

PSXseeconTraffic

Manual



version **20.3**

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1 Introduction

Important: This Manual is as well for PSXT for FSX/P3D as for PSXT for MSFS Changes for the MSFS version are indicated in red.

With PSXseeconTraffic (PSXT) you can fly with real live traffic in P3D, FSX or MSFS. PSXseeconTraffic injects the live aircraft within range of your aircraft in your Flight Simulator. The aircraft are created in your Simulator by PSXT as real as possible, depending on how many different AI liveries you have installed.

PSXT calculates a position for each live AI aircraft (heavy and middle aircraft, GA aircraft and Helicopters) 30 times per second, by calculating latitude, longitude, height, bank and pitch. At each new frame PSXT pushes the latest calculated position in your Simulator.

PSXT also takes care of setting the throttles, strobes, lights, flaps and it handles the landing gear at take-off and landing.

PSXT is also able to put AI aircraft at parking positions at your origin and destination airports. By learning it will know what airlines with what types park at what gates at what time of the day (see chapter 6).

The traffic information is provided by a **data provider**. The open protocol used between PSXT and a data provider is described in a [separate document](#).

The data is based on ADS-B transponder data of aircraft. When airborne this gives very good results, on the ground it depends on airport policy. At some airports pilots must have their transponder on, while on other airports they have to switch off their transponder after landing. At those airports there will be not much taxiing traffic to see. But on the other airports you may follow the aircraft after landing taxiing to the gate or from the gate to the take-off runway.

You may also notice a difference in quality of their ADS-B equipment, the newest aircraft have the best while older ones need replacement. The good news is that these replacements will take place soon (within a few years).

PSXT can coexist with third party traffic, such as from VATSIM, IVAO or MyTraffic. However, there is no collision avoidance between third party aircraft and parked aircraft or live aircraft.

The aircraft injected in your simulator are representations of real aircraft that are there at that time in reality. They are controlled by live ATC and therefore cannot be controlled by artificial ATC programs for Flight Simulators (such as ProATC). Be aware: they will not make a go-around if you, in your user aircraft, enter the runway! 😊

Note that normally only live aircraft on the ground at your origin or destination airport will be injected. This suppresses aircraft on the ground while you are in cruise and/or suppresses aircraft on the ground at airports close by (such as Heathrow vs Gatwick). You can change this in 5.3.

If you are new to PSXT and you want to see if you like it or not then you should follow the instructions in the [Quick Start Guide](#).

For questions & answers and discussions use my [Support Forum at AVSIM](#) or search the [FAQ](#).

1.1 System Requirements

- **Windows 7** or later.
- **Microsoft Visual C++ Redistributable for Visual Studio 2019**
You need Microsoft Visual C++ Redistributable for Visual Studio 2019. The standalone installers for x86 (VC_redist.x86.exe) and x64 (VC_redist.x64.exe) can be [downloaded here at Microsoft](#).

Optional, only needed if you want to run the 32 bit version of PSXseeconTraffic:

- **Microsoft SimConnect Client version 10.0.61259**
The installation file **SimConnect.msi** can be found in ..\Prepar3D v4\redist\interface\FSX-SP2-XPACK\retail\lib\SimConnect.msi and in FSX at a similar location. Install the SimConnect Client at the PC running PSXseeconTraffic.

1.2 Disclaimer

The RealTraffic stream gives position updates of all aircraft around you every nine seconds. In order to be able to vectorise the traffic, PSXT buffers the input for thirty seconds. The traffic you see is therefore **thirty seconds + transmission lag (= approx. 45 seconds) behind real time**. If you would consult apps such as [FlightRadar24](#), or would listen to a real ATC channel, this has to be taken into account.

The data coming from RealTraffic is not always correct. This may lead to the following short-comings:

- Sometimes aircraft do not land at the runway but in the fields ...
- Some airlines/aircraft-types always seem to land besides the runway; as-if their ADS-B equipment is not sending the right info.
- Aircraft may disappear from the RealTraffic stream for more than 30 seconds which will lead to disappearance from your Flight Simulator while popping up again (a little) later.
- The ADS-B signal may become blocked by buildings at airports which leads to a temporary stop of a taxiing aircraft.
- Some airlines perform much better than other airlines.

Some add-on airports have runways that are not at the exact spot. For example EHAM of Aerosoft, aircraft land and take-off way off the centre line.

Live aircraft of PSXT are controlled by real live ATC! Flight Simulator ATC programs, such as ProATC, do not detect nor control live aircraft.

Note that if you do not like the movements of AI aircraft at the ground you can always deselect Show GND TFC in the RealTraffic UI.

2 Installation

2.1 Download and install PSXseeconTraffic

Download from www.lekseecon.nl. Unzip and run the installer.

You may install PSXT at any Windows 7 (or later) PC in your local network, although installing it at the PC running your Simulator will give the smoothest results. Please do not install it in the C:\Program Files (x86) or C:\Program Files folders!

After installation, you will have a PSXseeconTraffic folder (or a PSXT_MSFS folder) containing the following files and folders.

The **data** folder contains four files with input data:

- **types.xml** sums up ICAO aircraft types of heavy and middle aircraft, helicopters and gliders. It also defines similar types.
- **wingspan.xml** gives the wingspan (in meters) of aircraft types.
- **regcodes.xml** is used to find airline codes in livery matching in case the call sign does not contain the airline code.
- **airports.xml** contains information about all (21544) airports in P3Dv5 (*should also work for FSX and MSFS*)

You may make changes/additions to these files. However, if you do, make a backup copy because these files will be overwritten with every new version. You better also report your changes in my Forum, so I can put them in.

The **docs** folder contains the Manual, Release Notes, FAQ, Quick Start Guide, MSFS info and EULA.

The EULA is the End-User License Agreement. This is a legally enforceable contract between you and the Author. By accepting the installation you agree to be bound by the terms of this EULA.

The **parked_updates** folder is initially empty except for a ReadMe.txt file. PSXT will put here airport files for which it has automatically added real live data about what airline is parking at what gate with what type at what hour of the day. Manually created or modified airport files or airport files created by others (like the ones at my web site) should go in here too.

The **SimConnect** folder contains two files: SimConnect.cfg and SimConnect.xml. For the use of these files see 2.2.

PSXseeconTraffic.exe is the 32bit application to be used with all versions of FSX and all versions of P3D.

PSXseeconTraffic64.exe is the 64bit application to be used with Prepar3D **v5.1 HF1 only**.

PSXT_MSFS.exe is the 32-bit application to be used with Microsoft Flight Simulator 2020.

Start_PSXT.bat, **Start_PSXT64.bat** and **Start_PSXT_MSFS.bat** are batch files to start PSXT with high priority, see 3.3.

2.2 Configure SimConnect [OPTIONAL]

If you run PSXT and your Flight Simulator at different computers you have to configure SimConnect.

2.2.1 Configure SimConnect.cfg

Open the file SimConnect.cfg with Notepad and change the IP address in the line **Address=192.168.1.105** to show the IP address of the computer running your Flight Simulator and put the file in the PSXseeconTraffic folder!

2.2.2 Configure SimConnect.xml

Open the file SimConnect.xml, that comes with PSXT, with *NotePad* and change the IP address in the line **<Address>192.168.1.105</Address>** to show the IP address of the computer running your Flight Simulator.

If you have no other applications using SimConnect with P3D/FSX you will need to install SimConnect.xml as follows:

P3D: Copy SimConnect.xml to the computer running P3D and place it in the folder C:\Users\\AppData\Roaming\Lockheed Martin\Prepar3D v4

FSX: similar

Otherwise, if you do have other applications using SimConnect with P3D such as AS16, you will need to **append** the lines starting with **<SimConnect.Comm>** and ending with **</SimConnect.Comm>**, to your **existing Simconnect.xml** (its location is given above) above the line **</SimBase.Document>**. So add this block of code, with of course the IP address of your Flight Simulator PC:

```
<SimConnect.Comm>
  <Disabled>False</Disabled>
  <Protocol>IPv4</Protocol>
  <Scope>global</Scope>
  <MaxClients>64</MaxClients>
  <Address>192.168.1.105</Address>
  <Port>29764</Port>
  <MaxRecvSize>8192</MaxRecvSize>
  <DisableNagle>False</DisableNagle>
</SimConnect.Comm>
```

2.3 Generate information about your AI aircraft (liveries to be used)

You have to tell what AI aircraft (liveries) PSXT may use. You do that by running my tool AILGenerator. How is described in the AILGenerator Manual.

2.4 Generate Airport files for your airports with ParkPosGenerator

You should also generate airport files with my tool ParkPosGenerator. For each airport (stock or add-on) it will generate the parking positions. These files are used by PSXseeconTraffic to park aircraft exactly spot on at gates and to register what airline parks with what aircraft type at what gate at what hour. Thus you automatically will get populated airports that look very much like real live.

Read how in the PPG Manual.

3 Operations

You have to start three programs. The order in which is not important.

For MSFS [see this document](#).

3.1 Start and configure Flight Simulator (FSX/P3D)

- Prepar3D versions 2.5 or later or Microsoft FSX SP2
- Set the day/time to system time
- Fly in 1 x simulation rate (no acceleration)
- Do not use Slew mode
- Make sure the Airline Traffic density and General aviation traffic density is set at **0%!**
- FSX: Do not select "Aircraft cast shadows on the ground"
- P3D: Select an aircraft as vehicle (Pedestrians, Avatars, are not allowed)

3.2 Start and configure a data provider

3.2.1 RealTraffic

Make sure you are using Real Traffic for Windows version 8.3.81 or later. Select PSXseeconTraffic for Simulator in use; all the necessary parameters will be set automatically.

Just to be sure: Broadcast traffic to 3rd party apps, Disable PSX Traffic injection, Show GND TFC and Show AIR TFC should all be checked. Auto select GND/AIR TFC should be unchecked. Keep localhost as Simulator Host, or fill in the IP-address of the PC running RealTraffic.

3.2.2 ADS-B Live

See the ADSB ReadMe.txt.

3.3 Start PSXseeconTraffic (preferably with the batch file)

PSXseeconTraffic does not consume much cpu time (< 0.5%). However, it is important that it runs at **high priority**. One of the ways to accomplish this to use one of the two batch files in the PSXseeconTraffic folder. Start PSXseeconTraffic by double clicking the batch file name (of your choice).

Note: do not move these batch files; create a short-cut to the batch file if needed.

At each start-up, but no more than once a day, PSXT will check if there is a new version available. If so the normally green version message in the main window will turn yellow and the new version number will be indicated. For decimal increments there is no obligation to upgrade, for a full version increment there is. In the latter case you will be notified by the message "error 99: This version has expired".

The black box below the header is divided in two sections. The right section is about Flight Simulator. The left is about the Data provider.

The right section shows the name of your Flight Simulator and the title of the user aircraft. The title is in yellow if the wing span is not known (please report that in my Forum).

The left section gives info about the data provider. It shows the words "Traffic stream" if the stream with traffic messages is connected. It shows the words "QNH stream" if the stream with QNH messages is connected.

If no data is being received over the last minute these words light up in yellow colour together with a message in the messages line.

In the middle there are two adjacent **vertical status bars**. The left one indicates the status of the data provider, the right one indicates the status of your Flight Simulator.

If the **right** vertical bar is **red** your Flight Simulator is not connected to PSXseeconTraffic.
If it is **yellow** Flight Simulator is connected but your flight is not running.
If it is **green** it is connected and running.

If the **left** vertical bar is **red** your data provider is not connected to PSXseeconTraffic.
If it is **yellow** it is connected but PSXseeconTraffic is not yet connected to the traffic messages and QNH streams (probably because PSXseeconTraffic is not yet connected to your Simulator).

If it is **green** the data provider and the traffic message stream and the QNH stream are connected to PSXseeconTraffic. In that case the number of live aircraft in your Simulator and the QNH will be on display too.

⇒ Thus to work as it should everything should be **green**.

January 5, 2021 change:

Note that PSXseeconTraffic first tries to establish a connection with the Flight Simulator. After it has received the user aircraft position it creates a PSX server and let a Data Provider connect to that server. As soon as the DP is connected it starts sending the user aircraft position to the DP.

4 User Interface (UI) Parameters

The light blue area in the middle contains the check- and text boxes for parameters that can be set. All parameters will be described in the following sections. For each parameter the default value is given between brackets in the section title.

Important: How to enter a new value in a textbox?

Put the cursor in the textbox (indicated by the light square brackets) edit the value, and after editing **press** the **Enter** key in order to make the new value active!

In the green information line (see 8.3) feedback will be given about your new value.

In the **C:\Users\<>you>\AppData\Roaming\PSXseeconTraffic (or ..\PSXT_MSFS)** folder a file **parameters.xml** will be created and updated. It contains the last version check date, x and y coordinates of the last PSXT session and the parameter values. You can always go back to all default settings by exiting PSXT, deleting the parameters.xml file and restart PSXT.

4.1 PSXT stays on top (off)

The PSXseeconTraffic window will always stay on top of your screen.

4.2 Liveries folder ("empty")

In this textbox you can enter (the path to) the folder that contains the **AI_liveries.xml** file. Enter either a subfolder of PSXseeconTraffic (**PSXT_MSFS**) or a full path. It may be a full path at the same PC or at a networked PC. In case of networked, use two slashes followed by the PC name followed by a slash and then the name of the share.

If you have created an AI_liveries.xml file yourself with the AILGenerator, you should change this parameter such that it contains a path to the folder where your AI_liveries.xml resides. However, if PSXT and AILG are at the same PC, PSXT will automatically connect to the output folder of AILG if that folder contains an AI_liveries.xml file (implying that you have generated your liveries).

The same holds for PSXT_MSFS and AILG_MSFS.

If you have entered a new path manually PSXT will exit. Restart PSXT to let this new path become active

4.3 Extra aircraft categories

By default PSXseeconTraffic shows heavy and middle type of aircraft. Gliders and Ground Vehicles are never generated in your sim, they will be skipped if they are available in the traffic stream.

Select here what extra aircraft types, light aircraft and/or helicopters you want.

➔ Note that your Helicopter liveries should have Category=airplane in their aircraft.cfg file, and not Helicopter, otherwise you will get ADDING hang messages!

Some live aircraft, mostly light, have no type. If "Aircraft without type" is checked, one of your default light liveries will be injected. This has the advantage that you can at least see that there's an airframe in your area.

Note that you can improve the matching by looking up the type via the registration code and add the registration code to a livery of that type.

4.4 Block callsign (empty)

If a callsign is entered, PSXT will block a live aircraft with that callsign from appearing in your Simulator, or, if it is already in your sim, it will be removed immediately. This makes it possible to fly the real live flight instead of the real aircraft (while listening to live ATC) or in finals to take the place of a real aircraft in front of you.

4.5 Airports folder ("Empty")

In this text box you can enter (the path to) the folder that contains the .xml files with airport data, generated by ParkPosGenerator. Enter either a subfolder of PSXseeconTraffic (**PSXT_MSFS**) or a full path. It may be a full path at the same PC or at a networked PC. In case of networked, use two slashes followed by the PC name followed by a slash and then the name of the share. The default value is the installation_airports subfolder of PSXseeconTraffic. However, if PSXT and PPG are at the same PC, PSXT will automatically connect to the output folder of PPG if that folder is not empty (implying that you have generated your airports).

If you have entered a new path manually, PSXT will exit. Restart PSXT to let this new path become active.

If there is airport data departing live traffic at gates will be placed (by PSXT) at the right position with the right heading. Even so, a live aircraft ending its flight at a gate can be placed right and "promoted" to a parked aircraft instead of disappearing. The radius info for each parking position is being used to check whether the wing span of the aircraft fits the parking position or not.

When you start a session at the ground at an airport for which there exists an airport file with parking positions, PSXT will generate parked (static) aircraft. It will use the options defined in the .xml file. The real options have preference above the real + soft options.

The call sign of a parked aircraft is "ICAO Airline code + sequence number + _"

PSXT will try to match the options with the current utc hour as much as possible. Only exact airline + type fits are chosen. It will gradually change the parked aircraft to the situation of the next hour by removing and adding aircraft. This process starts half past the hour and runs continuously.

When you fly away from the origin airport, all parked (static) aircraft will be removed when you are more than 5 nm from the airport.

When a destination airport comes into sight (40 nm or closer), PSXT will park static aircraft at the parking positions of the destination airport. When you land at an airport without a filled in destination, parking will also start.

4.6 <park airport> parking % (initial value is taken from airport file)

This field shows the percentage parameter of the current airport file. This determines the number of parking positions at the park airport that will get a parked aircraft.

At every half hour necessary changes in parking positions will be determined and they will be made effective in the coming 50 minutes.

If you change this percentage, the next minute the necessary changes will be determined and effected just like is taking place every half hour. The changed percentage value will be stored in the airport file.

For the parking algorithm see section 4.7.

4.7 Actual hour (initial value is taken from airport file, see 6.4)

When Actual hour only is off the parking algorithm goes as follows:

Suppose the actual hour is 14:00 UTC. PSXseeconTraffic first searches in the airport file for gates that have an aircraft at 14:00 hours. If there are not enough gates to park the wanted number of aircraft (*based on the parking percentage in 4.6*), it will **widen** its time window to 13:00-15:00, and it will look for gates with an aircraft in that broader time window. If there are still not enough found it will again widen its time window to 12:00 - 16:00, and so on, till the wanted number is found or PSXT has searched all 24 hours.

PSXseeconTraffic will go through the above process for as well `real=true` as `real=false` options, unless `'real=true only'` is on (see 4.8)

However, if Actual hour only is on, it will **not widen** its time window, so you will only see aircraft parked that have been there at that hour at that gate.

If you change this parameter, the next minute the necessary changes will be determined and effected just like is taking place every half hour. The changed value will be stored in the airport file.

4.8 Real (initial value is taken from airport file, see 6.5)

If on, only options with attribute `real="true"` are taken into account for parking positions (see 4.7).

If you change this parameter, the next minute the necessary changes will be determined and effected just like is taking place every half hour. The changed value will be stored in the airport file.

See also the effect of this parameter on soft learning in section 7.2.

4.9 AFCAD (initial value is taken from airport file, see 6.6)

If On and Actual hour (4.7) and Real (4.8) are off, and there are not sufficient parking options for static aircraft in the airport file, PSXseeconTraffic will generate options based on the airlines information found in the `afcad` section of the airport file.

If you start with an empty airport file and there is an `<afcad>` section **with** info this parameter will be set to ON automatically.

When you start new with an empty airport file, this give you a populated airport right-away. The airlines match, only the type and hour may/will be wrong, but PSXseeconTraffic will correct that automatically over time when it starts learning.

Obviously this feature is only available if there is an `afcad` section.

4.10 Learn (initial value is taken from airport file, see 6.7)

If on PSXseeconTraffic will build up an airport file by learning (real and soft) see sections 7.1 and 7.2

4.11 User flight plans folder (empty)

In this textbox you can enter (the path to) to the folder with `.pln` files for the **User aircraft**. Enter either a subfolder of PSXseeconTraffic or a full path. It may be a full path at the same PC or at a networked PC. In case of networked, use two slashes followed by the PC name followed by a slash and then the name of the share.

PSXseeconTraffic may automatically detect your Destination airport from a `.pln` file exported by a Flight Planner (such as PFPX and ProATC) in the flight plans folder. It will take the latest created `.pln` file with a **DepartureID** equal to your actual origin airport (where you are at the ground). The destination airport will be taken from the **DestinationID** entry in the Flight Plan. This search process takes (once) place as soon as you have taken-off from your origin airport and the Destination airport parameter (see below) is empty.

4.12 User destination airport (empty)

This is where to manually fill in the ICAO code of the destination airport for the **User aircraft** if you are not using a flight plan. Only destinations that are present in your Airports folder are allowed.

If your destination is within 40 NM, parked aircraft will be placed on your destination airport if percentage parked > 0.

If you have **not** filled in a destination (either by flight plan or manually) and you land at an airport:

- the parking of static aircraft starts when your groundspeed is less than 20 kts. You can change this default value of 20 with a "hidden" parameter PARK_GROUNDSPPEED in the file parameters.xml (see 5.6).
- real live ground traffic at the airport is shown after you have landed (and the airport becomes the new origin airport).

4.13 User destination gate (empty)

Enter here the name of the gate (according to the airport file) if you want the gate to be excluded from statically parked aircrafts. This will ensure that your gate is empty when you arrive. Note that real live aircraft can still be parked at the gate when you arrive... They will disappear if you have checked collision avoid ground (user X Live or Parked).

4.14 Lateral range (40) or Auto range (off)

All live aircraft within the lateral range will be injected. You can change the range in the text box between 5 and 100 nm.

If you are using FSUIPC make sure that the settings for "Limit TCAS range" on the misc tab are equal to the value in PSXT. And don't use the FSUIPC Traffic limiter!

The checkbox Auto range comes in handy for pilots making a flight in (virtual) cockpit view from origin to destination.

If selected PSXT sets the lateral range parameter according to the stage of your flight. At the ground for instance the lateral value will be 12 nm. This will have the effect that only the aircraft that may be of interest to you as a pilot flying will be injected in your simulator and will be visible at your TCAS, resulting in a as small as possible drop on your fps.

4.15 Collision avoidance ground (on)

PSXT detects a (near) collision if two aircraft are at a distance from each other less than the sum of their wingspans divided by two.

You can let check User vs Live and Parked aircraft. If a collision would occur the live or parked aircraft will be removed.

You can also let check Live vs Parked aircraft. If a collision would occur the parked aircraft will be removed.

5 Hidden parameters

These parameters normally do not change much therefore they can only be set manually in the file

C:\Users\<>you>\AppData\Roaming\PSXseeconTraffic\parameters.xml

OR

C:\Users\<>you>\AppData\Roaming\PSXT_MSFS\parameters.xml

in order to reduce the complexity (for new users) of the User Interface.

5.1 Random (true)

If Random is set to off by **RANDOM=false** there will be no randomness in livery matching and no randomness in the gates chosen for parked static aircraft (in the cases that there are more than one similar options). You better leave this value on, it is only needed for users running two PSXT's at two different computers at the same time, and for debugging.

5.2 Simple flight plan with origin and destination (false)

If parameter **ADD_ORIG_DEST=true**, PSXT adds a simple flight plan with DepartureId and DestinationId to the live aircrafts in your Simulator. In P3D you can then tick Flight Plan in the Information options for Vehicle labels. You will then see **From -> to** displayed above each live aircraft.

Note that this simple flight plan is just added information, it has no meaning for automated flights; PSXT still controls each aircraft.

5.3 Always GND Traffic (false)

If parameter **ALWAYS_GND_TRAFFIC=true** ground traffic in the lateral range of 10 nm from the user aircraft when airborne will always be shown. So not just at origin or destination airport (if set).

Note that false is the normal situation, this option is on special request for users that fly GA over (smaller) airports while not setting a destination.

5.4 Live aircraft only if user aircraft airborne (false)

If parameter **LIVE_IF_USER_AIRBORNE=true** live aircraft are only injected if the user aircraft is airborne.

Note that false is the normal situation, this option is on special request for users mixing AI programs.

5.5 Floor altitude (-1000 feet)

FLOOR_ALTITUDE=-1000

Only live aircraft above the floor altitude (*absolute value, not height above ground*) will be injected. The default value is minus 1000 ft, meaning no floor.

Note that no floor altitude is the normal situation, this option is on special request for users merging AI programs.

5.6 PARK_GROUNDSPEED (20 kts)

See the section of the User destination airport (4.12).

6 Airport file parameters added by PSXT

PSXseeconTraffic will add and update the following parameters to the airport file generated by PPG, while they are airport dependent.

```
<parameters>
  <parameter name="last_update" value="" />
  <parameter name="home_base" value="" />
  <parameter name="max_two" value="" />
  <parameter name="actual_hour_only" value="0" />
  <parameter name="real_only" value="0" />
  <parameter name="learn" value="1" />
  <parameter name="add_from_AFCAD" value="0" />
</parameters>
```

6.1 last_update (date)

This parameter is set by PSXT and is used max once a day in checking against the version at my site.

6.2 home_base (empty)

This parameter lists the ICAO airline code(-s) separated by comma's of the carriers that have this airport as home base or hub and therefore may appear unlimited at the same time at different gates. Default value is empty, you have to add this by hand.

6.3 max_two (empty)

This parameter lists the ICAO airline code(-s) separated by comma's of the carriers that may have max two aircraft parked at the same time. Default value is empty, you have to add this by hand.

If home_base or max_two_parked is not empty, any airline other than in home_base or max_two may only have max one aircraft parked at the airport at the same time.

if both home_base and max_two are empty, there will be no special arrangements and airlines will be chosen according to the hour and randomly.

6.4 actual_hour_only (0)

This parameter determines that only options (real="true" and real="false") at the actual hour are used as parking positions (see 4.7). Values are 0 (false) or 1 (true). You can and should change this via the PSXseeconTraffic User Interface only.

6.5 real_only (0)

This parameter determines if only options with attribute real="true" are used as options for parking positions (see 4.8). Values are 0 (false) or 1 (true). You can and should change this via the PSXT UI only.

6.6 add_from_AFCAD (0)

This parameter determines if static parking options are generated based on the airlines per gate info in the <afcad> section of the airport file, if available (see 4.9). You can and should change this via the PSXT UI only.

6.7 learn (1)

This parameter (default 1) switches on/off real and soft learning, see chapter 7. You could set this to off if you want to protect an airport file that has been composed completely by hand (see 4.10).

Note that if learn =0 (off) PSXseeconTraffic will not remove redundant options from your file, it remains untouched.

7 Creating options for parking position

Airport files are initially created by the ParkPosGenerator (PPG). They contain a list of the parking positions at an airport and optionally a list of the airlines that park at the parking positions according to information in the AFCAD file..

At each parking position **options** for **aircraft** that park at that position may be added. There are three ways to accomplish this.

7.1 Real learning (if Learn = on)

PSXseeconTraffic will update the airport file automatically in real time. If a real live aircraft positions at a gate or an aircraft parks at a gate, the <Airline + Type> combination is added as an option to the airport file with the attribute **real=true**, plus:

- if an aircraft is positioned at a gate for departure the current hour is recorded.
- if an arriving heavy aircraft parks, not only the current hour will be added to the option but also the next hour, assuming that a heavy aircraft normally stays at a gate more than an hour.
- if an arriving non-heavy aircraft parks between 30 and 45 minutes after the hour nothing extra is added, but outside that range the next hour will be added to the option too, assuming they have a turnaround time of about 40 minutes.

The entry in the airport file will look like:

```
<aircraft>
  <option airline="KLM" type="E75L" real="true" hours="10,17,18" />
</aircraft>
```

The airline and type codes must be according to **ICAO** rules.

The updated airport file will be stored in the subfolder **parked_updates**. PSXT will always search in this subfolder **first** for an airport file and if there is no file then it will search in the folder indicated by the Airports folder parameter.

7.2 Soft learning (if Learn = on and Real=true only = off)

If the standard operating procedures (SOP) at an airport forces pilots to switch off there transponder after landing, or to switch it on when they take-off, there will be no traffic visible taxiing from/to gates and PSXT will not learn and thus not update the airport file.

Therefore PSXT will also use the aircraft that land and/or take off at the airport to update the airport file by adding <Airline +Type> + hour" to a randomly chosen gate out of the gates that fit best. These entries will get attribute **real=false**.

Airport files generated by PPG have 90% of the aircraft at gate positions and 10% at ramp positions instead of random over all parking positions.

Although the gate assignments will not be according to reality, you will at least see parked aircraft of airlines and types that fly to/from the airport at the right hour.

New! Since version 20.0 PSXT is able to make better matches. Most add-on airports have information in their **AFCAD** file about what airlines park at what gates. PPG 20.0 generates an extra <afcad> section in the airport file with that info. PSXT uses that info for better matches, thus not only that the gate matches the wingspan but also -if possible- that the airline is known at that gate.

On top of that, PSXT uses the info from live aircraft parked at gates in the airport file (thus options with attribute **real=true**) -if available- to improve the matching!

7.3 Manually

You may also add parking positions by hand. If you are sure that they match with real life you should add `real="true"`, otherwise set `real="false"`. You also have to add an hours attribute with at least one hour.

If the park position is still empty, like this:

```
<parkpos id="S507" latitude="50.031612" longitude="8.563018" heading="69.9"
radius="50.0" />
```

you should change it into:

```
<parkpos id="S507" latitude="50.031612" longitude="8.563018" heading="69.9"
radius="50.0" >
  <aircraft>
    <option airline="KLM" type="B772" real="true" hours="11,17" />
  </aircraft>
</parkpos>
```

Do not forget to change `/>` into `>` in the first parkpos line!

Second or more options for the same parking position can be added with just one line, like this:

```
<parkpos id="S507" latitude="50.031612" longitude="8.563018" heading="69.9"
radius="50.0" >
  <aircraft>
    <option airline="KLM" type="B772" real="true" hours="11,17" />
    <option airline="DLH" type="B78X" real="true" hours="13" />
  </aircraft>
</parkpos>
```

7.4 Priorities

If `learn=1`, see 6.6:

If a `real=true` option is found for a parking position **for a certain hour**, any `real=false` option **for that same hour** will lose that hour in their hours attribute. If no hours are left, the `real=false` option will be removed from the airport file

Note that this granularity is new in 20.0, before the hour was not taken into account, a false option was removed as soon as a true option was found.

8 Session information

8.1 Log file

During each session a file **Log.txt** will be written in the PSXseeconTraffic folder. The previous version will be renamed to **Log0.txt**, and the previous Log0.txt will be renamed **Log00.txt**. Thus you will always have the Logs of the last three sessions.

After a header and a log of your parameter values it shows the process of how all programs connect (or not ...).

Each match of a livery for a new live aircraft will result in a message in the log specifying how (good) the match was (see also chapter 10).

Examples:

```
PGT1251 TC-NBF SAW->AMS PGT A20N =R= A20N Pegasus TC-NBF
KLM644 PH-BHO JFK->AMS KLM B789 =r= B789 KLM PH-BHA
KLM41R PH-BXY AMS->MAN KLM B738 =r= B738 KLM PH-BXG
BTI6RZ YL-AAW AMS->RIX BTI BCS3 === BCS3 airBaltic YL-CSJ
```

The liveries that you missed are as well logged as kept between runs in a file "**MissedLiveries.txt**" in the PSXseeconTraffic folder.

Explanation about parking information:

parked	a static aircraft (add from airport file, hour based) is parked at a parking position
parked (a)	a static aircraft (add from AFCAD) is parked at a parking position
removed	a static aircraft is removed from a parking position
.about2park	an arriving aircraft is about to park at a parking position
.parks	an aircraft became a static aircraft parked at a parking position
.parking?	an arriving aircraft at a parking position?
.parking??	an aircraft at a parking position??
.positions	a departing aircraft at a parking position
.push back	a departing aircraft is pushing back from the parking position
.pull back	a departing aircraft is leaving the parking position (ramp?) by going forwards

A leading dot indicates a live aircraft, otherwise it is a static aircraft.

A callsign with a trailing underscore is a static aircraft, the others are real live aircraft.

8.2 Parked line

The black box below the parameters section provides the following information about parking of aircraft at your origin and/or destination.

<ICAO airport code> (<IATA airport code>) <Airport name> <supplier>

The ICAO and IATA codes of your origin or destination airport and the airport name and supplier from the airport file with parking positions.

parked: <number>

Shown is the total number of parked aircraft at the airport where you are, as well static as live.

8.3 Messages line

In the green box below the status line several kinds of messages may appear.

Information messages show up in yellow font against a green background.

Error messages show up in yellow font against a red background. Error messages are severe. You have to exit PSXT with the Windows X button.

#	Error Message (<i>and what to do</i>)
41	PSXT should be run from the PSXseeconTraffic (PSXT_MSFS) folder! <i>Do not run an .exe outside the PSXseeconTraffic folder. Do not remove the PSXseeconTraffic docs subfolder.</i>
45	Airl/type info for <gate> is missing <i>Add it manually or delete the option from the airport file</i>
51	File AI_liveries.xml not found <i>Check you liveries folder parameter, and/or create this file with AILGenerator.</i>
52	AI_liveries.xml does not contain liveries <i>Make sure you have AI aircraft installed.</i>
60	"data\regcodes.xml" not found. <i>Re-install PSXT.</i>
71	atc_model= in [General] section of your aircraft.cfg is empty or missing <i>Add that line to the aircraft.cfg file of your user selected user aircraft. For instance for the Quality Wings 787 it should read atc_model=B788 or atc_model=B789. The type should be a valid ICAO aircraft type.</i>
73	It looks like you have not selected an aircraft as user vehicle ... <i>Select an aircraft to fly with or stand somewhere.</i>
81	There are too many liveries that could not be created, see Log.txt <i>Activate your AI-aircraft in your Simulator and/or check that the AI_liveries.xml file in use reflects the AI aircraft currently installed in your Simulator.</i>
87	<xml error in airports.xml> <i>Re-install PSXseeconTraffic.</i>
88	Error in converting airport data. <i>Re-install PSXseeconTraffic.</i>
89	data\airports.xml not found. <i>Re-install PSXseeconTraffic.</i>
91	The file types.xml or wingspan.xml was not found, or some parts were missing <i>Re-install PSXseeconTraffic</i>
94	Parking position <id> in <file> appears more than once? <i>Remove redundant parking positions from the file..</i>
95	Simconnect Version Mismatch exception <i>Make sure that you are using PSXseeconTraffic64 with the latest 64 bit version of P3D.</i>
97	Airport file name <file> attribute ICAO != <icao> <i>Correct either the ICAO attribute in the airport file or the airport file name...</i>
98	This version has been reverted, download version x.y <i>This "error" is to stop users from keep on using a reverted version.</i>
99	This version has expired <i>This "error" has been introduced to make an upgrade to a new full version mandatory (not for decimal increments).</i>

9 Aircraft animations

PSXT controls landing gear, throttles, spoilers, flaps and all lights of live aircraft. Of course only for those aircraft that support the respective SimConnect events!

9.1 Parked aircraft

Cabin lights and logo lights are on, engines are shut down, spoilers set to normal and flaps are up.

9.2 Live aircraft

Landing gear

The landing gear is retracted about three seconds after lift-off. The landing gear is extended if the aircraft is landing (lowering in height) and less than 2000 feet above the ground for airliners and lower than 600 feet above the ground for light aircraft.

Throttles

The engines are switched off when positioned at a gate. The throttles are set to idle at the ground, to full when taking off and in the air, and to half when landing. This has effect on the sound coming from the AI aircraft (if sound is configured for the AI aircraft in your Sim).

Spoilers

The spoilers will go up at touch down; the spoilers go back to normal when speed is low enough or the aircraft has vacated the runway.

Flaps

The flaps are set to take-off position (twenty) at the ground (at pushback) for departing aircraft and to up for arriving aircraft and when in the air. During the landing phase the flaps will go gradually to flaps down. Flaps will go up when the aircraft vacates the landing runway.

Strobes

The strobes are set to on if an aircraft is taking-off; the strobes are set back to normal when the aircraft has landed and vacated the runway.

Lights

- Landing and wing lights are on below 10.000 feet, and off when the aircraft has landed and vacated the runway.
- Navigation lights and Beacon are always on, except when parked at a gate.
- Cabin lights are always on, except when parked at a ramp or during take-off until 2000 feet or during landing after gear down.
- Taxi lights are on at the ground and below 10.000 feet.
- Logo lights are always on below 10.000 feet (although lots of AI aircraft also put Logo Lights on if cabin lights are on ...), except when parked at a ramp.

Pushback

Aircraft will roll straight backwards for 2.5 times the gate radius (by PSXT) before they will make a turn. This is not yet perfect but at least they do not turn at the gate.

Parking at the gate

Arriving aircraft will smoothly be moved (by PSXT) to the precise gate position, as soon as they stop and are very close to a gate.

10.1 special

If you add the word **'special'** (all lowercase) to a livery title and add a **single registration code** to the `atc_id` key, that livery will only be matched upon registration code. Thus it will only show as live aircraft and not (multiple) times as static parked aircraft.

This was added upon request, so special liveries such as British Airways retro 100th or KLM Royal Dutch Orange do not show up multiple times at an airport (*what would kill the immersion*). Example:

```
[fltsim.2]
title=B744 British Airways special G-BNLY
sim=FAIB_7474
model=RR
texture=BAW Landor
atc_airline=SPEEDBIRD
atc_heavy=1
atc_id=G-BNLY
atc_parking_types=GATE
atc_parking_codes=BAW
ui_manufacturer=FAIB
ui_type=B744
ui_variation=British Airways (Landor livery)
description=FAIB 747-400, repaint by Marc Hungerbühler
```

Note that the word special may appear anywhere in the title; I prefer the schema shown above.