BushMissionGen

by f99mlu @ 2021

The first official mission generator for MSFS 2020!
Requires: Java 8 or newer (64-bit).
Thanks to **Lithilium** for the original sim files.

The tool generates all the directories and files needed, including default single color images, to compile a bush or landing mission. The input file is one single text file or XLSX file containing waypoint names, coordinates, generic mission data, nav log texts, etc. It can be generated by the tool from an existing flight plan (PLN file)!

BushMissionGen will **never**:

- be a Bing maps screenshot generator for add-on images, loading screens or navlog images.
- generate standard navlog instructions.
- have an extensive GUI for all fields.
- make use of the SimConnect DLL for advanced communication with the sim.
- be a scenery/airport creation tool.

If you require some of those features, check out the excellent Bush Trip Injector by BuffyGC!
https://flightsim.to/file/4131/bushtripinjector

Table of Contents

HOW-TO

Step-by-step instructions

1. Download BushMissionGen (https://flightsim.to/file/3681/bushmissiongen).
2. Create an input file for the tool. Have a look at the sample file (sample_inputfile.txt or the XLSX file) included in the default distribution or generate your own input file from scratch by using the PLN conversion feature in BushMissionGen.
3. Double-click on the BushMissionGenerator.jar file to start the application.
4. Select an input file by pressing the "Select" button.
5. Put WAV files to be used in the same folder as the input file.
6. Click on the "Generate" button. See the output dir for the generated mission files.
7. Replace the standard images in the “images folder”. You can also add POI images (see Images below).
8. Select the Tool/Compile menu item.

Images

An Activity_Widget.jpg image (816x626), a Loading_Screen.jpg (3840x2160) and a Thumbnail.jpg (412x170) are automatically generated. In addition to this, PNG and JPG images are generated for each airport to be used in the leg selection screen and in the NavLog.

- The airport JPG images should be Ultra HD or Full HD images with a top/side-view of the airport.
- The NavLog PNG images should be smaller images (1200x800 or in that vincinity) and be "screenshots" from Bing Maps or Google Maps.

You can supply images to the input file folder to add images to any navlog sub leg text. The name must match the POI number (POI5.png, POI22.png, etc). These images are not auto-generated (since it is optional). If you remove a POI image from the source folder, you must also remove it from the output images folder. After a change to the POI images (adding or removing POIxxx.png files), you must generate the mission again. Then the tool will autodetect the images and add them to the mission.

Tutorials

Youtube tutorial made by Tom Guyatt - bush missions	https://youtu.be/JCfpbqIP2cQ
Youtube tutorial by Flying Theston - bush missions	https://www.youtube.com/watch?v=GSjKZSOlz70
Youtube tutorial by Flying Theston - landing challenges	https://www.youtube.com/watch?v=7Jz66u-KNq8

Cool features

- Landing challenges can also be generated! Also with failures and dialogs etc.
- You can create input files by converting a PLN file.
- You can compile the generated source files with the SDK (if installed) by triggering the build from inside the tool (Tools menu).
- Supports multiple coordinate formats.

  Examples:
  8°07'34.4"N 98°55'22.0"E
  N8° 07' 34.4",E98° 55' 22.0"
  N65° 18.25',E17° 58.51'
  64.412136, -78.630752
  Little Navmap format
- Validation of some some input values.
- An input file can be specified on the command line to load it automatically into the application at startup.
- You can customize the weather by editing the weather file (Weather.WPR).
- A number of weather presets can be selected.
- Plane selector (PLN import). There is also a menu option to show ALL planes available on the disk.
- Preview the navlog texts and images before launching the sim.
- A GeoJSON map is created by default and can be opened in http://geojson.io/ to see the flight plan and trigger areas for dialogs, failures, etc.
- Images are never overwritten. This means you can put the final images in the images output directory, then just change values in the input file and generate over and over again without losing them. Same with Weather.WPR.. it will never be overwritten in any output folder.
- Sounds are never overwritten.
- You can assign references and use them in sophisticated triggers to make very interesting bush missions.

Format explanation

Using the sample input file as an example. I guess the generic information about the bush trip is obvious.

author=f99mlu
project=scaniabush
version=1.0.0
location=Scania
title=Scania Bush Trip
description=A bush mission around Scania in Sweden
intro=Welcome to the most southern part of Sweden called Scania. Here you will find beautiful coastlines surrounding rich farmland and woods.
plane=Asobo Savage Cub
latitude=N56°11'10.2" ← Important! This is where your plane starts on the first runway.
longitude=E12°34'45.2" ← Important! This is where your plane starts on the first runway.
altitude=+21.00 ← Important! This is where your plane starts on the first runway.
pitch=0
bank=0
heading=240 ← Important! This is where your plane starts on the first runway.
season=Summer
year=2018
day=167
hours=9
minutes=35
seconds=0

Weather presets

.\WeatherPresets\BrokenClouds.WPR	.\WeatherPresets\Rain.WPR
.\WeatherPresets\ClearSky.WPR	.\WeatherPresets\ScatteredClouds.WPR
.\WeatherPresets\FewClouds.WPR	.\WeatherPresets\Snow.WPR
.\WeatherPresets\HighLevelClouds.WPR	.\WeatherPresets\Storm.WPR
.\WeatherPresets\Overcast.WPR	

Optional fields with examples

Altitudes are in AMSL, but can be overriden by useAGL=[True/False] or by appending AGL or ASML after a height)

Field Example	Description
sdkPath=C:\MSFS SDK\Tools\bin\fspackagetool.exe	Full path including the fspackagetool.exe
navlogImageSize=789#855	Standard size is 1200x800, but this can be overriden by this parameter.
uniqueApImages=True	Generate different images if the same airport is used multiple times.
loadingTip=Scania is beautiful!	Multiple loading tips can be listed by duplicating the loadingTip field! Maximum five right now.
introSpeech=Here we go!	A text which is spoken by a male voice when reaching the intro screen of the mission. Or specify a WAV file (44.1 kHz!!). This must be put in a "sound" folder parallel to the images folder.
introSpeech=I hope you enjoy the mission.#10.000	As above but delayed 10 seconds after the mission start. Multiple entries are possible.
poiSpeech=true	Voice announcements when flying close to an airport or POI. Reads the sub legs texts.
poiSpeechBefore=true	Same as above, but reads one airport/POI in advance (RECOMMENDED instead of the above variant).
dialogEntry=hello#56°08'25.0"N 12°35'15.3"E	Voice dialog with arbitrary text at a specific coordinate (5000 x 5000 x 10000 meters).
dialogEntry=Here you are!#55°56'03.2"N 12°46'50.1"E#10.000#4000.000#4000.000#8000.000	As above, but specified heading, length, width and height in meters of cubic area.
dialogEntry=There you are!#55°56'03.2"N 12°46'50.1"E#10.000#4000.000#4000.000#8000.000#5.000	As above but also with a delay before the dialog (seconds).
dialogEntry=There you are!#55°56'03.2"N 12°46'50.1"E#10.000#4000.000#4000.000#8000.000#5.000 #False	As above but also with a setting to handle re-triggering of the dialog. False = re-triggers will happen.
dialogEntryExit=Leaving Las Vegas#36°05'09.4"N 115°08'45.4"W#0.000#6000.000#6000.000#3000.000	As above but when leaving a specified area.
finishedEntry=Welcome to Landskrona Airport. Clap! Clap!#ESML#5.000	Landing announcement of a text at an airport with length in seconds.
finishedEntry=clap.wav|Welcome to Landskrona Airport. Clap! Clap!#ESML#5.000	As above, but a sound is played and the text is used for subtitles.
finishedEntry=land1.wav|Welcome to Trelleborg Airport.#ESMR#5.000#0.000	Three next rows are example of multiple announcements per airport.
finishedEntry=land2.wav|Take a quick break.#ESMR#3.000#6.000	
finishedEntry=land3.wav|Wake up! Now go to ESMS.#ESMR#4.000#10.000	
altitudeWarning=No higher mate. I am afraid of heights.#5000.000	Warning text at a certain altitude (feet). Multiple entries possible!
altitudeWarning=No higher mate. I am afraid of heights.#5000.000#False	As above but also with a setting to handle re-triggering of the dialog. False = re-triggers will happen.
speedWarning=Now you are fast enough#90.000	Warning text at a certain speed (knots). Multiple entries possible!

speedWarning=Now you are fast enough#90.000#False	As above but also with a setting to handle re-triggering of the dialog. False = re-triggers will happen.
altitudeAndSpeedWarning=Now you are fast enough and high up enough!#2000.000#90.000	Combination of altitude and speed. Multiple entries possible!
altitudeAndSpeedWarning=Now you are fast enough and high up enough!#2000.000#90.000#False	As above but also with a setting to handle re-triggering of the dialog. False = re-triggers will happen.
formulaWarning=Watch it mister!#(A:GROUND VELOCITY, Knots) 90 >	Warning text when a criterions for a formula has been fulfilled.
formulaWarning=Watch it mister!#(A:GROUND VELOCITY, Knots) 90 >#False	As above but also with a setting to handle re-triggering of the dialog. False = re-triggers will happen.
pilot=Male	Male or Female pilot
coPilot=Male	Multiple copilots can be listed by duplicating the coPilot field!
coPilot=Female	
simFile=apron.flt	To start dark & cold. Other values are: runway.FLT, final.flt, approach.flt, taxi.flt, climb.flt, etc.
fuelPercentage=90	Set how full the fuel tanks should be at start in a non-airliner plane.
fuelPercentageList=90#80#80#30#30#40#40#50#50#100#100	A complete list of all 11 fuel percentages for all possible tanks in a non-airliner plane. Overrides the fuelPercentage field.
parkingBrake=0	Parking brake set at start = 100. Else use 0. **NOTE!!! DOES NOT WORK AT THE MOMENT!! SIM BUG???**
payloadList=170.0#170.0#0.0#0.0#0.0#0.0#30.0#0.0	A list of payloads in pounds. Both for airliners and other planes.
tanksList=0.25#0.25#0.25	A list of airliner tanks and their fill percentages.
pumpsList=True#True#True	A list of airliner fuel pumps and their on/off status.
tailNumber=VH-MSF	
airlineCallSign=SAS	
flightNumber=1234	
appendHeavy=False	
multiPlayer=True	
weather=live	custom, live (unlocks the weather settings) or an existing weather preset. Leave empty to use the default custom weather file (Few clouds).
failureEngineFire0=30-60	failure{Failing system = see below}{sub index = 0-N}={from time in seconds}-(to time in seconds}
failureOilLeak0=25-300	
failureEngine0=0.000#24°59'60.0"N 71°00'00.0"W#10.000#4000.000#4000.000#8000.000	failure at a specific coordinate (cube detection). The value before the coordinate is the health percentage.
failureExitCompass0=0.000#24°59'60.0"N 71°00'00.0"W#10.000#4000.000#4000.000#8000.000AGL	Same as above but fails upon exit of the detection cube.
altitudeFailureEngineFire0=50.000#5000.000	failure at a specific altitude (AMSL). The value before the altitude is the health percentage
speedFailureEngineFire0=50.000#95.000	
altitudeAndSpeedFailureEngineFire0=50.000#1234.567#95.000	

formulaFailureEngineFire0=50.000#(A:GROUND VELOCITY, Knots) 100 >	Failure triggered by a formula.
showVfrMap=False	False = panel is disabled!
showNavLog=True	False = panel is disabled!
enableRefueling=True	
enableAtc=True	
enableChecklist=True	
enableObjectives=True	
requireEnginesOff=True	Can be used to enable the usage of the same airport twice in a mission.
requireBatteryOff=True	Can be used to enable the usage of the same airport twice in a mission.
requireAvionicsOff=True	Can be used to enable the usage of the same airport twice in a mission.
requireNothing=True	Same as above, but require nothing special. Used as an override to avoid tool warning dialog.
useAGL=True	Use AGL (Above Ground Level) instead of ASML (Above Mean Sea Level) for detection cubes.
useOneShotTriggers=False	Voice/sound announcements and warnings/failures can be triggered more than once. False = re-triggers will happen.
standardAirportExitAreaSideLength=3000.000	Override the standard size of the airport trigger areas when leaving the area.
standardEnterAreaSideLength=5000.000	Override the standard size of the airport/POI trigger areas when enterring the area.
missionFailureArea=56°11'54.0"N 12°32'51.7"E#0.000#1000.000#1000.000#8000.000AMSL	
missionFailureArea=56°11'54.0"N 12°32'51.7"E#0.000#1000.000#1000.000#8000.000AMSL #text	
missionFailureExitArea=56°02'16.7"N 12°36'58.0"E#0.000#1000.000#1000.000#8000.000AGL	
missionFailureExitArea=56°02'16.7"N 12°36'58.0"E#0.000#1000.000#1000.000#8000.000AGL#text	
missionFailureAltitude=5000.000	
missionFailureAltitude=5000.000#text	
missionFailureSpeed=110.000	
missionFailureSpeed=110.000#text	
missionFailureAltitudeAndSpeed=7000.000#90.000	
missionFailureAltitudeAndSpeed=7000.000#90.000#text	
missionFailureTime=600.000	Sets this time limit for each leg in the mission.
missionFailureTime=600.000#text	Sets this time limit for each leg in the mission.
missionFailureFormula=(A:AUTOPILOT MASTER, Bool) 0 >#Autopilot is not allowed in this mission!	Reverse polish notation (RPN) formula!
libraryObject=46168F7E-5861-4F8B-A63F-02062032C4BD#N49° 40' 23.06",E18° 26' 3.40"#0.000AGL#0.000#10.000	Place a scenery object in the world. Can be used with references to show and hide objects!
libraryObject=46168F7E-5861-4F8B-A63F-02062032C4BD#N49° 40' 23.06",E18° 26' 3.40"#0.000AGL#0.000#10.000#False	Same as above plus an option to control if the object is activated (visible)at mission start or not.
deactivateDialogsAtStart=True	All dialogs can be set to deactivated when the

	mission starts.
deactivateWarningsAtStart=True	All warnings can be set to deactivated when the mission starts.
deactivateFailuresAtStart=True	All failures can be set to deactivated when the mission starts.
deactivateMissionFailuresAtStart=True	All mission failures can be set to deactivated when the mission starts.
deactivateLibObjsAtStart=True	All library objects can be set to deactivated (hidden) when the mission starts.
activateTriggers=**de1**#**mfalt1**,**aw1**,**aw2**	Activates a list of triggers (dialogs, failures, mission failures, library objects and warnings) when a dialog, warning or failure is triggered. See References below!
deactivateTriggers=**de2**#**mfalt1**,**aw1**,**aw2**	Deactivates a list of triggers (dialogs, failures, mission failures, library objects and warnings) when a dialog, warning or failure is triggered. See References below!
counterActivateTriggers=**de1**,**de2**,**aw1**#**mfarea1**,**mfalt1**	Activates a list of triggers when all of the dialogs, warnings and failures have been triggered in a list.
counterDeactivateTriggers=**de3**,**de4**#**mfarea2**#play.wav	Deactivates a list of triggers when all of the dialogs, warnings and failures have been triggered in a list.

Example 1: Usage of references (**reference name**::**field name**=field value)
aw1::**altitudeWarning**=No higher mate. I am afraid of heights.#5000.000AGL
mfalt1::**missionFailureAltitude**=6000.000AGL
de1::**dialogEntry**=Ok, somehow my fear of heights has disappeared. Fly as you want!#N29° 57' 7.59",E81° 55' 35.34"#0.000#500.000#15000.000#10000.000#0.000
de2::**dialogEntry**=Fly like a bird in the sky!#29°57'20.7"N 81°49'34.3"E#0.000#5000.000#5000.000#5000.000#0.000
deactivateTriggers=**de1**#**mfalt1**,**aw1**,**de2**

Example 2:
de1::**dialogEntry**=Now you are free to land! I promise I won´t shoot.#N29° 57' 7.59",E81° 55' 35.34"#0.000#500.000#15000.000#10000.000#0.000
mfarea1::**missionFailureArea**=56°11'54.0"N 12°32'51.7"E#0.000#1000.000#1000.000#8000.000AMSL
counterDeactivateTriggers=**de1**#**mfarea1**

Example 3:
deactivateLibObjsAtStart=False
lo1::**libraryObject**=46168F7E-5861-4F8B-A63F-02062032C4BD#N49° 40' 23.06",E18° 26' 3.40"#0.000AGL#0.000#10.000
de1::**dialogEntryExit**=Now the blue car should disappear.#N49° 40' 56.57",E18° 28' 45.46"#0.000#4000.000#4000.000#8000.000#0.000
activateTriggers=**de1**#**lo1**

Failing system when specifying a time interval

Not all are applicable to every kind of plane!

EngineSystem	ElectricalSystem	NavSystem
OilLeak	ElevatorSystem	PitotSystem
OilSystem	FlyByWire_ELAC	RearTailSystem
EngineFuelPump	FlyByWire_FAC	RightAileronSystem
EngineFire	FlyByWire_SEC	RightBrakeSystem
ADFSystem	FuelGauge	RightFlapSystem
AirspeedGauge	FuelLeak	RightGearSystem
AltimeterGauge	GPSSystem	RightMagneto
ApuFire	Generator	RightWingSystem
ApuSystem	HoistMotor	RightWingTipSystem
AttitudeGauge	HydraulicLeak	RudderSystem
AuxGearSystem	HydraulicPumpFailure	SlingCable
BrakeSystemHydraulicSource	LeftAileronSystem	StaticSystem
CenterGearSystem	LeftBrakeSystem	TransponderSystem
ComSystem	LeftFlapSystem	TurbineIgnition
CompassGauge	LeftGearSystem	TurncoordGauge
CoolantSystem	LeftMagneto	VSIGauge
Cylinder	LeftWingSystem	VacuumSystem
DGGauge	LeftWingTipSystem	

Failing system when specifying a failure with a coordinate

Engine	HydraulicLeak	AuxGear
EngineFire	LeftMagneto	LeftBrake
Cylinder	RightMagneto	RightBrake
Coolant	Elevator	BrakeSystemHydraulicSource
OilSystem	LeftAileron	AttitudeIndicator
OilLeak	RightAileron	AirspeedIndicator
VacuumSystem	Rudder	Altimeter
Pitot	RearTail	DirectionalGyro
Static	LeftFlap	Compass
ElectricalSystem	RightFlap	TurnCoordinator
Generator	LeftWing	VSI
FuelPump	LeftWingTip	COMRadios
FuelLeak	RightWing	NavRadios
APU	RightWingTip	ADFRadios
APUFire	CenterGear	Transponder
TurbineIgnition	RightGear	
HydraulicPump	LeftGear	

Formula information

http://www.prepar3d.com/SDKv3/LearningCenter/utilities/variables/simulation_variables.html

Planes to choose from

Standard

Airbus A320 Neo Asobo
Asobo Savage Cub
Asobo XCub
Beechcraft King Air 350i Asobo
Boeing 747-8i Asobo
Bonanza G36 Asobo
Cessna 152 Asobo
Cessna 208B Grand Caravan EX
Cessna CJ4 Citation Asobo
Cessna Skyhawk G1000 Asobo
DA40-NG Asobo
DA62 Asobo
DR400 Asobo
Extra 330 Asobo
FlightDesignCT Asobo
Icon A5 Asobo
Mudry Cap 10 C
Pitts Asobo
TBM 930 Asobo
VL3 Asobo

Deluxe

Asobo Baron G58
Cessna 152 Aero Asobo
Cessna Skyhawk Asobo
DA40 TDI Asobo
DV20 Asobo

Premium Deluxe

Boeing 787-10 Asobo
Cessna Longitude Asobo
SR22 Asobo
Pipistrel Alpha Electro Asobo
Savage Shock Ultra Asobo

Waypoints and navlog texts

Down here we have the waypoints and navlog text etc. Columns are separated by a | character (pipe).

Column	Header	Description
1	**#icao**	ICAO (Airports only! Leave empty for POIs)
2	**rw**	Runway number (Airports only! Leave empty for POIs. Must not start with zeros!)
3	**name**	Airport name
4	**type**	Waypoint type (A = Airport, U = User-defined (POI)
5	**LL**	Coordinate (Latitude,Longitude)
6	**alt**	Altitude in feet
7	**WpInfo**	Waypoint info *estimated knots,* *actual knots,* *height in meters,* *actual time enroute,* *estimated time of arrival,* *fuel remaining when arrived,* *estimate of fuel required for the leg,* *actual fuel used for the leg.* Some of the values may be unknown and recorded as zero
8	**legtext**	Leg description (NOT VISIBLE IN THE SIM! MAYBE IN THE FUTURE)
9	**sublegtext**	Subleg description

NOTE! Never remove the line below ("#icao rw name ...") from any input file. The tool uses it!

#icao rw name type LL alt WpInfo legtext sublegtext

ESMH|24|Hoganas Airport|A|N56° 11' 05.1",E12° 34' 29.9"|+000028.00|58, 0, 47, 0, 0, 28.0, 0.0, 0.0|ESMH-ESML|-

||Helsingor harbour|U|N56° 02' 37.9",E12° 41' 32.6"|+000000.00|60, 0, 182, 0, 0, 0.0, 0.0, 0.0||Enjoy the coastline! One could call this a smorrebrod trip. Follow the shores down to Helsingborg and do not forget to peek over towards Elsinore. It is the city closest to the Swedish border in this area.

||Ven|U|N55° 55' 05.8",E12° 41' 04.6"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||Visit the island of Ven where the famous astronomer Tycho Brahe once lived.

ESML||Landskrona Airport|A|N55° 56' 46.9",E12° 52' 09.4"|+001000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0|ESML-ESMR|Now fly to the east and head for Enoch Thulins Airport. It lies 3.5 miles from the Oresund between highway 20 and a small river.

||Barseback|U|N55° 44' 38.7",E12° 55' 15.7"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||Radio activity... beep beep beep! This is the old nuclear plant Barseback and is currently not in operation.

||Limhamn|U|N55° 34' 03.3",E12° 55' 49.2"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||The limestone quarry in Limhamn is 65 meters deep and 150 years old.

||Falsterbo|U|N55° 24' 20.0",E12° 51' 07.7"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0|| Falsterbonaset. This is a peninsula you just cannot miss if you fly over Scania and Oresund.

ESMR||Trelleborg Airport|A|N55° 23' 28.7",E13° 01' 19.6"|+001000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0|ESMR-ESMS|Land at Trelleborg/Maglarp airstrip, if you manage to find it! There is a number printed on the runway.

||Trelleborg harbour|U|N55° 22' 15.8",E13° 09' 02.7"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0|| Have a look at the harbour in Trelleborg. From here the ferries go to and from Germany and Poland.

||Havgardssjon|U|N55° 28' 59.8",E13° 21' 30.4"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||A small lake before reaching the airport.

ESMS||Malmo Airport|A|N55° 32' 10.7",E13° 22' 34.3"|+001000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0| ESMS-ESTO|Land at Sturup, also known as Malmo Airport. The largest airport in Scania.

||Four lakes|U|N55° 31' 44.2",E13° 44' 01.5"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||Start at Sturup for a nice trip to the southeastern parts of Scania called Osterlen.

ESTO||Tomelilla Airport|A|N55° 32' 32.7",E13° 59' 56.2"|+001000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0|ESTO-ESMK|We pass over the four lakes Krageholm, Ellestad, Snogeholm and Sovde before landing in Tomelilla. The airstrip runs parallel to road 11 east of the village and is quite close to a go-kart track.

||Djupadal|U|N55° 36' 43.2",E14° 16' 45.1"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||Djupadal is known for the golf course and the surrounding apple orchards. Nearby lies another golf court called Lilla Vik.

||Stenshuvud|U|N55° 39' 43.9",E14° 16' 30.7"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0|| Stenshuvud is a national park with a 97 m peak. Some say it looks like the head of a dolphin. What do you think?

||Gropahalet|U|N55° 51' 30.0",E14° 14' 02.3"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||Gropahalet, another national park, where Helge river flows into the Baltic Sea. This is where you should leave the coast and look for the airport surrounded by trees and farmland.

ESMK||Kristianstad-Everod Airport|A|N55° 55' 20.3",E14° 05' 08.3"|+001000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0|ESMK-ESFI|Land at Kristianstad-Everod Airport. Road 19 runs parallel to the airport.

||Hammarsjon|U|N55° 59' 51.4",E14° 11' 22.3"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||Here you will notice a change of scenery with more woods and lakes. Fly over the lake and pass west of the city of Kristianstad.

||Araslovsjon|U|N56° 03' 35.2",E14° 07' 07.0"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||Lake Araslov is the next thing to look out for.

ESFI||Knislinge Airport|A|N56° 11' 38.0",E14° 07' 41.6"|+001000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0| ESFI-ESMF|Follow the small river until it makes a longer turn to the west. Land at Knislinge Airport.

||Vittsjon|U|N56° 20' 51.8",E13° 40' 22.6"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||Vittsjon, one of the hundreds of lakes up here. Keep looking at all those lakes to find the right one to aim for.

ESMF||Fagerhult Airport|A|N56° 23' 17.7",E13° 28' 15.5"|+001000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0|ESMF-ESTL|Land at Fagerhult Airport on the west side of the small lake Fedlingsjon.

||Finjasjon|U|N56° 08' 06.6",E13° 41' 59.8"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||Lake Finja! Navigate by recognizing the shape of the small seas below you. The rivers are also quite useful to not get completely lost.

ESTL||Ljungbyhed Airport|A|N56° 05' 00.4",E13° 11' 36.8"|+001000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0|ESTL-ESTA|Land at the military airport of Ljungbyhed. This has several runways so choose the one you feel comfortable with. I recommend the largest one.

||Kvidinge|U|N56° 08' 06.0",E13° 02' 44.8"|+000000.00|126, 0, 304, 0, 0, 0.0, 0.0, 0.0||Follow the rivers north west until you see the beautiful shoreline again.

ESTA||Angelholm Airport|A|N56° 17' 28.7",E12° 51' 19.4"|+000062.00|54, 0, 0, 0, 0, 0.0, 0.5, 0.0|-|Land at Angelholm-Helsingborg Airport. Thank you for flying around Scania! I hope you enjoyed the flight.

You can use HTML tags like <i> and
 to highlight words and create paragraphs etc in leg texts. & and " will be escaped to & and ".

What about landing challenges?

These fields are only used for landing challenges.

#	Entry	Description
1	missionType=landing	"landing" for landing challenges.. Leave out completely or use "bush" for bush missions.
2	challengeType=Epic	Epic, Famous or StrongWind
3	velocity=100	The velocity (feet/second) of the plane in the air when the mission starts
4	flapsHandle=050.00	**Optional!** Percentage of maximum flap handle position. Default = 050.00
5	leftFlap=050.00	**Optional!** Percentage of maximum flap position of left flaps. If the maximum flap position is 40 degrees, then 002.50 indicates the flaps are at 1 degree. Default = 050.00
6	rightFlap=050.00	**Optional!** Percentage of maximum flap position of right flaps. Default = 050.00
7	elevatorTrim=050.00	**Optional!** Percentage of maximum elevator trim. Default = 050.00
8	noGear=True	**Optional!** Ignore the landing gear.
9	maxDistanceToRunway=30	**Optional!** Set the maximum distance in nautical miles to the runway.
10	forceAirliner=True	**Optional!** Forces BMG to use airliner templates. Useful for 3rd party planes.
11 - 14	#icao rw name type LL alt ||CUST0|U|N55° 23' 45.6",E13° 03' 57.5"|+000500.00 ESMR|21|Trelleborg Airport|A|N55° 23' 28.7",E13° 01' 19.6"|+000000.00	

Some important things! Create at least one custom waypoint and one airport waypoint. Don´t forget to set the standard "**heading**=" field manually to point the plane in the right starting direction in air. The optional fields “**payloadList**=”, “**tanksList**=” and “**pumpsList**=” aren´t too bad to set up properly too to ensure a correct flight feeling (i.e. center of gravity). Also, do not start too far away from the landing point, or you will get an error when you load the mission. Also try restarting the challenge and make sure you don´t get "you did not land at designated runway" message. If that error pops up, try moving first waypoint closer.

Converting a PLN file to a landing challenge? If you want to start the plane in mid-air, make sure this is also reflected in the PLN file before importing. This means, the Departure LLA must be a coordinate+altitude in the air and the same values as the first waypoint. The first waypoint should then be of type **USER**, not AIRPORT.

A320 specifics

These can be manually added to the FLT file after generation (but before compiling!) to get a more complete setup of the A320/A32NX. Add under the [LocalVars.0] section:

BTN_LS_FILTER_ACTIVE=1
BTN_LS_1_FILTER_ACTIVE=1
BTN_CSTR_FILTER_ACTIVE=1
BTN_CSTR_1_FILTER_ACTIVE=1
A320_Neo_MFD_Range=1
A320_Neo_MFD_Range_1=1
XMLVAR_Autobrakes_Level=2
XMLVAR_RTO_Level=0
A32NX_INITIAL_FLIGHT_PHASE=5
A32NX_FWC_SKIP_STARTUP=1
A32NX_ADIRS_PFD_ALIGNED_FIRST=1
GPSPrimaryAcknowledged=0
GPSPrimary=1
A32NX_GPS_PRIMARY_LOST_MSG=0
A32NX_ADIRS_TIMER_1=0
A32NX_ADIRS_TIMER_2=0
A32NX_ADIRS_TIMER_3=0
A320_Neo_ADIRS_TIME=0
A320_Neo_ADIRS_IN_ALIGN=0
A32NX_ADIRS_PFD_ALIGNED_ATT=1

B747 specifics

T.B.A.

B787 specifics

T.B.A.

Translations / multi-language

These rows must be put AFTER the declaration of the route. I.e. after the last airport. Last in the file, so to say :). Please observe! The main langauage in the sim is English. So, the all the texts above the translations should be in English. Then you add other languages than English to the input file as translations:

meta|zh-CN||location|translated location
meta|zh-CN||title|translated title
meta|zh-CN||description|translated description
meta|zh-CN||loadingTip|translated loading tip #1 ← All multiple loading tips must be translated
meta|zh-CN||loadingTip|translated loading tip #2 ← All multiple loading tips must be translated
meta|zh-CN||intro|translated intro

ESMH|zh-CN|translated airport name|ESMH-ESML|-
POI|zh-CN|translated POI name||translated subleg text
POI|zh-CN|translated POI name||translated subleg text
ESML|zh-CN|translated airport name|ESML-ESMR|translated subleg text
POI|zh-CN|translated POI name||translated subleg text
POI|zh-CN|translated POI name||translated subleg text
POI|zh-CN|translated POI name||translated subleg text
ESMR|zh-CN|translated airport name|ESMR-ESMS|translated subleg text
POI|zh-CN|translated POI name||translated subleg text
POI|zh-CN|translated POI name||translated subleg text
ESMS|zh-CN|translated airport name|ESMS-ESTO|translated subleg text
POI|zh-CN|translated POI name||translated subleg text
ESTO|zh-CN|translated airport name|ESTO-ESMK|translated subleg text
POI|zh-CN|translated POI name||translated subleg text
POI|zh-CN|translated POI name||translated subleg text
POI|zh-CN|translated POI name||translated subleg text
ESMK|zh-CN|translated airport name|ESMK-ESFI|translated subleg text
POI|zh-CN|translated POI name||translated subleg text
POI|zh-CN|translated POI name||translated subleg text
ESFI|zh-CN|translated airport name|ESFI-ESMF|translated subleg text
POI|zh-CN|translated POI name||translated subleg text
ESMF|zh-CN|translated airport name|ESMF-ESTL|translated subleg text
POI|zh-CN|translated POI name||translated subleg text
ESTL|zh-CN|translated airport name|ESTL-ESTA|translated subleg text
POI|zh-CN|translated POI name||translated subleg text
ESTA|zh-CN|translated airport name|-|translated subleg text

Please have a look at the sample files (sample-multi-lang.[txt|xlsx]).

TROUBLESHOOTING

- If the mission does not appear in the FS2020, there is a big chance you have selected a plane that isn´t there.. or misspelled it!

- Make sure you delete the SAVE folder before starting up the simulator to test your compiled mission. The path looks something like this:

  ```
  c:\Users\{USER]\AppData\Local\Packages\
  Microsoft.FlightSimulator_8wekyb3d8bbwe\LocalState\MISSIONS\
  ACTIVITIES\YOUR-MISSION_SAVE
  ```

- Do you get strange TTS/WAV triggers at the wrong time or place? Make sure you press "HTML preview" when generating and open the LINK at the top to see your trip on a map to find overlapping trigger areas etc.

Known serious issues (both tool and mission related sim bugs)

- SIM: Using subtitles for sound files only works if the bush mission is not exited and resumed.

APPENDIX

Standard fields summary

Field name	Multiple
sdkPath={full path including fspackagetool.exe}	
navlogImageSize=width#height	
uniqueApImages=[True/False]	
loadingTip=text	x
introSpeech=text/wav[|subtitles]	
introSpeech=text/wav[|subtitles]#delay from mission start in seconds	x
poiSpeech=[True/False]	
poiSpeechBefore=[True/False]	
dialogEntry=text/wav[|subtitles]#coordinate	x
dialogEntry=text/wav[|subtitles]#coordinate#heading#length#width#height (length/width/height in meters)	x
dialogEntry=text/wav[|subtitles]#coordinate#heading#length#width#height#delay (length/width/height in meters)	x
dialogEntry=text/wav[|subtitles]#coordinate#heading#length#width#height#delay#[True/False] (length/width/height in meters)	x
dialogEntryExit=text/wav[|subtitles]#coordinate	x
dialogEntryExit=text/wav[|subtitles]#coordinate#heading#length#width#height (length/width/height in meters)	x
dialogEntryExit=text/wav[|subtitles]#coordinate#heading#length#width#height#delay (length/width/height in meters)	x
dialogEntryExit=text/wav[|subtitles]#coordinate#heading#length#width#height#delay#[True/False] (length/width/height in meters)	x
finishedEntry=text/wav[|subtitles]#icao#announcement length in seconds	x
finishedEntry=text/wav[|subtitles]#icao#announcement length in seconds#delay after landing	x
altitudeWarning=text/wav[|subtitles]#altitude in feet	x
altitudeWarning=text/wav[|subtitles]#altitude in feet#[True/False]	x
speedWarning=text/wav[|subtitles]#speed in knots	x
speedWarning=text/wav[|subtitles]#speed in knots#[True/False]	x
altitudeAndSpeedWarning=text/wav[|subtitles]#altitude in feet#speed in knots	x
altitudeAndSpeedWarning=text/wav[|subtitles]#altitude in feet#speed in knots#[True/False]	x
formulaWarning=text/wav[|subtitles]#HTML escaped RPN formula	x
formulaWarning=text/wav[|subtitles]#HTML escaped RPN formula#[True/False]	x
pilot=[Male/Female]	

coPilot=[Male/Female]	
simFile=[file]	
fuelPercentage=[0-100]	
fuelPercentageList={integer values for all eleven fuel percentages}	
parkingBrake=[0-100]	
payloadList={list of payloads in pounds. Number of element are plane specific}	
tanksList={list of tanks and fill percentage. Number of element are plane specific}	
pumpsList={list of fuel pumps and their status. Number of element are plane specific}	
tailNumber=text	
airlineCallSign=text	
flightNumber=text	
appendHeavy=[True/False]	
multiPlayer=[True/False]	
weather=[custom, live or a preset]	
failure{System}{Index}=[{from time in seconds}-{to time in seconds}]	x
failure{System}{Index}=health#coordinate#heading#length#width#height (in meters)	x
failureExit{System}{Index}=health#coordinate#heading#length#width#height (in meters)	x
altitudeFailure{System}{Index}=health#altitude in feet	x
speedFailure{System}{Index}=health#speed in knots	x
altitudeAndSpeedFailure{System}{Index}=health#altitude in feet#speed in knots	x
formulaFailure{System}{Index}=health#HTML escaped RPN formula	x
showVfrMap=[True/False]	
showNavLog=[True/False]	
enableRefueling=[True/False]	
enableAtc=[True/False]	
enableChecklist=[True/False]	
enableObjectives=[True/False]	
requireEnginesOff=[True/False]	
requireBatteryOff=[True/False]	
requireAvionicsOff=[True/False]	
requireNothing=[True/False]	
useAGL=[True/False]	
useOneShotTriggers=[True/False]	
standardAirportExitAreaSideLength=length in meters	
standardEnterAreaSideLength=length in meters	
missionFailureArea=coordinate#heading#length#width#height (in meters)	x
missionFailureArea=coordinate#heading#length#width#height#text (in meters)	x
missionFailureExitArea=coordinate#heading#length#width#height (in meters)	x

missionFailureExitArea=coordinate#heading#length#width#height#text (in meters)	x
missionFailureAltitude=altitude in feet	x
missionFailureAltitude=altitude in feet#text	x
missionFailureSpeed=speed in knots	x
missionFailureSpeed=speed in knots#text	x
missionFailureAltitudeAndSpeed=altitude in feet#speed in knots	x
missionFailureAltitudeAndSpeed=altitude in feet#speed in knots#text	x
missionFailureTime=time in seconds	
missionFailureTime=time in seconds#text	
missionFailureFormula=HTML escaped RPN formula#text	x
libraryObject=mdlGUID#coordinate#altitude#heading#scale (in feet)	x
libraryObject=mdlGUID#coordinate#altitude#heading#scale#[True/False] (in feet)	x
deactivateDialogsAtStart=[True/False]	
deactivateWarningsAtStart=[True/False]	
deactivateFailuresAtStart=[True/False]	
deactivateMissionFailuresAtStart=[True/False]	
deactivateLibObjsAtStart=[True/False]	

Reference fields summary

Field name	Multiple
activateTriggers=**reference name#comma-separated list of reference names**	x
deactivateTriggers=**reference name#comma-separated list of reference names**	x
counterActivateTriggers=**comma-separated list of reference names#comma-separated list of reference names**	x
counterActivateTriggers=**comma-separated list of reference names#comma-separated list of reference names**#text/wav[|subtitles]	x
counterDeactivateTriggers=**comma-separated list of reference names#comma-separated list of reference names**	x
counterDeactivateTriggers=**comma-separated list of reference names#comma-separated list of reference names**#text/wav[|subtitles]	x