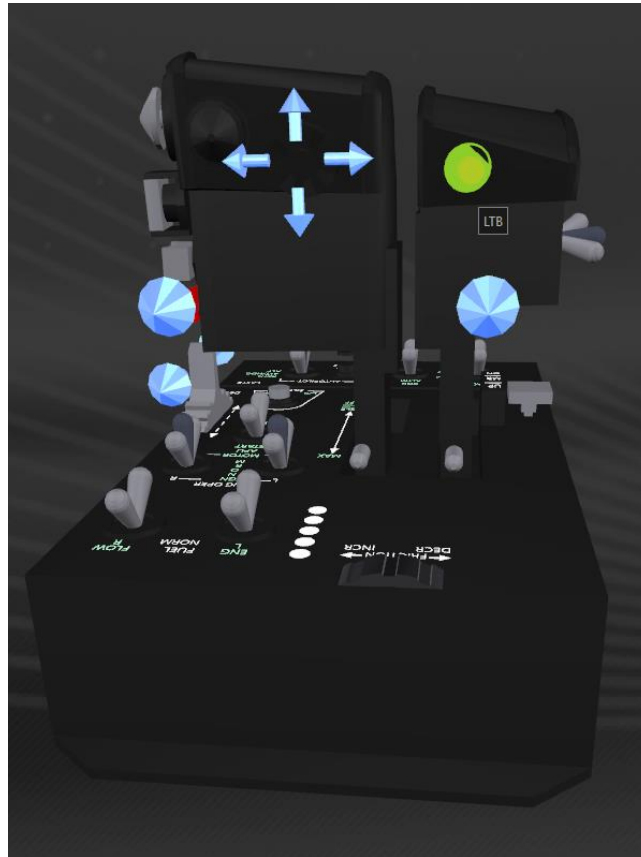
<u>Switch</u>	<u>Usage</u>	<u>Action</u>
SC-U	PSF+SC	Toggle Connection status. Shows Bandwidth counter
SC-M	SC	Centres EDTracker
SC-D	PSB+SC	(not mapped)



Throttle SC (Slew Control Press Button)

(... Throttle LEVER continued)

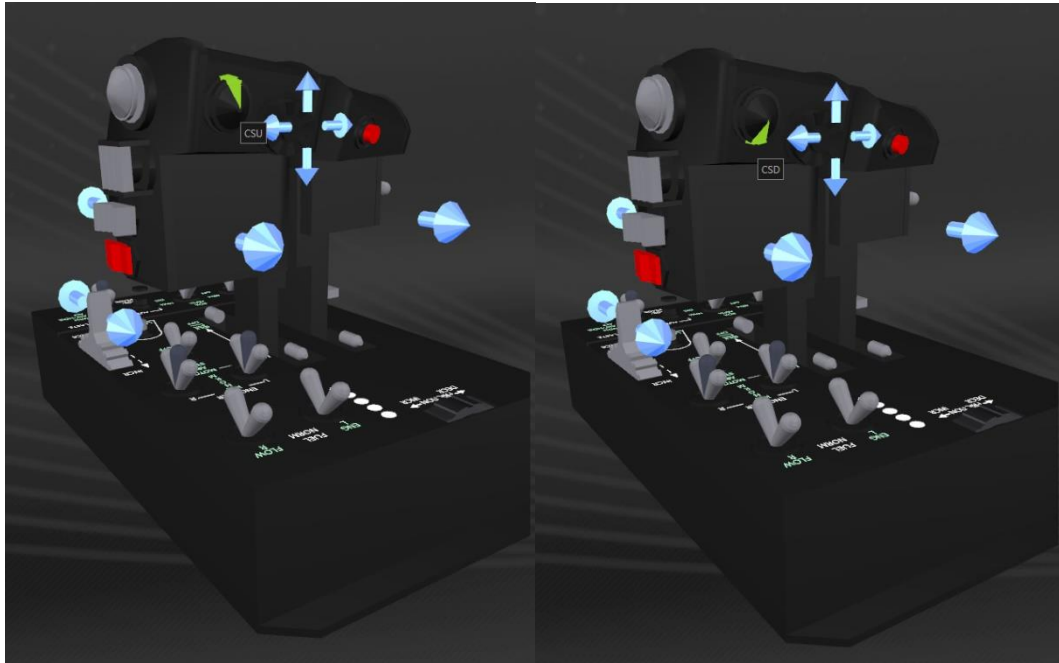
<u>Switch</u>	<u>Usage</u>	<u>Action</u>
LTB-U	PSF+LTB	Toggles external 'free camera view' and turn off GUI
LTB-M	LTB	Toggle Headlook ON/OFF
LTB-D	PSB+LTB	(not mapped)



Throttle LTB (Left Throttle Button)

(... Throttle LEVER continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
CSU	CSU	Engage/Cancel/Disengage Supercruise
CSD	CSD	Engage/Cancel System Jump (Hyperspace)



Throttle CSU (Coolie Switch – UP)

Throttle CSD (Coolie Switch – DOWN)

The script can detect a wide range of game states via status.json including if we are in Supercruise versus Hyperjump, when we are Mass Locked, when the FSD is cooling down or charging up.

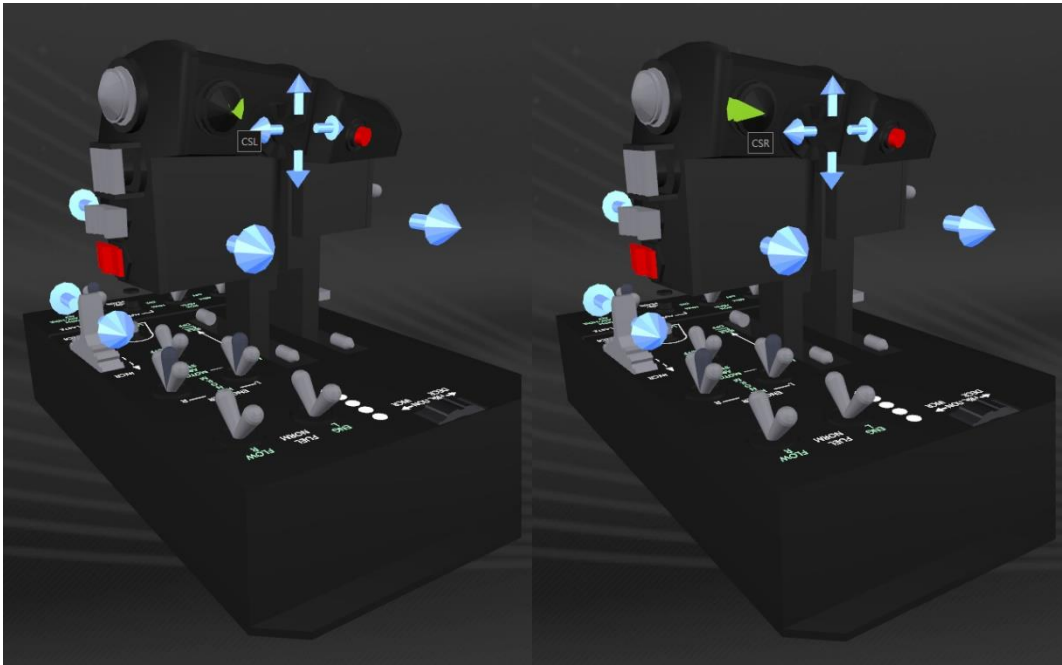
The script also detects when we drop out of Supercruise and if this was initiated or we have dropped out via interdiction, hyperdicted, or drop from orbital cruise etc.

When we Charge the FSD, the script will automatically retract the hardpoints, landing gear and cargo scoop if needed.

When interdicted, as soon as we drop from Supercruise, the script will automatically select Combat HUD mode, deploy hardpoints and endeavour to select the highest threat.

(... Throttle LEVER continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
CSL	CSL	Select Next System in route
CSR	CSR	Toggle Orbit Lines ON/OFF

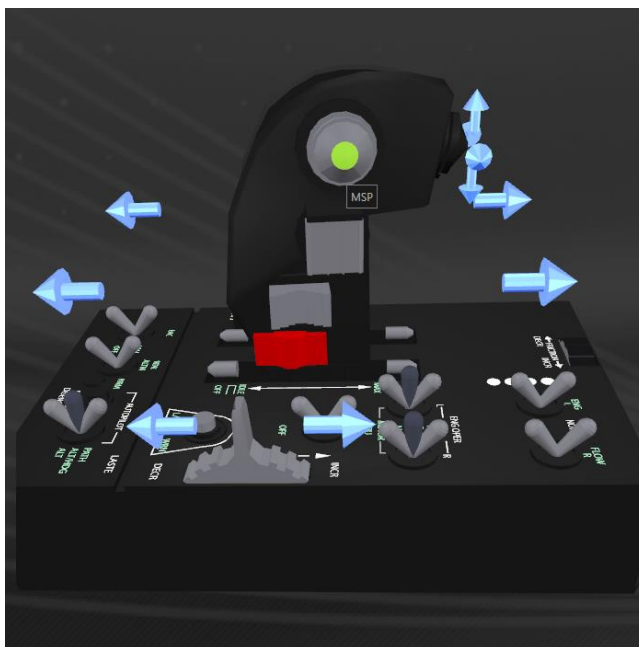


Throttle CSL (Coolie Switch – LEFT)

Throttle CSR (Coolie Switch – RIGHT)

(... Throttle LEVER continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
MSU	MSU	(reserved for Voice Communications)
MSD	MSD	(reserved for Voice Communications)
MSL	MSL	(reserved for Voice Communications)
MSR	MSR	(reserved for Voice Communications)
MSP	MSP	(reserved for Voice Communications)



Throttle MSP (Mike Switch – PRESS)

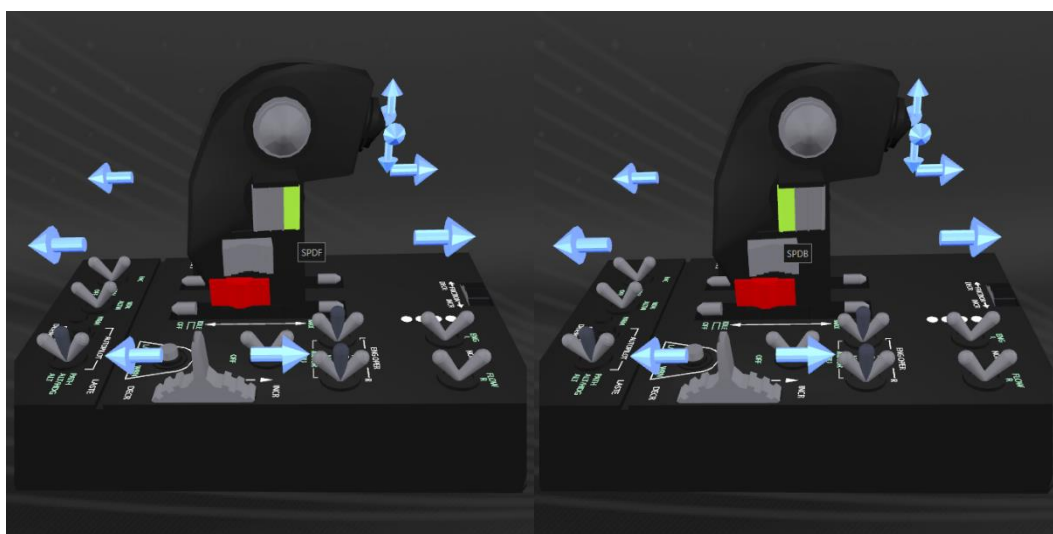
MSU/MSD/MSL/MSR on same switch but not shown

(... Throttle LEVER continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
SPDF-U	PSF+SPDF	Reverse Thrust (no speedbrake)
SPDF-M	SPDF	Reverse Thrust (+Speedbrake if hardpoints are deployed)
SPDF-D	PSB+SPDF	Re-align switch to action if out of synch

Speedbrake function: Landing gear lowered then retracted 5 seconds later  
Reverse thrust turned off when switch returned to middle position.

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
SPDB	SPBD	Boost (momentary action switch)



Throttle SPDF (Speedbrake – FORWARD)

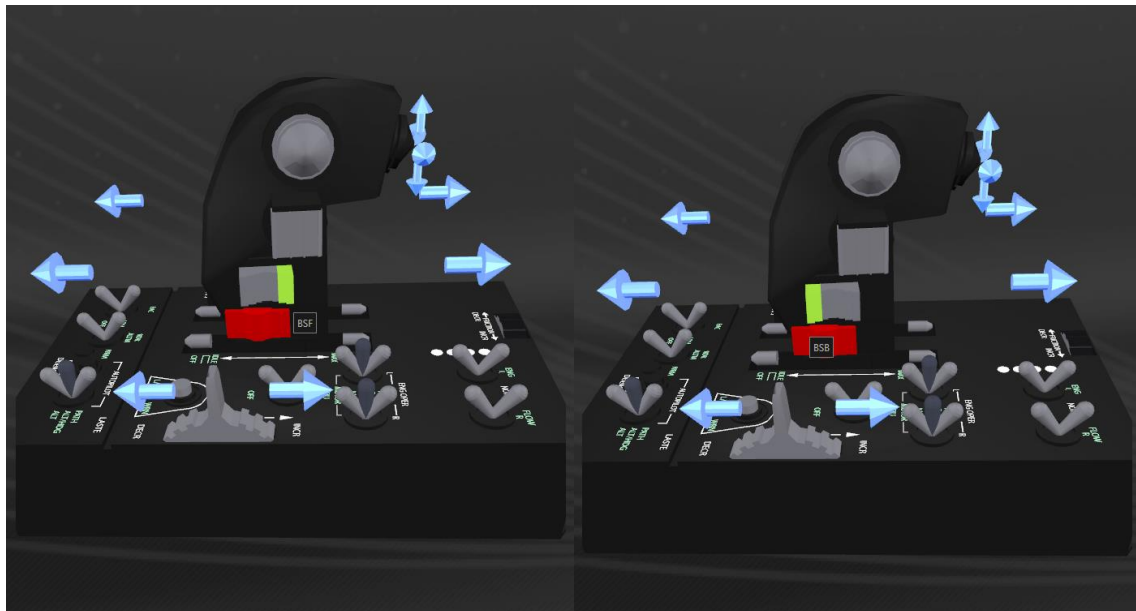
Throttle SPDB (Speedbrake – BACK)



(... Throttle LEVER continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
BSF-U	PSF+BSF	Macro: Toggles NAV Beacon WING/OFF (Right Panel must be at home position or this won't work)
BSF-M	BSF	(not mapped)
BSF-D	PSB+BSF	Toggle Text-To-Speech feedback ENABLED/DISABLED

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
BSF-F	PSF+BSB	Toggle 'Report Crimes against me' ON/OFF (Right panel must be at home position or this won't work)
BSB-M	BSB	(not mapped)
BSB-D	PSB+BSB	(not mapped)



Throttle BSF (Boat Switch – FORWARD)      Throttle BSB (Boat Switch – BACK)

**NOTE:**

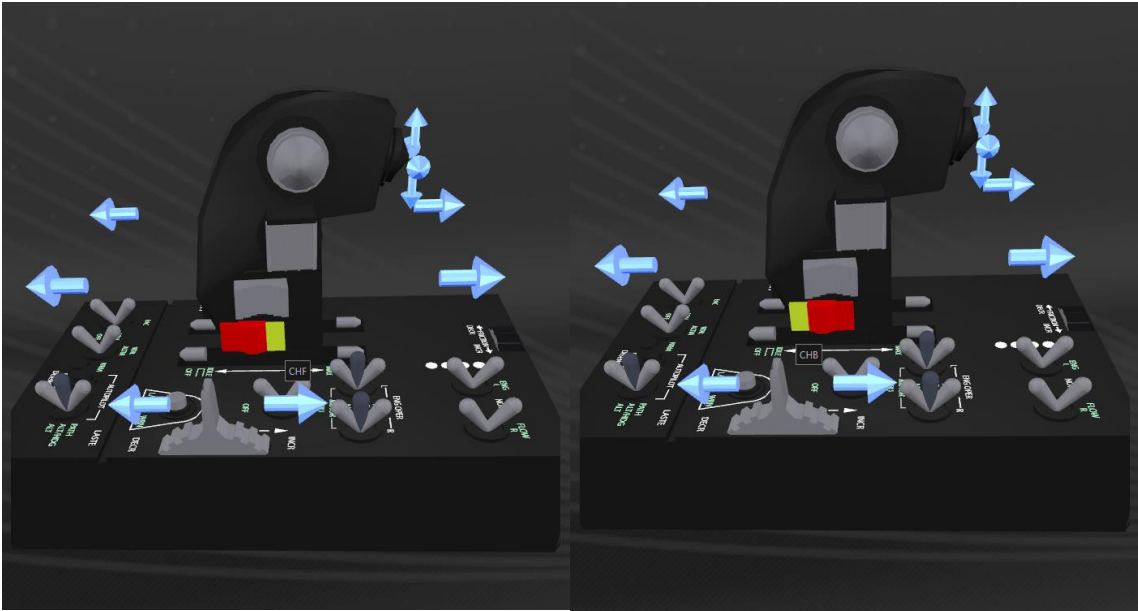
These macros require the SYSTEM Panel (Right Panel) is at home position or undesired/random results will happen. Home position is Left TAB, Top Left position.

If you use the panels frequently, consider not using these functions, or, get in the habit of returning to the home position manually each time.

This also applies to the 'Docking Request' function from the NAV (Target) Panel (Left Panel)

(... Throttle LEVER continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
CHF	CHF	Select next subsystem on targeted ship (momentary action switch)
CHB	CHB	Select previous subsystem on targeted ship (momentary action)



Throttle CHF (China Hat – FORWARD)

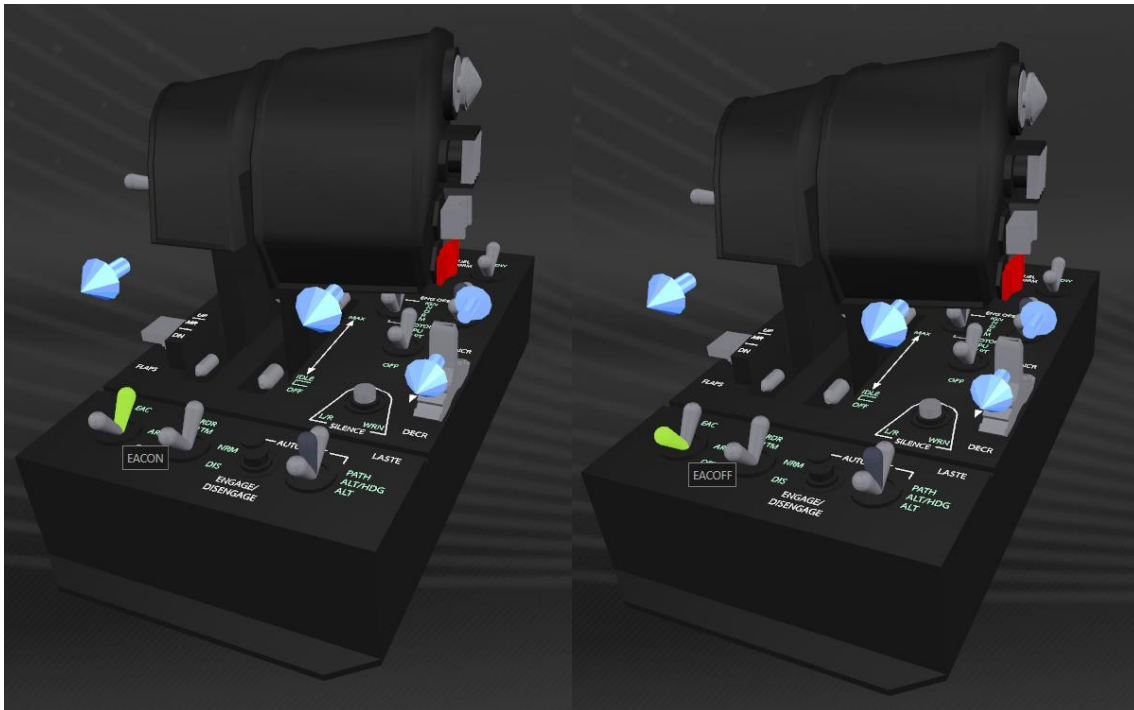
Throttle CHB (China Hat – BACK)

## Throttle Control Base

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
APPAT	APPAT	Set Joystick/Rudder curves to NONE
APAH	APAH	Set Joystick/Rudder curves to MILD
APALT	APALT	Set Joystick/Rudder curves to MEDIUM

Refer to Axis Curves and Curve Control

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
EACON	EACON	Toggle Silent Running – ON
EACOFF	EACOFF	Toggle Silent Running – OFF



Throttle EACON (Enh Attitude Control – ON)

Throttle EACOFF (Enh Attitude Control – OFF)

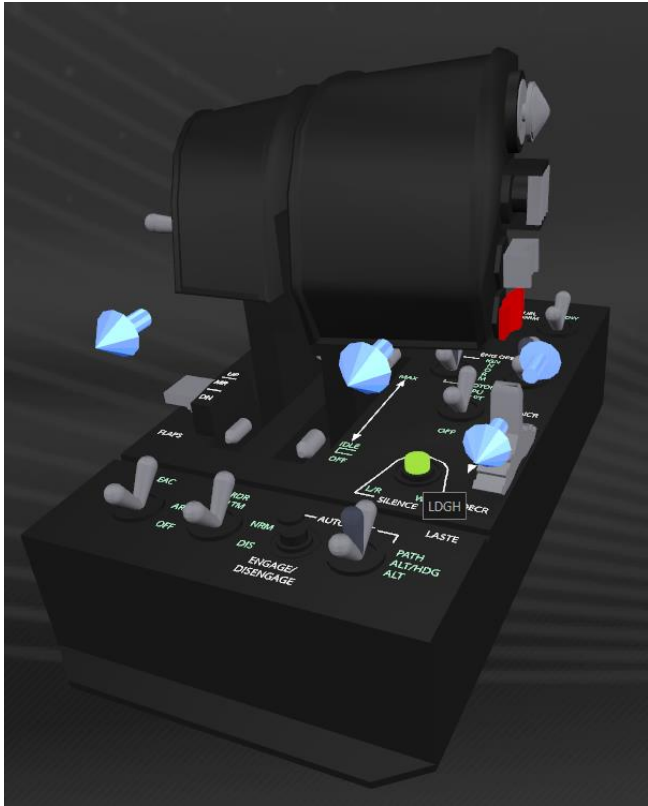
Silent Running: Status LED 3



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(... Throttle BASE continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
LDGH-I	S3+LDGH	Clear all 3 Chatbox windows
LDGH-O	LDGH	Clear currently selected Chatbox



Throttle LDGH (Landing Gear Horn Silence Button)

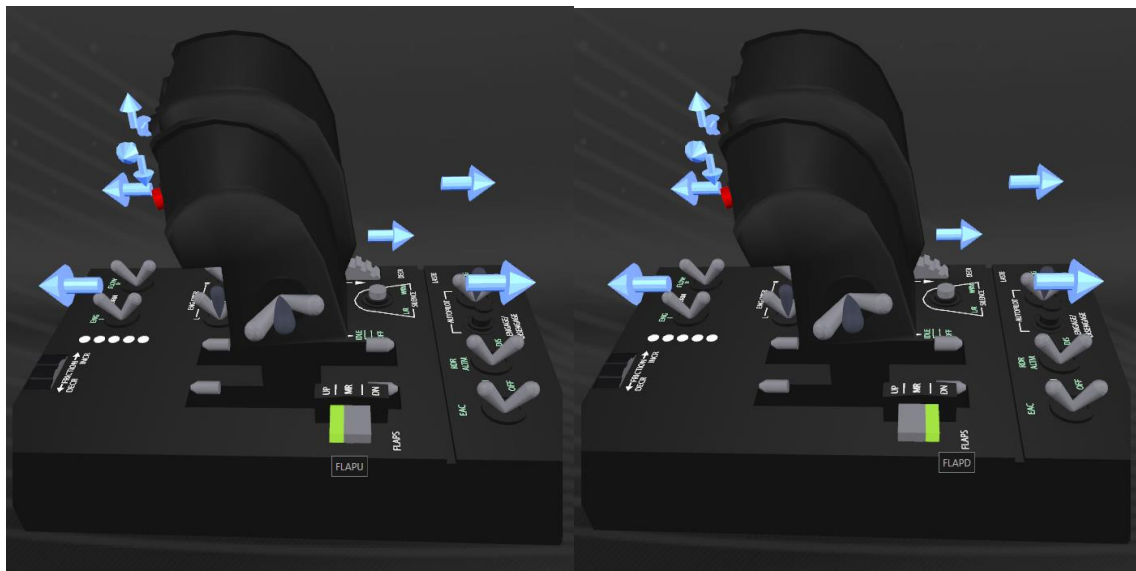
(... Throttle BASE continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
FLAPU-U	PSF+FLAPU	Increase Text-To-Speech Volume
FLAPU-M	FLAPU	Go to Galaxy Map
FLAPU-D	PSB+FLAPU	(not mapped)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
FLAPD-U	PSF+FLAPD	Decrease Text-To-Speech Volume
FLAPD-M	FLAPD	Go to System Map
FLAPD-D	PSB+FLAPD	Turn Throttle LEDs OFF
FLAPDR-D	PSB+FLAPDR	Turn Throttle LEDs back ON

Increase and decrease Text-To-Speech Volume changes volume of the Voice feedback in increments of 5%. Example: To lower the volume by 10%, use PSF+FLAPD twice. (Lowest volume = 5%)

Turn LEDs OFF by PSB+FLAPD. If you move PSF back to its default PSM position then move the Flaps switch back to M, the LEDs stay off. To turn them back on, simply toggle PSB+FLAPD and back to middle.

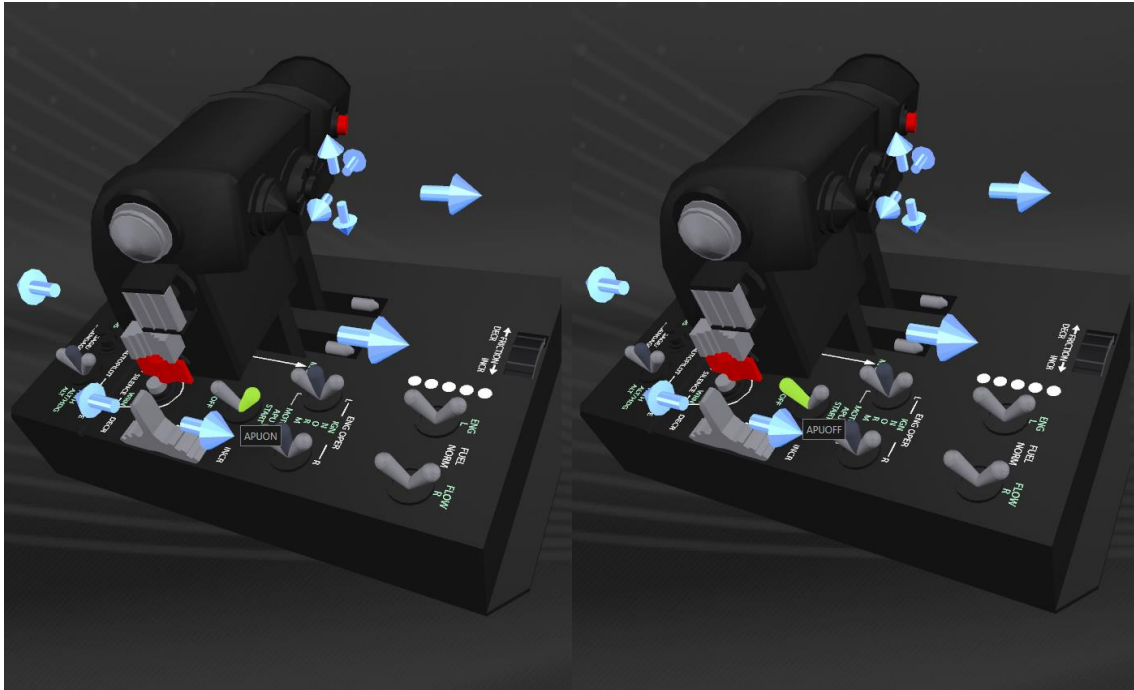


Throttle FLAPU (Flaps UP)

Throttle FLAPD (Flaps Down)

(... Throttle BASE continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
APUON	APUON	Deploy SRV ROLE Panel must be in home position or this won't work
APUOFF	APUOFF	Recover SRV ROLE Panel must be in home position or this won't work



Throttle APUON (Aux Power Unit – START)

Throttle APUOFF (Aux Power Unit – OFF)

#### DEPLOY SRV:

The script cannot check the presence of an SRV.

If you use this function with no SRV, unpredictable results will happen.

The ROLE Panel (lower panel) must be in the Home position for this macro to work.

The script does check that you are landed, however, make sure you have an SRV!

#### RECOVER SRV:

The script cannot currently detect when you are directly under the ship ('boarding light' on).

It will check when the turret is stowed (which means you are close).

If you use this function when not directly under the ship, unpredictable results will happen.

The ROLE Panel (lower panel) must be in the Home position for this macro to work.

Make sure the 'Boarding Light' is lit before flicking the APUOFF switch.

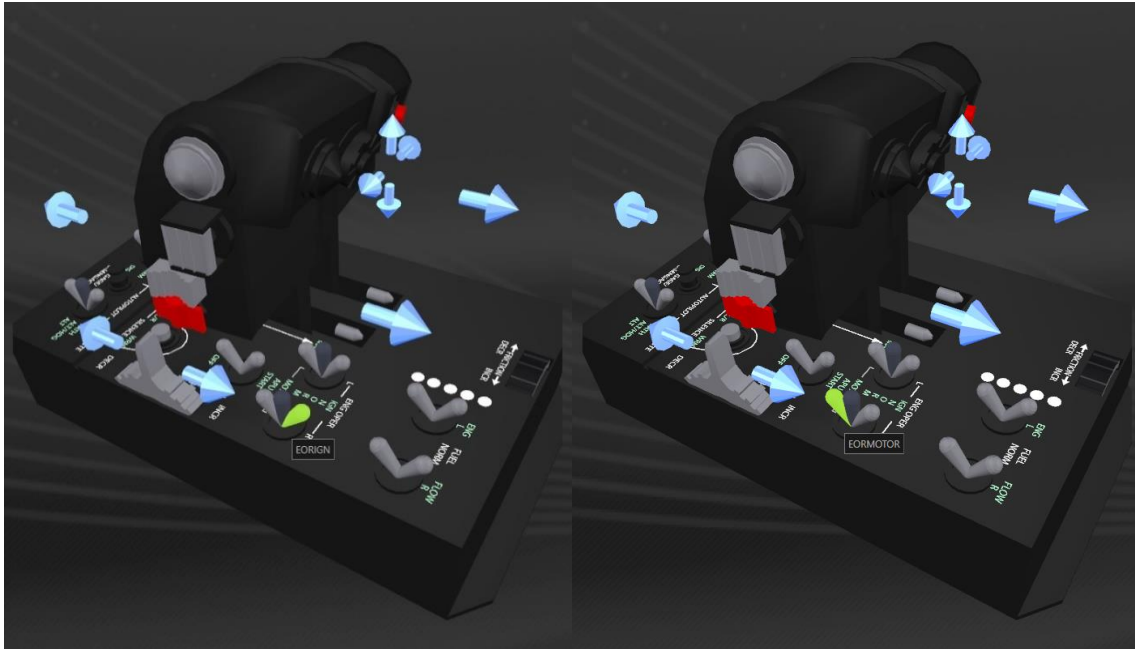
#### WARNING:

I've seen some unpredictable behaviour in the RECOVER macro at times and am yet to make this macro 100% reliable.



(... Throttle BASE continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
EORIGN	EORIGN	Dismiss/Recall Ship (momentary action)
EORMOTOR	EORMOTOR	Toggle Ship GUI OFF/ON



Throttle EORIGN (Engine Operate – IGNITION) Throttle EORMOTOR (Engine Operate – MOTOR)

Dismiss/Recall Ship:

The `Flags` key value in `status.json` does not have a bit representing if the Ship is landed nearby or if it was dismissed (or flew off because we wandered far enough away).

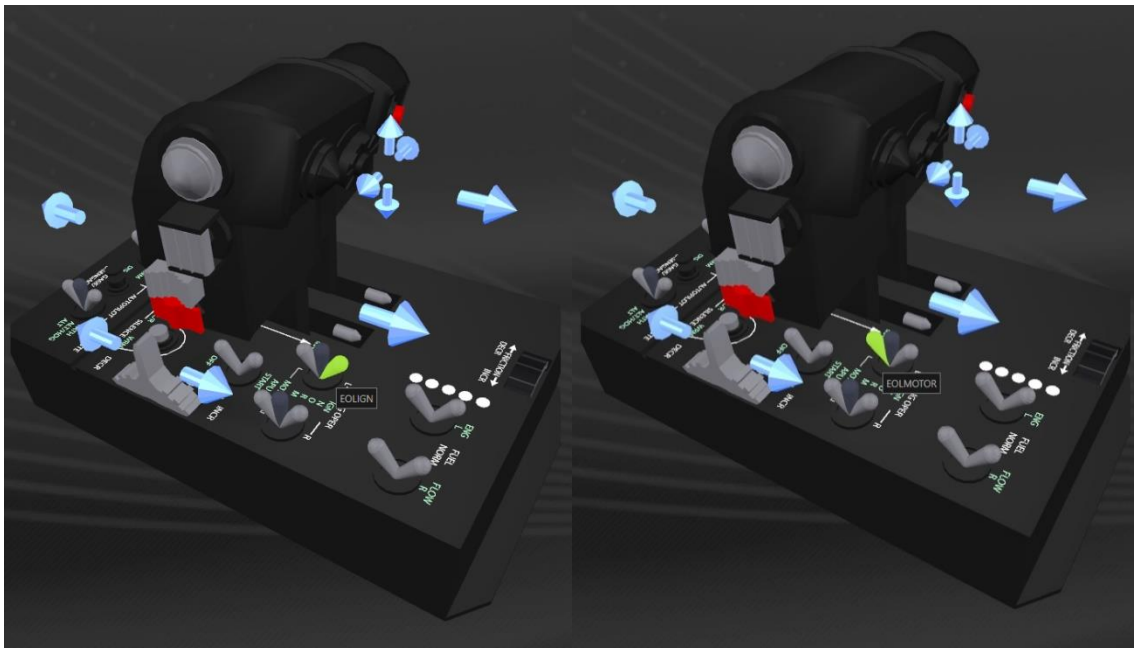
This results in the voice feedback potentially being wrong.

I've turned off voice feedback for this function for now, however the code still exists.

(... Throttle BASE continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
EOLIGN-U	PSF+EOLIGN	Game Mode Switch to OPEN
EOLIGN-M	EOLIGN	Game Mode Switch to PRIVATE GROUP
EOLIGN-D	PSB+EOLIGN	Game Mode Switch to SOLO

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
EOLMOTOR	EOLMOTOR	(not mapped)



Throttle EOLIGN (Engine Operate – IGNITION) Throttle EOLMOTOR (Engine Operate – MOTOR)

Game Mode Switch:

This macro exits the game to the main menu and logs back in to which ever mode you selected via the PSF/PSM/PSB switch.

The script checks for and resets various ship systems that get reset as part of a Menu log or game restart.

These include the Cargo Scoop, Reverse Thrust and Silent Running.

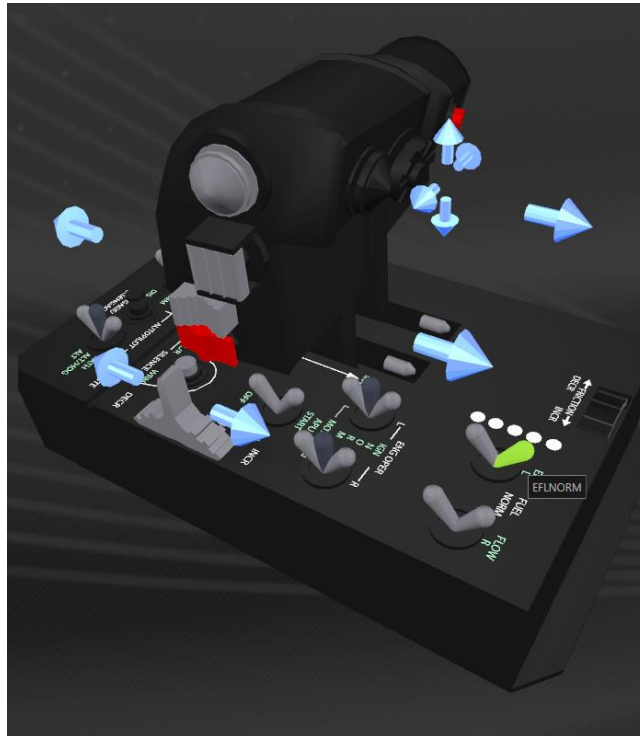
Last time I checked FA-OFF and the condition of the lights are not reset.

**NOTE:** This Mode Switching feature is not designed for, nor can it be used to Console Log (CLOG) during a fight.

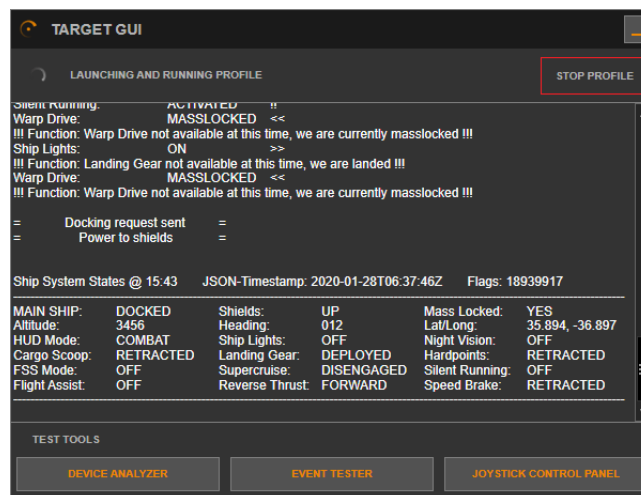


(... Throttle BASE continued)

<u>Switch</u>	<u>Usage</u>	<u>Action</u>
EFLNORM-U	PSF+EFLNORM	Debug Tool. Turn 'ShowFlags = ON'
EFLNORM-M	EFLNORM	Debug Tool. Turn 'Debug = ON'
EFLNORM-D	PSB+EFLNORM	Debug Tool. Turn 'Debug' and 'ShowFlags' = ON
EFLOVER	EFLOVER	Debug Tool. Turn 'Debug' and 'ShowFlags' = OFF



Throttle EFLNORM (Fuel Flow Left – NORMAL)



Example of Status Page



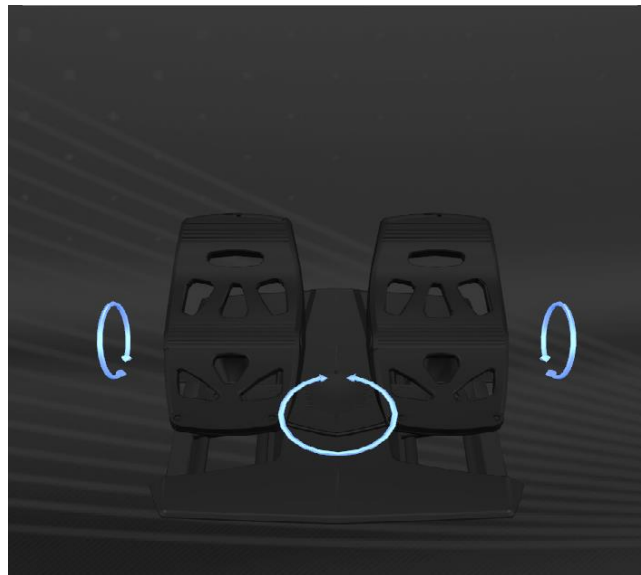
## TFRP Rudder Controller

The rudder pedals provide yaw for the ship and steering for the SRV and are programmed with a mild curve whilst the autopilot LASTE switch is in the middle (default) position (APAH).

This curve can be turned off by flicking the Autopilot switch to the 'PATH' position (APPAT) .

Further a medium curve profile can be applied by moving the autopilot switch to the 'ALT' position (APALT).

These curves are linked also to the Joystick. Refer to Section 6 on Axis Curves and Curve Control.



TFRP Rudder Pedals

Note:

The Toe Brakes are not currently mapped in this script.

## Keyboard Key Binds

Notable keys (generally no script function mapped):

<u>Key</u>	<u>Label</u>	<u>Action</u>
RSHIFT+Q	YawLeft	Yaws Left
RSHIFT+E	YawRight	Yaws Rights
NP-3	SetSpeed75	Sets Throttle to 75% (Blue Zone)
X	SetSpeed0	Set Throttle to 0 (or SRV Handbrake)
NP-Enter	SwapRollYaw	Swaps Roll axis and Yaw Axis
LALT+B	FighterDock	Send Dock order to fighter
LALT+D	FighterDefend	Send Defend order to fighter
LALT+A	FighterAggr	Send Aggressive order to fighter
LALT+T	FighterAttack	Send Attack order to fighter (focus on my target)
LALT+H	FighterNoFire	Send Hold fire order to fighter
LALT+S	FighterHold	Send hold position order to fighter
LALT+F	FighterFollow	Send follow me order to fighter
LALT+O	FighterOpen	Send open orders to fighter
LALT+W	WeaponColour	Swaps Weapon Colour On/Off
LALT+E	EngineColour	Swaps Weapon Colour On/Off
RALT+F11	GalNetPlay	Toggle Play/Pause GalNet Audio
RALT+F10	GalNetPrev	Select previous GalNet item to play
RALT+F12	GalNetNext	Select next GalNet item to play
RALT+F9	GalNetClear	Clear the GalNet Audio Queue
LCTRL+1-9	CameraPreset1-9	Cycle Camera presets

Note: Multicrew key binds not used in script or control bind files

(... Keyboard Keybinds continued)

Full Keybind Listing Refer to following files;

<u>File</u>	<u>Location</u>
ED_Defines.ttm	Script folder
KeyBinds.xls	Maps folder
Keyboard Usage.png	Maps folder

...or the below pages;

Page Heading

Keyboard Utilisation

Key Bind Sheet



## Glossary of terminology and acronyms

## ED\_UserSettings File

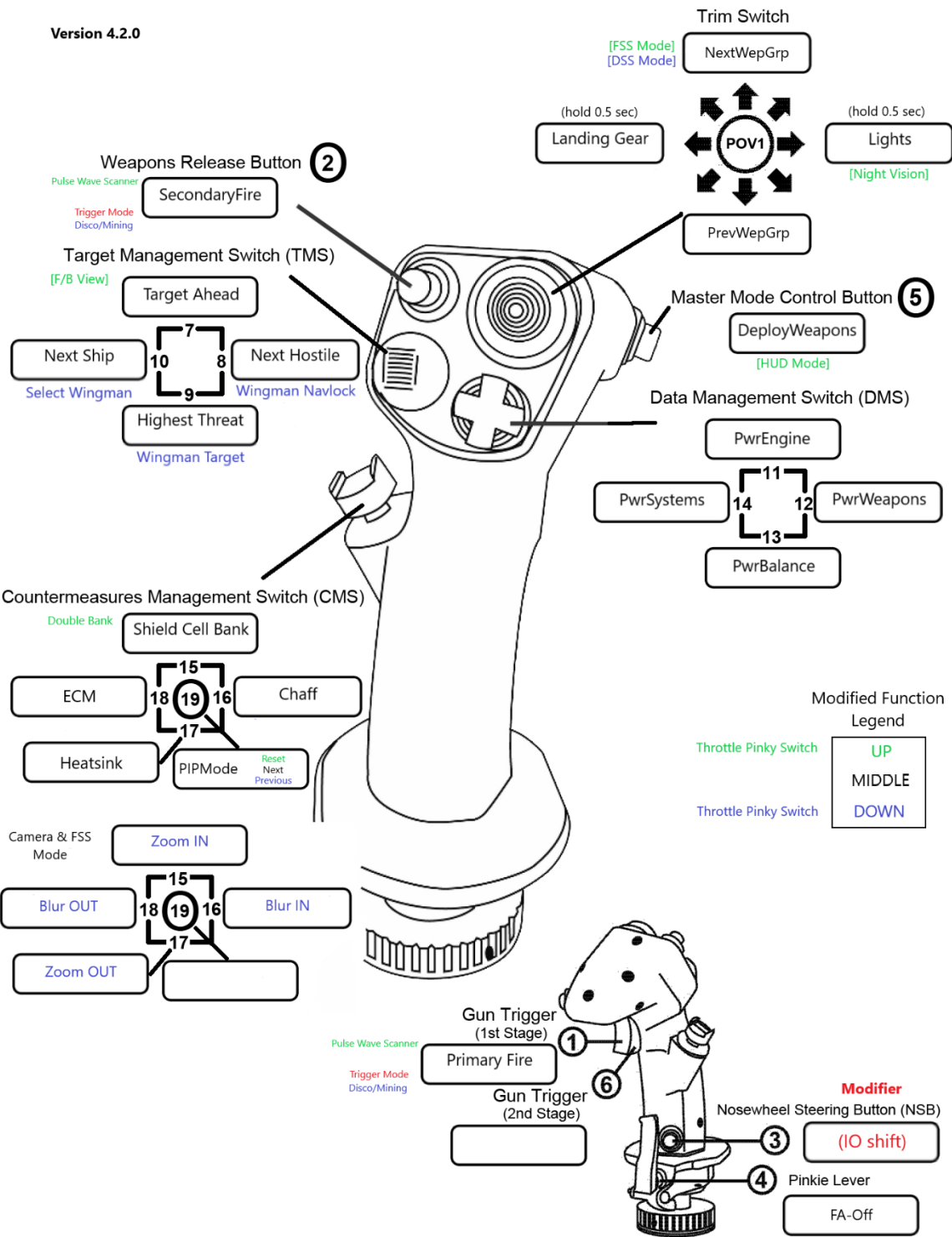
\*See the ED\_UserSettings.tmh file for additional information

<u>Variable</u>	<u>Default</u>	<u>Use</u>
SetLED	43	Sets the LED brightness level on the Throttle base
StatusFile	*	Pathname for Elite Dangerous 'status.json' file
StatusReadRate	500	Loop timer (in msec) that the script will read status.json
MyStatusFile	*	Pathname for extra state flags to be saved
EnableVoice	1	Enables the TextToSpeech engine (voice feedback)
VoicePath	*	Pathname to 'voice.exe'
VoiceVolume	75	Default volume for TextToSpeech Voice
VoiceCMD	*	Command line options for voice.exe
TrainingEnabled	1	Enables 'training mode'. When game is not running, pressing a button or switch will announce what it does
AnnounceTraining	1	Announces if Training Mode is available/active
EnableSoundFX	1	Enables the SoundFX Engine (.wav file player)
SoundPath	*	Pathname to 'sounder.exe'
WAVPath	*	Pathname to wav files for SoundFX
SoundCMD	*	Command line options for sounder.exe
DefaultPIPMODE	3	Select your choice of 6 PIPModes as the default
PulseTime	33	Key press (hold down) time (in msec)
DelayTime	75	Delay between releasing one key and press the next (msec)
LongPress	500	Used for 'TEMPO' delay (msec). Hold key for 'LongPress' to trigger second action
DiscoDelay	6100	Trigger mode for Discovery Scanner. Holds trigger for 'DiscoDelay' milliseconds then releases (6.1 seconds)
AutoHanger	0	When enabled will enter hanger and select station services automatically when you dock
AutoGearUP	0	Raises Landing Gear automatically when you lift off
AutoGearDOWN	0	Lowers the Landing gear when you request docking perm
CommsModule	0	Future feature – currently in test
CurveInfo	NOPRINT	Will print curve profile settings to console if = PRINT

(... Ed\_UserSettings File continued)

EnableTFRPRudder	1	Set this to '0' if you don't have these rudder pedals
SwapRoll4Yaw	0	Set to 1 if you wish to swap the Roll and Yaw axes
Joystick_*	*	Joystick dead zone and zoom settings (for curves)
Rudder_*	*	Rudder dead zone and zoom settings (for curves)
Slew_*	*	Slew control dead zone and zoom (for curves)
FAOFFCurves	MEDIUM	Set your desired curve profile when you go FA-OFF
Joystick_Curve[]	*	Joystick Curve array settings (0-3)
Rudder_Curve[]	*	Rudder Curve array settings (0-3)
Slew_Curve[]	*	Slew Curve array settings (0 – 3)

Joystick Map







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# HOTAS Switch and Button Reference

HOTAS - Quick reference - v4.2.0											
Joystick				Throttle (stick)				Throttle (base)			
Switch	Mode	Function	Use for	Switch	Mode	Function	Use for	Switch	Mode	Function	Use for
TG1	IU			PSF	M	SetShiftButton (UMD - U)		APAT	U		
	OU	Primary Fire	PWS						M	fnSetJoystickCurves(NONE)	
	IM								D		
	OM	fnAdvFireControl(0)	Normal	PSM	M	SetShiftButton (UMD - M)		APAH	U		
	ID	tgTriggerMode(1)							M	fnSetJoystickCurves(MILD)	
TG2	OD	fnAdvFireControl(1)	Disco/Mining		D				D		
	U			PSB	M	SetShiftButton (UMD - D)		APALT	U		
	M								D	fnSetJoystickCurves(MEDIUM)	
S1	D			SC	U	ShowConnectionStatus			D		
	U	tgHUDMode()			M	ResetHeadOrientation		EACON	U		
	M	tgHardPoints()	Retract ALL?		D				M	tgSilentRunning(ON)	
S2	IU			LTB	U	tgExtCamera()			D		
	OU	Secondary Fire	PWS		M	LookOnOff		EACOFF	U		
	IM				D				M	tgSilentRunning(OFF)	
	OM	fnAdvFireControl(2)	Normal	CSU	U			RDRNRM	U		
	ID	tgTriggerMode(2)			M	tgWarpDrive(0)	Supercruise		M	tgCargoScoop(DEPLOY)	
S3	OD	fnAdvFireControl(3)	Disco/Mining		D				D		
	U			CSD	U			RDRDIS	U		
	M	SetShiftButton (IO - I)			M	tgWarpDrive(1)	Hyperjump		M	tgCargoScoop(RETRACT)	
S4	D				D				D		
	U			CSL	U			LDGH	I	mClearAllChatBox	
	M	tgEnhancedFAOFF()			M	SelectNextSystemInRoute			O	mClearChatBox	
	D				D						
H1U	U	tgFSSMode()		CSR	U			APENG	U		
	M	NextFireGroup			M				M	fnRequestDock()	
	D	DSSModeOFF			D				D	fnHangerServices(1)	
H1D	U			MSU	I			FLAPU	U	fnVoiceVolume(INCREASE)	
	M	PrevFireGroup			O				M	Galaxy Map	ON
	D								D		
H1L	U			MSD	I			FLAPU-R	U		
	M	tgLandingGear()	tempo		O				M	Galaxy Map	OFF
	D								D		
H1R	U			MSL	I			FLAPM	U		
	M	tgLights(1)	Night Vision		O				M		
	D	tgLights(0)	tempo						D		
H2U	U			MSR	I			FLAPD	U	fnVoiceVolume(DECREASE)	
	M	tgPlanetView()			O				M	SystemMap	ON
	D	SelectTargetAhead							D	SetLED OFF	
H2D	U			MSP	I			FLAPD-R	U		
	M	SelectHighestThreat			O				M	SystemMap	OFF
	D	WingmanTarget							D	SetLED ON	
H2L	U			SPDF	U	tgReverseThrust(0)	No Speedbrake	APUON	U		
	M	SelectNextShip			M	tgReverseThrust(1)	Speedbrake		M	fnDeploySRV(DEPLOY)	
	D	SelectWingMan1, 2, 3			D	tgReverseThrust(2)	fix LED		D		
H2R	U			SPDF-R	U	tgReverseThrust(1)	Forward	APUOFF	U		
	M	SelectNextHostileShip			M				M	fnDeploySRV(RECOVER)	
	D	WingManNavlock			D	EngineBoost			D		
H3U	U			BSF	U	mNAVBeaconWingON/OFF		EORIGN	U		
	M	fnPIPManger(ENG)			M				M	fnDRShip()	Dismiss/Recover
	D				D	tgText2Speech()	EnableVoice ON/OFF		D		
H3D	U			BSM	U			EORNORM	U		
	M	BalancePower			M				M		
	D				D				D		
H3L	U			BSB	U	mReportCrimesToggle		EORMOTOR	U		
	M	fnPIPManger(SYS)			M				M	HideShipGUI	GUI OFF
	D				D				D		
H3R	U			CHF	U			EORMOTOR-R	U	HideShipGUI	GUI ON
	M	fnPIPManger(WEP)			M	TargetNextSubsystem			M		
	D				D				D		
H4U	U			CHB	U			EOLIGN	U	fnModeSwitch(0)	Open
	M	fnAdvancedSCB(2)	2xSCB, 1xHS		M	TargetPrevSubsystem			M	fnModeSwitch(1)	Private Group
	D	fnAdvancedSCB(0)/(1)	SCB, SCB+HS		D				D	fnModeSwitch(2)	Solo
H4D	U			CHB	U			EOLNORM	U		
	M	fnHeatsink()			M				M		
	D	CameraZoomIN			D				D		
H4L	U			CHB	U			EOLMOTOR	U		
	M	ChargeECM (DOWN)	Charge ECM		M				M		
	D	CameraBlurOUT			D				D		
H4L-R	U	0		CHB	U			EFRNORM	U		
	M	ChargeECM (UP)	Fire ECM		M				M	GameLoaded = 0	
	D	0			D				D	fnSetLEDs()	Reset Status LEDs
H4R	U			CHB	U			EFROVER	U		
	M	fnChaff()			M				M		
	D	CameraBlurIN			D				D		
H4P	U			CHB	U			EFLNORM	U	fnDebugStates(DebugON)	
	M	fnPIPMMode(0)	Reset		M				M	fnDebugStates(DebugOFF)	
	D	fnPIPMMode(1)	Increment		D				D		
H4P	U			CHB	U			EFLOVER	U		
	M	fnPIPMMode(2)	Decrement		M				M		
	D				D				D		
IDLELON	U			IDLELOFF	U			IDLELOFF	U		
	M	fnHangerServices(1)	Enter		M				M	fnHangerServices(0)	Launch
	D				D				D		



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