

FS Recorder for FSX version 1.3

Copyright © 2004-2006 Matthias Neusinger

Disclaimer & License

This software is provided "as is" and without any warranties. Installation and usage of this software is completely at your own risk! In no event shall the author be liable for any problems or damages caused directly or indirectly by installing or using this software.

This software is freeware. It may be freely distributed, as long as no money is charged for it, and none of the included files is removed or modified. Personal usage is free. Using this software for any commercial purpose is not allowed without written permission of the author!

Introduction

FS Recorder is an addon module for FS2004 and FSX, which can record flights, save them to files and play them back similar to the FS instant replay and flight video recorder, but with a lot more features. **This version requires FSX with Service Pack 1 installed!**

The Recorder does NOT record video files (like .avi), it records data like aircraft position, speed, etc., so the recordings can only be played inside FS. This allows watching your recordings from different views.

List of main features:

- recording flights of unlimited length
- replay the last minutes, even if no recording was started
- recording and playback of AI traffic
- playback of one or more recordings as (AI) traffic
- recording a new flight during playback as traffic (e.g. for formation flights)
- jumping/searching forward/backward during playback
- playback control via keyboard or control window
- stop playback at any position to continue manually
- loop part of a recording
- change playback speed
- custom keyboard controls
- recorded data is customizable

If you have problems using the Recorder, found a bug, want to suggest improvements or have any other comments, visit the support forums at www.fs-recorder.net. Refer to the [support](#) chapter at the end of this document for more details.

Installation

Automatic installation

First extract the zip file to a directory of your choice. Then start the included Windows Installer file *Setup.msi* and follow the instructions. FSX has to be installed on your system, otherwise the installer will not run. If you have a previous version of FS Recorder for FSX installed, you have to uninstall it first.

The module and documentation will be installed into the directory you enter in the installation wizard. The installer will automatically add the required Launch.Addon entry to the FSX dll.xml file.

Manual installation

Create a directory and extract the file *RecorderFSX.dll* into it. Then open the file *dll.xml*, which is located in *Documents and Settings\[USER]\Application Data\Microsoft\FSX* and add the following entry before *</SimBase.Document>*:

```
<Launch.Addon>
  <Name>FS Recorder Module</Name>
  <Disabled>False</Disabled>
  <ManualLoad>False</ManualLoad>
  <Path>[PATH] \RecorderFSX.dll</Path>
</Launch.Addon>
```

where you have to replace [PATH] with the path, where *RecorderFSX.dll* is located.

If you are using Windows Vista, make sure that security permissions are correct for the FS Recorder directory and the DLL. If you run FSX as administrator, there should be no problem, otherwise make sure that your user account has execute permission for RecorderFSX.dll and the permission to create and write files in the FS Recorder directory.

Uninstalling

If you used the installer for installation, select the *Uninstall* shortcut under *Start > Programs > FS Recorder for FSX*. Or you open the Windows control panel and select *Software*, find *FS Recorder for FSX* in the list and select *Remove*.

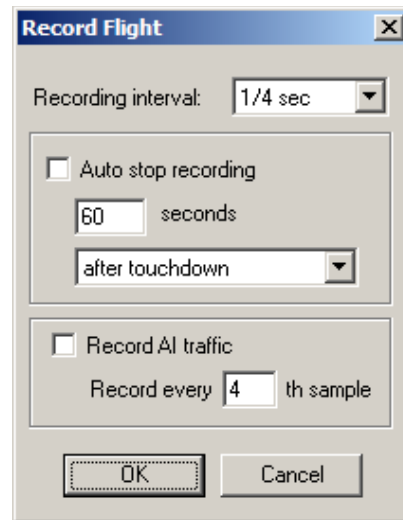
If you did a manual installation, remove the entry, which you added to the *dll.xml* file.

Using FS Recorder

The Recorder is used via the *Recorder* entry in the FSX Add-ons menu and via keyboard shortcuts.

Recording a flight

To start recording select *Record* from the *Recorder* menu or press the key combination assigned to *Record* in the [keyboard controls dialog](#). The following dialog window shows up (if *No recording dialogs* is enabled in the [settings dialog](#), recording starts immediately):



You can select one of five recording intervals, 1/8, 1/4, 1/2, 1, or 2 seconds. Smaller intervals will result in a larger size of the recorded file, but also in a more accurate and smooth playback of the flight.

The option *Auto stop recording* allows to automatically stop recording a certain time after touchdown, engine shutdown or start of recording.

If you also want to record the AI traffic, enable the *Record AI traffic* option. To reduce the size of the recorded file, the recording interval for AI aircraft can be increased by a factor, which is entered in the field *Record every n-th sample* (e.g. if you enter 1, AI traffic will be recorded at the same interval as your aircraft; if you choose a recording interval of 1/4 sec, and enter a value of 8 here, AI traffic will be recorded at an interval of 2 seconds, etc.). You can also limit the number of recorded AI aircraft in the [settings dialog](#), to reduce file size and memory demand. **Note that recording lots of AI traffic at short intervals can result in very large files!**

Pressing the *OK* button starts recording. If the *Display recording* option is checked in the [settings dialog](#), *RECORDING* will be displayed in the lower right corner during recording, together with the number of recorded seconds.

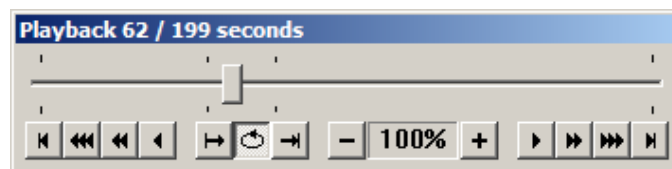
To stop recording select *Stop recording* from the *Recorder* menu or press the key assigned to *Stop recording/playback* in the [keyboard controls dialog](#) (default: ESC). When recording is stopped either manually or automatically, and *No recording dialogs* is not enabled in the [settings dialog](#), a standard file selection dialog appears. Entering a file name and pressing the *Save* button will save the flight to the file and stop recording. If you press the *Cancel* button, you will be asked, if you want to continue recording. Choosing *No* discards all recorded data, while *Yes* continues recording until you select *Stop recording* again.

If the *No recording dialogs* option is enabled in the [settings dialog](#), you will not be asked for a filename, and the recording will automatically be saved in the installation folder of FS Recorder. The file will be named *Rec_* followed by the FS date and time at the beginning of the recording.

Playing back a recorded flight

To play back a flight recorded with FS Recorder, select *Play* from the *Recorder* menu or press the key combination assigned to *Play* in the [keyboard controls dialog](#). This opens a standard file selection dialog. Select the recording you want to play and press the *Open* button to start playback (it is possible to select more than one file here, for details see [playback of multiple recordings](#)). If the *Display playback/replay* option is checked in the [settings dialog](#), *PLAYBACK* will be displayed in the lower right corner, together with the number of played and total seconds.

If you enabled the *Show window during playback* option in the [settings dialog](#) (disabled by default), the playback control window will show up:



You can move this window to any position you like, FS Recorder will remember that position, when it's shown the next time.


The playback control window can cause a drop of frame rate on your system, if FS is running in fullscreen mode (maybe also in windowed mode?). If you experience bad frame rates during playback, try to disable the playback control window.

Slider

The slider shows the current playback position. If [looping](#) is active, the loop start and end points are shown as ticks. The slider can be moved by clicking or dragging with the mouse to search within the recording.

Jump/search buttons




You can jump or search forward or backward through the recording using the following buttons or keys:

Button	Default key	Function
	Home	Jump to beginning
	Page Up	Jump/search backwards 3
	Up Arrow	Jump/search backwards 2
	Left Arrow	Jump/search backwards 1
	Right Arrow	Jump/search forward 1
	Down Arrow	Jump/search forward 2
	Page Down	Jump/search forward 3
	End	Jump to end

The three jump/search modes and speeds can be set in the [settings dialog](#).

Looping


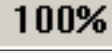

You can loop a part of the recording using the following buttons or keys:

Button	Default key	Function
	Numeric /	Set loop start point
	Delete	Toggle looping on/off
	Numeric *	Set loop end point and start looping

Turning on looping without setting start and end points before will loop the whole recording. The start and end points of the loop are shown as ticks on the slider.

Changing playback speed

You can change the playback speed using the following buttons or keys:

Button	Default key	Function
	Numeric -	Decrease speed
	Insert	Reset speed to 100%
	Numeric +	Increase speed

The following speeds can be selected: 10%, 20%, 33%, 50%, 100%, 200%, 300%, 500%, 1000%.

Stopping playback

To stop playback, select *Stop playback* from the *Recorder* menu, press the key assigned to *Stop recording/playback* in the [keyboard controls dialog](#) (default: ESC), or turn off looping and press the *jump to end* button or key. The last second of the recording will always be played before playback stops. At the end of the recording playback will automatically stop and FS will pause, if *Pause at end* is turned on in the [settings dialog](#).

If you want to stop playback without jumping to the end of the recording, to continue the flight manually from the current position, press the key assigned to *Stop playback at current position* in the [keyboard controls dialog](#) (default: Shift+ESC). **As not all data is recorded by the Recorder, this does not always work as expected and can result in a (plane) crash, if the aircraft is not set up correctly at the moment where you abort playback!**

Playback using a different aircraft model

When playing back a recorded flight, the same aircraft, which was used during recording, should be used. In some cases, however, this might not be possible, e.g. if you want to play a recording, which somebody else made with a commercial addon aircraft, which you don't own. Of course it should be at least a similar aircraft, it doesn't make any sense to play back a B747 flight with a Cessna.

However, even if you use just a different model of the same aircraft (e.g. a freeware 767 to play a flight made with a payware 767), there is the problem, that the height of the reference point of both models usually is different, which would result in the wheels floating above or sinking into the ground. To avoid this, since version 0.8 the Recorder saves the height of the reference point together with the recording, and corrects the recorded altitude data during playback. In case this doesn't work perfectly, you can also fine tune the correction using the *Increase/decrease height correction* keyboard shortcuts defined in the [keyboard controls dialog](#). The default key combinations are:

- Shift + (Numeric +): increase height correction
- Shift + (Numeric -): decrease height correction

Play as traffic

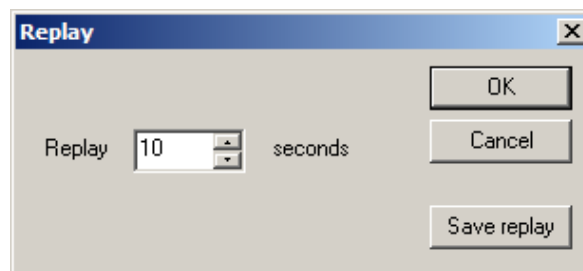
This feature allows you to play back one or more flights you recorded with FS Recorder as (AI) traffic. To use it, select *Play as traffic* from the *Recorder* menu and choose a recorded flight in the file selection dialog (it is possible to select more than one file here, for details see [playback of multiple recordings](#)).

One or more AI aircraft will be created and will fly the recorded flight(s). The aircraft type(s) will be the same as used for recording the flight (if the recording was made with a version of FS Recorder before 1.3, the currently loaded user aircraft will be used). If no aircraft with that title is installed (because you uninstalled it or the recording was made on another system), the respective flight cannot be played. If the *Display playback/replay* option is checked in the [settings dialog](#), *TRAFFIC PLAYBACK* will be displayed in the lower right corner, together with the number of played and total seconds. At the end of playback the aircraft will be deleted.

During traffic playback you can continue flying with your aircraft, and you can even record a new flight (see [recording during traffic playback](#)).

Replaying the last minutes of your flight

If replay is enabled in the [settings dialog](#), you can always play back the last minutes of your flight, even if you didn't start a recording before. To replay the last minutes of your flight select *Replay* from the *Recorder* menu. The following dialog opens:



Enter the number of seconds you want to replay and press the *OK* button to start replay. If the *Display playback/replay* option is turned on in the [settings dialog](#), *REPLAY* will be displayed in the lower right corner, together with the number of seconds remaining. During replay the same features as described in [playing back a recorded flight](#) are available.

Using the *Save replay* button in the replay dialog you can save the entered number of seconds to a file for later playback.

The maximum available replay time depends on the buffer size and the replay interval set in the [settings dialog](#).

All replay data is cleared, when you record a flight, play back a saved recording, or change settings in the settings dialog. If *Clear data on flight or aircraft change* is checked in the [settings dialog](#), replay data is also cleared when you select/reset a flight or select a different aircraft.

Recording during traffic playback

While you are playing back one or more recordings as (AI) traffic using the *Play as traffic* feature, it is possible to record a new flight. To do that, simply start traffic playback, as described under [play as traffic](#) and then select *Record* from the *Recorder* menu, or use the assigned key combination. For more details about recording see [recording a flight](#).

If one of the *Display recording* or *Display playback/replay* options is enabled in the [settings dialog](#), *RECORDING + TRAFFIC PLAYBACK* will be shown in the lower right corner during recording.

If you stop recording, before traffic playback ends, playback will continue. If playback ends, before you stop recording, recording will continue in normal recording mode. During recording + traffic playback no playback controls are available.

This feature is especially useful for creating formation flights: You can record flight A, then play it back as traffic and at the same time record flight B, then play back flights A and B while recording flight C, etc.

Playback of multiple recordings

When you use the *Play* or *Play as traffic* features, you can select more than one recording from the file selection dialog (press Shift or Ctrl to select multiple files). This will result in all selected flights being played back simultaneously. This is useful, if you recorded a flight, while playing back another one as traffic, see [recording during traffic playback](#).

For normal playback (i.e. not traffic playback) of course only one of the selected recordings can be assigned to the user aircraft. This will be the file, which has the focus, when you leave the file selection dialog (usually this is the last file you selected), while all other selected recordings will be played as (AI) traffic. Example: After selecting *Play* you choose file A.frc in the file selection dialog, then you add B.frc and C.frc by pressing the Ctrl key. After pressing the *Open* button, all three recordings will be played, where C.frc will be played using your aircraft, while all others will be played using AI aircraft.

About Synchronization

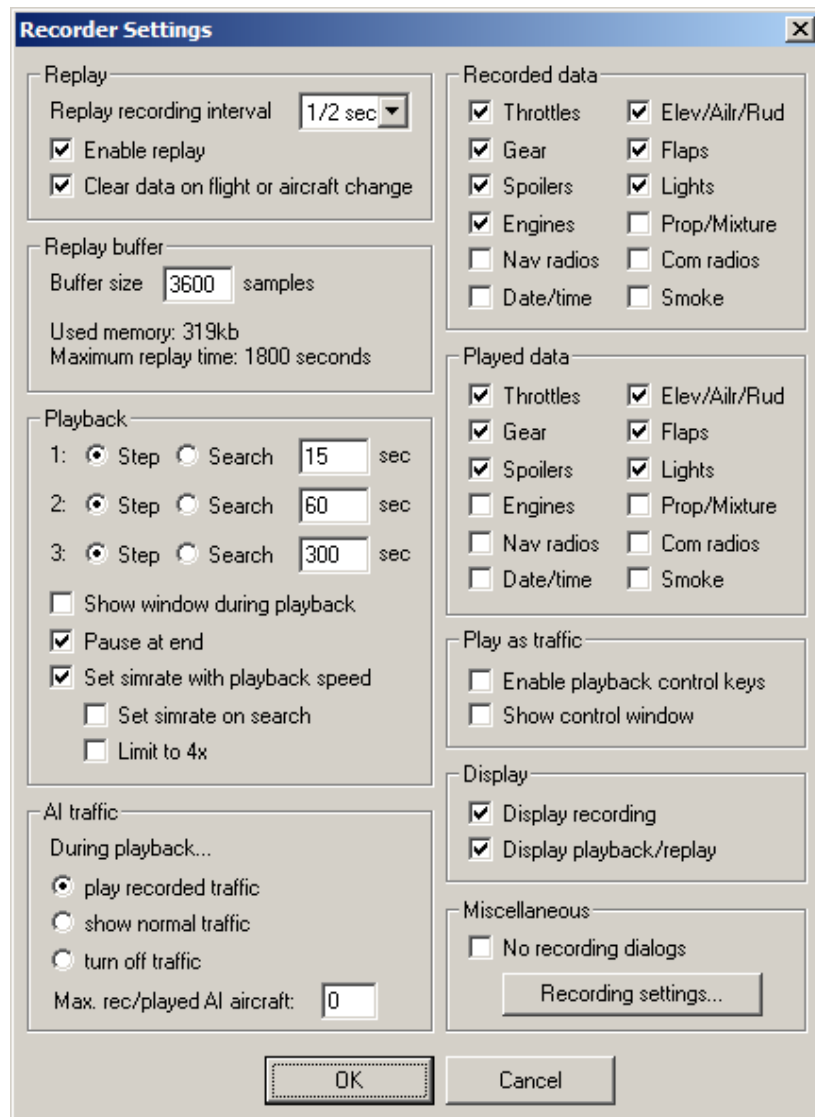
Each recorded file contains a timecode. If you record a flight using normal recording (i.e. not during traffic playback), the timecode will start at zero. If you play back multiple such recordings together, they will all start at the same time.

However, if you record a flight during traffic playback, the timecode of the playing file will also be used for the recorded file. That way it is possible to play back both flights afterwards without losing synchronization.

Here is an example for better understanding: You record a flight A. Afterwards you record another flight B independent of A. Then you start playback of flight A as traffic, and after ten seconds start recording of flight C. This will result in timecodes of A and B starting at zero, while the timecode of C starts at ten seconds. If you play back all three flights together as traffic, playback of A and B will start immediately, while C will start ten seconds later.

Settings dialog

To access the settings dialog select *Settings* from the *Recorder* menu:



The following options can be set in that dialog:

Replay - Replay recording interval

Select the time interval for replay recording here. Shorter intervals result in a more accurate playback, but require more memory, which shortens the maximum available replay time.

Replay - Enable replay

This option has to be checked, if you want to use the replay feature. If it is checked, the Recorder will always record replay data, except when recording or playing back a file.

Replay - Clear data on flight or aircraft change

If this option is checked, all replay data will be cleared, if you load a different aircraft, or load a new/reset the current flight.

Replay buffer - Buffer size

Recorded data for replay is written to a memory buffer. When the buffer is full, the oldest data is overwritten. You can enter the size of the buffer here. Using small values requires less memory, but shortens the maximum time available for replay. The required memory and the approximate maximum replay time for the entered value are shown below the field. The maximum replay time also depends on the replay recording interval. Required memory also depends on recorded data settings.

If you are not sure, what value to enter, you can just keep the default of 3600.

Playback - Step/Search 1/2/3

Here you can configure the modes and step sizes/speeds, for the different jump/search buttons/keys described under [playing back a recorded flight](#). If you select the *Step* mode, playback will jump by the entered number of seconds each time you press the appropriate button/key, while in the *Search* mode playback speed will be increased by the entered factor while you keep the button/key pressed.

Playback - Show window during playback

If this option is checked, the [playback control window](#) will be shown during playback and replay. **The playback control window can cause a drop of frame rate on your system, if FS is running in fullscreen mode (maybe also in windowed mode?). If you experience bad frame rates during playback, try to disable the playback control window.**

Playback - Pause at end

If this option is checked, FS will pause when playback ends.

Playback - Set sim rate with playback speed

If this option is enabled, the simulation rate will be set to the same factor as the playback speed. When you change the playback speed, this option has the advantage, that flaps, gear, AI traffic, etc. will move with the correct speed.

Playback - Set sim rate on search

If enabled, the simulation rate will also be increased during searching.

Playback - Limit to 4x

If the simulation rate is set to more than 4x, FS will disable the AI traffic. To prevent frequent disappearing and reloading of AI traffic, when searching or changing playback speed and *Set sim rate with playback speed* is enabled, this option limits the adjustment of the sim rate to a maximum of 4x.

AI traffic - During playback...

There are three options for AI traffic during playback:

- play recorded traffic: turns off the FS generated AI traffic and plays back recorded AI traffic (if it was recorded with the flight).
- show normal traffic: does not play back any recorded AI traffic, the FS generated traffic will continue.
- turn off traffic: no AI traffic will be shown during playback.

AI traffic - Max. rec/played AI aircraft

Here you can define the maximum number of simultaneous recorded/played back AI aircraft, to reduce the size of recorded files and the memory demand. If you enter zero, there will be no limit.

Recorded data

Here you can choose, which FS variables should be recorded. The more options you check, the larger the recorded files will become. The single options are described in the chapter [recorded data](#).

Played data

With these options you can select, which of the recorded variables should be used during playback. The single options are described in the chapter [recorded data](#).

Play as traffic - Enable playback control keys

If this option is enabled, the playback control key combinations can be used during playback as traffic.

Play as traffic - Show control window

If this option is enabled, the playback control window will be shown during playback as traffic.

Display - Display recording

If this option is checked, RECORDING will be displayed on top of the screen during recording, together with the number of recorded seconds.

Display - Display playback/replay

If this option is checked, PLAYBACK, TRAFFIC PLAYBACK or REPLAY will be displayed during playback/replay on top of the screen, together with the number of seconds played/remaining and loop and speed info.

Miscellaneous - No recording dialogs

This option allows you to start and stop recording without interruption by dialogs (useful e.g. for recording during online flying). If it is enabled, the *Record flight* and save file dialogs will not be shown. To set the recording parameters use the *Record settings* button. Recordings will be saved to the installation folder of FS Recorder, and the file name will start with *Rec_*, followed by the FS date and time at the beginning of the recording.

All settings are saved to the file *Recorder.ini* in the installation folder of FS Recorder. It is not recommended to edit this file! If you delete the file, the Recorder will use default settings and create a new file the next time FS is started.

Recorded data

The following data is always recorded, and set during playback, by FS Recorder:

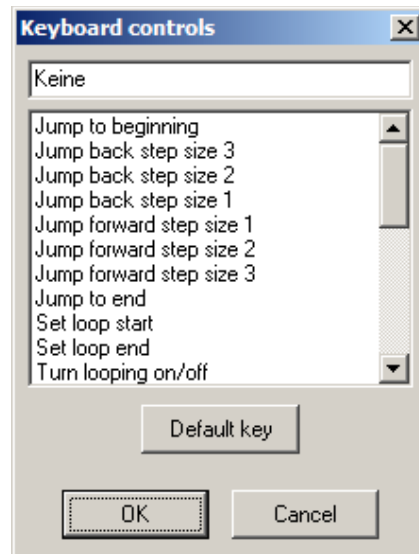
- aircraft latitude, longitude and altitude
- aircraft pitch, bank and heading
- aircraft X, Y, and Z velocities
- aircraft on ground flag
- parking brake

In the [settings dialog](#) you can define, which of the following data should be recorded and set during playback:

- Throttles: throttles 1 to 4
- Elev/Ailr/Rud: elevators, ailerons, rudder
- Gear: gear handle
- Flaps: flap handle
- Spoilers: spoilers/speedbrake handle
- Lights: all default aircraft lights
- Engines: engines 1 to 4 on/off
- Prop/Mixture: propellers and mixtures 1 to 4
- Nav radios: VOR 1 and 2 frequency and course, ADF frequency
- Com radios: COM 1 and 2 frequencies, transponder code
- Date/time: zulu date and time (currently not available for playback in FSX version)
- Smoke: smoke on/off

Custom keyboard controls

To customize the keyboard shortcuts to control the Recorder, select *Keyboard controls* from the *Recorder* menu. The following dialog will appear:



If you select a command from the list, the currently assigned key combination will be shown in the hotkey field above. To change it, just press the key combination you want to assign (the focus has to be on the hotkey field!)

By pressing the *Default key* button, you can reset the default key combination for the selected command.

Known problems and limitations

- The playback control window can cause a drop in frame rate, at least when running FS in fullscreen mode. Try to disable the playback control window, if you experience bad frame rates during playback.
- For certain addon aircraft using custom programmed systems, recording/playback of certain variables may not work correctly.
- The *Play as traffic* feature does not work with helicopters and certain addon aircraft.
- If during playback the smoke system is used on multiple instances of the same aircraft (same model and variation), the smoke will stay on forever on some of these aircraft. This is a problem of FS, and the only workaround is, to use a different variation for each aircraft.

Support

If you need support, found a bug, have suggestions for improvements, or any other comments on the FS Recorder, visit the support forums at <http://www.fs-recorder.net>.

To contact the author directly, send an email to support@fs-recorder.net.

Please report all bugs you find, so that they can be fixed.

Before contacting me for support in case of problems, first read this manual, especially the [known problems and limitations](#) section and search the support forum for a solution to your problem! Also check if you have the newest version, which can be found in the downloads section of <http://www.fs-recorder.net>.

Donations

If you want to support the development of FS Recorder, you can make a donation via PayPal directly using [this link](#), or go to the PayPal website and use donations@fs-recorder.net as recipient's email.

I hope you enjoy my product.

Matthias Neusinger