# BMS KEY FILE EDITOR MANUAL


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Version: BMS 4.36.0

**CHANGE 3**

06. 2022

# 1 TABLE OF CONTENTS

# 2 CHANGELOG

## 2.1 CHANGE 2: BMS 4.34.0

- Added new 4.34 callbacks
- Added Most Wanted Tab
- fixed an error when 3/4th MFDs are selected as input device
- some other minor bugfixes

## 2.2 CHANGE 3: BMS 4.36.0

- Added new callbacks
- Some minor fixes
- Updated Keyboard Tab (Printout) descriptions

**Note:** Changes to this document are marked with a black bar at the right edge of a page.

# 3 IMPORTANT NOTES

Of course I understand that you are maybe reluctant to read everything. However, you should at least obey the following rules when working with this tool:

- ✓ Do not drag and drop!
- ✓ Don't delete, add or rename sheets!
- ✓ Don't delete or change formulae by accident.

This will screw up some of the formulae and makes this tool unusable.

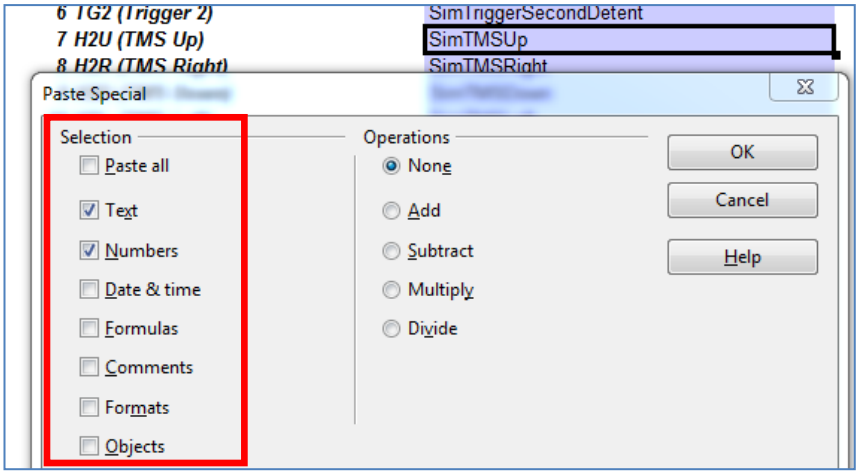
- ✓ Paste values only!

If you intend to copy & paste content, please use the "**paste values**" choice from the list of possible types of pasting operation that Excel and Libre Office are providing. Any other type of paste risks breaking the programmed content of the file.

Refer to these websites for more information how that works:

Excel 2007 & later

Libre Office: Paste Special (Uncheck “Paste all”, check “Text” & “Numbers”).




- ✓ Change the locale (Keystroke Editor sheet) BEFORE you assign keys.
- ✓ Open / Libre Office users: Don't use commas in UI description!

# 4 OFFICE SETTINGS

## 4.1 COMPATIBILITY

This tool is optimized for usage with MS Excel. I have tested this tool extensively with the following Excel versions:

- ✓ Office 2000
- ✓ Office 2007
- ✓ Office 2010
- ✓ Office 2010 Starter
- ✓ Office 2016
- ✓ Office 2019

**Note:** In case of using Office 2010 Starter you can't use the macro features. (Mainly Command Buttons. See Macros Overview for further information.)

This version is also tested with Apache Open Office (AOO) and Libre Office (LO). Although it is basically working it has some mayor disadvantages:

- ✓ Macros will not be saved correctly (Which is not really an issue).
- ✓ The performance is really (!) bad. This is what concerns the most.

See LO / AOO section below for further information.

## 4.2 SHEET PROTECTION

All sheets have a sheet protection to prevent users to screw things up.

There is no password required to disable the protection.

## 4.3 MICROSOFT EXCEL

If you wish to use the macro features you have to adjust the security settings.

Macro security settings:

Follow the links if you need help. If you don't want (or can't) use macros, you have to do nothing.

Excel 2007 & later

## 4.4 LIBRE OFFICE / APACHE OPEN OFFICE

This tool is widely compatible with Libre Office and Apache Open Office. Although I concentrated on Libre Office in the development process I also cross checked with AOO every now and then. So basically it should work with both. The settings and the handling of both office applications are almost the same.

Libre Office is updated more regularly. I noticed that with every new LO version the compatibility is enhanced and the tool runs faster. On the other hand, some functions may not work anymore. So be careful with updating LO.

The version I know of that it works well with this tool is 4.1.5.3

I recommend using the portable version of 4.1.5.3

**Download Libre Office:**

You can get Libre Office from here:

Latest Full Installer

Portable Version

Old versions library

**Macro security settings:**

https://help.libreoffice.org/Common/Macro_Security

Like in Excel you have to set the macro security level to make it work. How to do this is described in the link.

**MS VBA support settings:**

https://help.libreoffice.org/Common/VBA_Properties

Check the VBA properties settings. Please activate all checkboxes.

**Known issues:**

- ✓ You can't save Excel (VBA) macros with LO.
- ✓ The performance is not really good.
- ✓ Some features may not work anymore when LO is updated.

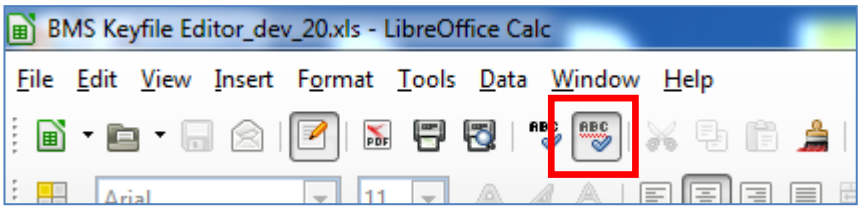
So I consider creating a different tool optimized for Open Office and Libre Office or even a standalone program. But this needs time. If using AOO / LO you should be aware of the side effects.

**Final remarks:**

To follow the links in the tool you have to press CTRL-key.

Do not use commas in UI description!!!

You should also deactivate the AutoSpellcheck feature.




## 4.5 MACRO FEATURES

The macros are of a very basic kind and are created just for comfort reasons. None of the macros are essential. Everything can also be done by taking manual actions, which only takes a bit more time. This tool should also work for people who are reluctant of using macros or who can't use macros at all (e.g. Office 2010 Starter users). Here is a short overview of the different macros and their purpose:

| | |
|---|---|
| Keystrokes Editor Tab: | |
| Show / Hide Options | Toggle, shows / hides rows 6 to 11 |
| Importing a key file | Opens Open File Dialog, imports the code lines to the Import sheet |
| Saving a key file | Opens Save As Dialog, exports the code lines to a key file, opens saved file with notepad |
| Copy Data | Copies imported key file values to the desired spot. |
| Reset Filter | Resets any filter settings before Copy Data. |
| Advanced Options | Choose print layout (2 available), restore options, e.g. key file profiles, keys, descriptions etc. |
| Admin Options | Some copy / paste tasks to make my life easier, e.g. saving default values like keys, descriptions etc. |
| DX Settings: | |
| Options | Import DX Assignments, restore default settings, copy to Own devices, delete Own devices |
| DX Devices (various): | |
| Update Print Area | Some devices have a device selection option. In this case the print area will be updated automatically. |

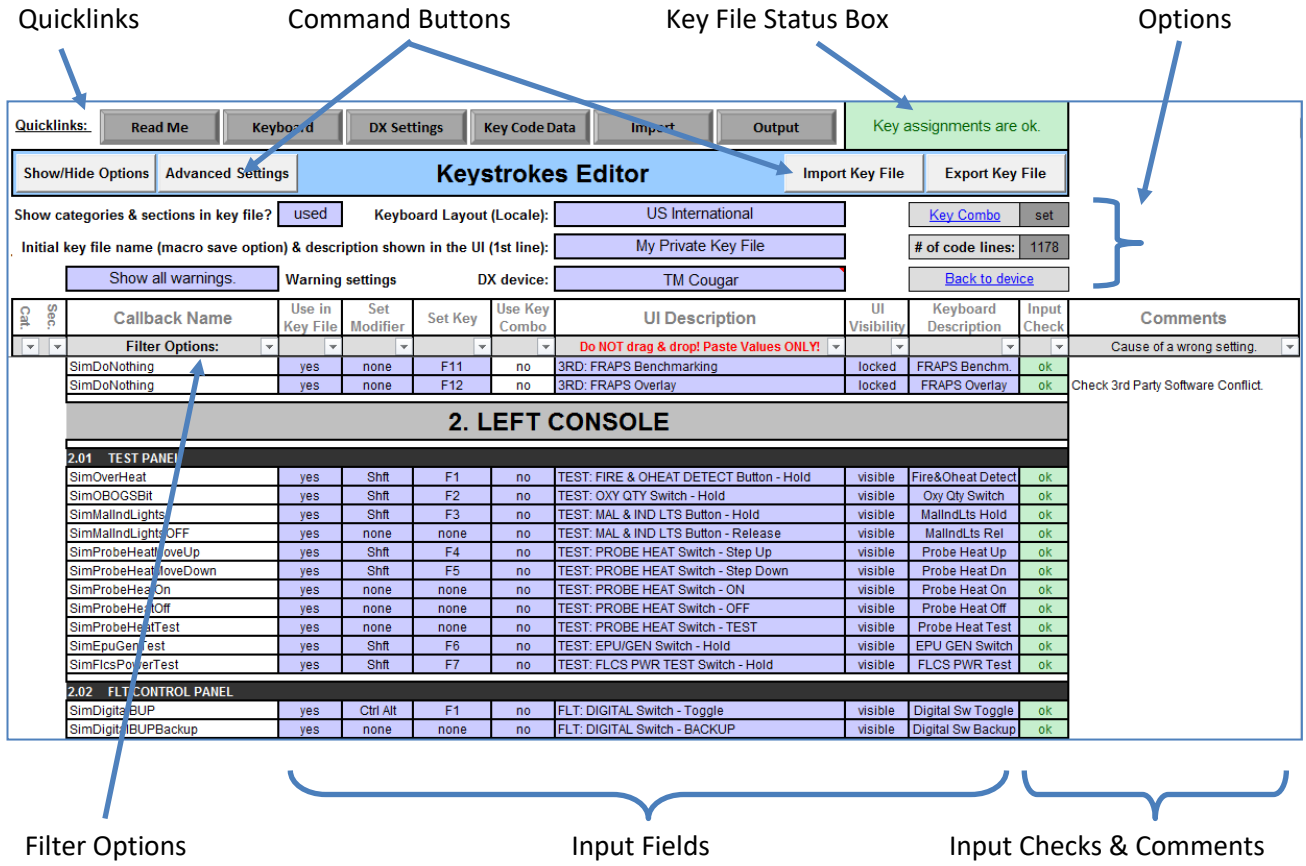
# 5 THE KEYSTROKES EDITOR TAB

The Keystrokes Editor is the heart of this tool.

Likely you'll spend most of the time on this sheet. This is especially true if don't need a DX setup. This is the only tab which provides import / export macros. In what follows you'll get detailed instruction on how to use this tab.

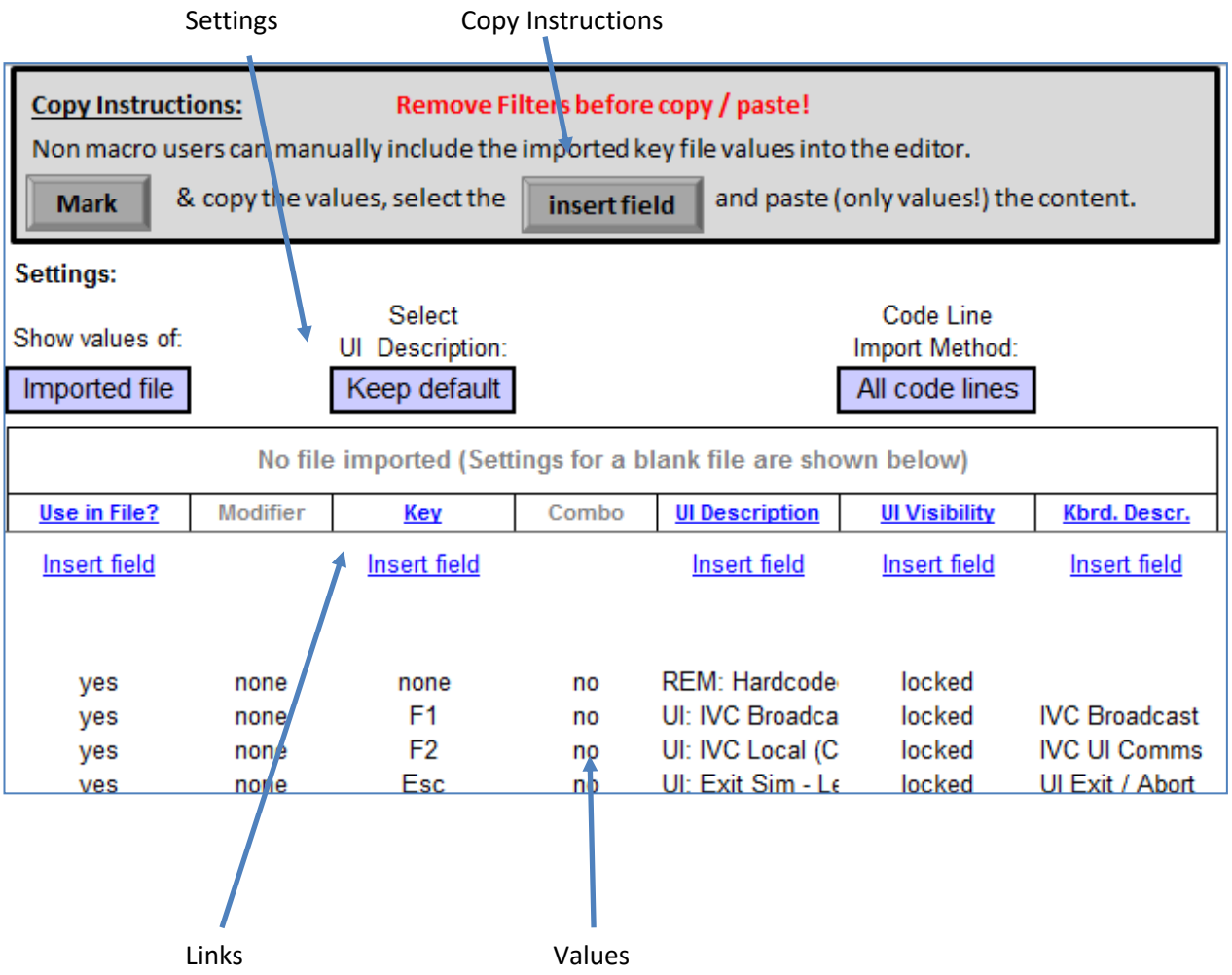
## 5.1 OVERVIEW

**Left (main) content:**



**Right content:**

The right content is mainly for users, which can't or won't use macros.




Copy Instructions:

You simply have to click on MARK, which marks the entire values of "Use in File?", "Modifier", "Key" and "Combo". Copy the selection and click on INSERT FIELD, then paste the values.

Settings:

You can decide which content is shown:

Show values of: "Imported File" or "Default File"

This should be self-explanatory. This setting affects the other input fields.

The following both drop down fields are available when "Imported File" is selected.

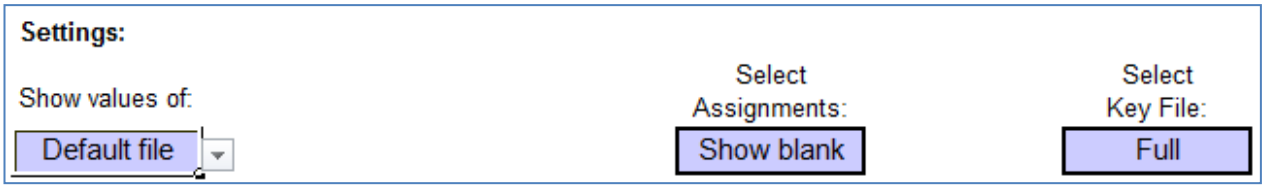
Select UI Description: "Keep default" = shows the default BMS UI descriptions.

"Imported" = shows the UI descriptions of the imported file.

Code Line Import Method: "All code lines" = equals the full key file profile.

"Only with Keys" = only code lines with assignments are shown.

The following both drop down field are available when "Default File" is selected.




Select Assignments: "Show blank" = shows an "empty" key file with no assignments.

"Show default" = shows default BMS key assignments.

Select Key File: "Full", "Basic", "Minimum" or "Pitbuilder"

This affects the "Use in File?" column. When selecting "Pitbuilder" the dedicated pitbuilder key assignments are shown.

Links:

This is a feature which allows you to mark and copy only specific parts of the values, e.g. when you intend to restore default settings.

The five links in the headline (Use in file?, Key -> incl. Modifier & Combo, UI description, UI visibility and Kbrd. Descr.) mark the values. A click on the link INSERT FILE brings you to the spot, where you have to paste the values.

Values:

These are calculated automatically according to your settings.

## 5.2 QUICKLINKS

Direct links to some selected tabs, which you might need quick access to. You'll find different links on the various tabs, depending on the purpose of the sheet.

## 5.3 KEY FILE STATUS BOX

This is the main status box to show you at a glimpse if your settings are ok or not. It is always shown on top of the screen. If you receive a warning you should also take a look at the Input Check column to get further information about what went wrong.

The following status messages can occur. The messages are listed in the order of appearance / importance (top to bottom).

critical ***Please select a locale first!***

There is no locale selected by default. You should set it first, before editing anything else. It is absolutely mandatory NOT to change the locale again, after the first keys are set. For more information see sections "Key Code Data" and "Options".

critical ***You have changed the locale. Pls. revert or check keys!***

This causes big issues and shouldn't be done. Please select the initial locale or check for critical lines and change the keys manually. Remember: You have to set your locale first before editing anything!

critical ***You have assigned two or more times identical key bindings.***

While BMS doesn't really care, if you have assigned identical key bindings (it sees just the last in Order of appearance) it is a good practice not to do so.

critical **You have assigned Windows critical key combinations.**

There are some key combinations which are critical hence you have to be careful using them to avoid unwanted actions. You can find a complete list on the Key Code Data sheet (scroll down to the end). It is also mentioned and described in the Key File Manual.

check ***Wrong key combo assignment. Set a modifier AND a key.***

Specific Key Combo message.

check ***Non critical assignments found. Please check.***

This message could have several reasons. They are explained farther below.

check ***Key assignments are ok, but check DX Settings.***

Settings on the Keystrokes Editor tab are ok, but there is something wrong with the DX settings.

ok

***Key assignments are ok.***

All settings are valid, everything is fine.

**Note:** If the key assignments are NOT ok, no output will be generated & Key File export is not possible.

## 5.4 COMMAND BUTTONS

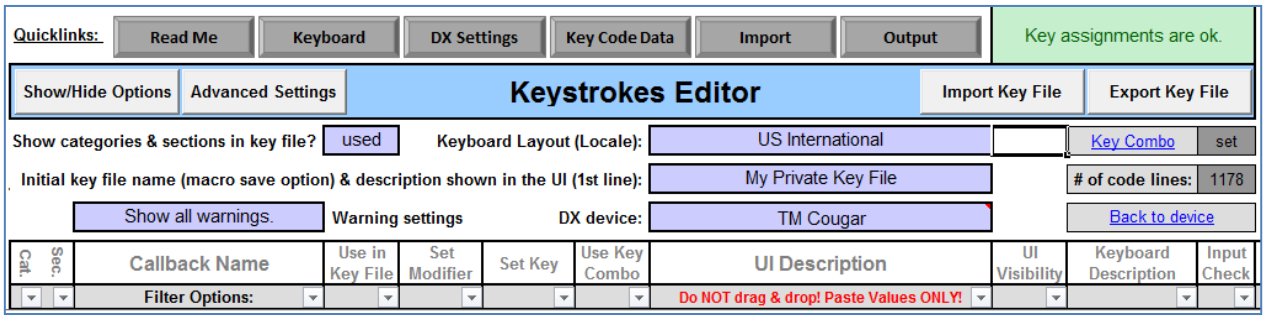
The following command buttons need macros. If you have disabled or can't use then the click on these buttons will have no effect.

Of course you don't necessarily need macros as you can do everything manually. These macros will only save some precious time.

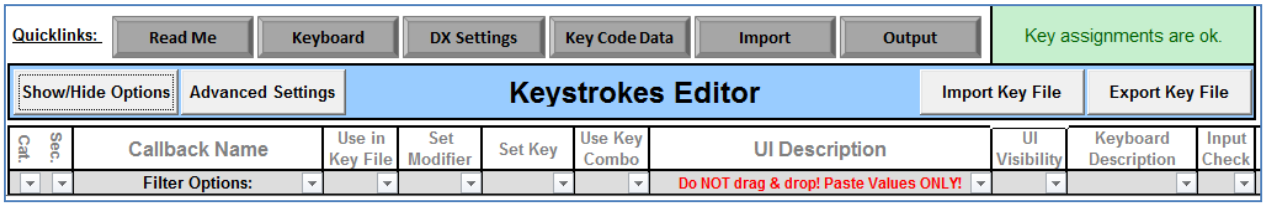
**Show/Hide Options:**

As the top part of the sheet is fixed, it can (depending on resolution) fill a huge part of your screen. To give you a better overview about your editing area you can hide the options. If you need them back you can display them again. If you don't use macros you can hide the rows manually (mark rows -> right click -> hide).

Options shown:

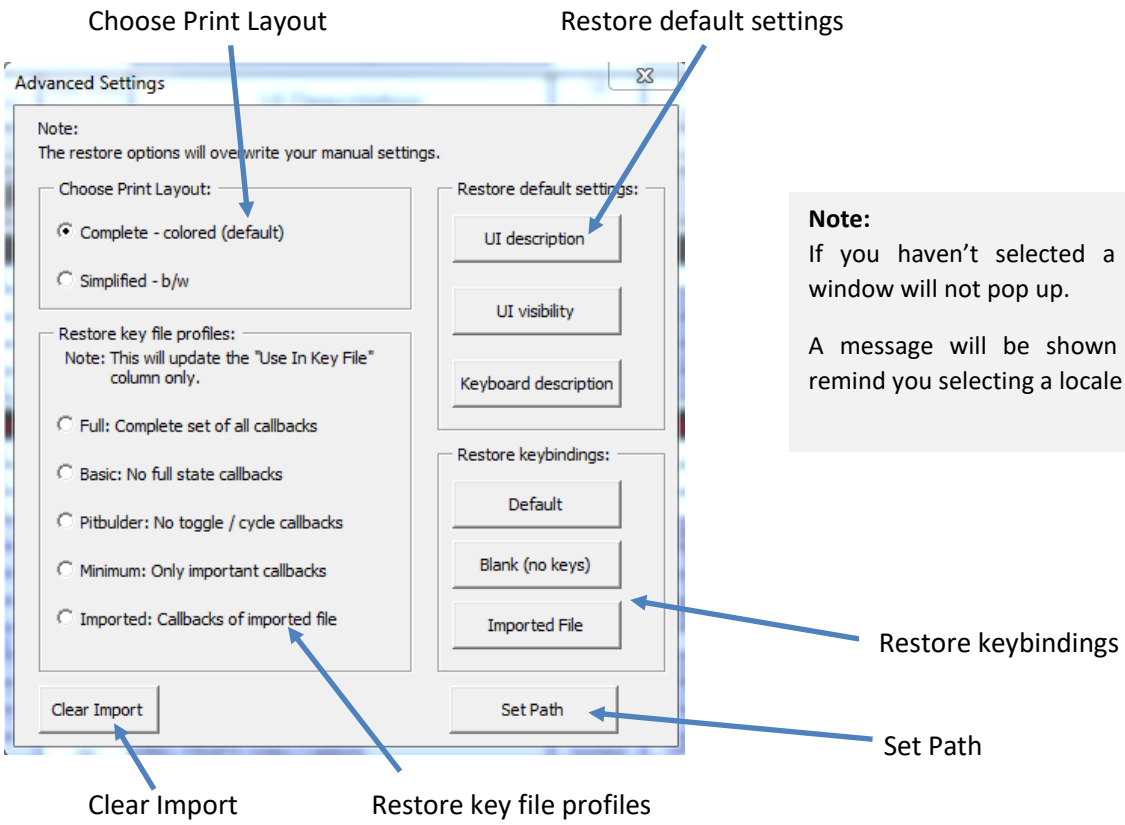



Options hidden:



## Advanced Settings:

You have several options here.




**Note:**
If you haven't selected a locale this window will not pop up.

A message will be shown instead to remind you selecting a locale first.

Choose Print Layout:

Complete - colored (default)

The complete editor as shown below is printed (colored). This is the default print layout.

| Callback Name | Use in Key File | Set Modifier | Set Key | Use Key Combo | UI Description | UI Visibility | Keyboard Description | Input Check |
|---|---|---|---|---|---|---|---|---|
| **1. UI & 3RD PARTY SOFTWARE** | | | | | | | | |
| **1.01 UI FUNCTIONS** | | | | | | | | |
| SimDoNothing | yes | none | none | no | REM: Hardcoded, not changeable | locked | | ok |
| SimDoNothing | yes | none | none | no | UI: IVC Broadcast (Global Comms to 2D & 3D) | locked | IVC Broadcast | ok |
| SimDoNothing | yes | none | none | no | UI: IVC Local (Comms only to 2D) | locked | IVC UI Comms | ok |
| SimDoNothing | yes | none | none | no | UI: Exit Sim, Leave Menu, Abort | locked | UI Exit, Abort | ok |
| SimDoNothing | yes | none | none | no | UI: Screenshot (See also section 6.06) | locked | UI Screenshot | ok |

Simplified - b/w

This is a simplified black & white layout. Scroll to the right to see it. If you don't use macros you have to define this print area manually.

| Callback Name | Set Key(s) | Use Key Combo | UI Description | Input Check |
|---|---|---|---|---|
| **1. UI & 3RD PARTY SOFTWARE** | | | | |
| **1.01 UI FUNCTIONS** | | | | |
| SimDoNothing | | | REM: Hardcoded, not changeable | |
| SimDoNothing | | | UI: IVC Broadcast (Global Comms to 2D & 3D) | |
| SimDoNothing | | | UI: IVC Local (Comms only to 2D) | |
| SimDoNothing | | | UI: Exit Sim, Leave Menu, Abort | |
| SimDoNothing | | | UI: Screenshot (See also section 6.06) | |

Restore key file profiles:

This affects the "Use in Key File" column. Depending on your choice the values are set to Yes (-> use in key file) or no (-> don't use in key file). If you don't use macros you have to do this manually.

The profiles itself should be self-explanatory. If you select “Imported” and have not imported a key file you'll get a corresponding message and no changes are made.

Clear Import:

Clears Column A on the Import sheet to delete imported key file code lines.

Restore default settings:

You can restore the default values for UI description, UI visibility and Keyboard description.

If you have edited either one of them manually or have imported a key file (which will update / overwrite the description and visibility as well) you can set them back to default.

Restore keybindings:

| | |
|---|---|
| Default | Restores the default BMS key assignments. |
| Blank (no keys) | Sets all key bindings to “none” except hardcoded functions & comms |
| Imported | Restores the keys of the imported file. If you have not imported a key file you'll get a corresponding message and no changes are made. |

Set Path:

You can set a default directory for import / export functions (Excel Macro only!). When clicking on the button an Open File Dialog opens and you can choose a path which will be the default path for import / export tasks.

**Note:** If you don't use macros you can restore the default settings and keybindings by importing a key file manually and copy / paste the values -> see Import tab for further information.

**Note 2:** We have two different keyboard layouts. One is specifically for pitbuilders, which simply have other requirements than the usual desktop pilot. If you restore the default keybindings you will be asked whether to restore the normal, non-pitbuilders key assignments or the specific pitbuilder ones.

**Import Key File:**

An Open File Dialog is opened. You can choose your file and import it. All code lines of the entire file will be imported to the "Import" tab. After that the editing area will be updated.

You should check, if the imported file is sane in the first place. Take a look at the Input Check and the comments to figure out, if something’s wrong. You should also cross check with the import sheet itself as there are some checks regarding renamed and removed (from the code) callbacks.

To learn how to import a key file without macros please refer to "The Import Tab" section.

**Export Key File:**

A Save As Dialog is opened. You can choose the folder and change the name as desired. The initial key file name is shown as default. All code lines in the output tab will be saved in that file.

> **Note:** No Output will be generated until the Keystrokes Editor and DX Settings are ok.

To learn how to export a key file without macros please refer to "The Output Tab" section.

## 5.5 OPTIONS

**Show categories & sections in Key File?**

You can decide to show the key file headlines and separators or not.

Example, how it looks like in the key file:

```
#======================================================================
SimDoNothing -1 0 0XFFFFFFFF 0 0 0 -2 "======== 1.01  UI FUNCTIONS ========"
```

You have the following options:

| | |
|---|---|
| None: | Shows no Categories and Sections |
| Both: | Shows Categories and Sections |
| Only Cat.: | Shows only the Categories |
| Used: | Shows Categories, Sections only if at least one code line is active. |

For more info about headlines and separators refer to the key file manual.

**Keyboard Layout (Locale):**

You can choose your keyboard locale. US International, French and German are available by default. More can be easily implemented. How that works is described in "Key Code Data" section.

> **Note:** It is mandatory to choose a locale before you start to edit anything.

**Warning Settings:**

You can decide to show all warnings / comments or to ignore the special “Not used in file, but changes are made” warning. Keys are only set for the Basic profile. When selecting Pitbuilders or Minimum profiles you’ll get several warnings, that keys are assigned but not set to be used in the key file. To make your live easier and to avoid tons of manual edits, you can select to ignore these warnings.

**Initial key file name (macro save option) & description shown in the UI (1st line):**

This name is shown in the "Save As" dialog as initial file name. You can change it of course. Additionally this name is shown in the first line of the key file.

SimDoNothing -1 0 0XFFFFFFFF 0 0 0 -1 "My Private Key File"

**Select the device you are currently editing. This affects the link "Back to device":**

When editing a DX device you will most likely come back to the Keystrokes Editor tab to look for a specific callback. You can set a device here which affects the "Back to device" link.

**Key Combo:**

Shows the status of the Key Combo (set or n/a). Use the link to jump directly to the Key Combo input fields.

**# of code lines:**

Shows the total number of code lines (including headlines & sections if chosen) w/o DX code lines.

**Back to device:**

This link gives you quick access to the DX device you are currently editing (see above).

## 5.6 FILTER OPTIONS / INPUT FIELDS

**The Filter options - general notes:**

How to use filters in general is not described here. If you really don't know how to use filters at all you can refer to this website to get a rough idea about the possibilities.

| Cat. | Sec. | Callback Name | Use in Key File | Set Modifier | Set Key | Use Key Combo | UI Description | UI Visibility | Keyboard Description | Input Check | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Filter Options: | | | | | Do NOT drag & drop! Paste Values ONLY! | | | | Cause of a wrong setting. |

Below the headlines you'll find various filters.

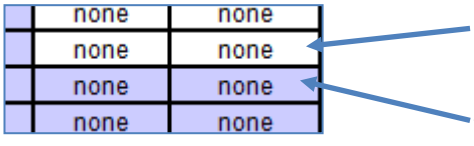
You can combine filters to limit the amount of shown data. This also affects the printouts.

Filters are particularly suitable for

- ✓ finding wrong inputs and compare them
- ✓ limiting the printout to only used functions
- ✓ quick navigation

**The Input fields - general notes:**

Non-colored areas can't be edited.




The following input fields have a dropdown menu to select a value:

- ✓ Use in Key File
- ✓ Set Modifier
- ✓ Set Key
- ✓ Use Key Combo
- ✓ UI Visibility

You can either use the dropdown menu or type in the values manually. Your inputs will be checked if they are valid. See Key Code Data tab for information about valid values.

Following input fields are pure text fields:

- ✓ UI Description (Limitation: 45 characters)
- ✓ Keyboard Description (see remarks farther below)

You are not supposed to change any of the callback names.

Remarks:

In the editor (and the key files itself) there are various remarks. The UI Description begins with “REM:” Remarks point out some important notes for editing the key file.

Alt Rel:

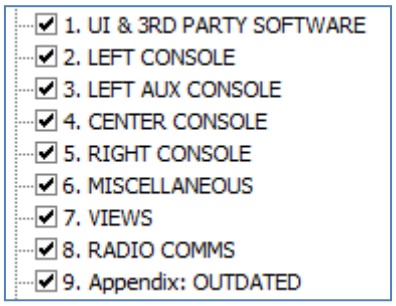
We have no dedicated callback for Alt Rel button on MISC panel, as it does exactly the same as SimPickle. However, you can assign keys to and change the description for personal notes, although the callback is still SimDoNothing.

This feature is mainly for pitbuilders who may assign another function to it and want to keep track of the assigned keystrokes and its varying function.

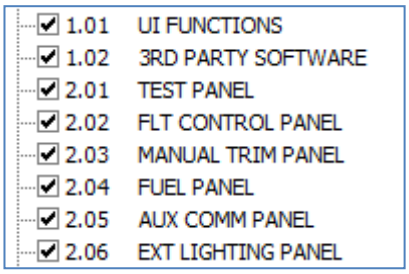
**Cat. & Sec.:**

For easy navigation through the entire file you can use the filter options to show only the part(s) of the key file, which is (are) important for you.

Category Filter:




Section Filter:




**Callback Name:**

The name of the function. Don't touch it!

**Use in Key File:**

You can decide whether to implement the keystrokes code line into the key file or not.

| | |
|---|---|
| Yes: | Will display the code line in the Output sheet. |
| No: | Code line will not be displayed. |

**Set Modifier:**

Select the set of modifier keys that must be held for this callback invocation. Any combination of Shift, Control and Alt are possible or none of these.

For all possible combinations take a look at the Key Code Data tab -> Modifiers.

**Set Key:**

Put the key or name of the key that you want to bind in this field. The list of keys and key names is in the Key Code Data sheet. The value entered here must match exactly one of the keys or name strings in the Key Names table in the Key Code Data sheet.

**Use Key Combo:**

You can use a key combo with this function, which has to be set in section 6.06 Simulation & Hardware (CommandsSetKeyCombo) first.

If you choose "yes" without having set the key combo first you'll get a "check" warning.

See also "Special notes for Key Combos" further below.

| | |
|---|---|
| Yes: | Use key combination with this callback. |
| No: | Don't use key combination with this callback. |

**UI Description:**

This description will be shown in the Setup - Controllers page in BMS. You can change the description but be advised: The length is limited to 45 characters.

**UI Visibility:**

Set the properties that will be used to show this callback binding in the game's setup UI pages.

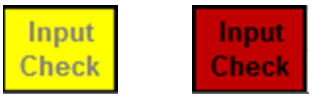
| | |
|---|---|
| Visible: | You can edit the keys in BMS. |
| Locked: | You can't edit the keys in UI. |
| Hidden: | Keys & description will not be displayed at all. |

**Keyboard Description:**

This is a short description of the function, which will be shown on the keyboard layout at the assigned spot. You can change it to your liking but be advised: If the entered text is wider than the input field, the overflow on the keyboard will be cut off.

**Input Check & Comments:**

Here can you see instantly, if your input is valid or not. If your settings are not ok, the Input Check headline will show that something is wrong:




Also a short description of what went wrong is shown to point you in the right direction (see description farther below).

If you have imported a file and the Input Check shows you either critical or check results, it can be hard to go through the entire list by simply scrolling down.

What you can do is using the filter option below the Input Check headline. Just select check and / or critical and only these wrong / bad settings will be shown. This is much easier to go through the list.

Here is an example:

| Cat. | Sec. | Callback Name | Use in Key File | Set Modifier | Set Key | Use Key Combo | UI Description | UI Visibility | Keyboard Description | Input Check | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Filter Options: | | | | | Do NOT drag & drop! Paste Values ONLY! | | | | Cause of a wrong setting. |
| | | SimDoNothing | yes | none | F9 | no | 3RD: TrackIR Pause | locked | TIR Pause | ok | Check 3rd Party Software Conflict. |
| | | SimDoNothing | yes | none | F12 | no | 3RD: TrackIR Recenter (See also 6.06) | locked | TIR Recenter | ok | Check 3rd Party Software Conflict. |
| | | SimDoNothing | yes | none | F9 | no | 3RD: FRAPS Video Capture | locked | FRAPS Video | ok | Check 3rd Party Software Conflict. |
| | | SimDoNothing | yes | none | F12 | no | 3RD: FRAPS Overlay | locked | FRAPS Overlay | ok | Check 3rd Party Software Conflict. |
| | | SimOverHeat | yes | none | none | yes | TEST: FIRE & OHEAT DETECT Button - Hold | visible | Fire&Oheat Detect | check | Select no or assign a key. |
| | | SimOBOGSBit | yes | Shft | none | no | TEST: OXY QTY Switch - Hold | visible | Oxy Qty Switch | check | Remove modifier or set a key. |
| | | SimMalIndLightsOFF | yes | none | F3 | no | TEST: MAL & IND LTS Button - Release | visible | MalIndLts Rel | critical | Two or more identical key bindings. |
| | | SimProbeHeatOn | yes | none | Return | no | TEST: PROBE HEAT Switch - ON | visible | Probe Heat On | critical | Two or more identical key bindings. |
| | | ExtinguishMasterCaution | yes | none | Return | no | EYE: MASTER CAUTION Button - Push | visible | Master Caution | critical | Two or more identical key bindings. |
| | | SimICPIFF | yes | none | F3 | no | ICP: IFF Button - Push | visible | ICP IFF | critical | Two or more identical key bindings. |

General status messages:

ok

<No Comment is shown.>

The input is valid. No problems found.

check

***Not used in file, but changes are made.***

This message appears whenever a callback is set to “no” in “Use in Key File” column but has assigned keys. This is to remind you, to either set it to “yes” (-> use in file) or to set the keys (and modifiers) to “none”. However, this can be annoying e.g. when importing a key file and setting the “Use in Key File” profile to say “Minimum”. Therefore you can select in the Warning Settings (see section “Options”) to ignore these messages.

check

***Remove modifier or set a key.***

This occurs if you have set a modifier without an assigned key. Although this is not a big issue you should either assign a key or set the modifier to “none”.

critical

***Two or more identical key bindings.***

Min. 2 key assignments are identical. You should check this to avoid issues.

To be honest, BMS doesn't care if you assign one and the same key binding more than once. It simply ignores the first one(s) and "sees" only the last in order of appearance (top to bottom in the key file). In the example below the callback SimMalIndLights will be ignored and SimProbeHeatMoveUp will be invoked when pressing F1. So it is not a critical issue in terms of stability.

On the other hand it is a good habit to avoid such double assignments.

1. If you are not aware of it you might get confused why a callback is not working.

2. While BMS invokes the last callback in the list of double assignments, it's vice versa in the Keyboard Tab. So you get wrong printouts.

critical

***Windows critical key combination.***

If you have assigned a Windows critical key assignment you are warned by this message. Please refer to the Key File Manual or take a look at the Key Code Data sheet for more information.

In what follows you can see all possible status messages and how it looks like in the editor:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SimOverHeat | no | none | F1 | no | TEST: FIRE & OHEAT DETECT Button - Hold | visible | Fire&Oheat Detect | check | Not used in file, but changes are made. |
| SimOBOGSBit | yes | none | F2 | no | TEST: OXY QTY Switch - Hold | visible | Oxy Qty Switch | critical | Two or more identical key bindings. |
| SimMalIndLights | yes | Shft | none | no | TEST: MAL & IND LTS Button - Hold | visible | MalIndLts Hold | check | Remove modifier or set a key. |
| SimMalIndLightsOFF | yes | none | F2 | no | TEST: MAL & IND LTS Button - Release | visible | MalIndLts Rel | critical | Two or more identical key bindings. |
| SimProbeHeatMoveUp | no | none | none | no | TEST: PROBE HEAT Switch - Step Up | visible | Probe Heat Up | ok | |
| SimProbeHeatMoveDown | yes | Alt | Tab | no | TEST: PROBE HEAT Switch - Step Down | visible | Probe Heat Dn | critical | Windows critical key combination. |

Key Combo related messages:

check ***Select no or assign a key.***

This message appears when have set “Use Key Combo” to “yes” but have not made any key assignments.

check ***Set keys for Key Combo or select no.***

This message appears when you have not made a key binding for the Key Combo AND have set “Use Key Combo” to “yes”.

check ***Set modifier AND key.***

It is necessary to assign a modifier AND a key. Otherwise the Key Combo won’t work.

And this is what it looks like in the editor:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SimRandomError | yes | none | none | yes | SIM: Random Error | visible | Random Error | check | Select no or assign a key. |
| CommandsSetKeyCombo | yes | Alt | C | | SIM: Key Combination Keys (KeyCombo) | visible | KeyCombo | ok | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SimRandomError | yes | none | none | yes | SIM: Random Error | visible | Random Error | check | Set keys for Key Combo or select no. |
| CommandsSetKeyCombo | yes | Alt | none | | SIM: Key Combination Keys (KeyCombo) | visible | KeyCombo | check | Set modifier AND key. |

Special 3rd Party Software messages:

***Check 3rd Party Software Conflict.***

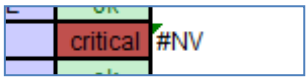
Unlike all other status messages, this is not an issue which will prevent you from exporting a key file, thus as far as the sanity of the key file is concerned, no further actions are needed. It is just there to remind you about possible software conflict situations and to distinguish between pure 3rd party software and key file related conflicts.

So in the case shown below, there is a conflict with key “F9” between TrackIR (Pause) and FRAPS (Video Capture). IF you use both tools you should be aware of such conflicts when using the default key assignments provided by the tools. To avoid problems you should reassign one key binding directly in the 3rd party software. If you don’t use the tools (or only one of the both) you can either ignore these messages or deactivate the code line for the key file (set to “no” in the “Use in Key File” column).

| Use in Key File | Set Modifier | Set Key | Use Key Combo | UI Description | UI Visibility | Keyboard Description | Input Check | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | Do NOT drag & drop! Paste Values ONLY! | | | | Cause of a wrong setting. |
| yes | none | F9 | no | 3RD: TrackIR Pause | locked | TIR Pause | ok | Check 3rd Party Software Conflict. |
| yes | none | none | no | 3RD: TrackIR Recenter (See also 6.06) | locked | TIR Recenter | ok | |
| yes | none | Scrl Lock | no | 3RD: Teamspeak PTT | locked | TS PTT | ok | |
| yes | none | Num * | no | 3RD: Teamspeak Broadcast | locked | TS Broadcast | ok | |
| yes | Shft | Num * | no | 3RD: Teamspeak Toggle Mike On/Off | locked | TS Toggle Mike | ok | |
| yes | Ctrl | Num * | no | 3RD: Teamspeak Toggle Speaker On/Off | locked | TS Tog Speaker | ok | |
| yes | none | F9 | no | 3RD: FRAPS Video Capture | locked | FRAPS Video | ok | Check 3rd Party Software Conflict. |

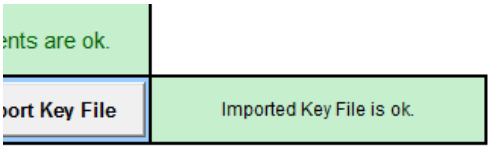
Special messages when changing locale while keys are already set:

As mentioned before, this shouldn't be done. However, you will get specific warnings for each key assignment, which isn't possible in the other locale. It looks like this:




Special Import message:

When a key file is imported, you'll see a message if any faults are found. Not all possible faults will be detected, e.g. a misspelled callback name. Once a fault is detected you should cross check with the Import tab.




ok — ***Imported Key File is ok.***

check — ***One imported code line has faults. Please check Input tab.***

check — ***<x> imported code lines have faults. Please check Input tab.***

## 5.7 NOTES ON APPENDIX

In the Appendix you'll find some outdated callbacks which should not be used anymore.

Of course I understand that you are used to some of the old stuff. But do yourself a favor and use the new callbacks right from the start. There is no guarantee that the old ones will work forever! Be warned.

To give you any possible support to get rid of these outdated ones, a link points you in the right direction. You are referred via this direct link to a newer callback which should be used instead.

This is how the appendix section looks like. You see also all possible warnings.

**9. Appendix: OUTDATED**

9.01 OUTDATED LIST

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SimDesignate | | none | none | no | Same as TMS up | ok | |
| SimDropTrack | | none | F1 | no | Check other function. | critical | Keys already in use - check link. |
| SimACMBoresight | | Ctrl | none | no | Same as TMS up, also controlled via MFD | check | Check keys (wrong setting) |
| SimACMVertical | | Ctrl | F8 | no | Same as TMS right, then down, also controlled via MFD | ok | Keys can be applied to function (see link). |
| SimACMSlew | | Ctrl | F7 | no | Invoked by cursor, also controlled via MFD | check | Function has assigned keys - see link. |
| SimACM30x20 | | Ctrl | F6 | no | Same as TMS right, also controlled via MFD | ok | Keys can be applied to function (see link). |

The Outdated Section is just there to give you the opportunity to switch to the newer callbacks and see which keys are originally assigned (in case you have imported a file with such callbacks). The outdated callbacks will NOT be saved in your key file respectively shown in the output tab.

The main reason to show them at all is to encourage you to switch to the new stuff.

Special warnings:

If you have imported a file which has keys assigned to an outdated function, you'll notice some special warnings.

On the right hand side of the key file status box there is another status box which reminds you of occurring issues with the outdated callback settings.

IF an outdated callback is imported (or manually set) you'll get such a warning. This is a non-critical issue which means, the key file can be exported although such warning appears.

The following warnings can occur:

ok

***Keys can be applied to function (see link).***

If an imported key (combination) is not used you are referred to the new function via link.

check

***Check keys (wrong setting)***

This warning is just for your information. It appears if e.g. a modifier is set without a key. It is not necessary to do anything.

check

***Function has assigned keys - see link.***

If the old callback AND the new callback have keys set, this warning shows up.

critical

***Keys already in use - check link.***

If a key (combination) is already used by another function, you are referred to it via the "Check other function." link.

**Note:** There is a chance that outdated callbacks will be removed from the code in the future. The callbacks marked as Outdated here will NOT be exported to a key file!!! They will be completely ignored. Callbacks, which are not working at all or correctly (-> hence outdated) are not shown in the appendix list. The same applies to dev / debug callbacks.

## 5.8 Special Notes for Key Combinations (CommandSetKeyCombo)

You'll find CommandsSetKeyCombo only once in the list. Although possible, there is definitely no reason to have more than one.

Therefore only ONE key combination will be imported (the first one in order of appearance).

The main purpose of key combinations is to raise the amount of possible key assignments (having one key combo doubles it) and to avoid unwanted invocations of critical callbacks by having the key combo as an extra safety feature.

It is mandatory to set a Modifier AND a Key.

If one of both is "none", the key combo will not be activated and a message in the Key File Status Box will be displayed. You can change the key and modifier assignments in section 6.06 Simulation & Hardware (CommandsSetKeyCombo). There is also a direct link to this line in the Options Menu.

Example for using a key combination:

| | | Modifier | Key |
|---|---|---|---|
| CommandsSetKeyCombo | set to | Alt | C |
| AnyCallback1 | set to | | F5 |
| AnyCallback2 | set to | Shft Ctrl | L |

Step 1: Press Key Combo modifier (hold it) and then the key.

Step 2: Release Key Combo modifier and key.

Step 3: Press AnyCallback modifier (hold it -> if modifier is used) and then the key.

Step 4: Release AnyCallback modifier and key.

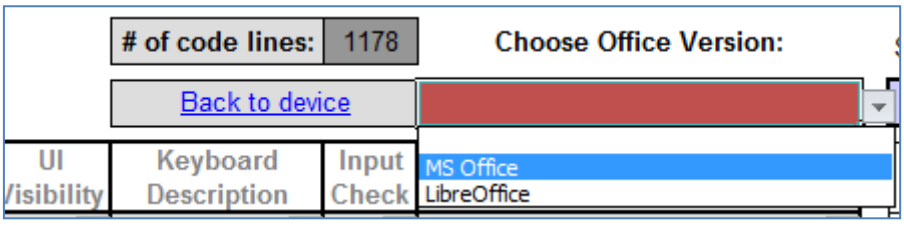
**Note:** The first 20 key combos (in order of their appearance in the Editor sheet – top to bottom) are shown on the keyboard printouts.

## 5.9 Special Notes for new Sound IDs

The Sound IDs have been revised. The old 2-D cockpit related 4-digit sound IDs are no longer working. Instead the sounds are used directly from the f4sndtbl.txt file. Currently it is not possible to change the sound IDs with this tool. This feature may be implemented in the future.

## 5.10 Excel / AAO / LO hack

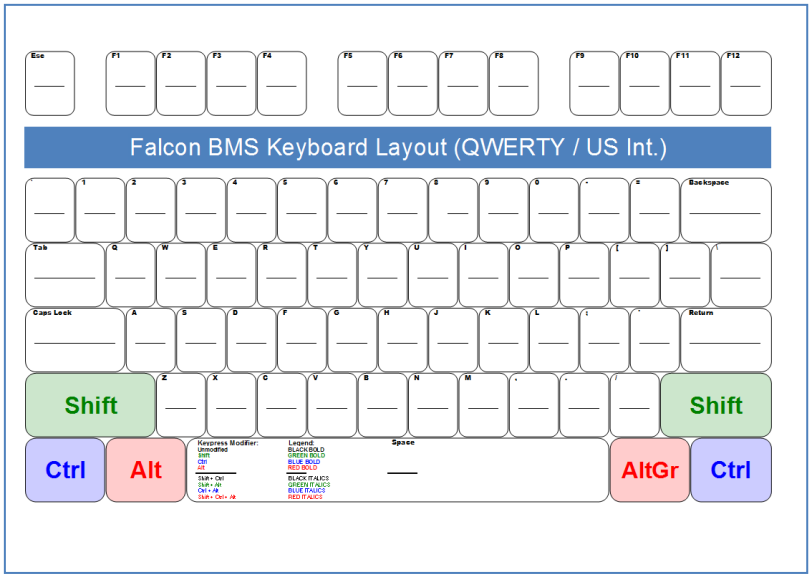
This tool checks, if it is run by AOO / LO or Excel. The automatic formulae calculation may fail under specific circumstances. If this is the case an additional input field is shown to let the user select his office version. If you don’t select an office version, some macro functions won’t work. Other parts of this tool are not affected.



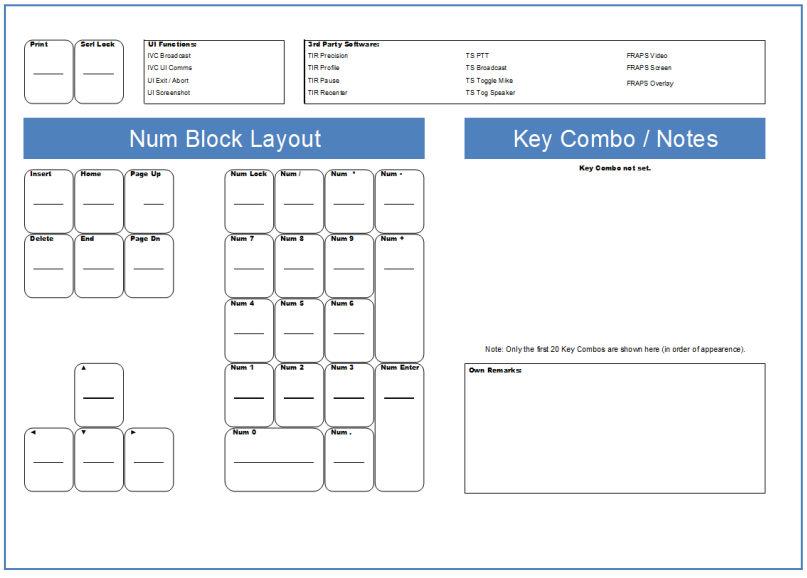
# 6 THE KEYBOARD TAB (PRINTOUTS)

On the keyboard sheet the functions you have assigned keyboard commands to will be displayed automatically at the correct spot. You don't need to do anything here. But you can decide whether to display the keyboard labels or the key codes. Also you can either chose to show the default printout description (e.g. 'Falcon BMS Keyboard Layout (QWERTY / US Int)') or the own description taken from the Keyboard Editor Tab – Initial File Name (e.g. 'My Private Key File'). The keyboard layout is printable.

Printout page 1

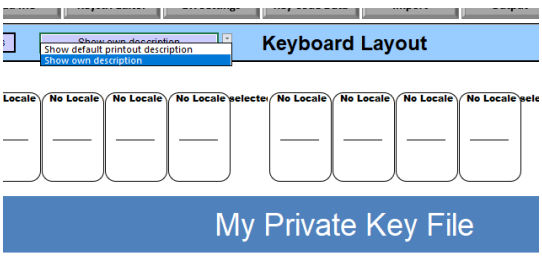



Printout page 2




You can select which description is shown from the dropdown menu:

- Show default printout description
- Show own description



# 7 THE DX SETTINGS TAB

If you prefer setting up your devices via logical programming software, you don't need to change anything here. Use this tab only if you intend to use DX assignments.

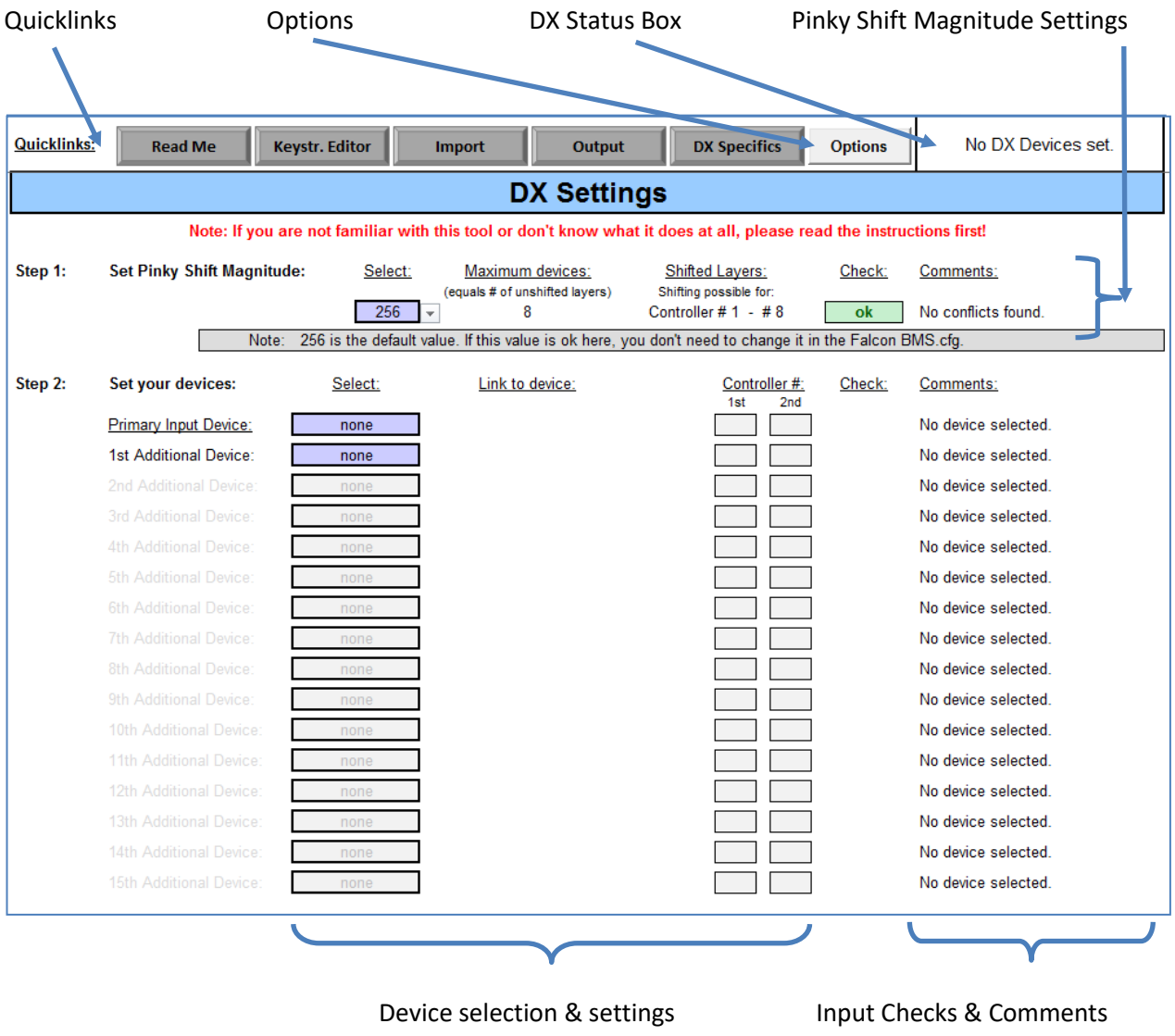
This and the DX device sheets can help you to make DX assignments to your devices.

Many commonly used devices are already implemented and have a ready to use assignments.

On this sheet you have to make basic settings for your controllers.

## 7.1 OVERVIEW

**Upper part:**



## Middle part:

Checklist

Statistics

| | |
|---|---|
| Step 3: | If you have imported a key file, first set the DX devices (Step 2). Then go to the device sheet and import the callbacks. |
| Step 4: | Update the callback assignments to your liking. |
| Step 5: | Export the key file (manually or via macro on Keystrokes Editor). |
| Note: | Don't forget to update Pinky Shift Magnitude in the cfg if necessary. |

| Statistics: | | |
|---|---|---|
| Layers: | 16 / 16 | max. possible (unshifted / shifted) |
| | 0 of 32 | used layers of max layers |
| | 0 / 0 | used layers (unshifted / shifted) |
| DX Assignments: | 512 / 512 | max. w/o POV (unshifted / shifted) |
| | 0 | used w/o POV (all layers) |
| DX Code Lines: | 0 | used incl. POV (all layers) |
| | 0 / 0 | unshifted / shifted layer code lines |
| | 0 | POV assignments (all layers) |
| | 0 | headlines & separators (all layers) |
| | 0 | # of code lines (total) |

**DX Devices:**

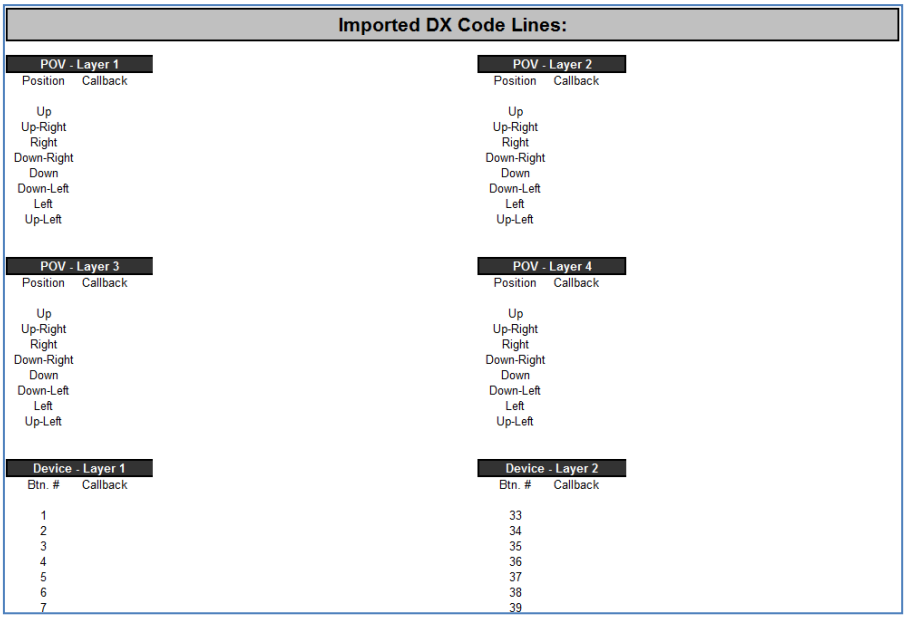
| Primary Input devices: | Additional Input devices: | Own devices: | Enter description if desired: |
|---|---|---|---|
| Thrustmaster HOTAS Cougar | Left & Right MFDs | Own device #1 | |
| Thrustmaster HOTAS Warthog | Third & Fourth MFDs | Own device #2 | |
| Thrustmaster Combos | Generic ICP | Own device #3 | |
| Saitek X36F/X35T | RealSimulator TUSBA TQS R1/R2 | Own device #4 | |
| Saitek X45 | Generic Devices (w/o POV) | Own device #5 | |
| Saitek X52 | TM Warthog Throttle | Own device #6 | |
| Saitek X52 pro | CH Pro Throttle | Own device #7 | |
| Saitek X65F | DirectX Specifics | Own device #8 | |
| CH Fighterstick & Pro Throttle | | Own device #9 | |
| Primary Input Device (w. POV) | | Own device #10 | |
| | | Own Primary Input | |

Supported DX devices

Own devices

## Lower part:

In the lower part you have an overview about imported callbacks. You see the 4 possible POV layers as well as the 16 device layers. In this state it is an overview only. In future versions a lot of more features is planned.



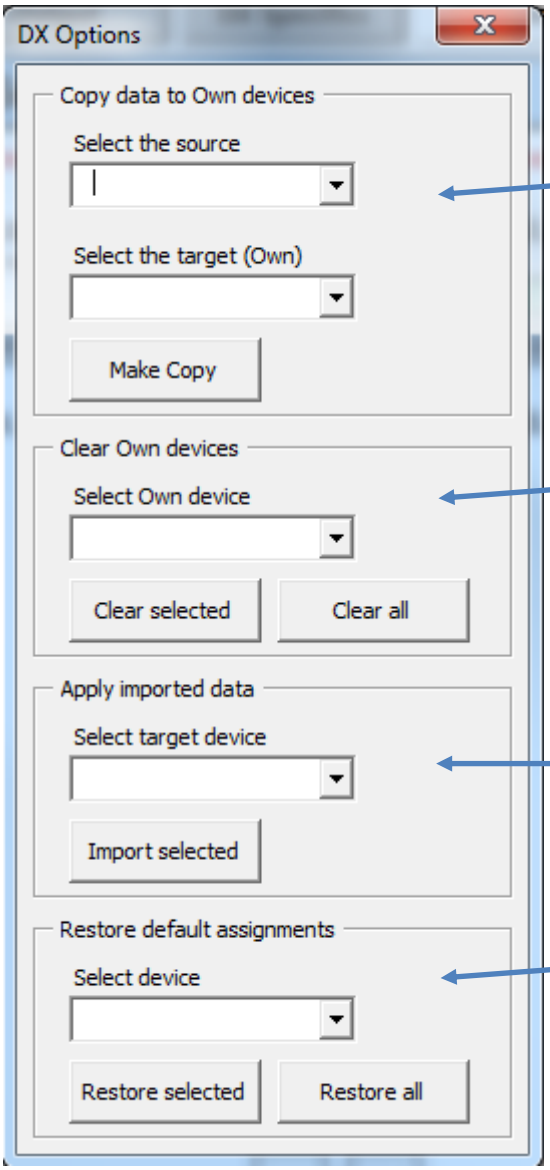
## 7.2 QUICKLINKS

Direct links to some selected tabs, which you might need quick access to.

You'll find different links on the various tabs, depending on the purpose of the sheet.

## 7.3 OPTIONS

Some macro features which make your live a bit easier. Of course everything can be done manually too.




Copy data to Own devices

Clear Own devices

Apply imported data

Restore default settings

**Note:** LO / OO users won't have this window. When pressing on the "Options" button a dedicated box will be shown on the right. The features are identical.

**Copy data to Own devices:**

You can create an exact duplicate of a device sheet. See further notes in the Own devices section. To make a copy of an existing sheet you just have to select the source device and a target sheet.

Clicking on "Make Copy" will duplicate the source sheet. The Own device is now available in the DX Settings drop down menues.

**Clear Own devices:**

Of course it is possible to clear the content of an Own device sheet. You can clear a single Own device or all Own devices at once.

**Apply imported data:**

If you set up the device selection & settings correctly, your DX devices become available in the drop down menue. If a key file is imported and has DX code lines, you can select a device here and copy the DX callbacks to the desired spot.

**Restore default assignments:**

You can also restore the default callbacks.

## 7.4 DX STATUS BOX

This is the main status box to show you at a glimpse if your settings are ok or not. It is always shown on top of the screen. If you receive a warning you should also take a look at the Input Check column to get further information about what went wrong.

The following status messages can occur. The messages are listed in the order of appearance / importance (top to bottom).

critical ***The maximum # of devices (16) has been exceeded.***

This error message should be very rare. There is already a check to prevent setting up more than 16 devices.

But: If you change your settings later it is possible to set up more than 16 devices, e.g. swap Generic ICP (1) for MFDs (2). This message reminds you about the max. limit of devices.

critical ***You have assigned a controller number two or more times.***

Self explanatory.

check ***Check your device settings.***

This message could have several reasons. They are explained farther below.

check

***Check the Pinky Shift Magnitude.***

This appears if your Pinky Shift settings are not ok.

Important: If you are asked to change the the value here, you have to change it in the Falcon BMS.cfg as well.

check

***DX settings are ok, but check Keystrokes Editor.***

DX Settings are ok, but there is something wrong with the settings on the Keystrokes Editor tab.

ok

***DX settings are ok.***

All settings are valid, everything is fine.

***No DX Devices set.***

This message occures if no devices are selected.

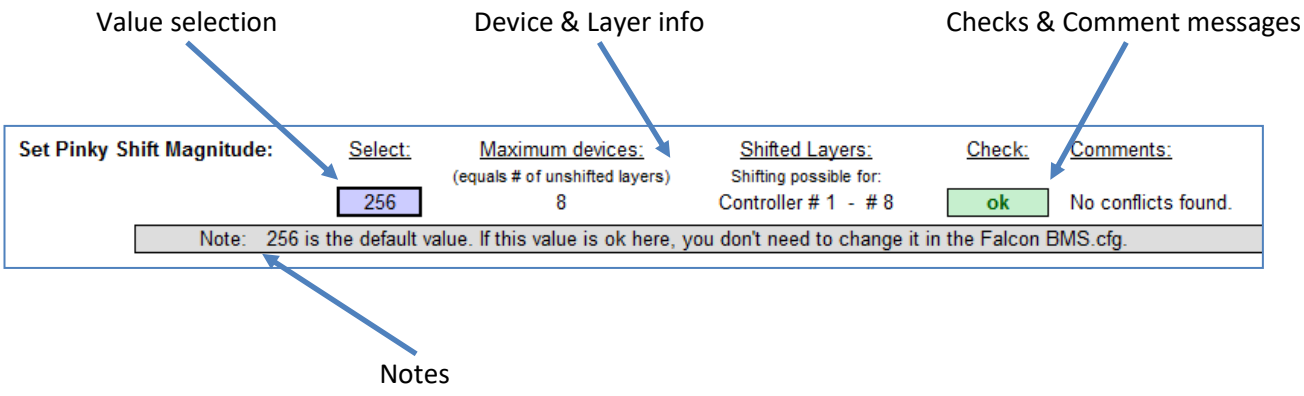
**Note:** If the key assignments are NOT ok, no output will be generated. Key File export will be impossible.

## 7.5 PINKY SHIFT MAGNITUDE SETTINGS

If you don't use more than eight different DX devices you don't need to edit anything here.

But as soon as you do so, it is essential to change the value, otherwise wrong DX button calculations will be made.

This tool calculates the right value, depending on your device settings. If a necessary change is calculated you will get a warning.



**Value selection:**

256 is the default value. 0 will deactivate shifting at all. If you have more than 8 devices in use you can set the value accordingly (values from 288 - 512).

**Device & Layer info:**

Depending on your value selection you'll find also information about the maximum number of devices and possible shifted layers.

**Checks & Comment messages:**

ok ***Shifting deactivated.***

ok ***No conflicts found.***

check ***No shifting possible. Set to 0.***

check ***Set to 256. No need to change it.***

check ***Set Shift Magnitude to <value>.***

<value> is calculated automatically.

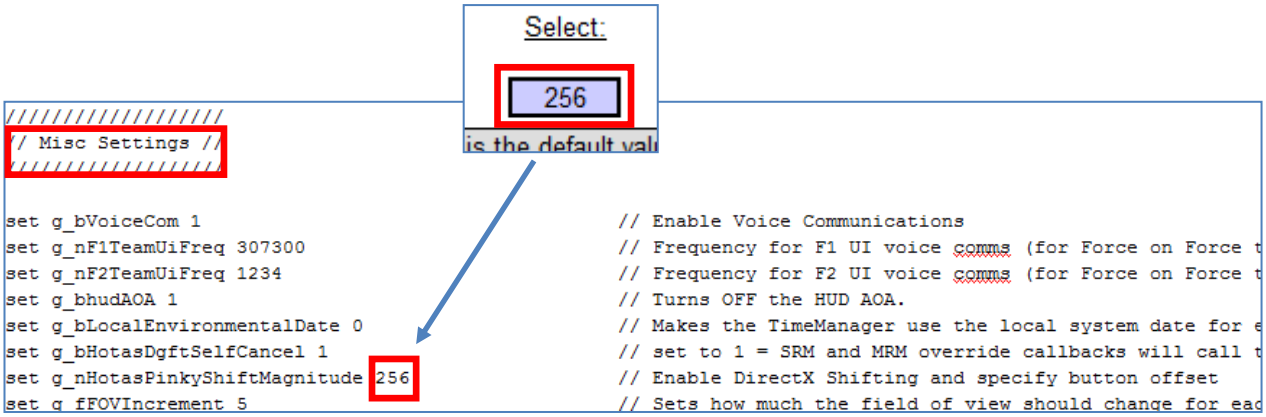
**Notes:**

In addition following remarks are shown in the grey box below (depending on which conditions are met):

- *Shifting is deactivated. Don't forget to change the value in Falcon BMS.cfg too. No Output for shifting layers will be generated.*
- *256 is the default value. If this value is ok here, you don't need to change it in the Falcon BMS.cfg.*
- *You only have to change the value if you have more than 8 devices and want to use shifted layers. Set it back to 256.*
- *You have changed the Pinky Shift Magnitude here. Don't forget to change the value in Falcon BMS.cfg as well.*
- *Shifting is available for the maximum # of DX devices (up to 16). Don't forget to change the value in Falcon BMS.cfg too.*

If you are asked to change the Pinky Shift Magnitude here, you have to update it also in the Falcon BMS.cfg! The Falcon BMS.cfg is located in <YourFalconBMSInstallFolder>/User/Config

Just open it with an editor (notepad for example) and change the following value (Misc Settings - set g_nHotasPinkyShiftMagnitude).The value has to be the same as the selected one in this tool:

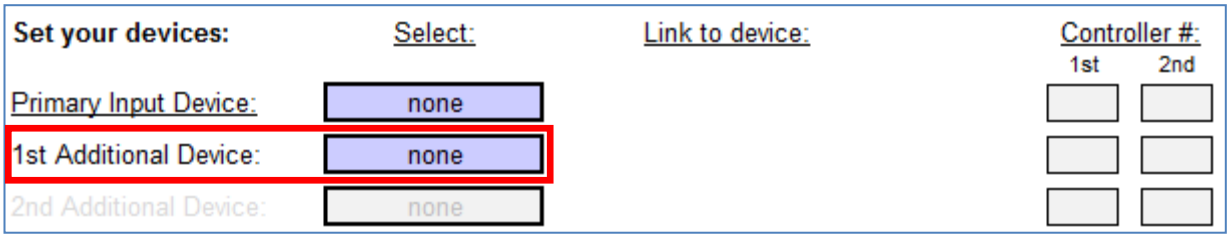



## 7.6 DEVICE SELECTION & SETTINGS

You can select up to 16 different DX devices. One primary input device and up to 15 additional devices. How that works is described with the TM Cougar.

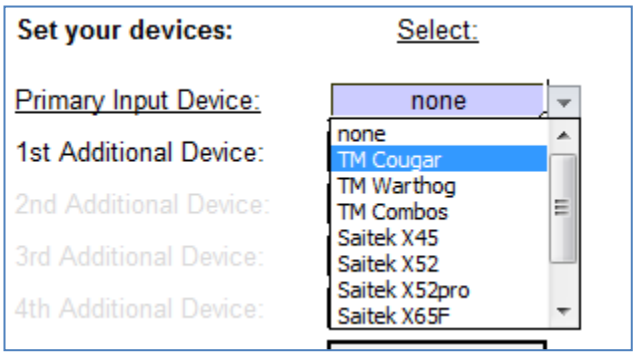
There are no devices selected by default. You can choose either a primary or an additional device or both of them.

In the picture below the 2nd additional device is grayed out. To make it available you have to choose the 1st additional device first.

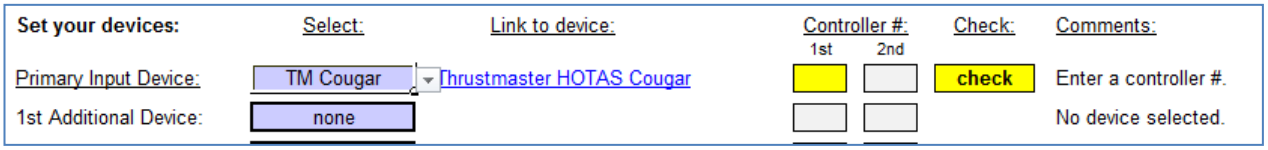



**Select device:**

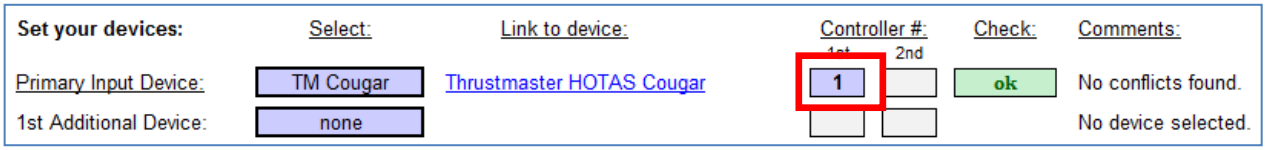
In this example we set the TM Cougar as a primary input device. Just select it from the drop down list.



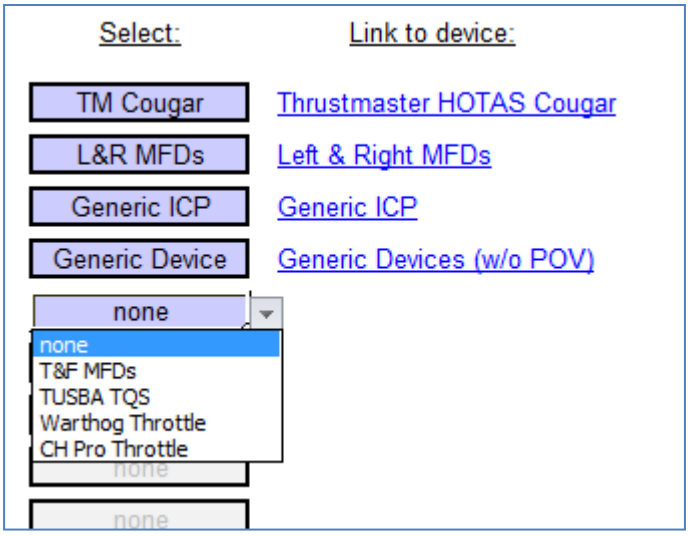
As soon as a device is selected a link to the devices tab is shown. You are also asked to enter the controller number. How to get the controller numbers is described farther below.




**Enter the controller number:**




Continue that way until all your devices are selected and have an assigned controller number. The drop down list is updated continuously. You cannot set the same device twice.




## 7.7 HOW TO GET THE CONTROLLER NUMBER(S)

You have to enter a controller number for each device. Make sure, not to enter the same number for other devices. Each device has its own unique controller number! Otherwise you will get wrong results.

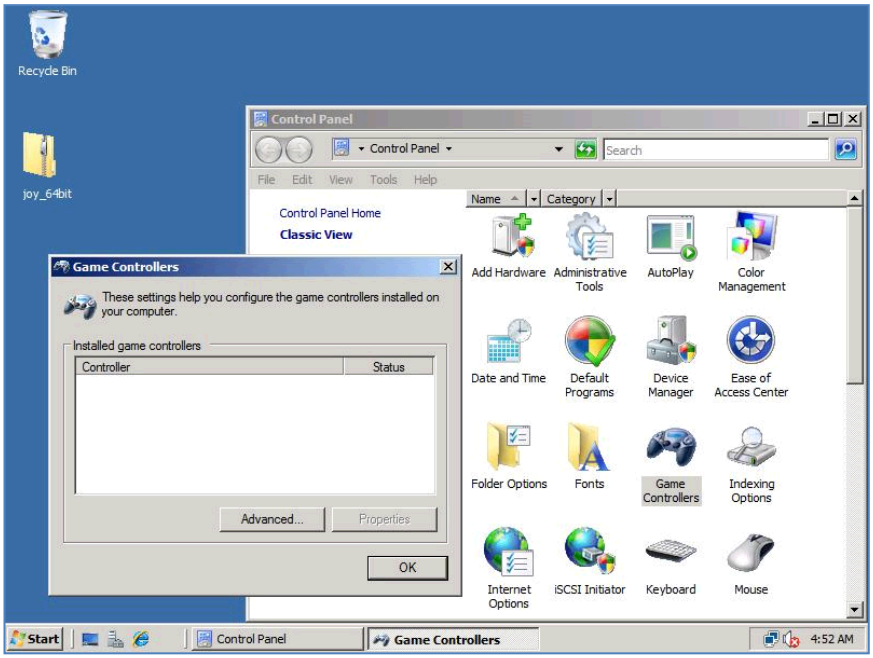
**Note:** Otherwise as described in the past the first controller isn't zero anymore! It is simply 1.

**Via game controllers applet:**

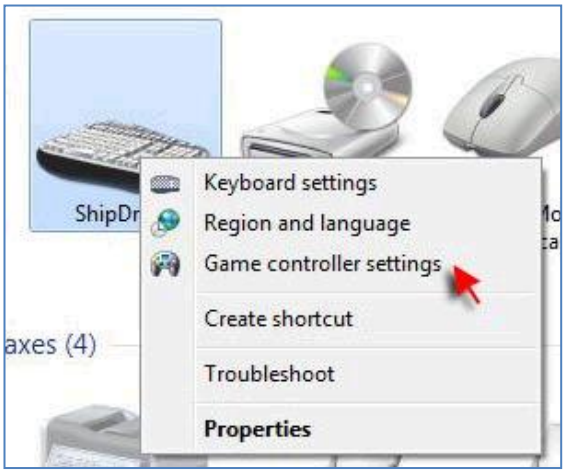
To calculate the controller number you have to open the game controllers applet.

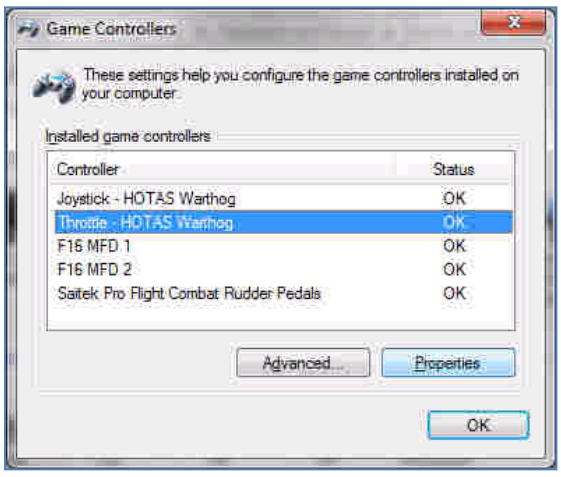
Windows XP:

Open Control Panel, double click on game controllers.




Windows 7:




Open Control Panel -> Hardware and Sound -> Devices and Printers

You see a list of all installed devices. Right click on a game controller (e.g. Joystick) and select "Game controller Settings".

Game Corntrollers Applet:

All DX devices are listed like shown in the image below:

First device = 1 (example left image: Joystick - HOTAS Warthog)

Second device = 2 (example left image: Throttle - HOTAS Warthog)

Third device = 3 (example left image: F16 MFD 1) etc.

Note these numbers as you will need them for correct DX buttons assignment.

Windows sorts the devices automatically by vendors and device ID. You have to understand that if you plug in additional devices or unplug existing ones the order will change. In this case your devices might not work anymore because the device number can change.

**Via BMS UI:**

Another way of finding out the controller number is to simply press a button when in BMS UI - Setup - Controllers page. How this works is described in detail in the BMS Key File Manual.

Just press a button on your device (no matter which button) while in controllers page and note the number shown at the bottom. Repeat for each different DX device. You can insert the button number shown in the BMS UI to the input field on the Read Me tab in the Keyfile Editor. The DX device number will be calculated automatically.

If you found out the controller numbers for each device you can enter them in the settings. If the controller has more than one device (example: TM Cougar MFDs…) you have to enter the controller number for each device separately.

## 7.8 INPUT CHECKS & COMMENTS

Here can you see instantly, if your input is valid or not. A short description of what went wrong is shown to point you in the right direction.

Following messages can occur:

critical ***Max. # of devices (16) exceeded.***

See remarks above -> DX Status Box

critical ***Two identical controller numbers.***

Each device has to be set to a unique controller #. (Allowed numbers: 1 - 16)

check ***Delete controller # or select device.***

You have set a controller number without having set a device.

check ***Enter a controller #.***

You set a device without setting the controller number(s) according to its physical devices.

check ***Check Pinky Shift Settings.***

When this error message occurs you have to take a look at the device sheet itself. Something is wrong with your Pinky Shift settings. Please refer to the section "The DX Devices".

check ***Change Pinky Shift Magnitude.***

If you entered controller numbers >8 you are reminded to set the Pinky Shift magnitude accordingly.

check **_Delete a controller #._**

If you have set more controller numbers as the device has available.

check **_Device has no DX Assignments._**

If you have selected a device which has no DX assignments at all (by default generic device & generic primary)

check **_Own device doesn't exist anymore._**

You have set an Own device and deleted it meanwhile.

ok **_No conflicts found._**

**_No device selected._**

**Max # of devices reached.**

If the maximum # of devices (16) is reached, the dropdown menu is grayed out.

**Example:**

In what follows you can see all possible status messages and how it looks like in the editor:

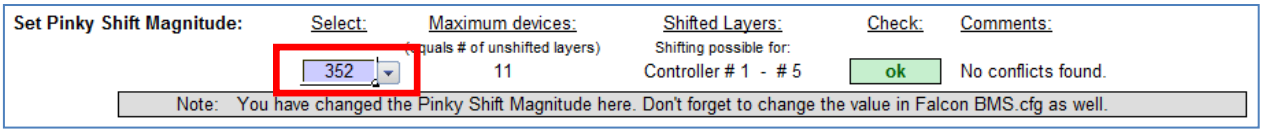
| Set Pinky Shift Magnitude: | Select: | Maximum devices: (equals # of unshifted layers) | Shifted Layers: Shifting possible for: | Check: | Comments: |
|---|---|---|---|---|---|
| | 256 | 8 | Controller # 1 - # 8 | check | Set Shift Magnitude to 352 |

Note: 256 is the default value. If this value is ok here, you don't need to change it in the Falcon BMS.cfg.

| Set your devices: | Select: | Link to device: | Controller #: 1st | Controller #: 2nd | Check: | Comments: |
|---|---|---|---|---|---|---|
| Primary Input Device: | TM Cougar | Thrustmaster HOTAS Cougar | 1 | | ok | No conflicts found. |
| 1st Additional Device: | Generic Device | Generic Devices (w/o POV) | 2 | | check | Device has no DX Assignments. |
| 2nd Additional Device: | Generic ICP | Generic ICP | 3 | 4 | check | Delete a controller #. |
| 3rd Additional Device: | Own #1 | | 5 | | check | Own device doesn't exist anymore. |
| 4th Additional Device: | L&R MFDs | Left & Right MFDs | 6 | 7 | check | Check Pinky Shift Settings. |
| 5th Additional Device: | T&F MFDs | Third & Fourth MFDs | 8 | | check | Enter a controller #. |
| 6th Additional Device: | none | | 9 | | check | Delete controller # or select device. |
| 7th Additional Device: | Warthog Throttle | TM Warthog Throttle | 10 | | check | Change Pinky Shift Magnitude. |
| 8th Additional Device: | TUSBA TQS | RealSimulator TUSBA TQS R1/R2 | 11 | | critical | Two identical controller numbers. |
| 9th Additional Device: | CH Pro Throttle | CH Pro Throttle | 11 | | critical | Two identical controller numbers. |
| 10th Additional Device: | none | | | | | No device selected. |
| 11th Additional Device: | none | | | | | No device selected. |
| 13th Additional Device: | none | | | | | Max # of devices reached. |

You see, if an error message is shown, it points you to the part where you have to take a look at.

The 7th device (Warthog Throttle) shows the message "Change Pinky Shift Magnitude." Changing the Shift Magnitude from 256 to 352 will solve this problem. As you'll notice, the maximum number of devices and the shifted layers have changed accordingly.




## 7.9 CHECKLIST

Just a short checklist to remind you about the important steps.

## 7.10 STATISTIC

Some statistics about your DX settings for your information.

## 7.11 SUPPORTED DX DEVICES

Until now the following devices are supported. More devices will probably follow…

**Primary Input devices:**

You can choose one of the following primary input devices. A primary input device is the one which is set for pitch & roll axis input in BMS setup.

| | |
|---|---|
| Thrustmaster HOTAS Cougar | For HOTAS Cougar Stick & Throttle. For Combinations with e.g. TUSBA or Warthog, see TM Combos. |
| Thrustmaster HOTAS Warthog | For Warthog Stick and Throttle. It is assumed you run them as two separate DX devices (-> no combined mode) |
| Thrustmaster Combos | For any of these combos: Warthog Stick & Cougar Throttle (also w. TUSBA), Cougar Stick & Throttle w. TUSBA |
| Saitek X36F/X35T | Use the Saitek X45 sheet. DX setup is identical. Only difference: No dedicated print layout graphics for the X36. |
| Saitek X45, X52, X55, X52pro, X65 | Of course the most commonly used Saitek devices are not missing. |
| CH Fighterstick & Pro Throttle | A common combination of CH products. You can also set up the Fighterstick alone here. |
| Primary Input Device (w. POV) | This is for a generic primary device (32 btn., 1 POV). |
| Logitech Flight System G940 | (n/a -> planned, if someone requests it and is providing proper information) |

**Additional Input devices:**

| | |
|---|---|
| Left & Right MFDs | This is for TM Cougar or generic MFDs. |
| Third & Fourth MFDs | This is for a second set of either TM Cougar or generic MFDs (as addition for Left and Right MFDs). |
| Generic ICP | Use this to make bindings for a generic ICP device. |
| RealSimulator TUSBA TQS R1/R2 | In case you want to use TUSBA in combination with a non-Thrustmaster (Cougar / Warthog) Stick. |
| Generic Devices (w/o POV) | Make bindings for a generic device with up to 32 DX buttons (No POV). |
| TM Warthog Throttle<br>Throttle | In case of using a different primary input device (Stick) you can & CH Pro set up the throttle devices separately. |
| DirectX Specifics | Make special bindings for e.g. switches or POV hats. |

## 7.12 OWN DEVICES

In addition to the supported DX devices you can create up to 10 own additional devices and one own primary device.

You can enter a short description to keep track of which is what. The description will be displayed as hyperlink text in the settings.

As soon as a sheet is filled with data, the related sheet becomes available in the dropdown menu on the DX Settings tab.

How to set up own devices is described later.

# 8 THE KEY CODE DATA TAB

Compared to the original Keyfile-generator I re-arranged the Key Code Data sheet and removed some of the possible key codes for compatibility reasons.

Please don't change anything on this sheet, except the Own Locale. Anything else should be used as a reference only.

**Setting your own locale:**

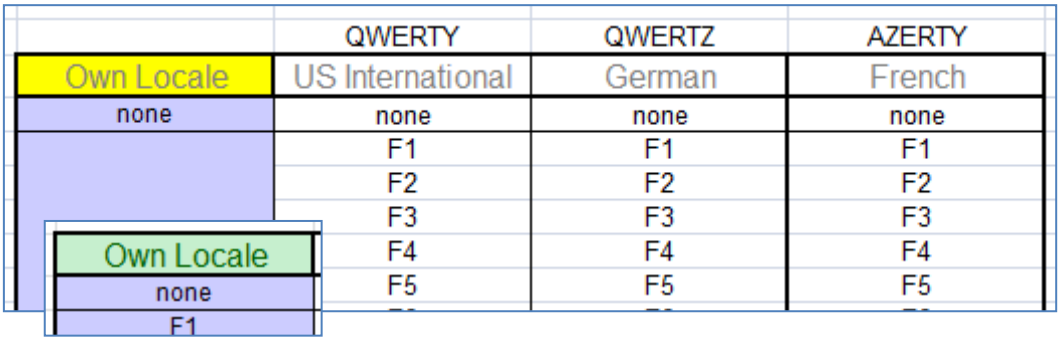
By default there are three preset locales, US International (QWERTY), French (AZERTY) and German (QWERTZ).

Of course there are many more in the world. Instead of adding more I decided to give you the opportunity to add your own one.

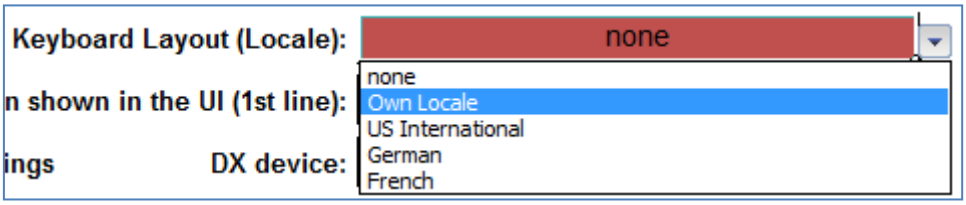
You simply have to fill out the column completely until it fits your own needs. Don't leave any blank fields. As soon as the added data is complete the "Own Locale" headline turns green and the "Own Locale" entry becomes available in the Keystrokes Editor Options.

Be advised: Your inputs are not checked if they make sense.

**Step 1:** Set your own keys (all lines) until the headline turns green.



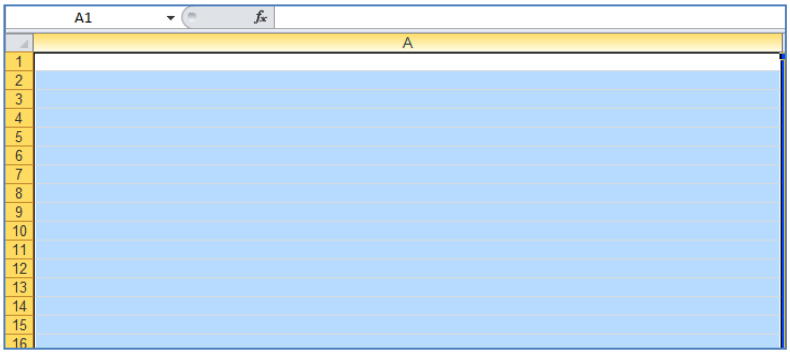

**Step 2:** Choose your "Own Locale" from the Locale dropdown.




# 9 THE IMPORT TAB

Key Files can be imported either with the macro feature (described in Keystrokes Editor section) or manually. The manual import is described below. There are some checks for renamed and removed callbacks which are also described here.

## 9.1 HOW TO IMPORT A KEY FILE MANUALLY



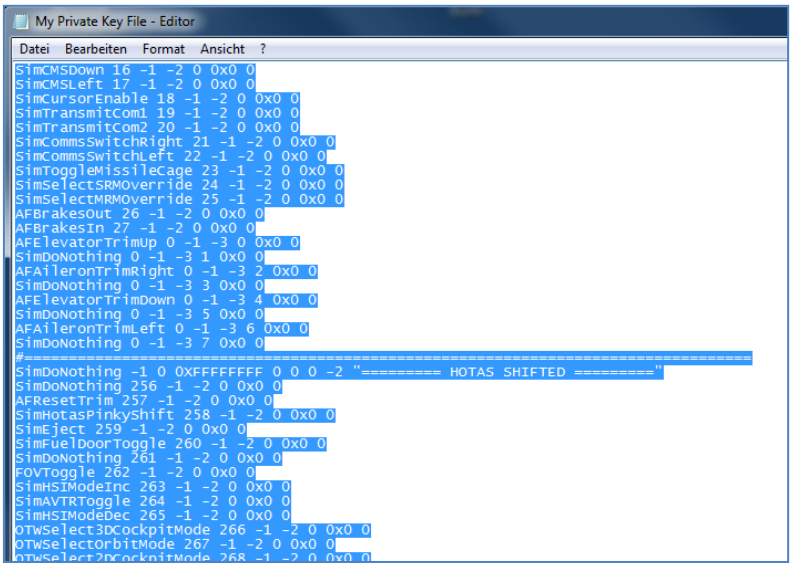

**Step 1:** Delete content in column A

If there is already content in column A you have to delete the data first. If column A is empty you can continue with Step 2.

Mark the entire column A by a left click on the columns headline or mark cell A1 and hit Shft & Ctrl & Arrow down. Delete the data in column A by pressing "Del" (delete).

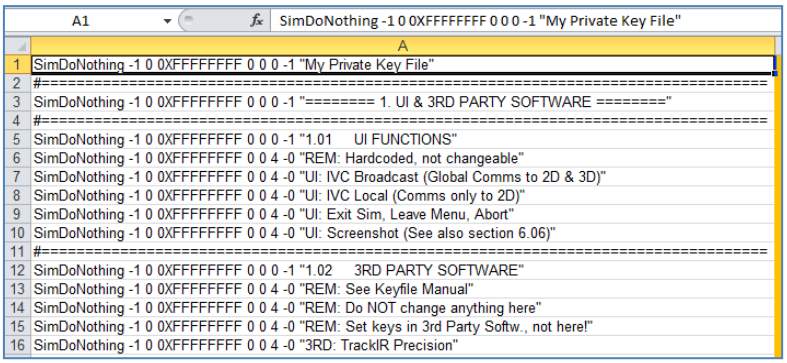
**Step 2:** Open a key file with an editor, mark and copy the data

As soon as the key file is opened mark the entire content (Strg & A) and copy it (Strg & C or via mouse -> right click -> copy).

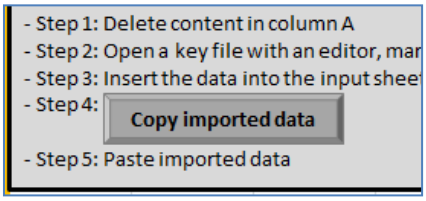



**Step 3:** Insert the data into the input sheet (cell A1)

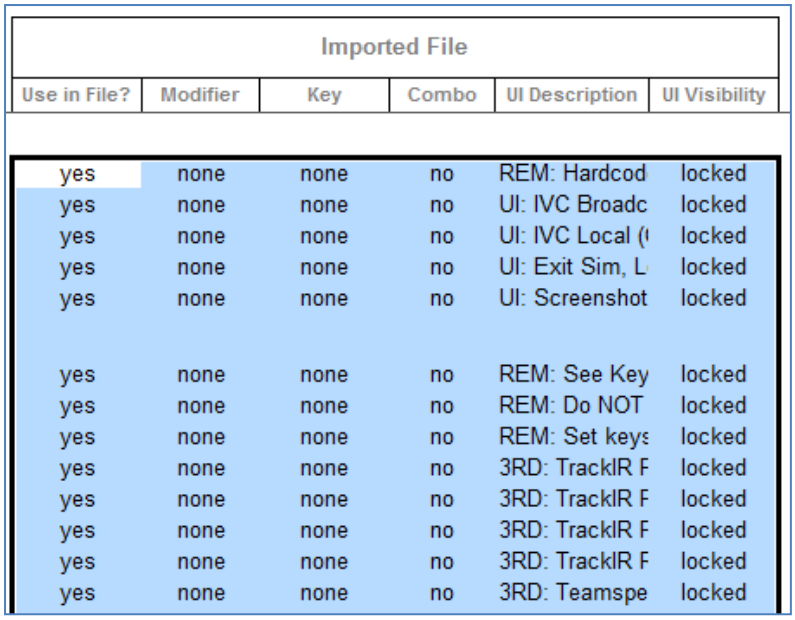
Mark cell A1 and paste the data (Strg & V or via mouse -> right click -> paste).




After that follow the link "Copy imported data". This leads you to the Keystrokes Editor (see next step).



**Step 4:** Copy imported data



| Imported File | | | | | |
|---|---|---|---|---|---|
| Use in File? | Modifier | Key | Combo | UI Description | UI Visibility |
| yes | none | none | no | REM: Hardcod | locked |
| yes | none | none | no | UI: IVC Broadc | locked |
| yes | none | none | no | UI: IVC Local ( | locked |
| yes | none | none | no | UI: Exit Sim, L | locked |
| yes | none | none | no | UI: Screenshot | locked |
| yes | none | none | no | REM: See Key | locked |
| yes | none | none | no | REM: Do NOT | locked |
| yes | none | none | no | REM: Set keys | locked |
| yes | none | none | no | 3RD: TrackIR F | locked |
| yes | none | none | no | 3RD: TrackIR F | locked |
| yes | none | none | no | 3RD: TrackIR F | locked |
| yes | none | none | no | 3RD: TrackIR F | locked |
| yes | none | none | no | 3RD: Teamspe | locked |

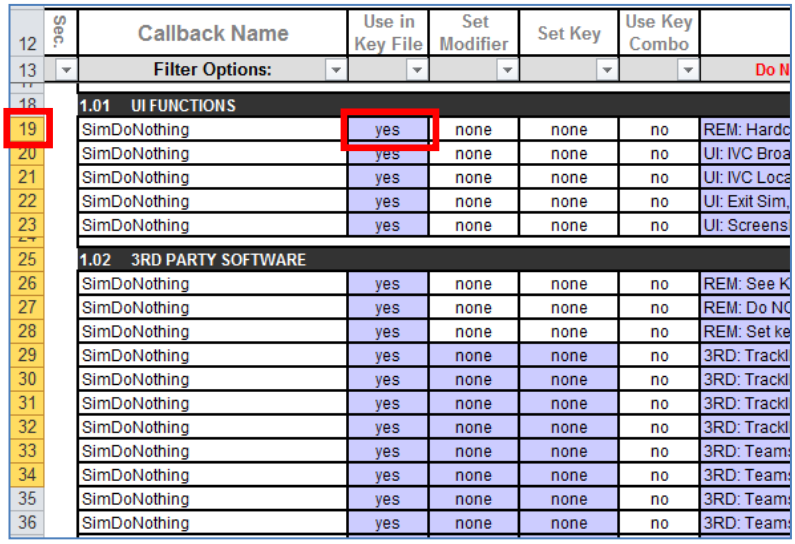
On the right hand side of the Editor you'll find additional columns with the headline "Imported File".

As all calculations are made automatically, you see exactly what should be copied to the editor.

If you followed the link mentioned above the entire area is already marked.

You could also use the link above the headline to mark the area. Copy the data (marked area) with Ctrl & C or via mouse (-> right click -> copy)

**Step 5:** Paste imported data



| Sec. | Callback Name | Use in Key File | Set Modifier | Set Key | Use Key Combo | |
|---|---|---|---|---|---|---|
| | Filter Options: | | | | | Do N |
| | 1.01 UI FUNCTIONS | | | | | |
| | SimDoNothing | yes | none | none | no | REM: Hardc |
| | SimDoNothing | yes | none | none | no | UI: IVC Broa |
| | SimDoNothing | yes | none | none | no | UI: IVC Loca |
| | SimDoNothing | yes | none | none | no | UI: Exit Sim, |
| | SimDoNothing | yes | none | none | no | UI: Screens |
| | 1.02 3RD PARTY SOFTWARE | | | | | |
| | SimDoNothing | yes | none | none | no | REM: See K |
| | SimDoNothing | yes | none | none | no | REM: Do NO |
| | SimDoNothing | yes | none | none | no | REM: Set ke |
| | SimDoNothing | yes | none | none | no | 3RD: TrackI |
| | SimDoNothing | yes | none | none | no | 3RD: TrackI |
| | SimDoNothing | yes | none | none | no | 3RD: TrackI |
| | SimDoNothing | yes | none | none | no | 3RD: TrackI |
| | SimDoNothing | yes | none | none | no | 3RD: Teams |
| | SimDoNothing | yes | none | none | no | 3RD: Teams |
| | SimDoNothing | yes | none | none | no | 3RD: Teams |
| | SimDoNothing | yes | none | none | no | 3RD: Teams |

Now you have to insert the data to the editor.

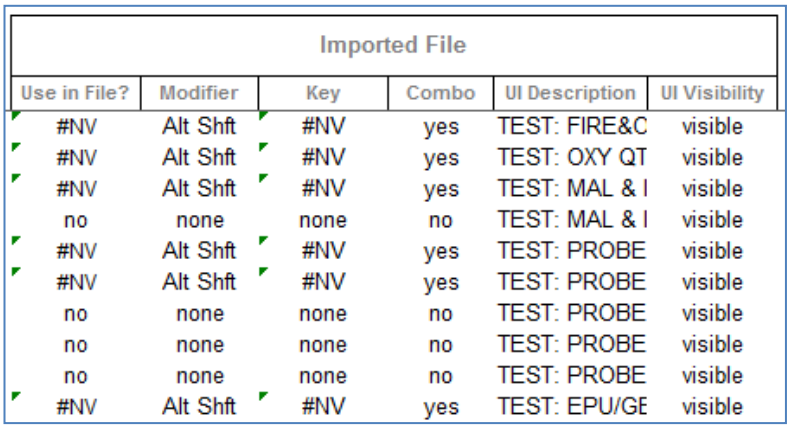
Select cell E19 or use the link "Jump to the insert field" above the Imported File columns.

Paste the data.

It is important to paste only the values -> right click -> paste values.

If you do otherwise it will screw up the editor completely.

**Note:** If you see something like this (formulae are showing errors)



| Imported File | | | | | |
|---|---|---|---|---|---|
| Use in File? | Modifier | Key | Combo | UI Description | UI Visibility |
| #NV | Alt Shft | #NV | yes | TEST: FIRE&C | visible |
| #NV | Alt Shft | #NV | yes | TEST: OXY QT | visible |
| #NV | Alt Shft | #NV | yes | TEST: MAL & I | visible |
| no | none | none | no | TEST: MAL & I | visible |
| #NV | Alt Shft | #NV | yes | TEST: PROBE | visible |
| #NV | Alt Shft | #NV | yes | TEST: PROBE | visible |
| no | none | none | no | TEST: PROBE | visible |
| no | none | none | no | TEST: PROBE | visible |
| no | none | none | no | TEST: PROBE | visible |
| #NV | Alt Shft | #NV | yes | TEST: EPU/GE | visible |

Please check if your locale is set correctly.

Btw., you can't import a file with the macro feature without having set the locale first.

**Note:** If no key file is imported…

| No file imported (Settings for a blank file are shown below) | | | | | |
|---|---|---|---|---|---|
| Use in File? | Modifier | Key | Combo | UI Description | UI Visibility |
| no | none | none | no | TEST: FIRE & | visible |
| no | none | none | no | TEST: OXY QT | visible |
| no | none | none | no | TEST: MAL & I | visible |
| no | none | none | no | TEST: MAL & I | visible |
| no | none | none | no | TEST: PROBE | visible |
| no | none | none | no | TEST: PROBE | visible |
| no | none | none | no | TEST: PROBE | visible |

…settings for a blank file are shown instead.

## 9.2 CHECK FOR RENAMED CALLBACKS

Some callbacks have been redesignated, which means they have a different function than before. There is a check if such renamed callbacks are used in the imported key file. However, of course it is not possible to figure out, if these callbacks are used as intended. Therefore you are pointed to them to avoid surprises.

**Renamed Callbacks:**
The following callbacks have been redesignated!!!

SimDigitalBUP was a full state callback for the Backup Position before. It is now a toggle.
SimEwsJett was a full state callback for the On Position before. It is now a toggle.

It is highly recommended that you check the assignments as they will be imported as a toggle now.

Please cross check also with the new full state callbacks: SimDigitalBUPBackup, SimEwsJettOn

| Callback (alphabetic order) | Used in imported file? Keyboard | Direct X | Assignments Modifier | Key | Combo |
|---|---|---|---|---|---|
| SimDigitalBUP | yes | no | Alt Shft | F4 | no |
| SimEwsJett | no | no | | | |

## 9.3 CHECK FOR REMOVED CALLBACKS

Some callbacks have been removed from the code, and thus are ignored by this tool.

When a file is imported you see a list on the right hand side in which all of these removed callbacks are listed. Additionally it shows you, if these are used in your key file or not. It is also distinguished between DX and keyboard assignments. If keys are assigned, they will be listed for reference.

**Removed Callbacks:**

The following callbacks have been removed from the code and are not available anymore.
Note: These checks will be removed in the future.

| Callback (alphabetic order) | Used in imported file? Keyboard | Direct X | Assignments Modifier | Key | Combo |
|---|---|---|---|---|---|
| ATCBrake | yes | no | Alt Shft | F4 | no |
| ATCGearDown | no | yes | | | |
| ATCGearUp | no | no | | | |
| ATCReadyToGo | no | no | | | |
| ATCRotate | no | no | | | |

## 9.4 CHECK FOR FAULTY CODE LINES

The tool offers basic checks of the imported file.

On the right side you have an overview about the number of imported files and if any faulty code lines are detected. Until now there are no deeper checks WHAT is exactly wrong in a faulty code line. You have to check them manually. Please refer to the Key File Manual for further information how a sane code line should look like.

Please be advised that not all possible faults are addressed right now. Code lines with isspelled callback names will be simply ignored for example.

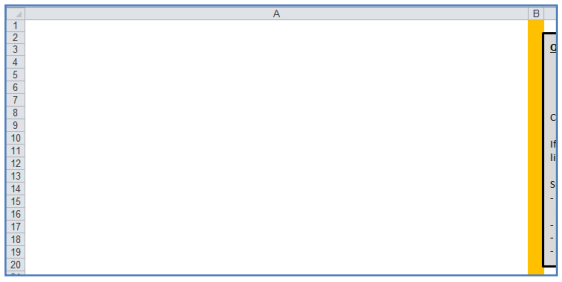
| | | | |
|---|---|---|---|
| ok | | | |
| Check | **Import Statistics:** | # of code lines: | 21 |
| ok | | ok: | 20 |
| ok | | Faulty: | 1 |
| ok | Please check the code syntax in case faulty code lines are found. | | |
| ok | Refer to the Key File Manual. | | |

# 10 THE OUTPUT TAB

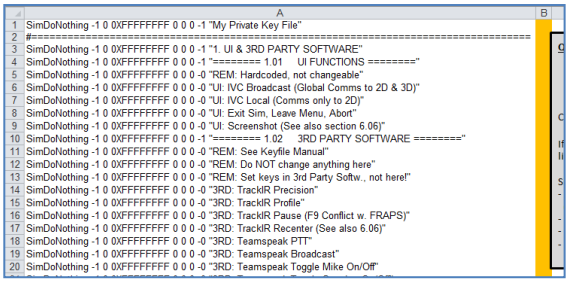
A macro is doing the file export automatically, so if you use macros you can ignore the Output tab completely. Of course it is possible to export code lines manually. Just switch to the Output Tab.

**Note:** No Output will be generated until the Input Checks (See Keystrokes Editor & DX Settings) are ok.

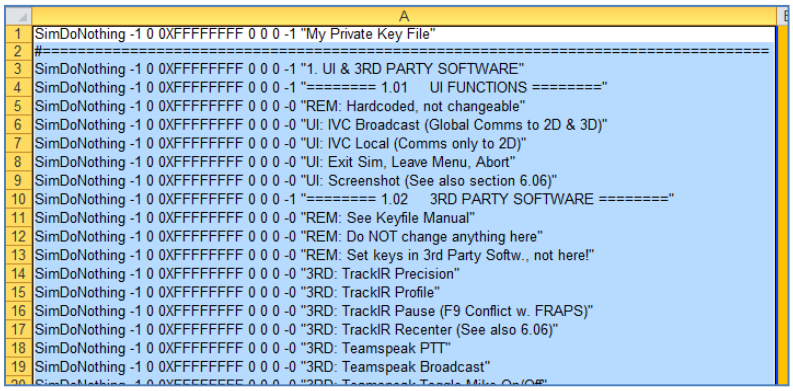
Column A is empty = Check your settings.



Column A is populated = Everything is fine.




**Step 1:** Mark & copy all code lines#




**Step 2:** Open a key file with an editor and paste the copied data

You should delete all code lines first, before pasting the new content.

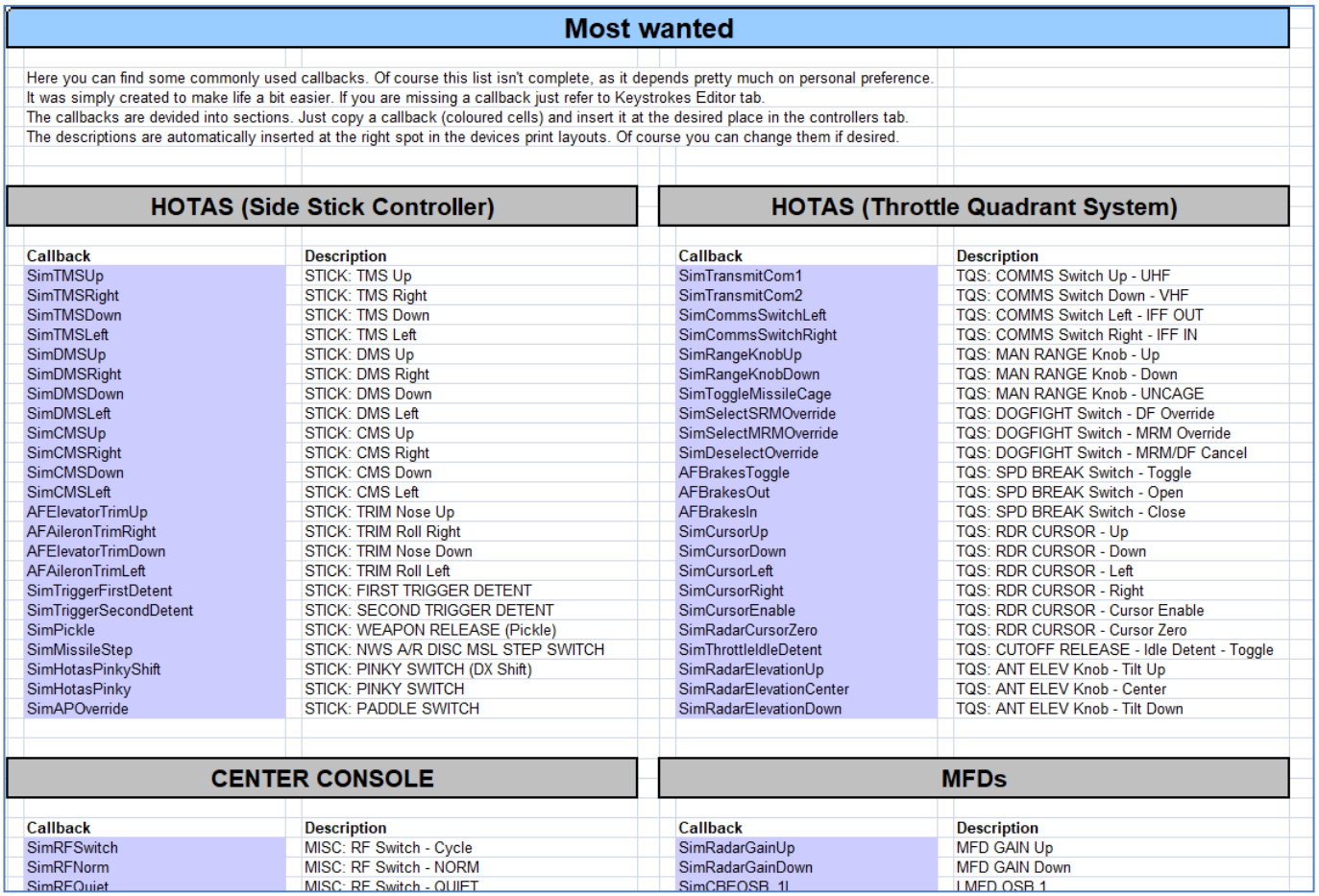
**Step 3:** Save your file

Be careful not to overwrite accidently a file which you need in the future.

You should add a cumulative version number.

# 11 MOST WANTED TAB

On request I re-added the Most Wanted Tab from the early versions of the Key File Editor.



**Most wanted**

Here you can find some commonly used callbacks. Of course this list isn't complete, as it depends pretty much on personal preference.
It was simply created to make life a bit easier. If you are missing a callback just refer to Keystrokes Editor tab.
The callbacks are devided into sections. Just copy a callback (coloured cells) and insert it at the desired place in the controllers tab.
The descriptions are automatically inserted at the right spot in the devices print layouts. Of course you can change them if desired.

**HOTAS (Side Stick Controller)**

| Callback | Description |
|---|---|
| SimTMSUp | STICK: TMS Up |
| SimTMSRight | STICK: TMS Right |
| SimTMSDown | STICK: TMS Down |
| SimTMSLeft | STICK: TMS Left |
| SimDMSUp | STICK: DMS Up |
| SimDMSRight | STICK: DMS Right |
| SimDMSDown | STICK: DMS Down |
| SimDMSLeft | STICK: DMS Left |
| SimCMSUp | STICK: CMS Up |
| SimCMSRight | STICK: CMS Right |
| SimCMSDown | STICK: CMS Down |
| SimCMSLeft | STICK: CMS Left |
| AFElevatorTrimUp | STICK: TRIM Nose Up |
| AFAileronTrimRight | STICK: TRIM Roll Right |
| AFElevatorTrimDown | STICK: TRIM Nose Down |
| AFAileronTrimLeft | STICK: TRIM Roll Left |
| SimTriggerFirstDetent | STICK: FIRST TRIGGER DETENT |
| SimTriggerSecondDetent | STICK: SECOND TRIGGER DETENT |
| SimPickle | STICK: WEAPON RELEASE (Pickle) |
| SimMissileStep | STICK: NWS A/R DISC MSL STEP SWITCH |
| SimHotasPinkyShift | STICK: PINKY SWITCH (DX Shift) |
| SimHotasPinky | STICK: PINKY SWITCH |
| SimAPOverride | STICK: PADDLE SWITCH |

**HOTAS (Throttle Quadrant System)**

| Callback | Description |
|---|---|
| SimTransmitCom1 | TQS: COMMS Switch Up - UHF |
| SimTransmitCom2 | TQS: COMMS Switch Down - VHF |
| SimCommsSwitchLeft | TQS: COMMS Switch Left - IFF OUT |
| SimCommsSwitchRight | TQS: COMMS Switch Right - IFF IN |
| SimRangeKnobUp | TQS: MAN RANGE Knob - Up |
| SimRangeKnobDown | TQS: MAN RANGE Knob - Down |
| SimToggleMissileCage | TQS: MAN RANGE Knob - UNCAGE |
| SimSelectSRMOverride | TQS: DOGFIGHT Switch - DF Override |
| SimSelectMRMOverride | TQS: DOGFIGHT Switch - MRM Override |
| SimDeselectOverride | TQS: DOGFIGHT Switch - MRM/DF Cancel |
| AFBrakesToggle | TQS: SPD BREAK Switch - Toggle |
| AFBrakesOut | TQS: SPD BREAK Switch - Open |
| AFBrakesIn | TQS: SPD BREAK Switch - Close |
| SimCursorUp | TQS: RDR CURSOR - Up |
| SimCursorDown | TQS: RDR CURSOR - Down |
| SimCursorLeft | TQS: RDR CURSOR - Left |
| SimCursorRight | TQS: RDR CURSOR - Right |
| SimCursorEnable | TQS: RDR CURSOR - Cursor Enable |
| SimRadarCursorZero | TQS: RDR CURSOR - Cursor Zero |
| SimThrottleIdleDetent | TQS: CUTOFF RELEASE - Idle Detent - Toggle |
| SimRadarElevationUp | TQS: ANT ELEV Knob - Tilt Up |
| SimRadarElevationCenter | TQS: ANT ELEV Knob - Center |
| SimRadarElevationDown | TQS: ANT ELEV Knob - Tilt Down |

**CENTER CONSOLE**

| Callback | Description |
|---|---|
| SimRFSwitch | MISC: RF Switch - Cycle |
| SimRFNorm | MISC: RF Switch - NORM |
| SimRFQuiet | MISC: RF Switch - QUIET |

**MFDs**

| Callback | Description |
|---|---|
| SimRadarGainUp | MFD GAIN Up |
| SimRadarGainDown | MFD GAIN Down |
| SimCBEOSB_1L | LMFD OSB 1 |

On this sheet you'll find the most used Callbacks. They are a quick reference so to speak.

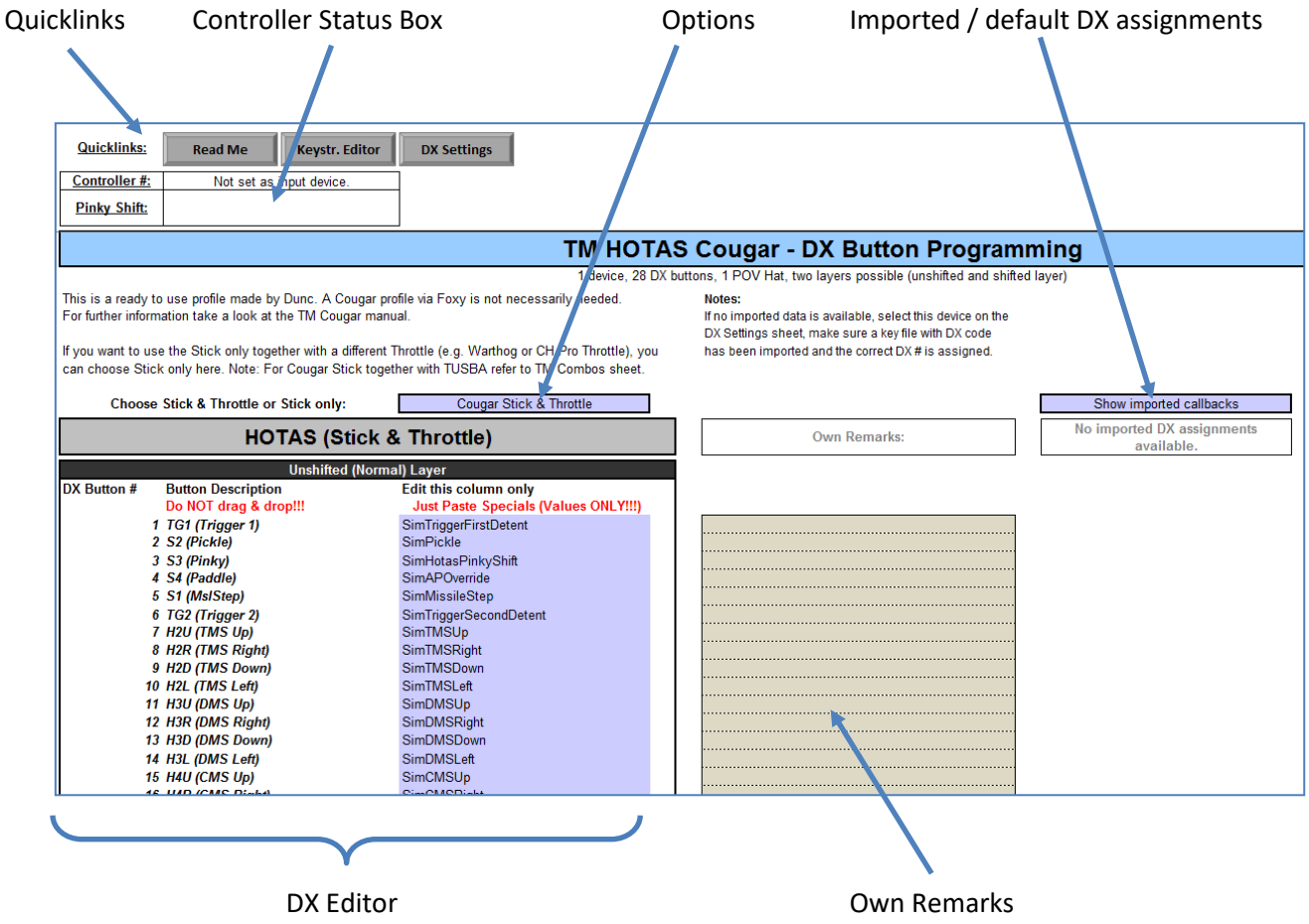
The advantage is, that you'll find most significant callbacks much faster and easier compared to the Keystrokes Editor tab. The following categories can be found here:

- HOTAS (SST & TQS)
- Center Console
- MFDs
- Left & Right Consoles
- Cockpit & Sim
- Views
- Shortcut & Own
- Comms

On each device sheet you'll find a quicklink to the Most Wanted Tab. On the top right is a link named "Back to device". So, basically by just using the quicklink "Most Wanted" and "Back to device" you can jump back and forth between the both tabs. This makes copy and paste of callbacks pretty easy.

# 12 THE DX DEVICE TABS

## 12.1 OVERVIEW




## 12.2 QUICKLINKS

Direct links to some selected tabs, which you might need quick access to. You'll find different links on the various tabs, depending on the purpose of the sheet.

## 12.3 OWN REMARKS

You can add personal notes here.

You have one remark per DX button code line.

## 12.4 CONTROLLER STATUS BOX

**Controller #:**

This is a basic check about the controller #. Following messages can appear:

| | |
|---|---|
| Not set as input device. | -> Self explanatory |
| Please check settings. | -> Take a look at the DX Settings tab |
| <controller number> | -> Shows the assigned controller number |

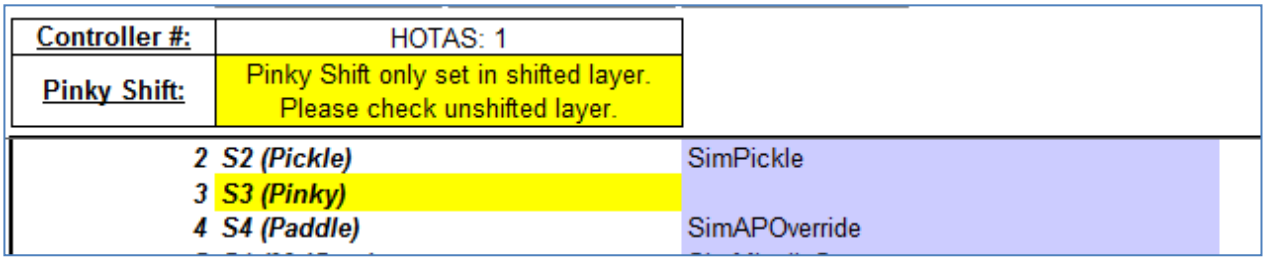
**Pinky Shift:**

SimHotasPinkyShift has to be used in BOTH layers to make shifting work properly. It shifts ALL DX devices simultaneously!

To prevent issues there are some checks regarding the Pinky Shift settings.

| | |
|---|---|
| | No Pinky Shift assigned. |
| check | You assigned Pinky Shift to POV. This is not recommended. |
| check | Pinky Shift set more than once in <shifted / unshifted> layer. |
| check | Pinky Shift only set in shifted layer. Please check unshifted layer. |
| check | Pinky Shift only set in unshifted layer. Please check shifted layer. |
| check | Pinky Shift not set on the same physical controller button. |
| ok | Ok -> no problems found |

This is how it looks like:




If a wrong Pinky Shift setting is found the corresponding switches are highlighted.

## 12.5 OPTIONS

The options are not present on every device tab.

You can mainly choose between some options like Stick & Throttle <-> Stick only etc. If you allow macros the print layouts will be updated automatically.

## 12.6 IMPORTED / DEFAULT DX ASSIGNMENTS

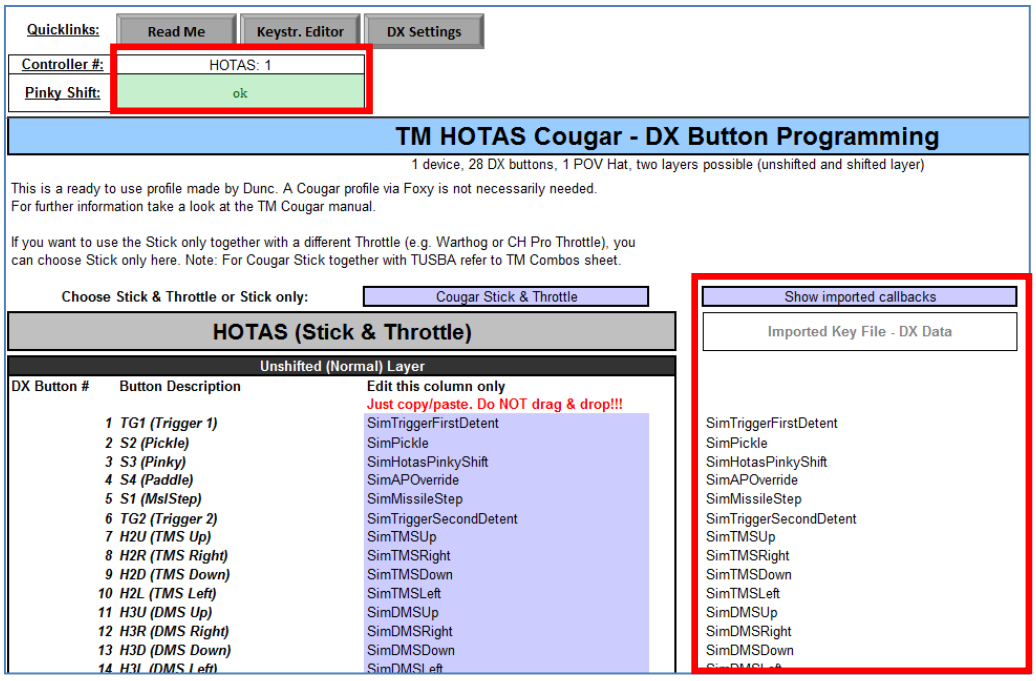
When you have a key file imported and DX code lines are present, the callbacks are shown here if the following conditions are met:

- ✓ The device is selected on the DX settings tab
- ✓ The device is assigned to a controller number and the settings are valid
- ✓ The corresponding DX button range has assigned functions

You can import the DX assignments manually or via the macro (see DX Settings).

**Example 1:**

Imported DX callbacks are shown. You can copy / paste them manually or use the macro feature. For better recognizability the “Own Remarks” column is hidden in the following screenshots.



Quicklinks: Read Me | Keystr. Editor | DX Settings

Controller #: HOTAS: 1
Pinky Shift: ok

**TM HOTAS Cougar - DX Button Programming**

1 device, 28 DX buttons, 1 POV Hat, two layers possible (unshifted and shifted layer)

This is a ready to use profile made by Dunc. A Cougar profile via Foxy is not necessarily needed.
For further information take a look at the TM Cougar manual.

If you want to use the Stick only together with a different Throttle (e.g. Warthog or CH Pro Throttle), you can choose Stick only here. Note: For Cougar Stick together with TUSBA refer to TM Combos sheet.

Choose Stick & Throttle or Stick only: Cougar Stick & Throttle

Show imported callbacks

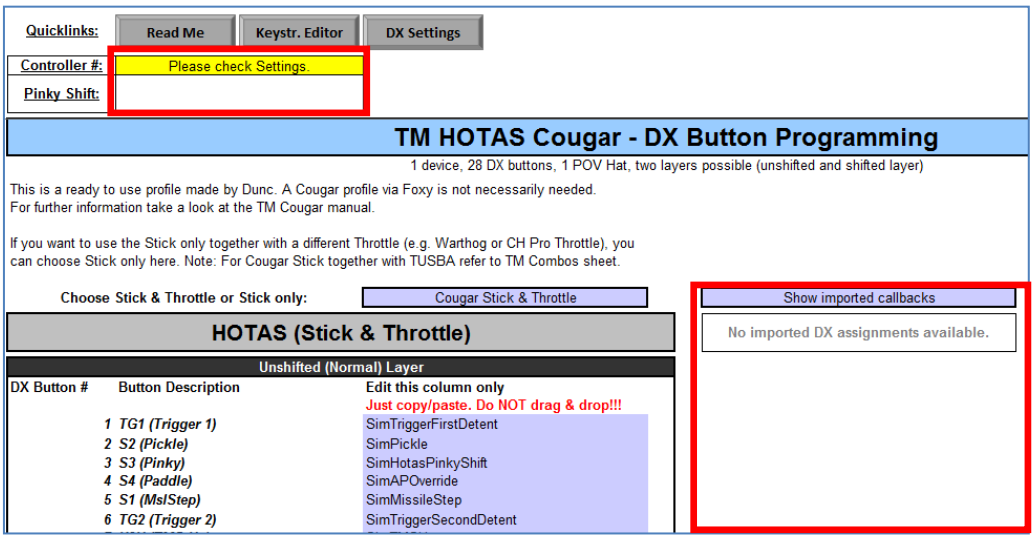
**HOTAS (Stick & Throttle)**

Unshifted (Normal) Layer

| DX Button # | Button Description | Edit this column only (Just copy/paste. Do NOT drag & drop!!!) | Imported Key File - DX Data |
|---|---|---|---|
| 1 | TG1 (Trigger 1) | SimTriggerFirstDetent | SimTriggerFirstDetent |
| 2 | S2 (Pickle) | SimPickle | SimPickle |
| 3 | S3 (Pinky) | SimHotasPinkyShift | SimHotasPinkyShift |
| 4 | S4 (Paddle) | SimAPOverride | SimAPOverride |
| 5 | S1 (MslStep) | SimMissileStep | SimMissileStep |
| 6 | TG2 (Trigger 2) | SimTriggerSecondDetent | SimTriggerSecondDetent |
| 7 | H2U (TMS Up) | SimTMSUp | SimTMSUp |
| 8 | H2R (TMS Right) | SimTMSRight | SimTMSRight |
| 9 | H2D (TMS Down) | SimTMSDown | SimTMSDown |
| 10 | H2L (TMS Left) | SimTMSLeft | SimTMSLeft |
| 11 | H3U (DMS Up) | SimDMSUp | SimDMSUp |
| 12 | H3R (DMS Right) | SimDMSRight | SimDMSRight |
| 13 | H3D (DMS Down) | SimDMSDown | SimDMSDown |
| 14 | H3L (DMS Left) | SimDMSLeft | |

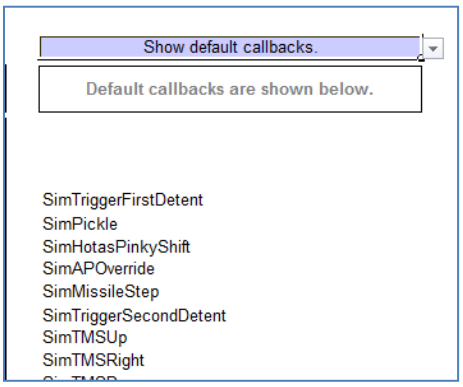
**Example 2:**

If settings are not correct OR no DX code lines are in the imported file no callbacks are shown.




**Example 3:**

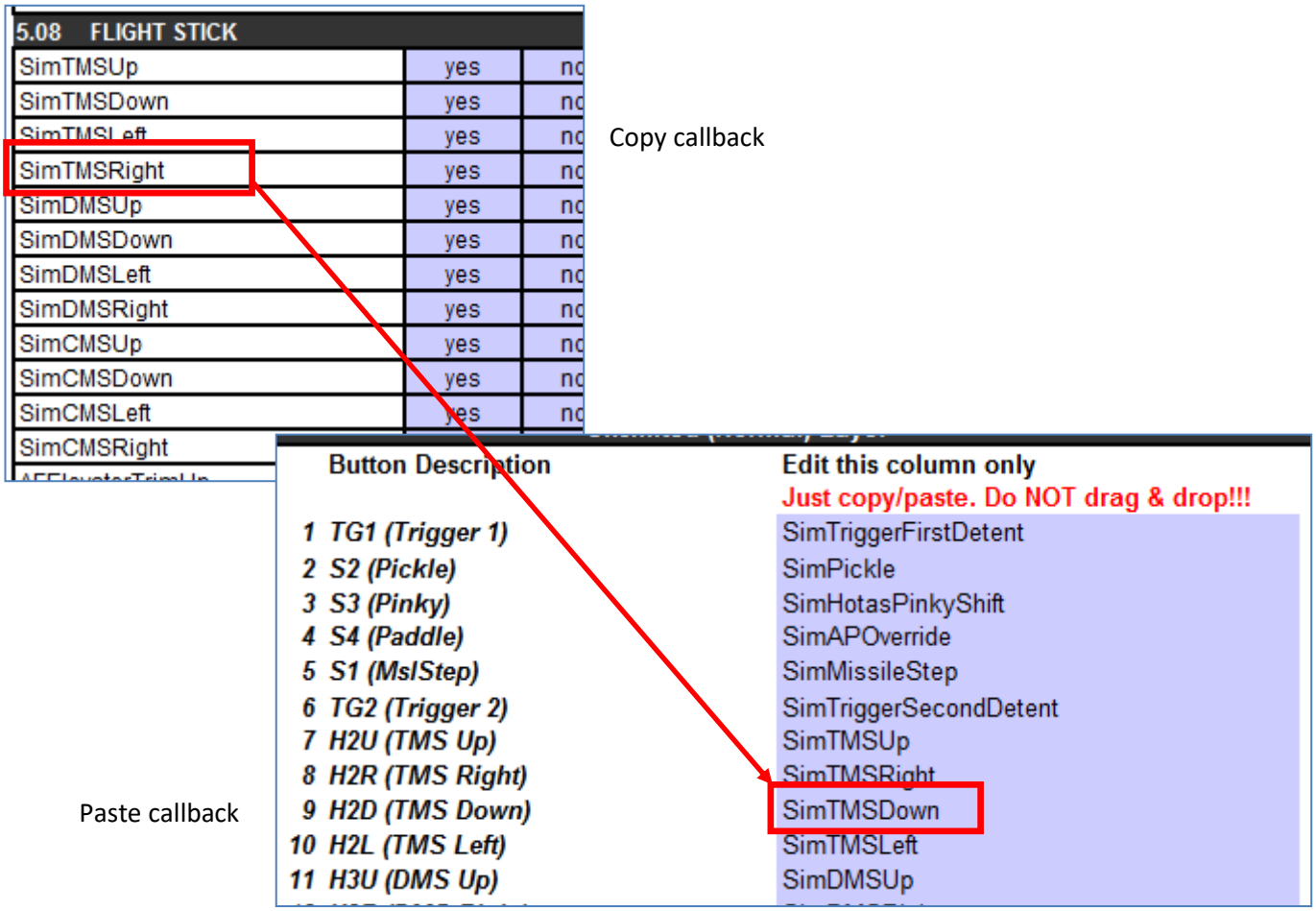
You can also show the default callbacks here by choosing this option in the drop down menu. These can also be copied manually or with the macro feature.




## 12.7 DX EDITOR

You can update the button assignments to your liking.

You can edit the colored column (and please: only (!) the colored column) of your input device by inserting a callback to the desired spot. In the "Keyfile Editor" tab you can find a complete set of callbacks. Just copy a callback from the "Keystrokes Editor" tab and paste it in the device tab (colored cells) like shown in the example below.




Of course you can write the callback names directly to the desired spots. But this is only recommended if you exactly know what you are doing there. While it is no problem here in Excel, entering a callback with a false syntax could lead to BMS crashes. So be careful.

If you don't assign functions to the shifted layer (by leaving the field blank) it does exactly the same as the unshifted layer. For the unshifted layer it is recommended to use the callback "SimDoNothing" if you don't want to assign a function at all.

**Note:** You can also use the link to the Most Wanted tab to have access to a quick reference of most used functions. Copy & paste procedures are identical.

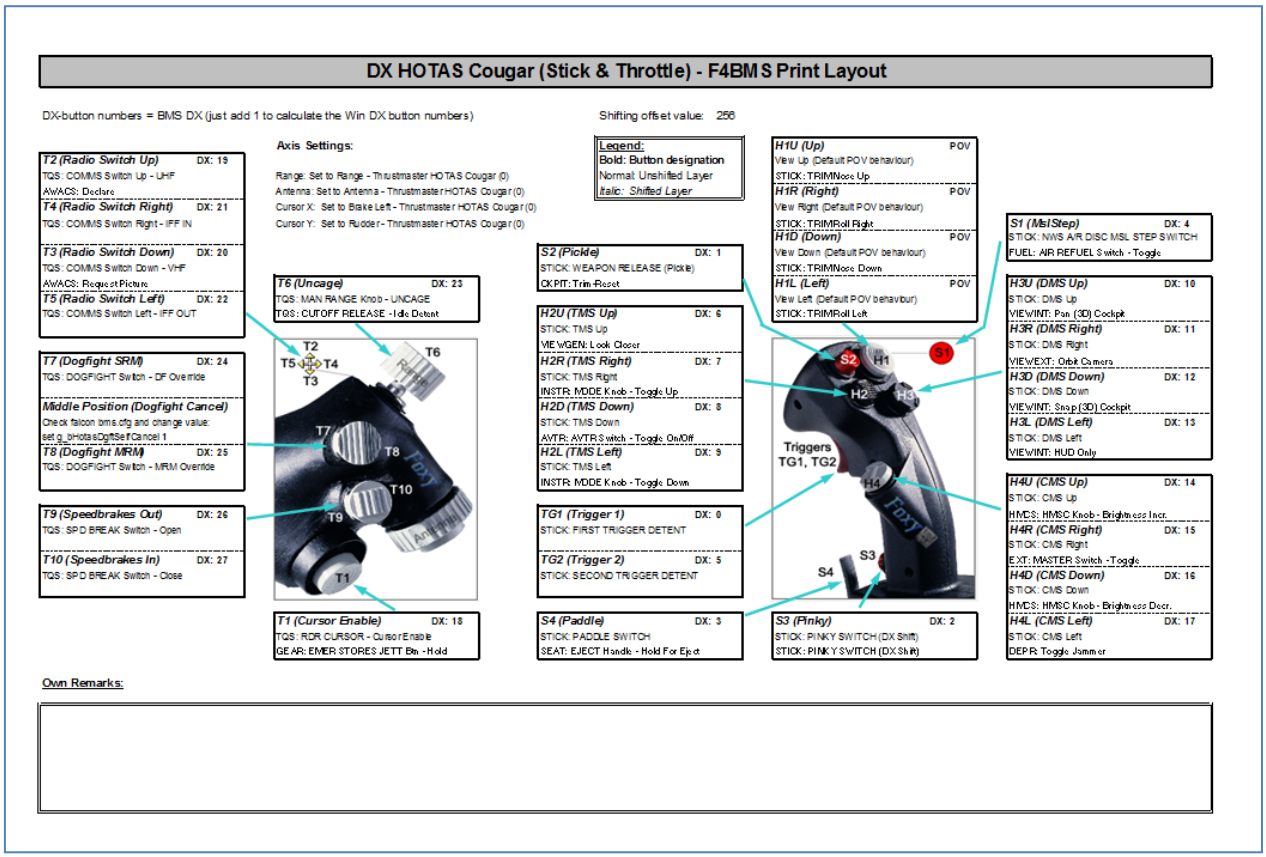
**POV hat:**

Each POV hat has 8 different positions. However it is recommended to use only 4 of them (Up, Right; Down, Left) to avoid side effects. It's necessary to set the Up-Left, Up-Right, Down-Left and Down-Right positions to SimDoNothing to avoid invoking default POV behavior.

Please refer to the DX Shifting Facility Article (See Minimizing Side Effects) in the BMS forum for more information. On some device tabs you can also change the button description (Generic Primary & Generic Device) or the DX button numbers (MFDs, ICP).

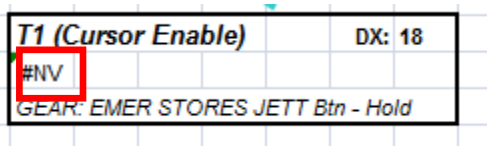
## 12.8 PRINT LAYOUTS

Each device has a predefined print layout where you can easily see, which functions are assigned to which button / switch. If you preview or print the sheet the print layout will be shown / printed like in the example below.




The function descriptions are automatically calculated from the assigned callbacks. You can also enter some own remarks into the box before printing.

If you are using a callback which is not listed in the "Keystrokes Editor" tab or a callback is misspelled you'll get an error like shown below.




This example shows an error how it occurs in the German version of Excel. In other versions it will most likely look different.

**Hint for Libre Office users:**

The predefined print areas may not work with Libre Office (They work fine with MS Excel). In this case you have to set them manually to avoid printing unwanted areas of the sheet (eg. Input fields).

## 12.9 HINTS FOR EDITING L&R MFDS, T&F MFDS AND GENERIC ICP

In opposite to the other DX device sheet you can't edit the description line. Instead you can change the DX button numbers here. That is due to the reason, that there are a couple of different devices which may have different orders of DX button numbers.

While assigning default functions is not an issue you **MUST** change the button numbers **BEFORE** you import callbacks to the device. Otherwise the order of imported callbacks will not be calculated correctly.

| Unshifted (Normal) Layer | | |
|---|---|---|
| DX Button # | Button Description<br>Do NOT drag & drop!!! | Edit this column only<br>Just Paste Specials (Values ONLY!!!) |
| 1 | *LMFD OSB 1* | SimCBEOSB_1L |
| 2 | *LMFD OSB 2* | SimCBEOSB_2L |
| 3 | *LMFD OSB 3* | SimCBEOSB_3L |
| 4 | *LMFD OSB 4* | SimCBEOSB_4L |
| 5 | *LMFD OSB 5* | SimCBEOSB_5L |
| 6 | *LMFD OSB 6* | SimCBEOSB_6L |
| 7 | *LMFD OSB 7* | SimCBEOSB_7L |

# 13 THE OWN DEVICE TABS

It is possible to create up to eleven Own devices, divided into one Primary Own and ten additional Own devices. Only the Primary Own can be selected as a primary input device if available. All other Own devices can only be selected as an additional device.

The idea behind the Own devices is, if you need more than one of the already pre-defined devices, you can make a quick and easy copy of this device. It is also possible to duplicate a device if you'd like to play around with the callback assignments without screwing up your initial settings.

You can use the macro feature described above or duplicate a device sheet manually. How this works is described below:

## 13.1 DUPLICATE DEVICES INSTRUCTIONS

**Step 1:** Choose one of the preset device sheets (E.g. TM Cougar).

**Step 2:** Mark the entire sheet and copy it. You can do it by clicking into a cell below the blue headline and hitting Ctrl - A twice and then Ctrl - C.

**Step 3:** Choose the Own # sheet where you want to put the data in (E.g. Own Primary).

**Step 4:** Mark cell A1

**Step 5:** Paste the data into an Own sheet (Ctrl - V).

From now on you have an exact duplicate of the source with the difference, that this tool handles it as a separate device. You must assign another controller number to it.

## 13.2 DELETE OWN DEVICES INSTRUCTIONS

**Step 1:** Choose the Own # sheet which should be cleared (E.g. Own Primary).

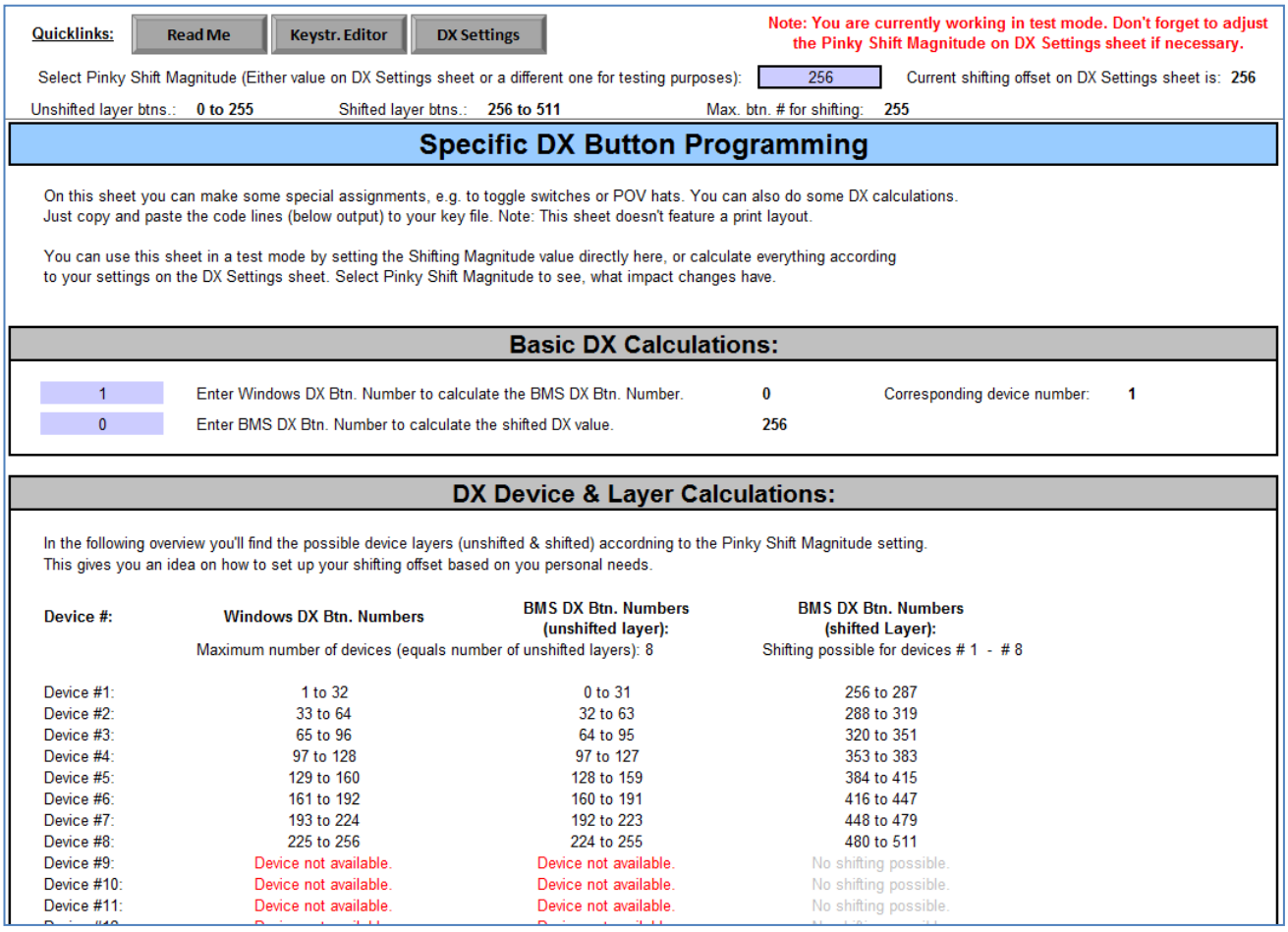
**Step 2:** Mark the entire sheet. See Step 2 of the instructions above

**Step 3:** Hit Del (delete) button

**Step 4:** What remains are the formatting, the link buttons and the graphic objects. You have to delete them manually.

# 14 THE DX SPECIFICS TAB

On this sheet you can generate some special code lines, e.g. for toggle or 3-way switches, etc.



Quicklinks: Read Me | Keystr. Editor | DX Settings

Note: You are currently working in test mode. Don't forget to adjust the Pinky Shift Magnitude on DX Settings sheet if necessary.

Select Pinky Shift Magnitude (Either value on DX Settings sheet or a different one for testing purposes): 256 Current shifting offset on DX Settings sheet is: 256

Unshifted layer btns.: 0 to 255 Shifted layer btns.: 256 to 511 Max. btn. # for shifting: 255

**Specific DX Button Programming**

On this sheet you can make some special assignments, e.g. to toggle switches or POV hats. You can also do some DX calculations.
Just copy and paste the code lines (below output) to your key file. Note: This sheet doesn't feature a print layout.

You can use this sheet in a test mode by setting the Shifting Magnitude value directly here, or calculate everything according to your settings on the DX Settings sheet. Select Pinky Shift Magnitude to see, what impact changes have.

**Basic DX Calculations:**

| | | | |
|---|---|---|---|
| 1 | Enter Windows DX Btn. Number to calculate the BMS DX Btn. Number. | 0 | Corresponding device number: 1 |
| 0 | Enter BMS DX Btn. Number to calculate the shifted DX value. | 256 | |

**DX Device & Layer Calculations:**

In the following overview you'll find the possible device layers (unshifted & shifted) accordning to the Pinky Shift Magnitude setting.
This gives you an idea on how to set up your shifting offset based on you personal needs.

| Device #: | Windows DX Btn. Numbers | BMS DX Btn. Numbers (unshifted layer): | BMS DX Btn. Numbers (shifted Layer): |
|---|---|---|---|
| | Maximum number of devices (equals number of unshifted layers): 8 | | Shifting possible for devices # 1 - # 8 |
| Device #1: | 1 to 32 | 0 to 31 | 256 to 287 |
| Device #2: | 33 to 64 | 32 to 63 | 288 to 319 |
| Device #3: | 65 to 96 | 64 to 95 | 320 to 351 |
| Device #4: | 97 to 128 | 97 to 127 | 353 to 383 |
| Device #5: | 129 to 160 | 128 to 159 | 384 to 415 |
| Device #6: | 161 to 192 | 160 to 191 | 416 to 447 |
| Device #7: | 193 to 224 | 192 to 223 | 448 to 479 |
| Device #8: | 225 to 256 | 224 to 255 | 480 to 511 |
| Device #9: | Device not available. | Device not available. | No shifting possible. |
| Device #10: | Device not available. | Device not available. | No shifting possible. |
| Device #11: | Device not available. | Device not available. | No shifting possible. |

It features the following options:

**Pinky Shift Magnitude Setting:**

Set your Pinky Shift Magnitude here or adopt it from the DX Settings sheet. It shows you also which DX button numbers are available in unshifted and shifted layers. Setting a value other than “DX Settings” let’s you run all calculations on this sheet in a test mode. So no need to switch back and forth while testing. Some checks have been added to prevent users calculating wrong DX shift offsets with are not possible with current settings.

**Basic DX Calculations:**

Calculates the BMS DX button number from your Windows DX button number and the shifted value according to your Pinky Shift Magnitude settings.

**DX Device & Layer Calculations:**

This is an overview about all possible device layers (unshifted & shifted) according to the Pinky Shift Magnitude setting.

**Single DX Code Line:**

You can make one single DX code line for unshifted and / or shifted layers.

**Toggle Switch:**

This generates a DX code line for a toggle switch by using only one DX button number.

**3-way Switch – Middle position has one function:**

It calculates the DX code lines for a 3-way switch by using just 2 DX button numbers. The middle position has only one function.

**3-way Switch: - Middle position has different functions:**

Same as above but here the middle position has two different functions.

**POV-Hats:**

Make assignments to POV hats (one, two or four).

# 15 FINALLY

Hope you find this tool useful. If you have any issues, remarks suggestions etc. feel free to drop me a note via pm or leave a reply in this forum thread.

Kolbe

# 16 APPENDIX

Some of the screenshots are very small. Here you can see them a little better. I focused on only important ones.

**Page 18 – Filter Options:**

| Cat. | Sec. | Callback Name | Use in Key File | Set Modifier | Set Key | Use Key Combo | UI Description | UI Visibility | Keyboard Description | Input Check | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Filter Options: | | | | | Do NOT drag & drop! Paste Values ONLY! | | | | Cause of a wrong setting. |

**Page 22 - Input Check & Comments:**

| Cat. | Sec. | Callback Name | Use in Key File | Set Modifier | Set Key | Use Key Combo | UI Description | UI Visibility | Keyboard Description | Input Check | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Filter Options: | | | | | Do NOT drag & drop! Paste Values ONLY! | | | | Cause of a wrong setting. |
| | | SimDoNothing | yes | none | F9 | no | 3RD: TrackIR Pause | locked | TIR Pause | ok | Check 3rd Party Software Conflict. |
| | | SimDoNothing | yes | none | F12 | no | 3RD: TrackIR Recenter (See also 6.06) | locked | TIR Recenter | ok | Check 3rd Party Software Conflict. |
| | | SimDoNothing | yes | none | F9 | no | 3RD: FRAPS Video Capture | locked | FRAPS Video | ok | Check 3rd Party Software Conflict. |
| | | SimDoNothing | yes | none | F12 | no | 3RD: FRAPS Overlay | locked | FRAPS Overlay | ok | Check 3rd Party Software Conflict. |
| | | SimOverHeat | yes | none | none | yes | TEST: FIRE & OHEAT DETECT Button - Hold | visible | Fire&Oheat Detect | check | Select no or assign a key. |
| | | SimOBOGSBit | yes | Shft | none | no | TEST: OXY QTY Switch - Hold | visible | Oxy Qty Switch | check | Remove modifier or set a key. |
| | | SimMalIndLightsOFF | yes | none | F3 | no | TEST: MAL & IND LTS Button - Release | visible | MalIndLts Rel | critical | Two or more identical key bindings. |
| | | SimProbeHeatOn | yes | none | Return | no | TEST: PROBE HEAT Switch - ON | visible | Probe Heat On | critical | Two or more identical key bindings. |
| | | ExtinguishMasterCaution | yes | none | Return | no | EYE: MASTER CAUTION Button - Push | visible | Master Caution | critical | Two or more identical key bindings. |
| | | SimICPIFF | yes | none | F3 | no | ICP: IFF Button - Push | visible | ICP IFF | critical | Two or more identical key bindings. |

**Page 23 - Input Check & Comments:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SimOverHeat | no | none | F1 | no | TEST: FIRE & OHEAT DETECT Button - Hold | visible | Fire&Oheat Detect | check | Not used in file, but changes are made. |
| SimOBOGSBit | yes | none | F2 | no | TEST: OXY QTY Switch - Hold | visible | Oxy Qty Switch | critical | Two or more identical key bindings. |
| SimMalIndLights | yes | Shft | none | no | TEST: MAL & IND LTS Button - Hold | visible | MalIndLts Hold | check | Remove modifier or set a key. |
| SimMalIndLightsOFF | yes | none | F2 | no | TEST: MAL & IND LTS Button - Release | visible | MalIndLts Rel | critical | Two or more identical key bindings. |
| SimProbeHeatMoveUp | no | none | none | no | TEST: PROBE HEAT Switch - Step Up | visible | Probe Heat Up | ok | |
| SimProbeHeatMoveDown | yes | Alt | Tab | no | TEST: PROBE HEAT Switch - Step Down | visible | Probe Heat Dn | critical | Windows critical key combination. |

## Page 24 - Key Combo related messages:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SimRandomError | yes | none | none | yes | SIM: Random Error | visible | Random Error | check | Select no or assign a key. |
| CommandsSetKeyCombo | yes | Alt | C | | SIM: Key Combination Keys (KeyCombo) | visible | KeyCombo | ok | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SimRandomError | yes | none | none | yes | SIM: Random Error | visible | Random Error | check | Set keys for Key Combo or select no. |
| CommandsSetKeyCombo | yes | Alt | none | | SIM: Key Combination Keys (KeyCombo) | visible | KeyCombo | check | Set modifier AND key. |

## Page 24 - Special 3rd Party Software messages:

| Use in Key File | Set Modifier | Set Key | Use Key Combo | UI Description | UI Visibility | Keyboard Description | Input Check | Comments |
|---|---|---|---|---|---|---|---|---|
| | | | | Do NOT drag & drop! Paste Values ONLY! | | | | Cause of a wrong setting. |
| yes | none | F9 | no | 3RD: TrackIR Pause | locked | TIR Pause | ok | Check 3rd Party Software Conflict. |
| yes | none | none | no | 3RD: TrackIR Recenter (See also 6.06) | locked | TIR Recenter | ok | |
| yes | none | Scrl Lock | no | 3RD: Teamspeak PTT | locked | TS PTT | ok | |
| yes | none | Num * | no | 3RD: Teamspeak Broadcast | locked | TS Broadcast | ok | |
| yes | Shft | Num * | no | 3RD: Teamspeak Toggle Mike On/Off | locked | TS Toggle Mike | ok | |
| yes | Ctrl | Num * | no | 3RD: Teamspeak Toggle Speaker On/Off | locked | TS Tog Speaker | ok | |
| yes | none | F9 | no | 3RD: FRAPS Video Capture | locked | FRAPS Video | ok | Check 3rd Party Software Conflict. |

## Page 25 - Notes on Appendix

### 9. Appendix: OUTDATED

**9.01 OUTDATED LIST**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SimDesignate | | none | none | no | Same as TMS up | ok | |
| SimDropTrack | | none | F1 | no | Check other function. | critical | Keys already in use - check link. |
| SimACMBoresight | | Ctrl | none | no | Same as TMS up, also controlled via MFD | check | Check keys (wrong setting) |
| SimACMVertical | | Ctrl | F8 | no | Same as TMS right, then down, also controlled via MFD | ok | Keys can be applied to function (see link). |
| SimACMSlew | | Ctrl | F7 | no | Invoked by cursor, also controlled via MFD | check | Function has assigned keys - see link. |
| SimACM30x20 | | Ctrl | F6 | no | Same as TMS right, also controlled via MFD | ok | Keys can be applied to function (see link). |