

FSTraffic
2

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LAGO does shareware?!?

Once upon a time, in a winter rainy night, I was sitting together with Miguel Blaufuks (owner and publisher of simFlight.com) having a nice dinner here in Italy. It that period we – at LAGO – were working on Active Scenery technology for THE TRIANGLE and Miguel was looking for a shareware product to be published under his label.

At a certain moment, more or less at the same moment a huge chocolate cake was brought on the table, we were talking about how boring can be flying in empty skies... In the blur caused by the copious amounts of wine we consumed that evening the idea that must have been right below the surface was not seen.

Then, out of the blue, Mike Clark (at that time editor of the on-line newsletter TheMag@simFlight.com and PC Pilot Magazine) came up with the idea of making flying “as busy as it gets”. He suggested an utility that would add realistic moving aircraft to any airport thus making the emptiness of Microsoft Flight Simulator a thing of the past FOREVER. Mike didn't want any aircraft; he wanted dozens of them taking off, taxiing and landing all at the same time! He also wanted to use aircraft that were already installed in the Microsoft Flight Simulator aircraft folder and to be able to record and playback his own flights as moving aircraft.

«What?» – we thought – «he doesn't want much, does he?».

Well, there was a good reason for that. He suggested this utility following months of e-mails from his newsletter readers who really, really wanted this kind of product developed.

Miguel and I thought that this was a great idea and would be a prefect opportunity to give simmers what they really needed and looked into the possibility of producing such a utility.

I then asked Maurizio Gavioli and Mathijs Kok to look into what would be required for such a program. As time flew by we discovered that this was going to be a massive and complicated project for a simple “Shareware” release. However, after MONTHS of genius programming by Maurizio and testing by Mathijs, we proudly present what you see before you now: **FSTraffic**.

FSTraffic (FST from now on) is a powerful utility for Microsoft Flight Simulator allowing you to generate traffic around any airport in the world! Comparing it with the standard dynamic traffic you are used until now, you will find out that FST is much more powerful, customizable and will add a new dimension to your flights.

As you know, the standard dynamic traffic is scenery based, meaning you can get it only on airports for which it was designed. The big drop in frame rate, the repeated pattern flown by aeroplanes, the lack of real-world liveries and ATC controllers made the standard dynamic aeroplanes unattractive to most simmers.

With FST you can easily replicate the real world and fill it with realistic moving aeroplanes. You will be able to:

- Automatically generate landing and departing traffic at every airport equipped with an ILS system;
- Create customized traffic around your preferred airport by simply flying! And, if you feel lazy, you can also download customized traffic patterns at <http://fsttraffic.com> for FREE;

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- Exchange traffic patterns with your friends;
- See any aircraft installed in your system as traffic around every airport;
- Hear pilots asking for clearances and ATC releasing them.

All the beta testers went crazy when they saw it running on their systems, I hope you will enjoy it!

Ugo Grandolini
CEO
LAGO

Notes to version 2.0

(Or what's new since version 1.05)?

Over the last 18 months the users of FSTraffic have been sending in reports and remarks about this product. Certainly the users of the Official FSTraffic Support forum have been patiently hammering out the outline of a complete upgrade of this award-winning product. We did not have to invent much; we simply had to make a list of the comments and work on what was most asked. In this list AutoStarting and the ability to convert more complex (Moving Parts) aircraft floated to the top very fast. In this release we think we got all the requests that were frequent incorporated. This is absolutely a customer driven product and we hope to keep it that way.

New Features in this version

- FS2000 only: The airplanes included in the new distribution files have better definition and more realistic than previous versions. Also included are 3 ground vehicles because those proved hard to find.
- FS2000 only: When this version of FSTraffic is installed a collection of converted aircraft will be ready for use.
- The ILS Traffic database building feature will start automatically. This will simplify the whole installation and setting process.
- The Airlines/Areas concept allows customization of traffic so that only suitable aircraft are seen on specific tracks. Now you can decide what airline liveries you want to see on a particular track and at a particular airport. Each airport can be forced to use different planes.
- It is possible to disable all departure and arrival tracks to avoid conflicts when used with Online ATC or adventures that assign runways. Ground Tracks and Statics are left untouched.
- Static objects can be disabled or only partially displayed, increasing the adaptability of the system to different frame rates.
- FSTraffic will now "Auto Start" if it was running the last time Flight Simulator 2000 (FS) was closed.
- Planes built with recent plane design and modification tools can now be converted. This includes most planes with moving parts and or night textures.
- After inserting the registration code, FSTraffic will tell the user if the code is correct or not.
- Three new classes of planes have been added to the Aircraft Class list: Commuter, Cargo and User Definable.
- The FSTraffic Recorder dialog menu will show the airport last used to speed up sequential recordings on the same airport.
- Menu items have been added to jump directly to support, registration and news pages.

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- A fully functional FSTraffic Tracks Editor has been included, allowing detailed modification and customization of tracks.
- FSTraffic Airport files (the container that holds the tracks for an airport) can now have it's own Channel Delay, overriding the standard Channel Delay set in FSTraffic.
- An FSTraffic Reset option has been included in the FSTraffic menu to allow quick stopping and starting of FSTraffic. This is useful for example when you change the ground wind. Now new runway assignments become effective without having to wait for all tracks to end.
- An Aircraft Database Reset option has been added to clear the whole aircraft database without having to remove all of them manually.
- The automatic rebuilding of the Database every time FS was started has been eliminated. This capability is now a manual option that can be used only if database problems are suspected.
- FS2000 version only: a test area is created to see the converted planes.
- Included Help files are much improved.
- FS2000 version only: the scenery and textures that are used to display the aircraft are now stored in a separate Scenery/Texture directory and no longer "mess up" the standard Scenery and Texture directory.

Copyrights

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We do take copyrights very serious and we hope you do to. If you find any pirated copies of this software please notify us.

Credits

Concept: Miguel Blaufuks, Michael Clark, Maurizio Gavioli, Ugo Grandolini, Mathijs Kok
Programming: Maurizio Gavioli
Test Scenery Andras Kozma
Design of included aircraft: Cunningham, Captain Slug, Lam, Moneta, Thorne, Gibson, McQueen, Friedrich, Dell, Follas and Cristina
Testing: Too many to list. But special thanks go to the users of the official FSTraffic Support forum.
Manual Correction Joe Dicara (but don't blame him for the mistakes that are left, we added a lot after his last correction)

System requirements

- Pentium II 350
- 64 Mb RAM
- 30 Mb of free available space on the hard disk
- Sound card
- Microsoft Flight Simulator 2000 (Standard or Professional edition)
- The latest patch for your version of Flight Simulator 2000 ⁽¹⁾
- Windows 95, Windows 98, Windows 98 SE, Windows ME
- Adobe Acrobat® Reader 4 to read and print the manual ⁽²⁾

A 3D video board with at least 16Mb RAM, 128 Mb RAM internal memory and a Pentium III 600 are highly recommended.

⁽¹⁾ Available for free, download at:
<http://www.microsoft.com/games/FS2000/default.htm>

⁽²⁾ Available for free, download at:
<http://www.adobe.com/prodindex/acrobat/readstep.html>

Conventions used in this manual

- All references to file names, extensions and directories are shown as follow:
FILENAME.EXT, .EXT, \DIRECTORY
- If you have to type some text with the keyboard, the text is shown in Courier:
text typed by you
- If you have to press a key, that key will be represented within square brackets. For example:
[B] means that you must press the B key on the keyboard.
[ALT][F4] means you should press [F4] key while holding down the [ALT] key at the same time.
- All references to menu (and submenu) items are shown as follow:
"Option | Preferences..."
- Buttons are shown as follow:
<Cancel>
- There is a lot of information in this manual, not everything is needed for standard use of this product. The technical details are found under the label:

Technical note:

Read these parts if you like to know the ins and outs of the product and how to tune the configuration files. But take care, not everything you can do there is safe and supported by our customer support!

Help children!



Part of the registration fee will be sent to an organization in Peru helping children. For details please visit <http://www.marcelino.org>

FSTraffic is an "ASP-compliant" product

LAGO is a member of the Association of Shareware Professionals (ASP). ASP wants to make sure that the shareware principle works for you. If you are unable to resolve a shareware-related problem with an ASP member by contacting the member directly, ASP may be able to help. The ASP Ombudsman can help you resolve a dispute or problem with an ASP member, but does not provide technical support for members' products. Please write to the ASP Ombudsman at 157-F Love Ave, Greenwood, IN 46142 USA, FAX 317-888-2195, or send e-mail to omb@asp-shareware.org.



Distributing the shareware version

Distribution of the full installation file is legal as long as the file is complete and does not contain the registration data. If you happen to stumble on a pirated version of our software and we are able to act on this information you will get your next product for free.

Introduction

Basically, FST can create two different kinds of traffic:

ILS Traffic, the first one, is automatic and takes advantage of the ILS systems. After you install FST and convert some aeroplanes, you will be able to see traffic, both landing and take-off, on any runway equipped with an ILS.

The advantage of ILS Traffic is that you will automatically get traffic on ALL the ILS-equipped runways on your system if they are listed in the Airport Facility Directory.

USER Traffic, the second kind of traffic. This will need a little work from you before it can appear. You can record any flight you are undertaking and FST will display 1-30 aeroplanes flying on the exact same path you have just flown.

The advantage of using USER Traffic is that you can customize traffic at your preferred airport. Moreover you can exchange tracks with other users through the <http://fsttraffic.com> web site or by sending the data files via email!

Differences between the shareware and the registered versions

The only limitation of the shareware version is that, after 30 minutes of usage, the traffic will be automatically stopped. To see more traffic you must restart Microsoft Flight Simulator or register the product!

Installing the product

Removing a previous version

If you happen to upgrade from version 1.05 (the only official release and the only boxed release so far) take the next steps to ensure that there is no conflict with the new version:

1. Remove all converted aircraft.
2. Export all you non-standard tracks and copy these to another directory.
3. Now use the standard Windows Uninstaller module in the Control Panel to remove the previous version.
4. We have understood that it is possible that some files could be left that might cause problems. Therefore it might be a good idea to check if the following files have been removed:
 - a. [FS2000\FS98]\Scenery\FSTrxx.BGL, where xx is a number below 15.
 - b. [FS2000\FS98]\Texture\xxyyyyzz.LGO, where xx and zz numbers and yyyy is a number below 0255. If the number is higher this file belongs to another Active Scenery product.
5. Start the installer for the new version.

Removing a beta \ prerelease version

If you have installed a beta or prerelease you will have to remove all traces to avoid conflicts:

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1. Remove all converted aircraft.
2. Export all you non-standard tracks and copy these to another directory.
3. Now use the standard Windows Uninstaller module in the Control Panel to remove the previous version.
4. (FS2000 only) Empty the FS2000\LTA\FSTraf\Scenery and the FS2000\LTA\FSTraf\Texture directory.
6. (FS98 only) Check if the following files have been removed:
 - a. [FS2000\FS98]\Scenery\FSTrxx.BGL, where xx is a number below 15.
 - b. [FS2000\FS98]\Texture\xyyyyyzz.LGO, where xx and zz numbers and yyyy is a number below 0255. If the number is higher this file belongs to another Active Scenery product.
5. Start the installer for the new version.

Updating from a boxed version

If you previously owned the boxed version of FSTraffic and would like to upgrade there is one thing that is very important to remember. You can NOT use the registration number used for the boxed version to install this release. Normally this is not a problem as the registration is stored in the windows registry and is left there when you removed the previous version. The new version will be able to find this registration and the product will be seen as fully registered. However, if you install this new version on a new system or in a different location than the previous (boxed) version you will have to:

1. First install the previous version.
2. Make sure it is fully functional but starting the traffic. It is not needed to convert planes or build the database.
3. Remove this version using the standard Windows Uninstaller Module in the control panel.

This will result in the correct registration codes being inserted in the registry. DO NOT USE THE REGISTRATION MENU AFTER THIS. If you happened to have done that, you will have to de-install and start over with installing the previous version.

Depending on the method you used to get the FST_*.EXE file ⁽³⁾ – most probably by downloading it from the Internet – you should now located it on your hard disk.

Starting the installation

BE SURE TO CLOSE ANY OTHER APPLICATION BEFORE PROCEEDING!
--

- Double click on the FST_*.EXE ⁽³⁾ icon.
- Follow on-line instructions.
- Please note that the building of the ILS database at the first start of FS after installation can take up to 15 minutes. Although it may seem like the program is blocked (and Windows could even report that when asked) the process is simply time-consuming but it not likely to fail.

NOTE: If you need to reinstall FST be sure to uninstall it first.

⁽³⁾ The installation file name reflects the version number of the product. For example: FST_201.EXE is the current release of the product (version 2.01).

Uninstalling FSTraffic

DO NOT MANUALLY REMOVE THIS PRODUCT!!

To uninstall it:

1. Exit from the simulator.
2. Open the "Control Panel".
3. Double-click on <Install applications> and select "FSTraffic 98" or "FSTraffic 2000" – depending on the version you installed.
4. Click on <Add/Remove...>.

You will be asked to confirm the operation: click on <Yes>.

The uninstall program will take care to remove all the converted ILS tracks as well as all the converted aircraft and their relative textures.

At the end of the uninstalling, you may be told that one or more files/directories cannot be removed; these are all files you have created by yourself in the original FSTraffic directories. For example all the voice files and manually registered tracks.

We feel it is better if you to manually remove these files/directories after uninstalling is completed to avoid removing your own creative and valuable data!

How to contact Technical support

The best way to get help for this product is to use the official FSTraffic Support newsgroup at [www.simflight.com/ssn](http://www.simflight.com/ssn/support.fstraffic.users) support.fstraffic.users section. We visit this forum every few hours and all questions will be dealt with very fast, much faster than using standard email!

Before contacting technical support, be sure to visit the **SUPPORT** page at:

<http://www.lagoononline.com/eng/support.htm>

There you will find the latest version and/or patch for this product. Moreover, in the FAQ (Frequently Asked Questions) section, you will find a list of general problems and solutions. Print the FAQ page and read it carefully: it may already include the answer you are looking for!

The most current FAQ's at the moment of release can be found in the last section of this manual!

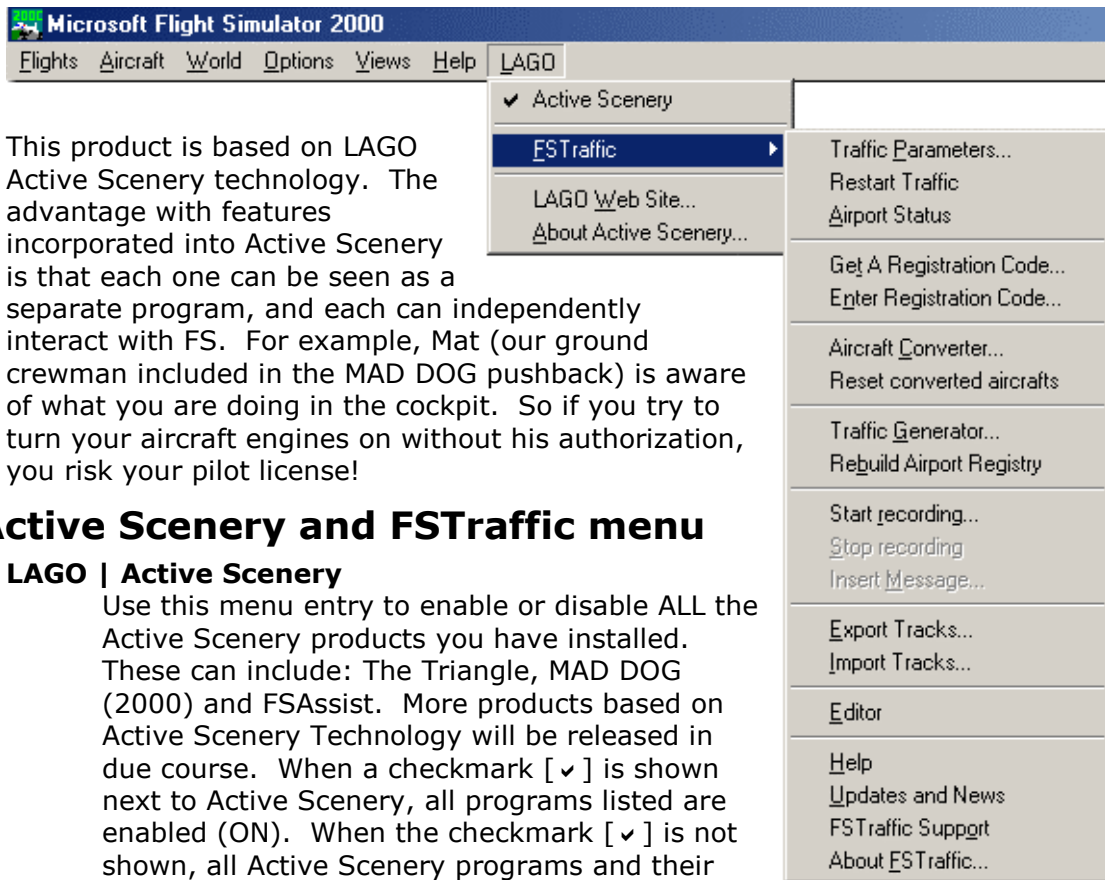
You can send a description of your problem by e-mail to the following address:

support@fstraffic.com

Describe your problem in as much detail as you can: our programmers must be able to follow your instructions step-by-step in order to recreate your problem on our computers.

Please understand that support is only given in the English language and only to registered customers. We also handle questions on the newsgroup before we handle emails. This is done because answers on the newsgroup benefit more people.

Active Scenery



The Active Scenery and FSTraffic menu

LAGO | Active Scenery

Use this menu entry to enable or disable ALL the Active Scenery products you have installed. These can include: The Triangle, MAD DOG (2000) and FSAssist. More products based on Active Scenery Technology will be released in due course. When a checkmark [✓] is shown next to Active Scenery, all programs listed are enabled (ON). When the checkmark [✓] is not shown, all Active Scenery programs and their features are disabled (OFF).

LAGO | FSTRAFFIC | Traffic Parameters...

Set the main options of FSTraffic.

LAGO | FSTRAFFIC | Restart Traffic

Stop and restart FSTraffic. It is useful when you change the wind and do not want to wait for the current tracks to finish.

LAGO | FSTRAFFIC | Airport Status

Will display all airports that FSTraffic has activated, what runways are in use and the ground wind direction in effect.

LAGO | FSTRAFFIC | Enter Registration Code ...

Shows the registration data if you have registered. If you enter a new registration code it will tell you after a couple of seconds if it is correct. NOTE: **DO NOT ENTER ANY CODES HERE IF YOU OWN A BOXED VERSION OF FSTRAFFIC!** These versions are registered after you complete the installation.

LAGO | FSTRAFFIC | Get A Registration Code ...

Connects to the Internet and will send you to the order page of FSTraffic.

LAGO | FSTRAFFIC | Aircraft Converter ...

Convert the aircraft that will be displayed in FSTraffic. After installing you will see a number of planes that have already been converted. If you wish you can remove them, but remember FSTraffic needs at least one plane converted in the Medium Liner or Larger Liner class to display the stock ILS traffic!

LAGO | FSTRAFFIC | Reset Converted Aircrafts

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Using this menu item will remove all converted aircraft and will reset the Converted Aircraft database. Use it when you suspect troubles with the converted aircraft.

LAGO | FSTRAFFIC | Traffic Generator ...

This menu item will build the ILS database that will be used to show arriving and departing traffic on ALL ILS equipped runways in your installation.

LAGO | FSTRAFFIC | Rebuild Airport Registry

This function will re-index the ILS database. Use it when you added scenery or suspect a problem. Running it once every few weeks will certainly not hurt.

LAGO | FSTRAFFIC | Start Recording ...

Start (or abort) recording a new track.

LAGO | FSTRAFFIC | Stop Recording

Stop recording and save the track.

LAGO | FSTRAFFIC | Insert message

Insert a message (or sound file) in a recording.

LAGO | FSTRAFFIC | Export Tracks...

Export user recordings to a file that can be used to exchange tracks with other users.

LAGO | FSTRAFFIC | Import Tracks...

Import tracks from other users.

LAGO | FSTRAFFIC | Editor

Start the FSTraffic Track Editor. This option will only function if you have started the editor at least once from the windows start menu.

LAGO | FSTRAFFIC | Help

Will display the FSTraffic Help file.

LAGO | FSTRAFFIC | Updates and News

Will connect to the Internet and send you to the FSTraffic news page.

LAGO | FSTRAFFIC | FSTraffic Support

Will connect to the Internet and send you to the FSTraffic User Support Newsgroup.

LAGO | FSTRAFFIC | About FSTraffic...

Will display the version number and copyright information.

LAGO | LAGO Web Site...

Will open a browser and connect to the main LAGO website

LAGO | About Active Scenery...

Will display the version number and copyright information about Active Scenery.

A quick look at the product

Before you study this manual, you may want to have a quick look at the product. This is very different for the FS2000 and the FS98 versions of FSTraffic.

First look (FS2000 only)

In the FS2000 version of FSTraffic the setup has been simplified. You do not need to convert any aircraft to start with and the database is build automatically at FS2000 startup after the installation has been done.

1. Load FS2000
2. Open the "Flights | Select Flight..." menu.
In the "Available Flights" list, highlight "FST – FSTRAFFIC DEMO, HARRISBURG", then click on the <OK> button. You will be located at Harrisburg Intl (KMDT) Pennsylvania USA, in slew mode, just over the tower.
3. Open the "LAGO | FSTraffic | Traffic Parameters..." menu item.
4. Click on the "Activate FSTraffic" box – be sure that the checkmark is shown.
5. Set parameters as follow:
Channel delay: 3
Radius activity: 35
Max number of objects: 30
Min frame rate: 1
6. Click on the <Done> button.

Note: Be sure that the checkmark in the "LAGO | Active Scenery" menu is shown! If you are using the unregistered version, a dialogue box will remind you about the limitations of this version: click on the <OK> button to proceed.

A long series of messages will let you know about what runways are in use within a selected radius – in this area there are a lot of airports! Immediate the airport will start displaying traffic. You are in slew mode so you can have a look around. The planes you see are those that come with FSTraffic and probably are not correct for this airport. The scene you are looking at is only a demo, remember?

After about 10 minutes the airport will become really crowded: we used a channel delay of 3 minutes as an example to show you the traffic immediately. Usually you will set this parameter to 3. For further information, see Traffic Parameters.

To see aircraft more effectively in the distance you can use the "World | Time & Season..." menu. Set the time to "Night" and season to "Winter": Note that traffic now has flashing strobes and lights!!

Before proceeding it is a good idea to restore all the items in the "Traffic Parameters..." dialogue to their default values:

Channel delay: 5
Radius activity: 25
Max number of objects: 30
Min frame rate: 5

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To see a quick demo of all the aircraft included in the product (most of these are not provided by us but made and copyrighted by others, load the FST – TEST AIRPORT situation.

First Look (FS98 only)

In FS98 you will have to do a bit more manual labor:

1. Load FS98.
2. Convert all the simFlight.com aircraft assigning the following classes:

simFlight.com ATR 72	-> Small Liner
simFlight.com A-300	-> Medium Liner
simFlight.com B737-300	-> Medium Liner
simFlight.com B747-400	-> Large Liner
simFlight.com Glasstair	-> Tourism
simFlight.com Bell 206L	-> Helicopter

Do not select an airline, leave the selection at [---]
3. Open the "Flights | Select Flight..." menu.
In the "Available Flights" list, highlight "FST – KORD", then click on the <OK> button. You will be located at Chicago O'Hare airport (KORD), in slew mode, just over the tower.
4. Open the "LAGO | FSTraffic | Traffic Parameters..." menu item.
5. Click on the "Activate FSTraffic" box – be sure that the checkmark is shown.
6. Set parameters as follow:

Channel delay: 1
Radius activity: 35
Max number of objects: 30
Min frame rate: 1
7. Click on the <Done> button.

NOTE: Be sure that the checkmark in the "LAGO | Active Scenery" menu is shown!

If you are using the unregistered version, a dialogue box will remind you about the limitations of this version: click on the <OK> button to proceed. A long series of messages will let you know about what runways are in use within a selected radius – in this area there are a lot of airports!

After a short time, the airport will start displaying traffic. Deactivate NumLock – lamp on the keyboard should go off – then use [1], [3] and [5] keys on the numeric keypad to look around.

After about 10 minutes the airport will become really crowded: we used a channel delay of 1 minute as an example to show you the traffic immediately. Usually you will set this parameter to 5. For further information, see Traffic Parameters.

To see aircraft more effectively in the distance you can use the "World | Time & Season..." menu. Set the time to "Night" and season to "Winter": Note that traffic now has flashing strobes and lights!!

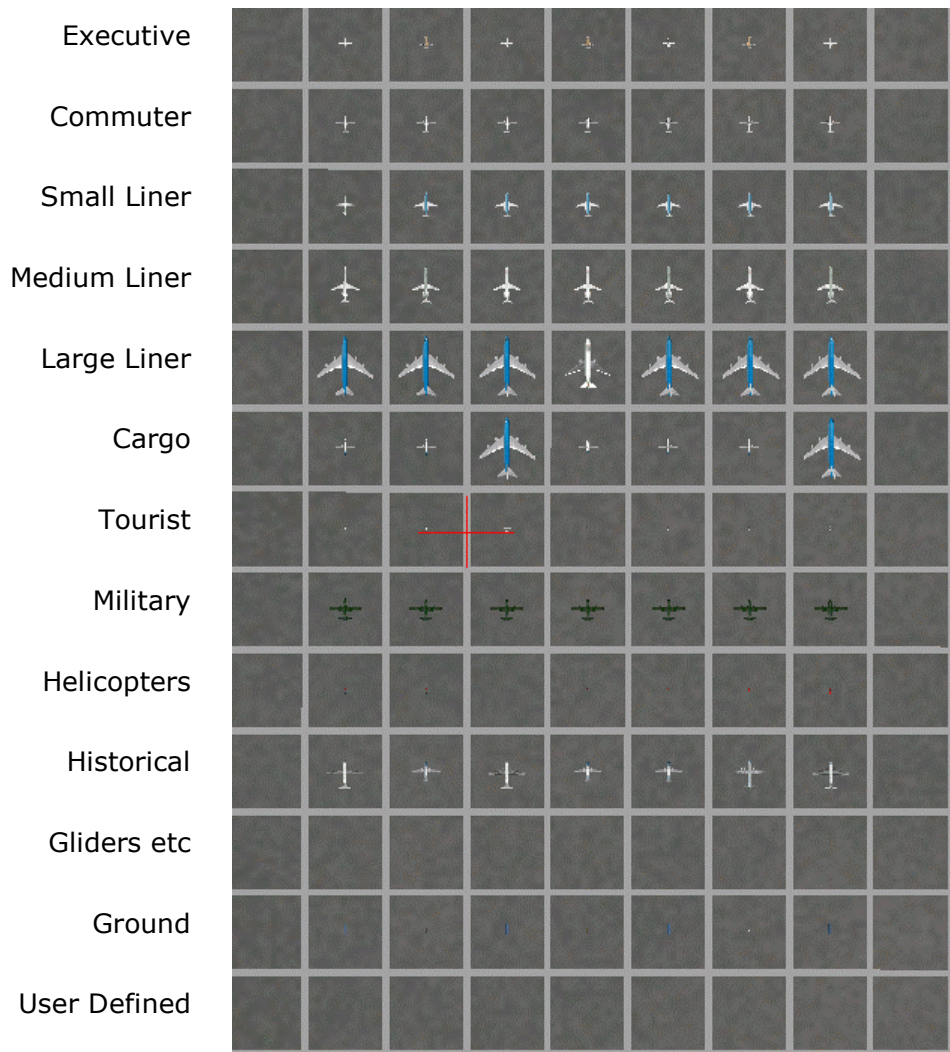
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Before proceeding it is a good idea to restore all the items in the "Traffic Parameters..." dialogue to their default values:

Channel delay: 5
Radius activity: 25
Max number of objects: 30
Min frame rate: 10

FSTraffic Test Airport (FS2000 only)

It is not always easy to see if a converted aircraft looks okay, that is why we included a test airport to see the planes you have converted. This fictive airport is located in the Pacific to make sure its huge density affects no other scenery. This airport is nothing more than a huge grid where you will see converted aircraft positioned as static objects, each class in a row and with at least 7 planes in column.



Aircraft are selected at random from each class. It is possible that you will not see all the planes in a class if many aircraft have been converted. If you have only one aircraft converted in a class you will see that same plane eight or ten times depending on class. If you have converted ten you might see ten different

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planes. Due to memory constraints it is possible that you will NOT see all aircraft. On many systems not more than 100 Statics can be displayed and never more than 120 aircraft can be seen. This depends mostly on the complexity of the converted aircraft.

You will be able to find the airport by selecting the "FST - TEST AIRPORT" startup situation from the FS2000 "Flights | Select Flight " menu item. This will put you in Slew Mode looking down at the parking area. You will probably find this airport incredible slow because of the density of scenery.

Technical note:

This small scenery (made by Andras Kozma) is located in the [FS2000]\Scenery directory.

ILS Traffic Database Generator

The ILS Traffic Database Generator (ITDG) allows you to easily generate a database that is used by the FSTraffic player to display traffic on any runway that includes an ILS system. ITDG works with scenery expressly created for FS98 and/or FS2000, meaning that it must show an entry in:

- FS98: the Airport Facility Directory - see "World | Airport/Facility Directory..." menu.
- FS2000: the "World | Go to Airport..." menu.

NOTE: If you are using a scenery that uses the default values in such menu but moves the runway(s)/ILS(s) to a different location, you may see traffic landing and taking-off outside the runway(s).

To open the ITDG dialog box, select the "LAGO | FSTraffic | Traffic generator..." menu. You will be presented with a dialog box, click on:

- <Yes> to proceed with the generation of the database
- <No> to cancel the operation.

The database creation process creates ILS Tracks for ALL installed airports thus it can take some time to load, depending on the size of your scenery collection, so please be patient.

How ILS tracks are generated

ITDG will write calculated tracks in a separate file for each airport. Tracks are saved in the LTA\COMMON directory; the format used for the file name is: [ICAO-ID]_.ST – where ICAO-ID is the ICAO identifier for the airport. For example, Chicago O'Hare's file will be called KORD_.ST. If the airport has more than one runway with the same orientation, i.e. 14L and 14R, ITDG will create LANDING tracks on the LEFT runway and TAKE-OFF tracks on the RIGHT one. Traffic for all other runways (CENTRAL ones and unique runways, like 36) will be generated for BOTH LANDING and TAKE-OFF.

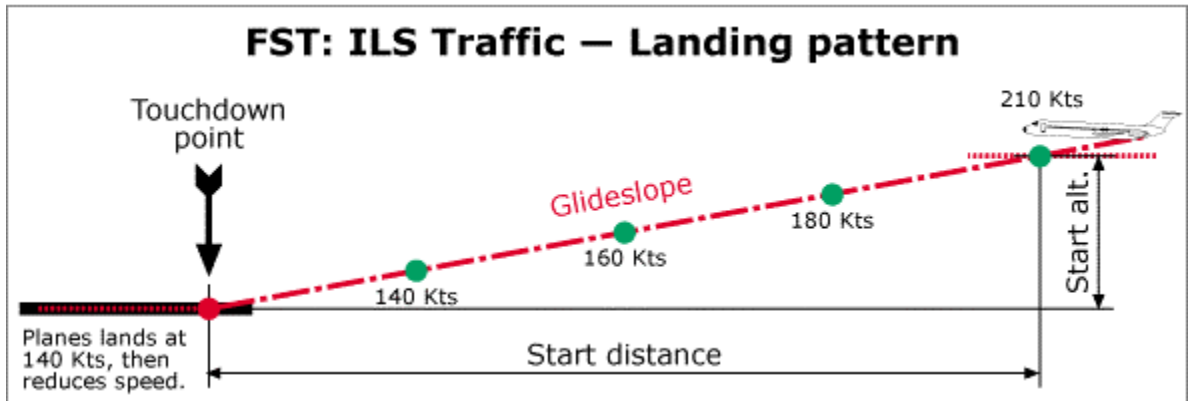
ILS tracks for each airport are generated ONLY if there are NO USER tracks for that airport. If there is any editing done on the track file the ITDG will not use this airport when generating tracks.

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Flight details on ILS Tracks

Landing tracks will be constructed with these parameters:

- Aircraft are positioned at the Start Distance (20 NM) and Start Altitude (4000 ft/AGL). It will proceed in level flight until crossing the glide slope, and then it will start to descent to the touchdown point while at the same time reducing its speed.
- At 1200 ft/AGL full flaps are extended, then the gear is lowered.

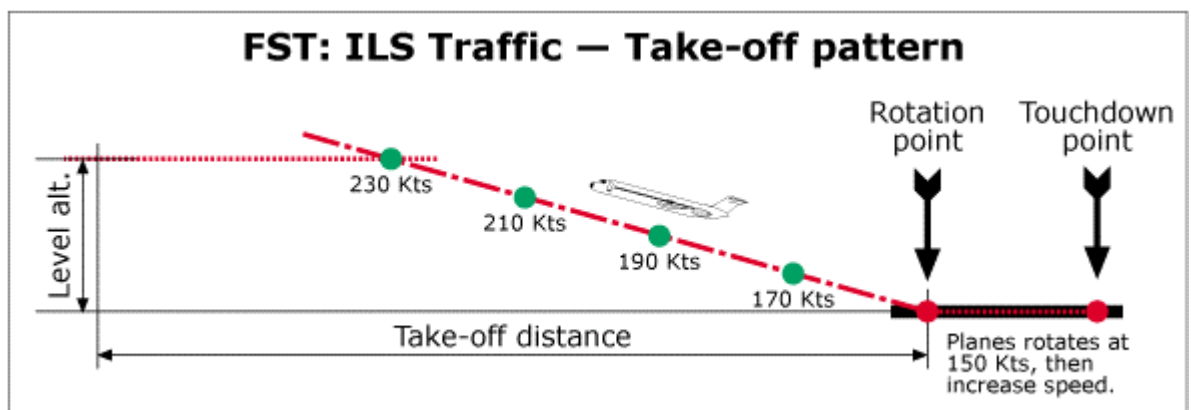


- The approach speed is always the same and starts at 210 knots, then is gradually reduced to landing speed (140 knots.)
- After touchdown speed brakes are extended and, at 60 knots, they are retracted. At 25 knots flaps are retracted.
- After the aircraft lands it will reduce speed until a complete stop. Once stopped it will disappear.

Departing Tracks will be constructed with these parameters:

- The aircraft is positioned at the touchdown point. It will then start to gain speed, at the rotation point it will take-off climbing at 2000 ft/min.
- At 300 ft/AGL it will retract the gear.
- Once it reaches altitude level (5000 ft/AGL), it will level and continue the flight until it reaches the Take-off distance (20 NM), then it will disappear.
- Speeds during take-off are shown on the following image:

NOTE: Only Medium Liners and Large Liners are shown on the ILS Traffic tracks!



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ILS Tracks Registry Maintenance

Only activated sceneries will be converted by ITDG. For details about how to activate/deactivate scenery areas, see FS menu "World | Scenery Library...".

If (after having created the database) you activate/deactivate or install/uninstall a scenery area you will have to use the "LAGO | Traffic Generator..." menu to update the database.

The "LAGO | FSTraffic | Rebuild Airport Registry" command rebuilds the FSTraffic internal index used to know the traffic for which airports to activate or de-activate according to the user position. Usually, FSTraffic manages this index internally; use this command when you suspect some problem, like airports activated or de-activated at the wrong moment or not activated at all. Please note that this has nothing to do with runway selection: this is only dependent from the wind. Nor with which aircraft are used to playback each track: this depends from the classes and airlines of the tracks and of the aircraft. Only the activation of each airport as a whole is affected by this index.

NOTE: In the previous version this was done at each startup of FS.

FS98 only: If you have installed THE TRIANGLE, the first time you activate traffic in a new FS session, a dialog will remind you that the scenery configuration has been changed. This is due to the fact that THE TRIANGLE checks your WORLD.VIS file while FS loads. If you have not changed the scenery configuration you can ignore the message.

Playing Traffic

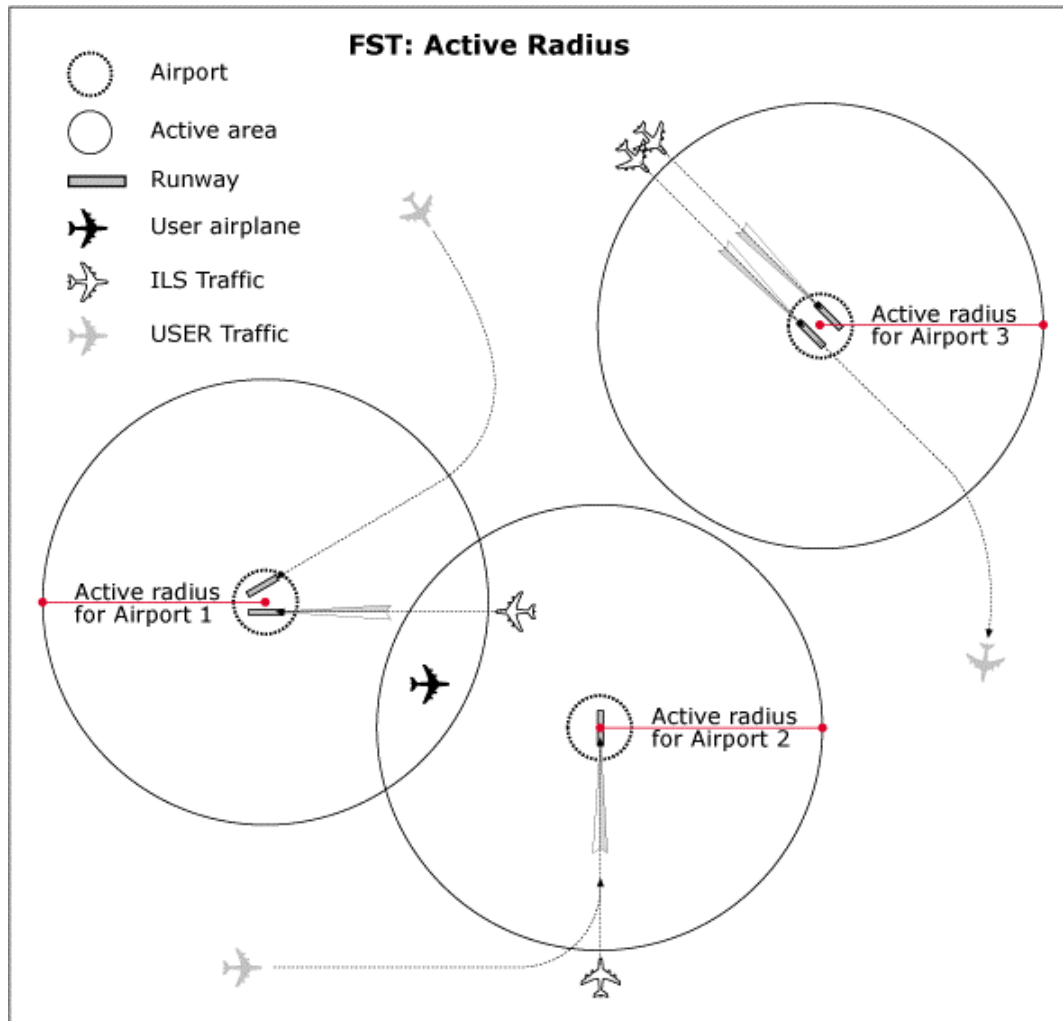
Playing traffic is an easy task: in the "Your first look!" chapter you have already discovered the fundamentals about how to get traffic at KORD.

In this chapter you will find a description about how the player works and a detailed explanation on how to use the parameters in the "Traffic Parameters" dialog box. There are a lot of frequently asked questions on playing traffic, we included most of them in this manual. See the FAQ section at the end of this manual for more information.

How the traffic player works

Once you activate the traffic, FST will check your position against airports that are close enough. If you are flying within one or more Active Area(s) FST will start showing both ILS Traffic and USER traffic for these airports. Each Active Area is defined by the Active Radius, set in the "LAGO | FSTraffic | Traffic Parameters..." dialog box.

The player will constantly track your position, starting and/or stopping traffic as you enter or leave an active area. This means that there is no traffic outside the area you are in, meaning that the workload on your system is always optimized.



As your aircraft can be within the active area of more than one airport, traffic will be shown within ALL the active airports (Airports 1 and 2 in the figure). The maximum allowed number of active areas is 10.

How aircraft are chosen

Aircraft displayed by the player are chosen from the selection of converted aircraft using a few simple rules;

- First a plane can only be shown if it is in a suitable class, so the Player will look for a plane in the class the track has been assigned to when the track was recorded. This means that you will never see a Tourism aircraft landing on a track defined for Medium and Large liners.
- Then the Player will look for a suitable airline for the area. If you are over Rome (the one in Italy) the player will look for Alitalia aircrafts in the correct class. If none can be found, a random aircraft from the same class will be used.

ILS Traffic is filtered depending the runway size. See "ILS Traffic Database Generator" chapter for further information.

To leave processor power as much as possible free to FS, there are two different representations for each class of airplanes. When aircraft are more than 1 NM far from you, FST player will represent them with a simplified version (see the table in paragraph "Technical note: Conventions for converted aircraft file names",

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chapter "Converting aircraft"). Once aircraft get closer than 1 NM the converted version (with the same detail and textures included in the original plane) is used. For this reason all aircraft in each class will look the same when the low-resolution version is used.

Both simplified version and converted aircraft will show strobe lights – even if the track was recorded with strobe lights OFF. Have a look at a busy pattern at night; you will like what you see! Converted aircraft will show the position of the gear, flaps, spoilers and navigation lights depending on what you did during the recording. See also chapter "Recording Traffic". On ILS Traffic tracks gear, flaps, spoilers and navigation lights are handled in a predefined pattern. See also paragraph "How tracks are generated" in chapter "ILS Traffic database generator".

How runways are chosen

Tracks are played taking into account the **surface wind** setting.

When a surface wind it is set, runways of the current airport are filtered and only channels relative to runways against the wind are played. If the surface wind is not set, a random wind direction is assumed and runways are filtered according to it.

To set surface wind

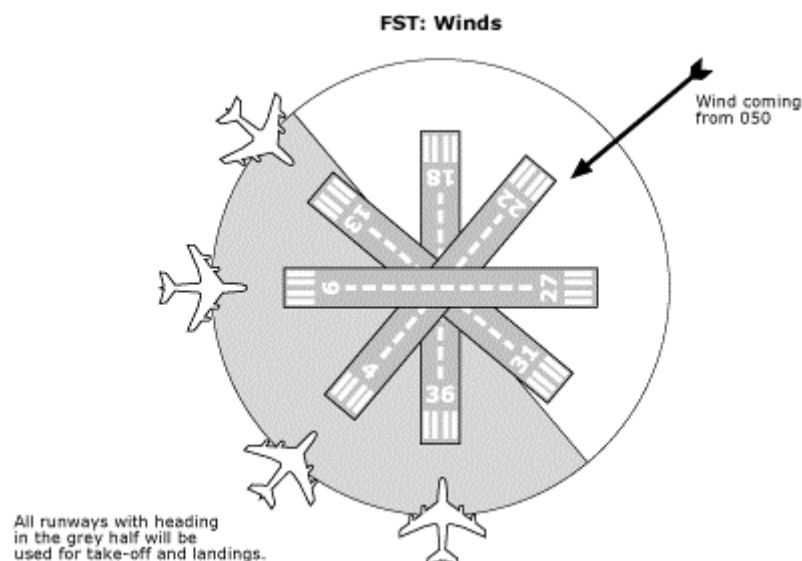
FS98: see the "Winds" tab in the "World | Weather..." menu.

FS2000: select the "World | Weather..." menu; click on the <Advanced Weather...> button; click on the "Wind" tab; select the wind area closer to the ground (in the wind setting area on the right the title must read "Surface winds").

NOTES:

- (1) Do not forget that, the 'Direction' value you insert in this dialog, is the direction wind is coming from;
- (2) 'Local' wind has a higher priority over the 'Global' wind. For example, if you set the 'Global' wind to 50°/5 Kts and the 'Local' wind to 90°/10 Kts, FST will use 90°/10 Kts to filter the traffic.

Given a wind direction, runways are filtered out in a range of 90° on each side; for example, if the wind is coming from 050°, runways from 230° - 90° = 140° (included) to 230° + 90° = 320° (excluded) are filtered out.



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When the wind changes, channels are re-filtered and new aircraft will be generated only in the active channels. Aircraft already generated for channels pertinent to the previous wind are no longer valid and will be immediately removed if out of the *visible range*. Aircraft still within the visible range will complete their track. You can use the "LAGO | FSTraffic | Restart Traffic " menu to update FSTraffic instantly.

NOTE: Winds generated by FST will not change while winds generated by the random weather generator of FS – or any add-on program or adventure – CAN change and will influence the generation of FST tracks.

Active runways

Actually, random generated wind does NOT generate any wind! FST simply calculates a wind direction, and then it filters the traffic pattern accordingly. However it will be better for you to know about wind (FS or FST one) when approaching an airport: with FST, in fact, we suggest that you do not land on the first runway you see... Never forget that other aircraft are in your vicinity. You do not want to destroy your brand new plane, do you?

Every time you enter within an active airport area, a message will inform you about the runways in use. The messages will depend on the kind of wind (FS or FST) set and tracks recordered for the airport. Sample messages are:

FSTraffic: no active airport.

No active airports are available in this moment. In case of doubt check that traffic is activated in the "Traffic Parameters..." dialog.

FSTraffic – KORD: runways in use 4L. Ground wind 140 degrees at 5 Kts.

KORD airport is active and surface wind is set through FS.

FSTraffic – KORD: runways in use 18, 22L, 27, 31R.

KORD airport is active and a randomly calculated surface wind is used by FST to filter traffic.

FSTraffic – KORD: no runways in use.

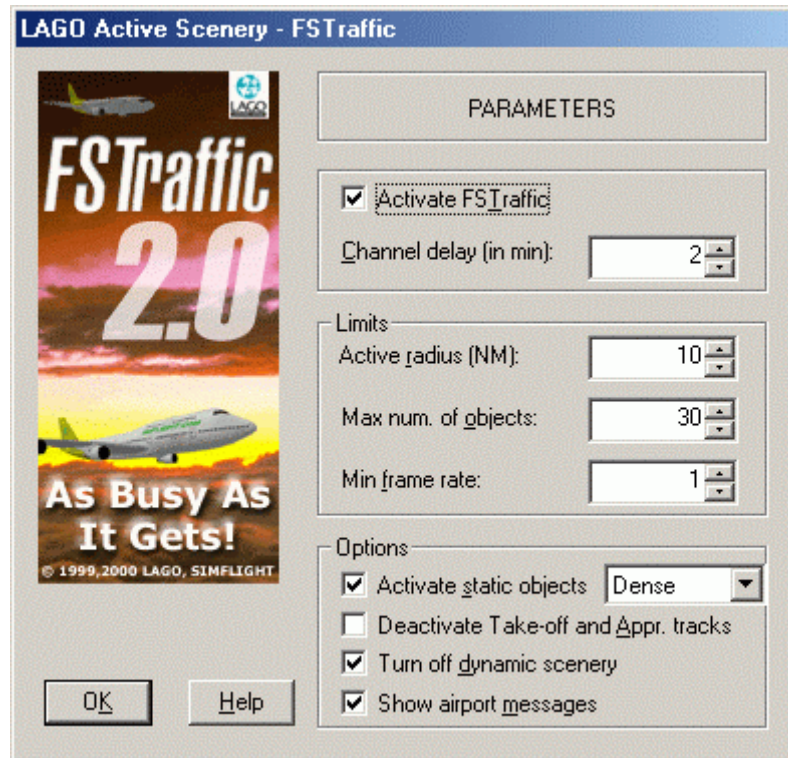
KORD airport is active but there is no tracks started. If you see this very often, set a bit of wind to kick FSTraffic into action faster,

If you need to see the messages again for ALL the active airports, select the "LAGO | FSTraffic | Airport Status" menu. You can also deactivate the airport messages to avoid problems when using FST with the adventures through the "Traffic parameters" dialog.

The "Traffic Parameters..." dialog box

This is the 'control center' for traffic!

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The following fields are used to configure traffic:

- | | |
|-----------------------|--|
| Activate FSTraffic: | Check this box to start the traffic player. Do not forget to activate the Active Scenery in the main LAGO menu to start all Active Scenery products by LAGO. |
| Channel delay (min.): | The delay, in minutes, between two consecutive aircrafts ON THE SAME CHANNEL. If, as it usually would be the case, there are several channels, the player will 'interleave' them. So, for a channel delay of 1 min and 4 channels available, a new aircraft will be started every 15 sec. Set a small value to increase the traffic – and the possibility of traffic jam; a bigger value will produce less traffic. Recommended value is: 5. <i>This value is used for ALL airports. Individual airports can have individual channel delays, set through the track editor.</i> |
| Active radius (NM): | The distance (in nautical miles) from an airport where traffic is active. Beyond this distance the traffic is not active. When flying outside the active radius the traffic is not removed abruptly: all active tracks are left to complete their natural paths, but new ones are simply not generated. Eventually, all traffic at this airport will stop. Set a small value to reduce the area around each airport from where you may see traffic. Recommended value is: 25. |

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Max num. of objects:	The maximum number of aircrafts played at the same time. When this limit is reached, new tracks will not be started until some of the old ones ends. This value includes ALL the active airports: if there are 2 or more active airports, some aircraft will be shown on the first one and others on the second one. This limitation includes both USER Traffic and ILS Traffic. Set a small value to reduce the traffic; a bigger value will produce more traffic. Recommended value is: 25.
Min frame rate:	The minimum acceptable frame rate. When this limit is reached, new tracks will not be started until some of the old ones end AND the frame rate raises above the minimum. Whatever values you enter in the previous fields this is your 'warranty policy' you will be always able to fly! Recommended value: 5~8. It mainly depends on the computer power and on the scenery detail: with a small computer and/or a very detailed scenery, the frame rate can easily drop below this limit even without any traffic and therefore no traffic will be shown at all!
Activate static objects:	Check this field to display static objects placed through the FST recorder. If this field is not checked, only dynamic tracks are displayed. When this field is checked you should also chose the density setting for the static tracks you want FST to show. Select in this drop list the density level for static objects: 'sparse', 'normal', 'dense'. The density level to which each object belongs is set when the object is recorded. If you select 'dense' all static objects are shown, at 'sparse' only the static objects recorded at 'sparse' setting will be shown. Caution: a large number of static objects can be a tremendous frame eater, lowering the frame reate below the minimum and preventing any dynamic traffic to be shown. If you experience a loss of traffic, try turning this field off.
Deactivate Take-off and Appr. Tracks	Check this box to suppress the display of all departure and arrival tracks; only ground tracks and static objects will be shown. Useful to disable those tracks to avoid conflicts when used with Online ATC or adventures that assign runways.
Turn off dynamic scenery:	Check this field to turn off standard FS dynamic scenery while the traffic is active. Sometime, standard dynamic scenery may conflict with traffic; in this case use this switch to turn it off.
Show airport messages:	Uncheck this field to turn off the message FSTraffic displays when a new airport is activated. Airport status messages are always available, though.

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Once you have set all the parameters click on the <OK> button to return to the simulator. You will NOT have to restart FSTraffic nor the simulator to see changes. Any change will be immediately taken into account by the FST player module. After having recorded your own tracks, you can experiment by changing the Traffic Parameters settings to find out the best values for your airport: be sure to include these findings in your pilots documentation if you are going to exchange tracks with friends.

If you change your scenery configuration, by installing/removing and activating/deactivating scenery, you may want to generate the ILS tracks again. For this reason, in such cases, the traffic player will issue a reminder dialog after you activate the traffic.

Technical Notes on Playing Traffic

Collision detection

Technical note:

When a new track is started, the player position is checked and any track that starts very close to the player position is skipped if the player is in the immediate surroundings. This will leave you a place in the landing or taking-off queue. See more on this in the technical note on Collision Check.

When tracks are being played, the collision check prevents aircraft from crashing into one another. Collision check may put your processor under deep stress! To give you an idea, with 20 aircrafts being moved around, there should be $20 \times 20 = 400$ tests. Each test should calculate the hypotenuse of a triangle (i.e. 2 square powers and 1 squared root) to get the distance between the aircraft and several trigonometric functions to determine which one is ahead and which is behind. And this for **each frame!**

We tried to be effective reducing the number of calculations as much as possible. However, we were forced to come to a compromise. We feel that the current mechanism has little effect on the frame rate and can still give reasonable results.

Here are the fundamental rules followed by the FST collision check routines:

- a) Objects which are far away enough to be drawn with the simplified model are not checked – at these distances you cannot spot if two simplified models are colliding or sliding one behind the other;
- b) Objects which are not on the ground are not checked;
- c) An object which is “on the ground” is checked only against other on-ground objects, in which case the distance between them is computed. If this distance is below a minimum, the object behind is slowed down.

There are two levels of “on the ground” objects: objects *simply on-ground* (vs. airborne) and objects *on-ground and slow* (25 knots or below). Two entries in the [FS]\LTA_LTA.INI file allows to customize the collision check as follow:

- 1) The collision check level: none, simply on-ground, on-ground and slow;
- 2) The threshold distance under which starting to slow down the object.

You can change these values by editing the _LTA.INI file (with any text editor). Open the file then look for the following lines:

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```
[CollisionCheck]
MainSwitch=2
Radius=90
```

Where:

MainSwitch turns on/off the collision check. You can enter the following values:

- 1 = large check: all on-ground objects are checked;
- 2 = strict check: only on-ground AND slow objects are checked;
- 3 = no check.

Radius is the minimum distance between two objects under which collision check starts slowing one of the two. The value you insert here is expressed in meters. You can enter any value between 20 and 500. Make sure you save it as clean ASCII file and be sure to restart FS.

NOTE: The *on-ground and slow* status of an object is recognized and recorded during track recording. When in slew, FS98 does not update the on-ground and the speed internal variables: therefore, tracks recorded in slew will never be taken into account by the collision check routines.

Please note that, in order to keep the number of calculations as low as possible, the collision check is not perfect: you may occasionally see an aircraft taxiing into another one.

Recording Traffic

The ILS Traffic Database Generator (ITDG) will only create very basic tracks. You will see aircraft appear on the runway that will take off and aircraft that will land and then evaporate after having stopped. The reasons behind this are mundane and simple. We can only know where a runway is and have no idea where taxiways and terminals are. Runways and ILS systems are special objects but all the rest is just graphics. So we can only land and take-off but will never be able to automatically create tracks that will taxi to and from the runway.

The ILS traffic should be seen as the background, it works on thousands of airports without you having to do anything and most of the time it will simply look good enough. But you can build much better tracks with some patience.

If you are able to fly, recording traffic is a simple operation. FST is able to sample the following information at regular intervals:

- Position (latitude and longitude)
- Altitude
- Heading, pitch and bank
- Speed
- Gear, flaps, spoilers and navigation light settings
- Ground/airborne status
- Above/below collision check speed status

If you activate the recorder every time you take-off or land (you can even record complete short flights) you will soon have a sizable collection of FST tracks to liven up your surroundings.

Recording a new track will in no way interfere with your flying or any instrumentation. FSTraffic allows you to "get on with the job at hand".

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Recording a track: a step-by-step guide

Basically you must fly: lets record your first track at Chicago O'Hare! It will be a take-off, on the 737-400, from runway 14R.

1. Load FS.
2. Open the "Flights | Select Flight..." menu.
In the "Available Flights:" list, highlight "FST – MY FIRST RECORDING", and then click on the <OK> button: you will find yourself in the Boeing 737-400 positioned at the holding point for runway 14R at Chicago O'Hare Intl.
3. Press [S] to enter in the cockpit.
4. Switch NAV LIGHTS to ON.
5. Open the "LAGO | FSTraffic | Start Recording..." menu.
The RECORD DATA dialog box appears.

LAGO Active Scenery - FSTraffic Recorder

RECORD DATA

Airport

ICAO ID: KORD

Name: Chicago, Chicago-O'Hare Intl

Runway ID: 14 << 14R

☐ (ngine) ☐ C(enter) ☐ H(eli)

☐ L(eft) ☒ R(ight)

Airline: ---

Class

☐ Executive ☐ Tourism

☐ Commuter ☐ Military

☐ Small Liner ☐ Helicopter

☐ Medium Liner ☐ Historical

☒ Large Liner ☐ Glider, balloon, ultralight

☐ Cargo ☐ User defined ☐ Ground

Record Type

☒ Take off ☐ Approach/Any

☐ Ground ☐ Static Normal

Sampling Interval

☐ 1 sec ☒ 2 secs ☐ 4 secs

Start! Don't record Help

Here you must instruct the recorder about what you are going to do. The dialog box is divided in four areas: "Airport", "Class", "Record Type" and "Sampling Interval".

ICAO ID: Type the ID of the relevant airport – KORD – for Chicago O'Hare in this example. Press [TAB] to move to the next field: as soon as the cursor leaves the field, FST retrieves from the relevant file the Airport name and the list of runways already used in previous recordings.

Airport Name: For the moment do not change this field, press [TAB] to move to the next field.

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- Runway ID: Type: 14 in this field, then click on the "3 (R)ight" field to select the runway you will use to take-off.
- Airline: Select --- for now. This will not select any airline and will force FSTraffic to play the tracks using any aircraft in the correct class.
- Class: Now check any combination of classes in the "Class" area. This track will played back by aircrafts randomly chosen among all aircrafts belonging to all checked classes: in this example check only the "Medium Liner" class and uncheck all the other classes.
- Record Type: Click on "Take-off" – we are about to record a take-off.
- Sampling Interval: Click on "2 secs" – a sample every 2 seconds is fine in most cases.

When you are you ready to go:

6. Set flaps to 15 by pressing [F7] five times.
7. Click on the <Start!> button.
8. Open the "LAGO | FSTraffic" menu: the recorder will NOT record when you open a menu!

Note that the "FSTraffic" menu is changed. The following items are now available on the menu: Abort Recording, Stop Recording and Insert Message...

Select the "Insert Message..." menu, the MESSAGE dialog box appears on the screen. We will use this dialog box to simulate the take-off clearance to the ATC and get its authorization. Fill the fields as shown here below:

Message Text:	Type: Chicago Tower, 737 requesting take-off clearance...
WAV File name:	Type: LTA\WAV\737TOC
COM Frequency:	Type: 119.10

Click on the <Insert> button.

FST will present a dialog box stating that the WAV file you chose does not exist: click on <Yes> to proceed anyway. Wait about 20~30 seconds – to calculate time look at FST recording window.

9. Open the "LAGO | FSTraffic | Insert Message..." menu again. We now need to record a message for the clearance. Fill the MESSAGE dialog fields as shown here below:

Message Text:	Type: 737, cleared for take-off...
WAV File name:	Type: LTA\WAV\737CTO
COM Frequency:	Type: 119.10

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Click on the <Insert> button.

Ignore the warning message and – when you are ready to take-off – click on <Yes>.

10. Take-off: you already know how to do it, don't you? For this demo we advise you to not to lift off before the runway 14R is crossed by runway 9R. There is no need to use full power, just 90% will do fine for this take-off. Feel free to pause the simulation (using the [P] key) when needed: the recorder will NOT record pauses!

11. Retract flaps pressing [F6] four times – do NOT forget the landing gear!

Once you reach 1500 ft:

12. Retract the flaps fully by pressing [F6] once.

13. Open the "Aircraft | Autopilot..." menu and set the autopilot as follow:

- Autopilot: ACTIVE
- HDG: ACTIVE and set to 140
- ALT: ACTIVE and set to 5000 ft (set also +2000 as your vertical speed)
- AAT: ACTIVE
- ASH: 250 Kts

14. Click on the <OK> button: the aircraft will continue the flight heading 140.

When you are about to reach 5000 ft:

15. Open the "Aircraft | Autopilot..." menu and set the autopilot as follow:

- HDG: set to 210

16. Click on the <OK> button: The aircraft will turn to the right.

In a few minutes your aircraft will be stabilized at 5000 ft flying heading 210.

Once the aircraft is stabilized:

17. Open the "LAGO | FSTraffic | Stop Recording" menu.

A dialog box will ask you to confirm your choice.

18. Click on the <Yes> button to stop the recording and save your track on the hard disk. NOTE: Press the [ESC] key if you want to continue the recording.

Check your first recording

Congratulations: you just recorded your first track with FST! It is now time to see the results of your effort.

1. Open the "LAGO | FSTraffic | Traffic Parameters..." menu.

2. Click on "Activate FSTraffic": be sure a checkmark is present! Then set parameters as follow:

Channel delay: 3
Radius activity: 20
Max number of objects: 20
Min frame rate: 1

3. Click on the <Done> button.

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Remember... your aircraft is still flying!

4. Open the "Flights | Select Flight..." menu.
In the "Available Flights:" list, highlight "FST – CHECKING MY FIRST RECORDING", and then click on the <OK> button. You are positioned at the beginning of runway 32L.
5. Set your COM radio to "119.10" to see the ATC messages.

In a while you will see an aircraft at the top of runway 14R, then an ATC message appears: "Chicago Tower, 737 requesting take-off clearance..."; in 20~30 seconds another ATC message: "737, cleared for take-off...": this is a replica of your flight! You will be seeing other traffic as well but you will recognize your take-off because it comes much closer than the others. In the distance a shape resembling a medium class liner is getting on the runway and coming closer...

Follow the aircraft using the [+] and [-] keys to set the proper zoom level. Use [SHIFT][ENTER] to lower the view and [SHIFT][BACKSPACE] to raise it. You will notice that, once the aircraft comes to a closer distance, it will change shape to reflect the medium class aircraft you converted.

Before proceeding it is a good idea to restore all items in the "Traffic Parameters..." dialog to their default values:

Channel delay: 5
Radius activity: 25
Max number of objects: 25
Min frame rate: 5

I just realized that we forgot to record the ATC voices. No problem, FST keeps a list of voices to be recorded. Open the [FS]\LTA\WAV_LOG.TXT file with a text editor. The file listing will look something similar to:

```
Missing WAV: KORD 14R C:\PROGRAM FILES\MICROSOFT GAMES\FLIGHT
SIMULATOR\LTA\WAV\737TOC.WAV "Chicago Tower, 737 requesting take-off
clearance..."
Missing WAV: KORD 14R C:\PROGRAM FILES\MICROSOFT GAMES\FLIGHT
SIMULATOR\LTA\WAV\737CTO.WAV "737, cleared for take-off..."
```

This list is basically a reminder about which WAV files needs to be prepared.

Record the voice files with your preferred sound recorder (Windows comes with its own one; if you want to go professional, we suggest to have a look at Cool Edit 2000 – <http://www.syntrillium.com>) taking care to save the files in the proper directory and with the proper name. You will not need to restart FS neither the traffic: FST player will look for voices files every time it needs them.

Recording a track: a deeper look

Now that you have a clearer idea on how to record a track, we will explain some details about tracks and tips about how to record them.

Runways, channels and tracks

To get the best results, you should understand some concepts.

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FST Runway:

Well, we all know what a runway is, don't we? However, it is better to make clear that – in FST – a runway is defined as **each of the two directions in which a landing strip can be used**.

For example: 9L and 27R are **two** different runways (on the same strip).

FST allows a maximum of 16 FST runways – 15 if there is a ground track – for each airport.

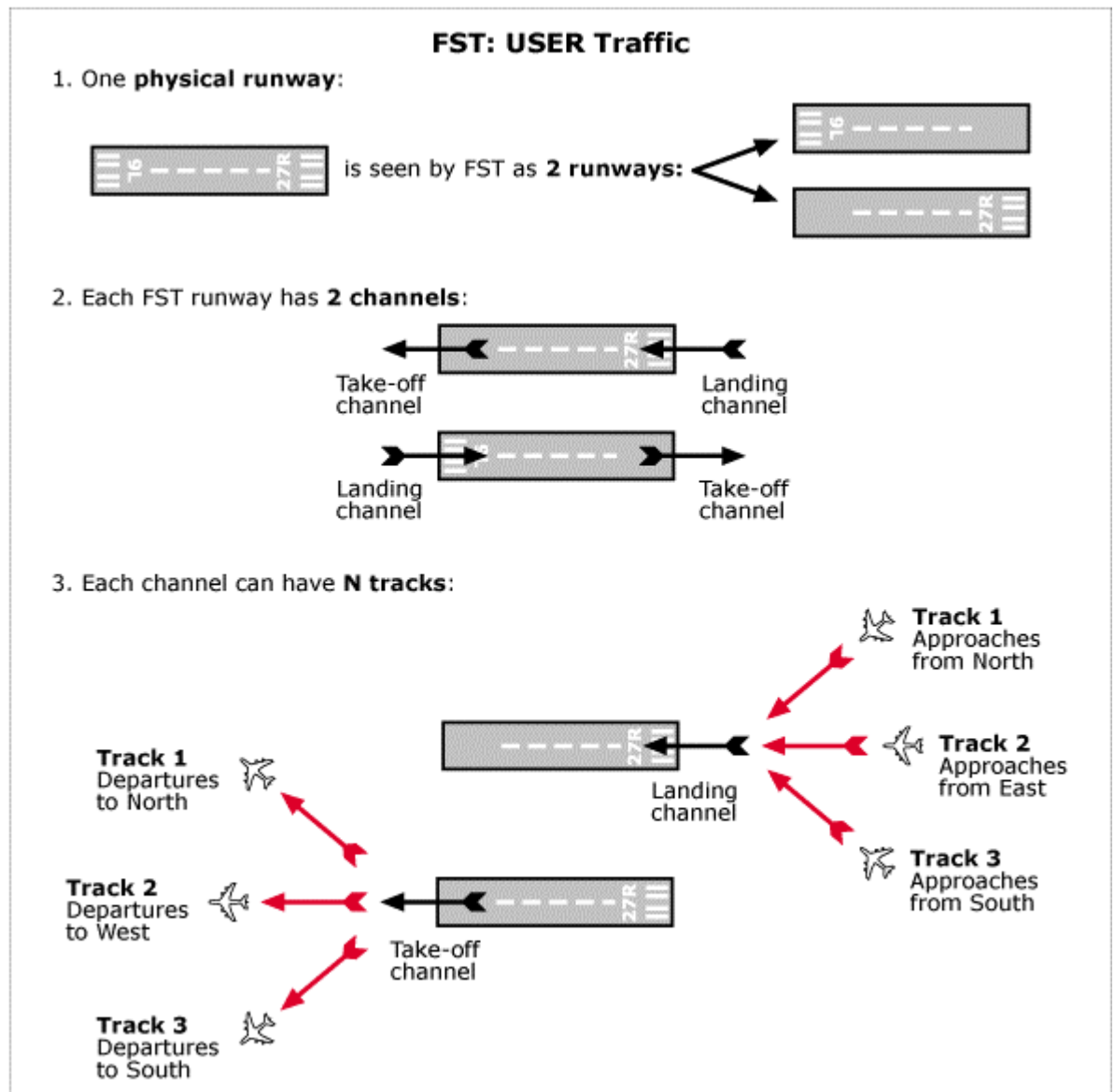
Channel:

Each runway can be used for landing and/or for take-off. Landings and take-offs are structurally different for FST, each of them being a **channel**. So, an airport with just one strip (like Meigs) has **two** FST runways (36 and 18) and **four** channels (landing on 36, taking-off from 36, landing on 18, taking off from 18). FST recognizes 2 channels for each FST runway of each airport.

Track:

A track is a (recorded) path that an aircraft will follow during playback. A track belongs to a channel.

You can record an UNLIMITED number of tracks for each channel.



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Tracks are played as they have been recorded. The only intervention is that a final 10 sec resting period/pause is added to the landing tracks. Aircrafts suddenly appear at the track start and suddenly disappear at track end.

There can be several tracks for a channel, i.e. several recorded paths all landing to (or taking-off from) the same runway, but following different paths (for example: different SIDs or STARs, landings to/take-off from different gates). If you record more than one track in a channel, each aircraft of that channel will follow a different track when played back. After FST has used all the tracks, it will start again with the first track of the channel.

You do not need to restart FS or the FST player to be able to see a newly recorded track.

Recording dialog box

ICAO ID: Enter the ICAO ID of the relevant airport (i.e. "KORD"). The ID will be used to form the file name under which all tracks for this airport are saved. Each track belongs to an airport and to a runway. All tracks for an airport are kept together in a single airport file. Airports are matched according to their ICAO ID and their files are named:
[FS]\LTA\COMMON\[ICAO-ID]_.ST
For example, tracks for Chicago O'Hare are saved to KORD_.ST. There is no limit to the number of airport files. Each airport can have up to 16 FST runways and any number of approaches or take-offs for each runway.

NOTE: If you do not know the ICAO code for an airport, FS98 can help you. Open the "World | Airport/Facility Directory..." menu; select the area where your airport is; scroll the list until you see the needed airport (in the following example London City):

London, United Kingdom - London City				
ID	Elevation	Latitude	Longitude	ATIS Freq.
EGLC	+17	N51° 30.30'0	E0° 3.40'	***

Right below the ID field you can read the ICAO code of that airport.

FS2000 USERS: you will find a list of ICAO codes in the [FS2000]\WEATHER\ICAO NAME.CFG file.

Airport Name: Enter the descriptive airport name. We suggest the "Airport – City" format (for example: "O'Hare Intl. – Chicago").
NOTE: Up to 32 chars are allowed in this field.

Runway ID: Enter the runway identification number (i.e. "36"). This field accepts only numbers from 0 to 36; 0 is silently converted to 36. If a value greater than 36 is entered FST issues an error message. Click on the runway identification class (i.e. "3 (R)ight"). **NOTES:** Use "0 (N)one" when there are not duplicated runways of the same orientation. Use "4 (H)eli"

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when recording traffic using helicopters. Linking a track to a runway is necessary to filter active runways (and traffic!) according to the wind and for future implementations.

The combo box on the right of the "Runway ID" field, lists all the runways already known to FST for this airport. To select one of these runways – for example when adding a new track – you may simply select it in the combo box: doing so, the "Runway ID" fields will be automatically set.

Airline: This item allows you specify what aircraft should be seen on this track. See more information in the chapter 'Airlines'

Record Type: Pay attention when defining the track type! Use the following values accordingly to the kind of track you are about to record:

Approach/Any => For tracks approaching and/or landing on the airport.

Take Off => For tracks taking-off from the airport. We found out that, if your track includes a take-off, it is better to set it as a Take-Off track.

Ground => If you want to record ground traffic (buses, follow-me trucks, etc.).

Static => If you want to place a static object at your current aircraft position. No track recording will take place; rather a new static object will be inserted in the airport file at your current aircraft position.

It is possible to assign the static tracks to one of the following categories: sparse, normal, dense. Setting the relative value in the "Traffic parameters" dialog, FST will show the static objects as follow:

<i>Setting</i>	<i>FST will show all the tracks defined as:</i>
Sparse	Sparse
Normal	Sparse and Normal
Dense	Sparse, Normal and Dense

NOTE: There is only ONE special channel per airport (with as many tracks as you want), which handles both the Ground and Static tracks. This channel takes over one runway slot. This means that: if an airport has ground and/or static tracks, it has room for only 15 FST runways; all ground/static tracks are played as a single channel.

WARNING: FST pre-sets this choice to a reasonable value whether you are on ground or airborne when entering the dialogue: in the first case (on ground) a take off track is assumed, otherwise (airborne) a landing track is assumed. You should always check to see if the default value set by FST is correct. If it is wrong then change it to the needed value.

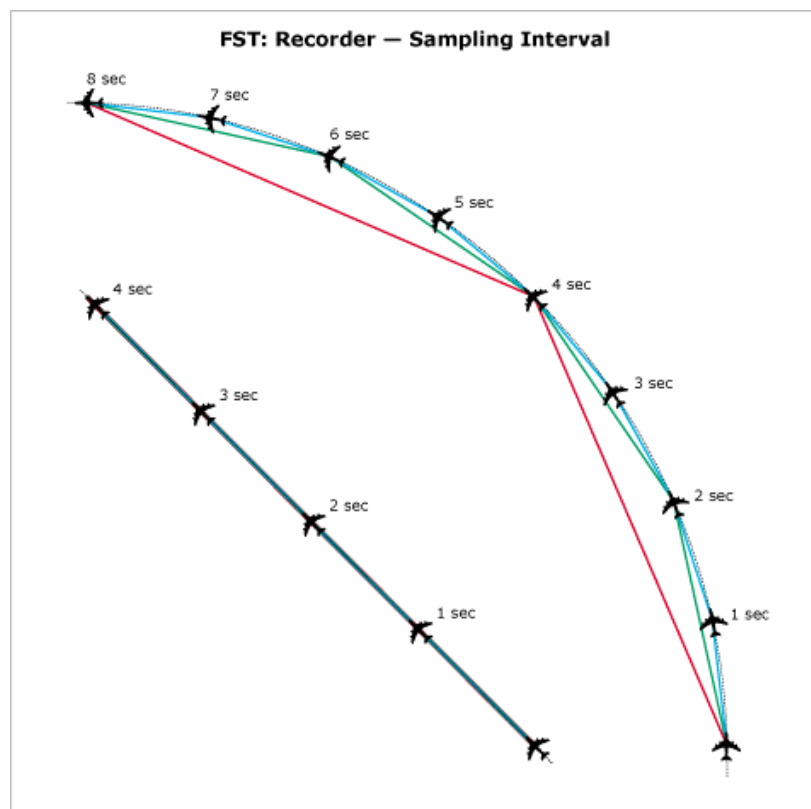
Class: Check any combination of classes in this area. The track will be played back by aircrafts randomly chosen among all aircrafts belonging to all checked classes.

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Sampling interval: There are 3 possible sampling intervals: 1 sec, 2 sec, and 4 sec.

In the following picture you can have a better idea of the sampling interval. There are two examples: the first one shows a aircraft turning left on a 90° turn; the second one shows a aircraft flying straight. Paths flown by the aircraft are shown with a black, dotted, line.

Curved path: setting the Sampling Interval to 4 seconds (red line) tends to make FST approximate the path of the aircraft and is less accurate when it's displayed; By using a 2 seconds sampling frequency (green) the path is much closer to the original flown by the plane; with a 1 second (light blue) interval you can reproduce almost exactly the same path!



As you can see, a small sampling interval will make the track much more precise; the drawback is that the resulting recorded file (*.ST) will be bigger than the one recorded with a lower sampling interval. The length of a 4 second interval record is almost $\frac{1}{4}$ of the length of the same record at 1 second – as only $\frac{1}{4}$ of the points are saved to disk. Moreover, when the track is played back, it will be loaded into memory, thus, using the proper sampling interval you will optimize RAM usage.

Straight path: there is practically no difference at all in using different sampling intervals apart a bigger file and more need for RAM memory.

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We experimented with different settings and found out that, in most cases, the best setting for the sampling interval is 2 seconds.

Don't Record: Click on this button if you want to exit the dialog without starting the recording.

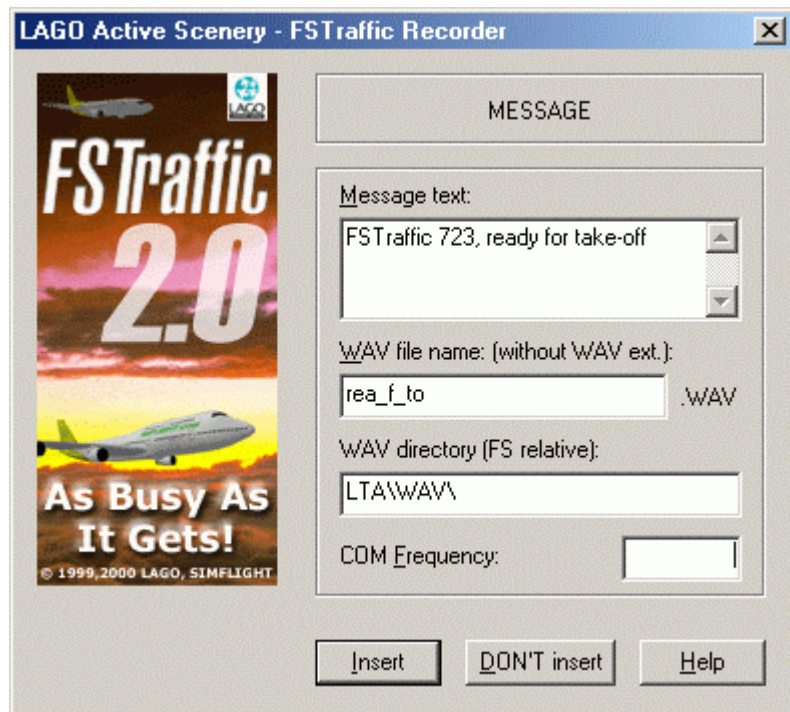
FSTraffic menu items

Selectable only when the recording is in progress

Abort Recording: Exit the recording session **WITHOUT** saving the track. NOTE: Press the [ESC] key if you want to continue the recording after you selected this item.

Stop Recording: Exit the recording session **SAVING** the track to the hard disk. NOTE: Press the [ESC] key if you want to continue the recording after you selected this item.

Insert Message... : This item can be used to insert a message at any stage of the flight. During track playback, when the *played* aircraft reaches the position where you inserted the message, the text message will be shown on the screen (just like an ATC or adventure message) and the WAV file will be played. By selecting this menu item, you will be presented with a dialog box including the following fields: "Message Text", "WAV File Name", "COM Frequency".



In the "Message Text" field, type the message you want to see. If you only want to play a WAV file do NOT insert anything here (not even a space!).

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In the "WAV File Name" field, type the full path of the WAV file. NOTE: The path must follow FS standards, meaning it must be relative to FS main directory. You do not need to type the .WAV extension. For example, if you want to play a sound which path is: [FS]\ADV\WAV\AUTHREQ.WAV you should enter: ADV\WAV\AUTHREQ. If the file is not present, a warning dialogue appears allowing you to: Correct the file name; Proceed with the choosen file name; Cancel the insert message operation.

If a non-existent WAV is wrongly inserted, FST will automatically generate an entry in the [FS]\LTA\WAV_LOG.TXT file. The entry includes: airport ID, runway ID, WAV file name (its complete path) and the text of the message. The WAV_LOG.TXT file can be used as a reminder to implement missing WAV files later. NOTE: This log file is never reset: you have to manually remove its entries as soon as you implement the missing WAV(s) file(s)!

In the "COM Frequency" field, you MAY type the radio frequency on which the message will be played. When the track is played you will see/hear the message only if your COM radio is set to this frequency. If the field is left empty, the message will be played no matter how your COM radio is set.

The ability to add sound files can be used to simulate the radio messages between the ATC and the aircraft flying along recorded tracks. For example, supposing you are recording a landing track, you may insert the following message: "Authorization request to land on runway 34L" at the beginning of the track; after a couple of minutes you can insert the following message: "Runway 34L cleared to land". When inserting messages, keep in mind that they will be played for several (different!) aircraft: so we suggest you be as "generic" as possible by adding words like Golf Lima Romeo instead of British Airways for example. NOTE: In slow mode you will NOT be able to hear any message!

Always record at 8KHz 8 bit mono

Once you finished to fill the fields in this message box click on the <Insert> button to add the message to the track. If you open the "Insert Message" dialog accidentally, click on <DON'T Insert> to return to the simulation.

Setting the Airport Reference Coordinates

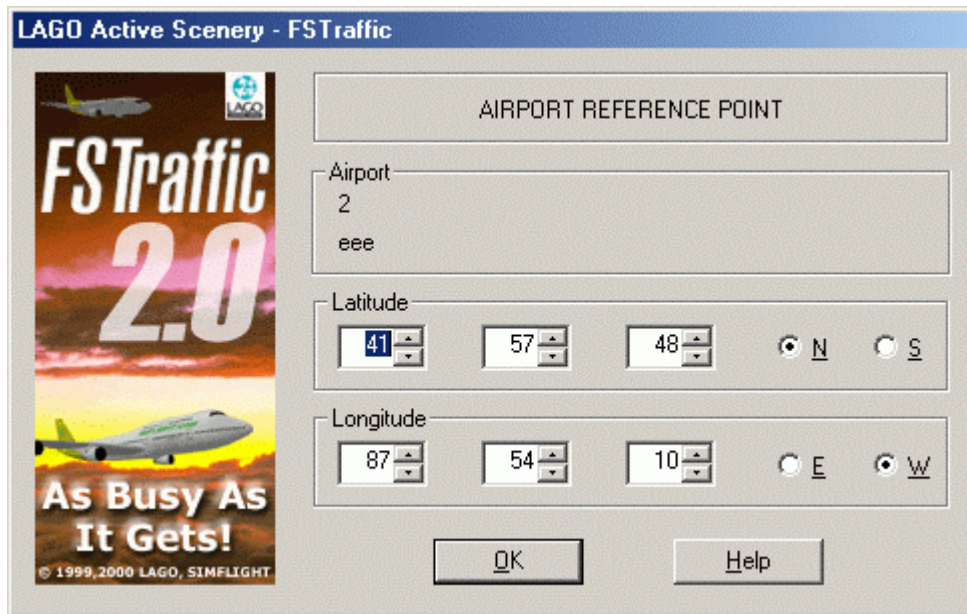
To be able to determine if you are flying within the active radius of an airport and thus start showing the traffic, FST keeps the LAT/LON coordinates of each airport in its relative *__.ST file.

Now the coordinates are either:

- a) Taken from the ILS-generated ST file – if present;
- b) The starting point of the first USER Traffic track, if this is a take-off track;
- c) The ending point of the first USER Traffic track, if this is a landing track.

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In the last two cases, at the right moment (i.e. the starting or the ending point of the first recorded track within a new airport), you will be presented with a dialog box showing the current coordinates and asking for a confirmation.



You may choose to edit these coordinates. After you confirm the coordinates, by clicking on the <OK> button, these will become the reference coordinates for that airport.

WARNING: The dialog box is presented only ONCE for each airport; after the coordinates are acquired, they are kept throughout the life of the ST file. **NOTE:** If the traffic is activated while you are recording your FIRST track at an airport, you will need to deactivate and reactivate the traffic before you can see the newly added airport.

Tips about how to record tracks

- * To easily create landing tracks, you may consider recording few tracks using the "Land Me" feature (see FS98 menu "Aircraft | Land Me" – NOTE: FS2000 does not include this feature anymore).

- * The minimum delay between the aircraft of a track can be set at low as 1 minute. For this reason, it is advisable, particularly when recording take-off tracks, to move the aircraft away from the starting point soon, in order to have it at least 100~150 meters far from it after one minute. Otherwise, with the 1 minute delay setting, there is the risk that the next generated aircraft will collide with the previous one of the same track.

Conversely, while recording the **end** of a **landing** track, it is advisable to keep the final rest short too, well under 1 minute. Otherwise, the next aircraft on the same track will find its destination point occupied and will queue. After some time, a very long queue of aircraft may build up (even 10-15 aircraft) and the entire ground traffic of this airport will go bananas.

- * It is wise to keep the starting point of different take-off and ground tracks far enough one from another so that the collision check routine will not discard any track. The minimum distance is defined in the [FS]\LTA\COMMON\PLAYINTF.INI file.

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* To avoid collisions you should try to plan all your tracks in advance and try to get as many maps and charts for the airport you are going to record for. On real airports they have a huge fear for collisions and they plan all procedures to minimize these risks. Use their work to plan your tracks! Many taxiways are one-way traffic only: you should use all this information when you record your tracks.

* Document your work well if you plan to exchange it with others. Make notes for each track that includes the procedure flown. Document what scenery you used for your traffic pattern. Save the documentation for each ST file in the same directory, as the ST file is located and use the ICAO code as the name (for example KORD.TXT).

* Always record with the scenery at full density, if you do not so, you risk having the played back track driving through objects that are only visible in higher density settings!

* To record departing tracks, include pushbacks – a feature included in our recently released MAD DOG.

* Use the audio feature extensively to make the airport come to life even more. Remember that the WAV files you record will be included when you exchange tracks with others; so keep them short and use low quality settings (8.000 or 11.025 Hz, 8 bit, mono) while you record to avoid the files becoming too large. Please remember NOT to distribute copyrighted material.

* Generally speaking, when recording traffic, you should avoid to record long tracks. This is due to several different reasons, longer tracks in fact: (1) need more space, both on the hard disk and in RAM memory; (2) take more time to show, the further they are from the airport the longer time will be needed to reach the airport. We suggest to start your landing tracks and to stop your take-off tracks about 20~30 NM off the airport.

* When recording a track, while the aircraft is on ground, try to keep the speed of the aircraft below 25 kts as long as possible: the collision check will get better results no matter of its settings.

* Using a fixed gear aircraft to record tracks will always show the played back aeroplanes with gear down.

* Avoid recording tracks with a tail-dragger aircraft: as the recorder takes into account your pitch, you will get strange results with non tail-dragger aeroplanes at playback time!

* We suggest to avoid recording static tracks while in SLEW. In this situation the position of your aircraft on the ground and its pitch are not correct, this will result in incorrect results. However, you can use the slew mode to record some special visual effects, like positioning an helicopter on the top of a skyscape!

Tips about mixing ILS and USER tracks

* To better fit the ILS tracks, record landings on 'L' runways and take-offs on 'R' runways. Central and spare runways can be used to record both take-offs and landings.

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* You may want to get ONLY YOUR recorded traffic at a specific airport. See the Chapter about the manual to learn how to remove the standard ILS tracks. Then start record your tracks: ITDG will not add ILS tracks in an ST file if it finds out that it contains one or more USER tracks.

NOTE: If you find additional tips for other users please email them to suggestions@fstraffic.com: we will take care to include them in future versions of this manual.

Recorder timer

After you start the FST recorder, a small window showing the elapsed recording time (in mm:ss) is placed on the top-left part of the screen. With some video card arrangements, this window flickers: click once anywhere on the FS window to make it steady. NOTE: You can drag the recorder timer window anywhere within the FS window.



Sharing tracks with other users

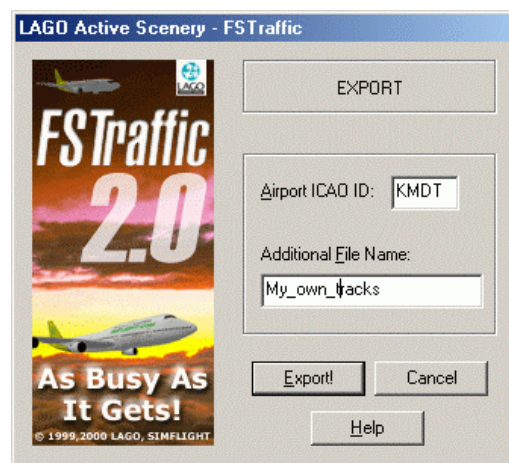
As explained in the "RECORDING TRACKS" chapter, tracks are saved in a file identified by the ICAO ID of the airport for which the track was recorded.

Supposing you are recording some landing tracks at New York JFK. In the mean time, a friend of yours, is recording take-off tracks for the same airport. Once you finished your recordings, each of you guys have a KJFK_.ST: if you use your file you will only get landings and, installing your friend's one, you will only have take-off's.

To be able to share your tracks with friends do NOT send the *_ST files but use FST Import and Export utilities instead!

To export tracks

1. Open the "LAGO | FSTraffic | Export Tracks..." menu.
You will be presented with the EXPORT TRACKS dialog box. NOTE: To exit the dialog at any time click on the <Cancel> button.
2. In the "Airport ICAO ID:" type the ICAO ID of the airport for which you want to export the tracks.
NOTE: Do NOT type the underscore "_" character used in all *_ST and *_STX file names; it will be automatically added by FST.
3. If you want to distinguish the export file in some way, type an additional file name in the relevant edit box. Please note that a file name cannot contain any of the following characters:
\\ / : * ? " < > . | or a space.
4. Click on the <Export!> button to export the tracks.



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FST will generate a file including ALL your USER recorded tracks AND WAV files for the selected airport. The file will be placed in the [FS]\LTA\EXPORT directory. The file name will look like:

[FS]\LTA\EXPORT\[ICAO_CODE]_[ADDITIONAL_FILE_NAME].STX.

Example: if you export tracks for Chicago O'Hare – and the additional file name as shown on the previous image, the exported tracks will be saved in a file called: "KORDRequiresDefaultScenery_.STX".

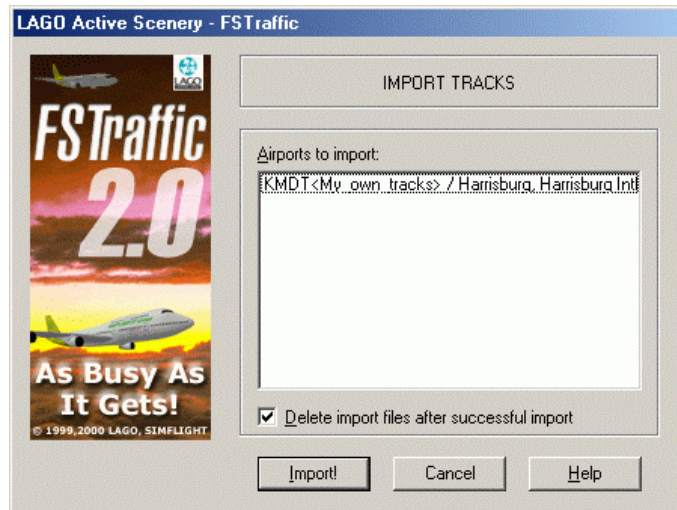
5. Use a WinZip (you can download it at <http://www.winzip.com>) to create a compressed file (ZIP). Be sure to add all the needed documentation in the ZIP file.
6. Open the e-mail program of your choice.
7. Create a new e-mail.
8. Attach the ZIP file to the e-mail.
9. Send the e-mail!

NOTE: When exporting tracks, you will copy them from the selected .ST file to the .STX file.

To Import tracks

Once you have one or more *_.STX file(s) – either received by e-mail, downloaded at <http://fstraffic.com>, found on a CD-ROM compilation, etc. – copy it in your [FS]\LTA\IMPORT directory, then:

1. Load FS.
2. Open the "LAGO | FSTraffic | Import Tracks..." menu. You will be presented with the IMPORT TRACKS dialog box. The "Airports to import:" list will show all the importable airports files (*.STX) present on your hard disk in the [FS]\LTA\IMPORT directory. NOTE: To exit the dialog at any time click on the <Cancel> button.



1. Select the airport(s) for which you want to import the tracks. You do NOT need to use the [SHIFT] or [CTRL] keys for multiple selections: just select more than one airport by clicking on each airport you want to import. If you select an airport by error, click on its entry again to deselect it.
3. Check the "Delete import files after successful import" field if you want to automatically delete the import (*.STX) file(s) when the import process is completed with no errors.
4. Click on the <Import!> button to import the tracks. FST will import ALL the tracks for the selected airport(s). Tracks for new airport(s) will generate one or more new *_.ST file(s) in the

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[FS]\LTA\COMMON directory; tracks for existing airports are added in the relevant file(s). Needed WAV files will be placed in the proper directory.

Note on ILS tracks

Tracks created by the ITDG are marked with a special signature; this will assure that the Export and Import utilities never handle these kinds of tracks.

Exchanging tracks at FSTraffic official web site

If you have created tracks that you wish to share with others you can send them to tracks@fstraffi.com so we can add them to the Exchange section of www.fstraffi.com. You will find a large collection of tracks that can be imported.

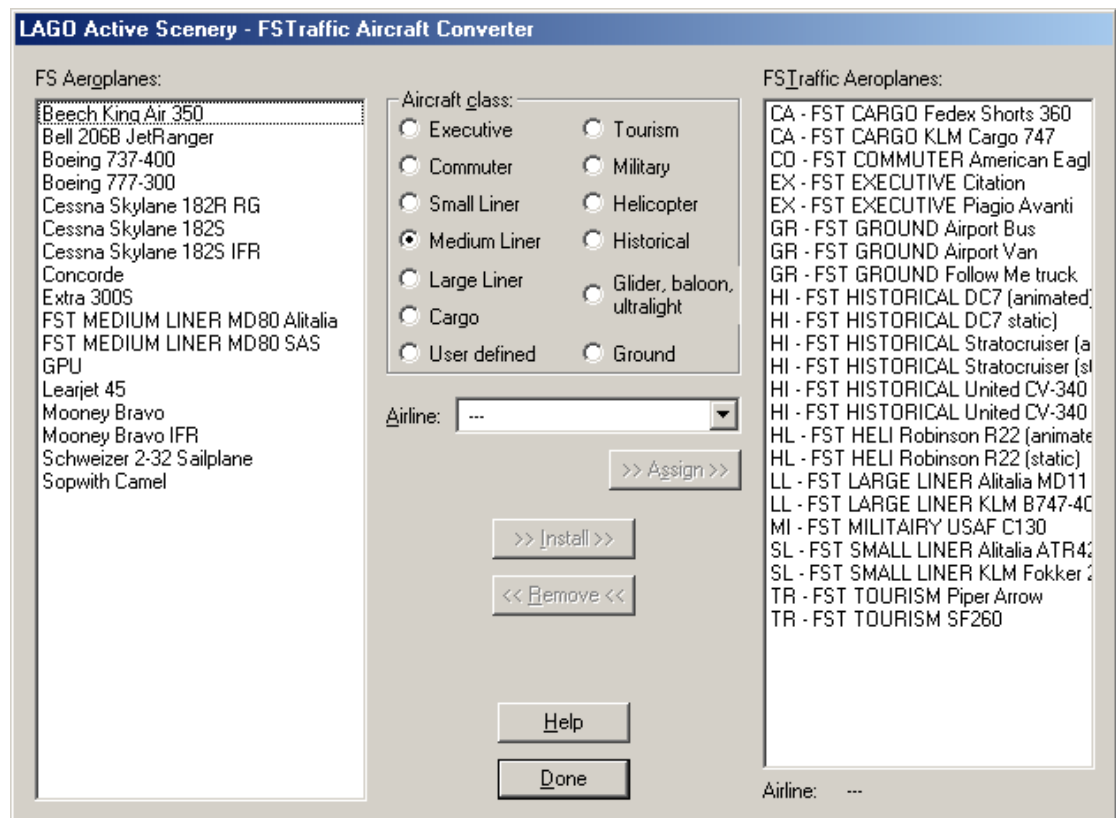
Converting Aircraft

You will need to convert some airplanes before you can use FSTraffic. Without converted airplanes you will not see any moving or static objects. For the FS2000 version some planes have already been converted after installation, for the FS98 this is not the case.

Adding aircraft to the database

2. Open the "LAGO | FSTraffic | Aircraft Converter..." menu.
The aircraft converter dialog box will pop up on the screen. The dialog box is divided into two lists:
 - "FS Aeroplanes:" This list shows all the installed aircraft THAT HAVE NOT BEEN CONVERTED YET!
 - "FSTraffic Aeroplanes:" This list shows all the aircraft already converted for FSTraffic usage.

NOTE: Both lists allow multiple selections.



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NOTE: To exit the converter dialog box at any time, click on the <Done> button.

3. In the FS Aeroplanes list select the airplane(s) you want to convert.
You do NOT need to use [SHIFT] or [CTRL] keys for multiple selections, just select each aircraft you want to convert. If you select an aircraft by error, click on its entry again to deselect it.
4. In the "Aircraft class:" area, located in the middle of the pop-up menu, click on the class you want ALL the selected airplanes assigned to.
5. If you like you can select an airline for the selected aircraft. Refer to the chapter on Airlines on how to use this feature. If you have no airline preference or are uncertain select [---] (meaning "No Airline").
6. Click on the <Install> button to start the conversion.
A progress bar will be shown during the conversion progress. Once the conversion process is started, it will not be possible to stop it. Every aircraft you convert will need some hard disk space (the space will vary from aircraft to aircraft). For further information, refer to "Technical NOTE: The converted airplanes library" in the following section.

If one or more selected aircraft cannot be converted, a message will be shown on the screen notifying you of the inability to convert. The aircraft will be removed from the "FS Aeroplanes:" list and as soon as the conversion of airplanes is completed both lists are updated.

NOTE: After you have converted an aircraft you can remove it from the simulator, it is not needed to be installed after it has been converted.

WARNING !!

FS98: The FSTraffic player is immediately notified of newly installed airplanes, so they will start to appear in the area without the need to restart FSTraffic or FS98.
FS2000: **After having converted one or more airplanes, you must restart FS2000.** If you do not restart FS2000 newly converted airplanes will NOT be shown, moreover you may get a message reporting that one or more library objects are missing. This could lead to serious problems in your plane database!

Removing aircraft from the library

1. Open the "LAGO | FSTraffic | Aircraft Converter..." menu.
2. In the "FSTraffic Aeroplanes:" list select the airplane(s) you want to remove.
You do NOT need to use [SHIFT] or [CTRL] keys for multiple selections, just select more than one aircraft by clicking on each aircraft you want to convert. If you select an aircraft by error, click on its entry again to deselect it.
3. Click on the <Remove> button.
A progress bar will be shown. Once the removing process is started, it will not be possible to stop it. Every aircraft you remove will free up some hard disk space – varying from aircraft to airplane.

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How to change Airline or Class of a converted aircraft

To change the Airline assignment of a converted plane, first select it from the FSTraffic Areoplanes column. If you have only one aircraft selected you will see the assigned Airline under the column. If you have more than one plane selected the one with the 'cursor' (dotted rectangle) will be the one for whom the airline is shown. Now select a new Airline and click < Assign>. To change the Class of a converted plane the plane will need to be removed from the Converted planes list as described in Removing Aircraft and reconverted. NOTE: This affects the single aircraft identified by the rectangular list cursor, not the selected aircraft.

Aircraft Classes

There are 13 classes of 'aircraft' in FSTraffic 2.0. Of these 12 have been determined by us. When you convert an aircraft you will have to assign it to a class (and a airline if desired). Each track is linked to one or more classes and during playback the aircraft that are used are taken from the class that is assigned.

Large liners	Boeing 777/747, Airbus 340 / 380
Medium liners	Boeing 737, Airbus 320
Small liners	ATR 42, Fokker 50, Saab 2000
Commuter	Dornier 228, Shorts 360
Cargo	Boeing 747 Cargo
Executive	LearJet 45
Tourist	Cessna 182
Military	C130, F16
Helicopter	Bell 206
Historical	Sopwith Camel
Glider/Balloons/Ultralights	Schweizer 2-32
Ground	Cars, busses
User definable (1)	Anything you like

In general you should always use the class that is most suitable but there are conditions where this may not be exactly what you want to do. For example, if you are creating an area with a lot of historical airplanes you might like to have Large Historical, Small Historical and Military Historical aircraft categories. Unfortunately because there is only one Historical class you will have to use other classes as a substitute. You could use the User Definable for one group and, if you are sure you are not going to use Gliders/Balloons/Ultralights in ANY area, you could use that class for another. But make VERY sure you document this well and be sure to provide this information when you exchange tracks!

Classes are used to match recorded tracks with aircraft in a sensible manner. You can assign both aircraft and recorded tracks to classes, however each track can be qualified with several classes in any combination. This allows variety when there are few aircraft representing each class; when a track is about to be played back, an aircraft is randomly chosen among all the aircrafts of all the classes assigned to the track.

Why you don't want to convert some planes.

It is wise to keep in mind that if a plane is converted that has a massive amount of textures and a very complex structure this will cause more stress for the display engine in FS2000. While the previous version of FSTraffic could only convert planes that had limited textures (most of them not more than 512 Kb of

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textures) the new version has almost no limits. There are many planes for download that have up to 15 Mb of textures. Although not all of those are loaded all the time it is obvious that using 10 of these planes as static aircraft will slow FS2000 down considerably. In this situation it could very well be that 60 Mb of textures will have to be loaded. As this is probably more than your graphics card has memory for, it will cause serious delay. The basic programs of FSTraffic are faster than it was before and uses even less resources than the previous version did. But the files can be MUCH bigger and could cause serious lack of performance. Bottom line, it may look great but you might be looking at a slide show. To illustrate, here is an example of what complex planes do to your frame rates:



The third red number shows the average frame rate (from left to right, actual, minimum, average and maximum). In this test the planes are located in the center of the Atlantic Ocean to avoid any interference from other scenery. The very nice looking complex B747 on the top produces a frame rate of 23 and the very simple B747 below will give you 120 fps. This is absolutely not a problem with the aircraft; it is just what complex planes do to your frame rate. As you normally sit in the aircraft you do not notice this effect much. But imagine 10 of these complex planes on a complex airport and you can guess what the resulting frame rates will be. Base line, the simpler the plane the better it is for FSTraffic.

How to find and select aircraft that can be converted?

You can find hundreds of planes that can be converted on the major websites that help flightsim users. Well known sites like www.simflight.com, www.flightsim.com, www.avsim.com, www.microwings.com and www.fsplanet.com have planes for download that can be used. On www.fstraffic.com (the homepage for this product) we'll keep a list of planes as well. The best way to select planes that are suitable for FSTraffic conversion is to look at the size of the texture directory inside the aircraft directory ([FS]\AIRCRAFT\YOURPLANE\TEXTURE...). If this is very large (let's say over 3 MB) it will probably mean that the converted plane will be very complex and will put a huge load on your system.

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Technical Notes on conversion

Where the aircraft are stored

Technical note:

FS2000 only: The converted planes are now installed in a separate Scenery/Texture directory inside the FSTraffic directory and will no longer be copied to the main FS2000 Scenery/Texture directory. This will make it necessary to add an entrée for this directory in the Scenery.cfg but it will make maintenance a lot easier.
FS98 only: The converted planes are stored in the standard [FS98]\Scenery and Textures directories.

Aircraft Containers

Technical note:

Aircraft in the "FS Aeroplanes:" and in the "FSTraffic Aeroplanes:" lists are matched according to a simple ASCII (case sensitive) comparison of the names used in the AIRCRAFT.CFG files related to each plane; for this reason, if there are several aircrafts – even different ones – but with EXACTLY the same name, it is not possible to convert all of them (the first converted one will hide the others).

Example: You installed two B747s. The first one is placed in the [FS]\AIRCRAFT\B747_1 directory and the second one in the [FS]\AIRCRAFT\B747_2 directory. Both AIRCRAFT.CFG files call their aircraft with the same name – see the "title=" line:

[FS]\AIRCRAFT\B747_1\AIRCRAFT.CFG

[FS]\AIRCRAFT\B747_2\AIRCRAFT.CFG

[fltsim.0]

title=simFlight.com B747-400

...

[fltsim.0]

title=simFlight.com B747-400

...

In such case only the first aircraft will be converted!

Why aircraft textures need to be moved

Technical note:

That's easy: the Texture sub-directory in the aircraft own directory cannot be accessed by FS2000, unless the BGL (scenery file) containing the corresponding object is put in a Scenery directory parallel to Texture and the Aircraft directory is also include in the Scenery.CFG file.

This would require additional items in the Scenery.CFG file, ONE FOR EACH CONVERTED AIRCRAFT. The Scenery.CFG is known to have some limitation, which proven insufficient even to hold all the sceneries of some users. It certainly would be unable to accommodate large numbers of converted aircraft possible in FSTraffic.

Additionally for FS98, textures MUST reside in the main Texture directory. Because this is the only place looked for by FS98 for textures of objects not called by scenery BGL or directly by the program, as it is the case of FSTraffic.

Why textures need to be renamed

Technical note:

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Strictly speaking, they do not need to be renamed. However, once all the textures of all converted aircrafts are lumped together in a single directory, the probability of having several textures with the same name increases and, as is well known, it is not possible to have two files with the same name in the same directory. This would require discarding an aircraft that uses one or more textures whose name already exists in the Texture directory.

Since the first version of FSTraffic, textures have been renamed using number-coded file names which contain the class number, the aircraft sequential number within the class and the texture sequential number within the aircraft. This ensures that no duplicate texture name is used.

Why renaming textures could generate problems

Technical note:

Generally speaking, textures make up are the most visible parts of an aircraft. So if there is a problem using textures its quite apparent. The resulting weird look, however, is not necessarily always texture related. It may be caused by other problems that only become to light when viewing an aircraft. The major problem actually related with textures comes from the fact that, once the texture file is renamed, the instruction(s) in the aircraft drawing code which reference this texture must be updated so that the file name stored in the instruction itself is changing too.

In order to do that, the aircraft converter scans the entire aircraft drawing code, one drawing instruction at a time, looking for texture instructions and updating the file name stored in each. To do that, the converter does not rely in its own knowledge of the drawing language, which may be incomplete or outdated; rather, it uses a specific FS API function which, given the memory address of a drawing instruction, returns the address of the instruction following it.

If, in the middle of the drawing code, something else is embedded which is not analyzed as drawing code, the converter must stop because, in general, it cannot have any clue where the embedded portion ends and then where to resume scanning. Any texture instruction in the part not scanned will not be updated and will contain a file name no longer existent. When the FS renderer displays the converted object and meets one of those instructions, it will not be able to load the referenced texture and it will default to the last used texture. This may be anyone of the textures in use, from the aircraft to the surrounding scenery, etc.

Embedded non-scannable parts usually come from the editing of the aircraft drawing code (either manually or with tools) without removing the left-over portions of the old code, maybe partially over-written by the new code and then not analyzable.

Previous versions of the converter scanned the drawing code as far as possible, without further checking. This worked out well enough for 'legacy' aircraft, mainly based on FS5 and FS95, but raised problems with the last generations of aircraft. The last versions of FSTraffic are more strict and reject an aircraft if scanning stops too early. Currently, "too early" means more than 1KB before the actual end of the drawing code. If the unscanned part is shorted than 1KB, it is accepted, assuming that it contains copyright texts or similar additional data.

Some of the aircraft accepted by previous versions are now rejected by the latest version. The fact that they were previously converted correctly was purely by chance.

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This is even aggravated because the last version scans a larger part of the drawing code. The drawing code of 'legacy' planes was made of three parts quite distinct: 1) a prologue code setting up the environment and calling the other parts, 2) the code drawing the internal views and the virtual cockpit, 3) the code drawing the external view. Only the last part was needed for converted aircrafts and only the last part was scanned.

In several more recent aircraft, however, part 2) happens to contain subroutines which are called by part 3) and then may be needed in the converted aircraft. The last converter version, then, exports both parts 2) and 3) to the converted aircraft and needs to scan both.

3) Another issue related with texture renaming has to do with the new drawing instruction for bitmaps added in FS2000. While in the old instruction, the room for the file name was of fixed length, in this new instruction it is of variable length and is adjusted instruction by instruction to contain just the required length for "that" file name. It may then happen that the number-coded file name used by FSTraffic does not fit into the available space.

In this case (i.e. new bitmap instruction AND file name room too short), the bitmap is not renamed, but copied to the destination directory under its original name. This re-introduces, albeit on a smaller scale, the possibility of name clashes and may then lead to rejecting an aircraft because it uses a bitmap name that already exists.

Why some planes cannot be converted.

Technical note:

In this version of FSTraffic it is possible to convert more complex planes than before. We have however been forced to limit the conversion to models we fully understand during conversion. If there is any part of the code that does not fit our matrix the conversion will be refused. This limitation is unfortunate but absolutely vital if FSTraffic 2.0 is to be as stable as previous versions.

Many planes that have been modified with Aircraft Animator (© Abacus) can be converted and will show the animations to some degree in playback mode (flaps, gear, spoiler etc). An exception has been made for animated propellers. Animating them is extremely processor intensive and slows the flightsim to a crawl. If the designer has created an object to represent the rotating propeller (like a transparent disk or a circle) this will be shown as the engine is started. If this were not possible the propellers would be displayed as they are. This limitation most probably will not be solved.

This version of the converter also allows the conversion of many planes with large, complex textures and special night textures. There is however another limitation here. Most plane designers paint the night textures to be most suitable for flight and not for static use. The result of this is that planes used as statics at night are shown with lights like a Logo light on. Again, this is a limitation that cannot be solved.

You might encounter some other limitations while converting. For example if the converter finds code it does not understand it will not convert to avoid instability. Also you might be told that the plane cannot be converted because the texture name is already in use. Unfortunately it is not possible to tell which previously converted plane is the cause for this conflict. There will be planes that do convert but still have problems. For example textures not shown, incorrectly shown or

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that create instability. These planes have most probably been modified manually. Examples like that are the great AETI B747 and our own Mad Dog 98 and Mad Dog 2000. These planes will create problems or will not convert, simply because we do not understand the code. Other planes are rejected because the checksum is not correct. There is unfortunately a large number of airplanes available that is simply faulty in file length or structure. It is amazing how indulgent FS2000 handles that code, but is absolutely a cause of crashes in FS2000. You can see this in how stable FS2000 is with the standard planes, and then how unstable some add-on planes make it.

Included aircraft (FS2000)

For FS2000 a number of aircraft have already been converted during installation and these can be seen immediately (for example on the FSTraffic Test airport). If you have removed the converted version or would like to change the assignments of the converted airplanes, just convert them again. The planes can be selected as 'normal' aircraft in FS2000 but they do not contain a panel or a flyable flight model. They are solely intended as planes to be converted for FSTraffic. Should you prefer to remove them from the selectable aircraft list this is done by removing the folder called FST from the [FS2000]\AIRCRAFT directory. All the aircraft are in this one folder. The aircraft listed below have been included in this version of FSTraffic. Please note that for the majority included we do NOT hold copyrights, but we received permission from the original authors to include them in this product, for this we are very grateful.

Class	Model	Original	Original name / Location
Executive	Piagio Avantii	M. Cunningham	
Executive	Cessna Citation	Captain Slug	CJ500_CS.zip www.simflight.com/cs
Commuter	American Eagle Shorts 360	Mark Lam	ml_ae360.zip www.flightsim.com
Small Liners	KLM Fokker 27	LAGO	None
Small Liners			
Medium Liners	Alitalia MD80	LAGO	Mad Dog 2000 www.lagoononline.com
Medium Liners	SAS MD80	LAGO	Mad Dog 2000 www.lagoononline.com
Large Liners	KLM 747-400	LAGO	-
Large Liners	Alitalia MD11	LAGO	-
Cargo	KLM 747 Cargo	LAGO	-
Cargo	FEDEX Shorts 360	Mark Lam	ml_fx360.zip www.flightsim.com
Tourist	Piper Arrow	Captain Slug	Arrow_CS.zip www.simflight.com/cs
Tourist	SF260	Angelo Moneta	s26mp98.zip intercity.it/moneta
Military	C130	Angelo Moneta	? intercity.it/moneta
Helicopters	Robinson R22 (2)	Rob Thorne	R22hv303.zip www.simair2000.com
Historical	United CV-340 (1)	Gibson/McQueen	340ual2k.zip members.aol.com/TGFltsim
Historical	Pan Am. Stratocruiser (1)	Gibson/McQueen /Cristina	b377pafs25.zip flightsimmers.net/airport/airliners
Historical	Pan Am DC7 (1)	Gibson/Follas	dc7cpaa2ku.zip members.aol.com/TGFltsim
Glider	-	-	

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Ground	Airport Van	Christian Friedrich	Vitfw21.zip www.flightsim.com
Ground	Airport Bus	Christian Friedrich	Fstbus11.zip www.flightsim.com
Ground	Follow-Me car	Christian Friedrich	Cffollow.zip www.flightsim.com
Ground	Ground Power Unit	Christian Friedrich	Cffollow.zip www.flightsim.com
User defined	-	-	-

⁽¹⁾ These aircraft will show flying with stopped props if they are used on standard ILS tracks (they will normally not be seen on these tracks but if you convert them as ML and LL class or if you assign standard ILS tracks to this class using the editor they can be used for that). If you want to use them as ILS traffic convert the ILS version that is also provided but not converted after installation.

⁽²⁾ This helicopter is provided in two versions, one marked as "Static" and one as "Animated". The first shows a static rotor and the second hides this. The first is to be used when you want to show helicopter tracks, the second if you want to place a Static helicopter. After installation only the 'Static' version is installed! If you want to assign tracks to any of these two you can assign both of them to a separate 'Airline' and use the editor to make sure each is used for the correct track/static.

NOTE: You will notice a lot of KLM and Alitalia planes in this list. This is because many of these models have been used in our Italy 2000 and Amsterdam Schiphol products. Some of the models are supplied in both Animated and Static versions. This is to ensure they are shown correctly. When you want to use one of the aircraft in Static mode we suggest using the Static model because it will show propellers. The animated models will always show propellers as so called 'prop circles'. To make sure you only see one of the models you will need to use the Airline feature!

Included Aircraft (FS98)

For FS98 a limited number of planes have been included, these are identical to the aircraft in the previous version of FSTraffic. These are NOT converted after installation and must be converted before the product is used. As noted previously at least one plane in the Medium Liner and the Large Liner Class must be converted before the ILS traffic is shown. You can try to convert the aircraft included for the FS2000 version in the FS98 version of FSTraffic. To do this copy the [FS2000dir]\Aircraft\FSTraffic directory (with all its subdirectories) into the [FS98]\Aircraft directory and use the converter. But we do not guarantee this to function in any way.

Class	Model	Original
Executive	-	-
Commuters	-	-
Small Liners	SimFlight ATR 2	LAGO
Medium Liners	SimFlight B737	LAGO
Large Liners	SimFlight B747	LAGO
Large Liner	SimFlight A300	LAGO
Cargo	-	-
Tourist	SimFlight Glastar	LAGO
Military	-	-
Helicopters	SimFlight Bell LongRanger	LAGO
Historical	-	-

Glider	-	-
Ground	-	-
User defined	-	-

Airlines

The Airlines concept has been introduced to increase the realism of the tracks. One of the main improvements users suggested was the ability to assign specific planes to a track or static. This is not as easy as it sounds because we want to keep the exchange of files possible without adding problems. We solved this by using Airlines. They are used for both airplanes and tracks:

- **Airplanes** are assigned to an airline when they are converted for use with FSTraffic.
- **Tracks/Statics** are assigned to an airline when they are created, either automatically or by manual recording. Assignments can be later modified with the editor (see Track Properties dialogue).

Each track (or static object) of each airport can be assigned a different airline and a better realism can be achieved by a careful blending of these assignments. Once a track is assigned to an airline, it will be played back only by airplanes belonging to this airline, unless no airplanes happen to belong to it. In which case all airplanes suitable for the same class will be used. Airlines do not *replace* aircraft classes, but *intersect* with them. For instance, if a track is qualified as *class medium liners* and *airline Alitalia*, it will be played back only by airplanes belonging *both* to the medium liner class *and* to the Alitalia airline. Only if there are no medium liners assigned to Alitalia, will the track be played back by *all* medium liners, regardless of their airline. This is better than leaving the track empty. But, in no case will airplanes of another class will be used.

In addition, an aircraft can be assigned to no airline (listed as "none" in the airline drop lists). This is suitable for airplanes that do not have a relevant company connotation, like tourism airplanes, or for ground vehicles. Also tracks can be assigned to the "none" airline. In this case, the track will be played back by *all* airplanes of the required classes, regardless of their airline, including (but not limiting to) airplanes belonging to "none" airline.

To achieve the best overall effect, individual tracks of an airport can (and should) be assigned different airlines, taking into account the airport size and traffic type.

The automatically created ILS tracks also use the airline concept. When they are played back they look for a plane of the correct class (Large Liner and Medium Liner) AND a suitable Airline. For this purpose we divided the world into sections and assigned the most logical airline for that area. If there are more airlines suitable for that area we had to decide on the most suitable one. For example, for Italy we included three airlines in the Airline list but the standard ILS tracks will always be played back using the Alitalia livery. If there is no airplane converted for that Airline any plane from the same class will be used. Of course by using the editor these assignments can always be changed!

The FSTraffic Track editor

Important NOTE: To start the editor from the "LAGO | FSTraffic | Editor " menu the editor must be started at least once from the windows Start Menu (you will find it under LAGO | FSTraffic | Editor) to allow the registry settings to be stored.

With the editor it is possible to modify tracks made in FSTraffic. The following actions are possible:

On FSTraffic Airport file level (*.ST files):

- Rename the airport (but not the ICAO code).
- Set a channel delay for this collection of tracks to overwrite the standard setting of FSTraffic.
- Change the Lat/Lon for the center point of the airport.
- Display the Take-off tracks, Landing tracks and Ground tracks and the Static aircraft (selectable for all densities).
- Print the tracks displayed on screen.
- Save under another name.

On Track level:

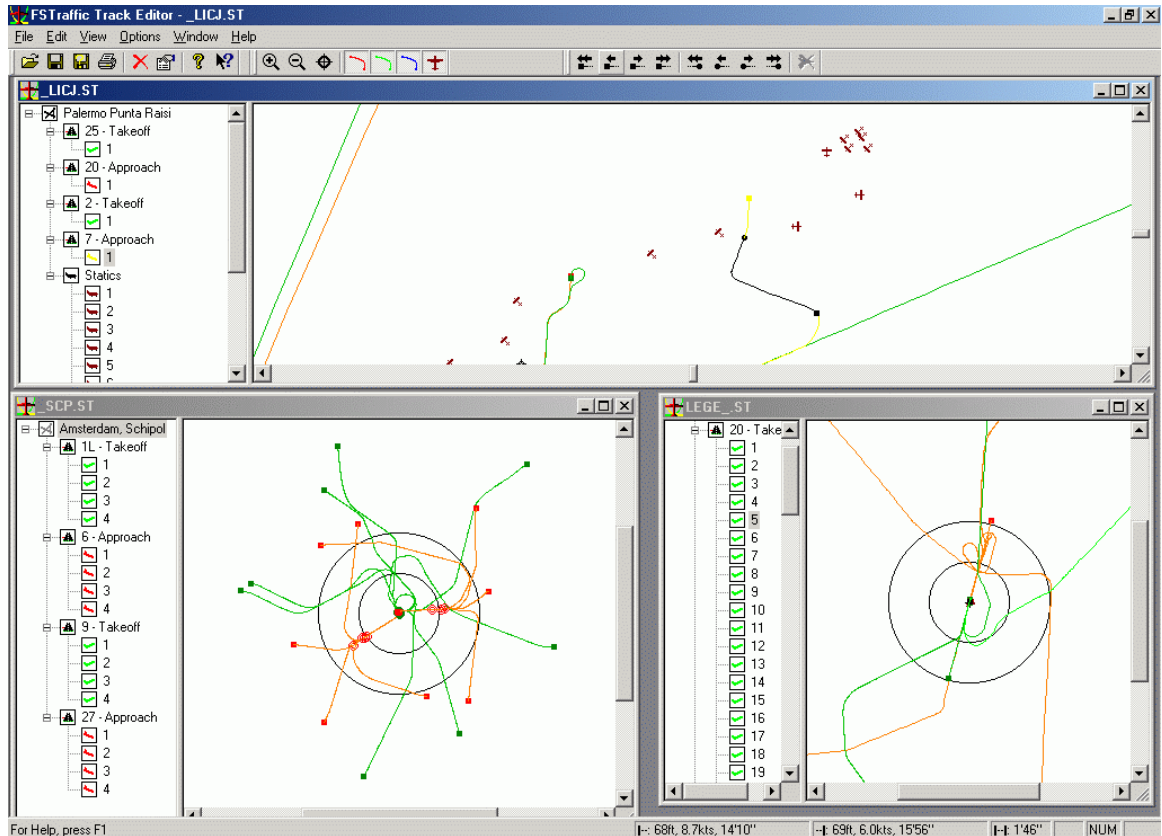
- See the length of the track in minutes/seconds.
- Delete a track.
- Select another class to a track (or more than one class).
- Change the speed of a track (or a section of a track).
- Select the airline to be used by a track.
- Correct the height of a track to solve floating tracks or statics.

It is NOT possible to modify the path a track uses or to create a track from scratch in the editor.

User Interface

You will have little problems using the user interface of this program. The help menu is fully implemented and will give some additional help. You can dock and undock most menus and you can open more than one file to see and edit more than one at the same time. Almost all actions that can be done with a mouse can be done with the keyboard. Check the help menu for more information.

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Full user interface with three files open and part of a track selected (the black section of the yellow track).

Main screen

The main screen is made up of two areas (per open file window).

- The left area is the 'Tree view' that lists all tracks that are in the opened file. Click on the + signs to expand a section. The tracks are listed per runway.
- The right area is the 'Map view' that shows the tracks in graphical form.

You can open more than one file (using the FILE | OPEN... menu) or you can open more than one window to look at the same file (using the WINDOW | NEW WINDOW menu).

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Map View Toolbar



_____ Zoom in and out



_____ Center view on airport reference point



_____ Show or hide approach tracks



_____ Show or hide take-off tracks



_____ Show or hide ground/taxi tracks



_____ Show or hide Statics (also see under VIEW | STATICS)

Track Segment Toolbar



_____ Move the initial point ("From") back at least one minute.



_____ Move the initial point one sample back.



_____ Advance the initial point of one sample.



_____ Advance the initial point of at least one minute.



_____ Move the final point ("From") back at least one minute.



_____ Move the final point one sample back.



_____ Advance the final point of one sample.



_____ Advance the final point of at least one minute.



_____ Delete the standard ILS tracks

Status bar

I-: 2425ft, 105.1kts, 6'10" _____ Track segment start point (with altitude, speed, time)

--I: 2499ft, 115.4kts, 6'28" _____ Track Segment end point (with altitude, speed, time)

I-I: 0'17" _____ Track segment length

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Airport properties

Right click on the airport name (or on the Airport Reference point ) and the Airport Properties screen will appear. In this screen:

- You can change the airport name, as it will appear in FSTraffic.
- You can also set a default Channel Delay for all tracks in this set. This value overrides the value set in the main FSTraffic Parameters menu (inside FS98/2000). If you set it to [0] the default delay set in the "LAGO | FSTraffic | Parameters" will be used.
- It is also possible to change the center point of the Active Radius (see the main FSTraffic manual). This allows you to offset the active radius from the center of the airport and makes it possible to activate traffic in a more controlled way. For example, if you offset the center to the north of the airport, tracks will start sooner when you approach the airport from the north and later when you approach the airport from the south.
- You cannot change the ICAO code field.

Track Properties

Right click on one of the tracks in the left pane of the screen (or on the starting or ending point of a track ) and you will be shown the properties of that track. In this screen:

- You can see the duration of the track.
- You can change the class of the aircraft that will use the track (more than one selection is possible, the planes will be selected at random from the selection).
- You can tune the position of the track. See the next paragraph on more information on this.
- You can select an airline to select the planes from that will be used for this track.

Deleting the standard ILS Tracks

When you record your own tracks for an airport you often want to remove the standard ILS tracks that were automatically created for that airport. In the editor this is made easy. But before you can delete all standard ILS tracks you will need to add a user created track or static to the file to prevent the file being empty when you remove the ILS tracks.

To remove all standard ILS tracks you simply click on the  icon and automatically all ILS tracks will be selected (one by one) and you will be asked to confirm each deletion. If the icon is not in color but is gray, the file does not contain any ILS tracks or does not contain at least one user created track or static. Take care, deletion of these tracks is NOT reversible!

Modifying the height and pitch of a track

The Center of Gravity height can be adjusted to correct floating or sinking aircraft. Sometimes the data in the aircraft files is not clear or conflicting and in these situations it can happen that a plane is displayed too high or too low. To correct this you can modify the height of the track. Setting a higher value will display the plane lower; a lower value will raise the plane. This is not very logical but it is the way FS handles these things. Pitch control is implemented for Statics but not for moving Tracks. Increasing the angle shown in the dialogue will raise the nose of the object, decreasing the angle will lower the nose.

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Modifying a section of a track

This will be getting complex so pay attention. Each track has a FROM point (where the track started) and a TO point (where the track ended). As soon as you select the track you will see that the FROM point is indicated by a ■ symbol and the TO point is marked by a ● symbol. With the 8 little icons on the Track Segment menu bar (make sure it is displayed by using the "Toolbars | View | Track Segment") you can now move both points. The area between the two points is the Active Track Segment and it can be manipulated by selecting the "Edit | Track Segment..." menu. As soon as you use that menu item you see that you can modify the speed and the altitude.

On the Status Bar (make sure it is displayed by using the "View | Toolbars" menu) you will now see some very important information. It displays the speed, altitude and timing of the FROM and TO points, it also shows you the length (in time) of the segment that is selected.

You can modify any point in a recording. If you recorded at high density (1 second interval) you can modify more points but the file will get a lot bigger and the impact on your performance will be higher. FSTraffic will always try to move the aircraft (or other object) smoothly from one recording point to the next.

Modifying the speed of a segment of a track

Modifying the speed of part of a track can be very useful but also complex. To do so you activate the [Change Speed] option and select which form of change you want.

Set selection to constant speed does just that. It will set the speed you enter for that segment of the track.

Bring selection to target speed will slowly increase or decrease the speed of that segment. At the FROM point it will start with the speed the track has at that moment and it will increase or decrease the speed and bring the speed to the speed you selected at the TO point.

Example; a good example of the use of both functions is the complete speed change of a take-off track for a Learjet. This track starts from a stationary position on the platform and ends many miles from the airport. In this example we will exchange ALL speeds from the recording and exchange them with our new data. To start you select a track segment for each stage, for example the first 100 meters for the second segment, all the way to the holding for the third segment, from the holding to the starting point for your take -off etc...etc...

Stationary	0 knots
Start to roll	Bring speed to 15 knots
Taxi	Set speed to 15 knots
Line up	Bring speed to 0 knots
Take-off	Bring speed to 135 knots
Climb out	Bring speed to 180 knots
Fly SID	Bring speed to 210 knots
Accelerate to climb speed	Bring speed to 250 knots
Fly out under FL100	Set speed to 250 knots.

In a less complex example you could 'correct' a mistake you made. For example when you forgot to reduce speed when you descended below FL100, or to correct some wild fluctuations in taxi speeds.

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Modifying the altitude of a segment of a track

By now you probably realize that changing the altitude will work the same way. Of course you could create some unwanted effects, for example if you have a track that is steady at 1000' and you change the altitude of a segment to 500'. If you would look at this track you would see the plane fly steady at 1000', then jump down to 500' and after a while jump up to 1000'.

FAQ

Unless indicated otherwise all these remarks are for FS2000 only.

General

Q: I went to the "LAGO | FSTraffic" menu and it was all grayed out? Am I doing something wrong?

A: Probably not but check that "Active Scenery" is enabled (checked on) in the LAGO menu to be able to use any Active Scenery product

Q: Why does FSTraffic not start automatically anymore?

A: It might be that the database needs updating, Rebuild the database with the LAGO | FSTRAFFIC | Rebuild Airport Registry menu.

Q: I get all kinds of "Object not Found" errors as soon as FSTraffic starts up!

A: Make sure you have the scenery library for the FSTraffic objects activated. Check this in the "World | Scenery Library" menu. If these errors are not solved by this, reset the converted aircraft database.

Q: Won't all this code make my FS2000 even slower?

A: Yes, it will. Certainly if you add complex aircraft FS2000 will become noticeably slower. But this is normal, complex shape take time to process. If you keep your planes simple FSTraffic will not make a big impact on FS2000/98

Q: I think I got a conflict with another third party add-on.

A: This is possible with add-ons that use a DLL to function. Some of them are not written to the exact standards that are needed and could conflict. The best-known programs (for example those used for communication purposes) are almost without exception well written and should not cause any problem. Conflicts with plane, scenery and adventure add-ons are highly unlikely. We cannot guarantee FSTraffic to work with any other software than a standard FS2000 however. That's why the program can be tried before buying so you can see for yourself.

Q: Will there be an FS98 or FLY! Version?

A: No, that market is simply too small for us.

Q: What is the secret of flying?

A: According to "The Hitchhikers Guide to the Galaxy" the secret is to throw yourself at the ground and trying to miss.

Customer Support

Q: Why is the manual and customer support only in English?

A: We got customers from the Samoa Island (hi John!) to Antarctica (hi Durk!) and we simply could not support all languages spoken on this globe.

Q: Customer Support does not answer (soon enough)!

A: Our Customer Support staff will do its best to answer all questions as soon as possible but demand can exceed our possibilities at certain moments. You can help to avoid this by making your questions as short and precise as possible. Stating that "it does not work" does not help us much in finding the answers and will force us to contact you again. Understand that we will always answer the questions that are well stated and well documented first and we will leave the "it doesn't bloody work" messages to the moment we have time for them. Did you know that 82% of the Customer Support could be answered by reading the manual? Do it before you ask us. Really, almost everything you need to know is in the manual. By the way, none of us is a native English speaker (as you might

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have guessed by reading this manual) so we do not care how crummy the message is. It is about FSTraffic, not about perfect English, okay?

Install and de-install

Q: I manually removed the FSTraffic files and I am not able to install the product!

A: Delete one of the following files - depending on the FSTraffic version you installed: [FS98]\LAGO\FSTraffic\FSTraffic.ISU or

[FS2000]\LAGO\FSTraffic\FSTraffic 2000.ISU and launch the installer again.

NOTE: Only the latest installer, 103 and above, will be able to reinstall the product this way. We warmly suggest to use the supplied uninstaller the next time you need to uninstall FSTraffic!!

Q: The installation does not work.

A: Make sure you have ALL applications closed, even those started automatically. If you have moved FS2000 to another location the installation will not function because like all good windows applications it reads the correct paths from the registry.

Q: I get an error like "Files not Found" during the installation!

A: This error can be prevented by choosing another CD drive (such as a CD writer, DVD) on your system.

Converting planes

Q: Why will this plane not convert and why does this plane look bad after conversion? What do the error messages during conversion mean? Why do textures need to be renamed? Why do I get texture name conflicts?

A: Read the Technical Notes in the chapter on Converting Aircraft for better understanding of these issues.

Q: Why do some plane float above or below the ground?

A: This is an effect that originates in conflicting information in the *.AIR file. You can edit this file with many editors that are freely available on the Internet. Look for the Record 301 "Fuselage", line #4, "Cog Height from Ground" parameter and change that. Lower the number to lower the plane, raise the number to raise the plane. These changes should not affect flight characteristics. You will need to reconvert the aircraft and rerecord tracks for this aircraft.



Q: Can the aircraft be removed from the simulator after it has been converted?

A: Yes, it is not needed anymore. You might want to zip it up and store it for later use. Personally I have a NOT_IN_USE folder in my [FS]\Aircraft folder where I store all planes folders I want to keep but not need to have installed all the time. This speeds up the starting of your simulator.

Q: Do I have to stop FS2000 to install a new aircraft?

A: No, simply copy the new plane folder to the [FS]\Aircraft directory and you will see it in the Aircraft menu's of FS and FSTraffic.

Q: How do I check if a aircraft looks good after conversion?

A: By going to the FSTraffic Test Airport and you will probably be able to see it there. If not reset FSTraffic until it appears.

ILS Database Creation

Q: The runway has an ILS but the ILS Database Creator did not create an ILS track for that runway!

A: Probably the ILS has an offset (it is not aligned with the runways). Look in the [FS2000/FS98]\LTA\FSTraf.ini file to see how to edit the ILSTolerance parameter to make allowances for these runways.

Recording Traffic

Q: The traffic seems to pile up, can't I disable or change the collision detection?

A: Sure, look in the [FS]\LTA_LTA.INI file to see what changes can be made

Q: Why is the playback not in the same speed as my recording?

A: That can happen when your frame rate is much lower or higher during recording than during playback. Avoid having multiple windows open during recording.

Q: Can I assign more than one Airline to a single track?

A: No, the database system does not allow that.

Q: Why do tail-wheel planes float their tail?

A: Because tracks are recorded with pitch attitude. To record a track for a tail-wheeled aircraft make sure you record it with a tail-wheel aircraft and only play it back with tail-wheeled aircraft. If it is a Static you can modify its pitch with the editor.

Q: How do I make sure this and only this model is shown on this track or as this static?

A: By converting that model into its own User Defined airline and attaching that airline to the Track or the Static in the editor.

Q: Why is xyz airline not included in the list?

A: Because there are more airlines than you have space for your hard disk. You can add them by editing the [FS2000/98]\LTA\COMMON\Areas.reg file. You can change one of the User Defined airlines into your own choice but keep the structure of the file as it was!

Q: Why is ZYX airline selected as the default for this area / it makes no sense to have this airline as default for this and this area!

A: We had to make some compromises in this area and always choose the airline that seemed most logical to us. The areas are rectangles and as we all know countries are mostly not in that shape. This might cause some airports close to borders to be included in the bordering area. There is no user intervention possible but if you let us know we will try to fix these problems.

Playing Traffic

Q: Why don't I see traffic?

A: First check with the "LAGO | FSTRAFFIC | Airport Status" command to see if there is indeed no Active Runway.

A: Possible because you did not have aircraft converted in the classes needed by your tracks (ML and LL for the standard ILS traffic). In the FS98 version you need to convert planes before you can see any traffic.

A: Possibly because FSTraffic has problems starting the tracks. This can happen when there is no wind. Set a very light ground wind (1 knot is enough) to activate the runways that you want to see active.

A: Perhaps the frame rate setting is too high?

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A: Perhaps it IS running and planes are about to arrive at the airport, always give the traffic some time to appear (you could set the simulator to double speed for a while to speed this period up).

A: All tracks might be used up, if possible set the number of Max number of aircraft" field ("LAGO | FSTraffic | Traffic Parameters..." menu) to a higher setting, 30 is max.

Q: I only see traffic on the runways and when it stops it disappears suddenly! / Why don't I see ground traffic or planes taxiing along?

A: The automated traffic (the ILS traffic) in FSTraffic is made by reading the scenery files and reading the runway and ILS data from it. Using that data we create all the traffic. However, only runways can be found this way, taxiways, terminals and all other visible objects are not defined as such and we can not know where they are. That's why we can't taxi planes from the runway to the terminals. You can of course see these objects and can create tracks for them. You can also download tracks other have made for airports at the www.FSTraffic.com Track Exchange pages.

Q: Why do some tracks/statics have a incorrect attitude (nose up or down)?

A: the problem is caused by recording these tracks with the MS supplied C182. Looking at the .AIR file of the C182 with AirEd, in the Fuselage section is the entry 'Fuselage Angle=-3.824' , and this is the cause of the problem. This airplane normally has a 4-degree approx. nose-up attitude on the ground, and I suppose that the track preserves this information and CAUSES ALL AIRCRAFT USING THIS TRACK TO HAVE A 4 DEGREE NOSE-UP ATTITUDE as compared with its normal pitch. I assume this error continues when in the air, but is less noticeable. However, I presume that all aircraft on this track will be pitched up by 4 degrees, probably for all flight conditions, ground or air. When I re-recorded the track with an airplane with fuselage angle = 0, the problem disappeared. The buried mains problem also results from this. If the lateral axis (pitch axis) is located forward of the main gear, then mains will be buried as the nose floats. (thanks to Steve Barasch for this information)

Q: The ground wind is reported wrong!

A: if you use the superb add-on FSUIPC made by Pete Dowson you should upgrade to the latest version. Check it out on <http://www.schiratti.com/dowson.html>

Q: I was just hit head on by a plane that used the same runway I was using. Why?

A: Check with the "LAGO | FSTRAFFIC | Airport Status" command to see what runway FSTraffic has activated.

A: If you get assigned a conflicting (with FSTraffic) runway you can disable the airborne tracks until you cleared the runway using the "LAGO | FSTRAFFIC | Parameters..." menu. This is very useful for online flights.

A: Change the ground wind to make sure ATIS and FSTraffic select the correct runway; you might like to restart the traffic after you changed the wind.

Q: As I get close to aircraft they seem to dissolve or behave strange.

A: Yes, that is a new 'feature' introduced by the FS2000 scenery engine. The higher you get the more distance you need to have from another plane to see it in detail. Certainly above 20.000 feet you see this effect. Of course, traffic separation would not allow you to get so close to another aircraft in reality!



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Q: In 3rd party sceneries aircrafts are displayed not lined up with the runway, taxiing next to the taxiways and taking off/landing next to the runways on the green grass.

A: FSTraffic gets the runway information (length, width, etc.) from the AFD file (it is the file used by FS to show data on the FACILITIES menu). Some scenery designers do not update the AFD, that is the reason why FSTraffic is not able to properly position its tracks in these airports.

Q: I see only the simple shape aircraft / I see no aircraft at night. How come?

A: Make sure you have the latest patch for FS2000 installed. This patch is called 2B and is different for the PRO and Standard versions. You can find them here:

Professional: http://www.fstraffic.com/3rdpty/FS2000_std_update2b.exe

Standard : http://www.fstraffic.com/3rdpty/FS2000_pro_update2b.exe

A: You did not convert any aircraft in the class that is required (at least LL and ML class).

A: Make sure you have the scenery library for the FSTraffic objects activated. Check this in the "World | Scenery Library" menu

Q: The simple shape of the aircraft (how it looks far away) does not match the model.

A: This can be, there are only a few simple shapes included to save frames and memory.

Q: Why do planes change into simple shapes and can't this be further away?

A: To avoid FSTraffic eating up too much of your precious resources and slowing it down. Remember it is 3dworld out there. If we double the range of the complex visual model the amount of planes that will be shown like this will increase a lot.

Q: Why do all the strobes light up at the same time?

A: That is how FS has this implemented, we can't solve that.

Q: Why are the planes at night hardly visible at about a mile and they light up like a Xmas tree slightly further away?

A: That is how FS has this implemented, we can't solve that. As soon as the simple model is shown the planes will be much more visible.

Q: I do not hear the wav files that are included in the track.

A: Remember wav files are not heard in SLEW mode.

A: Did you set the correct frequency to hear the file?

Playback timing and order

Q: Assuming we have a airport with a single runway 18/36, runway 36 is active and we have three arrival tracks and two takeoff tracks (a total of 5 tracks) for runway 36 running at an interval of two minutes. How would the traffic be played, at what moment, in what order?

A: If we want to keep the terminology used by the FSTraffic documentation, in this case we would have FOUR channels (each landing strip generates FOUR potential traffic channels: a landing channel and a takeoff channel for each direction. Landing on 36 is one channel, taking off from 36 is another channel; landing on 18 is another channel, taking off from 18 is another channel).

Your assumption means TWO channels active: landing to and taking off from 36. This means every 2 minutes a new plane will be 'fired' on each channel. Each channel will have its own 2 minutes cycle: one landing every 2 minutes, one take-off every 2 minutes. Actually, the cycles are kept out of phase to avoid 'clustering' of take-off (or landing) when multiple runways are active. So, with 2

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channels, each channel starts every 1-minute. Should have been there 4 channels (two runways), each channel would start every 1/2 minute, and so on.

Q: Same question as above but now suppose we have TWO channels, with 4 runway directions, 36L 36R 18L and 18R.

A: In this case, we have EIGHT potential channels, only FOUR of them active at the same time because of the wind. Suppose Runway 36L has the 2 Takeoff tracks, and 36R has the 3 landing tracks. So, 36L has no landing tracks and 36R has no take-off tracks: two of the four channels are inactive because have no tracks, leaving TWO channels active. If the two runways have tracks on both landing and take-off, there would be FOUR active channels. Each channel will still 'fire' every 2 minutes, but with a phase of 1/2 minute between the cycles.

Q: When the traffic playback frequency is set (for example) to 2 minutes does it generate an arrival and departure track simultaneously every 2 minutes on each active runway? Or does it generate an arrival track first time and a departure track second time (alternating)?

A: Basically yes: each channel (landing on each active runway, take-off on each active runway) will start a new plane every 2 minutes. However, channels are out of phase. So arrival and departure are not simultaneous, but intermixed. So they are intermixed, not alternating: there will be a departure every 2 minutes and an arrival every 2 minutes, simply not the SAME 2 minutes!

Q: But it seems out of sync with the 1/2/3/4 minute I set, is it slowing down?

A: That is because of the time base provided by FS, 1 'minute' for FSTraffic is made of ca. 64 sec and the minimum phase between channels is of 8 seconds. When more 8 channels should 'fire' in a minute (8 seconds * 8 channels = 64), in practice, channels are fired every 8 seconds but launching multiple tracks for each.

Registration

Q: How do I Upgrade from a CD version?

A: Read the chapters on Installation to find all the information you need.

Q: My registration number is not correct!

A: Yes it probably is, each number is automatically checked before we send it and we are sure the number is correct. Please understand that **all three** items (name, date and number) need to be inserted **exactly** as they were in the e-mail send to you. We advise you to copy and paste the data from the email to the registration fields.

Q: I have the boxed version and the product tells me that it is an unregistered shareware version!

A: you probably used the "LAGO | FSTRAFFIC | Enter Registration Code ..." menu. This is not correct. As soon as you entered the code during registration your copy was fully registered. If you happen to have made this mistake simple de-install and re-install to solve this problem.

Q: I'm waiting for ages for my codes to arrive.

A: It can take up to three working days to get them and when demand exceeds our resources we might even be forced to make this longer. We understand your anxiety but LAGO is slightly smaller than Microsoft and we run into troubles when you all order at the same time.

Q: I do not have a credit card.

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A: Get one, sorry but this is the only real answer for this question. All other means of payment are slow, not very secure and take a lot of our resources.

Q: I do not feel secure to send you my credit card number over the Internet.

A: Look at it this way, in a restaurant you feel secure when you give your card to the waiter. This guy now has your card (so your number) and your signature! Behind the desk the restaurant has thousands of credit card numbers. We do everything to make the transaction secure.

Editor

Q: Why doesn't the " LAGO | FSTraffic | Editor" command function?

A: Because the editor needs to be started at least once from the Windows Start | LAGO | FSTraffic menu (so outside FS).

Q: Doesn't FS slow the editor down if I start the editor from within FS?

A: Yes, but the editor is a program that has very low system demands and you will probably never know the difference.

Q: Can I edit I Tracks file that is running in FS?

A: Yes, but to see the change you made you need to save the file in the editor (no need to close it) and restart/reset FSTraffic

Q: I have troubles orientating myself in the editor, I do not seem to be able to match the editor screen and the FS view.

A: The editor shows a top down view with North at the top. The best you can do is to match this view in FS. While in Slew mode select a Top Down view, zoom out until you see the whole airport and press [space] to align your view with the top north. You will now have a matching view and it will be much easier to see what is what.

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