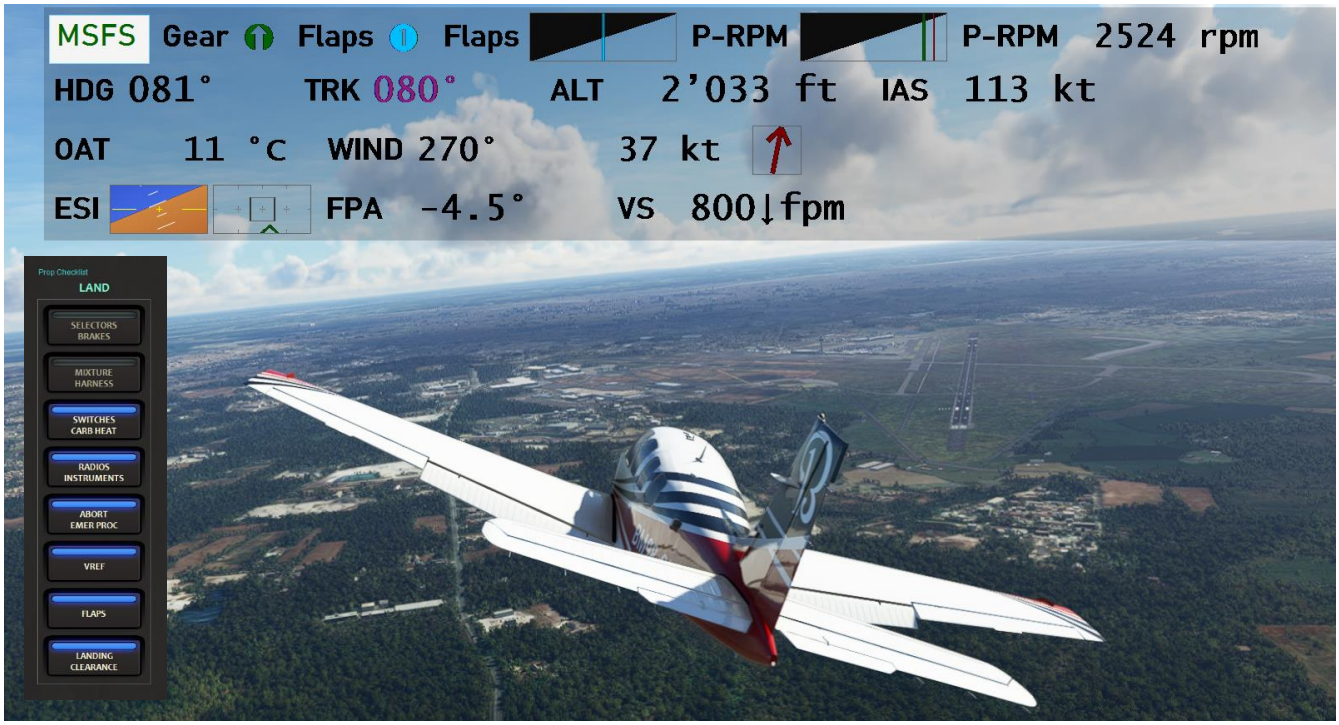
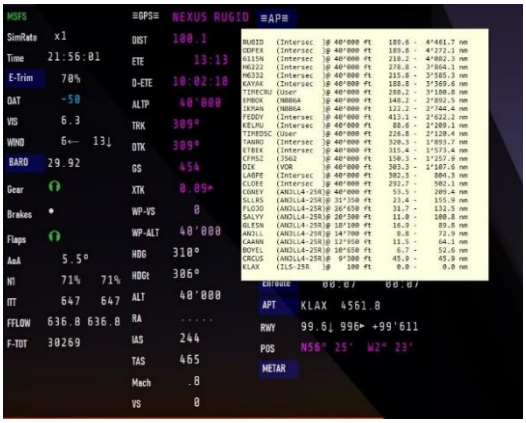
MSFS HudBar V 0.72.0.72

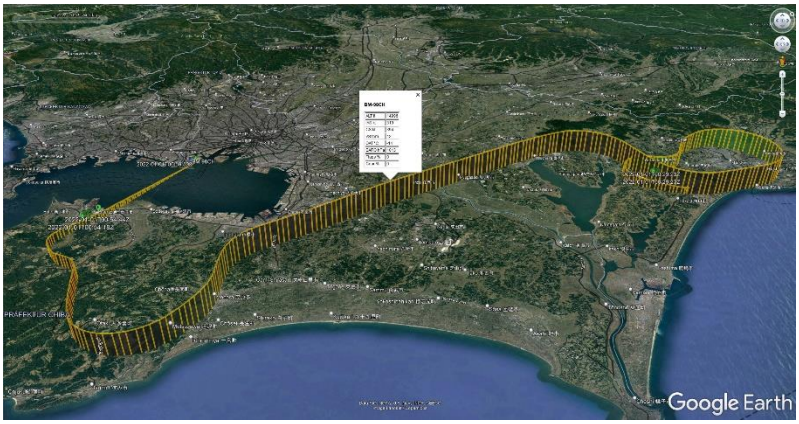
See (V0.72) indications for updates from the previous version (V0.71)

Display essential Information as Bar or Tile at any side of the primary screen Or use the Window to have it anywhere you like

- Displays more than 100 essential aircraft and flight information items as Bar, Tile or Window
- Supports 1,2,3 and 4 engine aircrafts (Prop/Engine RPM, N1, Fuel Flow for each)
- Provides 10 different content profiles which are fully configurable
- The pilot can directly activate Autopilot commands
- Auto Elevator Trim on a click
- Bottom/Top Bars work best with wide screen monitors
- AutoSave of the Flight (FLT file) at 5 Min intervals
- Flight Recorder, create KML + Json file as KMZ file
- Flight Bag – display image documents with zoom and drag, Map, METAR, Perf., Notes
- Camera Management Console
- Checklist Box







V 0.72 News

- Updated the FacilityDataLoader to load streamed FS2024 facilities
  See separate chapter ‘Data Loader’ below on how to do it

- Added FS2024 WASM Module (different from FS2020 one !!!)
  See page 4 for details

- Uses the FS2024 Facilities database when available, else FS2020 one when available
- Added Ball, Slip indicator graph item (works with aircrafts supporting it)
- Added Collective Handle Position
- Added Export / Import of Profile Settings in Configuration
- Added Sim EFB Planned Route decoding for FS2024 (preliminary)
- Added Pull Sim EFB Planned Route as Flight Plan for FS2024

Camera

- Fixed CameraControl cannot read saved slots when the locale decimal sign is not a decimal point

Old News

The occasional stutter when saving FLT files for backup is still there ☹

Content

Installation

- Deploy the release all zip content in a folder (no installer provided or needed)

- You will find a **Sim module** which allows to set aircraft/instrument specific values.

The module for **FS2020** is provided as Zip file: **BM98CH_DataConnector_Wasm-Vx.y.zip** (version will change when updated)

This module needs to be unzipped and placed into the Community folder as any other Sim extension.
It will reside there as 'BM98CH_DataConnector_Wasm' folder).

The HudBar will run without this additional module – however some commands will not work without.

Among others the module allows to have some features working for the G1000Nxi and the WTG3000 mod and other aircrafts.

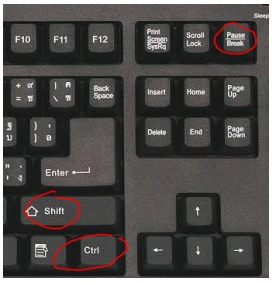
Note for MSFS 2024 (new V0.72):

There is now WASM native support for MSFS2024.

Place the included WASM Module for FS2024 into the MSFS 2024 Community folder.
Note: the locations depend on installation preferences on your PC.

The WASM is a Zip file named: **BM98CH_DataConnector_Wasm2024-V4.x.zip** (where x is the minor version number)
This module needs to be unzipped and placed into the Community folder as any other Sim extension.
It will reside there as 'BM98CH_DataConnector_Wasm2024' folder

Usage



Best is to start MSFS first, then the Bar (but the Bar should connect the sim in any case - MSFS turns green)

- Start MSFS2020 first and once the Main Menu is shown
- Start FS20_HudBar.exe
- It attempts to connect to the Flight simulator in 5 sec intervals, but shows MSFS in red while it cannot connect
- Note: the shown values are a bit meaningless until the aircraft and flight is live
- Also note that the bar is initially shown on the **++PRIMARY monitor++** at the bottom of the screen
  If you wish to attach a **Bar** or **Tile** to another monitor
  use <RightCtrl+RightShift+Break> to cycle it around the detected monitors
  But first enable Keyboard Hotkeys in Configuration

  If you are using it the first time, there are some default profiles set.
  – just head straight to the Configuration and check the ones you like (right click the bar – Configure...)!

- **Right** Click the Bar and choose from the pop up menu
  - To **select** a Profile (1..10 - your names)
  - To **Configure**.. to check or uncheck the items to be shown
  - To **Exit** and stop the program

- The Hud can be shown as **Bar** or **Tile** or **Window** or **Borderless Window**
  (to be changed in Configuration, default is Bar at the Bottom of the screen)
  - Bar: a full width window attached to the defined side of the screen
  - Tile: a window sized to accommodate the selected items
    A Tile can be moved freely along the side where it is attached to
  - Window: like Tile but freely movable with a window bar
  - Window no border: like Tile but freely movable without window bar

Compatibility / Limitations

Some aircraft do not provide or do not synchronize data with the Simulator as expected.
Such aircrafts maintain their own internal models and act properly but do not share or interact well with the generic simulation where the HudBar takes the data from or sends commands to.

This affects mostly the Autopilot and/or GPS functionality.

I found that with some aircrafts some data are plainly wrong, and commands don't really work.

The Garmin G1000Nxi and G3000 Mods from WT does not share all data but is mostly OK.

There are also bugs in the Asobo/MS sim code which prevent proper sharing or interacting with SimConnect as well. Some are said to be fixed in SUnn… now - still waiting…

Other limitations are minor and are varying by aircraft – so you may find some issues for certain data items.

Some of the limitations are resolved when using the provided Sim Extension Module (see above where to install it)

Aircrafts and FMSs with custom crafted compatibility modules are:

A310 (stock IniBuilds), A320 (Fenix) , A320NX (FlyByWire) , A380X (FlyByWire), B747-8 (stock WT), B787-10 (stock WT), CJ4 (stock WT), Longitude (stock WT), H-Jet 420 (FFX), Kodiak100 (SWS), TBM930 (stock WT), V-Jet (FFX),

G1000nxi (stock WT), G3000 (stock WT), WT21 (stock WT), KAP140 (stock WT)

Stock = in either of the MSFS editions, WT=WorkingTitle enhanced

These are the ones that have been checked to an extent, as each aircraft is modelled slightly different you may encounter items that will not work or behave strange – let me know **with some description of the issue**.
i.e. Sim version, aircraft, situation, what does it and what would you expect it to do

V0.72 new

The Data Loader for the Navaids and Airport database will capture MSFS2020 content and new also attempts to capture MSFS2024 data which is streamed and not available on the local PC hard disks.

The Data Loader will give you the option to choose from either source but for FS2024 the Sim App needs to be running in order to capture data.
There is a separate chapter on this topic below.

What is shown

Fields can be selected to be shown in the Configuration Window

The sequence can be adjusted to your needs in Configuration

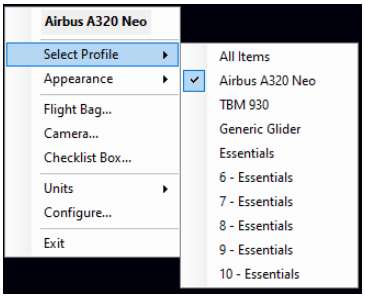
From the Left - MSFS indicates if the Bar is connected to the Simulation (**red** if not connected)

Then there are: Trim, Gear, Brakes (Park), Flaps

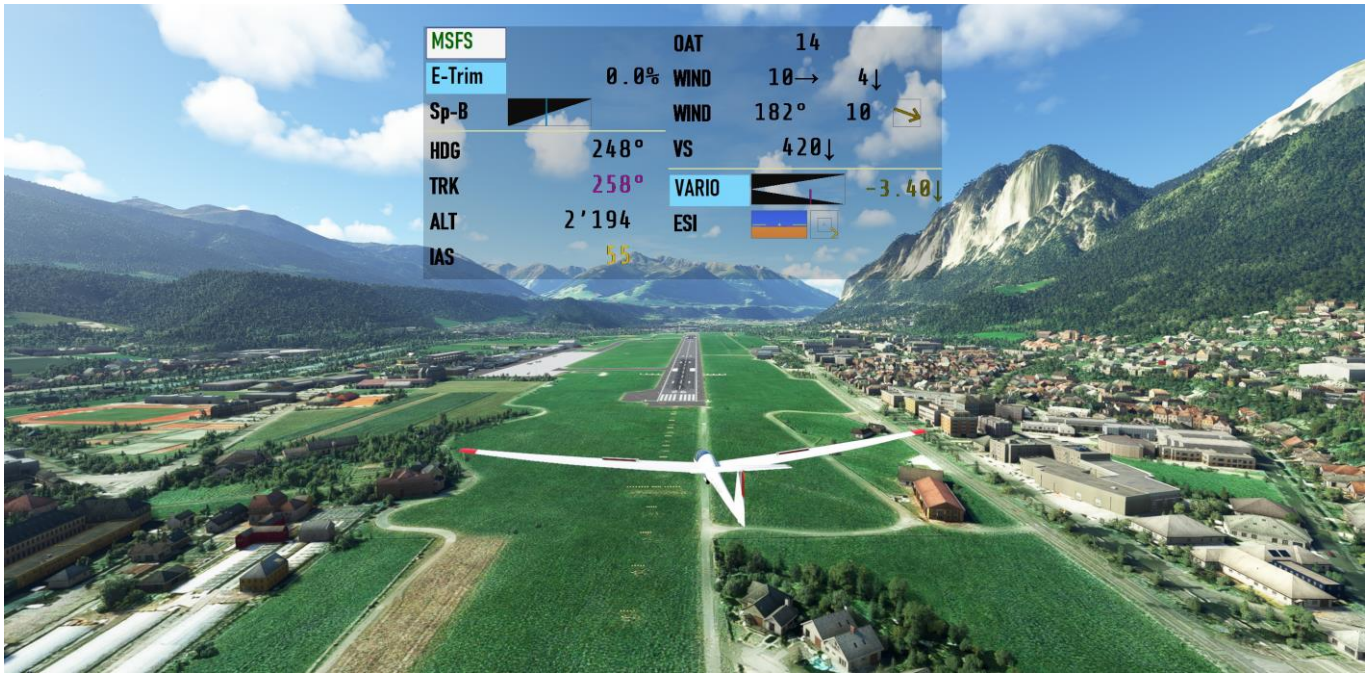
Followed by: Engine Values, GPS data, Aircraft data and Auto Pilot Indications, Checkpoint meters

See below for some of the items available

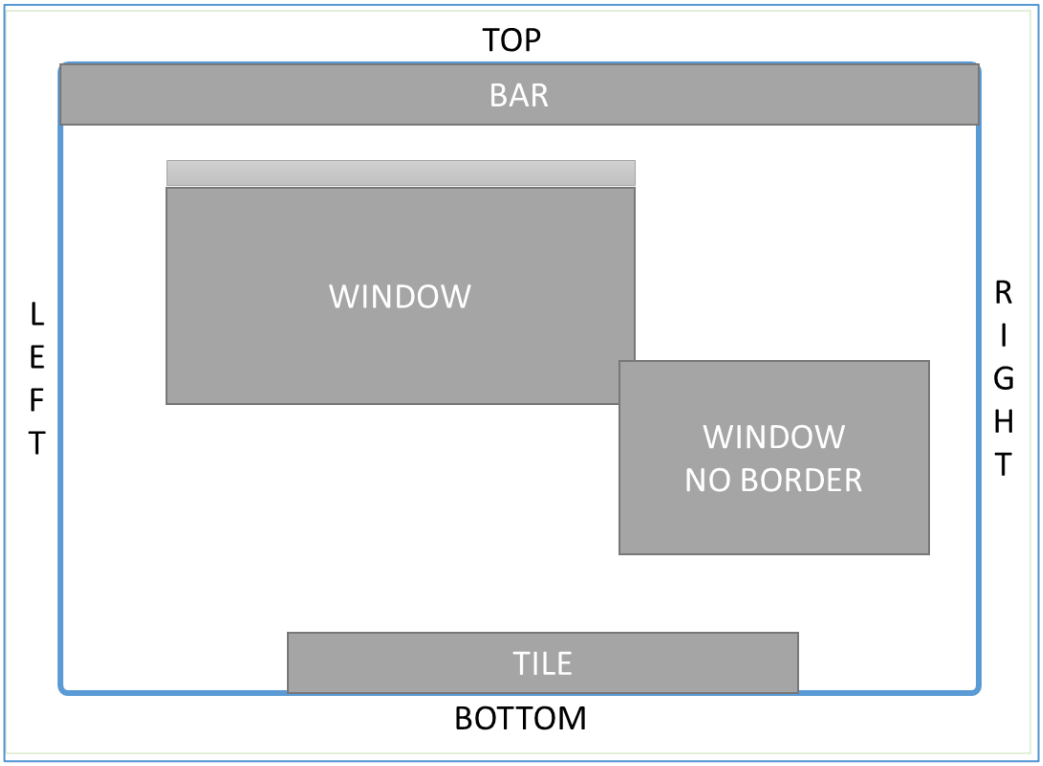
Use the right mouse click **context menu** to change profiles:
Menu -> Select Profile -> “click the one to show”



In Configuration you may change the items shown as well as the order and the general stacking direction, fonts and size of the items as well as transparency of the HudBar (well it is no longer only a Bar…).



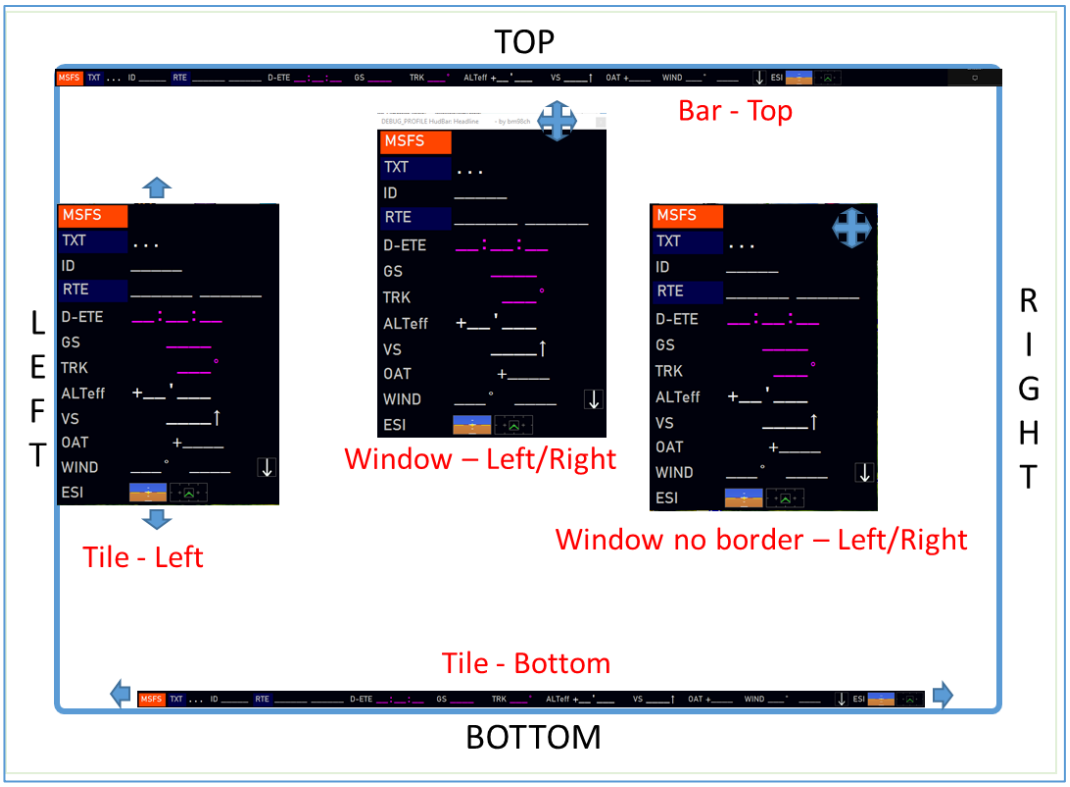
How it is shown



Configuration allows to choose the HudBar kind and placement for each profile.

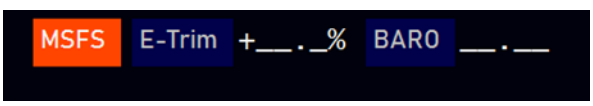
Where Kind: Bar, Tile, Window, Window no border
Where Placement: Bottom-, Left-, Right-, Top-bound and TopStack mode

Bar and Tile are always tied to the respective border of a display (monitor), Windows are freely moveable.

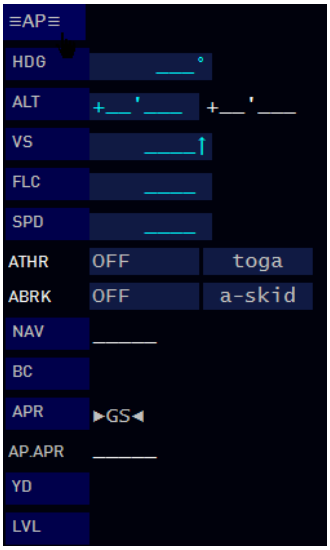


TopStack mode is Labels and Values are stacked instead of lined up

vs. Top



Clickable Commands



In general when you see a label with a dark blue background and when hovering with the mouse pointer it turns to a hand cursor – the item is actionable.

Autopilot commands

Actionable autopilot command are:

-AP-, HDG, ALT, VS, FLC, etc.

Clicking them will toggle the state if this is supported by the Sim

Setting the BARO to the current pressure

Click **BARO** to set it to current (same as the keyboard B button)

Reset SimRate to 1x

Click **SimRate** to set it back to 1x

E-,R-,A-,H-Trim Reset

Click the label to set the trim value to 0% (reset Trim)
Trim values get a warning (orange) background if >90% or <-90%

Automatic Elevator Trim was removed as it is available in the MSFS Settings

METAR

The **APT** and **METAR** action labels will retrieve the latest Metar information from an external server when clicked (see also chapter METAR Data Retrieval).
Once the information is available the Background will turn to the FlightCondition color (green, blue, red, magenta, orange(below ILS)) and hovering the mouse over the label will show the Metar message in plain text.
→ Be aware that for some airports and locations there is no Metar available, then it tries to find the closest weather station within a range, if this does not succeed the Background color remains dark blue.

APT tries to retrieve the Metar from the Airport ICAO ID shown or the closest weather station.
METAR gets the Metar from the nearest weather station found within max. 500 Statute miles in direction of flight (current bearing when clicked), the returned station is sometimes not really what one expects, but what the Metar server provides… (Cannot change it though).

The Metar is real weather information at the location i.e. suitable when using Live Weather.
– Sim weather cannot be retrieved outside the sim.

Moving a Tile Hud or Window without border

If a profile is set as **Tile** one is able to move the window along the bound edge of the screen

If a profile is set as **Window no border** one is able to move the window anywhere on any screen

Movement is available if the cursor shows up as Cross with Arrows

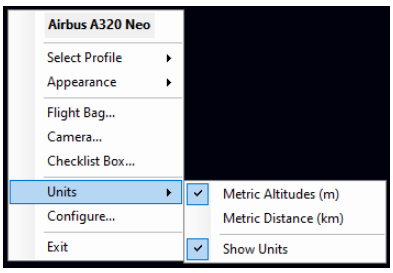
Click the **Left** mouse button and drag the window, it will remain attached to the bound border while moving it if it is a **Tile** else you can move it anywhere.

Units

Show Units can be applied while the HudBar is running.

Context Menu (**Right click -> Units -> Show Units**)
the units will be shown right of the number (no change from before).
Note: when switching, the HudBar will be redrawn with the new item sizes needed. It may take up to 5 sec in order to have the display fully reconfigured – stay patient for a moment.
Units will appear as soon as the HudBar is connected with the Sim and numbers are shown!

Metric Altitude and Distance



While a number of items have distinct units of measurement (e.g. Fuel in gal, lbs, kg) there is now a menu option to change Altitude ft → m and Distance from and nm → km this includes their rate extensions.
(**Right click -> Units -> Metric …**)

Clicking the line item with the mouse will toggle the check mark and hence the values shown in the HudBar as soon as it is connected to the Sim.

This affects the items which are listed below:

Altitudes: ft → m – shown for altitude of aircraft, radio altitude, airport elevation, and GPS alt. values
Vertical rate: ft/Minute → m/Minute – shown for the vertical rate (speed) items.
Exempted are the glider targeted V-Speed items in kt/min and m/sec which are separate items that will not change with this option.

Distances: nm → km - shown for DME range, airport distance, checkpoint, and GPS distance values
Speeds: kt (nm/h) → km/h – show for IAS, TAS, GS
Wind speed: kt → m/s – shown for the wind speed items

Drawn Scale Items

Graphic items are available for most properties where there is a defined range i.e. Percent Values, the VARIO, Spoilers, Flaps. If the SimConnect interface does not provide a hint of a valid range, sorry there is no graph…

There are a number of different graphs:

% Range Items

e.g. Propeller RPM – the full range is 0..110% with a red bar at 100% - the value below is Prop RPM 1999 and 100% is given as 2000 from the Acft. Config file. If the value goes above 105% the background turns reddish.

If there are two items e.g. engines, tanks – it is always L (upper) and R (lower) the graph is split in two sections. Above right the tanks for L and R where the lower warning range (yellow bar) is set to 25% and the filling is about 50%. (BTW. sometimes the limits are off… - not updated or otherwise wrong, needs a fix by the Acft. Designer)

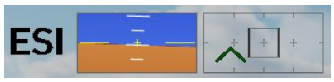
Flaps and Spoilers/Speed Brake

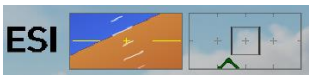
0..100% and the bar indicates the position (here about 30%)

Or Flaps Position 1 = 50% of a Bonanza G36

The ‚ESI Panel'

Left part is an attitude display with +-10° v-scale with small marks at +-5° and +-15°, larger marks at +-10°, +-20°. The right part a flight path indicator where the full vertical scale is +-6° from center. The horizontal scale of the flight path indicator is +-12°.





Center square is +-3° in all directions. Marks indicate 6°.

For the flight path the vertical deviation is the flight path angle and the horizontal deviation is Track-Heading where the center is the heading of the Acft.
If the range is exceeded the Attitude display shows two bars on top or bottom.

The flight path will have a yellow arrow on the side it went off screen. It still tracks the one dimension which is in range – see above right for an example. The track is off by < -12° from heading but the FPA is 1.7°.
This was an upwards turn with 35kt wind from the left side.

The VARIO

The VARIO is folded in two parts. Left is 0, right upper is 5m/s max, lower is -5m/s max, the upper scale shows a green bar, the lower a magenta one. The number is a damped value (kind of an average but not quite..)

Wind Arrow

Direction from where the wind hits the Acft nose.

The color of the arrow follows a Beaufort scale: <=1(1kt); Green: <=3(7kt); Yellow: <=5(16kt); Orange: <=7(28kt); Red: <=9(41kt); Magenta: >9

➔ **In general one needs a larger Font to use graphic items, else they may become unreadable. Also great while in 3P to maintain some oversight.**

Other information

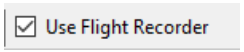
Flight Recorder:

If **enabled** in **Configuration** HudBar records the flight and provides a KML (Google Earth etc.) file and in addition a JSON data file.

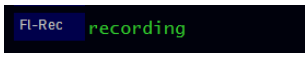
The KML file is zipped as compatible **KMZ** file. The JSON file is included in this archive in the `'files'` folder.

Find it in `<MyDocuments>\MSFS_HudBarSave\` as `YYYY-MM-DDThh_mm_ss.kmz` file.
KMZ files can be opened in Google Earth the same as KML files.

To enable go to **Configuration** and check **Use Flight Recorder**



To toggle recording on/off use and **click** the HudBar Item **Fl-Rec**:



Toggle ON (**recording**) will start and collect data at intervals until toggled OFF again.
Intervals are derived from the flight dynamic (1 up to 8 sec intervals)

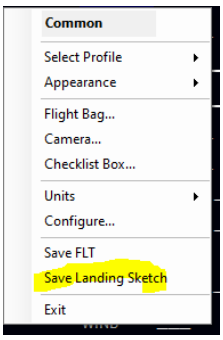
Each time it is toggled **OFF** (not recording) a KMZ file of the captured data is written.

The KML recording shown in Google Earth provides a graph of the recorded flight which can be animated using the GE Track Player.

Each vertical line is a 5sec marker and can be clicked to show some inflight data at this point.
Green place marks F, G indicating change of Flaps and Gear, R and T for Takeoff and Touchdown.

Landing Sketch

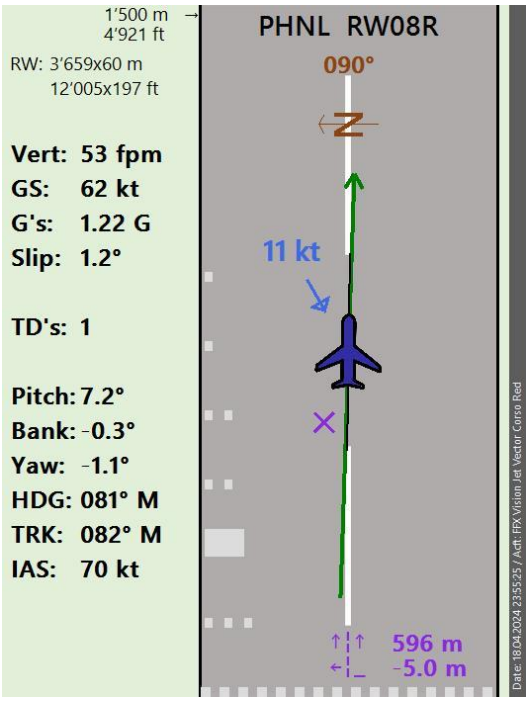
A sketch of the landing is provided as PopUp when **hovering over the 'MSFS' label of HudBar**.



The image can be **saved** using the right click menu '**Save Landing Sketch**'

Landing data and images are saved in "<USER-DOCUMENTS>\MSFS_HudBarSave\landings"

Note: the TouchDown log file is now also there (TouchDownLogV3.csv)



The left side shows data derived from the SIM.

The aircraft icon at touch down is always shown in the middle of the sketch and has no positional relation to the runway other than the upwards direction.

Direction UP is either the runways true bearing or the aircrafts true ground track if the runway cannot be found.

The green arrow represents the magnetic ground track of the aircraft at touch down and the angles as shown as indicated where left is neg. degrees.

Wind direction is as seen from the aircrafts pilot view and in knots.

Slip is the Sideslip angle from SIM data.

TDs is number of touch downs (bounces if more than one)
The Data shown and the sketch is derived from the first TD.
The Logfile contains all detections with their data.

The sketch provides information about the Airport and Runway if HudBar is able to figure out the landing airport and runway, else it shows n.a. (happens sometimes).

When a runway was detected:

- Airport and runway id are shown (PHNL RW08R in the example)
- Direction UP is the runway TRUE bearing in degrees (090° in the example)
- The width and height scales are independent i.e. the image does NOT represent the real runways proportions.
- The sketch will show a maximum of the first 1500m (~5000ft) of the runway and the top distance from the threshold is given as number (1500m in the example)
- The runway markers depend on width and length of the runway and are according to ICAO guidelines or FAA for long runways at K, PA, PH airports (i.e. 1000ft aiming point where ICAO recommends 400m).
- Purple markings are the detected touch down point if within the shown runway limits.
  The cross X marks the touch down point and the numbers are the deviation from center left or right and the distance from the runway threshold. (e.g. 5m left of center and 596m into the runway in the example)

Note: it might be possible that HudBar detects a wrong runway… the detection is based on the aircrafts coordinate and track at touch down and expects this to be in reasonable limits.

RTE (Route) Item (Updated V0.72)

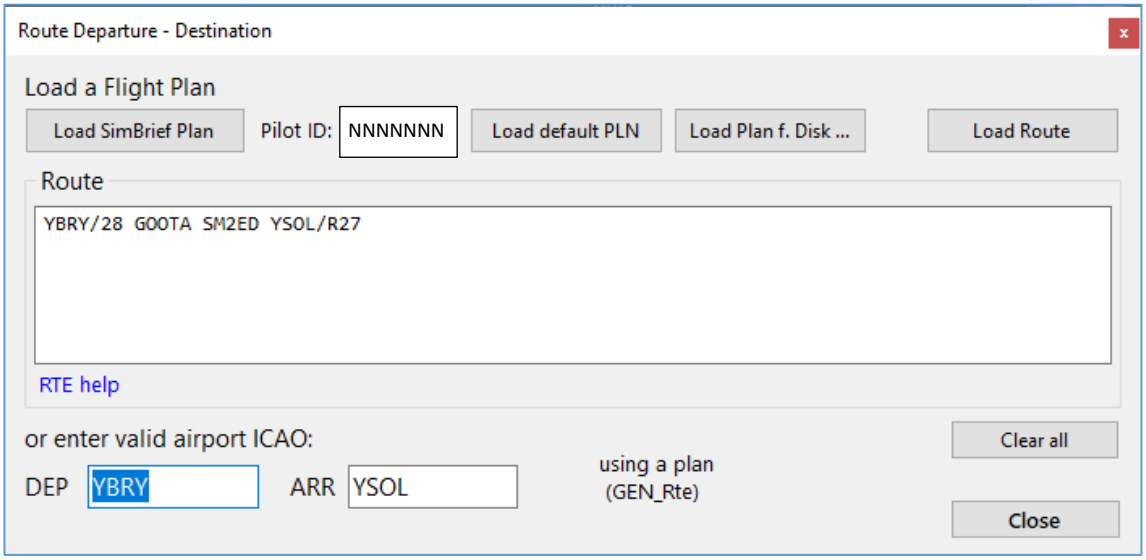
Clicking the label of the RTE item allows now to enter departure and arrival ICAO or load a flight plan directly instead of going through the flight bag.

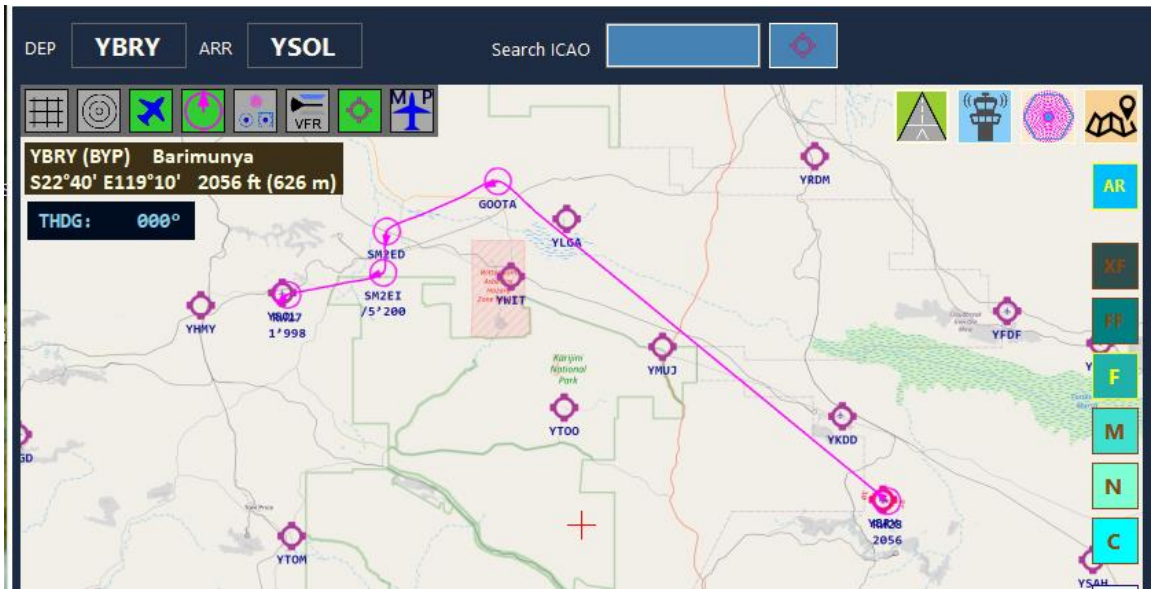
A flight plan is used to track the GPS waypoints for flights in aircrafts where the waypoints are not or wrongly exported to the Sim. (most don't do it well …).

The included tracking module attempts to locate the previous and next waypoint if a plan is available.

You may load a plan from various sources:

- SimBrief default plan "Load SimBrief Plan"
- For FS2020: The default PLN which was filed via Sim User Interface "Load default PLN"
- For FS2024: The EFB planned route i.e. the currently active flightplan (V0.72 new)
- A plan file from your disk "Load Plan f. Disk…"
- Enter a route string (e.g. from Navigraph app or manually crafted) paste into the Route pad then click "Load Route" as shown below.





To just use DEP and ARR airports, enter them and Close the dialog

Note: to enter your SimBrief Pilot ID open the flight bag and enter it in the Config tab.

Interactions:

1) We have seen small disruptions (stutter) when saving an FLT files in MSFS.
To accommodate **AutoSave** is now a drop down allowing to choose from:

AutoBackup Disabled, **AutoBackup (5 Min)**~~, AutoBackup + ATC~~

Where:

- **AutoBackup Disabled** is no FLT saving from the App at all.
- **AutoBackup (5 Min)** will save and backup an FLT file only every 5 Minutes

2) The **Auto Pilot** Settings for **HDG**, **ALT**, **VS** and **FLC** accept **mouse scroll** input (the cursor is a NS arrow).
You may dial the setting Up and Down with the mouse wheel.
Note: as the Sim captures the mouse wheel for zoom (default) you may need to click in an empty space of the bar or otherwise out of the Sim window in order to not adjust AND zoom at the same time (cannot help here..)

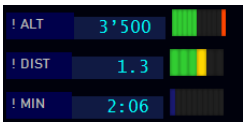
3) The App is able to handle hotkeys in order to **show/hide the Bar** and to **switch Profiles** (see **Hotkeys** below)

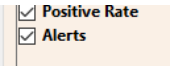
Checkpoint Lapse Meter:

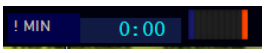
- Click one of the CP1..CP3 labels to start the meter, it shows the time elapsed and the distance from the trigger location (Lat/Lon Distance). The label turns green when clicked once.
- Click again to re-start the meter
- Double Click to Stop

Alerts

There are 3 Alert items provided and all three have the same functionality as described below.



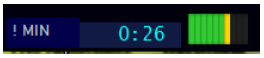




- Clicking the left alert label will change the Alert Type (rotating through the available types)
- Alerts have a target value i.e. the value to trigger the alert.
- Target values can be dialed using the mouse scroll wheel up/down on the number field (left half = coarse, right half = fine steps).
- Alerts have fixed limits from where the provided LED bar starts to illuminate.
- Depending on the alert the LED bar elements represent a value step away from target (LED Step).
- If an alert is first triggered a **chime** is issued (two bell tones) and, if enabled, a **callout** is made.
- Once an alert is triggered the rightmost LED element (red) stays on until reset.
- An alert can be reset by clicking the LED bar with the mouse.
- Timer and Distance will count down but can be redialed at any time.
- The timer will remember its target value and restart with the same duration when reset.
- The timer will work on ground where all others don't update or trigger when on ground.

Alert Type	!OFF	!ALT	!AOG	!V/S	!SPD	!DIST	!TIME
Base Unit	-	Ft	Ft	Ft/Min	Kt	Nm	Min
Target range	-	0..60 000 Instr.	0..2 500	+-9 000	0..600 IAS	1..1 000	1..1 000
Dial coarse	-	1 000	200	500	10	10	10
Dial fine	-	100	10	100	1	1	1
Illum. Limit	-	+-1 000	+-200	+-300	+-20	+5	+1.5 (90sec)
LED Step	-	100ft	20ft	50fpm	2kt	1nm	10sec
Callout	-	Altitude	Ground	Vertical Rate	Airspeed	Distance	Time

- ALT is based on the instrument altitude reading (not MSL)
- SPD is based on IAS reading
- DIST is based on collected distance flown
- TIME is based on Sim Time i.e. affected by the SimRate setting.



Changing the Unit for the HudBar will cause the target values to change as well but the increments remain the same which gives odd step numbers in SI units.
Alerts are only actionable when the Sim is connected.

Waypoint Estimates:

WP-VS – Which VS is required to arrive at the next Waypoint at the set altitude given the current GS assuming a straight flight. This requires to have a next Waypoint and its altitude other than zero, the altitude target is ALTP. The target altitude may change to a blue indication and using the AP set altitude when there is no GPS target altitude (=0).

WP-ALT – At which altitude is the aircraft when reaching the next Waypoint given the current GS and VS.
This requires to have a next Waypoint.

Flight AutoBackup (was AUTO SAVE)

Sometimes the Sim may let you down and exit for some reasons…

If in **Configuration** you do NOT Disable **AutoBackup** the program will capture Flight files (.FLT) at regular intervals to retrieve flight plan information.
Having such files available allows the HudBar to copy them into a convenient location to maintain a flight backup in case needed. Saved FLT files are modified in order to allow you to go with the full MSFS menu.

The program saves such files every 5 Minutes and maintains a maximum of 12 files (last hour).
AutoSave files are not flight dependent – if you want to store them for later, copy them away into a new location, else they will eventually vanish while doing the housekeeping.

The AutoSave location is the Users `MyDocuments\MSFS_HudBarSave` folder

Files are named: `AutoSave_YYYY-MM-DDThh_mm_ss.FLT` (e.g. `AutoSave_2021-08-22T16_19_35.FLT`)

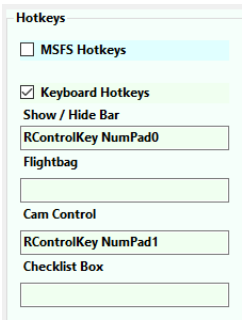
Note: During Missions the Sim is usually maintaining AutoSaves on its own and the HudBar will not save additional ones.

Audible RA

There is a second RA (radio altitude) readout with the item name **RAv** which announces altitudes of 400, 300, 200, 100, 50, 40, 30, 20, 10 ft while descending, and 'touchdown'

It tracks the way down and will not repeat annunciations made before **unless going above** 410 ft before the next descend!

Hotkeys



The App allows for two different types of capturing Input in order to Show/Hide the Bar and also to change between the profiles (1..5 -> left to right one in the Configuration).

The App allows to choose none, either or both of them but usually one or the other would be more practical. Default is both OFF.

Hotkeys are available for Show/Hide the bar, changing Profile 1..5 (left to right order in Configuration)

Keyboard Hotkeys: The App monitors the keyboard entry at a rather low level and acts when it sees the defined key presses. In general you want to define a hotkey as a combination of a modifier and a key. E.g. RCtrl+F10 or so.

→ This is independent from the Window that has the focus at the moment the keys are pressed.

→ Some key combinations are not possible (e.g. Return/Enter keys, Shift+Numpad keys)

MSFS Hotkeys: The App registers to some events in MSFS and will act on them when MSFS gets inputs:

The App acts on some very sparsely used ADF2 Dial events as shown below:

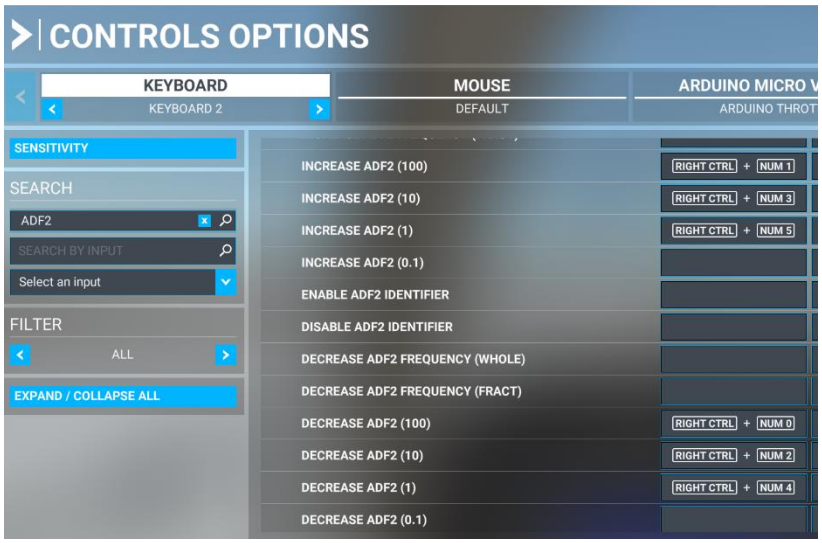
You may configure keyboard and other devices to trigger these events as usual in MSFS.
All such Events are listed in the Appendix: (profile related ones for illustration below)

- `Show Hide: ADF2_100_DEC`
- `Profile 1: ADF2_100_INC`
- `Profile 2: ADF2_10_DEC`
- `Profile 3: ADF2_10_INC`
- `Profile 4: ADF2_1_DEC`
- `Profile 5: ADF2_1_INC`

In the example they are mapped to Right Control + Numpad_0..5 but you may map them anywhere.

→ To use only the keyboard input and to act whether or not MSFS has the input focus – use Keyboard Hotkeys (all profiles supported).

If you want to map you own keys and/or input devices – use MSFS Hotkeys (only the first 5 profiles supported).



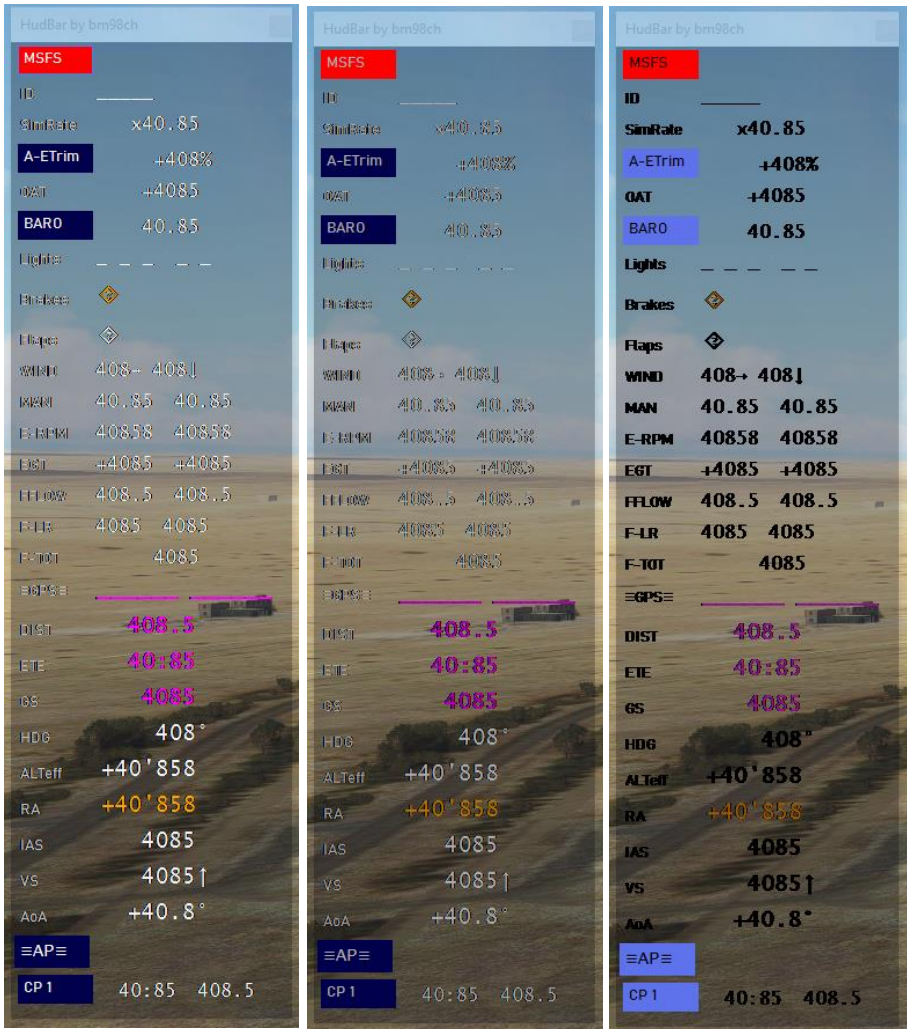
Transparency and Appearance

Transparency can be set per profile from **Opaque, 10% .. 90%**.

➔ When selecting a more transparent background (50%..90%) one will observe rather jagged edges on brighter backgrounds such as a sunny sky. I am afraid but this is NOT a bug to be corrected in the program but how Windows renders such things.

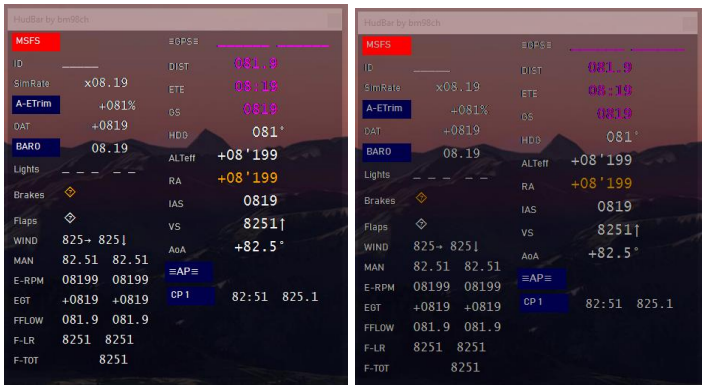
The **Appearance** of the values can be change in either the context menu (**Right Click** – **Appearance** - selection) or easier by **clicking the MSFS status label** with the mouse whereby switching through all 3 modes.

Appearance is related to the items shown and can be chosen from **Bright**, **Dimmed** and **Inverse**.

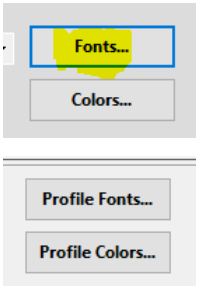


Above an example of 70% Transparency on a brighter background (Bright, Dimmed, Inverse)

Darker backgrounds are not so much of a problem rather than that **Bright** values may be distracting, so use the **Dimmed** appearance for a more comfortable experience.



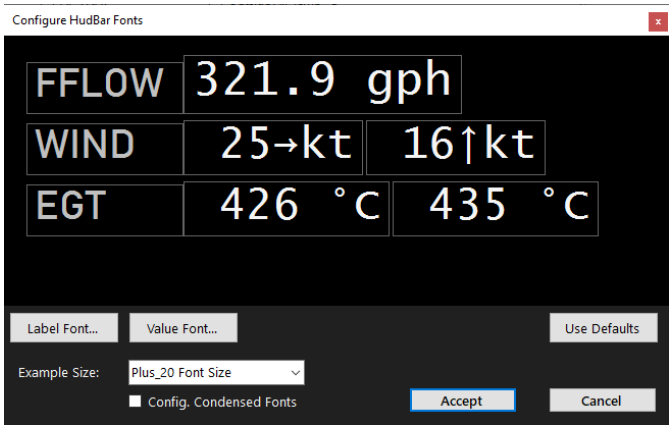
Fonts

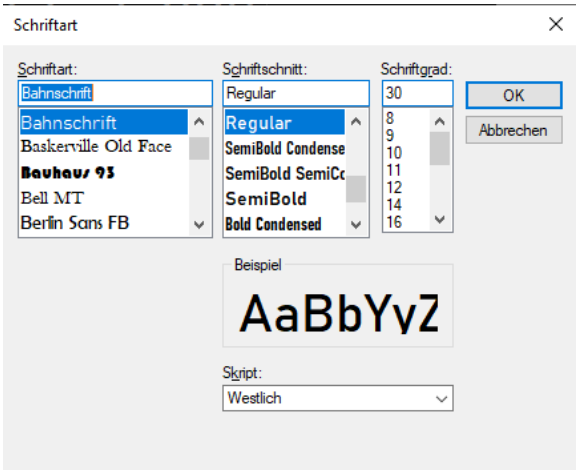


You may change the fonts used for the HudBar.

Per Profile Fonts and general Fonts which apply if no profile specific font is configured

See Configure Menu – **Fonts**.. and **Profile Fonts** Buttons





There are 3 fonts used

- Label Font (FFLOW, WIND, EGT, etc.)
- Value Font Regular (numbers, text, units)
- Value Font Condensed (numbers, text, units)

To get back to the defaults – click **Use Defaults**

For the Label simply click the **Label Font…** button and choose from the selection.

For the Value fonts click the **Value Font…** button which one depends on the checkbox below i.e. check **Config. Condensed Fonts** to change the condensed fonts…

You may change the example text size with the drop down to see how readable it is at lower sizes.

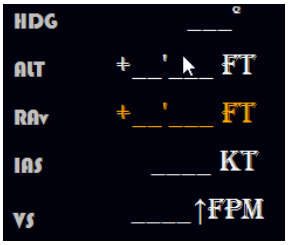
Beware, numbers may not align anymore with some fonts. Also some fonts may not carry the extra symbols used.

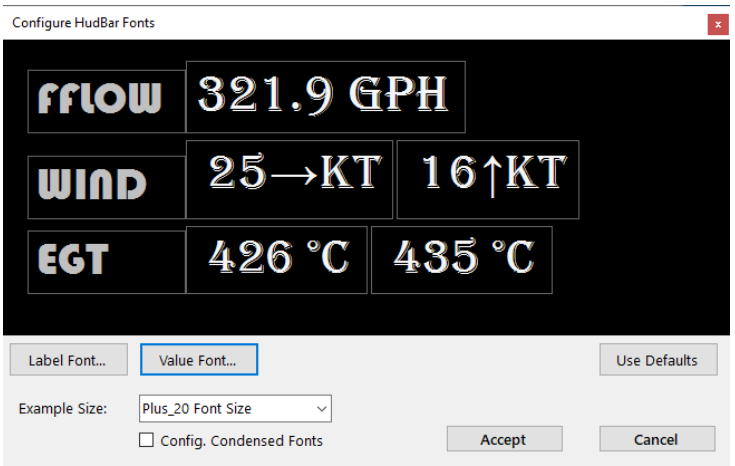
The borders around the items indicate the field size and layout in the Bar later as fonts carry their own bounding box and may not align as expected all the times (see example below).

The font selector provided my Microsoft - cannot change anything here…

Also note that the Value font used for items comes in two sizes and will be scaled automatically based on the selection. The fields with only one label (FFLOW in the example) are 2 pts larger than the ones with 2 or more values.

Symbol and Vector fonts and other than Western Scripts are not available for selection, the program would probably not display the correct content with such fonts.





Colors

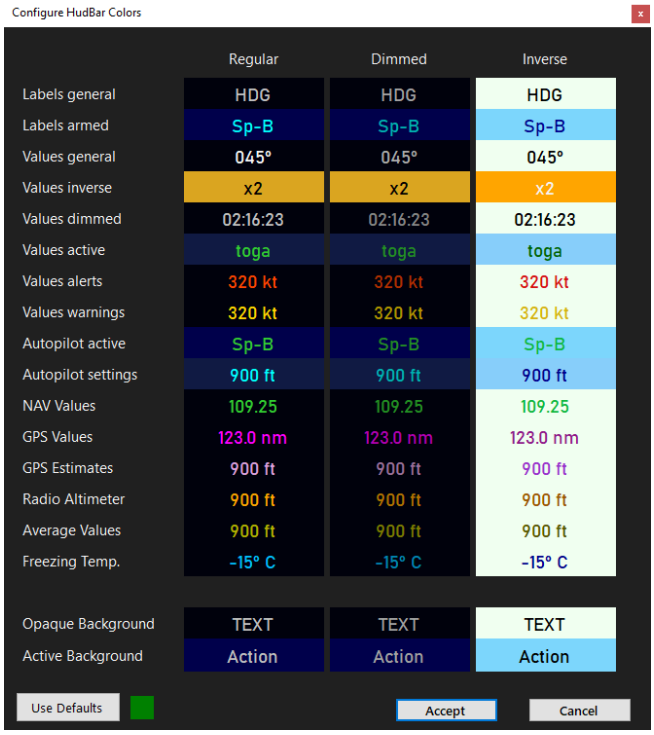
The Color Configuration is part of the HudBar Configuration Dialog.

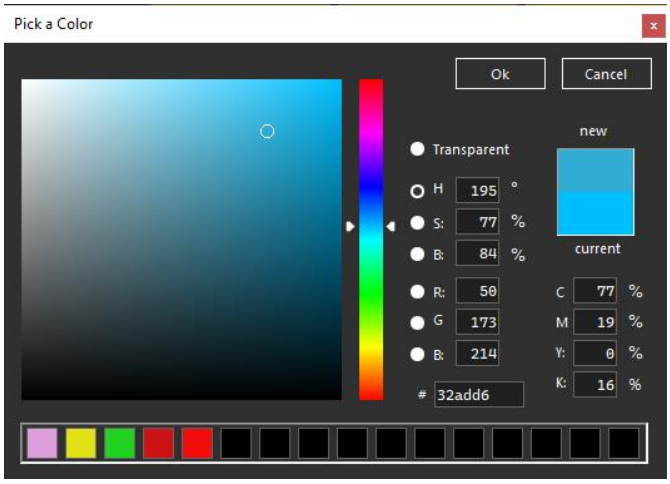
Per Profile Colors and general Colors which apply if no profile specific colors are configured

You may change the **Text colors** and the background color of an **Opaque** Bar and the background color of **actionable labels** (e.g. setting Active Background to Transparent)

The Text colors in HudBar are set along content groups for the three Appearances.

There is one row per group as shown below.





To change a text color, click the text label you wish to change.

A ‘Color Picker’ window opens where you may choose the color from.

Choose a color with the mouse or enter known values, then click OK to use it (or Cancel to discard).

The new color is set in the window.

‘Labels general’ are the labels for each item (BARO, Gear, Brakes in the example):
‘Labels armed’ is currently only used for the Spoiler Item.
‘Autopilot active’ is the button label when active.

All other groups are related to the item VALUES.

The Opaque Background is only used if NO transparency is selected, else it uses blackish color with a transparency key.

Remark: you may find that with a brighter background darker letters get jagged edges. This is caused by the way the transparency is achieved – cannot do anything about it right now.

Click ‚**Use Defaults**‘ to revert all colors to the HudBar defaults (shown above).

Leave the Dialog with either **Accept** or **Cancel**.

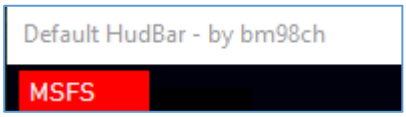
NOTE: The Accepted Colors will only be applied when **leaving** the **Configuration Window** with **Accept**.

Instances

You may want to start the HudBar more than once and get independent display bars and therefore programs running.

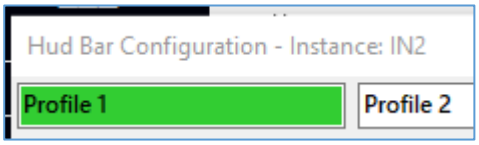
However they share the same Settings i.e. the location is saved from the last movement on any of the instances. In order to have truly independent instances with their own settings (all settings in Config and locations etc.) an Instance Name can be added to the Command Line when starting the HudBar.

No command line parameter is considered and referred to as 'Default'

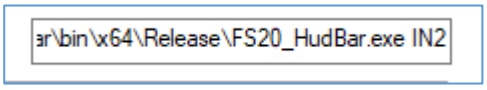


If you provide an Instance name to start the HudBar it will be shown in the Window Title (Window Bar and Configuration)

Here "IN2" was used as Instance name



You may start instances the easy way by creating a **Desktop Shortcut** and then modify the **Properties** of the **Shortcut** (right click) by adding an Instance name to the **Target** field:
This is the command line; add a space and the name at the end of the text field – here IN2 was added

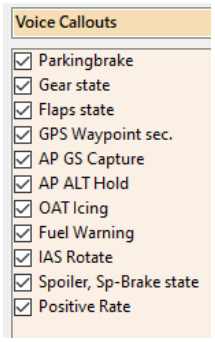


Then may be rename the **Shortcut** in order to recognize it later.

Note: you may want to enable the voices only in once instance as they will all talk when enabled…

Voice Callouts

Each one can be checked (enabled) or unchecked (disabled)



Parking Brake announces "Parkingbrake Set" and "Parkingbrake Released"

Gear state announces "Gear Up" and "Gear Down" when Safe Gear is reached

Flaps state announces "Flaps Up", "Flaps Down", "Flaps NN" where NN is the % deployment number i.e. 10, 20, … the number depends on the aircraft flaps stages available
– when the Flaps handle is moved (not when the state is reached)

GPS Waypoint sec. announces the GPS ETE to the next Waypoint when crossing 90, 60, 30 seconds as "Waypoint in NN" where NN is 90, 60, 30

AP GS Capture announces "Glideslope" or "Glidepath" when the GS is captured i.e. turns green (but not when it is lost afterwards)

AP ALT Hold announces when the AP changes to ALT holding (ALT turns green) with the altitude set as "Holding NNNN feet" or "Holding Flightlevel NN" when STD Baro is detected, latest at or above 18000ft – this is usually before the alt is reached.

OAT Icing announces "Low Air Temperature" when the OA temp gets down to around 3°C and "Icing Alert" at around 0°C.

Fuel Warning announces "Low Fuel Alert" when the fuel @ current flow will last less than ½ hour.

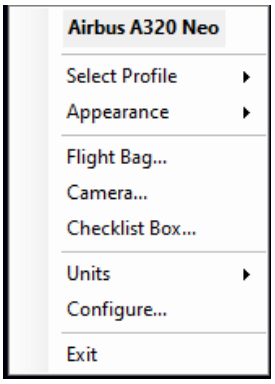
IAS Rotate announces "Rotate" when on ground and at or above Sim provided rotate speed

Spoiler announces "Spoiler .." similar to Flaps – Spoiler and Speed brakes are the same in the Sim

Positive Rate announces "Positive Rate" when criteria are met

Note: the RA altitude callout remains an Item to be checked per profile

Flight Bag



As the FlightBag can be run as independent App or out of the HudBar. Where both share the same settings, the FlightBag Guide is now in a separate document

MSFS_FlightBag-QuickGuide.pdf

HudBar integration:

- An independent Pop-up Window (stays top most) will show up if requested.

The Flight Bag can be **shown/hidden** with the Context Menu '**Flight Bag…**'

HotKey Binding

Show/Hide can be assigned to a **keyboard shortcut**. It is also mapped to a MSFS command (ADF2_FRACT_INC_CARRY), both must be enabled in Configuration (see Hotkeys above).

Configuration:

In order to use the Flight Bag you must select the folder where your images are located
Open the FlightBag and visit the Config. Tab.

Camera Management Console

As the CamControl can be run as independent App or out of the HudBar. Where both share the same settings, the CamControl Guide is now in a separate document

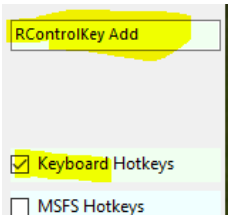
MSFS_CamControl-QuickGuide.pdf

It is modelled to match the Views available in the Sim Camera Tool.
Hint: to see what is what open the Sim Camera tool and hit some buttons in the new Console – the Sim Tool will update accordingly

Open the Console via RightClick Menu **Camera…**

Close it with the X top right

HotKey Binding



Show/Hide can be assigned to a **keyboard shortcut**. It is also mapped to a MSFS command (ADF2_FRACT_DEC_CARRY), both must be enabled in Configuration (see Hotkeys above).
There is no label, it is two above the CheckBox for Keyboard Hotkeys (see Tooltip)
Here I assigned it to <Right Control> + <Numpad+>, default it is empty.

Checklist Box

As the ChecklistBox can be run as independent App or out of the HudBar. Where both share the same settings, the ChecklistBox Guide is now in a separate document

MSFS_ChecklistBox-QuickGuide.pdf

HotKey Binding

Show/Hide can be assigned to a **keyboard shortcut**. It is also mapped to a MSFS command (ADF2_RADIO_TENTHS_DEC), both must be enabled in Configuration (see Hotkeys above).
There is no label, it is the one above the CheckBox for Keyboard Hotkeys (see Tooltip)

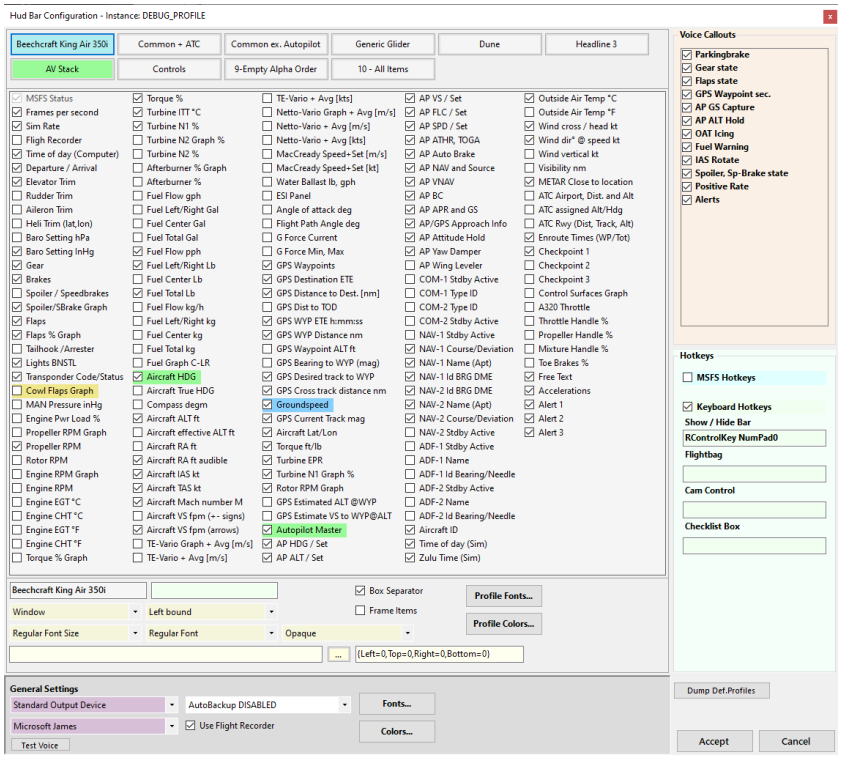
Configuration (Updated V0.72)

The configuration display shows all values for the **Edited** profile (marked with blue – Beechcraft… below)

The **currently selected** one will show up with a green background color (here it was "AV Stack..")

The buttons at the top act as profile selectors (think of a Tab) where the values for the edited profile are shown below.

Name and use up to 10 different profiles per instance (see Instances above)

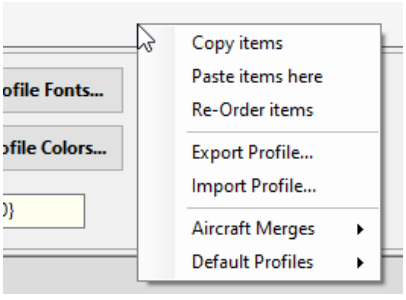


The Window Title refers to the Instance (Default or the Instance Name used)

Type the profile name into the field below the values (see NEW NAME HERE above)

Select the various profile display options, the green field accepts a Hotkey (double click to enter)

Right Click an empty area in the profile area opens a context menu.



Copy Items from a Profile then

Paste items here -> in another Profile.

Re-Order items -> shift used items to the top and order unused ones alphabetically below

Export Profile… -> To export the shown profile to a file on disk (new V0.72)

Import Profile… -> To import a profile from disk, replacing the shown profile (new V0.72)
Default files are named such as: Beechcraft King Air 350i.hbsetting // i.e. have the extension '.hbsetting'

Aircraft Merges -> load engine readouts and fuel settings derived from the instrument panel of this particular aircraft.

Default Profiles –> Defaults to load.

In general when loading defaults you may review the items to e.g. select another Unit, or add some special items, delete unwanted ones

Also review and adjust the line brakes (green marks) and dividers (blue and yellow marks)

General Settings are:

- Select the audible **Voice** from the ones available – **Voice out disabled** for silence (see Chapter above)
- Check **AutoBackup …** to have the Bar retrieving and saving FLT files for flight plan handling
- Check **Use Flight Recorder** to use it.. (see chapter Flight Recorder)
- **Keyboard Hotkeys** / **MSFS Hotkeys** (See also chapter Hotkeys above)

For any profile:

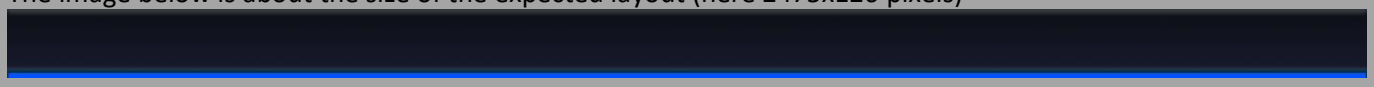
- Check / Uncheck the items in the list which to show / hide items
- If Keyboard Hotkeys is checked.. **Double click the green Hotkey field** and enter a combination
- Select a **Fontsize** from Regular, Plus-2, -4, -6, -8, -10, Minus-2, -4, Plus-12, -14
  (the bar rescales to multiple rows/columns to fit all checked items on the screen)
- Select the **Alignment** of the bar for any profile (left, right, top, bottom)
- Select the **Kind** of the bar – where Bar is a full width or height band and Tile is a rectangle bound to the alignment border, the size of the tile will adapt to the items shown
  Window is similar to Tile however it can be moved freely to any position and screen
  Window no border same as Window above but looks like a Tile
- Select from **Regular** or **Condensed** Font type
- Select from **Transparency** for Opaque to 90% in 10% steps
- Select a bar **background image and a border size** (see note below)
- Check **BoxSeparator** to create a separator with the same height as an item in Left or Right bound bar, using a box separator will align the item rows- see below for an example
- Check **FrameItems** will frame each item in the bar, may help some to read it easier

➔ Checked items are shown in either horizontal or vertical order as they are shown in the configuration panel. See further down how to re-arrange the order here and to apply new lines

Note on using a background image:
To use a custom made background create an image in any Paint, Photoshop etc. application and save it as PNG or JPG file.
Select it using the "…" button and enter the borders in the dialog window.
The dimensions of the created image should about match the expected size of the resulting appearance as the image is scaled to the bar and it may look distorted if not having a size that matches the bar.
The HudBar window is placed on top of the image and the image is scaled to match the given borders (in pixels)
It's best to create the bar without image and measure its size, then paint the image from there.

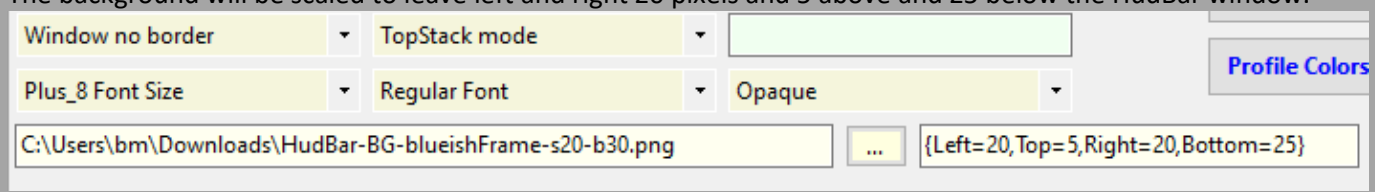
Example for a top of screen info bar:

The image below is about the size of the expected layout (here 2475x126 pixels)

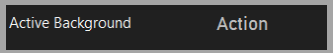


The bar is set to be a window without borders and in top stack mode with a rather large font.

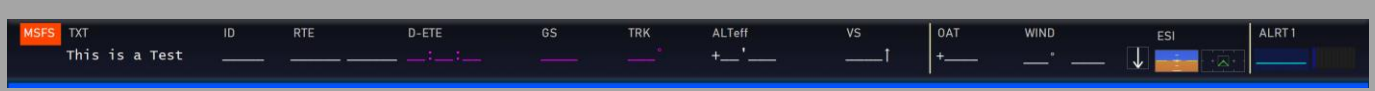
The background will be scaled to leave left and right 20 pixels and 5 above and 25 below the HudBar window.



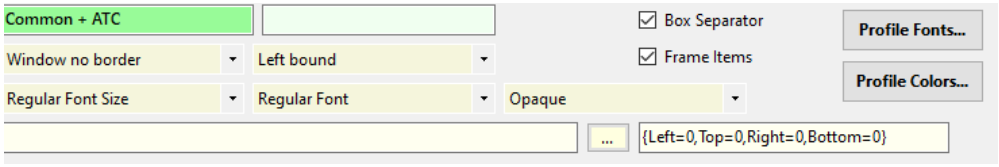
To avoid active fields to have a colored background the Active Background color is set to Transparent in Profile Colors



The HudBar will then appear as shown below



Example of the improved alignment using BoxSeparator and FramedItems.

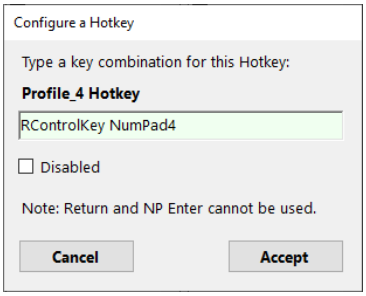


Keyboard Hotkey Setup (light green settings)

If you want to use Keyboard Hotkeys – first check the box **Keyboard Hotkeys**; the row of green items will appear.

Double click the green field for which you want to define a Hotkey.
Hotkeys in Profile columns allow to switch to this Profile using the hotkey.
The rightmost one (above the Checkbox item) defines the hotkey to Show/Hide the HudBar.

If a field is empty it means that there is no hotkey defined for i.e. Disabled.



Double clicking a green field will pop up the setup window:

Click into the green field and type the desired hotkey.
Usually one would use a combination of Ctrl, Shift, Alt (Menu) and a Key.
The App can distinguish between the left and right modifiers.

Accept or **Cancel** to close the window.

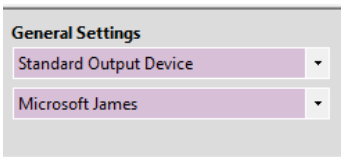
Check **Disabled** to clear and not use it. Uncheck to be able to enter a hotkey.

Some Key names may sound a bit strange (Win names) such as OemPeriod (.) etc.

Note: Some combinations are not possible (Win limits) e.g. Return and Numpad Enter, Shift + Numpad items. …

A fixed hotkey to move a Bar or Tile to the next monitor is added:
<RShiftKey + RControlKey + BreakKey> (don't use it for other purposes – no check is done though..)

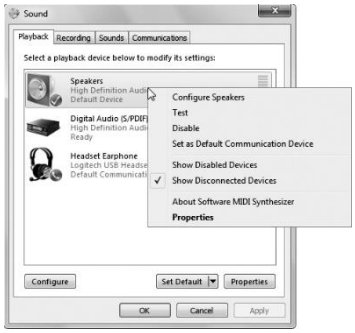
Voice and Sounds (purple settings)



Upper DropDown - Select your preferred Output Device for voice and sounds

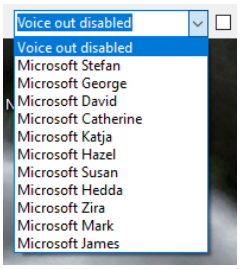
- ➔ The first and default it “Standard Output Device” selects usually the ‘Default Device’ set in Windows
- ➔ A list of detected output devices you may choose to force audio to be played with

https://www.isumsoft.com/it/6-methods-to-open-the-sound-dialog-in-windows-10/

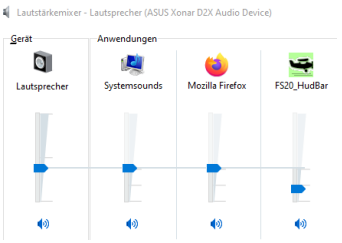


Lower DropDown - Select your preferred voice in the Configuration.

- ➔ The first and default is “Voice out disabled” – Voice out is inhibited
- ➔ A list of detected voices that are currently installed
- ➔ To test a voice just click the ‘Test Voice’ button.



Change then Volume in the Windows Mixer for FS20_HudBar



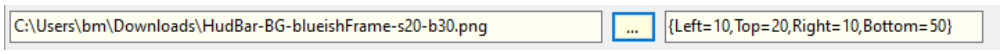
You may add voices in Windows Settings – Time & Language – Speech

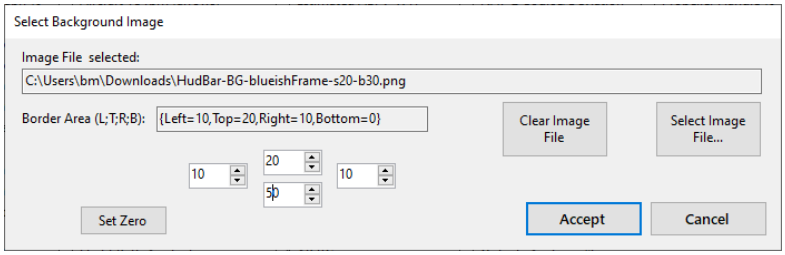
You may add e.g. variants of English (English is preferred for readouts due to the words spoken).
I.e. “James” has a rather formidable pronunciation (it is from the en-AU selection)

See also: https://www.tenforums.com/tutorials/132456-add-remove-speech-voices-windows-10-a.html

Image and Border

For any profile you may choose a background image and also apply a border padding. (click …)



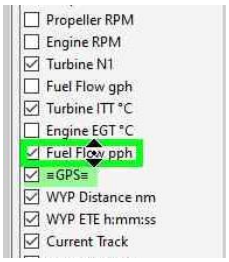


The border will be drawn around the regular HudBar independent whether an image was chosen or not. (Unit is pixel and max is 300 on each side)

Using a background image usualy requires the border area to be set to place the bar properly within the image.

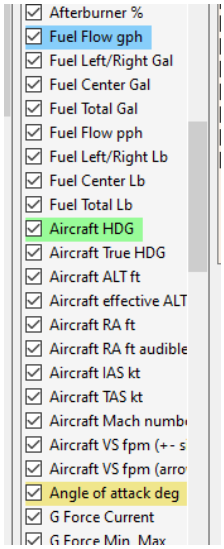
Move an item within a bar:

Works about the same as Drag and Drop



- **Left** Click and hold the item which will be moved
- Move the mouse up or down – the cursor will change to a NS sign
- Drop (**Release** the mouse button) – the item should appear at the drop position
  Note: Due to the rearrangement of the affected items the behavior is different if you move an item up or down – sometimes you need a second drag to place it where you want it to be
- Hit **Escape** or move the mouse out of the drop zone and release the mouse button if you wish to cancel the movement

Start a new line for the item and its successors:

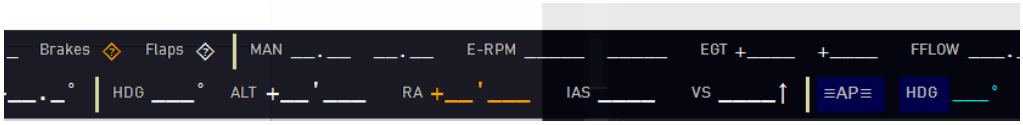


- **Right** click an item to start it on a new line/column in the Hud
- New Lines are indicated with items that have a light green background color (e.g -GPS- above and Aircraft HDG)
- **Right** click again until the background color reverts to light gray to remove the New Line

Insert a Separator before an item:

- **Right** click an item until the background is either blue or yellow to insert a separator in the Hud (Blue is a darker blueish and yellow a brighter yellow one)
- **Right** click again until the background color reverts to light gray to remove the Separator

e.g. below a brighter yellow separator on a horizontal bar on MAN, HDG and –AP–



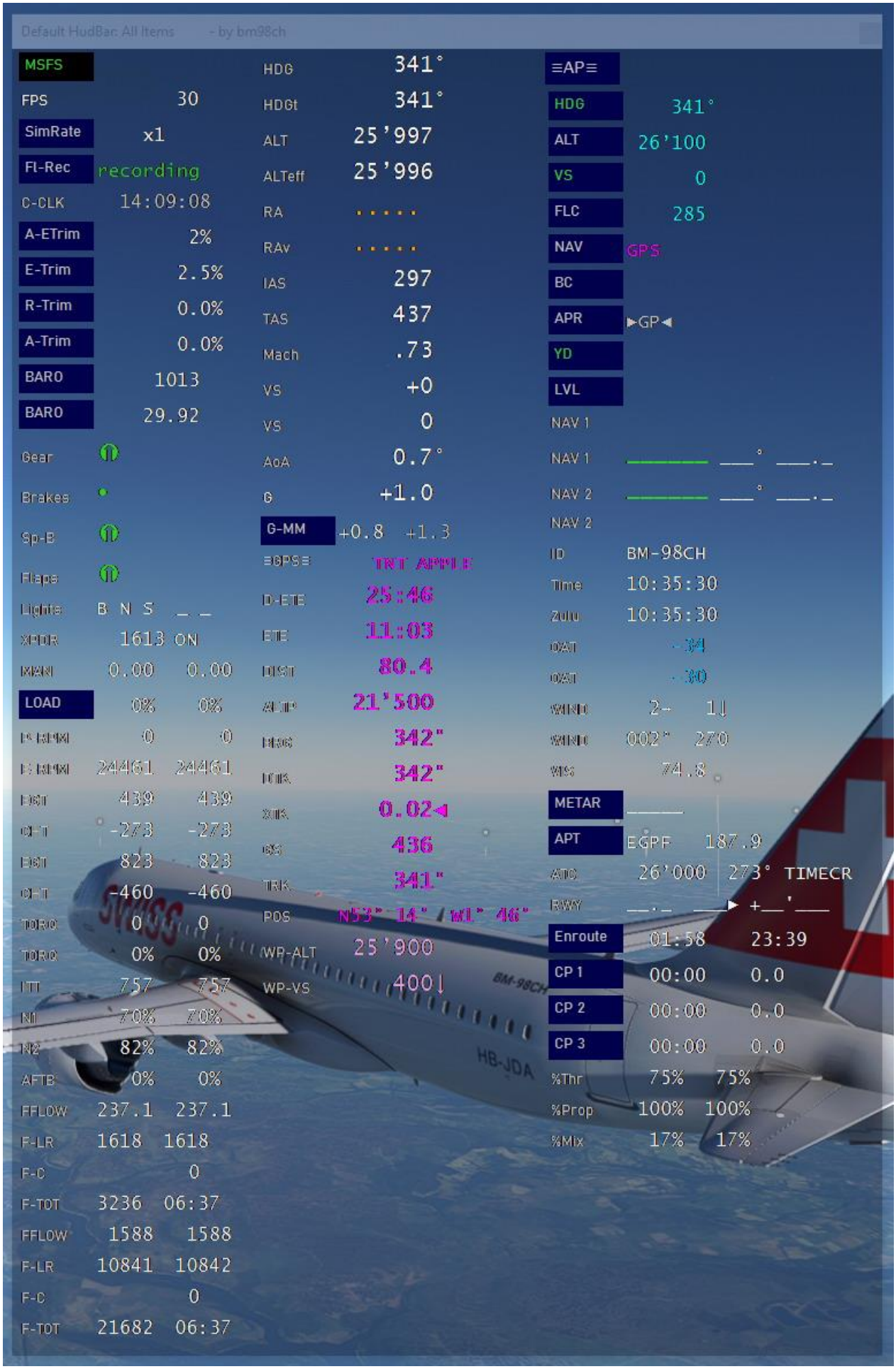
Note:
Breaks are also considered when an item is not checked, NewLine takes precedence over Separators

Leaving the Configuration Window

- Click **Accept** to accept all changes made to the configuration
- Click **Cancel** to discard all changes made
- The window will close and the Hud is rebuilt according to the profile

All settings are automatically saved and should be available for any further use

Available Info Fields



Items (there are even more now…)

Item Description

For Engine related fields the Bar shows up to 4 Engines.
Once a 2 Engine aircraft is detected the left one is Engine 1 and the second/right one Engine 2
Engine 3 and 4 will appear as a line below or right of engine 1 and 2.
For drawn items it is the same order. i.e. Upper left is engine 1, upper right engine 2, then lower left 3 and right 4.

SimRate x: the current Sim Rate factor – if not x1 it is shown with yellow background, Click to reset to 1x, Scroll with the mouse over the value to increment or decrement the SimRate

FPS: the frames per second as reported from the Sim

Fl-Rec: Flight Recorder status information – click to toggle recording on/off

ID: the aircraft ID

C-CLK: the current computers local time [h:mm:ss]

Time: the current Sim Time [h:mm:ss]

Zulu: the current UTC Sim Time [h:mm:ss]

E-, **R-**, **A-Trim**: Elevator, Rudder, Aileron Trim % values +- deflection; click the label to Zero Trim, scroll to adjust

H-Trim: Heli Rotor Trim Longitude, Latitude (fwd, sidew.) %values click the label to Zero Trim both, scroll the values to adjust, click the value to reset to 0. Shows warning background if beyond +-90%

OAT: Outside Air Temperature [°C] or [°F]

VIS: Visibility [nm] (not reliable for the current MSFS I think)

BARO: Setting is available as [inHg] or [HPA] – chose one that fits the needs

WIND: Setting is available as Dir[deg] @ Speed [kt] +Arrow or Cross- / Head-Tail Wind [kt]

LIFT: Vertical Wind Component [kt] with green=up / orange=down dot (size indicates strength)

AoA: Angle of attack degrees [deg]

Gear: either Up, down or Unknown (Transient)

Brakes: Parking Brake indication - Set: Released:

THook: Tailhook or Arrester for FA18 and the like – Up, moving, down (>85% extended):

Flaps: either full up, down or steps in-between (depends on the number of steps available) ..
or % Graph

Sp-B: Spoiler or Speedbrake either full up, down or steps in-between .. or % Graph
click Label to arm/disarm (label color is blue when armed)

TORQ: Engine torque value is available as [ft/lb] or [%] or % Graph

P-RPM: Propeller RPM Value and/or % Graph

E-RPM: Engine RPM Value and/or % Graph

R-RPM: Heli Main, Tail Rotor RPM Value and/or % Graph

N1: Turbine N1 % Value and/or % Graph

N2: Turbine N2 % Value and/or % Graph

AFTB: Afterburner % Value and/or % Graph

ITT: Turbine ITT Temperature [°C]

EGT: Engine Exhaust Gas Temperature [°C] or [°F]

CHT: Cylinder Head Temperature [°C] or [°F]

MAN: Manifold Pressure [inHg]

LOAD: The engine load percentage [%], Click to calibrate when the button color is yellowish
Calibration may be needed for aircrafts the program finds no default values or if you find it wrong. (MaxHP is not available in the Sim Interface)
*-> Set the throttle to indicate **50% Load** in the Sim Cockpit instrument – then Click LOAD to calibrate.*

COWL: Cowl Flaps % Open Graph

FFLOW: Fuel Flow value is available as pounds per hour or gallons per hour – chose one that fits the needs

F-LR: Fuel quantity Left / Right [gal] or [lb] get Amber readings when unbalanced more than 15% of Total Capacity

F-C: Fuel quantity Center [gal] or [lb] or % Graph for C and LR

F-TOT: Fuel quantity Total [gal] or [lb] + Fuel Time remaining (at current consumption)

-GPS- Shows the previous and next Waypoint if a flight plan is active

ToolTips - *hovering* the **-GPS-** label pulls the remaining ATC flight plan, hovering the **two waypoints** shows waypoint details from the flight plan (based on FLT file information - updated every 30 sec).

DIST shows the GPS Distance to the next Waypoint [nm]

ETE shows the GPS Estimated Time Enroute to the next Waypoint [h:mm:ss]

D-ETE shows the GPS Estimated Time Enroute to the Destination [h:mm:ss]

D-DST shows the Distance [nm] to the Destination, either from Flightplan or calculated by Lat/Lon

TOD show the Distance [nm] to TopOfDescend for G1000Nxi and WTG3000mod

BRG shows the GPS magnetic bearing to the next Waypoint [degm]

TRK shows the GPS magnetic ground track [degm]

DTK shows the GPS desired track to the next Waypoint [degm]

XTK shows the GPS cross track distance [nm]

GS shows the GPS ground speed [kt]

ALTP shows the GPS Waypoint Altitude if it is available [ft]

POS shows the Latitude and Longitude position of the aircraft

Enroute shows the elapsed times towards the WYP and TOTAL (Active, Click to restart tracking)

Calculated fields when a "Next Waypoint" is available:

- **WP-VS** Estimated VS to WYP@ALT:
  Calculated VS to reach the next waypoint at the proposed altitude with the current GS and DIST
  (ALTP altitude when purple or Setting Alt when blue)
- **WP-ALT** Estimated ALT@WYP:
  Calculated altitude at next waypoint using the actual GS, VS and DIST

Note: the calculated fields are experimental they are rounded to the nearest 100.

HDG: Current Magnetic Heading [degm]

HDGt: Current True Heading [deg]

COMP: Compass Heading with North Arrow

ALTeff: Current effective Altitude [ft] (sim model based)

ALT: Current Instrument Altitude [ft] (baro corrected)

RA: Radio Altitude [ft AOG] available when <=1500ft AOG (RA label turns green if on ground)

RAv: Radio Altitude with audible readouts <=400 [ft AOG] (RA label turns green if on ground)

IAS: Indicated Airspeed [kt];

> ***ToolTips*** - *hovering* the **IAS** label - if available, a tooltip shows the Reference Speeds provided by MSFS Correct aircraft, fuel and payload weights as well as ZFW.

IAS turns Amber when closer than 5kts from config. Stall Speed and Red when at or below.

TAS: True Airspeed [kt]

Mach: Mach number [M]

VS: Vertical rate [feet per minute] with Arrows or with +-Sign; step size is 20fpm

VARIO: TE Variometer+Avg [m/s] or [kts]; Click the ping modes: Green: only +, Blue: +-; DarkBlue: off or Graph+AVG

NETTO: Netto Variometer+Avg [m/s] or [kts]; Click the ping modes: Green: only +, Blue: +-; DarkBlue: off or Graph+AVG

MCRAD: MacCready Speed [kt] (km with metric units) / Setting [m/s] or [kts]

W-BAL: Water Ballast gauges: Quantity vs. Capacity (left), current out drain (right)

G: G-Force current value [g]

G-MM: G-Force Min – Max [g], click to reset

-AP-: Autopilot Master (all Autopilot signs turn to **Green** text if active)

HDG: Heading Mode Sign and Heading Setting, click to toggle, scroll value to adjust, click value to set current

ALT: Altitude Mode Sign and Altitude Setting [ft], click to toggle, scroll value to adjust

VS: Vertical Rate Sign and VS Setting [fpm], click to toggle, scroll value to adjust

FLC: Flight Level Change Sign and IAS Setting [kt], click to toggle, scroll value to adjust

The 4 settings above can be adjusted with the mouse wheel up/down on the value
Note: as the Sim captures the mouse wheel for zoom (default) you may need to click in an empty space of the bar or otherwise out of the Sim window in order to not adjust AND zoom at the same time (cannot help here..)

SPD: Auto Speed setting, in kt or Mach as selected. Click label to toggle, scroll value to adjust.

ATHR: Auto Throttle / TOGA setting. Click Throttle text to disable when active.

ABRK: Auto Brake / AntiSkid setting. Click Brake text to disable when active, scroll to change level.
"a-skid" turns to "A-SKID" and changes color to green when ON.

NAV: Nav Mode Sign and GPS Source – GPS active source shows GPS in purple letters else it is NAV1 or NAV2 in green letters, click to toggle

VNAV: VNAV Sign, click to toggle for G1000Nxi, WTG3000 mod equipped acfts.

BC: Back Course Sign, click to toggle

APR: Approach Mode Sign and Glide Slope/Path (**>GS<**) Capture, click to toggle. **GS** turns **green** if captured

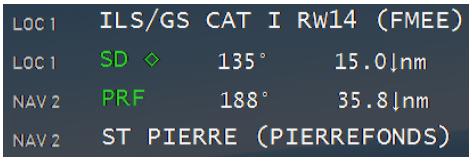
AP.APR: Approach Type – as delivered by the Sim (ILS, RNAV,..)

YD: Yaw Damper Sign, click to toggle (validity depends on Acft type)

LVL: Wing Leveler Sign, click to toggle (validity depends on Acft type)

ATT: Attitude Holding, click to toggle (validity depends on Acft type)

NAV1/2: ID; BRG, DST [nm] – ID of the NAV/LOC where a double cross (‡) marks a LOC with glideslope, and Diamond (◊) once the glideslope signal from the LOC was detected.
If the station is not identified the active Frequ. is shown

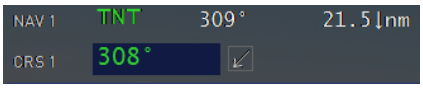


Note: The distance arrow shows whether the current track is going towards or away from the station
Note: If the Nav unit is acting as NAV Source (CDI G1000 or the upper CDI), the color of the frequency/station is green, if not white.

NAV1/2: Name – Name of the station for LOC mostly ILS/LDA + RWY (if provided by the Sim)

NAV1/2: Frequencies – Standby and Active tuned. Scroll standby frequ. up/down, click label to swap

CRS1/2: Course (OBS) – Setting. Scroll number to set or click to synch towards the station. Number gets green +- 1.5° or yellow +- 3° of the station bearing, else white, Arrow points towards the station (cockpit view)



ADF1/2: ADF-1 Id [ICAO], Bearing to [degm], Needle pointing towards the station (cockpit view)

ADF1/2: Name – Name of the station (if provided by the Sim)

ADF1/2: Frequencies – Standby and Active tuned. Scroll standby frequ. up/down, click label to swap
Note: some ADFs don't support standby/active, scrolling will then change the active one directly.

Frequency changes: Hover the 1000 part to change by 1, the fraction (.0) part to change fractions
Click the ADF1 Label to Swap Standby-Active

COM1/2: Type and Name of the station (if provided by the Sim)

COM1/2: Frequencies – Standby and Active tuned. Scroll standby frequ. up/down, click label to swap
Click active frequency to change the Microphone channel to the clicked one

Frequency changes: Hover the 100 part to change by 1, the fraction (.000) part to change fractions
Click the COM1/2 or NAV1/2 Label to Swap Standby-Active

Note: if the COM unit is selected as transmitting unit the color of the frequency/station is green, else white.

XPDR: Transponder Code and State, click to activate Ident sending

RWY shows the distance [nm], left/right deviation [ft] and height [ft] from the ATC assigned runway

APT shows the ATC assumed flight plan destination ICAO code and remaining distance in nm and ALT msl

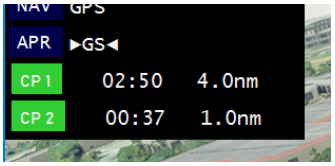
ATC shows the ATC assigned/expected Altitude ft and Heading deg and Next Waypoint ID

ToolTips *- hovering* the **ATC** label pulls the full complete ATC flight plan

METAR when clicked retrieves the closest Metar in bearing direction, shows the station, distance and bearing when the response was retrieved.

ToolTips *- hovering* the **APT** or **METAR** label shows the latest Metar message (Click the label to retrieve the information from the external server).

CP1..3: Checkpoints to track elapsed time and Lat/Lon distance from start point
click a CPn label to start tracking, it turns green while tracking, click again to set a new start point



A320T: A320 Throttle handle indicator (REV, IDLE, A/THR, CL, FLX/MCT, TOGA)

RTE: Dep/Arrival ICAO when available from flight plan. Click RTE to enter DEP/ARR ICAO or issue a flight plan

RE-A: Control Surfaces visualization, left Rudder+Elevator cross, right: Aileron deflection

T_2M: Turn and slip indicator, starts with 2Min std. turn for 45° (corner to corner) display, click the T_2M label to toggle between 2 and 4Min turns. Slip is indicated by the Ball which will increase in size and change color when outside the coordinated turn area (rectangle) (V0.72 new)

%Thr / **%Mix** / **%Prop**: The Throttle, Mixture, Propeller handle setting [%] up to 4 levers

%Coll: The Heli Collective position [%] 100%=fully depressed (V0.72 new)

%TBrake: The Toe Brake applied (left, right), where available [%]

TXT: A free text field – click the label to enter the text (limited to 60 chars)
Note: The layout may lag to be adjusted to the text length – e.g. go to Configuration and Accept, or change the profile.

ALRT 1..3: Alerts – see above (Chapter Alert) for description

Note on Flight Plans:

The flight plan in MSFS is a strange beast… and not always what one would expect.

HOWEVER – using the Flight Plan feature of the Flightbag may resolve most limitations.
In Flightbag – Config you may load Simbrief or Little Navmap flight plans which are then preferred over the MSFS provided ones.

The SIM AutoBackup+ATC option was removed

It turned out to be an unreliable source for any flight plan and caused stutter every 30sec.

METAR Data Retrieval:

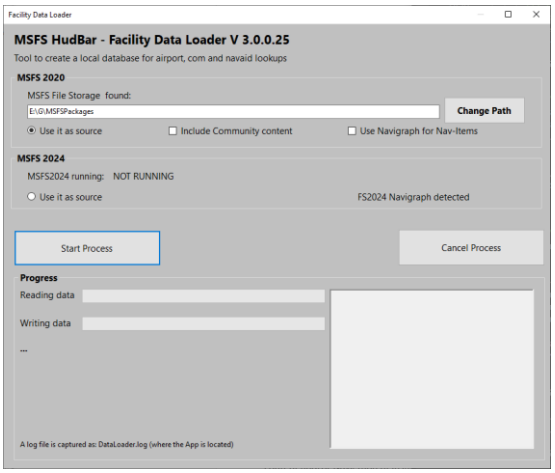
Please note that the program will issue HTTP Requests to an external server to retrieve the latest METAR information.

The data for METAR is retrieved from: **https://aviationweather.gov**

Please make sure to comply with their terms and conditions when retrieving METAR data with this program.

See also: https://aviationweather.gov/dataserver/example?datatype=metar

Data Loader (V0.72 update)



The Facility Data Loader was updated to capture MSFS2024 streamed facilities.
The Loader maintains 2 distinct databases for both versions.
I.e. when using both versions you have to capture and update both as well…

Go for the application folder and then into the subfolder `\dataLoader`

Run `FacilityDataLoader.exe`:

MSFS 2020:

First check if the program finds the MSFS data path.
It does follow the MS specs for Store and Steam but…
If not found you may need to use Change Path.. to point it to the folder (where Community and Official folders can be found)

You may choose the source for the data, either collecting from the MS files where you may include Community content and/or Navigraph (if installed)

MSFS 2024:

First MSFS2024 must be running to capture facilities (the label will indicate it has detected a running FlightSim)
If it finds a Navigraph installation in the Community folder it will indicate it (as shown above)

Note:
The MSFS2024 data capture may take around 15 Minutes – best is to start MSFS2024 and Start Process without interacting with the Sim. It is not tested while flying or other interactions while capturing data.
Don't restart the process for now – just exit Data Loader and restart it and then capture again.

Then: Check either of the two sources.
Then hit Start Process and have some patience.
The program will report progress and once it finished its data collection it will tell you.

To serve all new functionality of the FlightBag a lot more data is collected and the size has increased to 530 MB.
The database is (`fs2020genAptV2.dblite`) for MSFS2020
The database is (`fs2024genAptV2.dblite`) for MSFS2024

The databases are stored at `MyDocuments\MSFS_HudBarSave\db\` and are each about 530MB.

REDO this process when either a new Navigraph version is out and when MS provides substantial updates.

Distributed Contents:

My FlightSim Libraries (included in the release package)

SEE README.TXT FOR THE LIST

From Google Fonts Library embedded:

- Share Tech Mono

A rather condensed monospaced font used for the ‘Condensed Font Window

.\DemoBag Contains some images to showcase the Flight Bag

Full Credit goes to JayDeeGaming

Where the idea of this HudBar is 'borrowed' from (https://www.youtube.com/c/JayDeeGaming/about)

Other credits:

Missionary Bush Pilot: https://www.missionarybushpilot.com/checklistbox
where the idea of the Checklist box is 'borrowed' from

CoordLib is based on: https://github.com/chrisveness/geodesy
Translated to C# and partially modified
Original code license: The MIT License (MIT)

TE Variometer: https://xp-soaring.github.io/instruments/index.html

Appendix:

MSFS Command Reference

If enabled in Configuration the following MSFS Commands are mapped:

Show / Hide 'HudBar'	ADF2_100_DEC
Select Profile 1	ADF2_100_INC
Select Profile 2	ADF2_10_DEC
Select Profile 3	ADF2_10_INC
Select Profile 4	ADF2_1_DEC
Select Profile 5	ADF2_1_INC
Show / Hide 'Flight Bag'	ADF2_FRACT_INC_CARRY
Show / Hide 'Camera'	ADF2_FRACT_DEC_CARRY
Show / Hide 'Checklist Box'	ADF2_RADIO_TENTHS_DEC

File Storage:

Files are stored in "<USER-DOCUMENTS>\MSFS_HudBarSave" folder

Reset Configuration:

Settings are stored in <MyDocuments>\MSFS_HudBarSave\settings\HudBarAppSettings.json

Each time the HudBar starts a backup copy of the settings file is made.
HudBarAppSettings.json.1 .. HudBarAppSettings.json.5

Where HudBarAppSettings.json.1 is always the most recent, .2 the second most, etc.

So if anything goes wrong you may revert to an older setting file by deleting HudBarAppSettings.json

And copy/rename the one you wish to start from to this name (HudBarAppSettings.json)

This file stores your configuration but I suggest to not edit it – unless you know what to change, it may prevent the program from starting if done wrongly.

Issue Reporting:

In case you encounter a problem please include as much information as possible. Sometimes it is also relevant which aircraft you were using.

To get some helpful information the following procedure will create such output:

Locate where the application is stored (where you extracted the ZIP)

Enable Logging: In the application folder **copy** 'NLog.config.OFF' to 'NLog.config'
Logging will create generations of 'FS20_HudBar.log' which might be useful to resolve issues

Disable Logging: Delete the 'NLog.config' file

Restart the HudBar and try to reproduce the problem

Exit the HudBar and include the `FS20_HudBar.log` file in the failure report

It is a plain text file – so you can check the contents for anything you don't like to be sent out.

Issues can be reported directly via GitHub (or a Message in Flightsim.to)

https://github.com/bm98/FS20_HudBar/issues

https://flightsim.to/file/16604/msfs-hudbar

Known Issues:

No Voice Out (no sound)

Double check the 'Standard Device' – Voice out attempts to use the default device but sometimes this may not be the used one or it is changed by Windows when installing a new audio device or only the driver. – Head for System Control – Sound – Playback Devices. And make the one where Voice out should be heard the standard device, restart HudBar.

Settings are not stored or runtime exceptions

We have seen issues when Windows Protected Folders are enabled.
(https://www.tenforums.com/tutorials/87858-add-protected-folders-controlled-folder-access-windows-10-a.html)

In such a case Windows may deny programs which are not installed via MSI Installer access to write or delete files in some places, among them is the MyDocuments folder.

There is a check at the very beginning of the App which is trying to elaborate if such protection exists or not.
If yes there is a MessageBox popping up related to Access Permission Error and the reason should be reported in the box.
Is such a case first try to find out if protected folders are enabled and then add the HudBar App to the list of allowed programs and start the program again to see if the problem persists – if it is still there head for Issue Reporting above.

(https://support.microsoft.com/en-us/windows/allow-an-app-to-access-controlled-folders-b5b6627a-b008-2ca2-7931-7e51e912b034)