Flight Simulator Adventure Creator

GUI version

Source code (C++), betas, and latest data files:
https://github.com/MaximumOctopus/FlightSimAdventureCreator

Latest version zip download:
https://flightsim.to/file/41477/flight-simulator-adventure-creator

Last Revision: 0.4, August 28th 2023

Introduction

Flight Simulator Adventure Creator (FSAC) is a powerful command-line tool for generating random routes for flight simulators (currently optimised for Microsoft Flight Simulator 2020).

It offers the ability to create MSFS plan files (.pln), so it's easy to load your newly generated route into MSFS 2020.

There are many options available for customising the type of route that will be built.

If you have any questions or suggestions for new features, then don't hesitate to get in touch.

FSAC has a database of around 23200 airports. All of these are valid within MSFS 2020, although its airport list is much larger (around 35000). It's currently very difficult to get hold of a definitive MSFS airport list. I'll add to the FSAC list as and when airports are found to be missing.

Included Files and Customisation Options

Every file that comes with FSAC is editable and customisation is encouraged. Keep a backup of your edits, as new updates will overwrite any changes.

`config_readme.txt`
Details on creating and customising configuration files. These are an alternative to using FSAC with a set of command-line parameters. See the *Configuration File Handling* section below.

`custom_aircraft.txt`
Add your purchased and free aircraft to this file. Details for editing it can be found inside.

Alternatively, use the "generate custom_aircraft.txt" option from the Tools menu to automatically generate the file from the contents of your community folder.

`default_aircraft.txt`
This file contains information on every aircraft that comes with the various versions of MSFS 2020.

`favourites.txt`
A list of favourite airports specified using ICAO codes. This comes populated with a list of interesting airports. Feel free to add your own.

Installation

FSAC doesn't need installing in the normal sense. Download the zip from either *github* or *FlightSim.to* and extract it to a folder of your choice.

The zip file contains both a command-line (FSAC.exe) and Windows (FSAC_GUI.exe) version of the *Flight Simulator Adventure Creator*.

Main Window

Top Toolbar


Save the current route configuration to a file.


Load a previously saved route configuration.


Reset all parameters to default.


Save *all* generated routes to Microsoft Flight Simulator plan files.
Files saved to `\Plans\airport_to_airport_yyyymmdd_hhmmss.pln`


Save *all* generated routes to text files.
Files saved to `\Reports\airport_to_airport_yyyymmdd_hhmmss.txt`

Stats

Click to see interesting statistics for each category.

Aircraft

These options allow you to randomly generate and aircraft for your journey. Usage isn't mandatory, of course, but it might select something you haven't flown for a while.

Props, jets, helicopters, gliders, twin Props, turbo Props, twin turbo props, and balloons.
Choose a random aircraft by propulsion type.

Airliners
Military
Seaplanes
These three options work in conjunction with the propulsion type selections above. If set, they will include the type, but not exclusively.

Min. Speed The minimum cruise speed for any selected aircraft.
Max. Speed The maximum cruise speed for any selected aircraft.

Aircraft range modifier

If the aircraft's range is used for route planning, then this value determines what percentage of the aircraft's maximum range is used.


Lock/unlock the selected aircraft.


Select a random aircraft.

Routes: Random

Generates a series of random routes.

Range (nautical miles)
The required distance for each leg. A value +- 10% will be used when searching (it's very unlikely an exact match could be found!).

Flight time (minutes)
A range based on the selected aircraft's cruise speed will be used instead of the set value above.

Allow excess range
Allow route lengths (total length from start to end) which are greater than the selected aircraft's maximum range.

Use aircraft range
The selected aircraft's range is used instead of the *range* value above. The value used is the aircraft's range multiplied by the *aircraft range modifier* (to allow for fuel flow/diversions/etc.).

Start airport
The ICAO code of the airport the route will start from.

An airport can be selected from the airport search window by clicking the right mouse button in the edit box. Choose *Search* from the popup menu, and once you've found an airport you'd like to start from, highlight it in the search table, and click the Select ☑ button in the top right corner.

End airport
The ICAO code of the airport the route will end at.

An airport can be selected from the airport search window by clicking the right mouse button in the edit box. Choose *Search* from the popup menu, and once you've found an airport you'd like to start from, highlight it in the search table, and click the Select ☑ button in the top right corner.

Start at random favourite
Start the route from an airport picked at random from the favourites list. The favourites list can be edited via the `Tools->Favourites` menu or directly in the file (*favourites.txt*).

End at random favourite
End the route at an airport picked at random from the favourites list. The favourites list can be edited via the `Tools->Favourites` menu or directly in the file (*favourites.txt*).

When start and end set, use which? Legs or Range
If both a start and an end airport are set, then this option sets which parameter, *legs* or *range*, is the primary value for setting the generated route.

If legs is selected, then the distance between start and end will be divided by legs, to get a range per leg.

If range is selected, then the distance between start and end will be divided by range, to get number of legs.

Legs
The number of airports to visit (excluding the start airport). Each leg will be around *range* nautical miles in length.

When legs is equal to 1, the route is a simple airport A to airport B journey.

Route count
The number of individual routes to generate.

Direction
Start the journey in the selected direction. This has no effect when both the start and end airports have been selected.

There's a popup menu available on the edit box. Press mouse button over to easily select an angle from either a list of bearings or a list of common angles.

Routes: Real-world

Selects a number of routes run by real airlines. Covers nearly 60000 routes across over 200 airlines.

Range (nautical miles)
The distance between the start and end of the route. A margin of 10% is added on each side of this value.

Flight time (minutes)
A range based on the selected aircraft's cruise speed will be used instead of the set value above.

Allow excess range
Allow route lengths (total length from start to end) which are greater than the selected aircraft's maximum range. Not recommend if you're flying routes entirely over a body of water.

Use aircraft range
The selected aircraft's range is used instead of the *range* value above. The value used is the aircraft's range multiplied by the *aircraft range modifier* (to allow for fuel flow/diversions/etc.).

From / To
Determines whether the airport selected below will be used as the starting point or end point of the route.

Airport
An ICAO airport designation. Will be used as the start or end depending on the setting above.

An airport can be selected from the airport search window by clicking the right mouse button in the edit box. Choose *Search* from the popup menu, and once you've found an airport you'd like to start from, highlight it in the search table, and click the Select ☑ button in the top right corner.

If the airport is blank, then routes will be found matching the other criteria.

Any route / internal only / external only
Airports can be either in any country, must share the same country (determined by the airport setting), or must be different.

Airline
Select only routes that are travelled by a particular airline.

Route count
The number of individual routes to generate.

Airports

Continent / Country / Region / Latitude / Longitude

These options are mutually exclusive and set the area in which the journey will start and end.

Region must be a valid `ISO 3166-2` code. A complete list can be found here:

https://en.wikipedia.org/wiki/ISO_3166-2

A popup menu with a selection of popular countries (and their regions) can be found by pressing the right mouse button over the region edit box (when the Region checkbox is checked).

A separate popup menu with a selection of useful longitudes and latitudes is available by pressing the right mouse button over either of the four longitude/latitude edit boxes (when the Longitude/Latitude checkbox is checked).

Time of Day: Night or *Day*

Limit journey to areas of the Earth currently in day or night. This is an experimental feature!

Large airports / Medium airports / Small airports / Heliports / Seaplane bases
Select the type airports than can be visited on your journey.

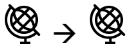
Min. elevation (feet)
The minimum elevation for any airport on your journey. Setting this too high is likely to stop the route generator finding sufficient airports to visit.

Max. elevation (feet)
The maximum elevation for any airport on your journey. Setting this too low is likely to stop the route generator finding sufficient airports to visit.

Route Generation

Go!	Generates routes based on the selected options.
Keep trying	When selected, the route generator system will keep trying (up to 21 times) different options until it can find a route.

Generated Routes



Clicking the left icon will open the start airport's location in *google* maps.

Clicking the right icon will open the end airport's location in *google* maps.


Save the selected route to a Microsoft Flight Simulator plan (.pln) file.


Save the selected route to a text file.

Credits

Programming	Paul Alan Freshney
Development Cats	Rutherford, Freeman, and Maxwell (maximumoctopus.com/developmentcats.htm)
Airport/Runway data	ourairports.com
Route data	https://openflights.org/
Icon	https://icon-icons.com/
Thanks to	Brian Bernacki for his MSFS airport data And *everyone* who has sent me feedback. Please keep it coming!

Written with C++ 17 in C++ Builder 10.4 Community Edition

All of my software is *free* and *open source*.

Please donate to your local cat charity or shelter, thanks.

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