

# FSTramp

## General information

- FSTramp has been developed as an add-on for Flight Simulator to help you find your way from one airport to another. It is not an independent program and it can only be used with the Flight Simulator. The program is activated with the Simulator menu Plugins/FSTramp or Add-ons/FSTramp or by pressing the Ctrl+F12 keys.
- FSTramp contains a world map with airports and nav aids, a window for the flight plan, a search window to localize map information by input of keywords or ICAO identification, a panel for the autopilot and NAV1-, NAV2-, ADF-Radio, a table for selection of airport procedures, and a sub-window showing online- and AI-Players.
- With exception of Earth's surface, continental- and state frontiers, lakes and rivers, as well as airspaces, airways, waypoints and procedures, all information regarding the scenery is obtained from Flight Simulator and the installed add-ons. This function is managed by the external program FSTramp Scenery Assembler. All users of a computer will use the same scenery database.
- In order to use FSTramp as a module of Flight Simulator, It must be logged into the simulator. One simple start of the FSTramp Scenery Assembler, with selection of the installed simulator, will do this. On first starting FSTramp, Microsoft Flight Simulator X will ask if you really want to use the FSTramp module and thrust it. Answer Yes to both questions.
- Some FSTramp functions can be controlled by key combinations. The key combinations can be assigned in the Simulators Plugins/Add-ons menu FSTramp. Most combinations would be of more use if assigned to a joystick- or yoke button.

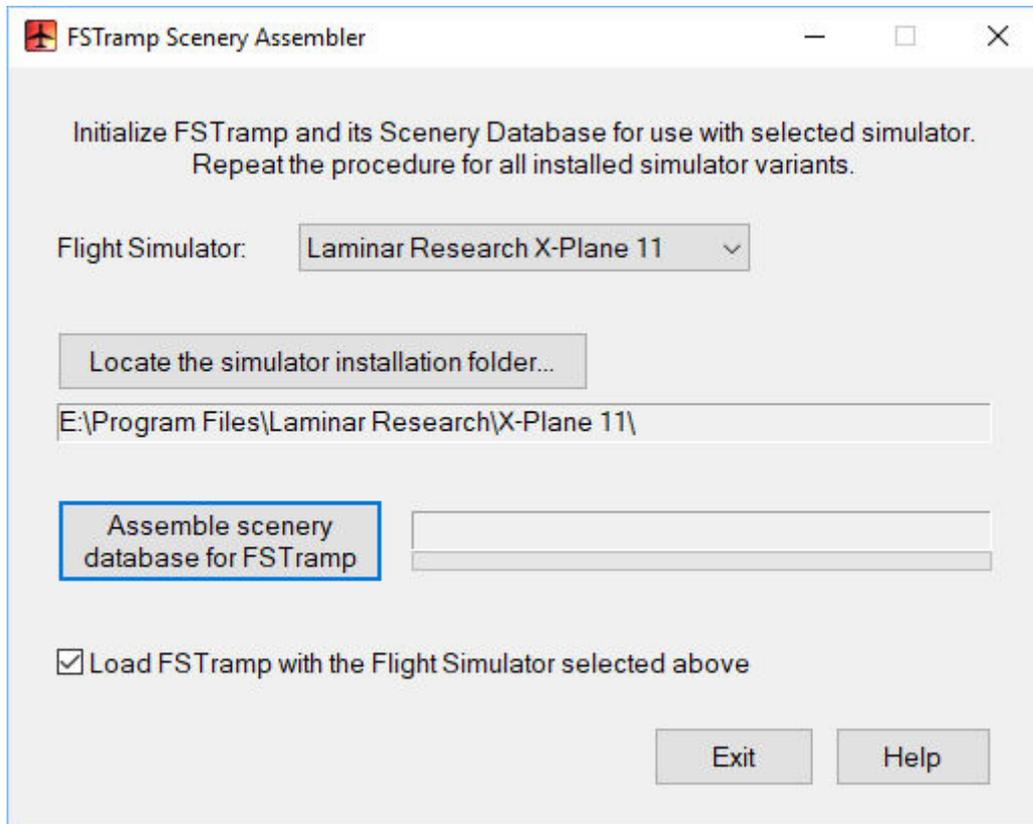
## System requirements

- Windows Vista or one of the later Windows versions.
- FSX including Service Pack 1 + 2 or Acceleration Expansion Pack. The full-screen mode of FSX is not supported by FSTramp under older Windows versions.
- FSX:Steam Edition. The full-screen mode of FSX-SE is not supported by FSTramp under older Windows versions.
- Lockheed Martin Prepar3D v2, v3 or v4.  
This simulator can be used in full-screen mode with FSTramp.
- Laminar Research X-Plane 11 for Windows.
- FSTramp needs no internet connection.

## FSTramp Scenery Assembler

The FSTramp Scenery Assembler utility performs two tasks:

1. Create or update the scenery database necessary for FSTramp.
2. Registration of the plug-in/add-on FSTramp on the Flight Simulator. In FSX / Prepar3D an entry is made in the file C:\Users\YOU\AppData\Roaming\COMPANY\SIMULATOR\dll.xml. For X-Plane, the file FSTrampXP.XPL is copied to the folder X-Plane #\Resources\plugins.



The FSTramp scenery database is created separately for each installed simulator variant. Multiple copies of a simulator variant share a database. After selecting the desired simulator, the path to its installation folder must be selected, if not done automatically. Then the creation of the scenery database can be started. The first time the process takes a few minutes, a later update will only take seconds.

The FSTramp scenery is combined from two sources. Airports and navigation transmitters originate from the simulator and can be updated by add-on sceneries. Airspaces, airways, waypoints and airport procedures are part of the FSTramp installation and can be updated by offers from other companies (e.g., Navigraph). After installation of an add-on scenery or a AIRAC cycle, the FSTramp scenery database must be updated by the Scenery Assembler.

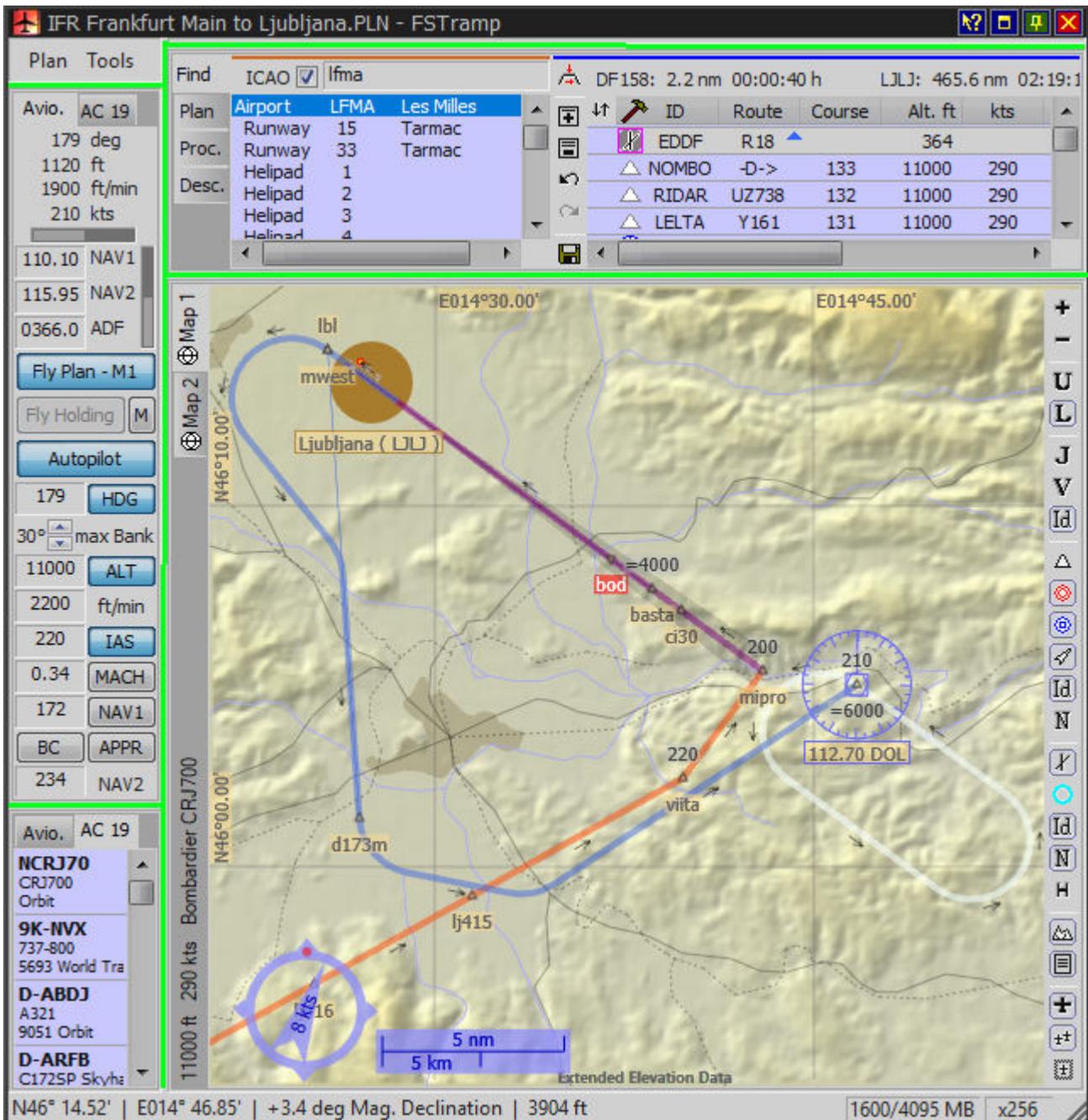
AIRAC updates are stored in the C:\ProgramData\FSTramp\NavData folder and are not overwritten when installing FSTramp upgrades. The tools of the providers of this data are adjusted accordingly. The necessary updating of the FSTramp database may also be carried out with the simulator active.

FSTramp loads the new database if it is switched from invisible to visible. If scenery add-ons have been installed, the parallel work of simulator and Scenery Assembler is not recommended. The simulator may be blocking the reading of the new scenery data.

## Window Management

FSTramp has two view modes. The docked window fills almost the entire Flight Simulator screen and can not be changed in position or size. The undocked mode allows you to change position and size of the window. You can toggle between the two views in the Simulator menu Plugins/FSTramp or Add-ons/FSTramp or by using the Shift+Ctrl+F12 keys.

Within the FSTramp main window you will find 6 subwindows, some of which are Tab windows. These 6 areas are separated by thin lines that can be relocated by dragging that line with the mouse. Hereby you can change size and content of these areas, docked or undocked. The positions of the individually adjusted areas will be saved and used when you restart the program.



## The World Map

FSTramp contains two, with Tab or hotkey switchable map windows, Map1 and Map2. Both show the same objects, but map area, zoom factor and the option Map view follows user aircraft are set independently for each map window.

Usually only one map is necessary. The second map gives the possibility to preset the destination airport in zoomed mode and quickly toggle to this mode during landing.

The visible area of the map can be moved by dragging the map with the left mouse button or be centered to the point of the mouse arrow by a double click at the desired spot. Additionally the area can be moved with the mouse on 4 big arrows at the edge of the map window, or with the four hot keys.

Changing the map area by zooming in and at the same time measuring range and bearing is done by pressing the right mouse button and dragging. During this process the future area of the map will be shown as is information about distance and bearing. The process can be aborted (no zoom-in) by ESC or clicking the left or middle mouse button at the same time.

The zoom factor can also be changed with the two upper buttons in the toolbar at the right, the context menu of the right mouse button, the mouse wheel as well as by two hot-keys.

If the option Map view follows user aircraft is active the visible map area will automatically be centered on the aircraft as it reaches the edge of the currently visible map. If the aircraft leaves the visible area of the map through action by the user, the map can be automatically centered again by reactivating this function.

The objects displayed in the two map windows can be selected in the Dialog box Tools/Settings/Map and with the Toolbar at the right side of the window, which are self-explanatory. It should be noted that visibility of roads, railways, cities, smaller lakes and rivers is dependent upon the zoom factor.

Special is the visualization of the ILS. The wide end of the ILS marker indicates an altitude above runway level of 4000 feet. A notch in this wide end indicates the existence of a glide slope transmitter for (automatic) control of descent. If the wide end is closed with a straight line, then there is no glide slope transmitter. A sharp point at the end of the wide end indicates a back course ILS, with mirrored localizer (R-L are switched) and without a glide slope transmitter.

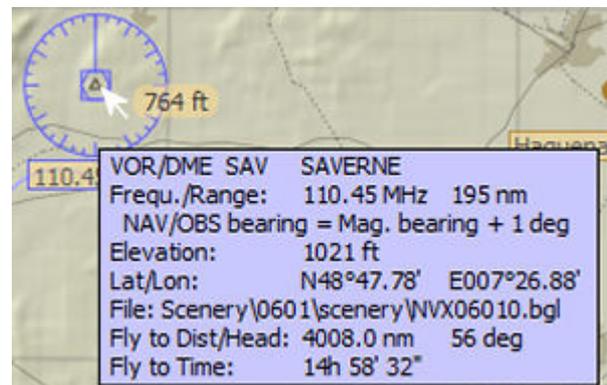
Air spaces in the colors blue or green are informative, pink indicates restrictions or danger and red indicates forbidden airspace. The earth globe is covered by the net of the Flight Information Regions (FIR), and/or the Upper Information regions (UIR). Overlapped of these are the areas around the airports, as CTR, TMA, and Danger- and Restricted areas.

The elevation of mountain peaks as shown is a little less than real because of data compression. 300 feet or 75 meters is recommended between aircraft and mountain top.

A major part of the map window is the **Info pop-up**. If the mouse is shortly paused over the center of an object, the end of an airstrip, the line of an airway or the edge of an airspace, relevant information will be displayed.

The info pop-up is also shown when the mouse pointer is within an airspace. If more airspaces overlap, the info about the smallest one is shown.

Besides its function as a source of information, the map also provides data to be put into the flight plan, and frequency settings for the NAV / ADF receivers of the aircraft. Therefore Drag&Drop, Copy&Paste and items in context menus can be used.



The easiest method is Drag&Drop while the SHIFT key or the CTRL key (or both) is pressed. If the info pop-up of a runway, VOR/DME, NDB, intersection or manually defined waypoint was visible before, then this object can be dragged from the map to the flight plan. In the same way manually defined

waypoints can be moved over the map. If the info pop-up showed another type of object, or if no pop-up was visible, a new manually defined waypoint will be dragged to the plan.

If the info-pop-up shows a Rwy-ILS, ILS, VOR or NDB the frequency of this object can be dragged to FSTramp Avionic. ILS and VOR frequencies go to the NAV receivers, NDB to ADF.

You can also drag a object or waypoint to the plan by first depressing the left mouse button, and keep this depressed while clicking with the right button. Then you can drag it to the plan without keeping SHIFT or CTRL depressed, and without moving the map.

With the right mouse button a **context menu** is be opened.

Zoom out enlarges the area in the map window.

Zoom to world view produces a global view of the entire earth.

Fly to here works only if the aircraft has taken off and an autopilot is available. FSTramp activates the autopilot and initiates the correct course, even considering the cross wind. Altitude and speed are regulated manually or by programming the autopilot.

Skip to here moves the aircraft to the position of the mouse pointer. If there the pop-up of a scenery object was visible, its coordinates will be used as target. If the pop-up is of a runway or parking, or if the SHIFT and/or CTRL key is pressed at the same time, the aircraft will be stopped and put down in the new position.

To Flight Plan copies the indicated object on the map to the flight plan as its last line. If no Info pop-up was present, or if the object was no proper item for the flight plan, a user waypoint will be made and added to the flight plan.

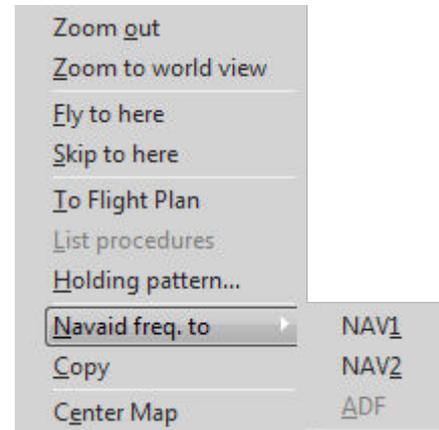
List Procedures is active if at that time the info pop-up shows information about an airport or elements of an airport. After selecting this item in the menu, procedures for this airport are shown in the Proc. window above the map.

Holding pattern defines a waiting loop at the mouse position. The necessary parameters must be entered in the following dialog box. There can only be one Holding pattern defined at a time.

Navaid freq. to... can only be used if the info pop-up of an Rwy-ILS, ILS, VOR or NDB is displayed and the aircraft disposes of the right receiver for this function. The frequency displayed in the info pop-up will then be copied to the radio receiver.

Copy puts an object on the Clipboard. If an info pop-up of a map object was present, its data are copied to the clipboard; if not, a manual waypoint is put on the clipboard.

Center map centers the world map to the mouse pointer.



## Find Plan Proc. Desc.

Above the world map is a combination of four windows, of which the composition can be modified by a vertical Tab. bar on the left. The **Find** window is located at the first position. The main window is the Flight **Plan** which has a vertical tool bar on the left side for different functions. The right window pair, **Procedure** and **Description**, is available in duplicate, but only one pair of each may be visible. Switching is done by clicking on Find or Plan window.

### Find

The Find window has an option ICAO, and right of this the input line. Below it the window where results are displayed.

By pressing the left mouse button over the words **Find Input Line** you activate the input line. If a text is entered and confirmed with the Enter key, the output field will show a list of scenery objects that correspond to the search text.

If the check box **ICAO** is not marked, only names will be considered for the search. The search text must appear in any form in the name.

If the check box ICAO is marked, the search will be limited to identifications. The search text must then be at the beginning of the input line.

If a found scenery object is selected with mouse or keyboard, it will be marked with a red circle on the map. In this way f.i. a parking can be found on the map. If the selected object is an airport, and procedure data for this airport are available, these will be shown in the Window Proc. If procedures for different airports are already present in the window, these will be overwritten.

By searching with an empty input line the search window and Proc. Window are cleared.

A left double-click on a found object or hitting Enter will center the map on the selected object.

With **Drag&Drop** scenery objects can be put into the flight plan. Airfields, runways, parkings, VOR/DME, NDB and intersections are accepted by the Plan window. The radio frequency of Rwy-ILS, ILS, VOR and NDB can be dragged to FSTramp Avionic. ILS and VOR to NAVx and NDB to ADF.

The right mouse button opens the **context menu**.

Fly to here works only if the aircraft has taken off and an autopilot is available. The FSTramp automatics activate the autopilot and initiate the correct course, even considering cross wind. Altitude and speed are set manually or programmed in the autopilot.

Skip to here moves the aircraft to the position of the selected scenery object. If this is a runway or a parking, or if at the same time the SHIFT and/or CTRL key was pressed, the aircraft will be stopped and put down on the ground.

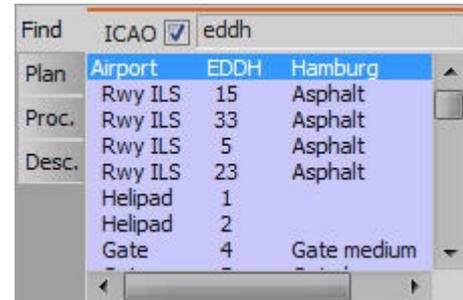
To Flight Plan copies the selected scenery object as the last line to the flight plan.

Holding Pattern defines a holding loop if the selected object is a VOR, an NDB or an Intersection. The necessary parameters must be entered in the following dialog box. There can only be one Holding pattern defined at a time.

Navaid freq. to... can only be used if a Rwy-ILS, ILS, VOR or NDB is the selected object, and the aircraft disposes of the right receiver for this function. The frequency of the object will then be copied to the selected radio receiver.

Copy copies the selected scenery object to the clipboard.

Center Map centers the map on the selected object.

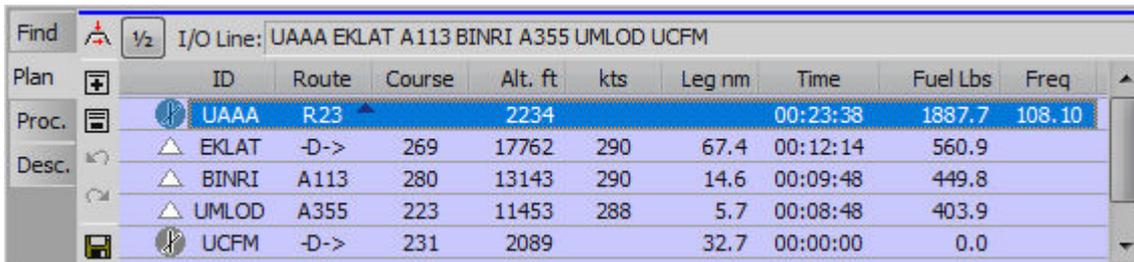


## Plan

The flight plan is the basis for automatic flight by FSTramp, but it is also important for automatic ATC in the simulator, and the FMS of the aircraft.

Above the flight plan table is an area for additional data fields. The display layout can be changed via the main menu or the left-top [button 1/2](#). The display shows either distance and time to the next waypoint as well as the next landing or the input/output line for flight plans in text form.

The I/O Line can be filled by copying or manual typing. As a separator between the elements space, tab, period, comma, semicolon, colon and line breaks are allowed. After confirming with ENTER the input is taken in the underneath arranged flight plan table.



Find	I/O Line: UAAA EKLAT A113 BINRI A355 UMLOD UCFM								
Plan	ID	Route	Course	Alt. ft	kts	Leg nm	Time	Fuel Lbs	Freq
Proc.	UAAA	R23		2234			00:23:38	1887.7	108.10
Desc.	EKLAT	-D->	269	17762	290	67.4	00:12:14	560.9	
	BINRI	A113	280	13143	290	14.6	00:09:48	449.8	
	UMLOD	A355	223	11453	288	5.7	00:08:48	403.9	
	UCFM	-D->	231	2089		32.7	00:00:00	0.0	

The Plan window shows the flight plan, whether it be loaded from a file, put together manually, or generated automatically. Elements that can be part of a flight plan are: airfield, runway, parking, VOR/DME, NDB, intersection, or manually defined waypoints.

Airfield, runway or parking must not be present, but if they are, this implicates a take-off or landing. Runways are to be preferred, since this make a fully automatic flight -start to landing- possible. A flight plan can contain multiple stops. Airfields for stopover can be entered into the plan with one or two runways. Two items are better because for landing and take off different runways can be used. The starting runway is always the side where the take-off roll begins; the landing runway is on the side where the touchdown is. If the flight plan in progress, so not saved, so this state is signaled with a hammer in the header.

A flight plan is made by entering waypoints into a list. For an automatically generated plan, at least the waypoints for begin and end of the plan must have been entered by hand. Source of these points are the map and the Find window. From there they are transported to the plan with Drag&Drop, Copy&Paste, or with the command [To Flight Plan](#) in a context menu. How this is done is described in the chapters **Find** and **World Map**.

If a runway or parking is, with SHIFT/CTRL pressed, dragged to an object of the same airfield, it will be exchanged with the previous one.

You can use Drag&Drop in a flight plan to sort the items differently; if this is done with CTRL pressed, the selected object will be entered as a duplicate.

To the left of the flight plan is a vertical tool bar for quick access to items of the main menu.

- The top button overlays the flight plan table with a dialog box where cruise altitude and -speed for the entire plan can be entered. The values entered here are limited to what is possible for this aircraft, and can be overwritten by values for a specific waypoint. The input fields open with a mouse click or the ENTER key. After entering a value and confirming with ENTER, the flight plan is adjusted immediately.
- The Plus symbol overlays the flight plan table with a dialog box for automatic generation of a flight plan. In the plan window at least two waypoints must already be present. If you want to be sure that certain points will be overflowed as part of the plan, enter them beforehand as well. After [EXECUTE](#) the plan with all waypoints will be calculated.



Start, in-between stops and destination can be airports, but you can also use any other points in the world for your route. In-between stops should be executed as duplicate entries so different runways are possible.

Use High-altitude airways when flying a jet over long distances, Low-altitude airways for regional traffic with jet or turboprop, and Waypoint to waypoint for small propeller aircraft in VFR flight, or where no airways are available. Some airways are for one-way traffic only; the route calculator takes this into account.

If the options activated to take account of airport procedures, manually associated procedures are taken into account during routing or matching procedures searched and associated to the airfields. The automatically generated route is created so that they with the procedures has points in common, or at least very close. Automatically inserted procedures and waypoints are internally marked and removed before a repeated routing. If the options are disabled to take account of the airport procedures, so manually associated procedures be removed prior to re-routing.

- The button with the Minus symbol deletes all points generated automatically.
- The arrow keys are for UNDO and REDO. Up to 100 changes can be reversed.
- The button with the diskette icon saves the flight plan as a file with the name it already had, or opens a dialog box for entering a new name. After saving this file it is loaded into the MFS/P3D memory, and is available for ATC and FMS.

The right mouse button opens a **context menu** on a selected point of the plan.

Under Planpoint settings there are 7 sub-points for assigning special properties:

With activated Fly Plan causes Simulator pause a flight break once the aircraft reaches this waypoint.

Set Altitude, Speed overlays the flight plan table with a dialog box for entering altitude/speed values to apply from this waypoint. The input fields open with a mouse click or the ENTER key. After closing this dialog box, e.g. with ESC, the flight plan is recalculated.

Clear Altitude, Speed deletes all manual altitude and speed settings for the marked waypoint.

Turn after passing makes the aircraft in automatic flight delay turning until after passing this point.

At the left of the line in the flight plan presence of such attributes is indicated by a small marker. 4 symbols in combination are possible:

- AC = Altitude crossing
- AA = Altitude after
- SP = Speed
- horizontal U = Turn after passing

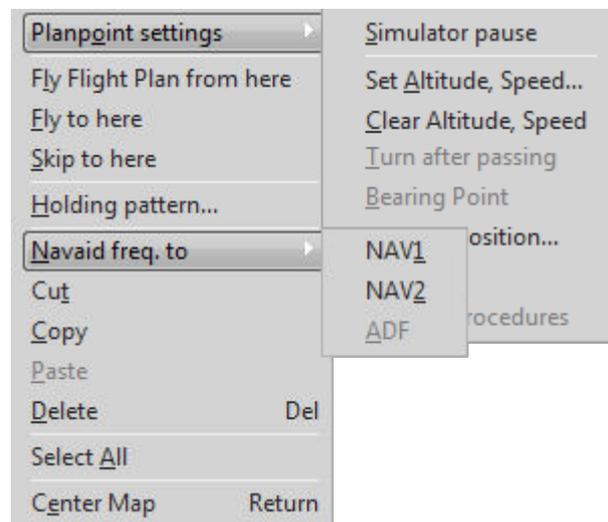
Bearing Point is possible with VOR and NDB. A point marked as Bearing Point is not overflown, but is used for indicating bearing and distance.

Lat/Lon Position opens a dialog box for entering latitude and longitude of a manually defined waypoint.

Rename is possible with manually defined waypoints, to use names that differ from WP1, WP2, etc. If you leave the entry open, a name will be generated automatically.

Release Procedure deletes the association of an airport procedure (SID, STAR, Approach) to an airfield.

Fly Flight Plan from here can be used if the aircraft has an autopilot. It works like the Fly Plan button in the Avionic window, but the first waypoint to be flown to is manually indicated. An "illogical" waypoint that would make the aircraft fly backwards from the nearest interception point, will be corrected.



Fly to here only works if the aircraft is flying, and had an autopilot. FSTramp will activate the autopilot and set a course to the selected waypoint, with automatic crosswind correction. Altitude and speed must be set by the pilot, or put into the autopilot.

Skip to here works in different ways. If the selected waypoint is a runway or parking, the aircraft will be stopped and put down there. In all other situations this function will only work if the aircraft is airborne. The aircraft will then be moved to the new position, without changing altitude, heading or speed. But if the SHIFT or CTRL key pressed during this command, the aircraft will be stopped, and put on the ground in this position.

Holding Pattern defines a holding loop if the selected waypoint is a VOR, NDB, Intersection or a manually defined waypoint. The necessary parameters must be entered in the following dialog box. There can only be one Holding pattern defined at a time.

Navaid freq. to... can only be used if a Rwy-ILS, VOR or NDB is selected and the aircraft disposes of the right freq. for this function. The frequency of the selected transmitter will then be copied to the radio receiver.

Cut, Copy, Paste, Delete, and Select all are the usual tools for working with one or more points.

Center map centers the world map to the mouse pointer.

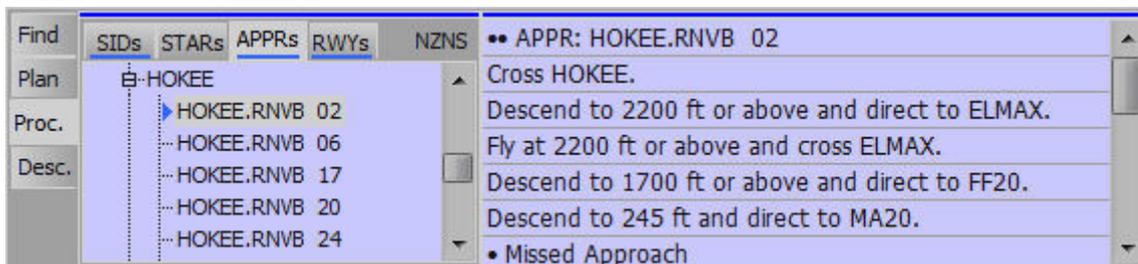
When a plan is flown automatically (Fly Plan) the next waypoint is marked in red. The Enter key or a double-click of the mouse will center the map on that point.

If an airport is selected by mouse or key, its procedures are displayed in the Proc. window to the right.

With Drag&Drop the frequencies of Rwy-ILS, VOR and NDB can be dragged to the FSTramp Avionic window, Rwy-ILS and VOR to NAVx and NDB to ADF.

## Proc. Desc.

The right window pair, **Procedure** and **Description**, is available in duplicate, but only one pair of each may be visible. Switching is done by clicking on Find or Plan window. The color coding at the top indicates which window pair is displayed. The red marked window-pair showing the procedures of the airfield selected in Find window or on the map. The blue marked pair showing the procedures of the airfield selected in the Plan window.



The **Proc.** window, to the right of the flight plan, lists the procedures of airports, selected in the Find window, the map or flight plan. "Procedures" stands for SIDs, STARs and Approaches. The list of the Approaches also includes the circuits (traffic patterns), for each runway in left-hand and right-hand rotation. The first is always the circuit indicated in the scenery as standard. As this does not always reflect reality, the alternative is presented below it.

The Enter key or a double-click on the name of the procedure centers the map to the associated airfield.

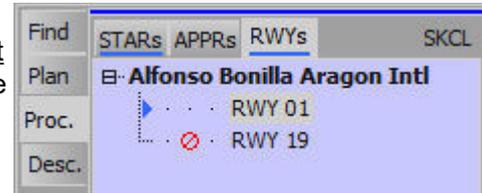
The context menu of the procedure lists contains the switch Sorting by ETP. Depending on its state, the procedures are sorted according to their route transfer point or name. The sorting can be set separately for each list.

After selecting one of the procedures by mouse or keyboard, the route will be visible in the map window. If a parent folder with procedure name or enroute transfer point ID is selected, the route will disappear. In their place, the enroute transfer points of all procedures and transitions located in this

folder are marked with a red hexagon. Multiple markups occur when the list is sorted by procedure name and the procedure has transitions.

The context menu of the flight plan procedures window contains the two points Associate with Flight Plan and Release FP-Association. Using this menu items a airport procedure is associated to the selected flight plan airfield or disengaged therefrom. This association will be marked in the flight plan and procedure window and included in the flight plan file when saving. Is there an association, so still other procedures in the map window can be displayed without disturbing the automatic flight of an associated procedure. Their representation expires but after 10 seconds and the associated procedure will reappear.

The flight plan procedures window also contains a list of runways available at the airport. The context menu command Use in Flight Plan replaces in the flight plan the previously used position on the airport with this runway. If procedures have already been assigned to the airport, they are also replaced or, if not possible, deleted. Whether the automatic replacement of procedures is possible show the 3 symbols to the left of the runway designation.



They stand, from left to right, for SID, STAR and Approach. If there is a red crossed circle in one of these three columns, there is no perfect matching procedure replacement. With reference to the SKCL airport shown in the picture, the STAR will be canceled without replacement if runway 19 is selected.

A green line in the map window indicates a SID. An orange line indicates a STAR, a magenta line an Approach, a blue line an Missed Approach and Holdings are shown in white. A combination of STAR, APPR, Missed Approach and Holding therefore consists of lines in orange, magenta, blue and white. With their two colors magenta and blue, Circuits show the two phases Approach and Missed Approach.

Since airport procedures often do not have a predetermined connection to the runway, but this is necessary for the automatic flight, FSTramp creates fictitious connections to the runway. These are shown in dashed lines in the map window and can sometimes collide with mountains or contradict the regulations. The pilot is responsible for the control.

In the window **Desc.** a description is given of the selected procedure, with indication of altitude and speed. This text is a translation of the graphics-generated computer commands.

Graphical display of a selected procedure is not possible if an essential navaid is missing in the database. In this case the name of the procedure is preceded by \*).

## Avio. AC

This multifunction window is multiple available. Its contents are determined by your choice of the Tabs on top.

### Avio.

The FSTramp Avionic window is a compact form of the displays and instruments of the aircraft. Instruments, f.i. receivers, that are not available in the aircraft, are deactivated. Some add-on manufacturer provided the instruments their aircraft with more sophisticated, but also encapsulated, logic. FSTramp in these cases is not able to access it. Also FSTramp has no connection with the Flight Management System of some aircraft.

The Avionic buttons can be pressed with the mouse, or, if already active, with SPACE. Depressed fields can be opened with mouse-click or with ENTER for entering data (a frequency, f.i.). After entering data ENTER must be pressed to confirm sending of the data to the aircraft. The TAB key moves focus to the next field.

Special are the buttons Fly Plan - M1, M and Fly Holding. These add to the Autopilot functions.

**Fly Plan - M#** can be used if the aircraft has an autopilot, and a flight plan with at least one point is present in the Plan window. Pressing this key will initialize an automatic flight, almost from start to landing, to be executed from the moment the Autopilot is engaged. **M1/M2** in the key shows which mode of automatic flight is programmed. Both modes M1 and M2 can be defined permanently in the dialog box Tools/Settings/Plan. Switch M1 to M2 v.v. with button M .

The M1 mode (in default setting) is the most complete automatic control of aircraft and instruments. All values for heading, altitude, climb- descend rate, and speed (for aircraft with auto-throttle), as specified in the flight plan, as well as the autopilot switches are applied by FSTramp. Also the radio receivers NAV1, NAV2, and ADF are tuned to the proper frequencies

The M2 mode (in default setting) is meant for ILS approach. Here the autopilot switches for HDG and ALT are not forced. A few miles before joining the ILS/Glideslope the pilot should use the **M** button to switch from M1 to M2., and press the AP button APPR. As soon as the aircraft is on Localizer and glideslope, the autopilot HDG and perhaps ALT will disengage, and the aircraft will follow the ILS.

In none of the modi are landing gear or flaps operated automatically. These must always be operated by the pilot.

Here a few tips for automatic flight from start to landing:

- Check that the right type of aircraft has been selected in FSTramp, and press the Fly Plan button when on the runway, before rolling. Check that in the flight plan the first target waypoint is marked red. If not, correct this in the flight plan context menu.
- If the runway has sufficient length, and there are no mountains nearby, the autopilot can be activated, before take-off roll. After this, set take-off power, release brakes, and keep your aircraft on the runway. FSTramp will in a few steps take control, take off, and manage the flight.
- With a short runway, or with mountains near the flightpath, the pilot must reach sufficient altitude and the right position for a safe pass, before the autopilot is engaged for automatic flight.
- If the aircraft has no auto-throttle, the pilot, after pulling up the landing gear, must keep control of the throttles and regulate the airspeed.
- When descending, it is essential to keep to the airspeed as indicated in the autopilot. In aircraft without auto-throttle this is up to the pilot.



- During final approach throttles and flaps need special attention. Without sufficient flaps and early lowering of the landing gear, the speed is insufficiently reduced, which means a late touchdown and overshooting. Also: do not forget to arm spoilers and/or airbrakes. The airspeed during Final approach must constantly be compared to the speed given in the autopilot, and flaps lowered well if necessary.
- Shortly before touchdown, automatics and autopilot disengage fully, which leaves touchdown and landing roll to the pilot. There can be circumstances, (wind or other) that make it advisable to disengage the autopilot early, and fly the final approach manually.

**Fly Holding** can be used if the aircraft has an autopilot, a holding loop has been defined, and the aircraft is airborne. Reduce speed if necessary, and press this button **before** the aircraft reaches the holding. As long as Fly Holding is active, the aircraft follows the holding loop. Fly Plan can remain active during holding. When Fly Holding is deactivated, and the aircraft is inbound, it will then follow the flight plan again.

## AC

Shows a list of the active aircraft; users, multiplayer AC and AI traffic included. Your own aircraft is always shown on top; AI aircraft are not listed during a multiplay session.

The following information is displayed: callsign, aircraft model/type as well as flight number and airline. By selecting an aircraft in FSX / Prepar3D you can define your own callsign.

A tip for Multiplayer sessions via FSHost servers: Use the program FSHostClient to display aircraft of the session in the simulator and in FSTramp. In order to display aircraft all over the world, you have to set the FSHostClient's option Edit/Options/Show other player's planes within to 0.

With a double-click or by using Enter on an aircraft in the AC the map will be centered on the selected aircraft.

A left click will mark the selected aircraft for a short time with a red spot.

With the right mouse key a **context menu** is opened.

Fly to here works only if your own aircraft has taken off and an autopilot is available. The FSTramp automatics will activate the autopilot and initiate the correct course towards the position the selected aircraft had at that moment. Altitude and speed are set manually or by programming the autopilot.

Skip to here only works if your own aircraft is airborne. With this function it will be moved to the actual position of the selected aircraft without changes to altitude, heading or speed.

AI aircraft visible is available when external programs like FSInn or FSHostClient put multiplayer aircraft into the simulator. Using this option, AI traffic, that would in this situation be ignored by FSTramp, is hereby made visible.

Center map centers the world map on the selected aircraft.

Avio.	AC 7
N737W	737-800 Boeing
ZK-BSU	CRJ700 Pacifica
ZK-KKS	MD-83 4111 Airwave
ZK-NJW	A321 Pacifica

## Dialog box Aircraft

If an aircraft is loaded in the simulator, FSTramp automatically activates a suitable data record for calculating the flight plan and the automatic flight. The name of the aircraft dataset loaded in FSTramp can be found on the frame of the world map. If the font is red, no link has been defined between the current simulator aircraft and the FSTramp aircraft. For all add-on aircraft, this link must be carried out once with this dialog box.

	Climb	Cruising	Descent	Touch down
Altitude: [ft]		10000		
Rate: [ft/min]	600		700	
Indicated air speed: [kts]	85	100		70
Mach number:				
Fuel flow: Gal/h	10	8	3	

The dialog box offers a large selection of predefined aircraft data records in the upper section. In addition, in the lower part, the data of the aircraft can be changed or new aircraft can be defined.

Changing aircraft data is easy. Simply select the aircraft, change the values, and save. Alternative: Give the aircraft a new name. The original aircraft will remain as it was before.

The default aircraft of FSTramp can also be altered. If changes make an aircraft useless, then it should be deleted. Next time the simulator is started, the original default aircraft will be present again.

Setting up a new aircraft in the list is a lot of work, and costs time. The only way to do this, is by trial and error. To try and test, use automatic flight with a special flight plan. Start by using data from a similar aircraft, change the name, and save the new aircraft.

### Autopilot without Autothrottle

Check this option if the aircraft has no auto-throttle.

### Cruising Altitude

Typical cruising altitude.

### Climb/Descent Rate

Average rate of climb or -descend. This value must be established by flying the aircraft. Very important is to maintain sufficient speed during climb, without overloading the engine.

### Climb/Cruising Speed

Average speed during climb or cruise. Best determined by flying.

## Touch Down Speed

Speed on Touch-down.

## Mach number

Mach number at cruise altitude. Is calculated automatically from cruise altitude and -speed.

## Fuel flow

First choose a unit to measure fuel flow. Preferred is the same unit as is shown on cockpit instruments. The right values can be read from the cockpit instruments, or found in aircraft documentation or manufacturer's data.

And then: Don't forget to save your aircraft.

## Dialog box Open/Save Flightplan

This box is used for loading or saving flight plans. FSTramp uses the same file format as FSX / Prepar3D, but with extended information concerning waypoints. Flight plans, as saved by Flight Simulator or by FSTramp, are compatible in both directions. If an FSTramp flight plan is loaded with the simulator, or with other applications, and saved, this additional information is lost. Since X-Plane does not have a uniform flightplan format, FSTramp also uses the extended FSX format.

Every time a flight plan is loaded or stored with this dialog box, it caused in FSX / Prepar3D a loading of the flight plan into the memory of the simulator. Flight plan information is therefore immediately available to ATC and aircraft FMS, regardless of whether you use these functions or not.

The options VFR/IFR have no meaning for FSTramp. However, if you use the automatic air traffic control of FSX / Prepar3D, this option determines its behavior.

Before saving the plan you can alter its name and description.

The right mouse button opens the **context menu**.

Rename lets you rename the selected file.

Delete will move the file without prompting in the trash.

Drive list will put you on the upper level of the disk/directory tree.

## Dialog box Holding Pattern

Only one Holding loop can be defined at a time; a new holding loop will delete the previous one. If you define a Holding loop during a flight, Heading is already filled with the actual heading. Segment length can be given in minutes or in nautical miles. When flying a Holding loop, you must adapt your airspeed to the radius of the loop.

## Dialog box Settings

In this dialog box the main settings of the program are entered. These settings are saved in the text file C:\Users\YOU\AppData\Roaming\FSTramp for [FSX|FSX-SE|P3D v#|XP v#]\Program.cfg.

If you wish to delete all personal settings this text file can be deleted without any problems. The result will be visible after restarting Flight Simulator.

## Page Global:

- **Application color scheme** selects the brightness of window- and dialog box contents, except the world map. Here the brightness can be selected as static or time dependent, with time to be set. (default: Time dependent).
- **Map color scheme** controls the brightness of the world map. This again can be static or time

dependent (default is time dependent). Separately for both modes, sliders make the brightness finely adjustable (default: bright scheme = 1.0; dark scheme = 0.5).

- **Geographical coordinates format** (default: N00° 00.00' E000° 00.00').
- **Status bar on bottom** of FSTramp docked (default: on), or undocked (default: on).
- **Sound** activates acoustic signals by the program (default: on).
- **Search online for upgrades** is done in the background after FSTramp is started. If an upgrade is available, this is shown in the centre of the map (default: on).
- **Activate disabled warnings** will re-activate all warning messages disabled by the user at any moment (default: off).

## Page Map:

- **Font labels** defines the font in the map for all Text fields (default: Tahoma Standard 8).
- **Font airport markings** sets the font used for texts for airstrips and taxiways (default: Small Fonts Bold 7).
- **Parked AI aircraft** makes computer-controlled aircraft visible, also when parked. (default: on)
- **Sea traffic** makes computer-controlled ships and boats visible (default: on).
- **Taxiway signs** (default on).
- **Markers** (default off).
- **Back course ILS** are antiquated and rarely found in real life. In Flight Simulator however, all default ILS can be used as Back course ILS for the opposite flight direction. Because of the unrealistic behaviour you should deactivate this option (default: off).
- **Thermal/Ridge lifts** can be found with help of the search window with the search term soaring. These are upward winds and thermal areas for gliders (default: on).
- **Cities** (default: on). Only visible if Terrain is activated in the map.
- **Roads** (default: on). Only visible if Terrain is activated in the map.
- **Railroads** (default: on). Only visible if Terrain is activated in the map.
- **Political boundaries** (default: on).
- **Grid lines** (default: on).
- **Terrain color mode** (default: normal).
- **Continents without terrain** works only if the option Terrain hidden is active in the toolbar of the world map. The continents will then be displayed unicoloured in blue or green (default: blue).
- **Restricted areas** (default: off).
- **Warning, alert and danger areas** (default: on).
- **Military operations and prohibited areas** (default: on).
- **Display speed of Multiplayer and AI aircrafts as**  
This setting has the options Ground speed and IAS / TAS. If IAS / TAS is selected, the speed is given according to the IAS / TAS setting in the Flight Simulator (default: IAS / TAS).
- **Display aircraft labels on user plane** (default: off).
- **Display aircraft labels with airline and flight number** (default: off).

## Page Plan:

- **Speed limit below 10,000 ft** limits the permitted maximum speed in the flight plan and with automatic flight. For civil aviation this generally is 250 kts. below 10,000 feet.
- The options **Display Distance, Display Time, Display Fuel** determine the way these values are displayed in the flight plan.
- **Set Avionic using Flight Plan data**  
Here the options for automatic flight are fixed. When the Fly Plan button is pressed, the automatics can independently adjust the settings of the autopilot and the NAV/ADF receivers. How this is done, depends on the options-sets Mode1 and Mode2. Which set is active, is controlled by the button M in the avionic window. So here you can predefine two modes of operation, and activate them during flight.

The mode is set globally with the buttons Full Auto, ILS prep. and NAV/ADF. In the fields below the settings can be adjusted further.

With Full Auto the flight plan is flown automatically, without action by the pilot.

With ILS prep. the buttons HDG and ALT of the autopilot are not kept ON permanently. In this way the pilot can fly an ILS approach with the button APPR.

With NAV/ADF the automatics follow the manual flight according to the flight plan, and sets the proper frequencies for NAV1, NAV2 and ADF.

## Page Hotkeys:

The page of the dialog box described here is not displayed when using X-Plane. X-Plane users will find these settings directly in the simulator, in the configuration of the keyboard and also joystick. The hotkey settings correspond to the hotkeys displayed in the X-Plane menu Plugins/FSTramp. The default hotkeys are the same for all simulators.

Users of Prepar3D / FSX use this dialog box page for assigning hotkeys to FSTramp commands. The settings defined here correspond to the hotkeys displayed in the simulator menu Add-ons/FSTramp. Changes should be made with great care, since most key combinations are already in use by Flight Simulator. Hotkeys can also be disabled, in case they are already in use elsewhere.

- **Application toggle visible** (default: Ctrl+F12).
- **Application toggle docking** (default: Shift+Ctrl+F12).
- **Toggle Fly Plan** (default: Ctrl+F11).
- **Toggle Fly Holding** (default: Shift+Ctrl+F11).
- **Map zoom in** (default: Ctrl+F9).
- **Map zoom out** (default: Ctrl+F8).
- **Toggle map 1-2** (default: Shift+Ctrl+F9).
- **Toggle map follows AC** (default: Shift+Ctrl+F8).
- **Map view move up** (default: Shift+Ctrl+9).
- **Map view move down** (default: Shift+Ctrl+8).
- **Map view move right** (default: Shift+Ctrl+7).
- **Map view move left** (default: Shift+Ctrl+6).

## Dialog box Payment and Registration

After installation, and as long as the program has not been paid for, it works in Demonstration Mode. This means that you have a fully functional program for 20 Flight Simulator sessions. After this, the program will run in Freeware Mode, with limited functionality.

If you want full functionality, then you have to pay for a license key. This can be done via the Home page: <http://FSTramp.com> or via a licensed seller. A license key has a limited validity from the time it is sent by e-mail. Therefore do not buy keys in advance! Validity of the key will expire also when it is not used. License keys are available for 1-4 years of validity. All license keys will be valid for all future versions of FSTramp, that begin with 6.0.

After receiving the license key by e-mail, enter it into the dialog box field License key. The first 10 characters are principally numerals. After entering the string, and OK pressed, the license key is verified. If correct, the dialog box will close, and the program will work in full during the time the license is valid.

If you wish to re-install FSTramp completely new, you have to enter the license key again.

The License key is unique and identifies you as a person. It is hardware independent and can be used for all FSTramp installations, starting with version 6.0, on one or more of **your** computers.

## Title bar

In the upper left corner, on the Title bar of the FSTramp window is a small program icon showing a aircraft symbol. Clicking this icon produces the context menu of the main window. To the right of this is the name of the program, and (if present) the name of the Flight Plan is shown. At the right upper corner are four symbols with the following functions (from right to left):

- Hides the FSTramp window.
- Juggles FSTramp windows between Docked – Undocked.
- Maximizes or normalizes the FSTramp window.
- Activates the context-related help. If, after using this button, you click on an FSTramp subwindow, the Help info for this window is given.

## Main menu

The FSTramp main menu, directly below the title bar, is double. Depending on the configuration of your subwindows you can close one of those (see Window management).

<b>Plan</b>	
Open...	Opens a dialog box for choosing an existing flight plan file. After loading this file in memory for FSTramp, it will be loaded in memory for the simulator, and is available for ATC and FMS.
Save	Saves the flight plan as a file with the name it already had, or opens a dialog box for entering a new name. After saving this file it is loaded into the simulator memory, and is available for ATC and FMS.
Save As...	Opens a dialog box for entering a filename, and saves the plan as a file. After that it is loaded into the simulator memory, and so is available for ATC and FMS.
Clear	Removes the actual flight plan from from memory for FSTramp and the flight simulator.
Export (only X-Plane)	Exports the FSTramp flight plan in the usual formats.
Toggle window layout	Allows you to show or hide data fields above the flight plan table. Either distance and time to the next waypoint as well as landing or the I/O line.
Aircraft...	Opens a dialog box for selecting a type of aircraft, of which the data are used to calculate the flight plan, and manage automatic flight. This box is also used to edit aircraft data or to set up a new aircraft.
Cruising Altitude/Speed...	Opens a dialog box to enter cruising altitude and -speed for the entire plan.
Generate auto route...	Opens a dialog box for completing a flight plan automatically by entering waypoints in an optimal position. At least two waypoints for beginning and end of the route must already be present in the plan.
Remove auto route	Removes all changes made by "Auto route"
Undo	Will undo the last change made in the flight plan.
Redo	Will undo the last undo.
Print...	Opens a dialog box for printer choice and further settings necessary to print the flight plan.
Print Preview	Preview the print.
Print Setup...	Opens a Dialog box for printing options when printing the plan.
Recent Files	Shows a list of recently used flight plans. If one of these is loaded into memory for FSTramp, it will also be loaded into memory of FSX / Prepar3D and is thus available for ATC and FMS.

<b>Tools</b>	
Settings...	Opens an extensive dialog box for entering basic settings.
Map	
Print...	Opens a dialog box for printer choice and further settings necessary to print the content of the map window.
Print Preview	Preview for printing the map.
Print Setup...	Opens a Dialog box for printing options when printing the map.
Payment and Registration...	Opens a dialog box for entering the license key.
Help Topics	Opens the Help window.
About FSTramp...	Opens a window with information about FSTramp versions.

## Status bar

The Status bar on the lower edge will show (left to right)

- Help text or the global position of the mouse arrow with the magnetic variation there, and terrain elevation.
- Main memory status of the simulator, divided into occupied and total RAM. It should be remembered that the memory is never fully usable because a fragmentation takes place due to changing assignments. (only 32-bit simulator)
- Zoom factor

## Context Menus

### Dialog box Flightplan - Filelist

Rename	Lets you rename the selected file.
Delete	Deletes the selected file.
Drive list	Brings you to the upper level of the disk/directory tree.

### World map window

Zoom out	Enlarges the area displayed in the map window.
Zoom to world view	Overviews the entire earth.
Fly to here	Activates the autopilot and directs the aircraft to the point indicated by the mouse.
Skip to here	Moves the aircraft to the position of the mouse pointer. If there is a pop-up window of a scenery object and this is a runway or a parking, or if at the same time the SHIFT and/or CTRL key was pressed, the aircraft will be stopped and put down on the ground.
To Flight Plan	Copies the object on the map described in the info pop-up to the flight plan as its last line. If no Info pop-up was present, or if the object was no proper item for the flight plan, a user waypoint will be made there.
List procedures	If the info pop-up shows information about an airport or elements of an airport, procedures for this airport are shown in the window beside the map.
Holding pattern...	Opens a dialog box to define a holding loop at the place of the mouse pointer.
Navaid freq. To	If an info pop-up about an NDB, VOR, ILS or Rwy-ILS was visible, its frequency is copied to one of the following receivers....
NAV1	NAV1
NAV2	NAV2
ADF	ADF
Copy	If the info pop-up of an object on the map was shown, the data of this object are copied to the clipboard. If not, a manual waypoint will be copied to the clipboard.
Center Map	Centers the world map on the mouse pointer.

### Window for AI-/Multiplayer Aircraft

Fly to here	Activates the autopilot and directs the aircraft to the selected AI-/Multiplayer aircraft.
Skip to here	Moves the aircraft to the position of the selected AI-/multiplayer aircraft.
AI aircraft visible	This function can be used if external programs like FSInn or FSHost client show multiplayer aircraft in the simulator. In this case AI aircraft that are ignored in FSTramp, can be made visible.
Center Map	Centers the world map on the selected aircraft.

## Find window

Fly to here	Activates the autopilot and directs the aircraft to the selected scenery object.
Skip to here	Moves the aircraft to the position of the selected scenery object. If this is a runway or a parking, or if the SHIFT and/or CTRL key was pressed simultaneously, the aircraft will be stopped and put down on the ground.
To Flight Plan	Copies the selected scenery object to the flight plan as the last line.
Holding pattern...	Opens a dialog box for defining a holding loop at the selected scenery object.
Navaid freq. To	Copies the frequency to the receiver of the selected Navaid.
NAV1	NAV1
NAV2	NAV2
ADF	ADF
Copy	Copies the selected scenery object to the clipboard.
Center Map	Centers the world map on the selected scenery object.

## Flight plan window

Planpoint settings	Contains a few subsettings that concern the selected line.
Simulator pause	With activated Fly Plan causes Simulator pause a flight break once the aircraft reaches this waypoint.
Set Altitude, Speed...	Opens a dialog box for entering altitude and speed at this waypoint.
Clear Altitude, Speed	Deletes all manual altitude and speed settings for the marked waypoint.
Turn after passing	Marks the selected waypoint, so it will be overflown during automatic flight, before the next waypoint is marked as target.
Bearing Point	Can be used for VOR/NDB. Changes the waypoint into a bearing point. This point is not flown over, but its frequency is copied to the navaid receiver concerned during automatic flight.
Lat/Lon Position	Opens a dialog box for entering latitude and longitude of a manually defined waypoint.
Rename	Rename a user defined waypoint. If the field is left empty, a name is given automatically.
Release Procedure	Deletes the association of an airport procedure to an airfield.
Fly Flight Plan from here	Activates the <b>Fly Plan</b> function, with the selected waypoint as first target.
Fly to here	Activates the autopilot and directs the aircraft to the selected point.
Skip to here	Moves the aircraft to the position of the selected point. If this is an airfield, or if the SHIFT and/or CTRL key was pressed at the same time, the aircraft will be stopped and placed on the ground.
Holding pattern...	Opens a dialog box which is used to define a holding loop at the position of the selected point.
Navaid freq. To	Copies the frequency of the selected Navaid to the receiver...
NAV1	NAV1
NAV2	NAV2
ADF	ADF
Cut	Removes the selected lines and copies them to the clipboard.
Copy	Copies the selected lines to the clipboard.
Paste	Pastes waypoints on the clipboard into the plan, before the selected line.
Delete	Deletes selected lines in the flight plan.
Select All	Selects all lines in the flight plan.
Center Map	Centers the world map on the selected point in the flight plan.

## Window for Airport procedures

Sorting by ETP	Procedures are sorted according to their route transfer point or name.
Associate with Flight Plan	Airport procedure is associated to the selected flight plan airfield.
Release FP-Association	Association is removed.
Expand item	Opens the selected item and shows the contents.
Collapse item	Collapses the selected item
Center Map	Centers the world map on this airport.

Use in Flight Plan	Replaces in the flight plan the previously used position on the airport with this runway. If procedures have already been assigned to the airport, they are also replaced or, if not possible, deleted. Whether the automatic replacement of procedures is possible show the 3 symbols to the left of the runway designation. They stand, from left to right, for SID, STAR and Approach. If there is a red crossed circle in one of these three columns, there is no perfect matching procedure replacement.
Skip to here	Moves the aircraft to the runway.
Expand item	Opens the selected item and shows the contents.
Collapse item	Collapses the selected item
Center Map	Centers the world map on this airport.

## Text windows

Undo	Will undo the last action.
Redo	Will undo the last Undo action.
Cut	Will cut the selected part from the text and copy it to the clipboard.
Copy	Copies the selected text to the clipboard.
Paste	Inserts text from the clipboard to the indicated spot.
Delete	Deletes the marked part of the text.
Select All	Selects all text for the following action.