

# MSFS FlightBag V 0.70.0.70

See (V0.70) indications for updates from the previous version (V0.68)

## Flight bag providing ...

- Standalone or Part of the MSFS HudBar Windows
- Shelf for image documents either JPG, PNG or GIF images or PDF documents for reference
- Airport centric Map display
- METAR retrieval
- Profile Calculator
- Performance and Touchdown data
- Notepad
- Route and document integration with SimBrief and MSFS Route and Flightplan files
- Airport Reports
- Other Aircrafts display (online, AI, multiplayer ..)
- 'Radar' view
- Teleport the aircraft to a new position and altitude

**MSFS\_FlightBag** is a standalone application but also integrated in the **MSFS\_HudBar** application.

Both are the same and share the same settings, data and configuration.

The integrated version attempts to gather the flight plan departure and arrival airports where the standalone version expects those to be entered in the Config. Tab – otherwise they are the same.



### **IMPORTANT:**

**MSFS\_FlightBag** makes extensive use of airport, runway and navigation data intended for the simulator.

As one cannot distribute MSFS and/or Navigraph data via the application package the user must initiate the data collection and consolidation.

There is a program provided in the application package which does this chore.

→ Below in the Appendix find the chapter **Data Loader** and proceed accordingly

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## Standalone Installation and Usage

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

**Best is to start MSFS first, then the Flight Bag (but the App should connect the sim in any case)**

- Start MSFS2020 first and once the Main Menu is shown
- Start FS20\_FlightBag.exe
- It attempts to connect to the Flight simulator in 5 sec intervals, but shows a red bar while it is not connected to MSFS
- Use the **Tabs** for Shelf, Map, METAR, Perf., Notes, and Config.
- To **Exit** and stop the program click the top right X mark

## 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 FlightBag takes the data from to track aircraft and selected airports.

## What is shown

At startup there is an empty Shelf, Map, METAR, Perf., Notes, and Config. Tabs.

The screenshots illustrate the application's interface across four tabs:

- Shelf:** Displays a list of documents and files, including APR.Map, ARR.Airways, DEP.Airways, FPLAN.Departure.Map, FPLAN.IFR Tribhuvan Intl (VNKT) to Gonggar (ZUL).Impln 2022-02-12, FPLAN.Overview, INF.VNKT - Tribhuvan International Airport SkyVector 2022-02-12, INF.ZULS - Lhasa- Gonggar Airport SkyVector 2022-02-12, zKBD.DroneCam, zKBD.Lights, zKBD.Radio, and zKBD.Systems.
- Map:** Shows a static map of Chicago O'Hare International Airport (KORD) with various flight paths and airport codes (LSZH, AIR, LSZF) displayed.
- METAR:** Shows flight data for Cessna Skymaster G1000 Ascor, including Weight and Balance, Last Touchdown Data, and Design Data.
- Config.:** Allows users to set flight parameters like Flight Plan, Profile, and ETC, and provides options for MSFS Flightplan, Shelf, and METAR.

- Shelf provides a list of documents located in the selected folder
- Map shows a static map with various display options
- METAR allows to retrieve METAR information – if selected it translates the METAR string into something more readable.
- Perf. Lists Aircraft Performance numbers and Touchdown Data as reported from the Sim.
- Notes – a simple notepad area,
- Config. Allow to setup some options

See below for some of the items available

## Shelf Tab

- The Window allows to choose from image or PDF files contained in a folder
- An image can be zoomed in or out and dragged within the window
- Supported image file formats are PNG, JPG, GIF
- Supports subfolder browsing

Tip: scale the image in a way that the resolution is high enough to read it properly at the most used zoom level, usually this is around 1400 pix on the longer side – but you may try and find what works best.

### Configuration:

In order to use the Flight Bag you must select the folder where your images are located – go to **Config. Tab**



Default is the directory **DemoBag** in the App folder – supplied with some demo images in the App distribution.

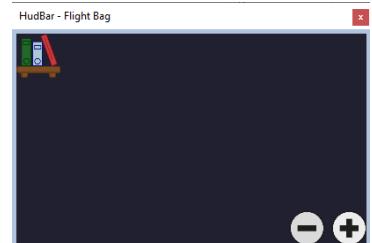
Click '...' and choose any directory to use.

### Usage:

The first time the window will open empty

– Click the **Book Shelf Icon** in the top left corner to load the documents (images)

First listed are subfolders (violet color)



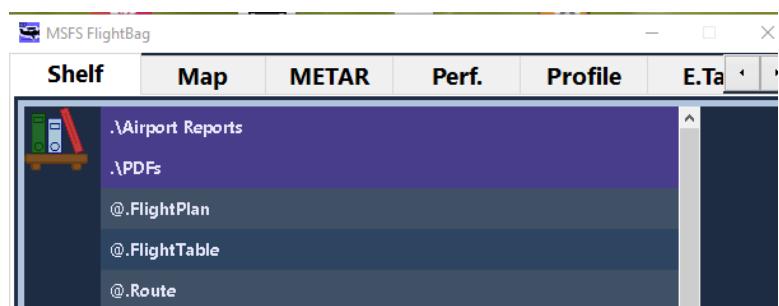
Click a subfolder to enter it. Click '..\ Leave subfolder' to return

From the list of documents **click** the one to display.

**Zoom** the document with the mouse **scroll wheel** or **click the +- icons** in the bottom right corner.

PDF documents will scroll with the wheel and zoom using Ctrl-Wheel or using +- Buttons

Use the **left mouse click and drag** to move the document in the window.



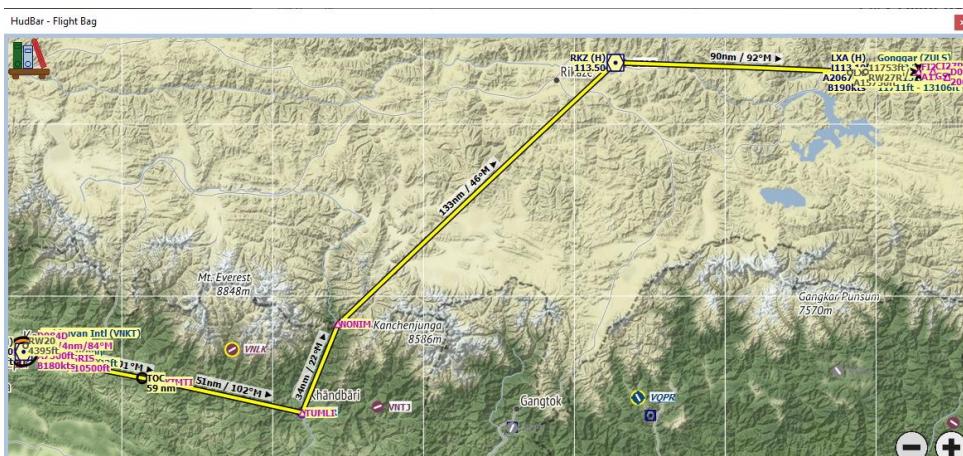
**Click right** to reset the zoom and re-center the document.

Click the Book Shelf icon to select another document.

**Resize** the window as usual in Windows.

**Hide** the window with Hotkey, Context Menu or the X icon.

Example from the Demo included



## Map Tab

### Supported Map Providers

**MapLib** supports a fixed number of Map Tile Providers as well as 3 user defined ones.

→ **ALWAYS consider the terms of use for any of the map providers**

**Free and open Tile services are at the time of writing – enabled by default**

OpenStreetMap (OSM) and some derivatives

<https://www.openstreetmap.org>

OpenTopo, a 3d enhanced map from an open source project (usually rather slow to respond...).

<https://opentopomap.org>

### Stadia Maps (require a registration now)

by Stamen 3D shaped terrain map (remote areas are rather slow to respond) – disabled by default

Suggested replacement for Chartbundle from Google comments:

**FAA Tiles served by ArcGis** - see terms of use

For US regions only (FAA provides data at no cost, other countries do not...) - Disabled per default

**Tile Services which need either a key or are subject to licensing terms** – disabled by default

Bing Maps (Microsoft map service) needs a key and subject to licensing

<https://docs.microsoft.com/en-us/bingmaps/getting-started>

ESRI/ARCGIS Tile Services as part of their offering – subject to license, don't use if not licensed

<https://developers.arcgis.com/documentation/mapping-apis-and-services/data-hosting/services/image-tile-service/>

**Remark:**

Don't ask for Google Map support – I don't have a key and they are rather complicated to work with...

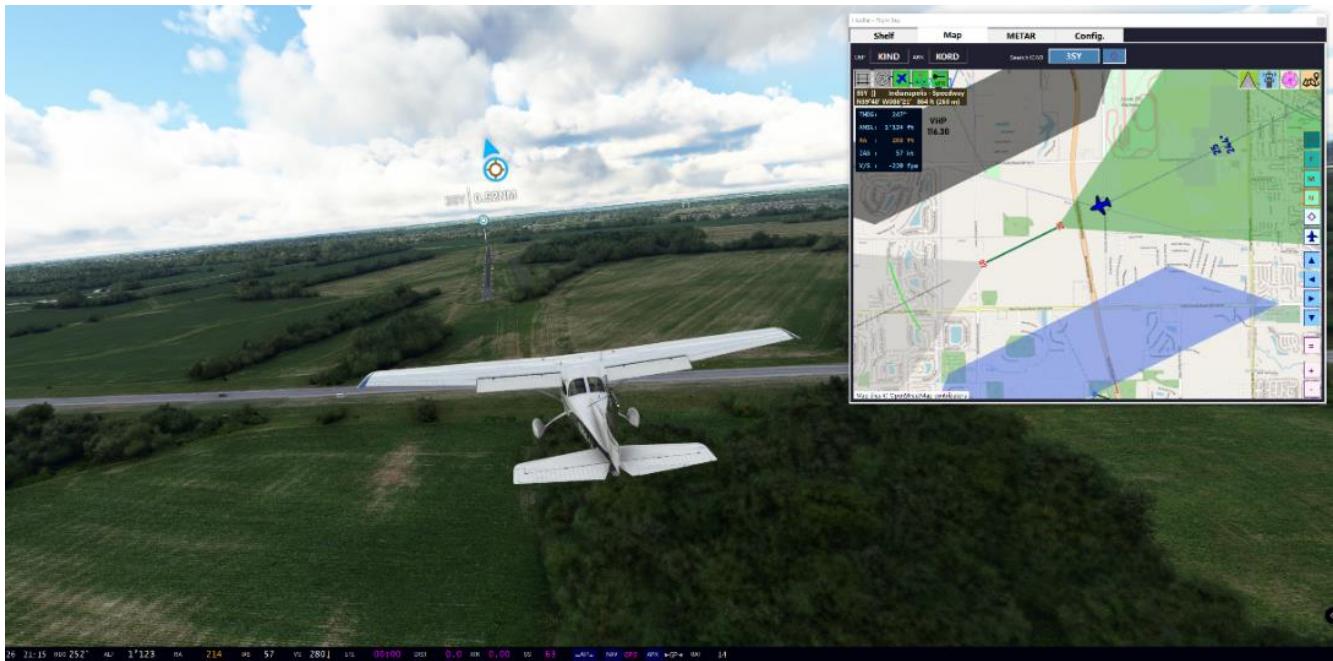
### User defined tile services 1..6

You may have an own tile service running on your NAS or know a tile service you like to use.

**Provider Configuration** → Check the guide for MapLib (Appendix of this document)

**SEE APPENDIX ON HOW TO ENABLE MAPS**

## Map Display – Intentionally a zoomable but static map with decorations



The Map display intends to minimize the performance footprint and will only request tiles on user request.

There are 5 predefined ranges (XF=7, FF, F, M, N, C=15) which are loaded on demand and where the user can zoom in and out at discretion. *Note: decorations except the Route will be hidden above range FF.*

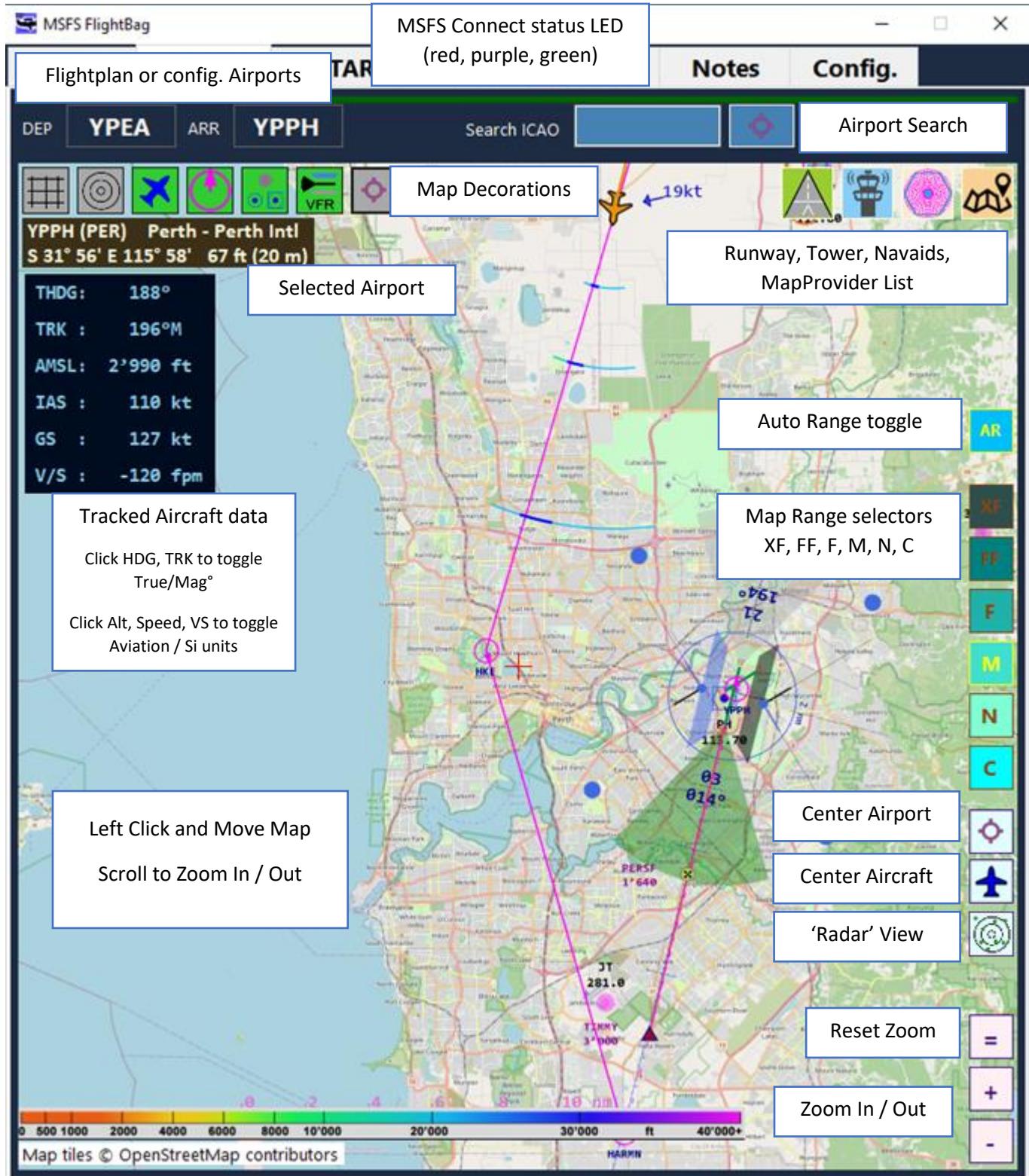
When in **AutoRange** (AR) mode it will zoom seamlessly between Z5 and Z15 levels of the map provider when zooming in or out.



When not in AutoRange mode (default) it will just zoom into the drawn image up to 20x magnification without switching to a more or less detailed map.

- The map is intentionally NOT a moving map. The user may shift the mapped area if desired.
- The map draws the selected airport runways if in sight and can be decorated with Navaids, VFR patterns, Aircraft
- The map displays and tracks the aircraft with some predefined essential data

## Map – Ops



The map is Airport centric – i.e. usually you would have an airport selected.

Use Search Airport or click the DEP, ARR ICAO label to center the view on that airport (above it's YPPH)

While in flight you may move the shown map area using the mouse with left click or use the 'center aircraft' button once in a while to re-locate the map.

For the selected airport one can list runways, tower frequencies as well as the area navaids.

*NOTE: for the time being the map may be a bit jumpy when moving it around rather fast. In the end it should show the expected area – if a yellow border remains, try to do a small move with the mouse. (Work in progress to clean it up)*

## Airport / Area Information

Runway 22R - Approaches

|              |         |
|--------------|---------|
| ILS (NOLEN)  | RWY 22R |
| LOC (NOLEN)  | RWY 22R |
| RNAV (NOLEN) | RWY 22R |

Airport - Runways

|            |  |
|------------|--|
| 04L (039°) | 2284x46 m - ASPHALT                            |
| 22R (219°) | IRXZ 111.30 GS(3.0° 27 nm) 2284x46 m - ASPHALT |
| 04R (041°) | IFJU 110.10 GS(3.0° 27 nm) 2458x46 m - ASPHALT |
| 22L (221°) | ILQQ 110.10 GS(3.0° 27 nm) 2458x46 m - ASPHALT |
| 09L (090°) | ISAJ 111.75 GS(3.0° 27 nm) 2284x46 m - ASPHALT |
| 27R (270°) | IABU 111.75 GS(3.0° 27 nm) 2284x46 m - ASPHALT |
| 09R (090°) | IJAV 110.50 GS(3.0° 27 nm) 3525x46 m - ASPHALT |
| 27L (270°) | IIAC 110.50 GS(3.0° 27 nm) 3525x46 m - ASPHALT |
| 10C (090°) | ISXH 108.95 GS(3.0° 27 nm) 3288x59 m - ASPHALT |
| 28C (270°) | IVZE 108.95 GS(3.0° 27 nm) 3288x59 m - ASPHALT |
| 10L (090°) | IMED 111.10 GS(3.0° 27 nm) 3960x46 m - ASPHALT |
| 28R (270°) | ITSL 111.10 GS(3.0° 27 nm) 3960x46 m - ASPHALT |
| 10R (090°) | IBYW 110.90 GS(3.0° 27 nm) 2279x53 m - ASPHALT |
| 28L (270°) | IVQX 110.75 GS(3.0° 27 nm) 2279x53 m - ASPHALT |
| 27C (270°) | IUYJ 111.90 GS(3.0° 27 nm) 3420x61 m - CEMENT  |
| 09C (090°) | IOYG 111.90 GS(3.0° 27 nm) 3420x61 m - CEMENT  |

Map tiles © OpenStreetMap contributors

| Runway 22R - Approaches |         |  |
|-------------------------|---------|--|
| ILS (NOLEN)             | RWY 22R |  |
| LOC (NOLEN)             | RWY 22R |  |
| RNAV (NOLEN)            | RWY 22R |  |

Approaches are shown as above, where the quote indicates that the data is from the Navigraph source. Such data is sometimes different or not available in the Sim.

Above the LOC approach is from MS data and may not be available as separate chart in the Navigraph App.

|                    |
|--------------------|
| Runway 22R         |
| ILS OR LOC RWY 22R |
| 21-11              |
| RNAV (GPS) RWY 22R |
| 22-11              |
| Runway 27L         |

Clicking the Runway Icon will show/hide the list of airport runways found in the database.

If there is an ILS located for the runway the ILS ID, Frequency, GS angle and range is shown.

If there are Approaches for the selected runway found in the database it will show them above the runway panel as soon as you select (click) a runway.

Selecting (click) an Approach will show the Approach as Waypoint/Line decoration in the map

Selected items are highlighted (inverse coloring).

Airport - Frequencies

|  |
|--|
| 124.350 - CHICAGO (APPROACH)                     |
| 125.700 - CHICAGO (APPROACH)                     |
| 119.250 - OHARE (CLEARANCE)                      |
| 119.250 - OHARE (CLEARANCE_PRE_TAXI)             |
| 121.600 - CHICAGO/OHAREINTL (CLEARANCE_PRE_TAXI) |
| 119.000 - CHICAGO (APPROACH)                     |
| 133.625 - CHICAGO (APPROACH)                     |
| 135.400 - KORD (ATIS)                            |
| 121.600 - OHARE (CLEARANCE)                      |
| 120.550 - CHICAGO (DEPARTURE)                    |
| 125.000 - CHICAGO (DEPARTURE)                    |
| 126.625 - CHICAGO (DEPARTURE)                    |
| 128.200 - CHICAGO (DEPARTURE)                    |
| 133.500 - CHICAGO (DEPARTURE)                    |
| 118.050 - OHARESOUTH (GROUND)                    |
| 121.675 - OHAREMETTERING (GROUND)                |
| 121.750 - OHARE (GROUND)                         |
| 121.900 - OHARE (GROUND)                         |
| 124.125 - OHARENORTH (GROUND)                    |
| 128.600 - OHARE (GROUND)                         |

Clicking the Tower Icon will show/hide the list of airport communication frequencies found in the database.

When there are many like at KORD it will turn into a scrollable list.

Area - Navaids

|   |
|---|
| NDB GY 236.0 kHz ( 23 nm) GARIE                 |
| NDB IA 414.0 kHz ( 23 nm) CHICAGO OHA TAFFS     |
| NDB ID 385.0 kHz ( 23 nm) CHICAGO OHA INDOY     |
| NDB IK 272.0 kHz ( 23 nm) LUKOW                 |
| NDB OR 394.0 kHz ( 23 nm) CHSTR                 |
| NDB RV 257.0 kHz ( 23 nm) CHICAGO OHA JOCKY     |
| NDB US 379.0 kHz ( 23 nm) WAUKE                 |
| NDB VP 212.0 kHz ( 38 nm) SEDLY                 |
| NDB VYS 230.0 kHz ( 38 nm) VALLEY               |
| VOR DME BUU 114.50 MHz ( 38 nm) BURBUN          |
| VOR DME CGT 114.20 MHz ( 60 nm) CHICAGO HEIGHTS |
| VOR DME DPA 168.40 MHz ( 60 nm) DUPAGE          |
| VOR DME ENW 169.20 MHz ( 38 nm) KENOSHA         |
| VOR DME EON 113.20 MHz ( 60 nm) PEOTONE         |
| VOR DME GCO 108.25 MHz ( 60 nm) CHICAGO         |
| VOR DME HRK 117.70 MHz ( 38 nm) HORLICK         |
| VOR DME IKK 111.60 MHz ( 60 nm) KANKAKEE        |
| VOR DME JOT 112.30 MHz ( 195 nm) JOLIET         |
| VOR DME JVL 114.30 MHz ( 60 nm) JANESVILLE      |
| VOR DME OKK 113.00 MHz ( 195 nm) NORTHBROOK     |
| VOR DME OXI 115.60 MHz ( 195 nm) KNOX           |
| VOR DME RFD 110.80 MHz ( 60 nm) ROCKFORD        |

Map tiles © OpenStreetMap contributors

Clicking the Navaids Icon will show/hide the list of the mapped FF Area VOR/NDBs and frequencies found in the database when they are in signal range

For each item the distance and direction from the aircraft and a signal level (A..F) is shown

Note: Whether or not showing the Navaids on the map is part of decoration selection.

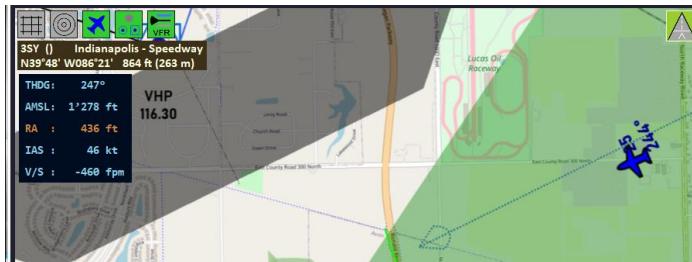
## Decorating the map

- Map Lat/Lon Grid – toggles the grid
- Airport range circles (5, 15, 30, 60 nm radius)
- Aircraft tracking with some data points
- Route from SimBrief or MSFS Plans
- Navaids
- Airport VFR Markings
- Airports within the shown area (use Config. to select a minimum runway length)



Click to toggle visibility of the items

## Aircraft tracking



When visible it will show the aircraft on the map if in the shown area, else it says 'aircraft out of sight'.

Data points are: (click an item to toggle either True/Mag or toggle Av/SI units

- True Heading (THDG) / Mag Heading (HDG)
- True Track (TTRK) / Mag Track (TRK)
- Altitude above MSL in ft / m
- RA in ft / m (<1500)
- IAS in kt / km/h
- GS in kt / km/h
- V/S in fpm / m/s

|                 |                |
|-----------------|----------------|
| HDG : 320°      | THDG: 320°     |
| TTRK: 328°      | TRK : 328°M    |
| AMSL: 25'993 ft | AMSL: 7'923 m  |
| IAS : 298 kt    | IAS : 551 km/h |
| GS : 365 kt     | GS : 675 km/h  |
| V/S : +20 fpm   | V/S : -0.1 m/s |

The aircraft has a range feature which either shows 30° arcs at 2.5, 5, 10 nm out in light blue, the true ground track is marked with a 6° dark blue segment. These are TRUE degrees on the true north oriented map.

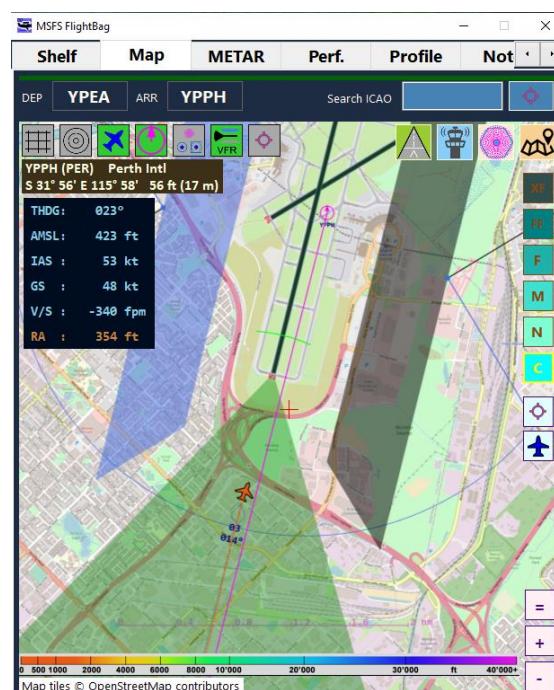


Under approach conditions the range marker changes to the expected ground contact at current IAS, VS and altitude which is shown as a green 20° arc (at the time of writing this feature needs some improvement...)

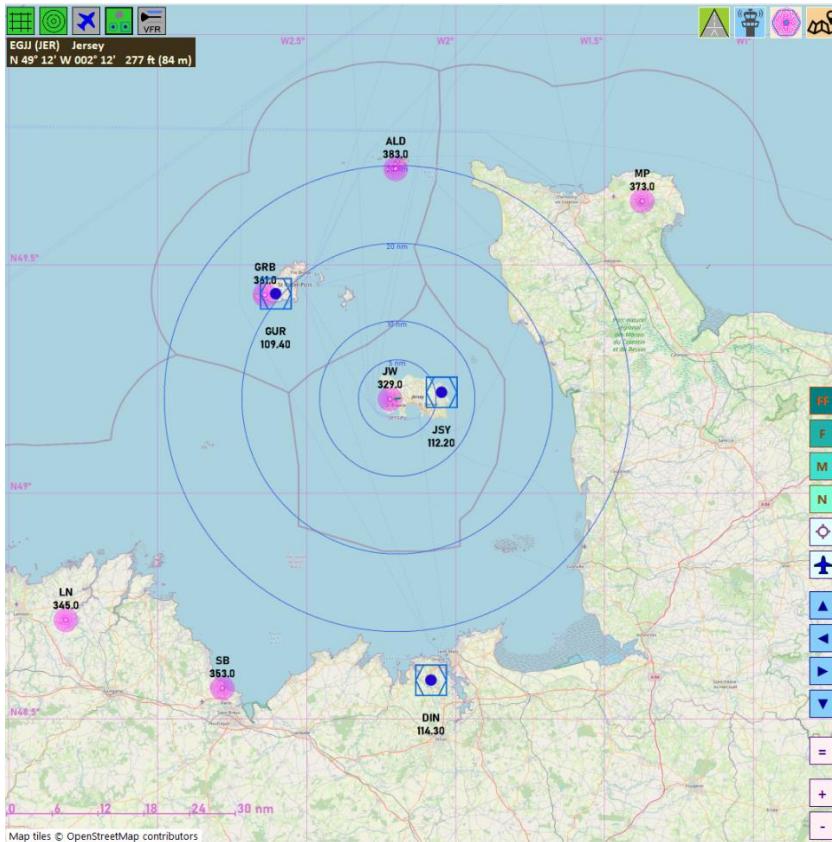


Wind speed and direction is shown as arrow with the speed label

The wind speed is default in kt but when changing units to SI it will be m/s



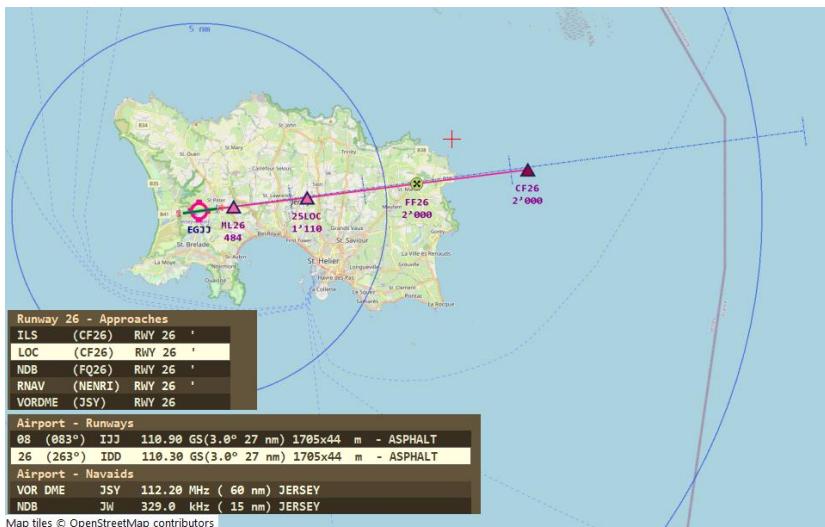
## Navaids



**VOR, DME, and NDB** navaids are shown with ID and frequency at their location.

There is no further interaction available.

**Waypoints** for runway approaches can be shown if a runway AND approach is selected from the runway list.



Above the runway 26 and the LOC approach was selected (clicked), Approach waypoints with their assigned altitude found in the database are placed on the map.

Since V0.63 only the waypoints for the selected approach are shown also when Navaids are disabled (it allows for less clutter and more readable labels)

Also when selecting a runway a blue dotted line towards the runway is shown with steps at 2, 4, 8 and 16nm from the runway start.

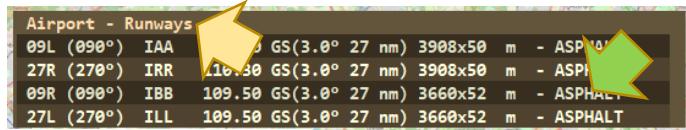
## Airport VFR Marks

Note: this feature may or may not please all kind of pilots – please let me know ...

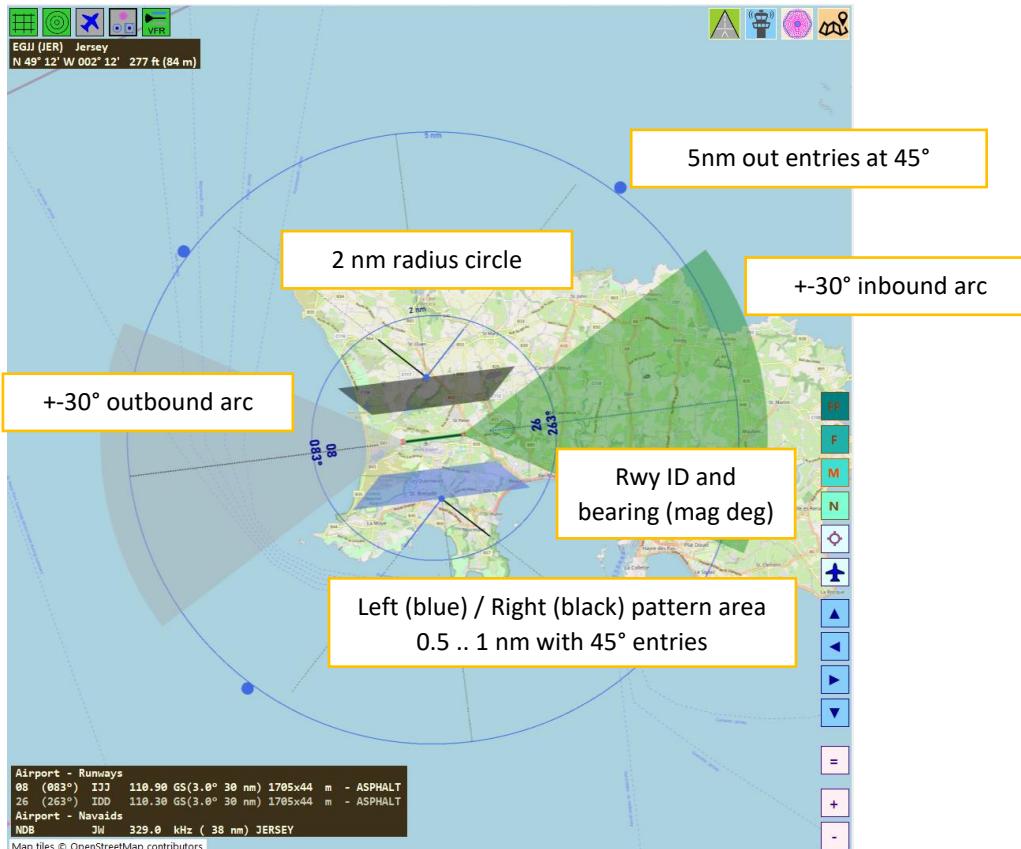
Selecting a runway for VFR or IFR approach waypoints decoration

To **select** a runway get the Runway list and **click** one of the runways.

To **clear** the selection, click the 'Airports – Runways' text (hand appears) and the decorations will go away.



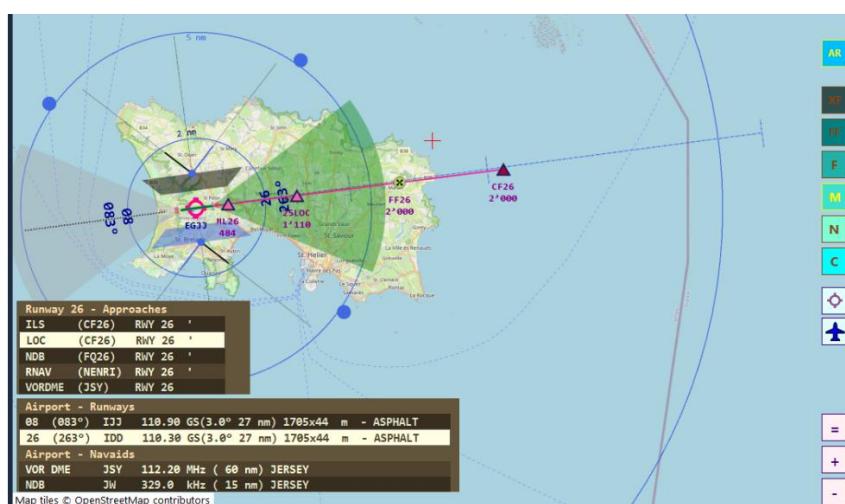
For a selected runway VFR marks are shown.



Above the runway 26 was selected (clicked)

To **select** an **approach** click the line item.

To **clear** the approach selection, click the 'Runway xy – Approaches' text (hand appears) and the decorations will go away.



When VFR marks is on and an approach is selected it looks like above.

## Routes

Routes derived from SimBrief or MSFS Plan- or Flight files are shown when the Route icon is clicked.



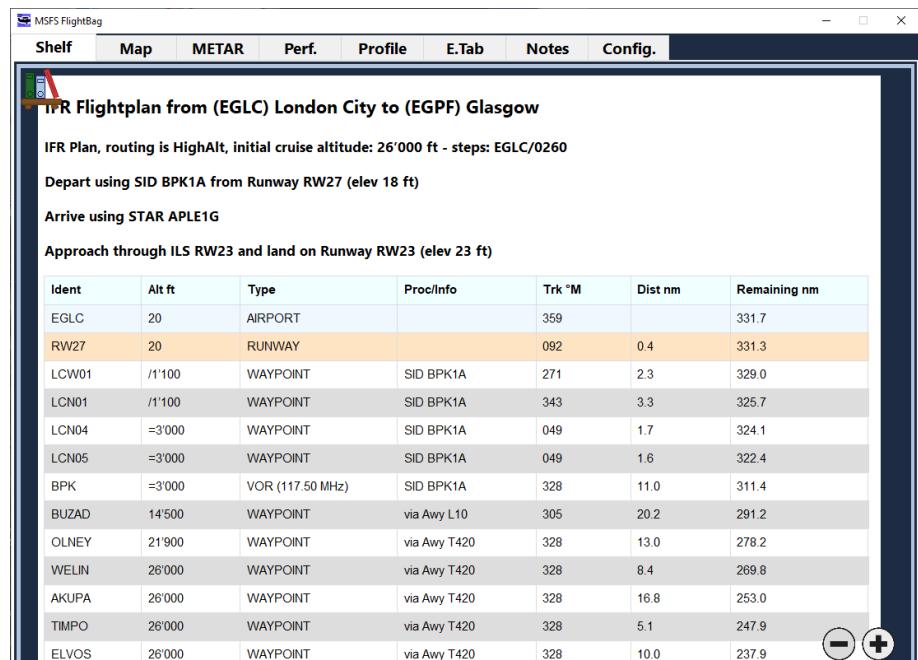
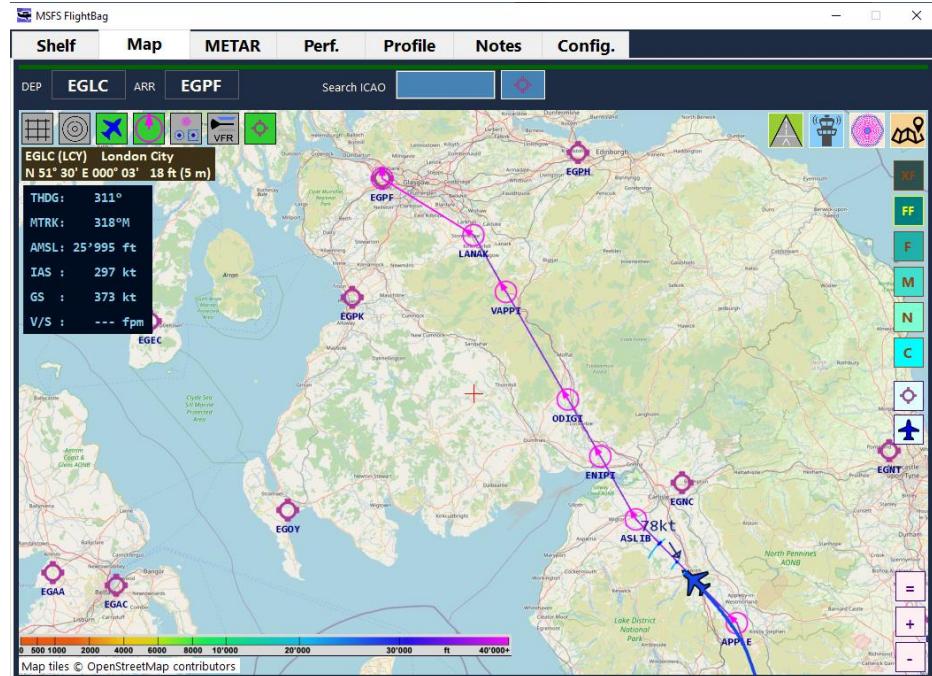
A route is marked with magenta lines and circles, where legs belonging to a SID or STAR are shown in a darker magenta color as in the example right from waypoint APPLE to LANAK.

As long as there is no Approach information in a plan the last leg ends at the airport (ex. LANAK-> EGPF)

Requested plans from the Sim may eventually contain Approach information. Such data is created by the Sim ATC/Planner and the validity is sometimes questionable...



*It is also dependent of the aircraft flown, some FMS do not share plans with the Sim internal systems and will therefore not provide any meaningful information in MSFS derived plans.*



For any plan a flight table PDF document is created in the Shelf (@.FlightTable). The table contains a row for each waypoint found in the plan together with some helpful information about the plan. (V0.70 was an image before)

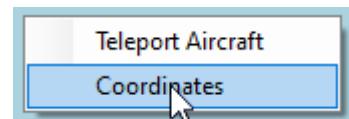
For SimBrief the App downloads the PDF plan document and copies it as @.FlightPlan in the Shelf. (V0.70 new)

**Note: plan documents are overwritten as soon as a new one is created or downloaded.**  
**But the currently viewed document does not change – select it again to view the most recent version.**

## Map – Coordinates

Right click in the map will show a context menu, choose **Coordinates**.

To hide it select the Coordinates again.



*Note: sometimes it will only flicker and not show up; click the window top bar or the map and try again (it happens when the Window does not have the focus)*

A coordinate window will show up at the right bottom of the map.



- The coordinate shown is always the Center of the shown map i.e. the small red cross in the middle.
- Moving the map will change the values accordingly.
- Choose from Dec and DMS formatting by clicking the option button.
- The right field will show a ‘minimum save altitude’ derived from a publicly available global elevation model computed to a resolution of 0.5°. E.g. 2 4 indicates 2400 ft MSL.

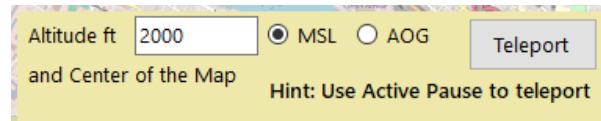
*The numbers are not derived from the Navigraph MSA database and may therefore differ from those.*

## Map- Teleport

Right click the map will show a context menu, choose **Teleport Aircraft**.

To hide it select the Teleport Aircraft again.

A window to select an altitude and Teleport will show up at the right bottom of the map (above the Coordinate window)



- Teleporting will move the aircraft from its current position into the center of the map (coordinates shown in the coordinate window)
- For the altitude you may choose MSL or AOG (above ground) and enter a number into the Altitude field.
- Clicking Teleport will slew the aircraft to its new position.
- It is strongly recommended to use Active Pause before Teleporting, the simulated aircraft model goes a bit crazy when moving it around (same as with Slew)
- Choose the altitude carefully to not end up in terrain...

*Note: I found that the SIM does not always appreciate large displacements and will just stop responding, also various aircrafts may expose strange behavior when moving them around – cannot do anything about it.*

## Map – Other Aircrafts

The map may show other aircrafts on demand. But **never** when the Zoom Level is XF.



The capture range for other traffic is 60nm radius from the user aircraft.

Update is about 1/sec to not overload the PC/Sim.

Other traffic sources are from SimSettings: RealTime, AI, Multiplayer, and potentially all injected AI traffic from other Applications (which I cannot test.. sorry)

In **Config** enable ‘Show other aircrafts’ by checking the item.

Additionally there is a **filter** text box which allows to enter call signs of aircrafts of interest (friend list...) separated by a **comma <,>**.



The map will then display an additional decoration icon ‘MP aircraft’ which, when **green**, enables all currently discovered traffic to be shown. When **yellow**, only the aircrafts from the **filter** list are shown. When gray no aircrafts are shown. This icon can be clicked to cycle through all 3 display modes.

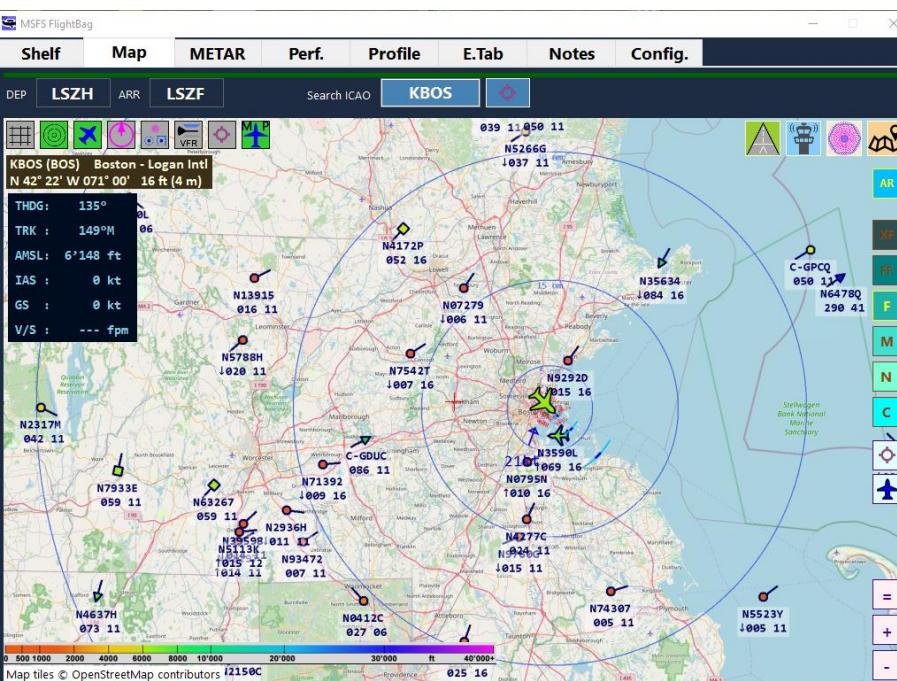
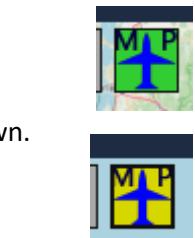
While not **filtered**, aircrafts on the ground are hidden for Ranges above C(lose).

If **filtered** only those aircrafts in the list are shown including when on ground.

Other aircrafts are shown with a smaller icons incl. the call sign below.

Second line is an arrow indicator for VS (>+200fpm), Altitude AMSL in 100 ft and Groundspeed in 10kt the aircrafts color goes along the altitude scale as for the user aircraft.

„↓029 16“ would be 2 900 ft msl @ 160kt descending.



Aircrafts above are triangles, below circles and within +/-1000 ft squares



If an aircraft is within +/-1000 ft and closer than 15nm it is shown as aircraft icon.



The inner color represents the altitude

*Note: When changing the source it may take a while to update the aircrafts. To force an update just change the Tab to anything else and back to Map.*

*Also Note: when no traffic is shown – first check if the Filter is causing it.*

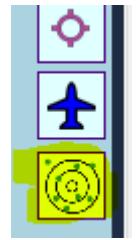
*Sometimes it takes a while until the map is populated with traffic (Sim is doing it's thing)*



## Map - 'Radar' View

A new map view related to the display of other aircrafts is available using the 'Radar' button.

→ To get back to map view use either the Airport or Aircraft buttons above the Radar.

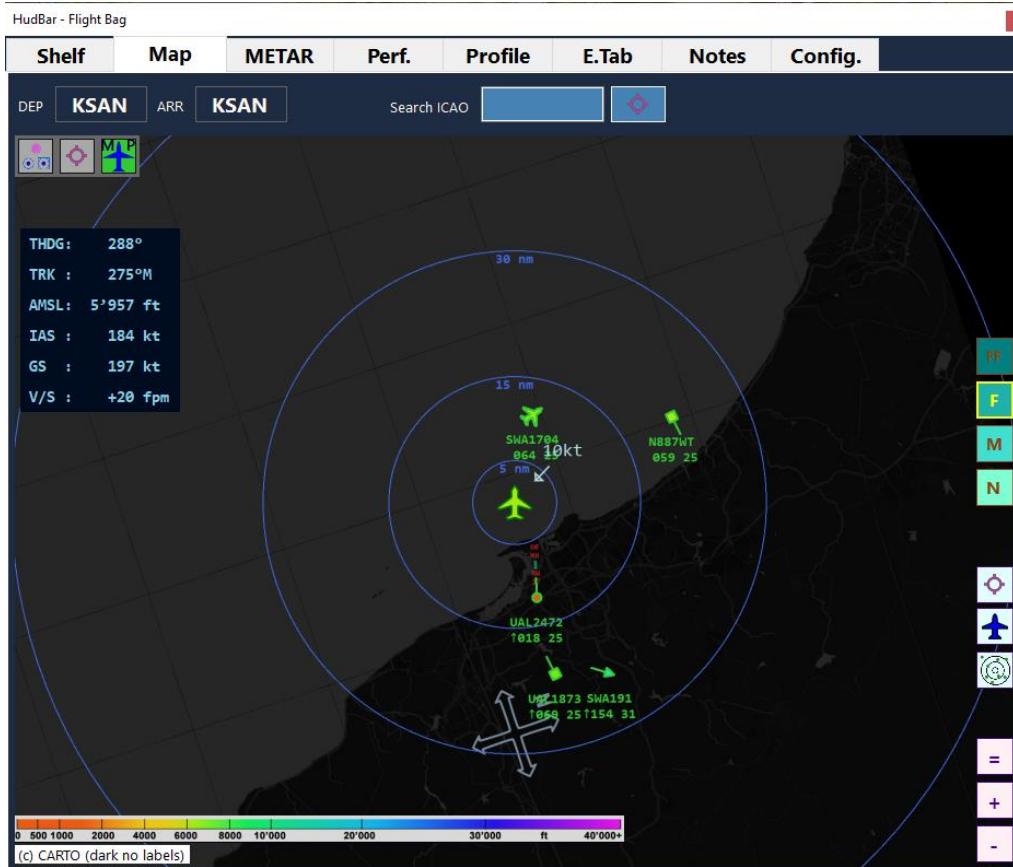


Radar view will **track** the aircraft in the center of the map and therefore does not allow to move or zoom the map with the mouse. Use the available range buttons.

For decorations only Navaids, Airports and Other Aircrafts remain available others are hidden.

The map is shown with a dark map with outlines of land and water boundaries (CARTO dark is used).

Rings are at 5, 15, 30, and 60 nm radius.

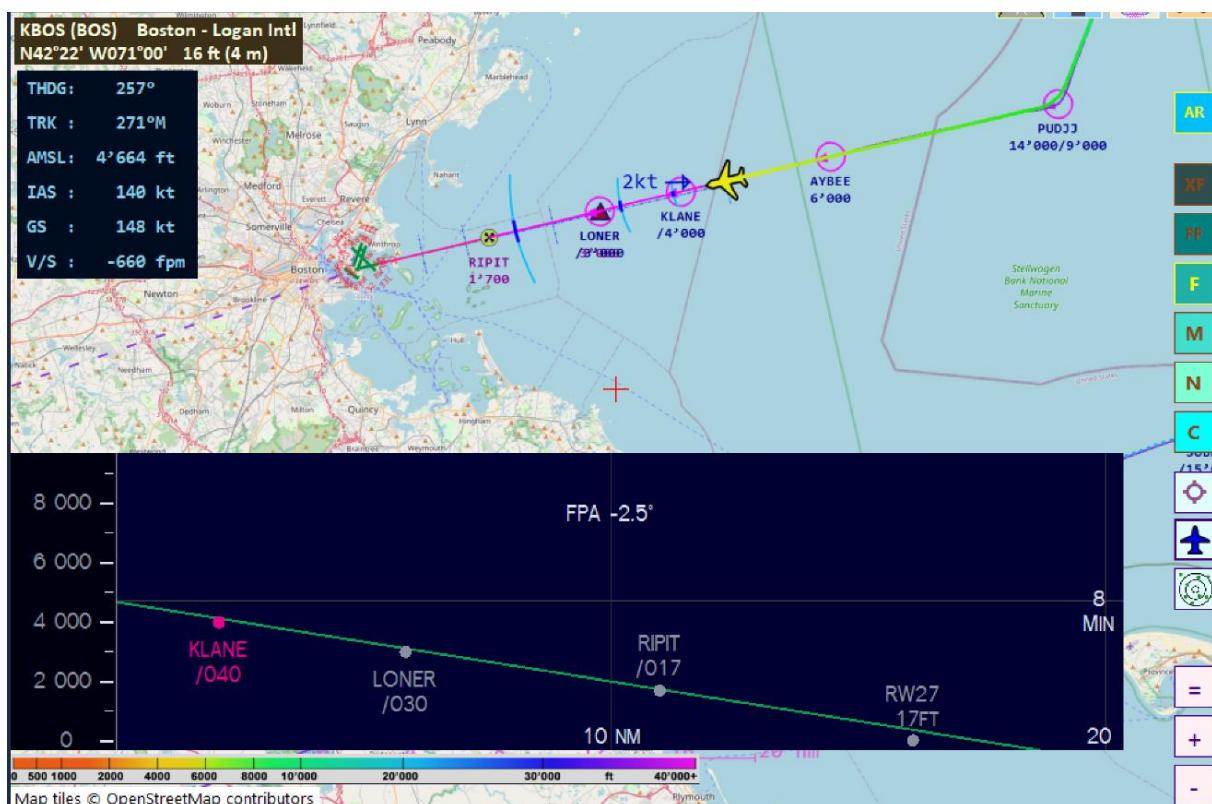
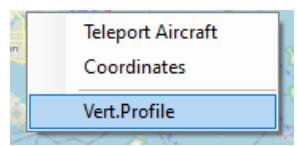


The content and labels are the same as for the regular map display of other aircrafts (see chapter above)

## Map – Vertical Profile (V0.70 new)

To enable and disable the vertical profile display 'Right Click' the map and select 'Vert.Profile'.

*Note: sometimes it will only flicker and not show up; click the window top bar or the map and try again (it happens when the Window does not have the focus)*



Note: The V-Profile area will not resize with the window.

It shows an indicated Altitude Band and a horizontal distance out from the aircrafts nose.

Distance scale is either 60 nm when the ALT is above 10'000 ft or GS is faster than 190kt else the scale is 20 nm.

The green line shows a flight vector based on the current flightpath angle.

When a flight plan with waypoint information has been loaded up to 6 waypoints are plotted along the path with a magenta one as next waypoint. ALT limits are written when available.

ALT Limit format is ALT/100 ft i.e. 017 is 1'700 ft. At '=017', Above '/017', Below '017', Between '030/017'.

EnRoute waypoints may have a planned ALT which is shown as '(017)' or no altitude assigned.

A runway is given in ft e.g. above '17FT'

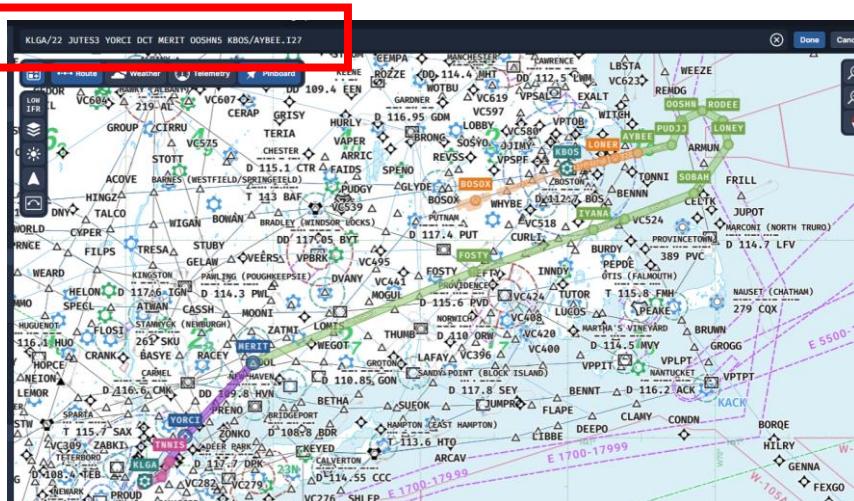
As the vertical scale is dynamic as well the waypoints may be out of the image range. In such cases the label is shown on the centerline and the dot is omitted. Below SOBAH with 15'000 ft will not fit the vertical resolution. Waypoints without altitudes are plotted with dot along the center line as seen below for IYANA and KLEBB.



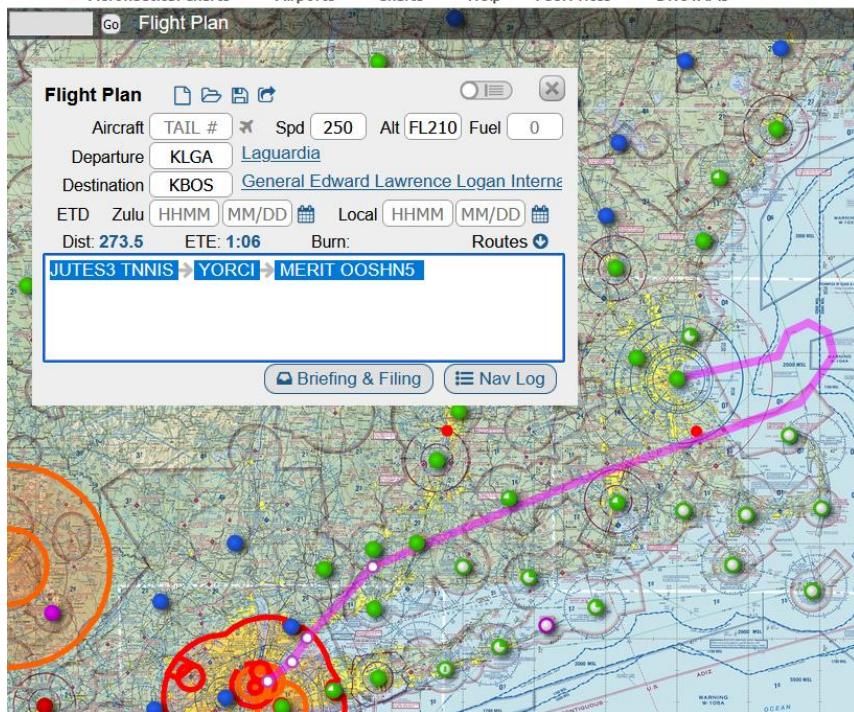
On how to get a flight plan showing waypoints – see next page

Flight plans with reasonable waypoint information are usually Simbrief and LittleNavmap lnmPlans. The default MSFS plan (PLN) varies heavily in completeness and will not capture a used entered flight plan anyway. A quick way is to create a LittleNavmap plan from a **route** from Skyvector or Navigraph App.

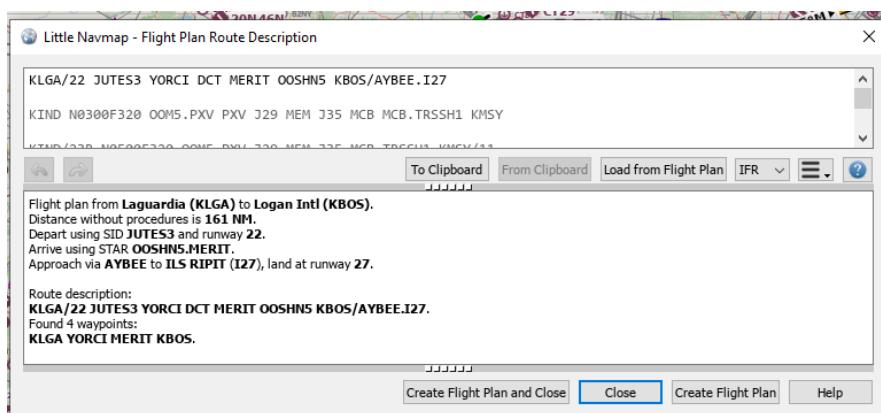
E.g. below from: "KLGA/22 JUTES3 YORCI DCT MERIT OOSHNS5 KBOS/AYBEE.I27"



**SkyVector**  
Aeronautical Charts



LittleNavMap Ctrl-Shift-N and copy and paste the route. Create a Flight Plan and Close, amend and adjust when needed then save as LNM Plan and load it into Flightbag in the Config Tab.



## METAR Tab

This Tab will return METAR information for the station where the **Request** button was clicked.

If set in Config it will ‘translate’ the telegram into a more readable version as shown above.

If METAR does not provide data it might be that the service does not respond (try again in a few seconds) or the station is not available at all.

**The ACFT** will ask for a station based on the aircrafts LAT/LON position from the nearest weather station found within max. 500 Statute miles in direction of flight, 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.**

– MSFS Sim weather cannot be retrieved outside the sim.

## Perf. Tab

Performance data as reported from the Simulator.

Touchdown data as reported from the Simulator.

There is a Touchdown log saved ([MyDocuments\MSFS\\_HudBarSave\landings\TouchDownLogV3.csv](#)) when using the FlightBag.

| A | B        | C             | D            | E         | F         | G    | H         | I         | J        | K       | L       | M        | N      | O         | P         | Q           | R                 | S      | T   |
|---|----------|---------------|--------------|-----------|-----------|------|-----------|-----------|----------|---------|---------|----------|--------|-----------|-----------|-------------|-------------------|--------|-----|
| 1 | Aircraft | Callsign      | Date_Time    | VRate_fpm | GSpeed_kt | Gs_G | SSlip_deg | Pitch_deg | Bank_deg | Yaw_deg | Hdg_deg | GTrk_deg | IAS_Kt | RwyLatDev | RwyLonDev | WindDir_deg | WindSpeed_Airport | Runway | TDs |
| 2 | SR22T    | Worki BM98-CH | 2024-04-18T1 | 237.3     | 72        | 1.16 | 2.1       | 2.8       | -0.8     | 0.9     | 260     | 259      | 74     | 0         | 39        | 308         | 5 LSZF            | RW26   | 1   |
| 3 | SR22T    | Worki BM98-CH | 2024-04-18T1 | 47.3      | 71        | 1.05 | 3.5       | 3.1       | 2.3      | 0.4     | 260     | 259      | 73     | 1         | 68        | 308         | 5 LSZF            | RW26   | 2   |
| 4 | SR22T    | Worki BM98-CH | 2024-04-18T1 | 80.6      | 70        | 0.96 | 2.7       | 1.3       | -0.1     | -0.3    | 258     | 258      | 71     | 2         | 104       | 308         | 5 LSZF            | RW26   | 3   |
| 5 | SR22T    | Worki BM98-CH | 2024-04-18T1 | 229.2     | 72        | 1.24 | 2         | 2.8       | -0.8     | 1.2     | 260     | 258      | 74     | 0         | 40        | 308         | 5 LSZF            | RW26   | 1   |
| 6 | SR22T    | Worki BM98-CH | 2024-04-18T1 | 47.7      | 71        | 1.09 | 2.6       | 3.1       | 2.3      | 1       | 260     | 259      | 73     | 1         | 64        | 308         | 5 LSZF            | RW26   | 2   |
| 7 | SR22T    | Worki BM98-CH | 2024-04-18T1 | 81        | 70        | 0.99 | 2.7       | 1.3       | -0.1     | -0.7    | 258     | 259      | 71     | 2         | 105       | 308         | 5 LSZF            | RW26   | 3   |

More data is collected in V3

You may find Runway Deviation sometimes NaN or off by miles. The deviation is derived from the ATC assumed runway – which sometimes is just not set (NaN) or is still the starting runway (number is far off).

## Profile Tab

An interactive profile table – using the “Rule of 3” as base.

| FPA       | IAS  | TAS    | GS      | VS       | Altitude | Dist [nm] |
|-----------|------|--------|---------|----------|----------|-----------|
| 3.3       | 242  | 348    | 347     | 1980     | 23434    |           |
| Profile ° | %    | ft/min | GS [kt] | VS [fpm] | Alt [ft] | Dist [nm] |
| 0.4       | 0.7  | 40     | 600     | 2500     | 45'000   | 57        |
| 0.6       | 1.0  | 60     | 580     | 2450     | 40'000   | 45        |
| 0.8       | 1.3  | 80     | 560     | 2400     | 38'000   | 41        |
| 1.0       | 1.7  | 100    | 540     | 2350     | 36'000   | 38        |
| 1.2       | 2.1  | 120    | 520     | 2300     | 34'000   | 32        |
| 1.4       | 2.4  | 140    | 500     | 2350     | 32'000   | 27        |
| 1.6       | 2.8  | 160    | 480     | 2300     | 30'000   | 23        |
| 1.8       | 3.1  | 180    | 460     | 2350     | 28'000   | 18        |
| 2.0       | 3.5  | 200    | 440     | 1980     | 26'000   | 14        |
| 2.2       | 3.8  | 220    | 420     | 2000     | 24'000   | 9         |
| 2.4       | 4.2  | 240    | 400     | 2150     | 22'000   | 5         |
| 2.6       | 4.5  | 260    | 380     | 2300     | 20'000   | 0         |
| 2.8       | 4.9  | 280    | 360     | 2350     | 18'000   | 5         |
| 3.0       | 5.2  | 300    | 340     | 2400     | 16'000   | 9         |
| 3.2       | 5.6  | 320    | 320     | 2450     | 15'000   | 11        |
| 3.4       | 5.9  | 340    | 300     | 2300     | 14'000   | 14        |
| 3.6       | 6.3  | 360    | 280     | 2350     | 13'000   | 10        |
| 3.8       | 6.6  | 380    | 260     | 2300     | 12'000   | 18        |
| 4.0       | 7.0  | 400    | 240     | 1850     | 11'000   | 20        |
| 4.2       | 7.3  | 420    | 220     | 1700     | 10'000   | 23        |
| 4.4       | 7.7  | 440    | 200     | 1550     | 9'000    | 25        |
| 4.6       | 8.0  | 460    | 180     | 1400     | 8'000    | 27        |
| 4.8       | 8.4  | 480    | 160     | 1250     | 7'000    | 30        |
| 5.0       | 8.7  | 500    | 140     | 1100     | 6'000    | 32        |
| 5.2       | 9.1  | 520    | 120     | 900      | 5'000    | 34        |
| 5.4       | 9.5  | 540    | 100     | 750      | 4'000    | 36        |
| 5.6       | 9.8  | 560    | 80      | 600      | 3'000    | 39        |
| 5.8       | 10.2 | 580    | 60      | 450      | 2'000    | 41        |
| 6.0       | 10.5 | 600    | 40      | 300      | 1'000    | 43        |
|           |      |        |         |          | 0        | 45        |

Above the tables are the current numbers as reported from the Simulator:

*FPA is the current flight path angle then IAS, TAS, GS, VS, and Altitude (in kts and Alt in ft)*

The current FPA, GS, and Altitude values are highlighted in the respective tables with a greenish color (for values in between row values for GS and Alt the higher one is marked in order to provide a safety margin).

**Click** a flight profile row in the left table - it will recalculate the 2<sup>nd</sup> and 3<sup>rd</sup> table.

The middle table shows the required vertical speed at a given **ground speed** (GS) in order to maintain the profile. E.g. above to maintain a 4.4° profile at GS of 260 kts it asks for 2000 ft/min vertical rate.

**Clicking** a row in the middle table serves only as mark or reminder and will not change any value.

The right table shows the distance which is flown to get to a certain altitude at the selected profile angle. E.g. starting from FL200 with a 4.4° profile it needs 23nm to get either down to FL100 or up to FL300.

**Note: add a safety margin to the calculated distances!**

**Clicking** a row in the right table will set this altitude as zero distance and calculate from there up and down.

There are no signed numbers in the tables, it's meant as either climb or descend.

**Example:**

We are at 26'000 ft with a GS of 480 as the greenish marks are showing, above the table are the real-time values from the Sim.

The plane is heading down at 2.4° and this profile is currently selected - showing a VS of ~2000 ft/min is required and flown.

Below the left screen has 26'000 ft selected as starting point and the distances are calculated up and down. To get down to 7'000 ft it shows we need about 79nm.

In the middle screen the new target altitude of 7'000 ft is selected and it shows the remaining distance as the green mark walks down while we descend. Also showing the needed distance to the airfield which is at about 1'000ft – it would be 25nm when flying at 2.4°.

In the right screen the approach profile of 3° is selected and now the VS has changed but also the distance from 7000 to 1000ft is back to 20nm for the steeper approach (now we only need to get our speed back in time and maintain the profiles..)

| FPA       | IAS  | TAS    | GS      | VS       | Altitude | Dist [nm] |
|-----------|------|--------|---------|----------|----------|-----------|
| -2.4      | 331  | 471    | 472     | 1980     | 24'622   |           |
| Profile ° | %    | ft/min | GS [kt] | VS [fpm] | Alt [ft] | Dist [nm] |
| 0.4       | 0.7  | 40     | 600     | 2500     | 45'000   | 158       |
| 0.6       | 1.0  | 60     | 580     | 2450     | 40'000   | 138       |
| 0.8       | 1.4  | 80     | 560     | 2350     | 38'000   | 129       |
| 1.0       | 1.7  | 100    | 540     | 2300     | 36'000   | 117       |
| 1.2       | 2.1  | 120    | 520     | 2200     | 34'000   | 113       |
| 1.4       | 2.4  | 140    | 500     | 2100     | 32'000   | 104       |
| 1.6       | 2.8  | 160    | 480     | 2000     | 30'000   | 96        |
| 1.8       | 3.1  | 180    | 460     | 1950     | 28'000   | 88        |
| 2.0       | 3.5  | 200    | 440     | 1850     | 26'000   | 79        |
| 2.2       | 3.8  | 220    | 420     | 1750     | 24'000   | 71        |
| 2.4       | 4.2  | 240    | 400     | 1700     | 22'000   | 63        |
| 2.6       | 4.5  | 260    | 380     | 1600     | 20'000   | 54        |
| 2.8       | 4.9  | 280    | 360     | 1500     | 18'000   | 46        |
| 3.0       | 5.2  | 300    | 340     | 1450     | 16'000   | 38        |
| 3.2       | 5.6  | 320    | 320     | 1350     | 15'000   | 33        |
| 3.4       | 5.9  | 340    | 300     | 1250     | 14'000   | 29        |
| 3.6       | 6.3  | 360    | 280     | 1150     | 13'000   | 25        |
| 3.8       | 6.6  | 380    | 260     | 1100     | 12'000   | 21        |
| 4.0       | 7.0  | 400    | 240     | 1000     | 11'000   | 17        |
| 4.2       | 7.3  | 420    | 220     | 900      | 10'000   | 13        |
| 4.4       | 7.7  | 440    | 200     | 850      | 9'000    | 8         |
| 4.6       | 8.0  | 460    | 180     | 750      | 8'000    | 4         |
| 4.8       | 8.4  | 480    | 160     | 650      | 7'000    | 0         |
| 5.0       | 8.7  | 500    | 140     | 600      | 6'000    | 4         |
| 5.2       | 9.1  | 520    | 120     | 500      | 5'000    | 8         |
| 5.4       | 9.5  | 540    | 100     | 400      | 4'000    | 13        |
| 5.6       | 9.8  | 560    | 80      | 350      | 3'000    | 17        |
| 5.8       | 10.2 | 580    | 60      | 250      | 2'000    | 25        |
| 6.0       | 10.5 | 600    | 40      | 150      | 1'000    | 0         |
|           |      |        |         |          | 0        | 198       |

| FPA       | IAS  | TAS    | GS      | VS       | Altitude | Dist [nm] |
|-----------|------|--------|---------|----------|----------|-----------|
| -2.4      | 331  | 469    | 472     | 2'000    | 24'361   |           |
| Profile ° | %    | ft/min | GS [kt] | VS [fpm] | Alt [ft] | Dist [nm] |
| 0.4       | 0.7  | 40     | 600     | 2'500    | 45'000   | 158       |
| 0.6       | 1.0  | 60     | 580     | 2'450    | 40'000   | 138       |
| 0.8       | 1.4  | 80     | 560     | 2'350    | 38'000   | 129       |
| 1.0       | 1.7  | 100    | 540     | 2'300    | 36'000   | 117       |
| 1.2       | 2.1  | 120    | 520     | 2'200    | 34'000   | 113       |
| 1.4       | 2.4  | 140    | 500     | 2'100    | 32'000   | 104       |
| 1.6       | 2.8  | 160    | 480     | 2'000    | 30'000   | 96        |
| 1.8       | 3.1  | 180    | 460     | 1'950    | 28'000   | 88        |
| 2.0       | 3.5  | 200    | 440     | 1'850    | 26'000   | 79        |
| 2.2       | 3.8  | 220    | 420     | 1'750    | 24'000   | 71        |
| 2.4       | 4.2  | 240    | 400     | 1'700    | 22'000   | 63        |
| 2.6       | 4.5  | 260    | 380     | 1'600    | 20'000   | 54        |
| 2.8       | 4.9  | 280    | 360     | 1'500    | 18'000   | 46        |
| 3.0       | 5.2  | 300    | 340     | 1'450    | 16'000   | 38        |
| 3.2       | 5.6  | 320    | 320     | 1'350    | 15'000   | 33        |
| 3.4       | 5.9  | 340    | 300     | 1'250    | 14'000   | 29        |
| 3.6       | 6.3  | 360    | 280     | 1'150    | 13'000   | 25        |
| 3.8       | 6.6  | 380    | 260     | 1'100    | 12'000   | 21        |
| 4.0       | 7.0  | 400    | 240     | 1'000    | 11'000   | 17        |
| 4.2       | 7.3  | 420    | 220     | 900      | 10'000   | 13        |
| 4.4       | 7.7  | 440    | 200     | 850      | 9'000    | 8         |
| 4.6       | 8.0  | 460    | 180     | 750      | 8'000    | 4         |
| 4.8       | 8.4  | 480    | 160     | 650      | 7'000    | 0         |
| 5.0       | 8.7  | 500    | 140     | 600      | 6'000    | 4         |
| 5.2       | 9.1  | 520    | 120     | 500      | 5'000    | 8         |
| 5.4       | 9.5  | 540    | 100     | 400      | 4'000    | 13        |
| 5.6       | 9.8  | 560    | 80      | 350      | 3'000    | 17        |
| 5.8       | 10.2 | 580    | 60      | 250      | 2'000    | 25        |
| 6.0       | 10.5 | 600    | 40      | 150      | 1'000    | 0         |
|           |      |        |         |          | 0        | 198       |

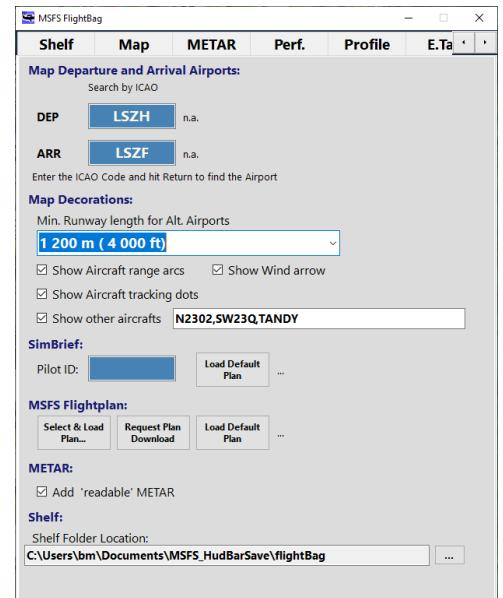
| FPA       | IAS  | TAS    | GS      | VS       | Altitude | Dist [nm] |
|-----------|------|--------|---------|----------|----------|-----------|
| -2.5      | 330  | 466    | 467     | -2'020   | 24'005   |           |
| Profile ° | %    | ft/min | GS [kt] | VS [fpm] | Alt [ft] | Dist [nm] |
| 0.4       | 0.7  | 40     | 600     | -3'150   | 45'000   | 127       |
| 0.6       | 1.0  | 60     | 580     | -3'050   | 40'000   | 110       |
| 0.8       | 1.4  | 80     | 560     | -2'950   | 38'000   | 103       |
| 1.0       | 1.7  | 100    | 540     | -2'850   | 36'000   | 97        |
| 1.2       | 2.1  | 120    | 520     | -2'750   | 34'000   | 90        |
| 1.4       | 2.4  | 140    | 500     | -2'650   | 32'000   | 83        |
| 1.6       | 2.8  | 160    | 480     | -2'500   | 30'000   | 77        |
| 1.8       | 3.1  | 180    | 460     | -2'400   | 28'000   | 70        |
| 2.0       | 3.5  | 200    | 440     | -2'300   | 26'000   | 63        |
| 2.2       | 3.8  | 220    | 420     | -2'200   | 24'000   | 57        |
| 2.4       | 4.2  | 240    | 400     | -2'100   | 22'000   | 50        |
| 2.6       | 4.5  | 260    | 380     | -2'000   | 20'000   | 43        |
| 2.8       | 4.9  | 280    | 360     | -1'900   | 18'000   | 37        |
| 3.0       | 5.2  | 300    | 340     | -1'800   | 16'000   | 30        |
| 3.2       | 5.6  | 320    | 320     | -1'700   | 15'000   | 27        |
| 3.4       | 5.9  | 340    | 300     | -1'600   | 14'000   | 23        |
| 3.6       | 6.3  | 360    | 280     | -1'500   | 13'000   | 20        |
| 3.8       | 6.6  | 380    | 260     | -1'400   | 12'000   | 17        |
| 4.0       | 7.0  | 400    | 240     | -1'250   | 11'000   | 13        |
| 4.2       | 7.3  | 420    | 220     | -1'150   | 10'000   | 10        |
| 4.4       | 7.7  | 440    | 200     | -1'050   | 9'000    | 7         |
| 4.6       | 8.0  | 460    | 180     | -950     | 8'000    | 3         |
| 4.8       | 8.4  | 480    | 160     | -850     | 7'000    | 0         |
| 5.0       | 8.7  | 500    | 140     | -750     | 6'000    | 3         |
| 5.2       | 9.1  | 520    | 120     | -650     | 5'000    | 7         |
| 5.4       | 9.5  | 540    | 100     | -500     | 4'000    | 10        |
| 5.6       | 9.8  | 560    | 80      | -350     | 3'000    | 13        |
| 5.8       | 10.2 | 580    | 60      | -250     | 2'000    | 17        |
| 6.0       | 10.5 | 600    | 40      | -150     | 1'000    | 25        |
|           |      |        |         |          | 0        | 23        |

Can be used to estimate the TOD or to check if a constraint can be made with the current profile.

## Notes Tab

just a notepad which is saved when closing the App

## Config Tab



### Set the desired **Departure** and **Arrival Airports**

Enter the ICAO code and hit the Enter key – if the airport is found it will turn green and the common name is shown right to it, else it will turn red, indicating that ICAO code was not found in the database.

### Map Decorations:

Min. **Runway length for Alt.Airports** lets you select the minimum length for any runway an airport must have in order to be shown when Airports decoration is ON. Choose a min length from the drop down.

Checked **Show Aircraft range arcs** will show the leading arcs of the tracked aircraft when Aircraft decoration is ON.

Checked **Show Aircraft Wind arrow** will show an arrow of wind direction and the speed of the wind around the aircraft.

Checked **Show Aircraft tracking dots** will show the trailing dots of the current tracked aircraft when Aircraft decoration is ON.

Checked **Show other aircrafts** will show other traffic on the map when Aircraft MP decoration is ON.

The text box to the right accepts a **comma** separated list of call signs to prefer and filter to be shown, any other traffic is then not shown. Clear the text box to remove the filter.

### SimBrief: download the actual plan

Enter your SimBrief PilotID (a 2..7 digit number), hit Return to validate it (once – it will be stored in Settings)

Then click **“Load Plan”** to retrieve your latest Flight Plan – it will reply the Departure and Arrival Airport and also fill in the corresponding fields above.

### MSFS Flightplan: loading an existing plan file from disk

Select a PLN, FLT or LNM or GPX file from the disk.

Or request the ATC plan from the Sim

Or load the default plan from MS to load a route and create a Plan Table document in the Shelf.

→ Preferred is an LNM (Little Navmap) native plan \*.lnmpln as it contains the most complete and consistent information.

### METAR:

Checked ‘Add ‘readable’ METAR will show the more readable METAR information along with the received telegram.

### Shelf:

**Shelf Folder Location:** click the button <...> to select a folder where the images for the Shelf Tab can be found.

→ The Configuration is shared for the standalone and the HudBar version of the FlightBag.

## SimBrief Integration (V0.70 updated)

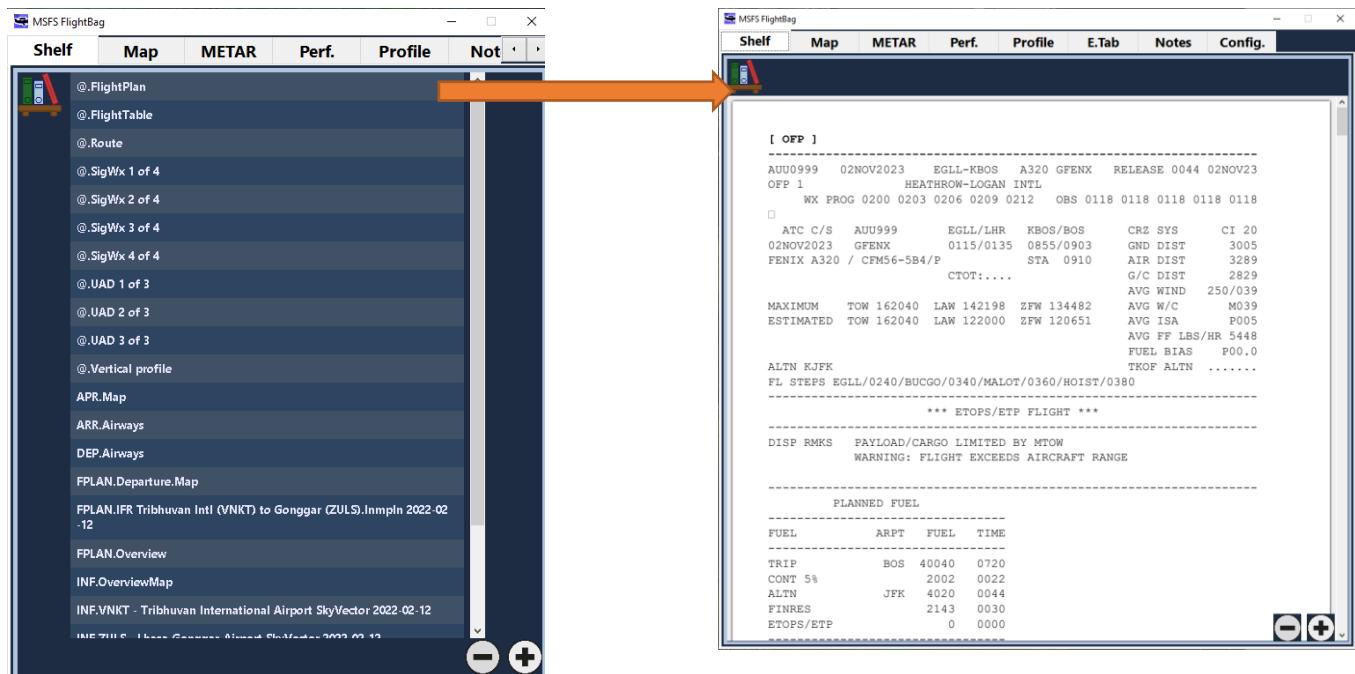
If you are using SimBrief for your flight planning you may retrieve the latest plan and some documents now.



First provide your Pilot ID (a 2..7 digit number) in Configuration, it will be stored in Settings.

Use "Load Plan" in Configuration to retrieve the last plan data.

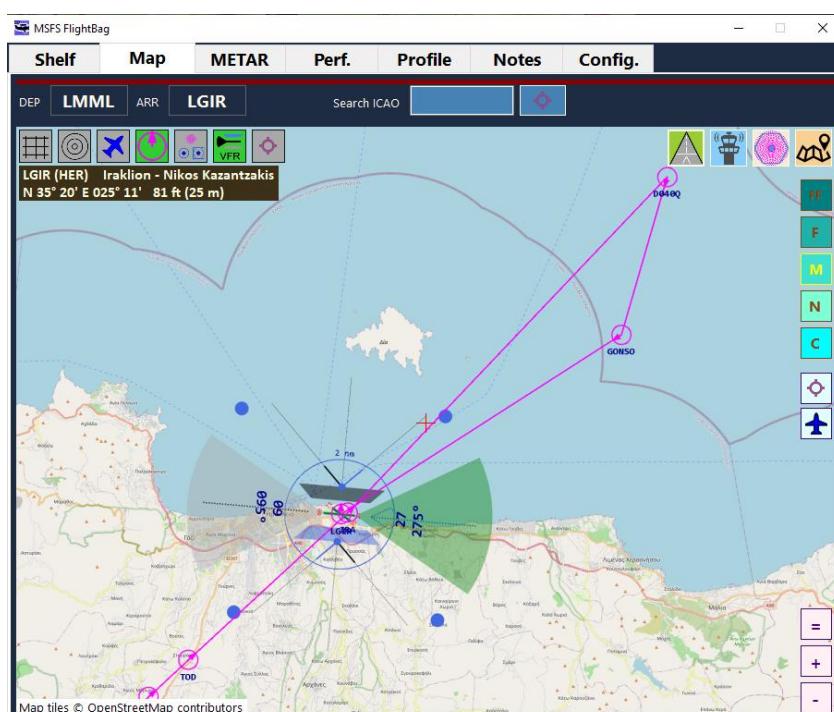
Once successful a Flight Plan document is stored in the Shelf together with the pictures created by SimBrief.



In Shelf you will find the documents starting with @. ... (e.g. @.FlightPlan, @.FlightTable, etc)

@.FlightPlan is the main plan PDF file **downloaded from simBrief**. The type of plan (e.g. LIDO etc.) you have setup in simBrief. It is shown as PDF document. (V0.70 updated)

For the Map display the planned route is shown (can be toggled on and off) using this button:



While the route is shown as magenta line the waypoints are circles with the ID below.

Note:

The plan does not include approaches and therefore the last segment is usually pointing at the airport, rather than the approach path.

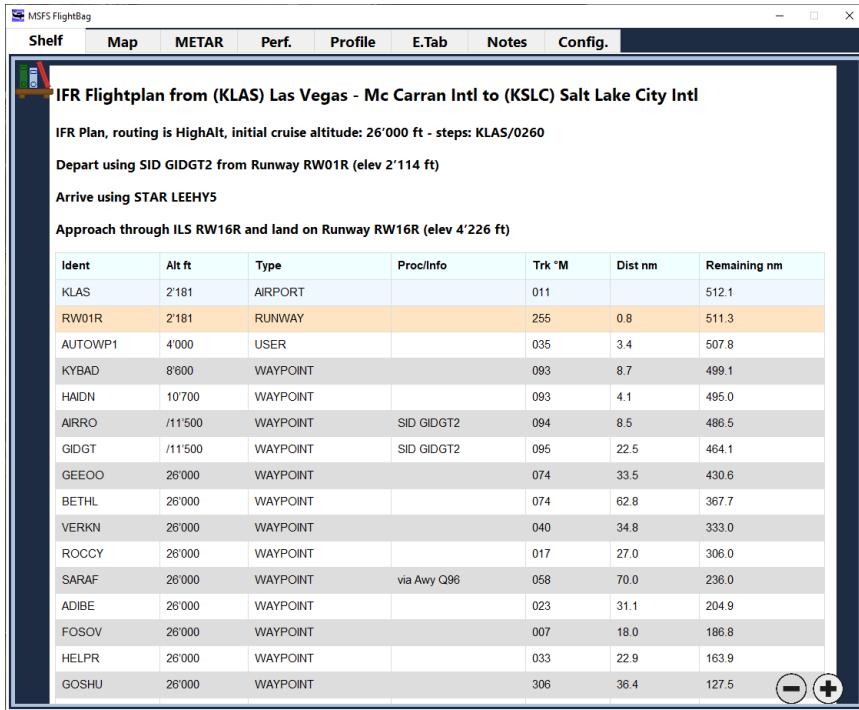
In the example the plan is to land on runway 27. With the VFR runway display one has at least a rough overview of the approach pattern needed.

*Note: There are some settings in SimBrief which may disable the availability of images in the download, check SimBrief Settings for details.*

## MSFS Flightplan Integration

In Config you may load either the default MSFS Plan (CUSTOMFLIGHT.PLN in the MISSIONS folder) or request the most current Simulation ATC FLT plan or select a PLN, FLT, LNMP or GPX Flightplan file from any location on the computer.

MS Plans will load the route and also a flight plan in table format is created and saved in the Shelf the name is: `@.FlightTable`



IFR Flightplan from (KLAS) Las Vegas - Mc Carren Intl to (KSLC) Salt Lake City Intl

IFR Plan, routing is HighAlt, initial cruise altitude: 26'000 ft - steps: KLAS/0260

Depart using SID GIDGT2 from Runway RW01R (elev 2'114 ft)

Arrive using STAR LEEHYS

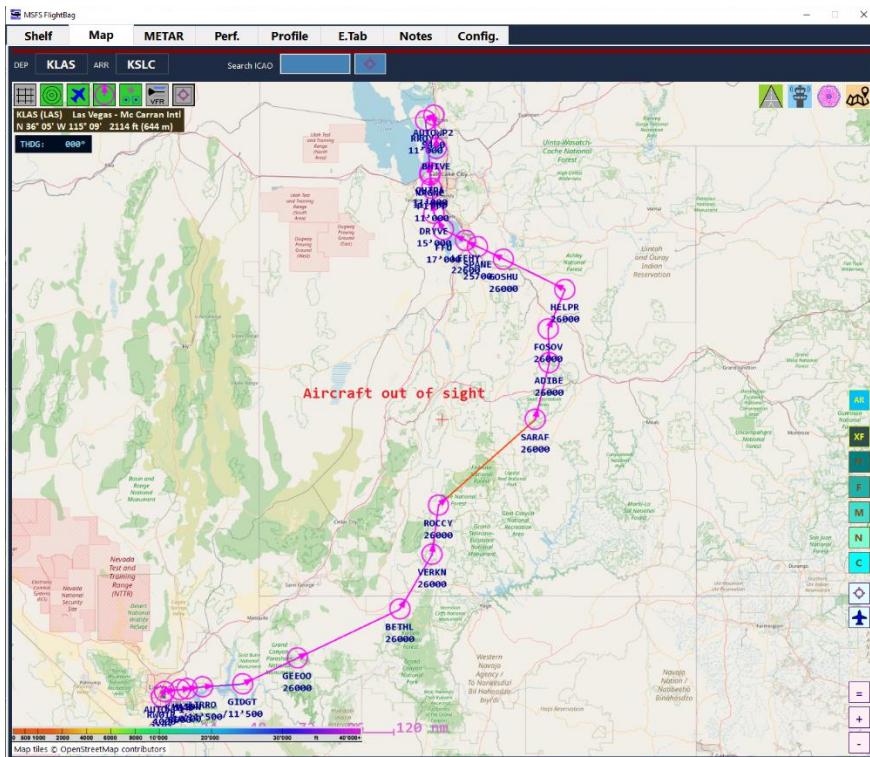
Approach through ILS RW16R and land on Runway RW16R (elev 4'226 ft)

| Ident   | Alt ft | Type     | Proc/Info   | Trk °M | Dist nm | Remaining nm |
|---------|--------|----------|-------------|--------|---------|--------------|
| KLAS    | 2'181  | AIRPORT  |             | 011    |         | 512.1        |
| RW01R   | 2'181  | RUNWAY   |             | 255    | 0.8     | 511.3        |
| AUTOWP1 | 4'000  | USER     |             | 035    | 3.4     | 507.8        |
| KYBAD   | 8'600  | WAYPOINT |             | 093    | 8.7     | 499.1        |
| HAIND   | 10'700 | WAYPOINT |             | 093    | 4.1     | 495.0        |
| ARRO    | 11'500 | WAYPOINT | SID GIDGT2  | 094    | 8.5     | 486.5        |
| GIDGT   | 11'500 | WAYPOINT | SID GIDGT2  | 095    | 22.5    | 464.1        |
| GEEOO   | 26'000 | WAYPOINT |             | 074    | 33.5    | 430.6        |
| BETHL   | 26'000 | WAYPOINT |             | 074    | 62.8    | 367.7        |
| VERKN   | 26'000 | WAYPOINT |             | 040    | 34.8    | 333.0        |
| ROCCY   | 26'000 | WAYPOINT |             | 017    | 27.0    | 306.0        |
| SARAF   | 26'000 | WAYPOINT | via Awy Q96 | 058    | 70.0    | 236.0        |
| ADIBE   | 26'000 | WAYPOINT |             | 023    | 31.1    | 204.9        |
| FOSOV   | 26'000 | WAYPOINT |             | 007    | 18.0    | 186.8        |
| HELPY   | 26'000 | WAYPOINT |             | 033    | 22.9    | 163.9        |
| GOSHU   | 26'000 | WAYPOINT |             | 306    | 36.4    | 127.5        |

The above is from a flight planned in LittleNavMap where the MSFS (PLN) file was saved and loaded in Config Select & Load Plan...

The XF Range allows a larger overview of such a plan.

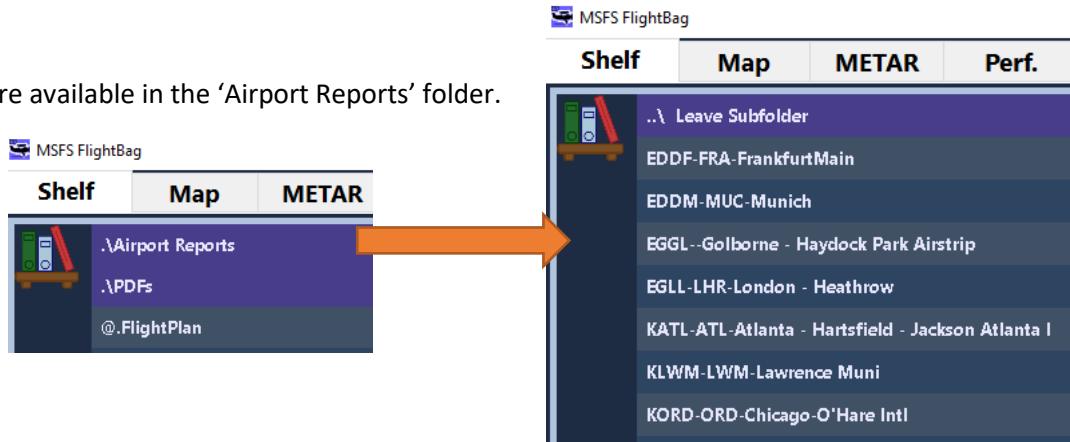
**MSFS Flightplan:**  
Select & Load Plan...



*Note: You may use both SimBrief and MSFS Plan loading without having the Simulator running.*

# Airport Reports

Tabular reports for airports are available in the 'Airport Reports' folder.



An Airport Report is newly created each time you enter a valid airport ICAO in the Finder field and hit Enter or click the airport icon.

An Airport Report is created as PDF document.

Airport Reports include 6 sections:

- ICAO + IATA when available, Name + coordinates
- Runways + their Approaches
- SID Procedures per runway
- STAR Procedures per runway
- Communication Frequencies
- Navaids in range

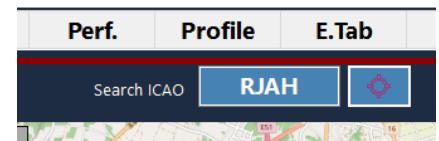
Arrows indicate the direction of the aircraft with regards to the airport i.e. 'outgoing towards' for runways and SIDs, 'incoming from' for STARs

Sections might be empty if there is no such information available.

A report is overwritten when a new one for the same airport is created.

*Note: you need to re-open a document when the same was opened while creating a new report.*

*Same as with any document in the Shelf.*



MSFS FlightBag

Shelf Map METAR Perf.

.\Leave Subfolder

EDDF-FRA-FrankfurtMain

EDDM-MUC-Munich

EGGL--Golborne - Haydock Park Airstrip

EGLL-LHR-London - Heathrow

KATL-ATL-Atlanta - Hartsfield - Jackson Atlanta I

KLWM-LWM-Lawrence Muni

KORD-ORD-Chicago-O'Hare Intl

Perf. Profile E.Tab

Search ICAO RJAH

MSFS FlightBag

Shelf Map METAR Perf. Profile E.Tab Notes Config.

05.11.2023 16:17

RJAH - IBR - Hyakuri Aero

N 36° 11' E 140° 25' - 107 ft (33 m)

Runways

| RWY     | HDG             | Dim [ft]              | Dim [m]              | Surface              |
|---------|-----------------|-----------------------|----------------------|----------------------|
| ↑ RW03L | 019°            | 8'819 x 141 ft        | 2'688 x 43 m         | ASPHALT              |
|         | RNAV            |                       | if SUMIG @ 1'300 ft  | map NAKAH @ 4'000 ft |
|         | VOR Y           | HUC (113.30 MHz)      | if CT03L @ 1'500 ft  | map TAIYO @ 3'000 ft |
|         | VOR Z           | HUC (113.30 MHz)      | if CT03L @ 1'500 ft  | map TAIYO @ 3'000 ft |
|         | VORDME          | HUC (113.30 MHz)      | if CD03 @ 1'500 ft   | map NAKAH @ 4'000 ft |
| ↑ RW03R | 019°            | 8'848 x 138 ft        | 2'697 x 42 m         | ASPHALT              |
|         | ILS W           | IHY (109.30 MHz 2.8') | if CT03R @ 1'500 ft  | map TAIYO @ 3'000 ft |
|         | ILS X           | IHY (109.30 MHz 2.8') | if CT03R @ 1'500 ft  | map NAKAH @ 4'000 ft |
|         | ILS Y           | IHY (109.30 MHz 2.8') | if CT03R @ 1'500 ft  | map TAIYO @ 3'000 ft |
|         | ILS Z           | IHY (109.30 MHz 2.8') | if CT03R @ 1'500 ft  | map TAIYO @ 3'000 ft |
|         | VOR Y           | HUC (113.30 MHz)      | if CT03R @ 1'500 ft  | map TAIYO @ 3'000 ft |
|         | VOR Z           | HUC (113.30 MHz)      | if CT03R @ 1'500 ft  | map TAIYO @ 3'000 ft |
|         | VORDME          | HUC (113.30 MHz)      | if CD03 @ 1'500 ft   | map NAKAH @ 4'000 ft |
| ↑ RW21L | 199°            | 8'848 x 138 ft        | 2'697 x 42 m         | ASPHALT              |
|         | VOR Y           | HUC (113.30 MHz)      | if CT21Y @ 2'000 ft  | map TAIYO @ 3'000 ft |
|         | VOR Z           | HUC (113.30 MHz)      | if CT21Z @ 2'000 ft  | map TAIYO @ 3'000 ft |
|         | VORDME          | HUC (113.30 MHz)      | if CT21 @ 2'000 ft   | map NAKAH @ 600 ft   |
| ↑ RW21R | 199°            | 8'819 x 141 ft        | 2'688 x 43 m         | ASPHALT              |
|         | RNAV            |                       | faf OMITT @ 1'400 ft | map NAKAH @ 4'000 ft |
|         | VOR Y           | HUC (113.30 MHz)      | if CT21Y @ 2'000 ft  | map TAIYO @ 3'000 ft |
|         | VOR Z           | HUC (113.30 MHz)      | if CT21Z @ 2'000 ft  | map TAIYO @ 3'000 ft |
|         | VORDME          | HUC (113.30 MHz)      | if CD21R @ 2'000 ft  | map NAKAH @ 600 ft   |
| RWY     | SID             | Fix                   | Transitions          |                      |
| ↑ RW03L | ✓ HITAKI (RNAV) | OGITU                 | IXE, OKUJI           |                      |
|         | ✓ OGITU2 (RNAV) | OGITU                 | CVT, HUC             |                      |
|         | ✓ DAPPE1 (RNAV) | DAPPE                 | GOT, MXT             |                      |
|         | ✓ HOKTSE (RNAV) | HOKTA                 | GOT, MXT             |                      |
|         | ✓ HOKTAS (RNAV) | HOKTA                 | GOT, MXT             |                      |
|         | ✓ NAKAH4 (RNAV) | NAKAH                 |                      |                      |
| ↑ RW03R | SID             | Fix                   | Transitions          |                      |
|         | ✓ OGITU2 (RNAV) | OGITU                 | IXE, OKUJI           |                      |
|         | ✓ DAPPE1 (RNAV) | DAPPE                 | CVT, HUC             |                      |
|         | ✓ HOKTSE (RNAV) | HOKTA                 | GOT, MXT             |                      |
|         | ✓ HOKTAS (RNAV) | HOKTA                 | GOT, MXT             |                      |
|         | ✓ NAKAH4 (RNAV) | NAKAH                 |                      |                      |
| ↑ RW21L | SID             | Fix                   | Transitions          |                      |
|         | ✓ OGITU2 (RNAV) | OGITU                 | IXE, OKUJI           |                      |
|         | ✓ DAPPE1 (RNAV) | DAPPE                 | CVT, HUC             |                      |
|         | ✓ HOKTSE (RNAV) | HOKTA                 | GOT, MXT             |                      |
|         | ✓ HOKTAS (RNAV) | HOKTA                 | GOT, MXT             |                      |
|         | ✓ NAKAH4 (RNAV) | NAKAH                 |                      |                      |
| ↑ RW21R | SID             | Fix                   | Transitions          |                      |
|         | ✓ HITAKI (RNAV) | OGITU                 |                      |                      |

## 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.**

URL is updated now

## Distributed Contents:

My FlightSim Libraries (included in the release package)

**SEE README.TXT FOR THE LIST**

CoordLib is based on: <https://github.com/chrisveness/geodesy>

Translated to C# and partially modified

Original code license: The MIT License (MIT)

## Appendix:

### File Storage

Files are generally stored in the “<MyDocuments>\MSFS\_HudBarSave” folder

### Settings Files and Reset Configuration

The configuration is stored in using a Json AppSettings Library.

The configuration can be found here: <MyDocuments>\MSFS\_HudBarSave\settings\<APP>

For the Flight Bag, the settings file is: **FShelfAppSettings.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.

If you find something really wrong – you may backup and delete the settings file and the program will use the defaults to start with.

### Map Data retrieval and storage disclaimer

Map cache files:

The map cache files can be found here: <MyDocuments>\MSFS\_HudBarSave\cache\<Provider>.dblite

**MapLib** retrieves tiles only for the user requested location and zoom level.

The visualization WinForms UserControl **bm98\_Map** requests tiles as a matrix of 8x8 tiles at zoom levels for the 6 different ranges: XF=7, FF= 9, F=11, M= 12, N=13, C=15

With **AutoRange** enabled it will load tiles from zoom level 5 to 15 when zooming the Map



**MapLib** stores tiles per provider in a computer local disk cache and will clean up tiles older than 100 days or when the providers cache exceeds ~128MB / ~5120 tiles at startup of the application.

The cache size can be set from 32..1024 MB (see MapLib document in the Appendix)

**MapLib** maintains a memory cache for 800 tiles (about 20MB RAM) while an application is running.

→ If you encounter incorrect tiles or other oddities – first delete the cache files and try again.

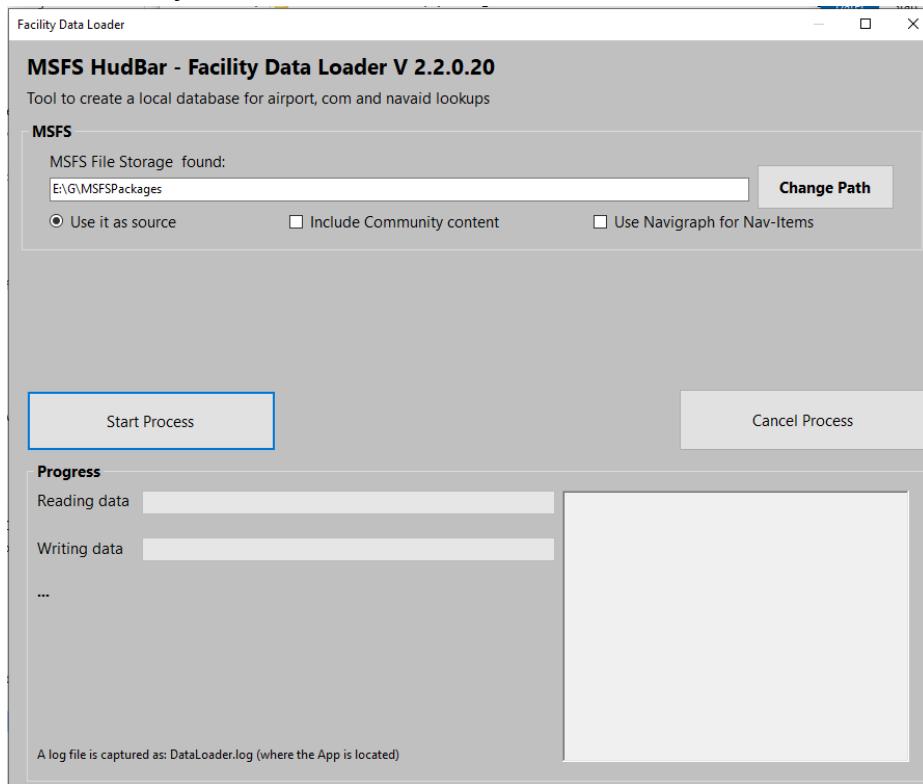
**Provider Configuration** → Check the guide for MapLib (MapLib-Doc.pdf – at the end of this document)

Download task complies with OSM policy i.e. only 2 concurrent threads.

## Data Loader

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

Run FacilityDataLoader.exe:



First check if the program finds the MSFS data path.

It does follow the MS specs for Store and Steam but...

If not 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)

Check the 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 450MB. The database is new V2 (fs2020genAptV2.dbLite), the old one is not deleted.

The database is stored at `MyDocuments\MSFS_HudBarSave\db\fs2020genAptV2.dbLite` and is about 450MB.

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

## Instances

You may want to start the FlightBag more than once or get independent configurations 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 FlightBag.

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

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

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

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

## 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.

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

[https://github.com/bm98/FS20\\_HudBar/issues](https://github.com/bm98/FS20_HudBar/issues)

<https://flightsim.to/file/41426/msfs-flightbag>

For issues with a flight plans – the App stores the most recent version in

MyDocuments\MSFS\_HudBarSave as file with the name **LastPlanDownload.XYZ**

PLEASE trigger the request again and then immediately save and include the files when reporting errors.

**Enable Logging:** In the application folder **copy** 'NLog.config.OFF' to 'NLog.config'

Logging will create generations of 'FS20\_FlightBag.log' or 'FS20\_HudBar.log' which might be useful to resolve issues

**Disable Logging:** Delete the 'NLog.config' file

## Known Issues:

### ***Stutter when requesting a Plan from Sim***

The Simulator may stutter for a moment when requesting a plan download- seems to be an ASOBO/MS issue since long ago. Cannot do anything about it...

### ***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.

In such a case first try to find out if protected folders are enabled and then add the FlightBag 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>)

# MapLib – Map tile retrieval library

© 2023 - M.Burri

Apr 2024 Update see notes below marked with **Apr24**

## Supported Map Providers

**MapLib** supports a fixed number of Map Tile Providers as well as 6 user defined ones.

→ **ALWAYS consider the terms of use for any of the map providers**

**Free and open Tile services are at the time of writing** – enabled by default

OpenStreetMap (OSM) and some derivatives

<https://www.openstreetmap.org>

OpenTopo, a 3d enhanced map from an open source project.

<https://opentopomap.org>

**Nov23 Stadiamaps.com / STAMEN TERRAIN** – disabled by default

Stamen 3D shaped terrain map is now served by Stadia Maps and **requires a Key** (a free subscription exists) therefore Stamen is now default Disabled, URLs have been updated, see below how to enable it

<https://stadiamaps.com/stamen/>

**Apr24 ChartBundle.com** – disabled by default

Unfortunately ChartBundle is no longer online and has been removed

Suggested replacement for Chartbundle from Google comments:

**Apr24 FAA Tiles served by ArcGis** - see terms of use

For US regions only (FAA provides data at no cost, other countries do not...) - Disabled per default

**Tile Services which need either a key or are subject to licensing terms** – disabled by default

Bing Maps (Microsoft map service) needs a key and subject to licensing

<https://docs.microsoft.com/en-us/bingmaps/getting-started>

ESRI/ARCGIS Tile Services as part of their offering – subject to license, don't use if not licensed

<https://developers.arcgis.com/documentation/mapping-apis-and-services/data-hosting/services/image-tile-service/>

Remark:

Don't ask for Google Map support – I don't have a key and they are rather complicated to work with...

## User defined tile services 1..6

You may have an own tile service running on your NAS or know a tile service you like to use.

The URL to be provided looks like:

**Http=https://ip\_or\_address/route/{z}/{y}/{x}.imageformat**

Where the {z} {y} {x} parts will be replaced by the requested zoom and coordinates.

The library expects a Mercator Tile Set with 0/0 top left tile number and 256x256 sized tiles – PNG and JPG image formats are supported.

Example:

**Http=https://myNas:23356/tiles/{z}/{y}/{x}.jpg**

## Data retrieval and storage disclaimer

**MapLib** retrieves tiles only for the user requested location and zoom level.

The visualization WinForms UserControl **bm98\_Map** requests tiles as a matrix of 8x8 tiles at zoom levels for the 5 different ranges: XF=7, FF= 9, F=11, M= 12, N=13, C=15

With AutoRange enabled it will load tiles from zoom level 6 to 15 when zooming the Map

**MapLib** stores tiles per provider in a computer local disk cache and will clean up tiles older than 100 days or when the providers cache exceeds the size limit at startup of the application.

**Nov23** You may define a Disk Cache size from 32MB to 1024MB using the Ini file (see below)

Default is ~128MB / ~5120 tiles

**MapLib** maintains a memory cache for 800 tiles (about 20 MB RAM) while an application is running.

→ If you encounter incorrect tiles or other oddities – first delete the cache files and try again.

The download task will comply with OSM policy i.e. only 2 concurrent tile download threads.

## INI File

Configuration goes via an **INI File** (`MapLibProvider.ini`) located per default in the **Applications directory**.

IF the Library finds a `MapLibProvider.ini` file in a user folder (`MyDocuments\MSFS_HudBarsSave`) it takes preference over the default one.

**I.e. if you change INI settings, first copy the original file to this folder and make changes there, else it will be overwritten when extracting a new version from the Zip file**

- The INI file consists of the Main section + a number of Provider sections
- INI files consists of lines where everything after a semicolon `<;>` is considered as comment.
- INI files do have a Keyword and a content in the form of: Keyword=Content
- INI files do have sections which start with a bracketed Name: [Section]
- The part of the INI file which is not lead by a section name is the Main Section

→ INI files are text files, use **only** Notepad or similar editors, never Word or other text processing programs to edit it's content

### Main Section

`DefaultProvider= ..` → Default Provider and tiles the Map starts with

Use any of the enabled [ProviderNames] found in the later sections Use the exact name, or uncomment the template ones, only the first entry in the file is considered.

Example:

`DefaultProvider=OSM_OpenStreetMap`

`BingKey= ..` → A Key to use Bing Maps (see remark below)

A rather large number of characters provided by BING Maps in order to access their map services, visit URLs below at Microsoft

<https://docs.microsoft.com/en-us/bingmaps/getting-started>

<https://docs.microsoft.com/en-us/bingmaps/getting-started/bing-maps-dev-center-help/getting-a-bing-maps-key>

`StadiaStamenKey= ..` → A Key to use Stamen Maps (see remark below) **Nov23**

A rather large number of characters provided by Stadia Maps in order to access their map services, visit URLs below at Stadia Maps

<https://stadiamaps.com/stamen/>

`DiskCacheMB=128` → A number 32..1024 to set the disk cache size in MB per provider (128 default) **Nov23**

## Provider Sections:

[ProviderName] → Provider name – **don't change**, the library expects those names

Name=... → The name shown in the selection list

Enabled=... → True if the provider is enabled else False  
To enable a provider set this entry to True, to disable use False  
Enabled providers will show up in the map selection to choose from.  
The free providers except FAA charts are enabled in the INI file, not so free ones disabled

Example:

Enabled=True

Http=... → The map tile server address, most don't need an entry and are listed as comment for reference.  
For OSM one could use a variety of specialized servers in order to get e.g. names in another language than OSM provides them, e.g. the .de server will supply translated city names for parts of Asia.  
For the User Entries see below.

Http=https://ip\_or\_address/route/{z}/{x}/{y}.imageformat

Where the {z} {x} {y} parts will be replaced by the requested zoom and coordinates.

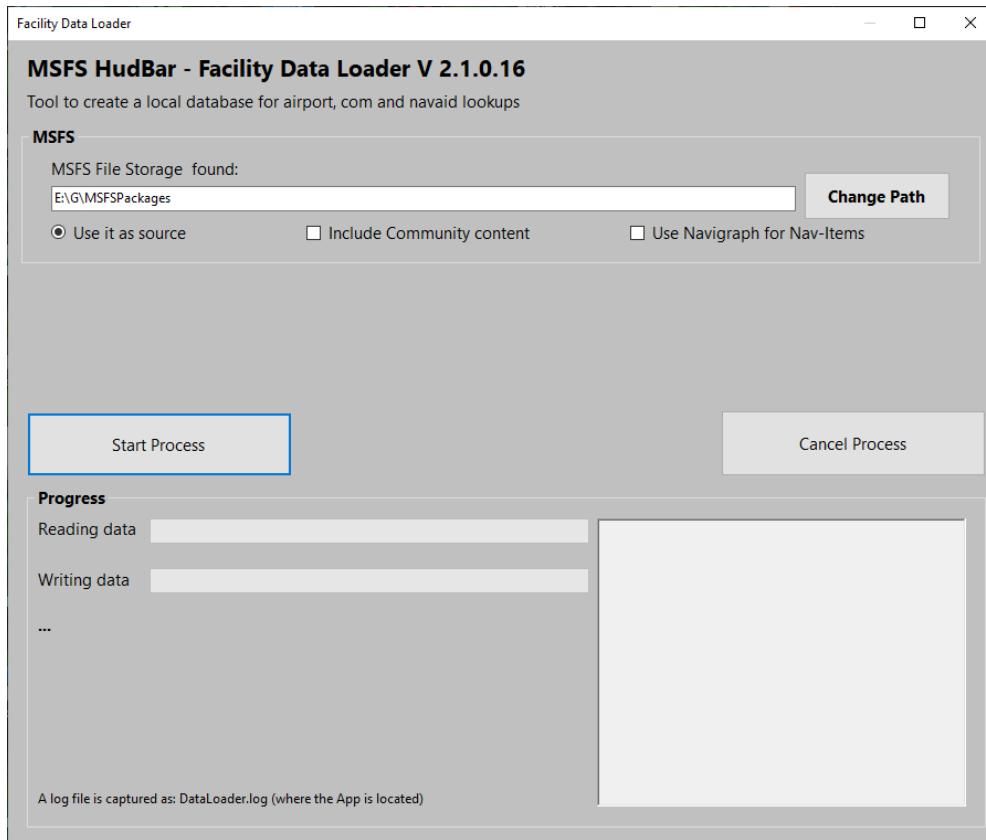
The library expects a Mercator Tile Set with 0/0 top left tile number and 256x256 sized tiles – PNG and JPG image formats are supported.

Example: see above

## Data Loader

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

Run FacilityDataLoader.exe:



First check if the program finds the MSFS data path.

It does follow the MS specs for Store and Steam but...

If not you may need to use Change Path.. to point it to the folder (where Community and Official folders can be found)

**Nov23** Sourcing from LNM is currently unavailable ~~If the LittleNavMap database is found it will show it as well.~~

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)

Check the 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.

**Nov23** To serve all new functionality of the FlightBag a lot more data is collected and the size has increased to 450MB. The database is new V2 (fs2020genAptV2.dbLite), the old one is not deleted.

The database is stored at MyDocuments\MSFS\_HudBarSave\db\fs2020genAptV2.dbLite and is about 450MB.

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

## APPENDIX (default INI File):

```
; MapLib Provider Overrides
; V March 2024
;
; Format:
; /// DefaultProvider=PROVIDER
; /// BingKey=KEY
; ///
; /// [PROVIDER]
; /// Name=a name
; /// Enabled=true / false
; /// Http=URL
;
; Text after a semicolon is treated as comment
;
; => File name must be 'MapLibProvider.ini'
;
; Define the DefaultProvider from the [PROVIDER] names
;
; In each providers section:
; Set 'Enabled=true' to be able to use it
; Change Name=new name if you don't like it
;
; Uncomment 'Http=http....' to override the URL used to retrieve map tiles
; -> If unsure, leave it alone (The App may break or not respond any longer)
;
; For URLs:
; There are 3 placeholders for {x},{y},{z} (xy tile coords + zoom)
; When multiple server subdomains are available - {s} can be used
; For some you need an access key (personal, subscription etc)
; Key=sadfsdfsdf
;
; NOTE there is no privacy or protection when typing the key here
; the key is only used in the tile loading HTTP request as per provider guidance
;
;
; Default Provider to use => one of the Provider Chapter IDs ([NAME] from below)
DefaultProvider=OSM_OpenStreetMap ; OSM_OpenStreetMap is the free default provider

;DefaultProvider=OpenTopo

; Here comes your Bing Map Key if you want to use Bing Maps
BingKey=<YOUR KEY>

; Here comes your Stadia Key for Stamen Maps
StadiaStamenKey=<YOUR KEY>

; Disk Cache per Provider in MB default 128MB (from 32 to 1024 max)
; Remove semicolon to enable your setting
;DiskCacheMB=128

; PROVIDER SECTIONS

[OSM_OpenStreetMap]
; OpenStreetMap (see terms of use before using it)
Name=OSM OpenStreetMap
Enabled=true ; should never be disabled
;Http=https://(s).tile.openstreetmap.org/{z}/{x}/{y}.png ; default, labeled according to the region (e.g. Japanese etc)
;Http=https://(s).tile.openstreetmap.de/{z}/{x}/{y}.png ; adds translated names to the local ones
;Http=https://(s).tile.openstreetmap.fr/osmfr/{z}/{x}/{y}.png ; focus on french translation; international items are partly translated

[OpenTopo]
; Street Map 3D enhanced
; OpenTopo (see terms of use before using it)
Name=OpenTopo
Enabled=true
;Http=https://(s).tile.opentopomap.org/{z}/{x}/{y}.png ; default
;Http=https://a.tile.opentopomap.org/{z}/{x}/{y}.png ; without subdomain

[Stamen_Terrain]
; Street Map 3D shaped
; NEW Oct.2023 served by Stadia - needs a Key see
; https://docs.stadiamaps.com (see terms of use before using it)
Name=Stamen 3D Street Map
Enabled=false
;Http=https://tiles.stadiamaps.com/tiles/stamen_terrain/{z}/{x}/{y}.png?api_key=YOUR-API-KEY

; ****
; Chartbundle is no longer online as of March 2024 and has been removed
; ****

; ****
; Suggested replacement for Chartbundle from Google comments
; Tiles served by ArcGis - see terms of use
; For US regions only (FAA provides data at no cost, other countries do not...)
; Disabled per default - change: Enabled=true to get the ones you need
; ****
[FAA_VFR_Terminal]
; FAA VFR Terminal Charts (Zoom 10..12)
Name=FAA VFR Terminal Charts
```

```

Enabled=false
;Http=https://tiles.arcgis.com/tiles/ssFJjBXIUyZDrSYZ/arcgis/rest/services/VFR_Terminal/MapServer/tile/{z}/{y}/{x}?cacheKey=85a564cdecfa1f12

[FAA_VFR_Sectional]
; FAA VFR Sectional Charts (Zoom 8..12)
Name=FAA VFR Sectional Charts
Enabled=false
;Http=https://tiles.arcgis.com/tiles/ssFJjBXIUyZDrSYZ/arcgis/rest/services/VFR_Sectional/MapServer/WMTS/tile/1.0.0/VFR_Sectional/default/default028mm/{z}/{y}/{x}

[FAA_IFR_AreaLow]
; FAA IFR Area Low Charts (Zoom 7..12)
Name=FAA IFR Area Low Charts
Enabled=false
;Http=https://tiles.arcgis.com/tiles/ssFJjBXIUyZDrSYZ/arcgis/rest/services/IFR_AreaLow/MapServer/WMTS/tile/1.0.0/IFR_AreaLow/default/default028mm/{z}/{y}/{x}

[FAA_IFR_AreaHigh]
; FAA IFR Area High Charts (Zoom 5..9)
Name=FAA IFR Area High Charts
Enabled=false
;Http=https://tiles.arcgis.com/tiles/ssFJjBXIUyZDrSYZ/arcgis/rest/services/IFR_High/MapServer/WMTS/tile/1.0.0/IFR_High/default/default028mm/{z}/{y}/{x}

; ****
; Microsoft Bing MAPS (needs a Key to access -> https://www.microsoft.com/en-us/maps/create-a-bing-maps-key)
; ****
; Note: Bing URLs are retrieved dynamically and changing the Provider here has no effect (for reference only)

[Bing_Imagery]
; Satellite Imagery
Name=Bing Satellite Imagery
Enabled=false
;Http=https://ecn.{subdomain}.tiles.virtualearth.net/tiles/a{quadkey}.jpeg?g=12552 ; not used, for reference only

[Bing_ImageryLabels]
; Satellite Imagery with road labels
Name=Bing Satellite Imagery w. Labels
Enabled=false
;Http=https://ecn.{subdomain}.tiles.virtualearth.net/tiles/h{quadkey}.jpeg?g=12552&mkt={culture} ; not used, for reference only

[Bing_OStreetMap]
; Street Map
Name=Bing OSM StreetMap
Enabled=false
;Http=https://ecn.{subdomain}.tiles.virtualearth.net/tiles/r{quadkey}.jpeg?g=12552&mkt={culture}&shading=hill ; not used, for reference only

; ****
; ESRI/ARCGIS Maps (subject to terms of use - your at your own here...)
; ****

[ESRI_Imagery]
; Satellite Imagery
; ESRI/ARCGIS World Imagery (see terms of use before using it)
Name=ESRI/ARCGIS World Imagery
Enabled=false
;Http=https://services.arcgonline.com/arcgis/rest/services/World_Imagery/MapServer/tile/{z}/{y}/{x} ; default

[ESRI_StreetMap]
; Street Map
; ESRI/ARCGIS StreetMap (see terms of use before using it)
Name=ESRI/ARCGIS StreetMap
Enabled=false
;Http=https://services.arcgonline.com/arcgis/rest/services/World_Street_Map/MapServer/tile/{z}/{y}/{x} ; default

[ESRI_WorldTopo]
; Street Map 3D shaped
; ESRI/ARCGIS WorldTopo (see terms of use before using it)
Name=ESRI/ARCGIS WorldTopo
Enabled=false
;Http=https://services.arcgonline.com/arcgis/rest/services/World_Topo_Map/MapServer/tile/{z}/{y}/{x} ; default

; ****
; USER Maps (your at your own here...)
; ****

[USER_TILES_1]
; User defines Tile Server No 1
Name=User Tiles 1
Enabled=false
;Http=https://ip_or_address/route/{z}/{x}/{y}.imageformat ; MUST be changed to something meaningful

[USER_TILES_2]
; User defines Tile Server No 2
Name=User Tiles 2
Enabled=false
;Http=https://ip_or_address/route/{z}/{x}/{y}.imageformat ; MUST be changed to something meaningful

[USER_TILES_3]
; User defines Tile Server No 3
Name=User Tiles 3

```

Enabled=false  
;Http=https://ip\_or\_address/route/{z}/{x}/{y}.imageformat ; MUST be changed to something meaningful

[USER\_TILES\_4]  
; User defines Tile Server No 4  
Name=User Tiles 4  
Enabled=false  
;Http=https://ip\_or\_address/route/{z}/{x}/{y}.imageformat ; MUST be changed to something meaningful

[USER\_TILES\_5]  
; User defines Tile Server No 5  
Name=User Tiles 5  
Enabled=false  
;Http=https://ip\_or\_address/route/{z}/{x}/{y}.imageformat ; MUST be changed to something meaningful

[USER\_TILES\_6]  
; User defines Tile Server No 6  
Name=User Tiles 6  
Enabled=false  
;Http=https://ip\_or\_address/route/{z}/{x}/{y}.imageformat ; MUST be changed to something meaningful