

AI traffic in FS2004

How to adjust AI traffic to your wishes in FS2004

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Do you still have questions about AI or suggestions for this tutorial: [contact me](#)

1. Introduction

Microsoft's Flight Simulator 2004 contains Artificial Intelligence (AI), enabling to generate traffic as well as ATC (Air Traffic Control). Both are integrated so that besides the communications with your own aircraft, you will also hear those between ATC and others.

The first aim is of course to replace the annoying Orbit, Landmark and others by real airliners of your choice. Further, you want to have more gates on the airports to accommodate your expanded traffic. There is one man who has made all that possible for us: **Lee Swordy**.

His famous **TTools** and **Afcad** programs will enable us to add a lot of realism to our airports.

However, we should also not forget the hundreds of developers and repainters providing us with wonderful aircraft.

2. Installing aircraft

A lot of aircraft are specially designed for AI traffic. They are usually not so complex as the ones we like to fly with, but are framerate-friendly.

The biggest supplier with the largest variety of freeware AI planes is [ProjectAI](#), which has recently merged with FSPainter. The latter was more specialized in aircraft with different versions of the same type (e.g. B747 with Rolls Royce or with Pratt and Withney engines, etc) . Another supplier, still with a limited choice of types, but with very framerate-friendly planes is [AI Aardvark](#).

ProjectAI has installers for certain a/c packages but additional aircraft are very easy to install manually.

Let us first consider the software architecture of an aircraft.

Each type of aircraft (Boeing 737-400, Boeing 737-800, Airbus 320, Airbus 330-200, etc.) is represented by a folder in FS9\aircraft which contains at least the following subfolders: model, sound, texture, and two files xxxxxx.air and aircraft.cfg. (A panel folder is usually not present because AI planes do not need a panel)

The model folder contains two files: model.cfg and xxxxxx.mdl. The first file is a configuration file referring to the second file. The second file contains information about the aircraft model, among others the definition of the *aircraft radius*. The latter is very important because it will play a crucial role on the

3. Installing flightplans with Ttools

In order to accomplish this you need the program TTools.

TTOOLS created by **Lee Swordy** (latest version: *ttools202.zip* - all former versions only works with FS2002)

This freeware program can be downloaded from various sites ([AVSIM](#), [ProjectAI](#), etc.)

What does **Ttools** do?

This program creates a trafficxxx.bgl file from compiling three textual input files *Airports.txt*, *Aircraft.txt* and *FlightPlans.txt*. Also it will inversely decompile the trafficxxx.bgl file into the three text files.

In FS2004 there is an advantage that you can create as much traffic .bgl files separately as you wish with names all beginning with the "traffic". All these files are automatically placed in the folder FS9\SCENERY\WORLD\Scenery.

Ttools now enables you to define your own aircraft, using the appropriate flightplans and to fill up the list of airports where you want to see traffic (all 23760 airports are not defined for traffic)

TTools.exe enables to compile or to decompile the traffic file. **CollectAirports.exe** will make an airport.txt file by extracting all airports available in FS2004 (also those who didn't have default traffic)

The text files look as follows:

Airports.txt

```
.....  
EDDM,N48* 21.44',E11* 47.10',1483  
EDDN,N49* 30.13',E11* 4.60',1043  
EDDP,N51* 25.67',E12* 14.12',463  
EDDR,N49* 13.08',E7* 6.50',1056  
EDDS,N48* 41.61',E9* 13.25',1266  
EDDT,N52* 33.82',E13* 17.20',121  
EDDV,N52* 27.85',E9* 40.95',180  
EDDW,N53* 3.09',E8* 47.13',13  
.....
```

This is a list of airports where traffic is available (If you have used CollectAirports this list should be practically complete).

Each line contains the ICAO code of the airport, its coordinates and its elevation in feet.

Aircraft.txt

```
.....  
AC#2344,477,"PAI B773 UAE"  
AC#2391,490,"PAI B744 EVA"  
AC#2392,480,"PAI B763 EVA"  
AC#2393,470,"PAI B762 EVA"  
AC#2394,490,"PAI MD11 EVA"  
AC#2395,450,"PAI B752 EVA"  
AC#2541,454,"PAI B752 ICE"  
AC#2671,429,"PAI B733 KLM"  
AC#2672,439,"PAI B734 KLM"  
AC#2673,430,"PAI B738 KLM"  
AC#2674,430,"PAI B739 KLM"  
.....
```

This is a list of all used planes.

Each line consists of an aircraft number (e.g. AC#2393), its cruise speed (e.g. 470) and a description which should EXACTLY correspond to the title of the aircraft in the *aircraft.cfg* file of the corresponding plane e.g.

```
.....  
[fltsim.0]  
title=PAI A320 Air France (or title=PAI A320 AFR)  
sim=pai762v6  
.....
```

FlightPlans.txt

.....
AC#1003,I-
BIXP,20%,24Hr,IFR,10:30:00,11:15:52,270,F,1779,LICJ,12:14:57,13:00:49,280,F,1784,LIRF,
15:00:00,17:03:43,350,F,0208,EGLL,18:54:51,20:58:34,350,F,0209,LIRF

AC#1004,I-
DUPA,20%,WEEK,IFR,6/16:19:49,6/21:31:42,370,F,0850,GOOY,0/00:04:56,0/05:16:49,350,
F,0851,LIMC,0/08:44:11,0/17:30:03,350,F,0626,KORD,0/20:48:56,1/05:34:48,360,F,0627,LIMC,1/08:
09:23,
1/19:31:58,370,F,0672,SBGR,1/22:54:05,2/10:16:40,350,F,0673,LIMC,2/11:39:27,2/19:25:44,350,F,0
604,
KJFK,2/22:24:12,3/06:10:29,360,F,0605,LIMC,3/08:14:50,3/17:00:42,350,F,0626,KORD,3/20:49:07,
4/05:34:59,350,F,0627,LIMC,4/08:14:29,4/17:00:21,350,F,0626,KORD,4/20:49:59,5/05:35:51,370,F,0
627,
LIMC,5/07:59:22,5/19:21:57,350,F,0672,SBGR,5/23:04:59,6/10:27:34,370,F,0673,LIMC

.....
This is the list of the flightplans (in this example for two planes - AC#1003 and AC#1004)
(the textlines are here represented as broken but in reality this example consists of only two lines
starting with AC#)

The data in the file represent:

- number of the plane flying the route (e.g. AC#1003); corresponds to the one in the aircraft.txt file
- its registration number (e.g. I-BIXP - this is only of importance in some cases for ATC -see further);
- a percentage value which can be chosen. If this percentage is higher than the traffic density percentage set in FS2004 you will NOT see this plane.
- the flight frequency (6Hr = every six hours, 12Hr = every 12 hours, 24Hr= every day, WEEK = several times in the week defined by the symbol 0/ = Sunday, 1/ = Monday, etc... vwhich is placed before the departure time)
- kind of flight (IFR = instrumental flight rules for airliners; VFR = visual flight rules - for general aviation (GA) planes)

(from here)

- departure time in GWT (e.g. 10:30:00), proceeded by the day if WEEK has been used
- arrival time in GWT (you can fill in 0:00:00 because the compiler program calculates it by itself)
- F of R : F = takes the flightnumber in ATC; R = takes the registration number in ATC)
- flightnumber
- airport of destination (the airport of origin is at the end of the line)

(up till here repeated)

The last five data can be repeated from departure time (or day) on for the same aircraft. Such a set should appear at least twice in a line - flight go and back). Of course the flightplans for each a/c usually contain much more than 2 sets because each aircraft makes more than one haul per day or per week. Otherwise if only two sets are used the airports would be crowded with the same planes each having only one flight per day or week. Such a division in sets is shown by different colours in the example above (14 sets).

If you make your own GA (general aviation) flightplans you might also put the airport subsequently twice. In that case the aircraft will take off, make a turn and land again.

In all those text files you can add comment lines starting with //. This enables easily to recognize or to search for specific aircraft in the aircraft.txt or in the flightplans.txt file. It is especially convenient in the latter because this file can after all grow to thousands of lines. It is advisable to make a backup of these files in another folder because if you decompile the file will be overwritten and all the headings and comments will have disappeared.

Of course, you don't have to edit yourself all this flightplans. They are available for various airlines on [ProjectAI](#), [Avsim](#) and on various other sites (check your search engine for flightplans).

How to proceed proceed with flightplan installation:

Create a folder (e.g. Traffic2004) for instance in the Microsoft Games folder.
Unzip all the files of Ttools204.zip in this folder

For the first time you need to get rid of the default traffic and a/c.

- Execute Ttools and decompile (<---) the default traffic030528.bgl file. Three files will be created in the traffic folder:aircrrt030528.txt, airports030528.txt and Flightplans030528.txt
- Execute CollectAirports which will collect all the 23760 airports in an airports_2004.txt file

Now you can start with the creation of your first set of traffic files. Copy airports_2004.txt fiile and rename it airports_ABCD.txt in which ABCD is some name at your choice. (You can name it for instance airports_Europe.txt to be used for European traffic)

Create a file flightplans_ABCD.txt and put the text of the downloaded Flightplans in it. You can separate the different flightplans with some comment line(s) beginning with //.

Create an aircraft_ABCD.txt file and put the aircraft text (if delivered with the flightplans) in it.

Otherwise edit yourself the aircraft lines in this file. Take care that:

- the AC# number should correspond with the AC# number in the Flightplans_ABCD.txt file
- the title between " " should exactly be the same as the title the aircraft.cfg file of the corresponding aircraft livery.

Execute Ttools, click one of the files with _ABCD in the window, and you will see that the three files will be marked. Compile (--->) and a traffic_ABCD.bgl file will be created. (compilation failure caused by typing errors, missing planes or airports will be announced by the program - correct it in the txt files and restart Ttools)

That's it. You will see now all the programmed traffic in FS2004.

HINT: It may be preferable to keep the default GA (General Aviation) flightplans in order to have small aircraft traffic at the airports.

For that you can download Default_ai_split.zip from the AVSIM library. In this file *Mike Regimbald* has splitted the default traffic into GA and commercial. So, just copy the three files:

Airports_default_GA.txt, Aircraft_default_GA.txt, FlightPlans_default_GA.txt in the Ttools folder and compile.

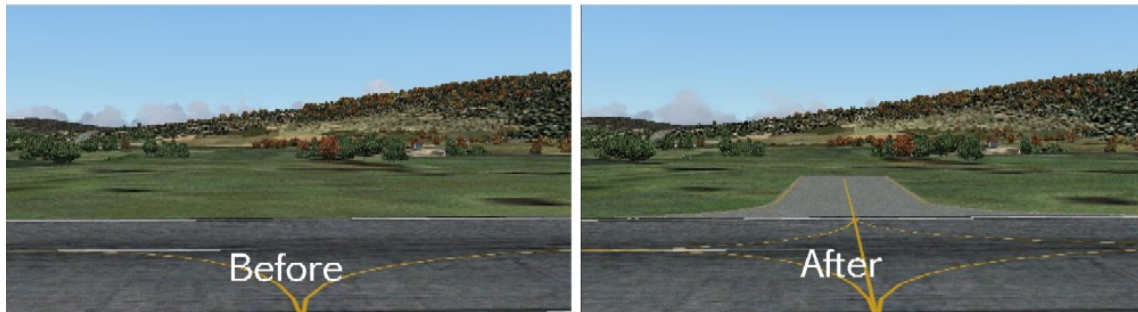
4. Adjusting airports with Afcad

Default airports in FS2004 have only a limited number op gates and parking spots. When more flightplans are introduced the airports are quickly run out of space and one needs to create more gates. Also in third-party airports the default traffic is not quite adjusted to the new lay out (a/c landing besides the runway or not following the taxilines, a/c partly parked into buildings, etc..) To correct for all that you need the AFCAD2 program of Lee Swordy. The last version is Afcad204.zip and can be

downloaded from different sites such as [AVSIM](#).

It was so that in earlier versions for FS2002 the afcad program enabled us to draw a virtual network of parking areas, taxi lines and runways, which directed the AI aircraft on the right taxiways and to the right parking spots in the airport. In the new version, however, one does not only get these virtual taxi lines, but the complete ground textures of the taxi ways with lines, night lights and everything on it. The same for runways. In other words one creates a complete ground structure of the airport and it seems that one will be able to add aprons and even building structures in the future.

In the picture you see the result of drawing a little taxi line to the west of the runway in Cannes. As you see it draws the complete taxiway .



This additional drawing does only work for FS2004 default airports and **NOT** for add-on ones. In the latter the ground textures just remain as they were.

Another particular feature now is that one doesn't need anymore the afcad program itself to install the afcad file. It is finished to import the exchangeable afcad.txt files in the program, which by saving them inserted the afcad into some regional .bgl file (e.g. euros-wafd.bgl). The afcad file will now be produced once by the program and distributed as a separate af...bgl file. This file, which can be downloaded should just be placed into the FS9\addon scenery\scenery folder and that's all. Because this folder has a higher priority than the default scenery the afcad file will overrule the default ones.

It is not necessary to make yourself by afcad the complete lay-out of an airport. Afcad.bgl files for most of the default and third-party airports will be soon available at the ProjectAI and other sites.

How to proceed with afcad installation:

For the installation of the afcad.bgl file you don't need to have the AFCAD program. Just put the af2_XXXX.bgl file in the FS9\addon scenery\scenery folder and that's all.

The new afcad2 program has interesting additional features. It also enables now to edit properties of the a/c such as:

- changing the radius in the .mdl file
- adding or changing the parking codes and types in the aircraft.cfg file

In order to see the aircraft parked in a realistic way at an airport (i.e. particular liveries at specific sites) all aircraft should contain the appropriate radius and parking specifications. The codes are provided in a drop-down list in the afcad2 program. For the parking types and radii ProjectAI recommends the following rules:

Parking types:

- GATE for all passenger aircraft, including those regional airlines that might park at a ramp
- RAMP for all GA (General Aviation) aircraft

- CARGO for civilian cargo aircraft
- DOCK for amphibious aircraft
- MIL_CARGO for military cargo aircraft
- MIL_COMBAT for military fighter and training aircraft

Radii:

One can use the simplified standard radii as provided directly in most of the AI planes, but for optimal effect ProjectAI recommends the following radii system:
(in metric units)

- single prop GA aircraft: 10 m (Ramp GA Small)
- multi-prop GA aircraft: 14 m (Ramp GA Medium)
- regional cargo aircraft: 17 m (Ramp GA Large - area=parking)
- GA jets: 18 m

MAXIMUM for GA: 18 m

- CRJ - Bae 146 (avro) - Dornier 328jet - Embraer ERJ 135/140/145 : 15 m (Ramp GA Large - area=Gate)
- ATR 42/72 - Dornier 228 - Dornier 328prop - BAE ATP Bae JS41 - Embraer 110/120 - Beechcraft 1900D - Dash 6/7/8 - Fokker F50 - Saab 340B - Saab 2000 - Yak 40 : 16 m (Ramp GA Large - area=Gate)

MAXIMUM for Regionals: 18 m

- Unknown : 20 m
- Amphibious AC: 20 m (Dock GA)
- B717 : 21 m (Gate Small)
- A318/319/320 - B727 - Tupolev 134 - Fokker F70/F100 - DC9 : 22 m (Gate Small)
- B737 : 23 m (Gate Small)
- MD 80-series/90 - Tupolev 154 - A321 : 24 m (Gate Small)
- IL62 - B757 : 25 m (Gate Small)

MAXIMUM for Gate Small: 31 m

- Military trainer - Military fighter: 26 m (Ramp Mil_Combat)
- DC8 - A310 : 32 m (Gate Medium)
- A300 : 33m (Gate Medium)
- B707: 34 m (Gate Medium)
- B767: 35 m (Gate Medium)

MAXIMUM for Gate Medium: 38 m

- DC10 - MD11 - L1011 - IL86/96 : 39 m (Gate Heavy)
- A330 : 40 m (Gate Heavy)
- B777 : 41 m (Gate Heavy)
- A340 : 42 m (Gate heavy)
- B747 - (A380) : 43 m (Gate Heavy)

Maximum Gate Heavy: 43 m

- Military cargo and bomber: 44 m (Ramp Mil_Cargo)

Civil cargo: 50 m (Ramp Cargo)

How to proceed with aircraft editing:

Execute Afcad2. In the menu Tools set Metric units and further click Aircraft Editor. Choose the parking code from the drop-down list. Fill in the parking type (R,G,C,...) and the radius according to the list given above.

5. Adding Callsigns

FS2004 contains only a limited number of callsigns which are together with the airport and aircraft names incorporated in a big file named USEnglishbig.gvp in the FS9\sound folder. Of course, you want to hear all the callsigns of the airlines and the names of the aircraft used. This can be done by a program created by Lars Mollebjerg called EditVoicepack. The latest version for FS2004 is EditVoicepack 3.0 and can be downloaded from <http://belvestone.xs4all.nl/FlightSimulator/EditVoicepack/>. You also need to Install Microsoft .NET Framework, that can be freely downloaded from Microsoft's site. Just follow the instructions and the most of the known callsigns will be added to your USEnglishbig.gvp file. If you want, you can even create your own callsign by merging different wave parts of other ones (see tutorial on the site)

6. FAQ

My airplanes disappear after landing

1) This problem can be due to the airport having too less parkings for that type of aircraft.

Solution: Download and install the latest afcad file for that airport or use the afcad program and draw additional parkings and taxiways on the airport. Also check if the radii for the various a/c types are not too small and define them as above.

2) This problem can also be due to some missing links in the taxiways.

Solution: Check the airport in the afcad program

My airplanes suddenly disappear during holding

1) This is not a problem, but an intrinsic feature of FS2004. In order to clean up stuck a/c, non-active aircraft will disappear after 5 min. This is, however, a disadvantage when aircraft are holding at a runway for a series of landing aircraft (e.g. when the same runway is used for landing and take off)

Solution: Andrew Jarvis from JBAI Simulations has made a little program enabling to prolongate this time interval. This program has the name aitp and can be downloaded on [AVSIM](#) (aitp10.zip)

My airplanes are floating or are sunk partly in the ground

1) This problem, which only occurs for add-on scenery, is due to the elevation of the add-on airport being different from that of the default one.

Solution: A french guy, Jacky Brouze, has made now a little program JABBGL enabling to put the default elevation of an airport to the add-on one. There is however still one drawback, which is due to a little bug in the AFCAD2 program, i.e. the decimals in the elevation of the runway (in m) doesn't work properly (it does work well in that of the reference point). This means that planes after landing will be a little sunk or a little hanging. We hope that Lee Swordy will correct that soon.

The adjusting program can be downloaded at AVSIM (jabbgl.zip).

Some of my installed aircraft don't appear in the AI traffic

1) This problem is usually a consequence of having a title for the aircraft in the aircraft_XXX.txt file which is not exactly the same as in the aircraft.cfg file of the corresponding aircraft livery

Solution: check the titles in both files. and make them exactly the same

2) This problem can also arise from not respecting the subsequent fltsim numbering in the aircraft.cfg file of an aircraft type.

Solution: check the aircraft.cfg files and correct the numbering

3) This problem can also be due to some error in an (the first) aircraft livery.

Solution: check the aircraft.cfg file and look if there is anything missing. An aircraft having for instance in the .cfg file no model extension, but only model folders exist with (engine) extensions e.g. model.GE and model.RR, then that aircraft and the following will not appear.

4) This problem also may arise from the traffic percentage setting in FS2004 being too low.

Solution: increase the "air traffic density" slider in FS2004 (Options -> Settings -> Traffic)

Some of my aircraft do not take off, crash before landing or do not land at all, making continuously "going around"s

1) this problem is due to the AI aircraft having not the appropriate flight dynamics for FS2004.

Solution: Download the latest .air and .cfg files for that type and install them ([see hint above](#))

Some of my aircraft do not have textures and appear as painted simply grey

1) this problem is generally caused by a missing texture folder or the appropriate extension of this folder is missing for that livery in the aircraft.cfg file .

Solution: check the aircraft.cfg files and correct

2) the texture can also be wrong and is not suited for that aircraft type

Solution: check the content of the texture folder and look if the texture files correspond to the aircraft type. (usually they have the aircraft type in their name)

My aircraft always push back. Is there a way to inhibit this for certain aircraft or for certain parkings/gates at an airport.

No, this is fixed in AI of FS2004

Solution: none for the moment

If you don't find a solution for your problem here, check the forums concerning AI traffic on AVSIM, ProjectAI, Simflight, etc.