

MSFS AIRCRAFT MODEL CONVERSION FROM FS2004 & FSX MANUAL

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↑ HSST v4.0 in FS2004 A Century Of Flight

↓ HSST v5.0 in MSFS Microsoft Flight Simulator



INTRODUCTION

- This manual shows a way to convert an aircraft for use in MSFS – using a default 3D cockpit included in MSFS
- Some model parts like animations may not work after conversion and thus would need tweaking
- Night light textures are always active and being displayed in the background together with daytime textures
- A few model parts like lights attached to movable objects of the converted aircraft model may not work at all

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↑ Prerequisites Model Conversion

Necessary software for the conversion of an FSX aircraft:

- Package [PlaneConverter](#) – click 'Code' ⇒ 'Download ZIP' and unzip file
- Microsoft [.NET Core SDK 3.1.x](#) – for PlaneConverter

Optional software for textures conversion of an FSX aircraft:

- Don Grovestine's [Texture Manager](#) – version 2.1.x
- Martin Wright's [MWGraphics GFX DLL Files](#) – for Texture Manager
or
- Martin Wright's [DXTBmp](#) – version 4.00.96
- Martin Wright's [MWGraphics GFX DLL Files](#) – for DXTBmp

Necessary software only for the aircraft model conversion process from FS2004 to FSX:

- FSX Software Development Kit SDK (available in FSX Deluxe) – for FS2004 to FSX model conversion – [Info](#)
- Microsoft [Visual C++ 2005 Service Pack 1 Redistributable Package](#) – for FSX SDK
- Microsoft [MSXML 4.0 Service Pack 3](#) – for FSX SDK
- Microsoft [MSXML \(Microsoft XML Parser\) 3.0 Software Development Kit \(SDK\)](#) – for FSX SDK
- Arno Gerretsen's [ModelConverterX](#) (MCX) – version 1.4.x or higher – [Info](#)
- Microsoft [.NET Framework 3.5 \(includes .NET 2.0 and 3.0\)](#) – for ModelConverterX
- Microsoft [.NET Framework version 4.x \(Development Release\)](#) – for ModelConverterX

↑ Convert FS2004 Model To FSX

001. batch convert all bitmap *.bmp textures to *.dds FSX format using **Texture Manager** or other software
002. if your **Region Settings** is other than 'USA' change to it for correct handling of dot and comma temporarily
003. open **ModelConverterX**
004. in **Options** click 'Reset all to default' if you have made changes previously for other projects
005. in **Options** ⇒ **MDLWriter** make sure to have a correct **FSX XtoMDL** path (only FSX SDK and no 3DS or Prepar3D)
006. import original **FS2004** model file *.mdl from a folder that also contains all texture *.dds files of that aircraft
007. click '**Set**' in window 'Set condition variables' without making any changes
008. export object as '**FSX MDL object**' and name the exported model file properly
009. close and reopen **ModelConverterX**
010. import converted **FSX** model file
011. check textures and animations to be correct
012. close **ModelConverterX**
013. if you have changed your **Region Settings** to 'USA' you can change it back to your original settings now

↑ Prepare FSX Aircraft Model Folder For Use In MSFS 2020

014. the native FSX or converted to FSX model file must be in the **Model** folder of the aircraft
015. the **model.cfg** file must have a correctly named entry for the model file in parameter 'exterior' or 'normal'
016. only *.dds FSX format textures the model file will later call for should be in the **Texture** folder
017. remove all but one single texture for that aircraft if applicable and make necessary changes to **aircraft.cfg** file
018. the main folder must include subfolders **Model** / **Panel** / **Sound** / **Texture** with each a config file at least

↑ Launch PlaneConverter

019. click search in windows
020. type **powershell**
021. run the **Windows PowerShell** app (works with commands like in DOS)
022. change to the 'planeconverter-master' folder to which you have unzipped the downloaded PlaneConverter
023. change to subfolder 'PlaneConverter' containing 2 *.xaml and other files
024. type 'dir' and make sure you are in the correct folder
025. type **dotnet run** and wait some seconds for the PlaneConverter app to launch

↑ Prepare FSX Aircraft Model For Use In MSFS 2020 With PlaneConverter

026. in PlaneConverter app on **Update layout.json** tab select the directory for your converted FS2004 / FSX plane
027. click **Update layout.json** button and wait for a success message
028. a file **layout.json** must be in your aircraft folder now
029. change to the **Copy and package SimObject** tab
030. select the directory for your converted FS2004 / FSX plane again in **Source SimObject**
031. for the target set the **MSFS Community** folder
032. type a **Package Name**
033. type the **Title** for your aircraft
034. type an ongoing **Version** number if you repeat the process later
035. click **Convert** button and wait for a success message
036. go to **MSFS Community** folder and check your aircraft to be there including files **layout.json** and **manifest.json**
037. every texture file in the texture folder of your aircraft should now have its own *.json file
038. start MSFS and check your aircraft to appear in the 'Aircraft Selection' menu
039. also start a flight using your aircraft to check correct texture mapping – a cockpit view may not appear now
040. in the MSFS Community folder will be added a new folder suffixed ***_CVT_** to and as a part of your aircraft

↑ Aircraft Folder Setup

041. dependencies

```
"dependencies": [
{
"name": "fs-base-propdefs",
"package_version": "0.1.2"
}
],
```
042. rename aircraft.cfg in your converted aircraft main folder to aircraft.txt
043. delete airfile in your converted aircraft main folder or remove suffix from it
044. select a default MSFS aircraft of your choice and go to its main folder
045. copy all flight and config files from that aircraft to your converted aircraft main folder

ai.CFG	Climb.FLT	gameplay.CFG
aircraft.CFG	cockpit.CFG	hangar.FLT
aircraft.LOC	cruise.FLT	runway.FLT
approach.FLT	engines.CFG	systems.CFG
apron.FLT	final.FLT	target_performance.CFG
cameras.CFG	flight_model.CFG	taxi.FLT
046. edit section [FLTSIM.0] of your aircraft.cfg – type the **Title** for your aircraft
047. in model folder rename model.cfg model.txt
048. copy model.cfg file and all interior files from aircraft of your choice to the converted aircraft's model folder
049. change exterior file name in model.cfg section [models] to the model file name of your converted aircraft
050. in panel folder rename panel.cfg file to panel.txt
051. copy all files from aircraft of your choice's panel folder to the converted aircraft's panel folder
052. in sound folder rename sound.cfg file to sound.txt
053. copy all files from aircraft of your choice's sound folder to the converted aircraft's sound folder
054. copy texture.cfg file and all cockpit files from aircraft of your choice to the converted aircraft's texture folder
055. update both *.json files in root folder and aircraft folder
056. conversion process is done, but config files very likely still need some tweaking

Notes:

- Flight Model in MSFS should be set to 'Modern'; Options: General ⇒ Flight Model ⇒ Modern
- Changes to texture files or model files of aircraft in the MSFS Community folder will only become effective after deletion of the corresponding suffixed ***_CVT_** folder and a restart of MSFS thereafter !
- Cockpit view using a default MSFS one may conflict with the converted aircraft model

CONVERTING NATIVE FS2004 MODELS TO FSX NATIVE MODELS IN GMAX

↑ Prerequisites GMAX Modelling

- experience with GMAX program especially in the field of texture mapping and animation
- availability of the original FS2004 aircraft model GMAX project file *.gmax file
- availability of the original FS2004 aircraft model Texture files *.psd Photoshop (or other) files
- availability of the original FS2004 aircraft model Effect files *.fx
- Microsoft Flight Simulator X SDK + SP1A + SP2 install in C:\> and not in any program folders
- GMAX v1.2 program (included in FSX SDK) install in C:\> and not in any program folders
- System Unit Scale in GMAX must be Meters Customize ⇒ Preferences...

↑ Setup FSX Gamepack

001. copy folder **FSX_GmaxGamePack** from FSX SDK SP2 Environment Kit\Modeling SDK to **C:\GMAX\gamepacks** folder
002. copy project file and all texture files of the FS2004 aircraft model to **FSX_GmaxGamePack** folder
003. start GMAX program only with the included link **FSX_GMax** from inside the **FSX_GmaxGamePack** folder

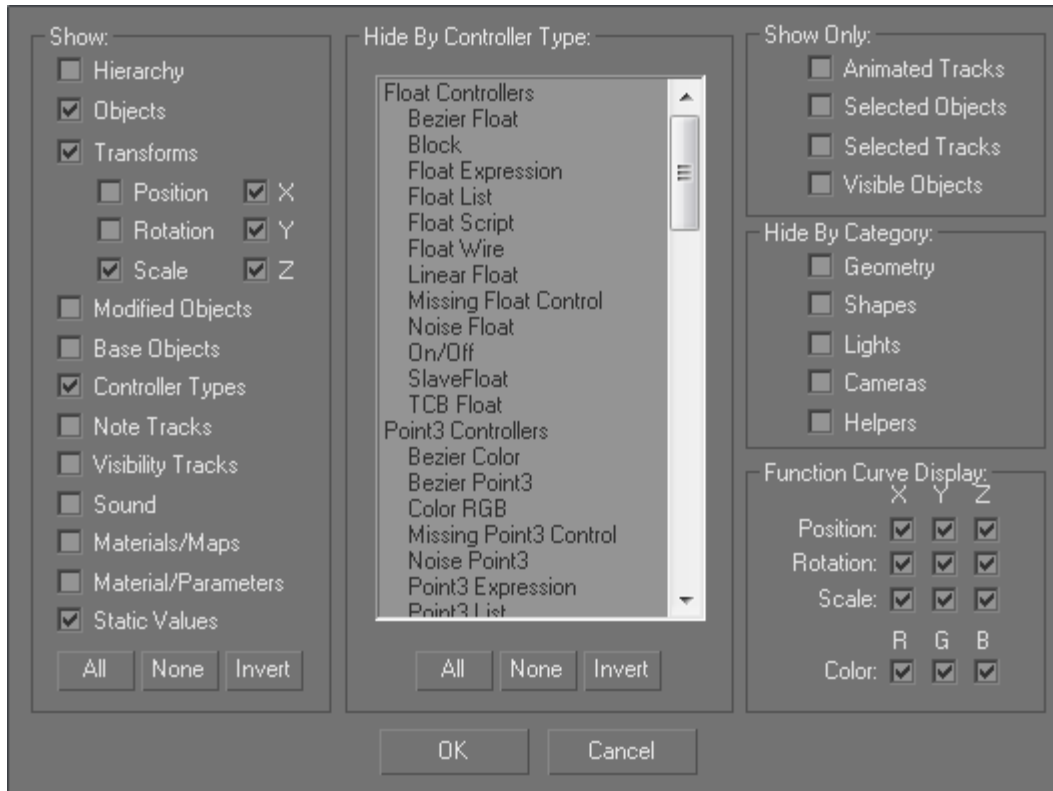
↑ Open Original GMAX File Named "HSST"

004. Menu Bar – File – Open ...
005. original *.gmax file of the FS2004 native aircraft **hsst.gmax**
give original file new name
006. Menu Bar – File – Save As ... **hsst-fsx.gmax**

↑ Prepare To Check Scales

- 007. Menu Bar – Graph Editors – Track View – New Track View
- 008. Icon – Filters
- 009. Hide By Controller Type
- 010. Show
- 011. setup filters according to image:

click None
click None



- 012. click
- 013. right-click Objects
- 014. write a name for the filter into the box at the top of the window
- 015. close window Scale Check
give file a new name
- 016. Menu Bar – File – Save As ...

OK
Expand All
Scale Check

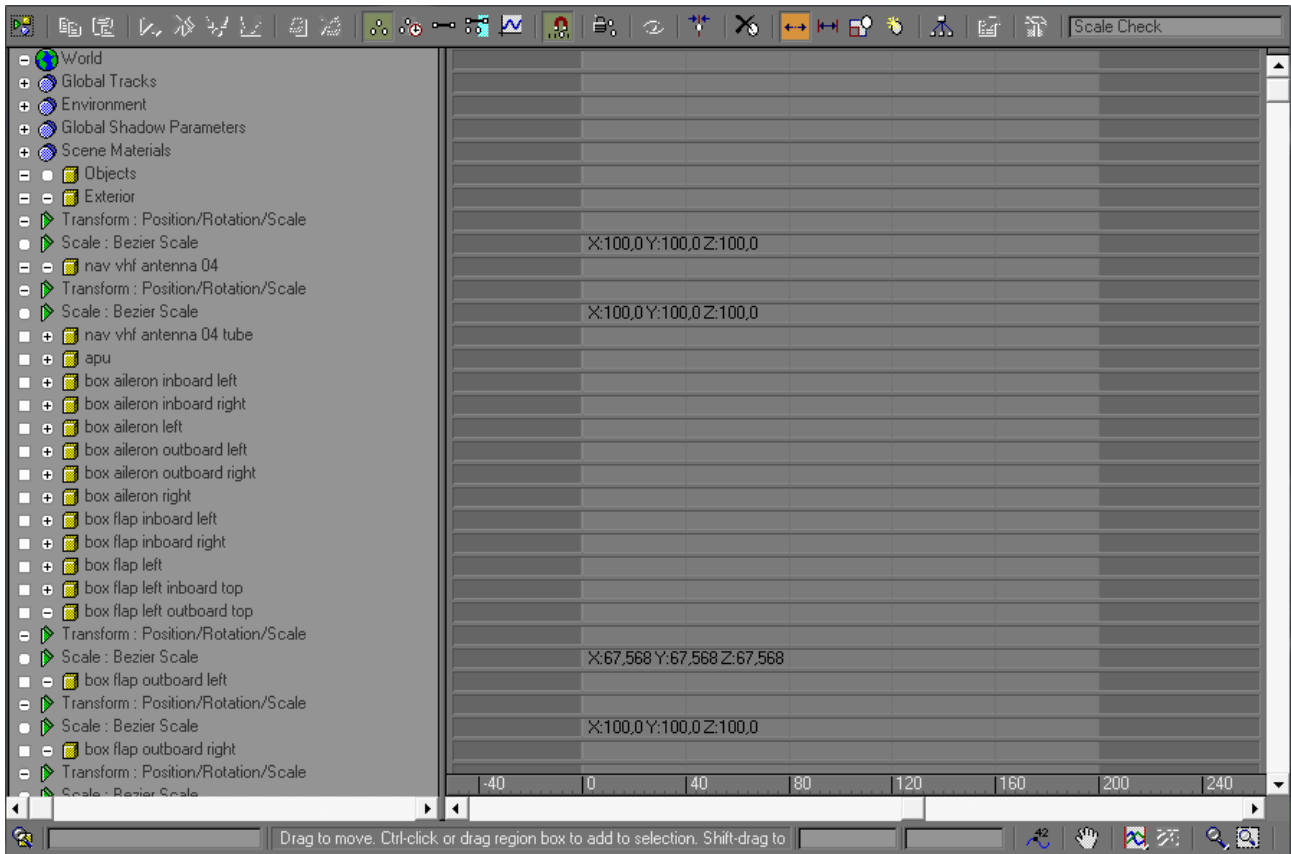
hsst-fsx-resetscales.gmax

↑ Check And Reset Scales

017. Menu Bar – Graph Editors – Track View – Scale Check

018. search for entries not reading like

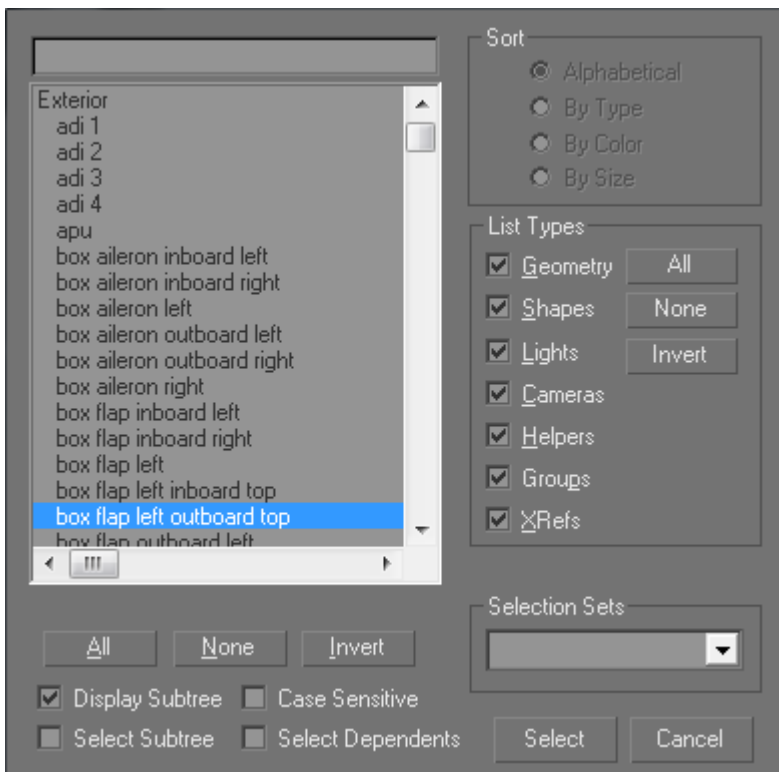
X:100.0 Y:100.0 Z:100.0



019. find and remember the name of an object with different values in picture above: 'box flap left outboard top'

020. Toolbar – Icon – Select By Name

021. in window Select Objects search for the object with the different values



- 022. mark it
- 023. click
- 024. Command Panel – Tab – Hierarchy

Select
activate Pivot if necessary



- 025. click
- 026. different value will change now to read
- 027. continue with every other object containing different values
- 028. close window Scale Check
- 029. Menu Bar – File – Save

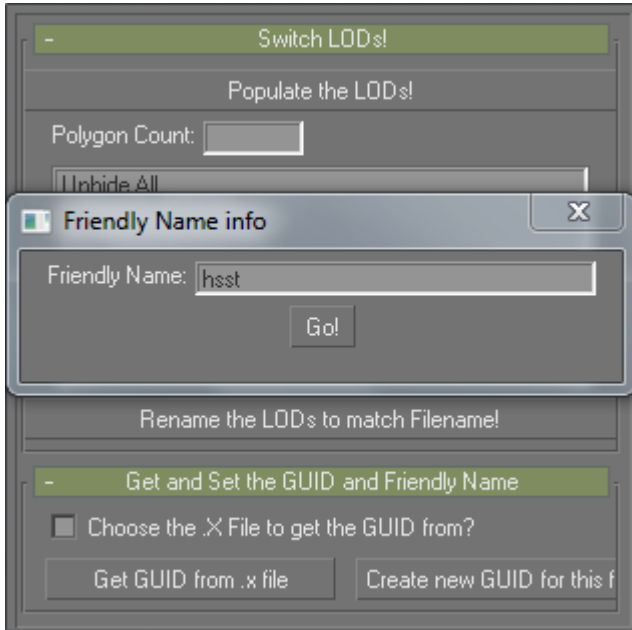
Reset – Scale
X:100.0 Y:100.0 Z:100.0

it should not change the model visibly

[hsst-fsx-resetscales.gmax](#)

↑ Add GUID

030. Menu Bar – FS Tools – LODNameTool



- 031. click
- 032. in Friendly Name info type name of model
- 033. click
- 034. close window LOD and GUID tools
- 035. Menu Bar – File – File Properties ...
- 036. Tab – Custom
- 037. click
- 038. Menu Bar – File – Save
give file new name
- 039. Menu Bar – File – Save As ...

Create new GUID for this file

hsst

Go!

click Guid

OK

hsst-fsx-resetscales.gmax

hsst-fsx-materials.gmax

↑ Prepare Texture Materials For FSX Standard

- 040. edit texture materials with Photoshop or another software
using the color of the Alpha Channel may affect display in MSFS
- 041. image width and height each
- 042. save textures as
with
limit the file name to 8 characters plus suffix for FSX models like
use only
in case of using non English languages
separate daytime textures (T) from nighttime textures
separate nighttime textures (L) from daytime textures
- 043. convert BMP files to *.dds files with or without MipMaps using
or
with
activating
- 044. copy *.dds texture files to aircraft model's folder
- 045. copy *.dds and *.psd files if Photoshop was used to folder

Photoshop files can be loaded in GMAX

avoid pure black in texture

2048 × 2048 pixels max

Windows BMP 32bit (Extended 888-8)

Alpha Channel in black RGB 000 000 000

filename.dds

lower caps

avoid special characters

filena_t.dds

filena_l.dds

Texture Manager : Mode ⇒ FSX

DXTBmp : File ⇒ Save as ⇒ DDS Texture ⇒ DDS DXT5

Alpha Channel in black RGB 000 000 000

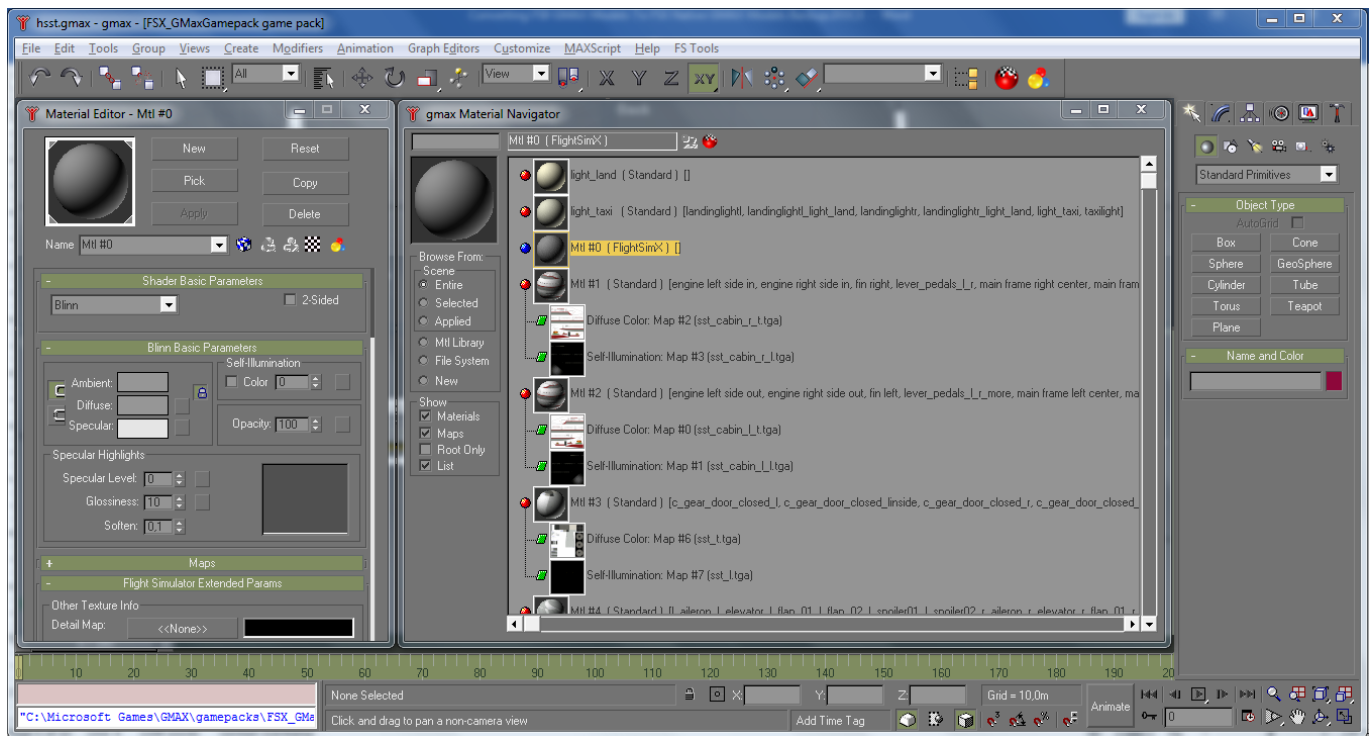
MipMaps may make textures blurry in MSFS

Texture

FSX_GmaxGamePack

↑ Move Texture Materials From FS2004 Standard To FSX FlightSimX

046. open Material Editor
047. open Material Navigator



048. in Material Editor click New
049. mark FlightSimX
050. click OK
051. in Material Navigator mark new material Mtl #0 (FlightSimX) []
052. in Material Editor Name type number behind character # Mtl #1
053. in Material Editor open section Maps
054. select the FSX texture for daytime with a click on None in row Diffuse Color
055. double click on Bitmap
056. select the *.psd texture file
for example the Photoshop FSX texture file wing-fsx_t.psd
057. select the FSX texture for nighttime with a click on None in row Self-Illumination
058. double click on Bitmap
059. select the *.psd texture file
for example the Photoshop FSX texture file wing-fsx_l.psd
060. search for FS2004 texture material used for the FS2004 wing in a Mtl #* (Standard) [***]
assigned model objects listed in the square brackets
must be selected and assigned to the new FSX wing material Mtl #1 (FlightSimX) []
061. Toolbar – Icon – Select By Name
062. mark all model objects assigned to the FS2004 wing texture files Mtl #* (Standard) [***]
063. click Select
064. in Material Navigator mark new material for the FSX wing Mtl #1 (FlightSimX) []
065. in Material Editor click Apply
selected model object names should now appear in brackets of Mtl #1 (FlightSimX) [***]
other objects can be added later with the same procedure
deleting objects from the list in the brackets may be complicated Select and Apply
066. in Material Editor click icon save GMAX project file frequently in between
blue dot of material in Material Navigator changes to color Show Map in Viewport
red

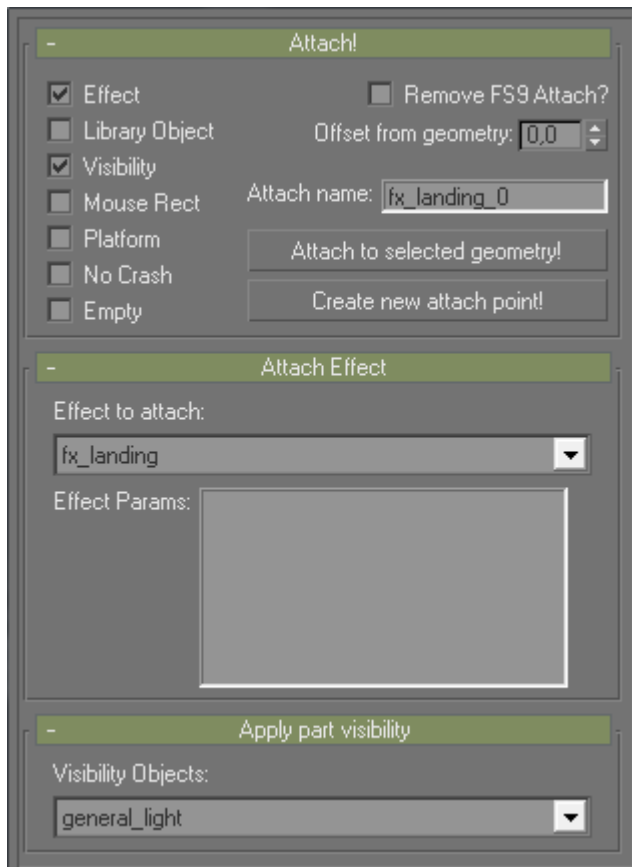
- 067. in Material Navigator double click empty FS2004 wing material Mtl #* (Standard) []
- 068. in Material Navigator mark empty FS2004 wing material Mtl #* (Standard) []
- 069. in Material Editor click Delete
- 070. Menu Bar – File – Save [hsst-fsx-materials.gmax](#)
- 071. proceed with the same steps for all other materials consisting of daytime (T) and nighttime (L) or other textures
every material needs its own number following the Mtl #
- 072. Menu Bar – File – Save [hsst-fsx-materials.gmax](#)
give file a new name
- 073. Menu Bar – File – Save As ... [hsst-fsx-animations.gmax](#)

Notes:

- Changes to texture files or model files of aircraft in the MSFS Community folder will only become effective after deletion of the corresponding suffixed ***_CVT_** folder and a restart of MSFS thereafter !
- Nightmaps may be active during daytime in MSFS due to missing day/night switch in available exporters use a cleverly chosen color for windows, for example gray-yellow
- Every visible part of the model should have a texture mapping; MSFS displays untextured parts in blank white

↑ Lights

- 074. lights use a single simple poly mesh
- 075. pivot must be oriented properly
- 076. effect files must be available
- 077. light must be attached with Attach Point Tool



Note:

- Lights - especially attached to movable aircraft objects like a landing gear - may not work at all !

↑ Animations

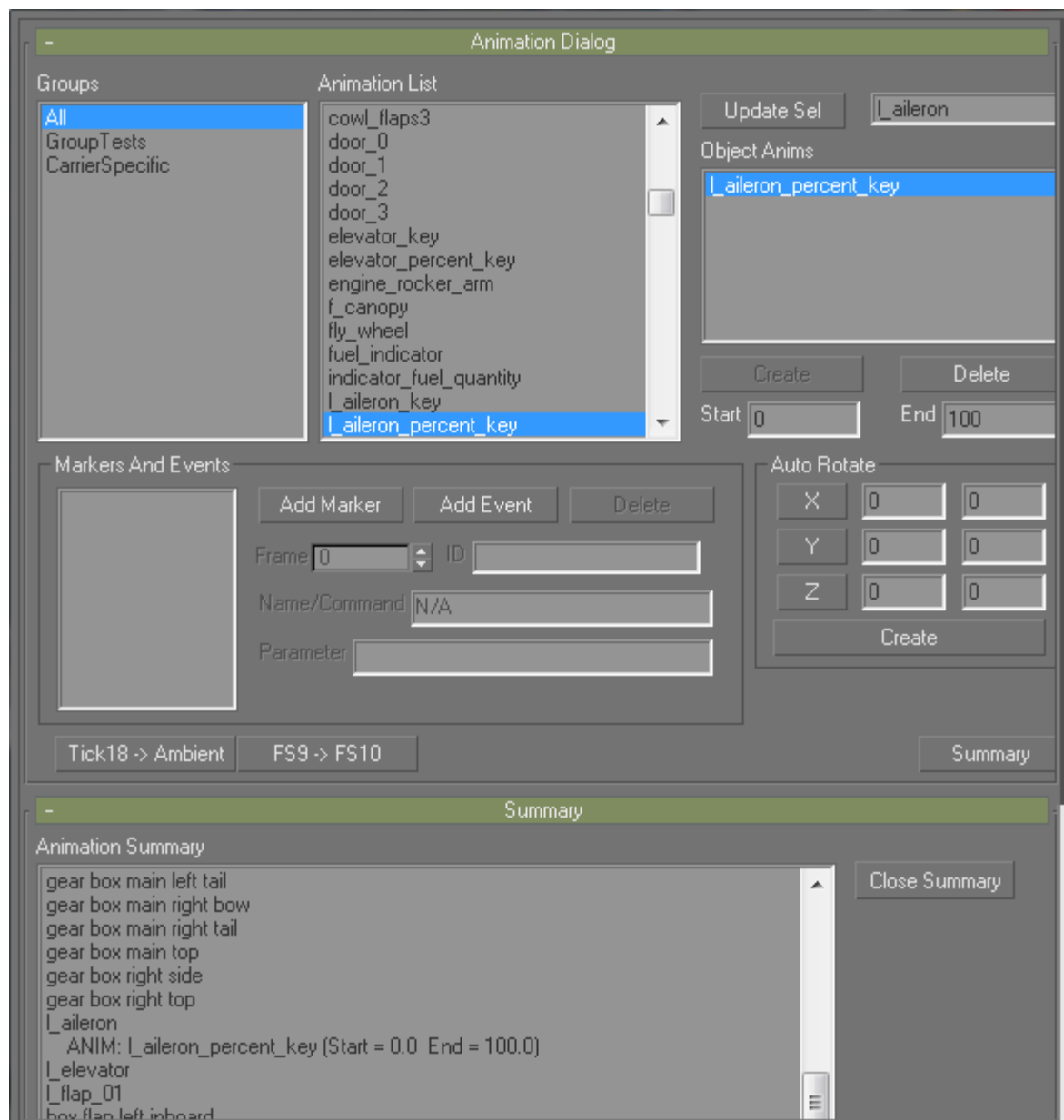
- 078. create all animations with keyframes in GMAX
- 079. it can be of advantage to finish texture mapping for objects before animating them
- 080. start to animate the lower objects in a subtree first (tires first ⇒ then oleo ⇒ strut at last)
- 081. for rotating animations always assign Linear Rotation Controller

Command Panel – Tab – Motion – Parameters – Assign Controller

select Rotation

click icon Assign Controller

select Linear Rotation



↑ Animation Setup

Part of aircraft model	Object Naming in GMAX	Animation Tag in FSX Animation Tool	KeyFrames For FSX MSFS Models					
			0	50	100	150	200	
Nose Gear Strut ⁰¹⁾	c_gear_strut	c_gear ⁰²⁾	gear up		gear down		intermediate	compressed
L Nose Gear Oleo ⁰³⁾	c_gear_strut_oleo	c_gear ⁰⁴⁾			extended			
L Nose Gear Wheel ⁰⁵⁾	c_wheel	c_wheel ⁰⁶⁾						
L Nose Gear Tires ⁰⁷⁾	c_tire	c_tire_still_key ⁰⁸⁾						
Nose Gear Door Open ⁰⁹⁾	c_gear_door_open	c_gear ¹⁰⁾	door closed	door open	door open			
Nose Gear Door Closed ¹¹⁾	c_gear_door_closed	c_gear ¹²⁾	door closed	door open	door closed			
Left Gear Strut ¹⁴⁾	l_gear_strut	l_gear ¹⁵⁾	gear up		gear down		intermediate	compressed
L Left Gear Oleo ⁰³⁾	l_gear_strut_oleo	l_gear ⁰⁴⁾			extended			
L Left Gear Tires ⁰⁷⁾	l_tire	l_tire_still_key ⁰⁸⁾						
Left Gear Door ¹⁶⁾	l_gear_door	l_gear ¹⁷⁾	door closed	door open	door closed			
Right Gear Strut ¹⁴⁾	r_gear_strut	r_gear ¹⁵⁾	gear up		gear down		intermediate	compressed
L Right Gear Oleo ⁰³⁾	r_gear_strut_oleo	r_gear ⁰⁴⁾			extended			
L Right Gear Tires ⁰⁷⁾	r_tire	r_tire_still_key ⁰⁸⁾						
Right Gear Door ¹⁶⁾	r_gear_door	r_gear ¹⁷⁾	door closed	door open	door closed			
Rudder ¹⁸⁾	lever_pedals_l_r	rudder_percent_key	rudder left	rudder center	rudder right			
Spoiler Left ¹⁹⁾	l_spoiler	l_spoiler_key	spoiler retracted		spoiler up			
Spoiler Right ¹⁹⁾	r_spoiler	r_spoiler_key	spoiler retracted		spoiler up			
Thrust Reverser ²⁰⁾	thrust_reverser	thrust_rev_#	reverser retracted		reverser extracted			
Aileron Left ²¹⁾	l_aileron	l_aileron_percent_key	aileron down	aileron center	aileron up			
Aileron Right ²¹⁾	r_aileron	r_aileron_percent_key	aileron up	aileron center	aileron down			
Elevator Left / Right ²²⁾	*_elevator	elevator_percent_key	elevator down	elevator center	elevator up			
Flaps Left ²³⁾	l_flap	l_flap_percent_key	flap retracted		flap extracted			
Flaps Right ²³⁾	r_flap	r_flap_percent_key	flap retracted		flap extracted			
Turbine 1 Blades ²⁴⁾ ²⁵⁾	N1_0_blurred	N1_0_blurred ²⁶⁾						
	N1_0_slow	N1_0_slow ²⁶⁾						
	N1_0_still	N1_0_still ²⁶⁾						
Turbine 2 Blades ²⁴⁾ ²⁵⁾	N1_1_blurred	N1_1_blurred ²⁶⁾						
	N1_1_slow	N1_1_slow ²⁶⁾						
	N1_1_still	N1_1_still ²⁶⁾						

L = linked objects / Display Subtree in GMAX Select Objects window

⁰¹⁾ = nose gear strut motion uses frames 0 to 100 or for example 10 to 90 when opening and closing gear doors are involved

⁰²⁾ = needs its own animation tag in FSX Animation Tool of full 200 frames

⁰³⁾ = section [contact points] in configfile has to be setup properly to make oleo compression work correctly / only 1 contact point allowed per gear not per tire

⁰⁴⁾ = oleo motion uses frames 100 to 200 with an intermediate key at 150 / needs its own animation tag of full 200 frames

⁰⁵⁾ = nose gear steering uses frames 0 to 200 with intermediate keys at 40 80 120 160 / rotate 360° clockwise looking top down

⁰⁶⁾ = needs its own animation tag in FSX Animation Tool of full 200 frames

⁰⁷⁾ = tires only need still textures no blurries / use frames from 0 to 100 with intermediate keys at 25 50 75 / rotate 360° clockwise looking from starboard

⁰⁸⁾ = needs its own animation tag in FSX Animation Tool of 0 to 100 frames / all tires can be selected together and assigned in FSX Animation Tool at once

⁰⁹⁾ = nose gear doors that remain open when gear is extracted

¹⁰⁾ = uses frames 0 to 10 for opening / needs its own animation tag in FSX Animation Tool of 0 to 100 frames

¹¹⁾ = nose gear doors that do not remain open when gear is extracted

¹²⁾ = uses frames 0 to 10 for opening and 90 to 100 for closing / needs its own animation tag in FSX Animation Tool of 0 to 100 frames

¹⁴⁾ = left / right gear strut motion uses frames 0 to 100 or for example 10 to 90 when opening and closing gear doors are involved

¹⁵⁾ = needs its own animation tag in FSX Animation Tool of full 200 frames

¹⁶⁾ = left / right gear doors that do not remain open when gear is extracted

¹⁷⁾ = uses frames 0 to 10 for opening and 90 to 100 for closing / needs its own animation tag in FSX Animation Tool of 0 to 100 frames

¹⁸⁾ = rudder uses frames 0 to 100 with an intermediate key at 50

¹⁹⁾ = spoiler use frames 0 to 100 with intermediate keys at 23 50 / every spoiler needs its own animation tag in FSX Animation Tool of 0 to 100 frames

²⁰⁾ = thrust reverser use frames 0 to 100 with an intermediate key at 50 / every reverser needs its own animation tag in FSX Animation Tool of 0 to 100 frames

²¹⁾ = ailerons use frames 0 to 100 with an intermediate key at 50 / every aileron needs its own animation tag in FSX Animation Tool of 0 to 100 frames

²²⁾ = elevators use frames 0 to 100 with an intermediate key at 50 / every elevator needs its own animation tag in FSX Animation Tool of 0 to 100 frames

²³⁾ = flaps use frames 0 to 100 with intermediate keys at 25 50 75 / every flap needs its own animation tag in FSX Animation Tool of 0 to 100 frames

²⁴⁾ = for propellers replace "N1_" with "prop"

²⁵⁾ = require each a visibility tag to be made with AttachPointTool (Select N1 · select visibility · select N1_*_still · press attach to selected geometry)

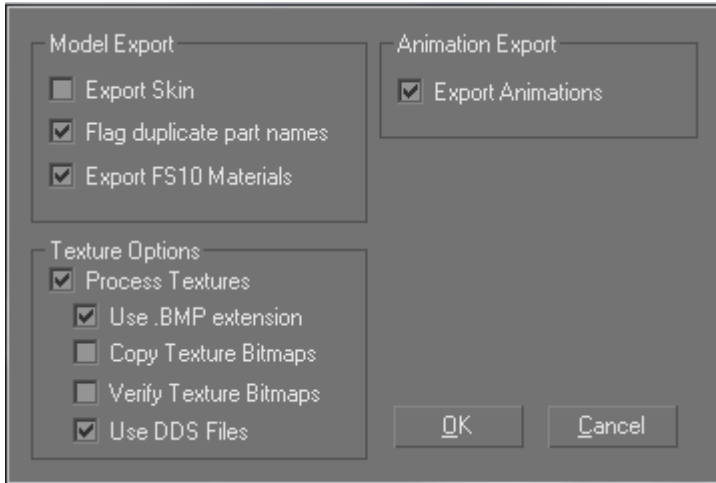
²⁶⁾ = uses frames 0 to 100 with intermediate keys at 25 50 75 / rotate each 90° or -90° in Y of Offset Mode Transform Type-In

↑ Export Model

Region Settings must be 'USA' for correct handling of dot and comma when exporting a model with **FSX_GmaxGamePack**

- 082. in GMAX export the aircraft with FSX_GmaxGamePack as
- 083. Menu Bar – File – Export ...

Flightsim Model (*.MDL)
hsst.mdl



- 084. in window Flight Simulator Model Export Options check
- 085. another window may appear after the export has finished
- 086. warnings may not be a problem

Export Animations
Export Warnings and Errors

Note:

- Changes to texture files or model files of aircraft in the MSFS Community folder will only become effective after deletion of the corresponding suffixed ***_CVT_** folder and a restart of MSFS thereafter !

MSFS MISCELLANEOUS

↑ FDE Flight Dynamics Files

The **aircraft config file** of predecessors FS2004 / FSX has been split into some separate files in new MSFS 2020

FS2004 / FSX Aircraft Config File Parameter

Airplane_Geometry
Attitude_Indicators
Autopilot
Brakes
Contact_Points
Direction_Indicators
Effects
Electrical
Exits
Flaps.0
Flight_Tuning
Forcefeedback
Fuel
Gear_Warning_System
GeneralEngineData
Hydraulic_System
Jet_Engine
Keyboard_Response
Lights
Pitot_Static
Radios
Reference_Speeds
Stall_Warning
TurbineEngineData
Turn_Indicators
Views
Weight_And_Balance

In MSFS 2020 Config File System

flight_model.cfg
cockpit.cfg
systems.cfg
systems.cfg
flight_model.cfg
cockpit.cfg
n/a
systems.cfg
n/a
flight_model.cfg
flight_model.cfg
gameplay.cfg
flight_model.cfg
systems.cfg
engines.cfg
systems.cfg
engines.cfg
gameplay.cfg
systems.cfg
systems.cfg
systems.cfg
flight_model.cfg
systems.cfg
engines.cfg
cockpit.cfg
cameras.cfg
flight_model.cfg

Notes:

- Parts of the **airfile** used in predecessors FS2004 / FSX have been incorporated into config files
- Editing particular parameters in the **[AERODYNAMICS]** section of **flight_model.cfg** file may not be accepted by MSFS

↑ Aircraft Editor Resync

Edit config files without restarting **MSFS** every time:

1. Activate Developer Mode ⇒ Options ⇒ General ⇒ Developers ⇒ On
2. DevMode ⇒ New project ⇒ click **OK**
3. Tools ⇒ Aircraft Editor
4. Make changes to config file
5. Aircraft Editor ⇒ File ⇒ Resync
6. Wait for aircraft to finish reload with changed config file settings

Note:

- Resync does not seem to work properly when editing the **[AERODYNAMICS]** section of **flight_model.cfg** file

↑ Reflection Metallic Glossy Shiny Effects

To add a glossy or shiny effect - like polished chrome metal - and or metallic reflections - of sunlight or parts of the model itself - to an aircraft model, edit the following parameter of texture materials in **GMAX** Material Editor, any other design program or **ModelConverterX** (MCX):

Blinn Basic Parameters

- | | | | |
|------------|-----|--------------------|--|
| • Ambient | RGB | 150 150 150 | |
| • Diffuse | RGB | 150 150 150 | |
| • Specular | RGB | 003 003 003 | 001 = nonmetallic surface / 255 = metallic surface |

Specular Highlights

- | | | | |
|------------------|-------|------------|---|
| • Specular Level | Value | 210 | 1 to approx. 100 = chromium surface
approx. 100 to approx. 125 = less reflective chromium surface
approx. 125 to approx. 175 = dull reflective surface
approx. 175 to 255 = reflective surface |
| • Glossiness | Value | 0 | 0 = no noticeable effect in MSFS
100 = no noticeable effect in MSFS |
| • Soften | Value | 0.1 | |

Maps

- ☒ Diffuse Color
- ☒ Self-Illumination

Special Functionality

- ☐ Blend environment by inverse of diffuse alpha
- ☐ Blend environment by specular map alpha
- ☐ Blend diffuse by diffuse alpha
- ☐ Blend diffuse by inverse of specular map alpha
- ☐ Use global environment map as reflection
- Reflection Scale Value **100**
- Specular Map Power Scale Value **64**

Bloom

- ☒ Allow bloom

Framebuffer Blend

- | | |
|---------------------|-------------|
| • Source Blend | One |
| • Destination Blend | Zero |

Emissive Properties

- | | |
|-----------------|--------------------------|
| • Emissive Mode | AdditiveNightOnly |
|-----------------|--------------------------|

Enhanced Parameters

- ☐ No Base Material Specular

Notes:

- Values are suggestions resulting in an appearance close to default MSFS B747-8 and do work with a texture file having a black **Alpha Channel** and a black **Self-Illumination** texture file which may have light windows and or light areas
- ☒ **No Base Material Specular** deactivates all reflection metallic glossy shiny effects
- There is no separate specular texture map necessary if all model parts textured with a particular map are supposed to have the same appearance

↑ Glass Transparency

Transparent glass parts can be added to a model using a combination of textures with a specific alpha channel and settings in **GMAX** or **ModelConverterX** (MCX). For example:

Texture for blank white transparent glass :

Diffuse Texture ⇒ color RGB 255 255 255 white

Alpha Channel ⇒ color RGB 030 030 030 dark gray

Texture for red colored transparent glass :

Diffuse Texture ⇒ color RGB 255 000 000 bright red

Alpha Channel ⇒ color RGB 180 180 180 gray

Settings in GMAX Material Editor or ModelConverterX (MCX) :

- **Blinn Basic Parameters**

Ambient **255 255 255**

Diffuse **255 255 255**

Specular **RGB RGB RGB used in Diffuse Texture file**

Opacity **0**

Specular Level **255**

Glossiness **10**

- **Maps**

Diffuse Color map slot used only

- **Special Functionality**

☒ Blend environment by inverse of diffuse alpha

☐ Blend environment by specular map alpha

☒ Blend diffuse by diffuse alpha

☐ Blend diffuse by inverse of specular map alpha

☐ Use global environment map as reflection

Reflection Scale **90**

Specular Map Power Scale **75**

- **Bloom**

☒ Allow bloom

- **Framebuffer Blend**

click ⇒ **Set Default Transparent**

- **Enhanced Parameters**

☒ No shadow

↑ Create Thumbnail Image For MSFS Model

Get a thumbnail for your aircraft model in **MSFS**:

1. Select your aircraft model in World Map
2. Load your aircraft in the hangar ⇒ Profile ⇒ My Hangar
3. [DevMode] ⇒ New project ⇒ OK
4. In Project Editor ⇒ View ⇒ Inspector
5. In Project Editor click + at bottom left
6. Add Package ⇒ type a name for project ⇒ click **Create**
7. In Inspector click **Capture aircraft thumbnail**

Notes:

- Use drone and drone keyboard controls to obtain the desired view direction in the hangar
DevMode ⇒ Camera ⇒ Developer Camera
- Sizes of thumbnail files

thumbnail.JPG	1618 × 582 px
thumbnail_small.JPG	600 × 216 px

↑ Model Radius

To change the radius of your aircraft model, use the **MDL Tweaker** in program **MCX ModelConverterX**:

- Open program **ModelConverterX** (MCX)
- Special Tools ⇒ **MDL Tweaker ...**
- Load your aircraft model's model file
- Type desired **Radius** in metric unit
- Bounding Box values also can be changed there
- Click **Save MDL ...**

↑ ATC Codes

To change the **ATC** code of your aircraft model, available information is stored in file:

- Official\OneStore\fs-base\en-US.locPak

Format in file **aircraft.cfg** section [**General**] is for example:

- atc_type = "TT:ATCCOM.ATC_NAME BOEING.0.text"
- atc_model = "TT:ATCCOM.AC_MODEL B744.0.text"

↑ Pilot's Eye Viewpoint

To change the position of the pilot's eye viewpoint in the virtual cockpit, you may edit entries in file **cameras.cfg**:

[CAMERADEFINITION.0]

Title ="Pilot"

InitialZoom =0.3

InitialXyz = 0.375, 0.975, 4.725

InitialPbh = -10.65, 0, 0

zoom (out + / in -)

move pilot viewpoint (right + / left -)

move pilot viewpoint (up + / down -)

move pilot viewpoint (forward + / backward -)

pilot view direction (up + / down -)

pilot view bank (clockwise +)

pilot view heading (right + / left -)

Notes:

- There is also [CAMERADEFINITION.3] for the CoPilot's eye viewpoint further down in the cameras.cfg file

[↑ LINKS](#)

[MSFS Forum | FSX Import Showcase](#)

[FS Developer | GUIDE - Converting Aircraft From FSX To MSFS](#)

[Discord | MFS SDK Channel](#)

[Prepar3D | FSX SDK - New Aircraft Procedures](#)

[Prepar3D | FSX SDK - Texturing Aircraft Models](#)

[CalClassic | Tutorial To Convert FS2004 Aircraft To FSX Using ModelConverterX](#)

[ConceptArtEmpire | Texture Maps - The Ultimate Guide For 3D Artists](#)

[GMAX | Registration](#)

[! Jan's Websites ! Flightsim | Project HSST Hydrogen Super Sonic Transport · v4.0 FS2004](#)

[! Jan's Websites ! Flightsim | Project HSST Hydrogen Super Sonic Transport · v5.0 MSFS](#)

↑ CREDITS

People who helped me with porting my model 'HSST' designed in year 2004 from FS2004 over to MSFS and thus to compile this manual ...

Programs And Hints:

- Don Grovestine (**TextureManager**)
- Martin Wright (**DXTBmp & MWGraphics GFX DLL Files**)
- Arno Gerretsen - SceneryDesign.org (**ModelConverterX**)
- Klas Björkqvist klasbj - Microsoft Flight Simulator Forums (**PlaneConverter**)
- Brandon Filer HughesMDflyer4 (**MSFSLayoutGenerator**)
- Matt LaGrandeur - California Font (**CaliforniaGothic-Regular.TTF**)
- GMAX v1.2 (model design)
- Adobe Photoshop Elements (texture creation)
- Microsoft (flightsim / other programs)

Tips And Hints:

- AgateEvening937 - **Microsoft Flight Simulator Forums** (model port over)
- CutthroatPath73 - **Microsoft Flight Simulator Forums** (model port over)
- cwburnett - **Discord MFS SDK Channel** (configfiles)
- DEAN01973 - **Microsoft Flight Simulator Forums** (dependencies / configfiles)
- n4gix - **FSDeveloper Forum** (modeldef.xml lights code)
- Lagaffe - **FSDeveloper Forum** (model port over)
- lionheart - **FSDeveloper Forum** (miscellaneous)
- Milton Shupe - **FSDeveloper Forum** (model port over)
- Raynen - **Microsoft Flight Simulator Forums** (configfiles)
- SeeRyFly - **Microsoft Flight Simulator Forums / Discord MFS SDK Channel** (configfiles / texture effects)
- SlinkyMate - **Microsoft Flight Simulator Forums / Discord MFS SDK Channel** (model port over)