



Silent Wings Viewer Manual

Version 1.09

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Installation and setup

To install the Silent Wings Viewer you should follow the instructions on the Silent Wings website, but generally the procedure is as follows.

1. Obtain an installation package, either by downloading or by purchasing a DVD.
2. Install the Silent Wings package.
3. Install one or more scenery packages.
4. Acquire a license key for the software.

Both the Silent Wings Viewer and the Simulator are distributed in one installation package, and the applications are installed to the same directory on the hard drive. This is because the viewer and the simulator share most of the data files for aircraft and scenery.

Scenery packages may be distributed in .zip files. These files must be unzipped to the correct folder, usually:

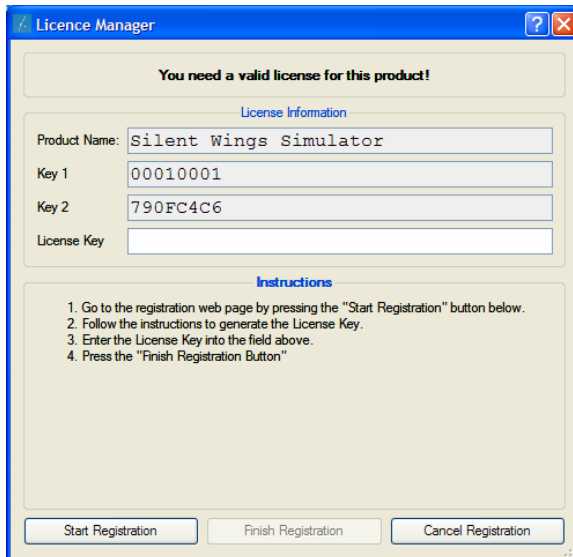
C:\Program Files\Silent Wings\Silent Wings\data\scenery

Adding Scenery directories

You may want to keep the scenery files in different directories, due to hard drive space requirements. For instance you may want some of the larger sceneries on an external hard drive. In order for Silent Wings to find all the scenery files you need to set up the search path for scenery. To do this, go to the "General" section in the Options window, and add all the scenery directories to the "Scenery folders" list.

License manager

An important step before you can start using the Silent Wings Viewer is to obtain a License Key for the software. You can either register for a time-limited demo key, or purchase a full license key.



The screenshot shows the 'Licence Manager' window with a blue title bar. The main area has a yellow background and a message: 'You need a valid license for this product!'. Below this is a section titled 'License Information' with input fields for 'Product Name' (containing 'Silent Wings Simulator'), 'Key 1' (containing '00010001'), 'Key 2' (containing '790FC4C6'), and an empty 'License Key' field. Below the input fields is a section titled 'Instructions' with a list of four steps: 1. Go to the registration web page by pressing the "Start Registration" button below. 2. Follow the instructions to generate the License Key. 3. Enter the License Key into the field above. 4. Press the "Finish Registration Button". At the bottom of the window are three buttons: 'Start Registration', 'Finish Registration', and 'Cancel Registration'.

When running the software for the first time, the License Manager will appear automatically. Just follow the instructions given to connect to our registration server and acquire a valid license key.

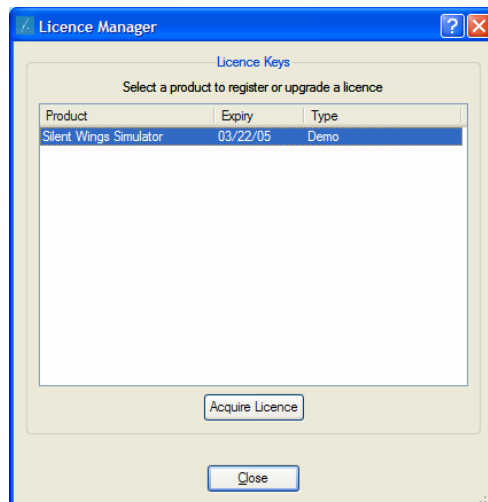
You can register for a free demo license or purchase a full license. The demo license is limited to 14 days, and only the G-103 Twin II trainer aircraft is available.

The full license can be purchased online with all major credit cards, and has of course no limitations in duration or aircraft selection.

If you want to upgrade a demo license at a later time, or if you install new add-on products such as aircraft or scenery, you can access the license manager through the button on the main user interface screen.

This will open a list of installed products and the associated license keys. If a license key is upgradeable or if you have an unlicensed product, you can select this product key and press the "Acquire License" button. This will open the registration dialog as shown earlier.

License keys are tied to your computer, so if you change computer you need to obtain a new license key. If you have paid for a full license, this can be transferred to your new computer.



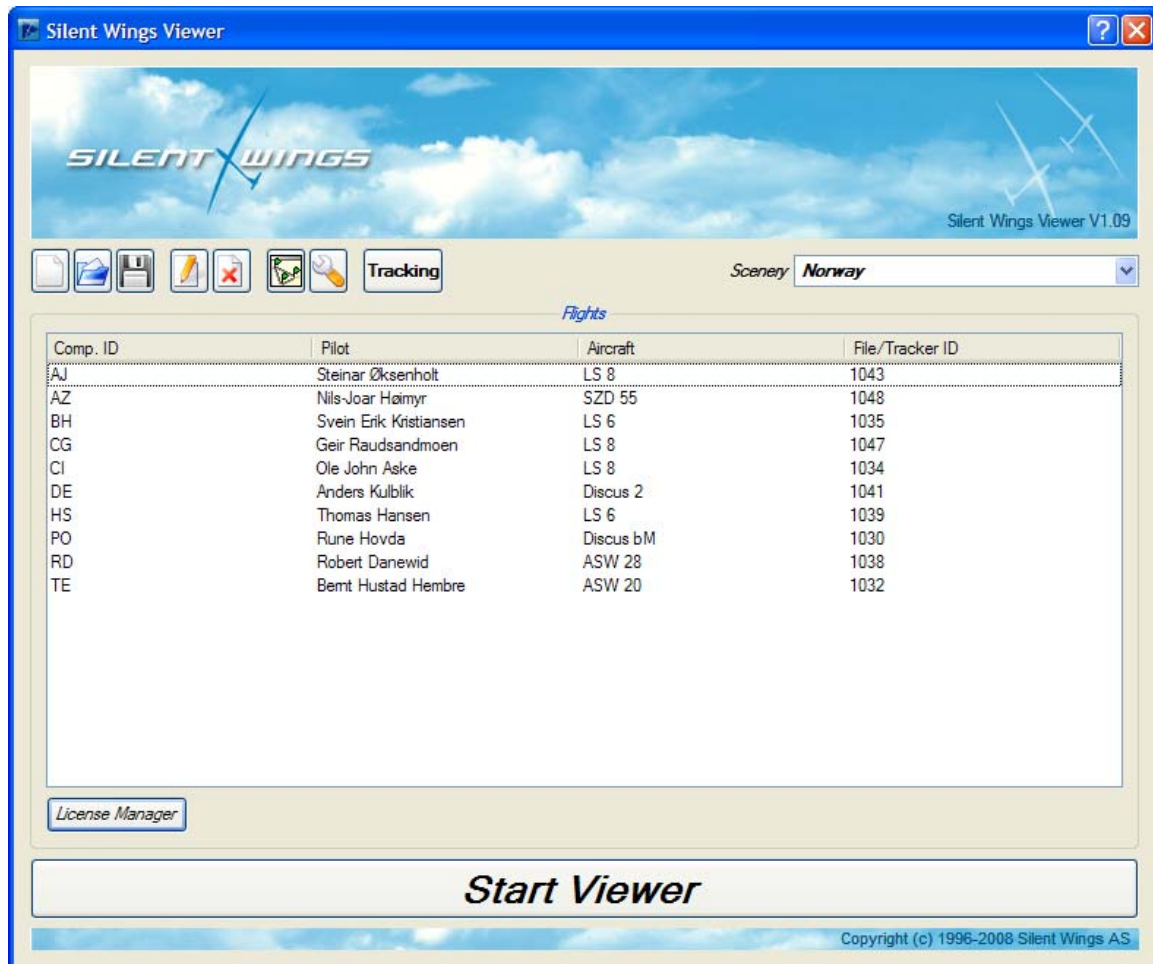
The screenshot shows the 'Licence Manager' window with a blue title bar. The main area has a yellow background and a message: 'Select a product to register or upgrade a licence'. Below this is a table with three columns: 'Product', 'Expiry', and 'Type'. The table contains one row: 'Silent Wings Simulator', '03/22/05', and 'Demo'. Below the table is an 'Acquire Licence' button. At the bottom of the window is a 'Close' button.

Product	Expiry	Type
Silent Wings Simulator	03/22/05	Demo

Getting started

When you start the Silent Wings Viewer application you will be met by the main screen, which primarily consists of a list of flights. These flights can be either IGC log files or tracks from the vPos server.

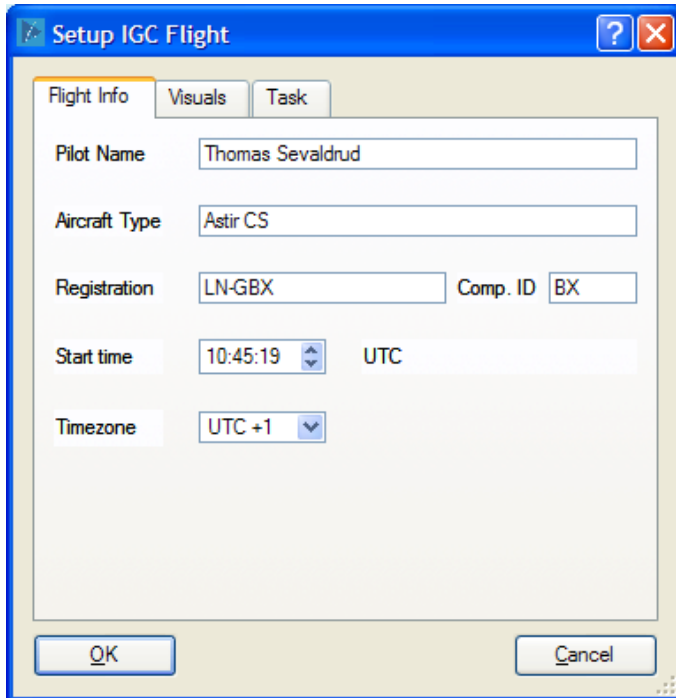
On the right side of the main toolbar is the “Scenery” selection. Here you can select from the installed sceneries. When loading flights, Silent Wings Viewer will automatically try to find the best scenery for this flight, but you may want to override this manually if you have any local high resolution sceneries installed.



To add an IGC flight, just click the “Load” button and select one or more IGC files. You will get one entry for each file in the flight list.

Flight setup

Each flight can be edited by double-clicking the flight or pressing the "Edit" button. Here you can set up various parameters for the display of the flight. Most of the values will initially be filled in with values from the IGC file or from the vPos server.

The image shows a screenshot of a software window titled "Setup IGC Flight". It has three tabs: "Flight Info" (selected), "Visuals", and "Task". The "Flight Info" tab contains several input fields: "Pilot Name" with the text "Thomas Sevaldrud", "Aircraft Type" with "Astir CS", "Registration" with "LN-GBX" and a "Comp. ID" field with "BX", "Start time" with a time picker set to "10:45:19" and a "UTC" checkbox, and "Timezone" with a dropdown menu set to "UTC +1". At the bottom are "OK" and "Cancel" buttons.

Pilot Name: This is the name displayed for this aircraft on the results list, and on aircraft labels.

Aircraft Type: This is the aircraft name which is displayed on aircraft labels and the results list. (This is not necessarily the same as the 3D model).

Registration/Comp ID: This is the aircraft registration and competition number which are displayed on the aircraft model, on labels and in the result list.

Time: This is the start time for the visualization. The viewer will analyze the log file

and try to set this at the time of tow release. If you add more flights, these will be synchronized to the same time.

Time Zone: The time zone where the flight was made. This is used to display correct time in the viewer. The time zone is determined automatically from the longitude of the flight, but it may need to be corrected manually for political boundaries and daylight savings time.

Visuals

On this tab you can set the colors of the registration letters, as well as for the labels 3D track lines seen in the viewer. You can also set up the 3D model used to represent your aircraft.

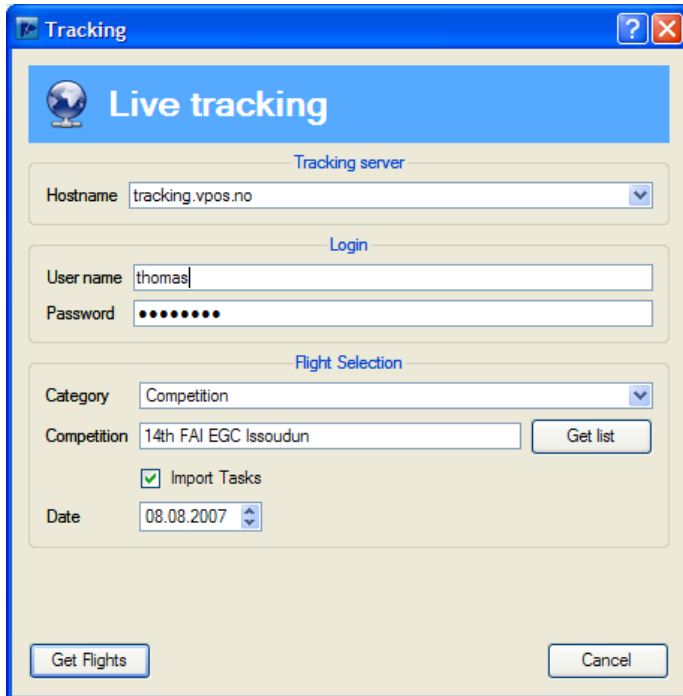
Task

Here you can either set up a task from the Silent Wings task planner by pressing the Edit button or you can import a task from the IGC file by pressing the Import button. (The imported task can also be edited in the task editor).

Live tracking

By connecting to a tracking server, such as vPos, you can view flights in real-time using the Silent Wings Viewer. You can also see tracks from previous flights which are stored on the server.

To use this functionality you usually need a user name and password. For vPos, go to tracking.vpos.no to register and get your login details. Other tracking providers may have different requirements, but they usually will have a user name and password.



First you need to connect to the server and get a list of all available flights. Check that you have an active internet connection and press the "Tracking" button on the toolbar, and you will see the following dialog box

Select a tracking server, fill out the user name and password and press the "Get list" button to see a list of available events.

The Competition Dialog will show a list of competitions with tracking on the server. For each competition there is a list of competition days which can be selected.

Invalid competition days (days that were cancelled for some reason or other) appear in gray.

When you have selected a competition day, click "Get Flights" and you will get a list of flights in the flight list. You can now edit the flights to set up visual models, track colors, etc.

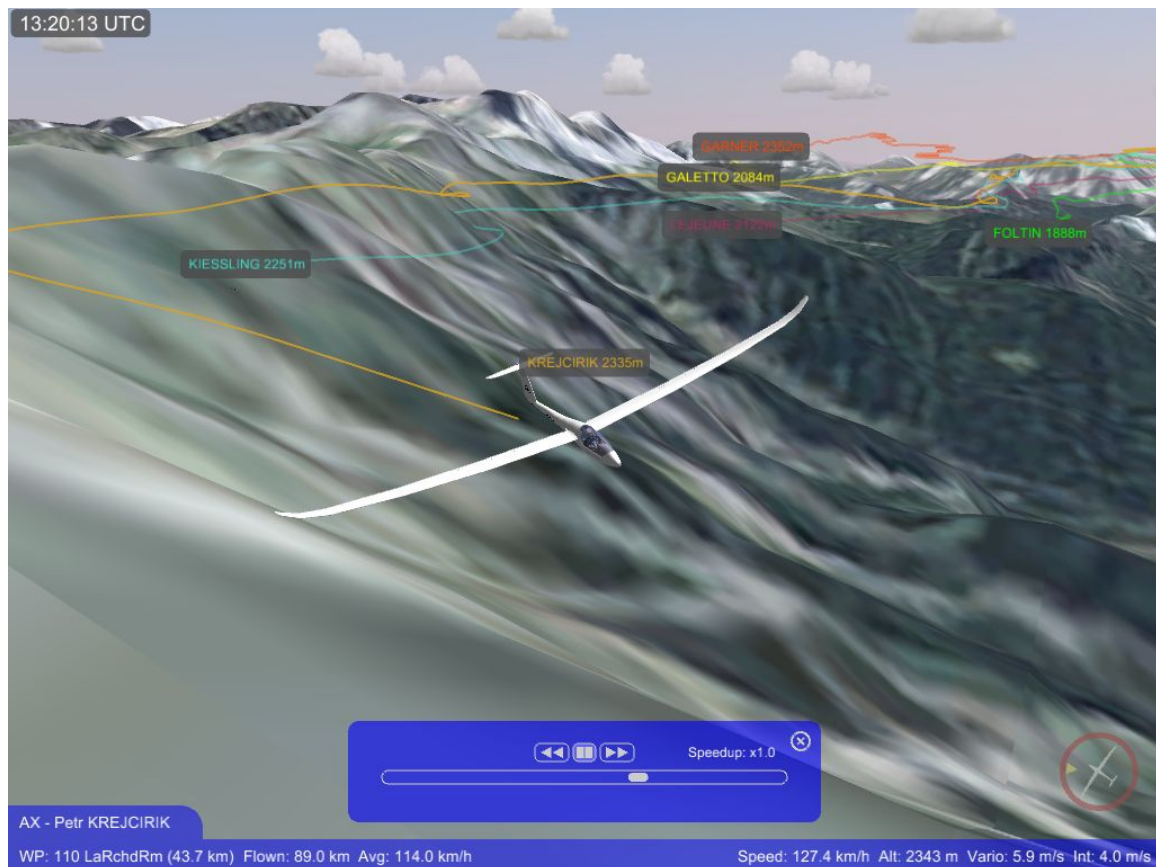
When you are happy with the parameters, press "Start Viewer" to start the visualization and tracking.

Live tracking

If you have selected a "live" event, the visualization will start with a 15 minute delay due to IGC rules. This means that you will not be able to move the time slider past the current time minus 15 minute. As the competition progresses however, the competition management may opt to reduce this delay. The current minimum delay is always displayed in the upper left hand corner of the viewer window.

Viewing flights

After pressing the "Start Viewer" button the actual 3D visualization of the flights will start.



In the viewer you can select between different camera angles, switch between different gliders, as well as move forward and backward in time.

The various camera modes are all placed on the "F-keys" on your keyboard, see the keyboard reference section for a full list. (You can also see the keyboard reference list in the viewer by pressing the "H" key).

To control the direction of the camera, drag your mouse with the right button pressed. Alternatively you can use the arrow keys on your keyboard. To zoom in and out, use the mouse wheel or the +/- keys on your keyboard.

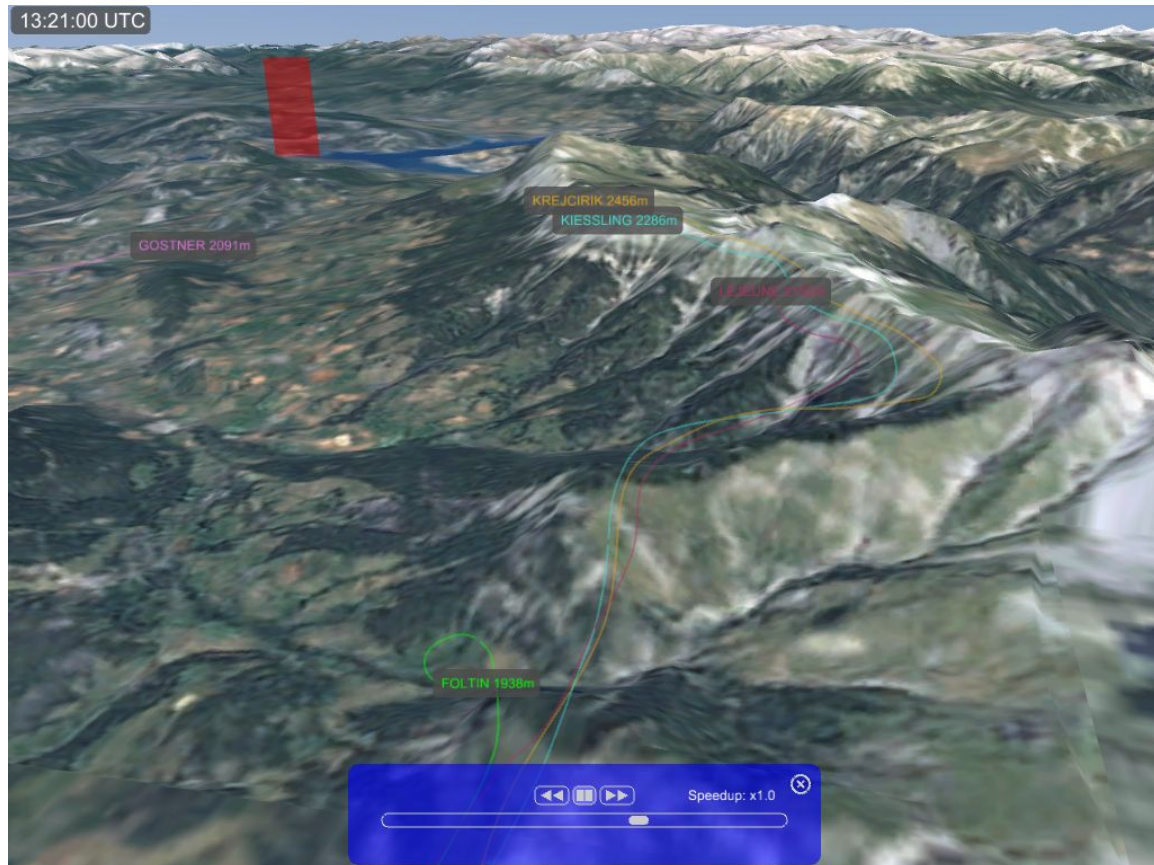
The control panel in the lower part of the screen is used to move in time. By dragging the slider you will move forwards and backwards along the track. The playback control panel can be toggled on and off with the "Enter" key.

To get a list of all the gliders, press the "TAB" key. This list shows all the gliders sorted by task average speed (or by task distance if using Grand Prix rules). You can select gliders in this list and the visualization will switch to that aircraft.

In cockpit mode you can double-click the instruments in the instrument panel to overlay them on top of the 3D display for better readability.

In the lower right section of the display you can see the wind indicator. This shows the wind direction relative to the aircraft, as well as the heading of the aircraft itself (North is up).

Overview camera

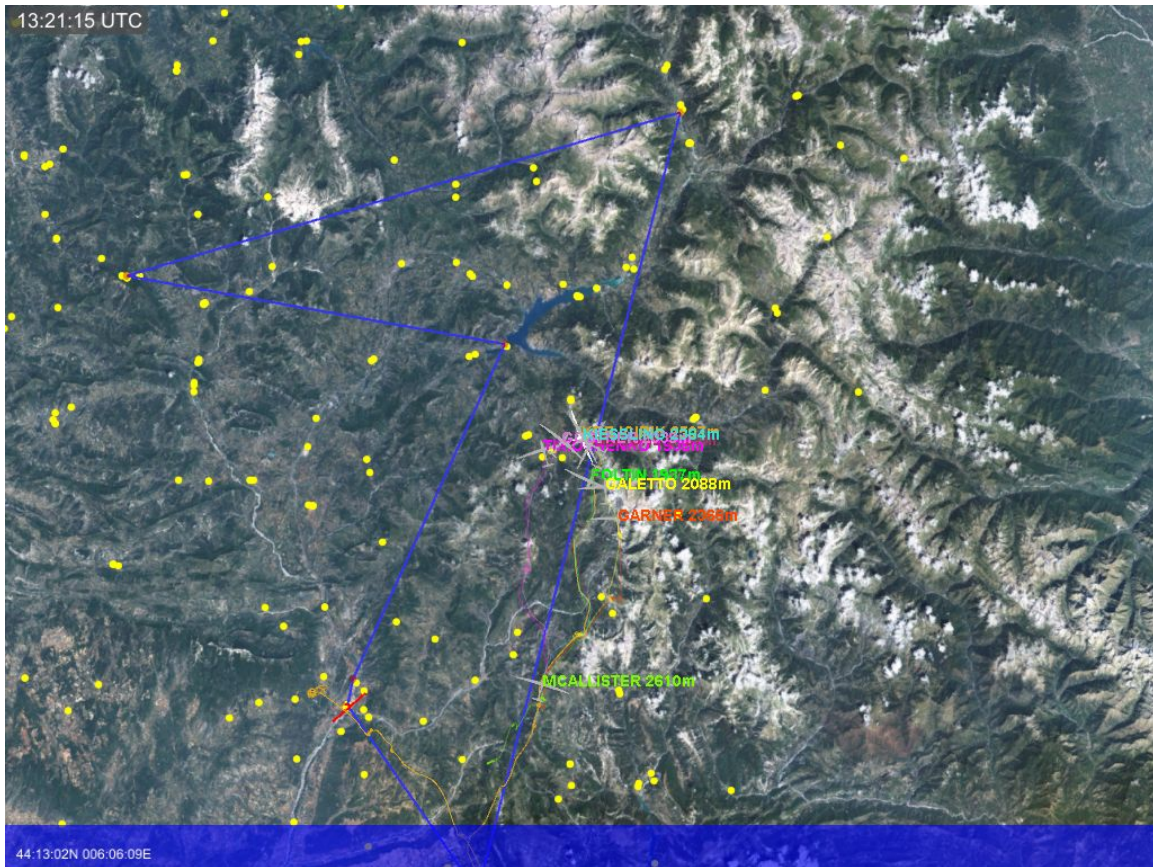


By pressing the F8 key you will get the overview camera. This mode is especially useful for getting an overview of a situation with many aircraft. It is essentially a 3D map, similar to Google Earth™ where you can move around by “dragging” the terrain surface with the left mouse button and tilting the camera by using the right mouse button. Zoom in and out by using the mouse wheel.

The map screen

By pressing the “M” key you will be taken to the map screen. On the map screen you can see all the aircraft in the airspace around you, task info and turn points. By mousing over a turn point (yellow dots) you get info on that point. You can zoom in and out by using the mouse wheel or pressing the +/- keys. You can pan around the map by dragging the mouse with the left mouse button pressed. Alternatively you can use the arrow keys. Another

useful feature with the map screen is that you can measure distances by pressing the right mouse button and dragging over the map.



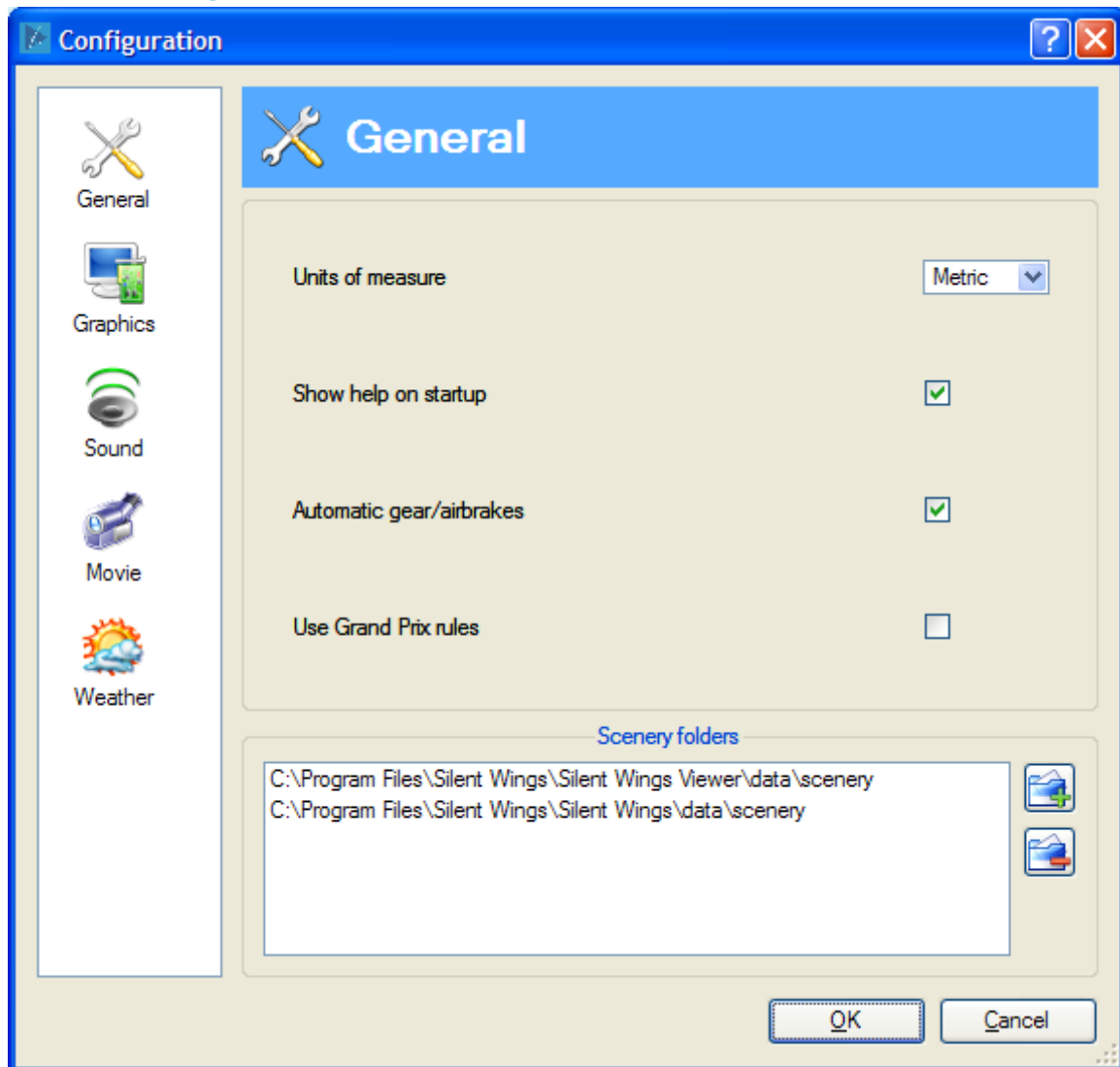
All aircraft selection commands, time speedup, pause and a few other key commands also work in map mode.

By pressing the space bar, the map will lock on the currently selected aircraft. By panning the map, this lock will be released.

Configuration

By pressing the “Options” button on the main page, you will be taken to the Options screen where you can configure the different options in the viewer.

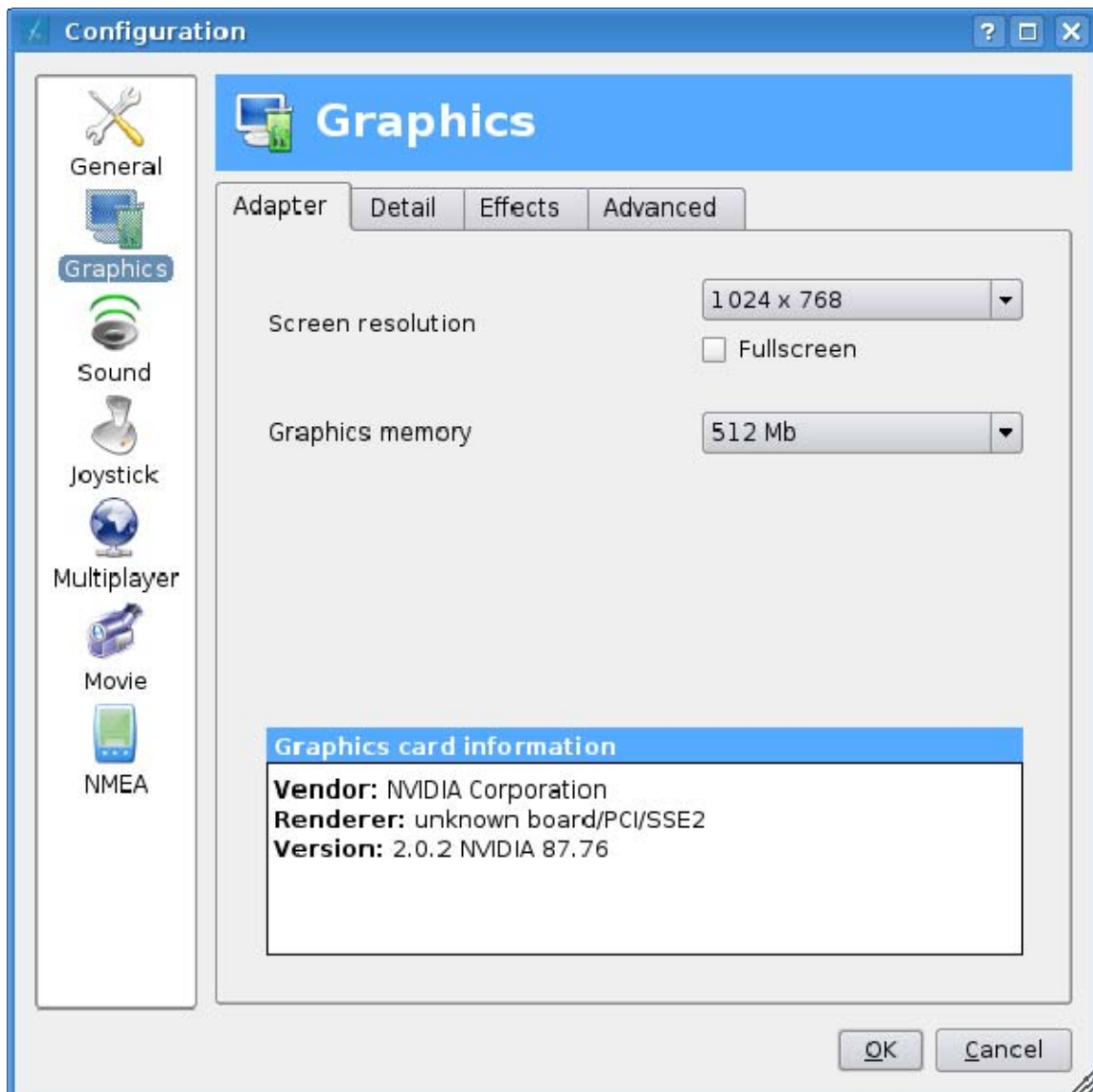
General Options



Units of Measure: Here you can select units system, either metric (meters, km/h, etc) or Imperial (feet, knots, etc).

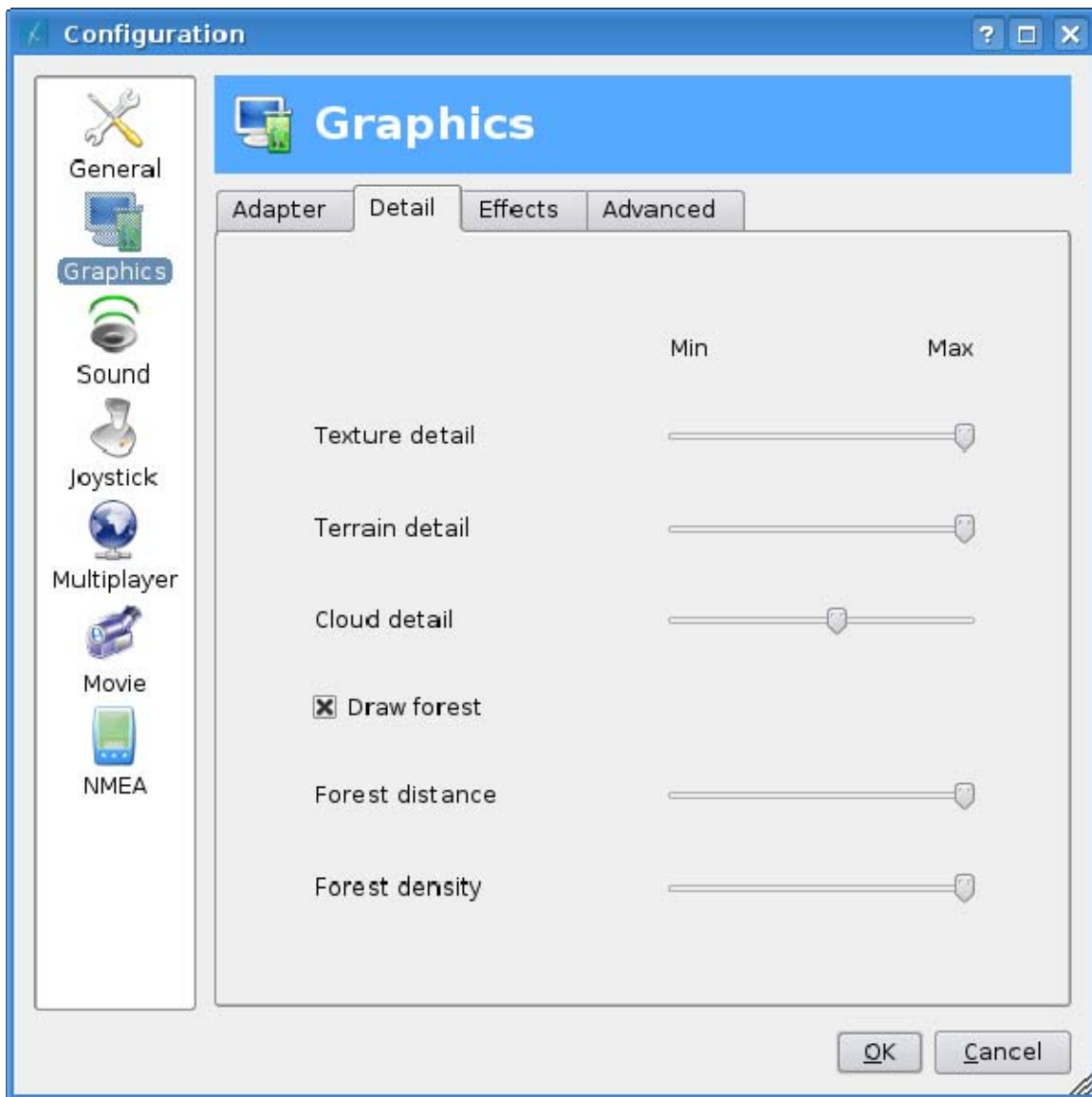
Scenery Folders: If you want to install scenery in other folders than the default, you can set up extra search paths for scenery in this list. All of the folders in the list will be searched for scenery, and all scenery found will appear on the Location bar in the flight planner.

Graphics Options



Screen Resolution: In this section you can select screen resolution and other screen options. By enabling the fullscreen option, the program will switch to the selected screen resolution and run in full screen mode. If not, the program will run in a regular window on the desktop.

Graphics Card Memory: Set this value to the amount of memory on your graphics card. By setting this value too high or too low, rendering speeds may be slower.



Texture Detail: This slider controls how detailed the ground textures should be. If you experience serious “stuttering” or rendering slowdown after flying for a while, you should try reducing this parameter

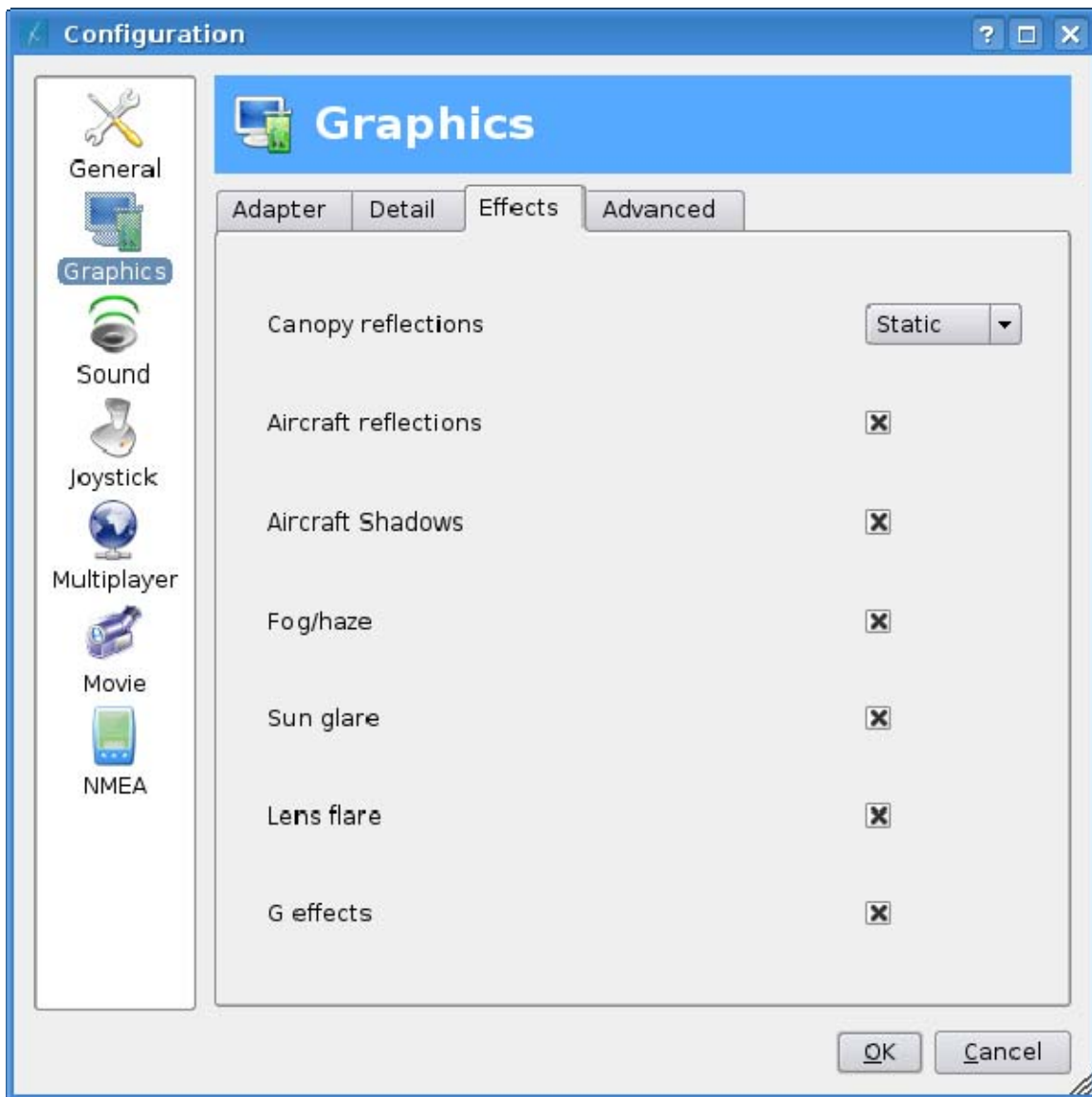
Terrain Detail: This slider controls how detailed the rendering of the terrain surface should be. By reducing detail you can increase rendering speed, especially on older graphics cards.

Cloud Detail: This detail controls how detailed each cloud should be. You can increase rendering speed by reducing this parameter in exchange for lower visual quality on the clouds.

Draw Forest: Enable this to enable forest rendering.

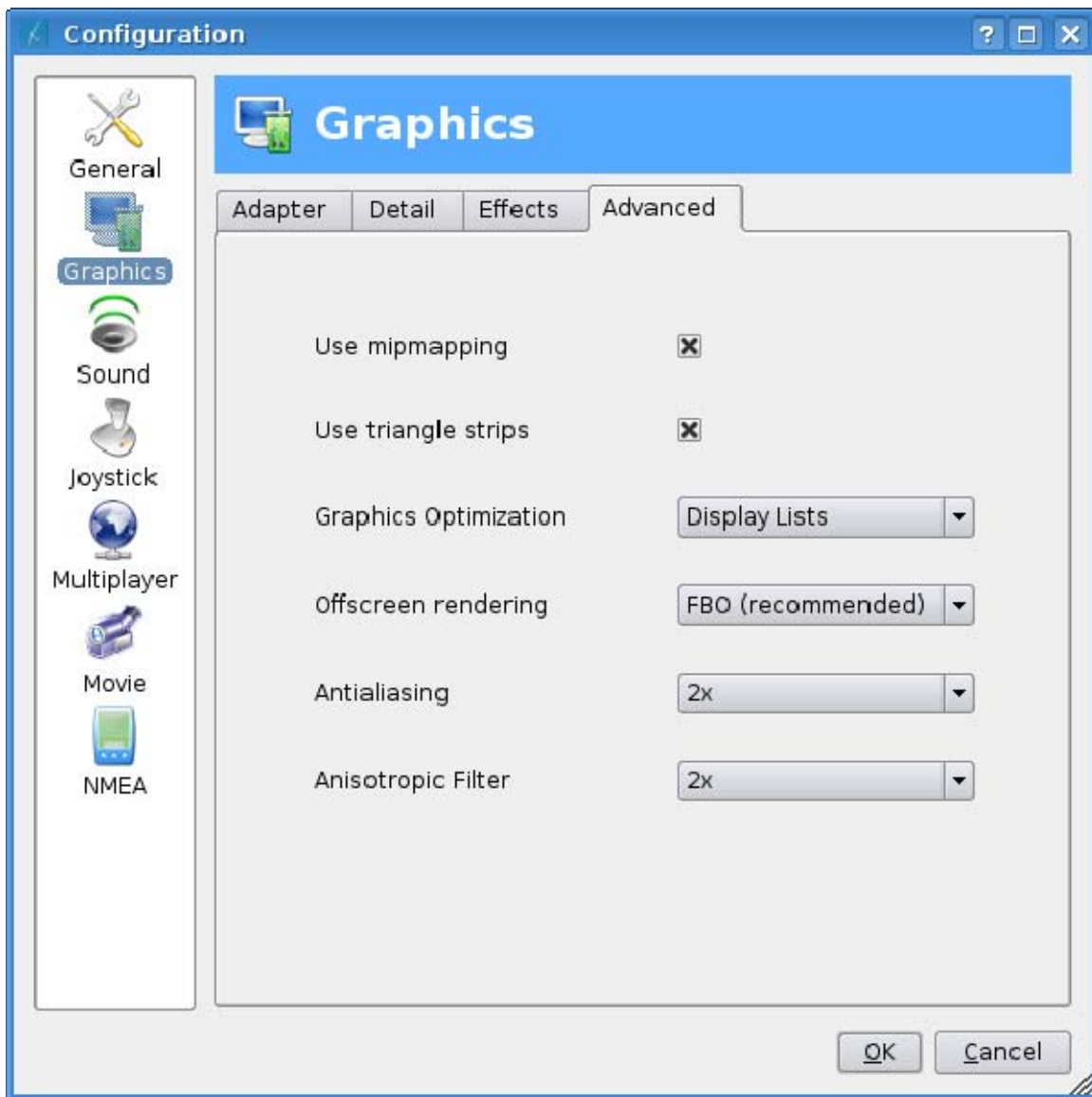
Forest Distance: This slider sets the distance of where the trees in the forest get are inside the visible range.

Forest Density: This slider sets the tree density in the forests.



Effects: By turning off some of these options you can increase rendering speed by sacrificing some of the visual detail.

Canopy reflections: This enables the reflection of the cockpit in the canopy. If set to "Dynamic" you can see the movement of the stick and instruments also in the reflections, but it comes at a penalty of a lower framerate. The "Static" mode gives a static reflection image, which usually causes better performance.



Advanced Options

These options should normally be left as is unless you experience problems with the software, or if you are familiar with the workings of modern graphics cards.

Use Mipmapping: This switch toggles use of “mip-mapping” a technique for smooting the textures to avoid “shimmering” pixels, especially in the horizon. Most users should leave this option enabled.

Use Triangle Strips: This switch toggles use of “triangle strips” which does optimize the rendering of groups of triangles. Most users should leave this option enabled.

Graphics Optimization: This option controls the optimization of the graphics data on the graphics card. These settings are usually determined automatically during initialization, but you may experiment with different

options here. For NVIDIA hardware we recommend using "Display Lists", while on ATI graphics hardware you may experience better performance with "VBO".

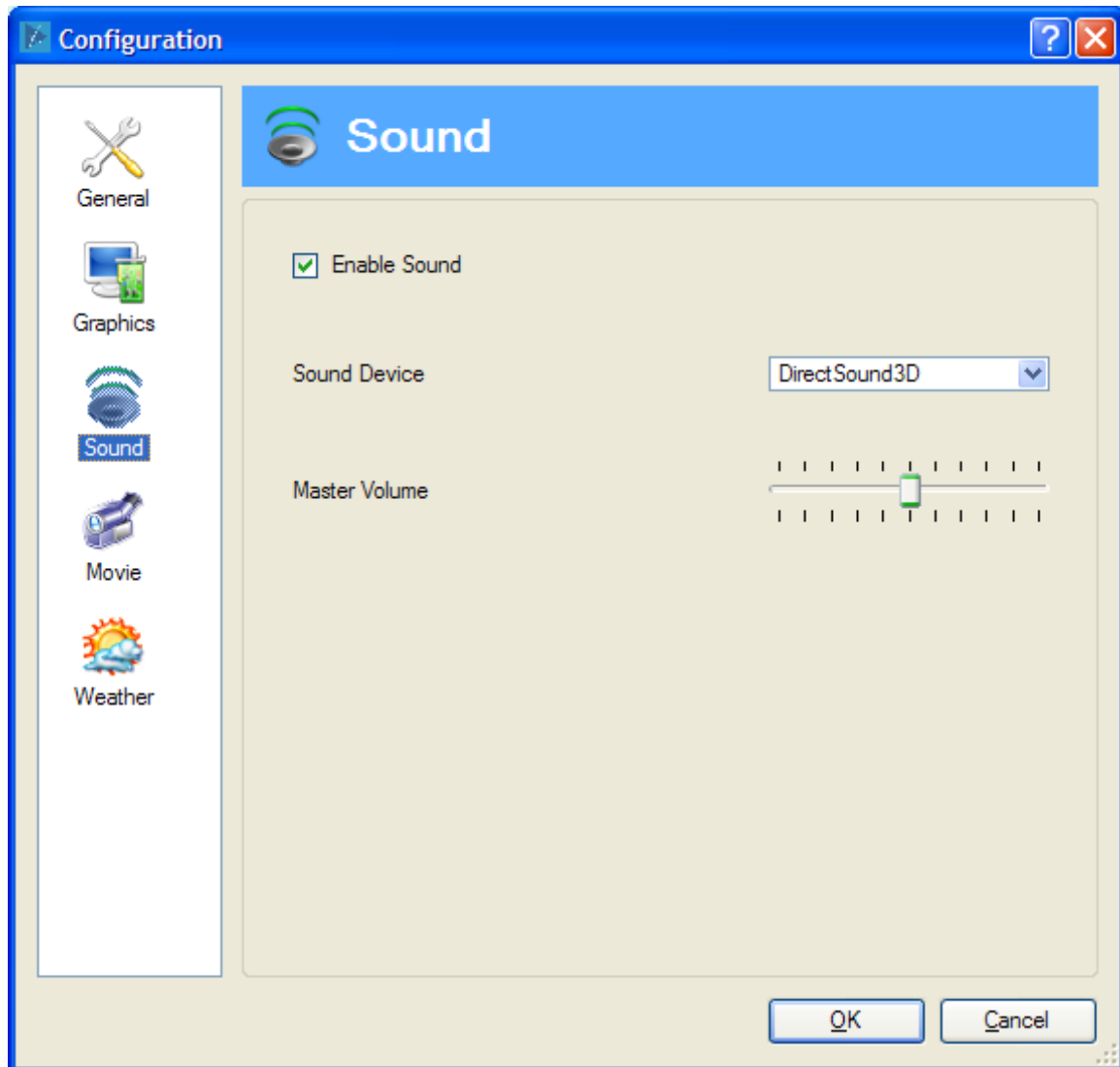
Offscreen Rendering: If you experience "stuttering" in the rendering or graphics errors related to the registration letters, you can try disabling this setting, but you will lose the flight computer instruments on your instrument panel as well as the custom registration letters. The FBO method is recommended, but on some graphic cards/drivers PBuffers work better.

Antialiasing: This option is used to enable full-screen antialiasing. This option will smooth the edges of the graphics to avoid the typical "staircase effect" seen especially in lower screen resolutions. This option will often come at the expense of rendering speed, so don't use this on older graphics cards.

Anisotropic Filtering: This option is used to enable anisotropic filtering which improves the visual quality of the textures.

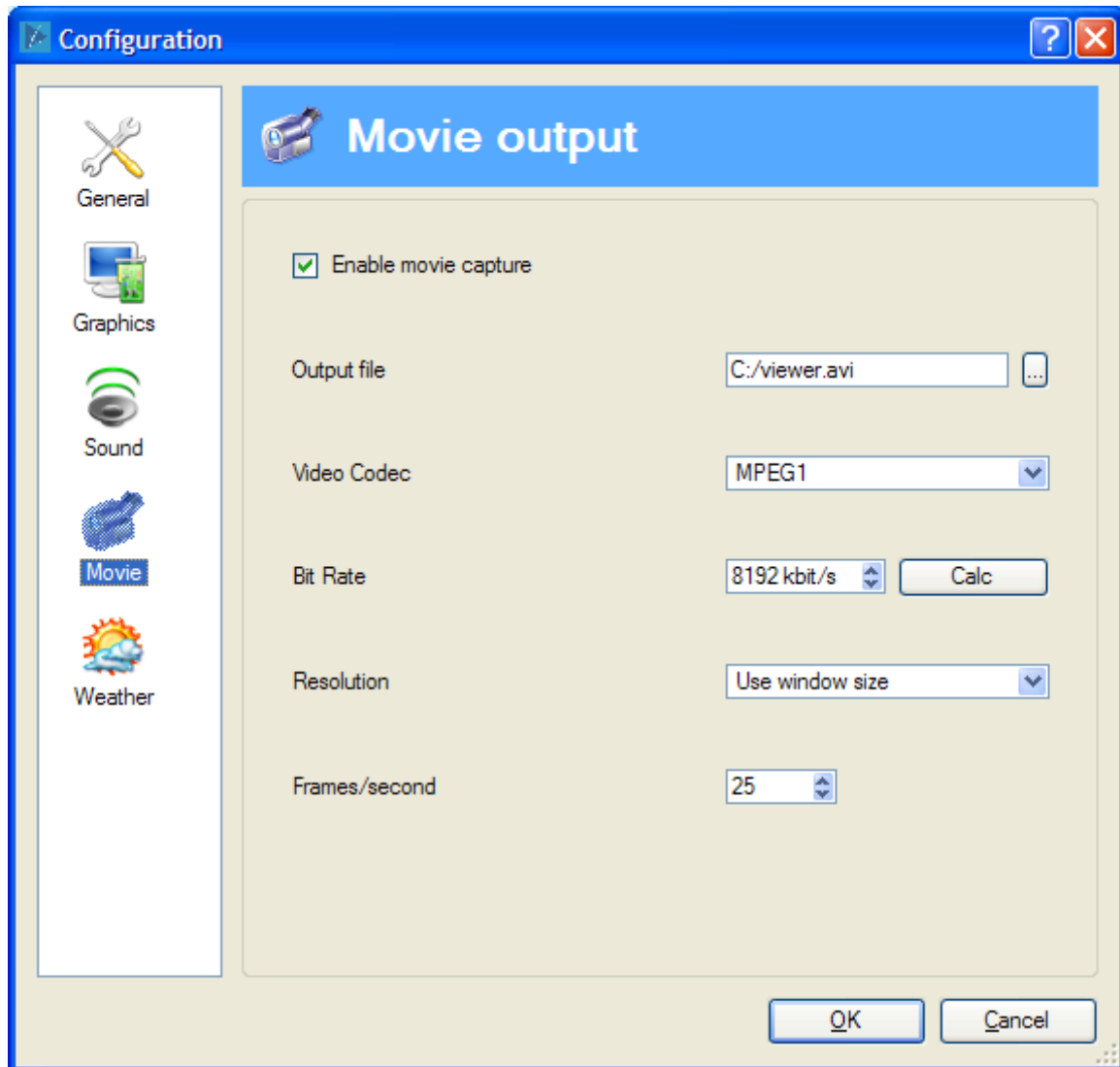
Sound Options

Here you can enable or disable the sounds in the program, adjust the master volume, and select which sound device to use. On Windows there will be three available sound devices. Normally, you can leave this setting in its default (Direct Sound 3D), but if you have trouble with the sound, you should try one of the other settings. On Linux this setting has no effect.



Movie Options

In Silent Wings you can record your flying to a standard movie file. Unless you have a very powerful computer, this is going to slow down the simulation, so the viewer will probably run in "slow motion". To record movies, you must enable the "Movie capture" option on this page, and press "Alt+R" in the program. To stop recording, hit "Alt+R" again.



Output File: Set the name of the output file. If you select MPEG1 or MPEG2 as video Codec, this file should end with ".mpg". For DivX movies, use ".avi" as file extension.

Video Codec: This option controls which video encoder should be used to produce the movie. You can select from the Following:

- *MPEG1:* Simple codec for maximum compatibility. Use this if you want to share your movie with people who don't have the newest movie player software.

- *MPEG2*: This is the standard format for DVD movies. This requires MPEG2 playback software which usually is bundled with video editing software. Use this codec if you want to edit your movie and make a DVD of it.
- *MPEG4 (DivX)*: This format is very efficient in terms of compression, which means that DivX movies usually takes less space than the other formats. Use this if you want to share your movie on the internet. This format requires DivX software to play back.

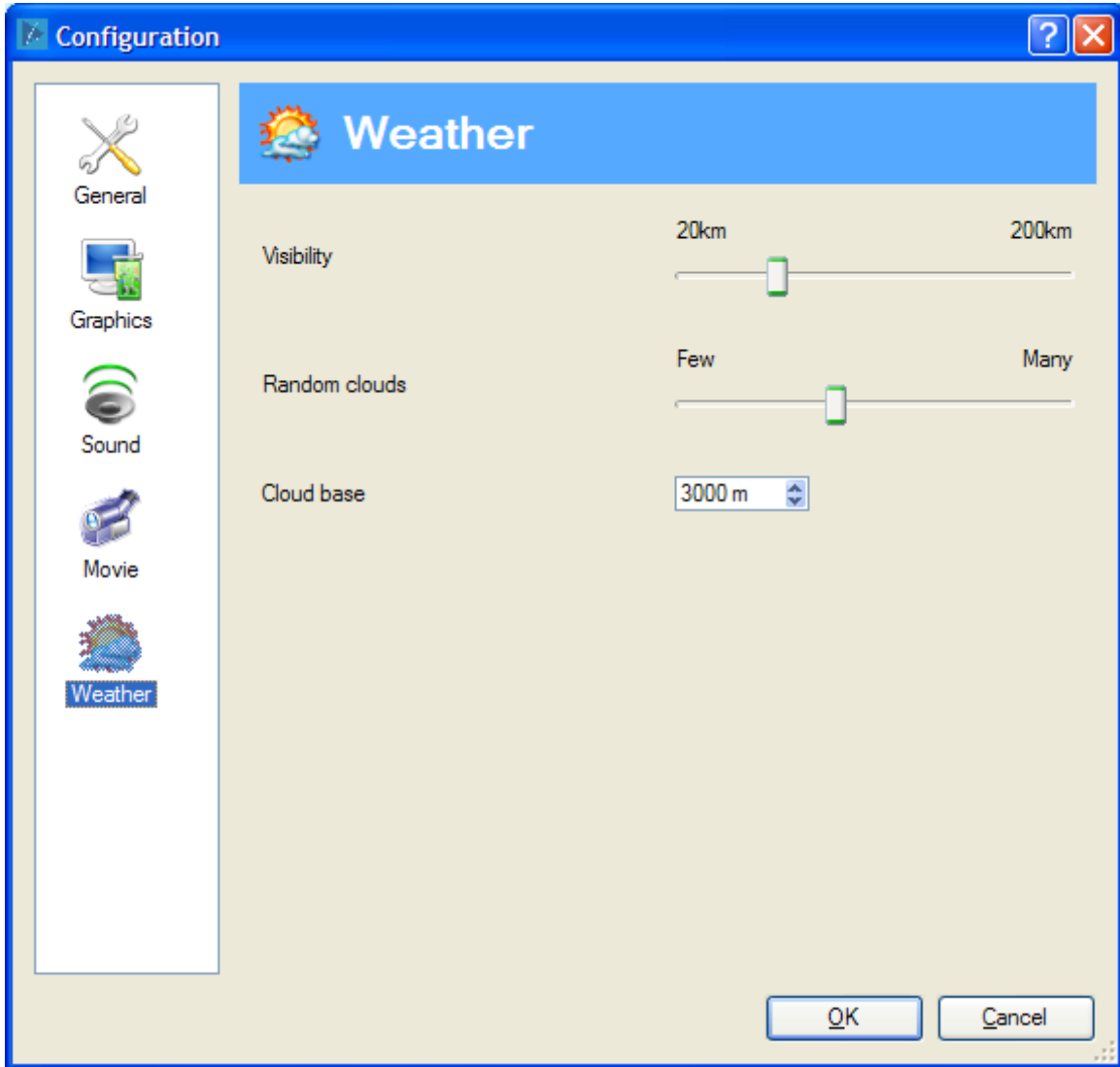
Bit Rate: This option controls the compression and quality of the movie. Higher bit rates means larger movie files and better image quality. Low bitrate gives smaller files with lower quality. Press the "Calc" button to calculate a suitable value for a given image resolution.

Resolution: Select image resolution here. Large images requires more space to encode, so you should probably not select a resolution higher than DVD quality. For best performance, you should use the same resolution as the window size, to avoid rescaling each frame when encoding it.

Frames/Second: This controls the frame rate of the movie. The European PAL system use 25 frames per second, while the American NTSC standard has 30 fps.

Weather Options

The Silent Wings Viewer software will draw 3D clouds randomly around the aircraft and some haze in the horizon to increase the visual realism.



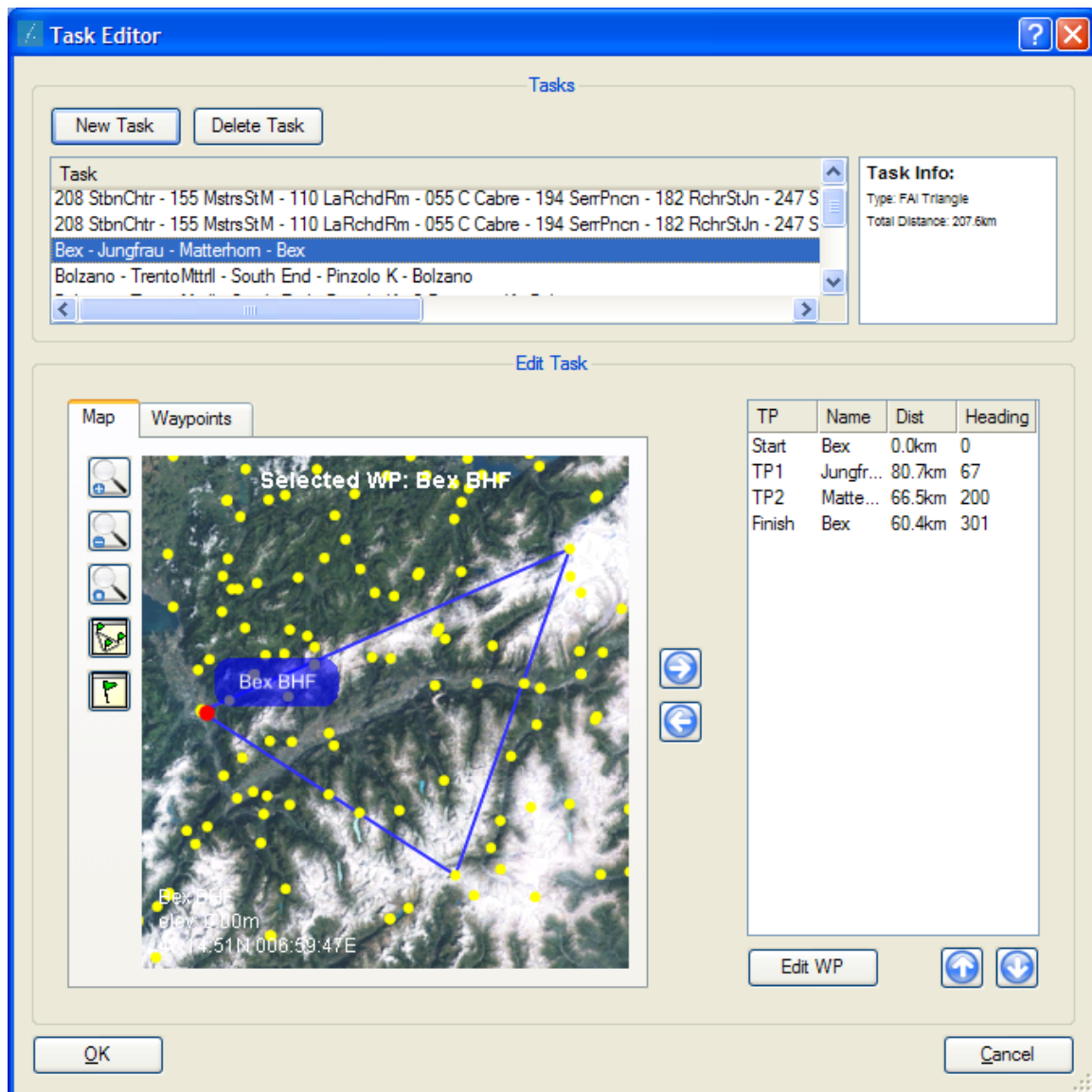
In this window you can adjust the weather visualization for the viewer. The *visibility* slider adjusts how far you can see around the glider. The *random clouds* and *cloud base* controls can be used to adjust the number of cumulus clouds and how high above the terrain they will occur.

Please note that the 3D clouds may have a negative effect on the frame rate for some computers. If you have low frame rates and “stuttering” in the visualization, try reducing the number of clouds.

Task editor

The task planner is where you can set up and edit cross-country tasks. You can import a task from the IGC file, or from the vPos servers. These tasks will be stored in the Task editor where you can edit it as you like.

In some cases you don't have a task in the IGC file, but you can still set up a task from scratch in the task planner and assign it to a flight, so you can get the correct scoring for the flight.



The task planner consists of three main areas; the task list (top of the screen), the map and waypoint list (left) and the task point list (right).

The task list contains available tasks in the current area. (Each scenery area has its own set of tasks). When selecting a task, some info is selected in the top right corner, and the task is shown in the map. The waypoints of the

selected task are listed in the task point list. To assign a task, simply select it in the task list and press OK.

Creating a new task

To create a new task, press the “New Task” button. You will now get an empty task. Select a start point, either by clicking a yellow turning point indicator in the map, or by selecting from the list on the “Waypoints” page.

On the “Waypoints” page you can also search in the list of available waypoints. This can be handy if you know the name of the waypoint, but not exactly where it is.

When a waypoint is selected, add it to the task by pressing the right arrow button between the map and the task waypoints list. (This button is only active when a waypoint is selected). Continue by selecting more waypoints and adding them to the list.

To remove a waypoint from the task, select it in the waypoint list and press the left arrow button. To move waypoints up and down in the task, use the arrow up and down buttons below the list.

Waypoint properties

To edit the properties of a task point, select it from the task point list and either double-click it or press the “Edit WP” button. The Edit Waypoint dialog box will appear, where you can set the type of turning point you want.

WP Name: Here you set the name of the waypoint as it will be shown in the HUD and IGC log files.

Observation Zone: Here you can set the type of OZ for the waypoint.

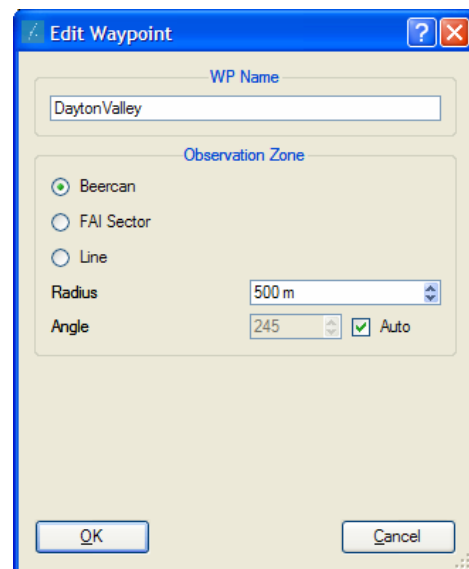
Beercan: A regular cylinder centered on the waypoint.

FAI Sector: A sector of 90 degrees pointing at the waypoint, and directed along the bisection line between the incoming and outgoing task legs.

Line: A line through the waypoint extending to both sides. For start and finish lines, the line is oriented 90 degrees on the incoming or outgoing task leg.

Radius: The radius of the OZ. For lines the radius indicates how long the line extends on both sides of the waypoint.

Angle: The heading angle of FAI sectors or Lines. This can be auto-calculated by enabling the “Auto” checkbox.



Keyboard commands

The following table summarizes all the keyboard commands used in Silent Wings

Playback Commands

Pause	P
Quit	Escape
Time Speedup	+
Time Slow down	-
Search forward	Home
Search backwards	End

View commands

Cockpit View	F1
Outside View 1	F2
Outside View 2 (Fixed to aircraft)	F3
Flyby View	F4
Toggle camera lock on nearest aircraft	F5
Free moving camera	F6
Chase camera	F7
Overview camera	F8
Toggle Map View	M
Cycle visible aircraft	CTRL+F2
Pan Left	SHIFT+Left Arrow
Pan Right	SHIFT+Right Arrow
Pan Up	SHIFT+Up Arrow
Pan Down	SHIFT+Down Arrow
Zoom In	Page Up
Zoom Out	Page Down

Misc. commands

Aircraft list with current standings	TAB
Altitude vs Distance Plot	N
Toggle HUD	I
Toggle 3D track ribbons	K

Toggle Task Display	T
Toggle Aircraft Labels	L
Toggle movie capture	ALT+R
Make screen shot	ALT+P
Automatic view panning in cockpit	CTRL+P

Aircraft commands

Airbrakes Extend	A
Airbrakes Retract	SHIFT+A
Flaps Extend	F
Flaps Retract	SHIFT+F
Gear Extend/Retract	G

Map mode commands

Pan Left/Right/Up/Down	Arrow Keys
Zoom In/Out	+/-

Mouse commands

Cockpit view

Pan camera	Right button + move
Zoom in/out	Mouse wheel
Add instrument to 2D overlay	Double-click instrument

Outside view

Pan camera	Right button + move
Zoom in/out	Mouse wheel

Free-flight mode (F6)

Steer left, right, up, down	Left button + move
Increase/Decrease speed	Right button + move up/down
Stop	Space

Support information

You can find answer to some of the more common support questions on our web pages, www.silentwings.no, in the "Support" section.

Also, we have a very active online forum where both our staff and other users can contribute tips and tricks as well as solutions to common problems.

If you have any questions regarding technical issues with our products, you can send an email to support@silentwings.no. Please remember to specify your hardware setup, the version of the software and other relevant information.

General information requests can be sent to info@silentwings.no

Contact information

Web

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Silent Wings web design by Virtual Lena (www.virtualena.com) and Webdesign AS (www.webdesign.no)

Runway textures are kindly donated by the Flightgear project (www.flightgear.org), and are distributed under the GPL license. For details, see www.gnu.org.

We want to thank all our beta testers and all contributors on the Silent Wings forums. Without you we would have considerably fewer of the cool features....