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 **GREAT PLANES**  
MODEL MANUFACTURING COMPANY

# REAL FLIGHT<sup>™</sup>

R/C FLIGHT SIMULATOR

# G4<sup>™</sup>



with the exclusive  
**INTERLINK<sup>™</sup>**  
**ELITE**  
CONTROLLER  
by **Futaba**<sup>®</sup>



Written and Edited by: Knife Edge Software and Great Planes Model Manufacturing

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GREAT PLANES

# **RealFlight Generation 4 and the InterLink Elite Controller**

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## Introduction

*Welcome to the RealFlight Generation 4 R/C Flight Simulator  
(also known as RealFlight G4, or simply G4).*

**R**ealFlight G4 is, without question, the most advanced R/C aircraft simulation available. RealFlight G4 is so technologically advanced and so realistic, you'll find it hard to believe that it's only a simulation. The culmination of many years of development and design, G4 offers advancements that will serve to fine-tune flying the skills of even the most seasoned R/C veteran. If you're an entry-level R/C-er, RealFlight G4 is the ideal way to learn to fly, practice maneuvers, feel the effects of design modifications, or just have an incredible amount of fun.

RealFlight G4 includes over 50 models that look and fly like the real thing, plus a multitude of flying sites - each with their own unique 'feel' and distinctive characteristics. In addition, G4 offers its users the most powerful, most flexible aircraft and flying site editors ever unveiled to the modeling community, allowing modelers to experiment with a virtually unlimited number of parameters. G4 enables you to change the look and feel of a flying site with nothing more than a few keystrokes, the click of the mouse and a little imagination. The integrated AccuModel™ aircraft editor makes modifying aircraft just as easy.

RealFlight G4 also offers a wide array of tools to help you understand how to use the program and how to improve your R/C piloting skills. This extensive manual file explains every feature and option as well as how to use them. Our Virtual Flight Instruction feature, Heli Hover Trainer, Airplane Hover Trainer, Takeoff and Landing Trainer and Heli Orientation Trainer provide on-the-fly learning opportunities, and our trained and dedicated Product Support staff is ready to provide help when you need it. No other R/C simulator goes further to enrich your R/C experience.

The following section briefly outlines some of the exciting features in RealFlight G4. We strongly suggest that you peruse this manual in its entirety before running the software. Subsequent chapters will describe all RealFlight features in complete detail.

Finally, we'd like to express our gratitude to you for purchasing RealFlight G4. We think you will be enormously pleased with G4. Have fun flying!

## **RealFlight G4 Feature Highlights**

This section briefly outlines some of the new features included in RealFlight G4 with the USB InterLink Elite Controller. RealFlight G4 and the multi-patented InterLink Elite Controller incorporate a significant number of enhancements and improvements over previous RealFlight systems.

### **USB InterLink Elite Controller**

The InterLink Elite Controller by Futaba is a revolutionary device that offers you:

- A high quality USB compatible plug and play controller for RealFlight G4.
- A built-in interface for (optionally) using your own R/C transmitter to control RealFlight G4.
- QuickSelect™ Buttons – take control of RealFlight's menus and options from the InterLink Elite without touching the keyboard or mouse.
- The InterLink Elite Controller is fully hot swappable — you can connect and disconnect the InterLink, or your own transmitter, without rebooting your computer (or even shutting down RealFlight).
- High-speed response to control inputs.
- Digitally precise inputs with digital trims for unmatched control precision.
- MultiMode™ split screen capability- allowing you to use the InterLink Elite as a controller and an interface simultaneously.
- A keyboard-free push button reset of the simulation.
- Hand-launch gliders and other aircraft that do not incorporate landing gear.

### **Menu-Driven Interface**

RealFlight G4 utilizes a drop-down menu-driven interface system. Created for ease of use and maximum flexibility, the menu system provides an interface familiar to even a casual computer user.

### **Additional Features**

- **RealPhysics 3D™** - One of the most ambitious models of flight in the world, RealPhysics 3D is untouched in its ability to re-create the lifelike characteristics of model flying. RealFlight G4's physics engine has been tried and approved by world-class competition pilots like Todd Bennett, John Glezellis, Pete Niotis, Frank Noll, and Jason Shulman. Furthermore, aircraft in G4 behave

with real-world predictability because they are carefully modeled using advanced methods and extensive real-world data. If it happens at the field or in the air, it's re-created with exacting detail in G4!

- **Float Fly-** RealFlight G4 offers a number of flying sites with water along with a variety of float fly aircraft. Practice your takeoffs and landings on water and admire the view at the same time.
- **InterLink Elite QuickSelect-**With RealFlight G4's InterLink Elite, you're able to make quick changes such as selecting a different aircraft or airport, without touching the keyboard or mouse.
- **Variable Pitch Prop-**Take 3D flight to 4D with the variable pitch prop. Select the popular FlatOuts™ Extra 300S with V-Pitch and try amazing maneuvers you didn't think were possible with an airplane – like flying backwards.
- **Hovering Training Aids-** Learn to torque roll or hover a heli with RealFlight's Heli and Airplane Hover Trainer. For more excitement, try the Heli Orientation Trainer. Each as great training aid for anyone new to radio control.
- **Takeoff and Landing Training Aids-**The RealFlight G4 simulator is a great way for new pilots to learn the art of R/C flying. And the best places to start are training aids designed to teach you the basics of Takeoffs and Landings.
- **Night Flying-** Just because the sun is down, doesn't mean you can't fly. The same is true with RealFlight night flying. Pick a nighttime airport, and watch as your aircraft lights up the sky.
- **PhotoFields™-** G4 also includes ultra-realistic PhotoField airports. Using incredible high resolution digital images, RealFlight PhotoField airports are as real as it gets. And the Import feature allows you to use your own panoramic photos to create new flying sites.
- **“Full Coverage” collision detection-** Instead of using sensors at only a few points, “Full Coverage” blankets the entire aircraft with points ensuring that every part of an aircraft will not only register a strike but will react authentically. Contact can result in damage ranging from minor handling problems to spectacular crashes -- complete with realistic sound effects.
- **TruFlo Wind Dynamics™-** RealFlight G4 introduces modelers to R/C's most realistic wind model. The five components of TruFlo Wind Dynamics work together to create the single most accurate wind field in any simulation. Wind impacts every facet of your flight, just as it would at the local field.
- **AccuModel™ Aircraft Editor-** G4's new aircraft editor is the most powerful and most flexible editor ever introduced in an R/C simulator. AccuModel allows you to change virtually every aspect of your model with ease -- it places



over 1,500 airfoils at your disposal, a multitude of propellers, and much, much more! AccuModel brings up a wire-frame model for easy reference and highlights the editing area. Make a change and it's immediately reflected on-screen, ready for review and revision.

- **Sierra Nevada's Flying Sites and over 5,000 square miles to explore-** RealFlight's TrueLife Terrain™ goes beyond the limitations of traditional simulator flight. Created and mapped from satellite imagery, G4's landscape looks as "right" and richly varied as the view from your front door. Digital elevation data brings it all into accurate perspective.
- **A living, breathing environment-** Everything in G4's 3D world is as realistic as possible, complete with depth and details that transcend the traditional "billboard" look of other simulators. You'll see leaves and branches that dance in a passing breeze and clouds that roll by with the prevailing winds.
- **FlexiField™ flying site editor-** Takes you beyond 2D scenes into a 3D environment rich in new objects and editing options. Customize an existing field with new foliage, different objects or both -- or create a new field with nothing more than a mouse, imagination and a few simple keystrokes.
- **InterLink™ Elite Controller-** G4's InterLink Elite controller functions as a controller, as an interface, or both. Its push-button is capable of resetting the aircraft or hand-launching a sailplane.
- **Fly Split Screen-** G4's MultiMode™ option allows two modelers to fly simultaneously on one PC. It's perfect for practicing formation flight, a game of tag or personalized flight instruction.
- Uses **VirtualRevolution™** sound technology-- Doppler-correct stereo sounds heighten the realistic effect with true sound recordings of 2-stroke, 4-stroke, turbine, electric, ducted fan and gasoline engines. As the aircraft crosses the field, the engine sound follows, just like its R/C counterpart.
- **RotoSonics™ technology--** recreating distinctive engine/blade sounds with startling accuracy. Sounds so lifelike, you'll swear you are at the field!
- **VFI (Virtual Flight Instruction) --** VFI gives you personal flight lessons from R/C's leading experts. Using VFI, you can select a maneuver (loop, roll, etc.) from an extensive list of options. VFI then demonstrates the maneuver on-screen, performed by an expert. While you watch, the voice of the pilot/instructor will explain how to perform the maneuver.
- **AFR (Advanced Flight Recorder) --** This feature allows the pilot to not only view prerecorded maneuvers, but also to record maneuvers of his/her own as well. G4 even allows you to record your own audio for personalized flight instruction. Much like a VCR, this feature also allows you to: pause, speed up, slow down, and loop the performance. You can also play multiple recordings

at the same time. The pilot has the option to activate the digitized transmitter display so that he/she can view the radio input while flying.

- **NavGuides™**- Using the NavGuides, you can display a variety of heads-up on-screen informational displays. Options range from altitude and airspeed to aircraft heading and engine rpm's. This feature improves your ability to “see” what is going on in your virtual world.
- **Viewport**- You can open up a picture-in-picture display and treat it as an independent “window on the world”. You can individually adjust each the viewport’s vantage point, zoom level, and direction of view.
- **Multiplayer**-You can fly with up to seven additional RealFlight G4 owners in competitions, or just for the thrill of flying with one another. This feature can also be used to learn new maneuvers from pilots across the street or around the world.
- **Events**- Compete solo, or fly with up to seven additional RealFlight G4 owners in a variety of Events such as: Limbo, Spot Landing, Free Style, Auto rotation and Pylon Racing.
- **Launcher**- RealFlight G4’s Launcher allows for easy one-click access to program upgrades, online registration, and technical support.
- **Animated control surfaces and retracts**—Control surfaces, retracts, propellers, and rotor blades move for added realism.
- **Aircraft exhaust/smoke**-You can control the color, density, ‘hang time’, and other parameters related to airplane and helicopter smoke and exhaust.
- **Streamers**- Add streamers to any aircraft, to any location, in any color. Watch as they corkscrew behind the airplane during a roll, or react to the wind and the propwash.
- **Flight Failures**- RealFlight can simulate many common flight failures (radio interference, stuck servos, engine failures, etc.). Use this feature to prepare for emergencies at the field.
- **Fully editable aircraft paint/decal schemes**- Create customize trim schemes for your aircraft. (To design your own paint scheme, you must use a third-party program that edits “.tga” files.)
- **Extensive Help materials**- RealFlight G4 features extensive online tool tips and diagrams, a detailed manual and technical support to enhance your enjoyment of the program.

## How to read this manual

RealFlight G4 is a menu driven simulator which allows you to make quick changes without having to reload the simulator each time. This manual will break out each main menu to its own chapter. This allows you to quickly find information on features and functions by the related menus.

Along with this manual, a large RealFlight community is available online to help and discuss with each RealFlight fan. This online support, in the form of a forum, can be found at:

<http://www.knifeedge.com/forums/>

## Before You Begin

*To get the most out of RealFlight G4, it helps to understand how to get the most out of your computer first.*

**R**ealFlight Generation 4 is designed to work on a large variety of computer hardware. Similar to a car, if you want to go faster, you need a bigger engine. The same holds true with RealFlight. You'll be able to enjoy the simulator on most modern computers, but having the most update to date software for your computer will greatly increase your enjoyment.

## System Requirements

You will find the suggested system requirements for the RealFlight G4 R/C Flight Simulator listed below. The minimum system requirements below are the bare minimum PC configuration for installing RealFlight G4. Meeting the minimum requirements will allow you to enjoy G4. However, in order to take complete advantage of the many features and functions offered by G4, you should have a computer at, or near, the specifications as specified in the optimum system requirements.

### **Minimum Recommended System-**

- Some graphical features may be disabled
- Aerodynamic Calculations will still be high-quality

Windows\* 98SE, ME, 2000, XP or Vista™

Intel Pentium 1.0GHz or equivalent

512 MB RAM

3 GB Hard Drive Space

3D Accelerated Video with:

- 32 MB Dedicated Video Memory
- Full DirectX 9 compliant (Pixel Shader 1.4 support)

#### **Optimal System**

- For best graphical performance

Dual Core 2.4GHz CPU

2 GB RAM

3D Accelerated Video with:

- 256 MB dedicated video memory
- Pixel Shader 2.0 support

#### **Multiplayer Requirements**

- 56.6 Kbps (or faster) modem or LAN connection

## **Video and Sound Cards**

In order to achieve optimum performance and the best flying experience in RealFlight, there are two important components of your computer that deserve special attention: the video and sound cards.

RealFlight G4 has undergone countless hours of compatibility testing and evaluation. As such, this software will adequately function with a variety of video cards- ranging from yesterday's favorites to tomorrow's hits.

While RealFlight works well on a wide variety of hardware configurations, it offers many features and functions that are designed to take particular advantage of the latest video technology. If you have an older computer, or a newer computer with a lower-end video card, you may want to consider purchasing a new video card to take advantage of these features and functions. This moderately priced upgrade can vastly

enhance your enjoyment of RealFlight. Aside from increasing your satisfaction with G4, a new video card will also work with many other games or simulators, improving their performance as well.

For a list of the video cards that have been tested by our staff, please visit:

<http://www.gpsoftware.com/>

While not as important as the video card, upgrading your sound card may also improve your satisfaction with RealFlight. This is especially true if your computer uses an on-board sound card (a sound card affixed to the motherboard).

## **Getting the Most out of RealFlight**

We think you'll agree that RealFlight offers the finest set of instructions and practice tools of any R/C simulator suited for both beginners and experienced pilots. Great Planes and Knife Edge Software are committed to the continual improvement of our products. When using the software, you should keep two things in mind.

First, similar to other pursuits, what you get out of RealFlight depends upon what you put in. Mastering radio control requires a great deal of patience and practice. If you crash an aircraft in the simulation, take it very seriously. Crashing an actual R/C aircraft can cost you a lot of time and money. Try to examine what you did incorrectly, using the experience to avoid making the same mistake again.

Secondly, while the simulator is quite realistic and will assist you in learning many of the skills necessary to become a proficient pilot, there is no substitute for actual flying time at the field. A simulation can be a wonderful practice tool. However, no simulator, no matter how realistic, can completely replace a qualified, experienced, human flight instructor. If you are new to R/C, you should never attempt to fly a real aircraft without the supervision of a qualified instructor, no matter how accomplished you are on the simulator.



## Getting Started

*A brief overview and assistance to help start you on your R/C adventure.*

**T**his chapter covers the installation procedure for RealFlight G4, describes the basics of running the program, and introduces you to some of RealFlight's frequently used features.

The first section, *Installing RealFlight G4*, offers a step-by-step approach to the installation procedure for both the program software and the controller.

The second section, *Exploring RealFlight G4*, offers a brief tour of the RealFlight G4 program. You'll learn how to perform some basic functions, such as selecting the aircraft you wish to fly, performing simple edits to the flying field, manipulating viewports, and using RealFlight's Virtual Flight Instruction feature.

This chapter only touches briefly on some of RealFlight G4's features. We strongly suggest that you also read the subsequent chapters, which describe the various features in comprehensive detail.

## Installing RealFlight G4

The RealFlight G4 InterLink Elite controller has several different modes of operation. By itself, it serves as a realistic 'stand alone' controller or joystick. Alternatively, it has a built-in interface that lets you use your own R/C transmitter to control RealFlight G4. The final mode of operation combines the InterLink Elite's ability to serve as a controller and an interface simultaneously.





#### **The USB InterLink Elite Controller-**

To install RealFlight G4 using the InterLink Elite controller, follow the instructions in this chapter.

Regardless of whether you plan to use the InterLink Elite controller by itself, or with your own R/C radio to control RealFlight, follow the instructions on Program Installation in the next section.

#### **Program Installation-**

RealFlight Generation 4 features a simple, one-step installation process. There are, however, further steps that must be followed prior to running the program for the first time. This section will explain how to install the RealFlight G4 software and hardware. Upon completion of this section, you should be able to fly the aircraft on your PC.

The InterLink Elite's built-in transmitter interface also allows you to use your own R/C transmitter to control RealFlight G4 should you opt to do so. To activate the interface adapter, you will first need to follow the instructions in the section below. This section, will explain the methodology of using the transmitter interface option in the InterLink Elite controller.

#### **Update Drivers-**

Before you begin installation, we strongly suggest that you update the drivers for both the sound and video cards on your PC. A driver is a software program that your computer uses to control hardware devices. Each card has its own respective driver. Most problems with installing and using RealFlight, as well as many other programs that use DirectX, arise from using outdated video and/or sound card drivers.

If you are not sure how to update your drivers, you can find instructions in article Q01-1038, [Locating and installing drivers](#), at

<http://www.gpssoftware.com/kb/q01-1038.htm>. This support article will take you through the process step-by-step, and has links to driver download sites for most manufacturers.

#### **Installing the Software-**

After you have completed installation of the new video and sound card drivers, you are now ready to install RealFlight G4.

1. Before installing the software, make sure to close any applications that you are running. This includes virus scanning software and other similar applications.
2. Insert **Disc 1 (One)** into the appropriate CD-ROM drive.
3. If Auto-Play is active, setup will begin automatically when the CD-ROM drive is closed. Simply click the **Install** button when prompted. If Auto-Play is not active, click Start on the task bar. Next, click **Run**. In the dialog box that appears, type '**d:\setup**' (assuming that 'd' is your CD-ROM drive) and click **OK**.

Follow the on-screen instructions to complete the setup procedure. When prompted, remove **Disc 1 (One)** and insert **Disc 2 (Two)**. Following the on-screen prompt, remove **Disc 2 (Two)** and insert **Disc 3 (Three)**. Following the on-screen prompt once again, remove **Disc 3 (Three)** and insert **Disc 4 (Four)**. Upon completion of the installation, click **OK**.

#### **Installing or Updating DirectX-**

1. RealFlight will ask if you wish to install DirectX 9 on your PC. It is important that your PC utilizes DirectX 9.0c or later. Click **OK** to proceed to the DirectX License Agreement.
2. Click "**I accept the license agreement**" to install DirectX 9.0c. Alternatively, if you do not wish to update DirectX at this time, click **Cancel**.
3. If you have opted to accept the license agreement, click **Next** to proceed with the installation. DirectX will install the necessary files to update your PC.
4. When prompted, click **Finish**. Your PC will power down and then restart once again.

#### **Connect the InterLink Elite Controller-**

The InterLink Elite controller uses the USB (Universal Serial Bus) port, so there is little to do in the way of setup.

1. With the software installation procedure complete, firmly plug the InterLink Elite controller into one of the unused USB ports on the PC. Because the controller is hot swappable, you do not have to shut the PC down to plug the controller in.



2. Shortly after plugging in the InterLink Elite controller, a dialog box should appear on the screen indicating that Windows has located a new device and will then automatically install the necessary drivers.

Note: It is possible that Windows will need to install the appropriate files for the InterLink Elite controller to function properly. Please have your Windows CD-ROM available in case it is required.

#### **Starting RealFlight Generation 4-**

1. Double-click the **RealFlight G4 Launcher** located on your desktop.
2. Type in your **name**, **software serial number** and the **InterLink Elite controller serial number** in the appropriate location. Please be sure to enter the numbers exactly as they appear. Failure to enter the serial numbers correctly will not allow you to proceed to the next step. If the serial numbers are entered properly, the OK button will become active.

Insert Photos and Captions here.... CD-ROM and InterLink Elite controller.

3. Click **OK**. The RealFlight G4 Launcher will appear. Click **Run RealFlight**. RealFlight G4 will start with a default aircraft and default flying site.

Note: The procedure above will allow you to pilot the RealFlight aircraft using the InterLink Elite controller. The InterLink Elite controller may also be used as an interface unit, allowing you to pilot the aircraft with your actual R/C transmitter. For information on how to do so, please refer to the section entitled *Using Your Own R/C Radio* which follows.

## Using Your Own R/C Radio

Follow these instructions if you intend to use your own R/C transmitter to control RealFlight G4. If you do not want to use your own transmitter, skip this section.

### **Connecting Your Transmitter-**

You can use your R/C transmitter to control RealFlight G4 by connecting it to the InterLink Elite controller, 'buddy box' style (see diagrams). RealFlight G4 includes several adapter cables used to make the connection to many popular R/C transmitters.



Locate the cable input port on the rear of the InterLink Elite Controller. Plug one end of the included connector cable into this port. Next, plug the other end of the adapter cable into the buddy box port (a.k.a. trainer jack) of your transmitter. The procedure for doing so depends on your transmitter:

- If your transmitter's buddy box port directly accepts the 1/8" stereo plug, insert this end directly into the radio. This works for most JR® radios.
- If your transmitter's buddy box port requires the micro (square) connector, use the squared adapter cord included with the simulator.
- Some radios (e.g., Airtronics®, Hitec® and older Futaba® transmitters) require the purchase of an optional adapter cable. This adapter cable is available wherever you purchased your copy of RealFlight G4.

**Setup-**

After you have connected your transmitter to the InterLink Elite controller, you will need to perform a brief setup procedure before utilizing it with the simulation.

1. First, make sure that the transmitter is in FM or PPM mode rather than PCM mode. Refer to the manual for your transmitter if you are unsure how to do this.
2. If the transmitter did not power up when the interface cord was plugged into it, turn the power switch on at this time.
3. Next, click the **Controller** menu and then highlight the **Select Controller...** menu item. After a brief delay an option for the InterLink Elite Transmitter x channel should appear. Choose the **InterLink Elite Transmitter X Channel** option.

## Exploring RealFlight G4

Now that you have completed the installation of RealFlight G4, it's time to begin exploring the program. The following sections will take you on a quick tour of RealFlight G4's most popular features, such as selecting an aircraft, choosing alternate flying locations, customizing the flying sites, and using the training aids instruction. Along the way, we will show you where to go for help and how to obtain additional information.

Even if you are familiar with previous versions of the RealFlight software, you should read this section thoroughly. The features described here are either new or have been completely revised for G4.

**Start the Program-**

1. Close all open applications. This includes virus scanning software and other similar programs.
2. Double-click the **RealFlight G4 Launcher** located on your desktop.
3. To start the simulation, click the **Run RealFlight** button.

The program will start using the pre-set defaults -- including pilot perspective, flying location, and aircraft.

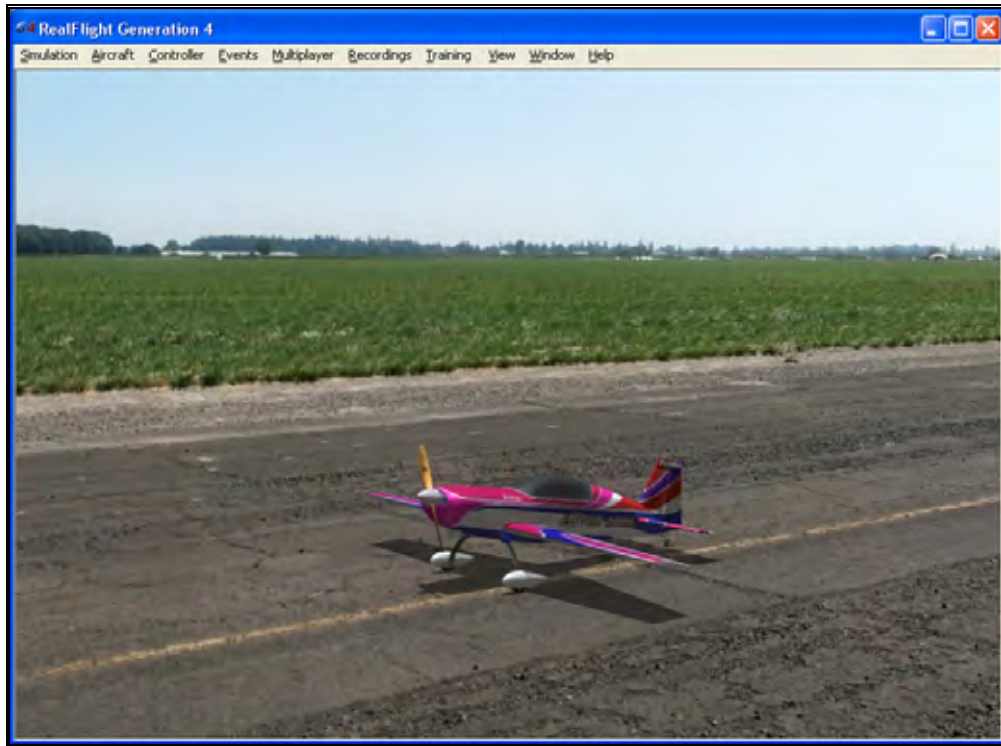
**The Main RealFlight Display-**

RealFlight G4 is a menu-driven program. As seen in the picture below, a menu bar appears across the top of the RealFlight screen. The menus contain additional menu

items and pull-down lists for the related options of the respective menu. These menus allow access to the command and control functions for the RealFlight G4 simulation.

### **Navigating the Menus-**

To access the various menu items, simply highlight and click the mouse on the menu that you would like to view. For example, clicking on the Aircraft menu activates the sub-menu items for that menu.



The top-level menus found in G4 are as follows:

- Simulation
- Aircraft
- Controller
- Events
- Multiplayer
- Recordings
- Training

- View
- Window
- Help

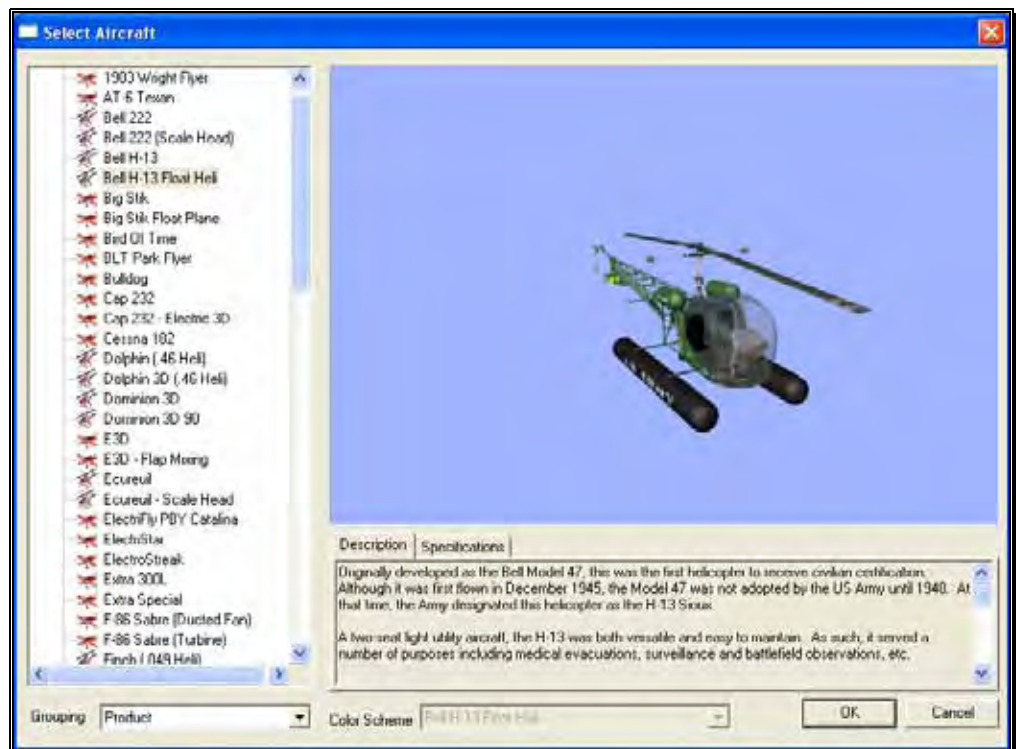
This manual includes a separate chapter for each menu title. Later chapters describe (in detail) all of the menu items, sub-menus and options.

Please note that it is also possible to access many of the features and functions of RealFlight Generation 4 using hot keys. Pressing the H key on the keyboard activates the Keyboard Commands dialog, which summarizes the available hot keys.

### Aircraft Selection-

When you start G4 for the first time, you will be piloting an Extra 300L. This is the default aircraft for RealFlight G4.

To select a different aircraft, click the **Aircraft** menu title in the main menu bar. Next, click the **Select Aircraft...** menu item found in the drop-down menu. This activates the Select Aircraft dialog (as shown below), which displays a list of available aircraft.





Each aircraft available in G4 is listed along the left-hand side. The icon next to each name differs depending on whether the model is an airplane or a helicopter. To select an aircraft from the list, click on the desired aircraft. The selected model will now appear in the ReadySelect™ preview box. Additionally, an aircraft description and information data will appear in the aircraft information pane, which appears just below the ReadySelect preview window.

When you are satisfied with your selection, click **OK** to return to the simulator using the new aircraft selection.

Complete information pertaining to the Select Aircraft... menu item is available in a later chapter of this manual.

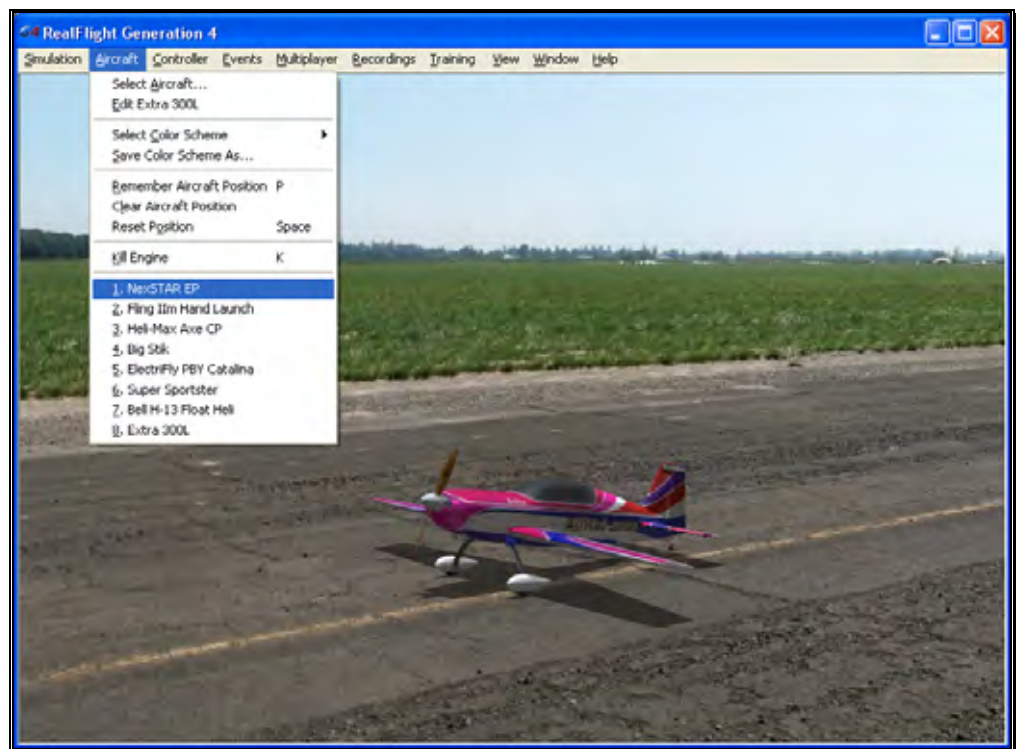
Alternatively, you may use the InterLink Elite controller to change aircraft selections. Simply press the **Menu/Select** button located on the front of the InterLink Elite controller. This will bring forth the QuickSelect tabs on the left side of the computer screen and the aircraft selection tab, represented as an airplane icon, should be the highlighted tab. Press the **Menu/Select** button once again to bring up the Aircraft Selection dialog box. Move the **Data Lever**, found on the lower right side of the InterLink Elite controller, up or down to view the available aircraft. The [+] (plus) indicates that there is another expansion level (selection) available to you, press the Menu/Select button to access the items located within this folder.

To select an aircraft, simply highlight the name and press the **Menu/Select** button. You will return to the simulation using the newly selected aircraft.

If you wish to exit the Aircraft Selection screen without making any changes, simply press the **Reset** button on the InterLink Elite.

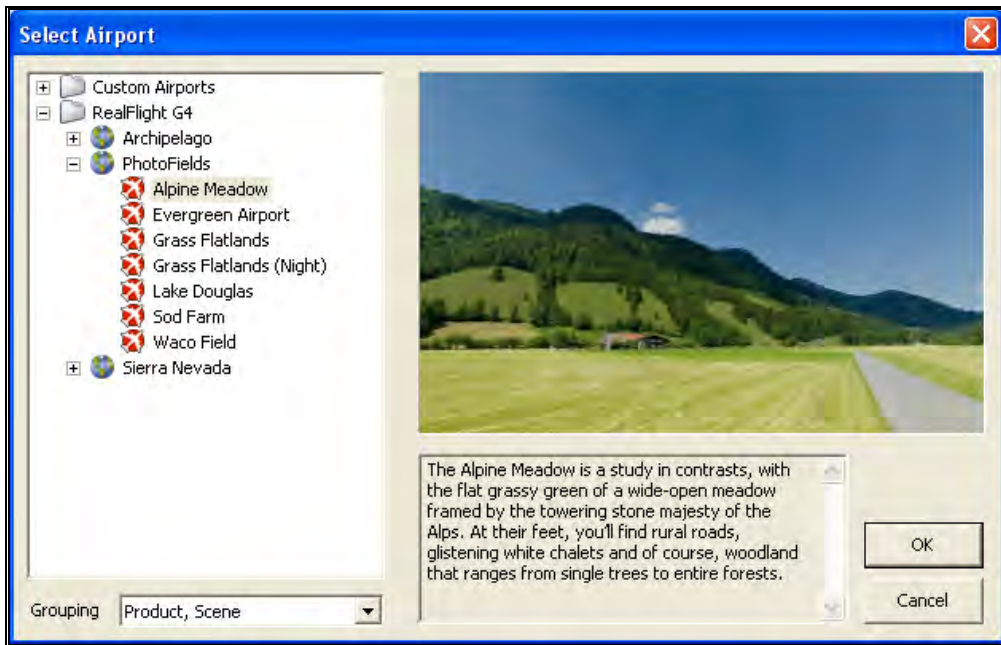
#### **Aircraft Most Recently Used List (MRU)-**

If you have selected alternative aircraft previously, you will note that these aircraft appear on a list in the Aircraft menu, as shown below. This list is at the very bottom of the menu. This list is commonly referred to as a Most Recently Used, or MRU list. It is limited to the eight most recently used aircraft. If you wish to fly one of the aircraft from this list, simply click on the name of the aircraft in the MRU list.



### **Airport Selection-**

Changing flying sites uses a process similar to the process used to select an aircraft. To select a new flying location, click the **Simulation** menu located in the header. Next, click the **Select Airport...** menu item found in the drop-down menu. This opens the Select Airport dialog, which lists the available flying locations. Select either the Archipelago, PhotoFields, or Sierra Nevada location.



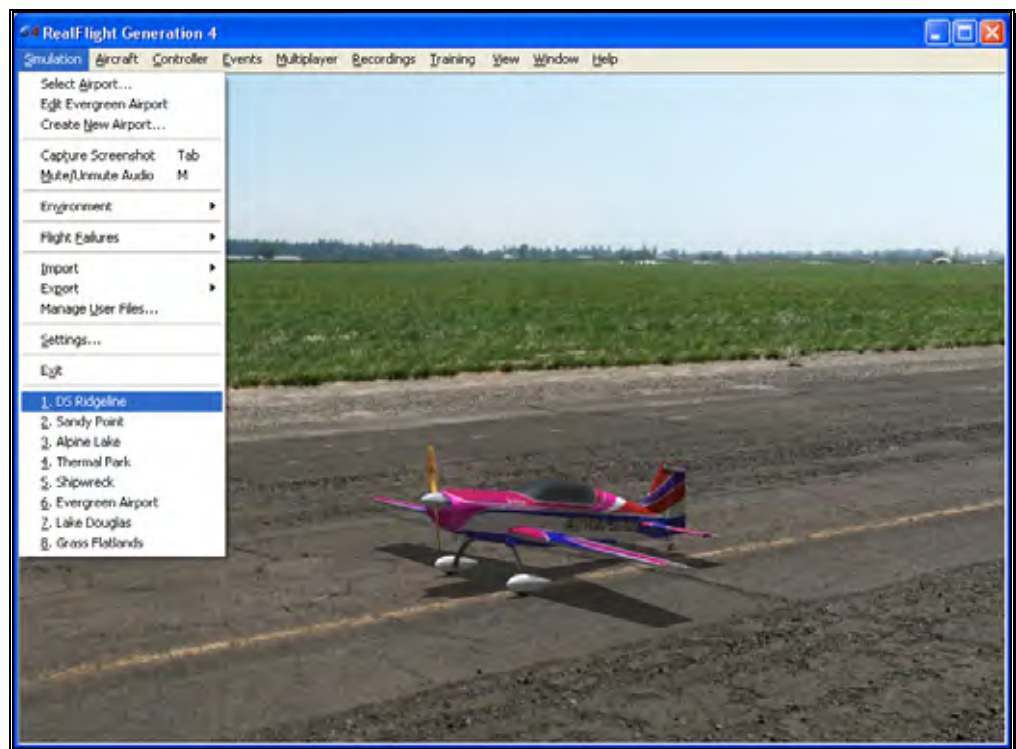
Each airport is preceded with a [+] (plus) and an icon. The [+] (plus) indicates that another expansion level (selection) is available to you. To access the complete list of airports for a respective location, either click the **[+] (plus)** or double-click on the desired airport. For example, clicking the [+] (plus) on the PhotoField folder reveals all of the PhotoField flying sites available to you.

To select an airport from the list, click on the desired airport. The selected airport will now appear in the preview box. Additionally, an airport description and informational data will appear in the information pane, which appears just below the preview window.

When you are satisfied with your selection, click **OK** to return to the simulator using the new airport selection. Navigating the Airport Selection menu using the QuickSelect feature is almost identical to the process mentioned above for selecting an alternative aircraft. Only this time, you will select the airport selection menu, which is represented by a runway icon. With the QuickSelect tabs visible on the computer screen, move the **Data Lever** down one time. This should highlight the runway icon. Press the **Menu/Select** button to bring forth the available flying sites. Using the same method, as described previously for aircraft, select the new airport and press the **Menu/Select** button to return to the simulation using this new flying site.

#### **Airport Most Recently Used List (MRU)-**

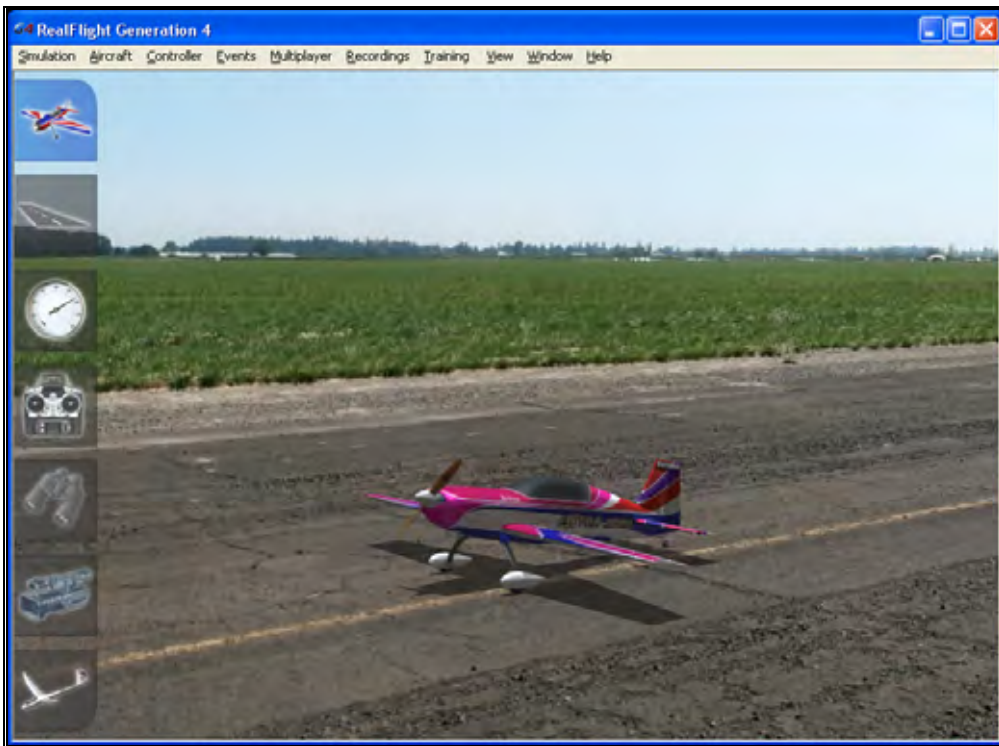
If you have previously selected an alternative flying location, it will appear on a list in the Simulation menu. This list is at the very bottom of the menu and is commonly referred to as a Most Recently Used, or MRU list. It is limited to the eight most recently selected locations. If you wish to fly at one of these locations simply click on the respective location in the MRU list to load it into the simulation.



### QuickSelect Tabs-

RealFlight G4 offers a revolutionary methodology in which to access many features and functions quickly and easily without ever touching the keyboard or mouse. There are seven main areas of access available through the QuickSelect tabs. They are as follows: Airplane Selection, Flying Site Selection, NavGuides, On-Screen Radio, Binocular view, Viewports and Variometer.

To access any of the QuickSelect tabs, press the **Menu/Select** button on the InterLink Elite controller. This will bring forth the available options on the left side of the computer screen. Move the **Data Lever** up or down to cycle through the QuickSelect tabs. The highlighted tab is the item that is active. To access the active tab, press the Menu/Select button.



For additional information on how to use the QuickSelect tabs, please refer to the information contained in the section entitled QuickSelect- on page 35.

#### **Some Common Tasks-**

- The easiest method of resetting your aircraft to its original takeoff position is to press the reset button located on the front of the InterLink Elite controller. Alternatively, you can reset the aircraft by pressing the space bar on the keyboard, or by selecting the Reset Position menu item, which is located in the Aircraft menu.
- If your aircraft is equipped with smoke, the two-position switch located on the right side of your InterLink Elite controller will generally be utilized to activate this feature.
- To magnify the view or zoom in on an aircraft, press the **[+] (plus)** key on the number pad of the keyboard. Alternatively, you may use menu commands to zoom in. To do so, click on the **View** menu and then click on the **Zoom In** menu item. Each time the **[+] (plus)** key or the Zoom In menu item are pressed or selected, the view will increase incrementally.
- To reduce the magnification, or zoom out of the current view press the **[-] (minus)** key on the number pad of the keyboard. Alternatively, you may use menu commands to zoom out. To do so, click on the **View** menu and then click

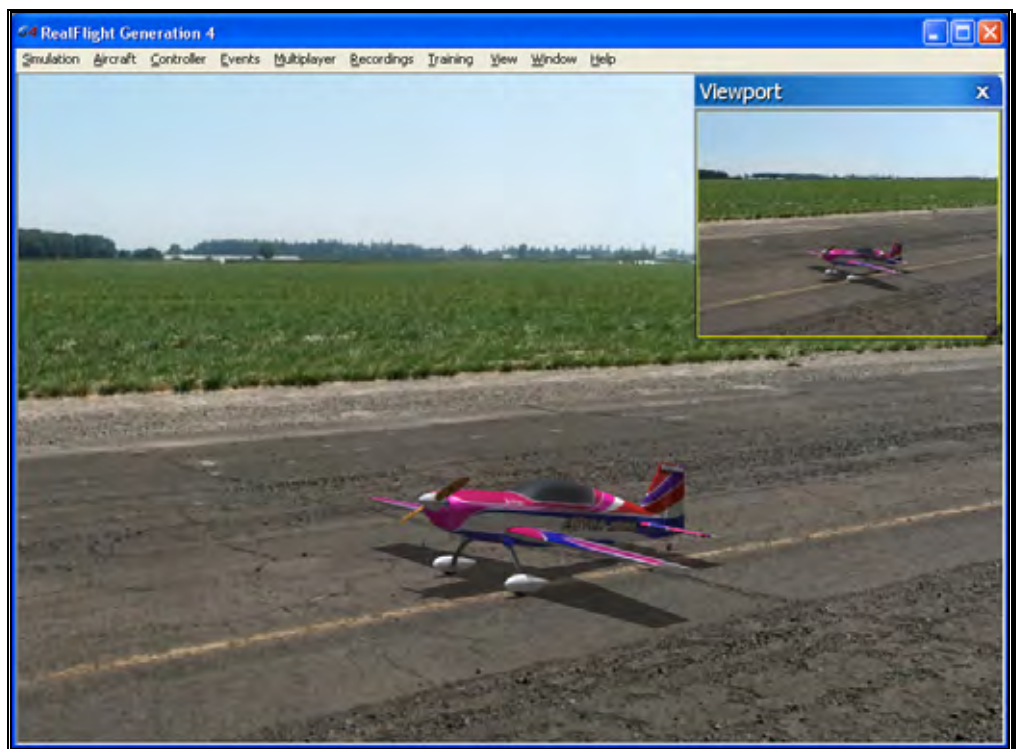
on the **Zoom Out** menu item. Every time you press [-] (minus) key or select and press the Zoom Out menu item, the view will decrease incrementally.

- To reset the view to the default magnification, press the **Backspace** on the keyboard.

#### **Creating a Viewport-**

RealFlight allows you to create an additional picture-in-picture viewport. Once you create a new viewport, you may resize or reposition it by dragging with the mouse. You can also fully adjust all of the viewport's properties independently of the main window. The viewports may be utilized for a variety of applications, such as changing the viewing perspective of your simulation.

To create a new viewport, click the **Window** menu title followed by the **Create New View** menu item. Alternatively, you may also press the '4' key on the keyboard to create an additional viewport.



To change the vantage point within the viewport, press the 'C' key on the keyboard. The 'C' toggles through the various camera modes; the first of which is the cockpit or pilot's perspective. The second is chase view, and the last mode is the fixed viewpoint, or what you would see if you were standing at the side of the runway. Please note: depending upon the flying site selected, some of these viewing options may not be applicable.

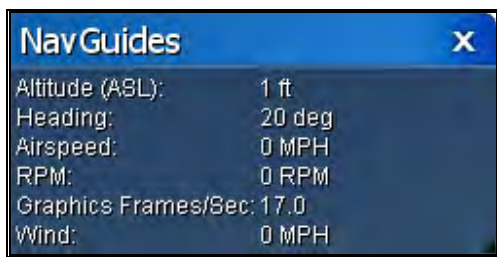
The Window chapter of this manual contains a thorough explanation of the viewports and the viewport options.

### Using Gadgets-

The RealFlight G4 software includes several gadgets that may be displayed in the main window when running the software. A gadget is an on-screen display that provides helpful information or allows you to access to a variety of RealFlight features and functions.

For example, the NavGuides gadget displays continuously updated information relating to your aircraft's altitude, airspeed, directional heading, and other flight parameters. To display the NavGuides gadget, click the **Window** menu title followed by the **Gadgets** menu item. Next, select the **NavGuides** gadget located in the drop-down menu. You may also access the NavGuides gadget by pressing the numerical '1' key on your keyboard. Alternatively, you may activate the NavGuides gadget through the QuickSelect tabs. To do so, press the **Menu/Select** button on the InterLink Elite controller. Next, move the **Data Lever** downward twice. Finally, press the **Mode/Select** button to activate the NavGuides.

When you select NavGuides, you should see the NavGuides gadget appear on your screen:



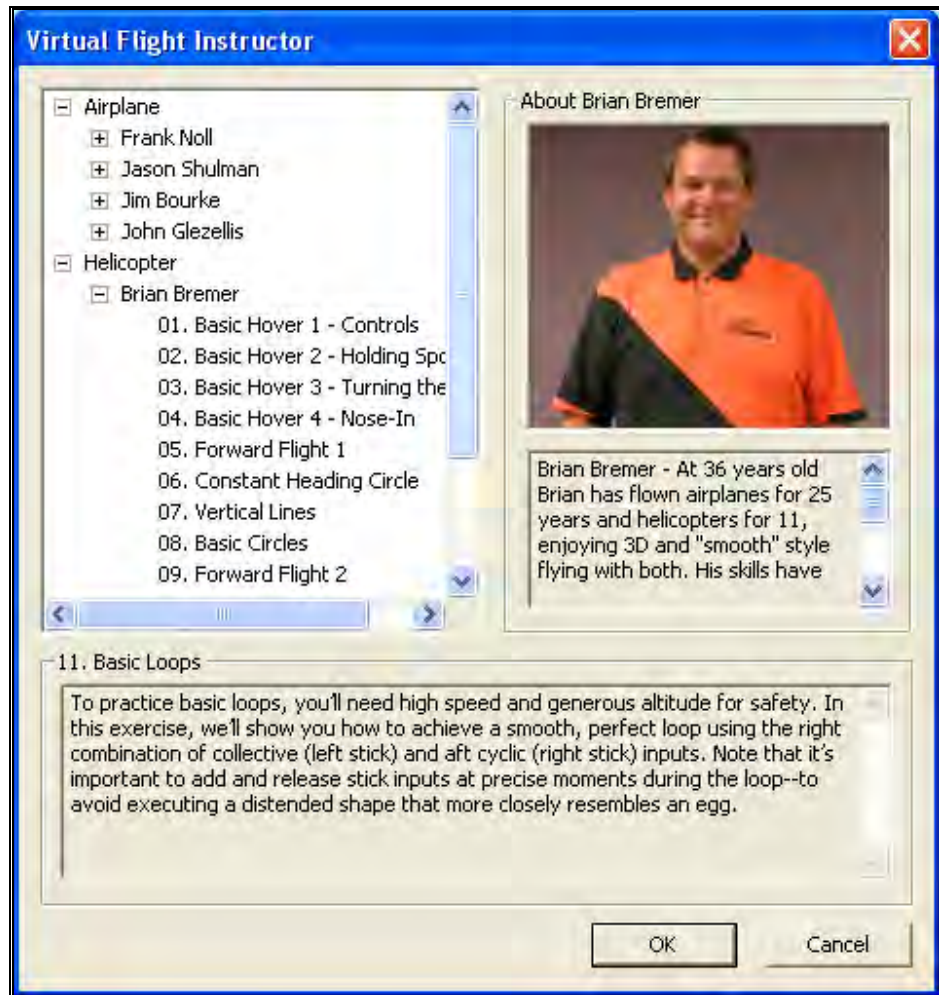
As discussed previously, you can customize the gadgets for personal preference. For complete information on how to do so, please refer to the chapter pertaining to the Window menu options.

### Virtual Flight Instruction-

RealFlight G4 includes a variety of basic, intermediate and advanced pre-recorded maneuver lessons for helicopter and airplane pilots. A professional, award-winning R/C pilot talks you through every facet of the maneuver. You can use the Virtual Flight Instruction to learn new maneuvers as well as to perfect those maneuvers that you already know.

To activate the pre-recorded maneuvers, click on the **Training** menu followed by the **Virtual Flight Instruction...** menu item. Alternatively, press the 'V' key on your computer's keyboard. Either method brings forth two options: airplane and helicopter, each preceded by a [+] (plus) symbol. If you wish to practice an airplane-

related maneuver, click the **[+]** (**plus**) near the airplane. Alternatively, you may also double-click the word itself (e.g., airplane). This brings up the pilot selections. To select amongst the pilots, click the **[+]** (**plus**) which precedes their name. Alternatively, you may double-click the pilot's name.



To select a maneuver, double-click the name of the maneuver itself. Alternatively, highlight the name of the maneuver by clicking on it, then select **OK**. After you have selected a maneuver, click **OK** to proceed. RealFlight G4 will automatically load the default airport and then start the VFI recording.

Once the VFI starts, you will see the instructor's aircraft fly the maneuver and hear the instructor's voice explaining how it's done. As depicted below, you can also watch the instructor's actual stick movements using the on-screen, digitized R/C radio.





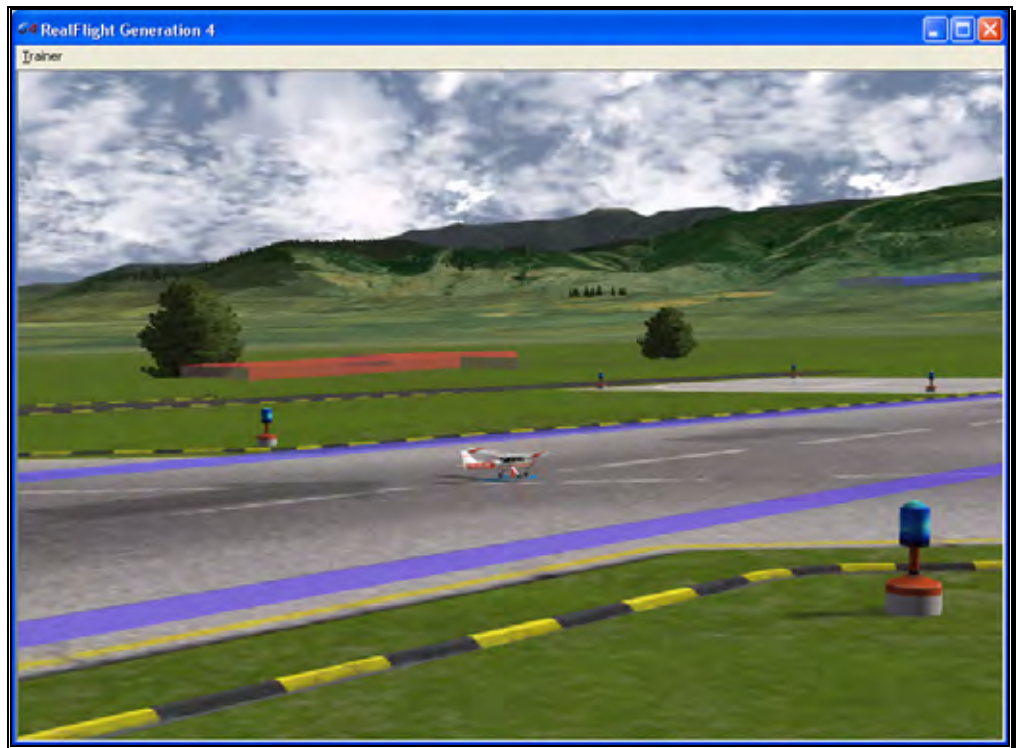
You can even fly your own aircraft next to the instructor's! This allows you to mimic the inputs and aircraft reaction simultaneously. To simultaneously watch your aircraft and the instructor's, create an additional viewport focused on your aircraft. The main window will show the instructor's aircraft and the on-screen radio will show the instructor's stick movements. The newly created viewport will show your aircraft.

#### **RealFlight Trainers-**

RealFlight G4 includes several training aids to help learn the basics of taking off and landing an airplane. Obviously, mastering these skills is essential to the success of your entry into radio control flight.

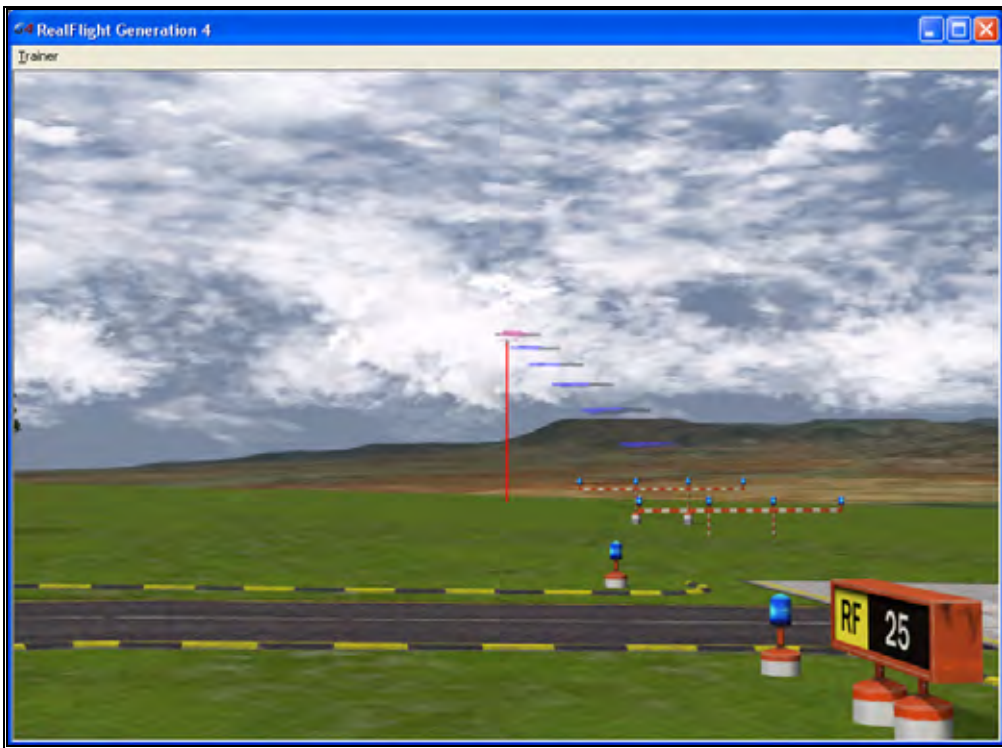
The Takeoff training feature, as the name suggests, is designed to enable pilots of all skill levels to perfect their takeoffs.

To select the Takeoff training feature, click on the **Training** menu title followed by the **Takeoff Trainer...** menu item. The Takeoff Trainer will start using the default settings. If, however, you wish to alter any of the settings, click on the **Trainer** menu title. For additional information pertaining to these settings, please refer to the section entitled Takeoff Trainer on page 200 in this manual.



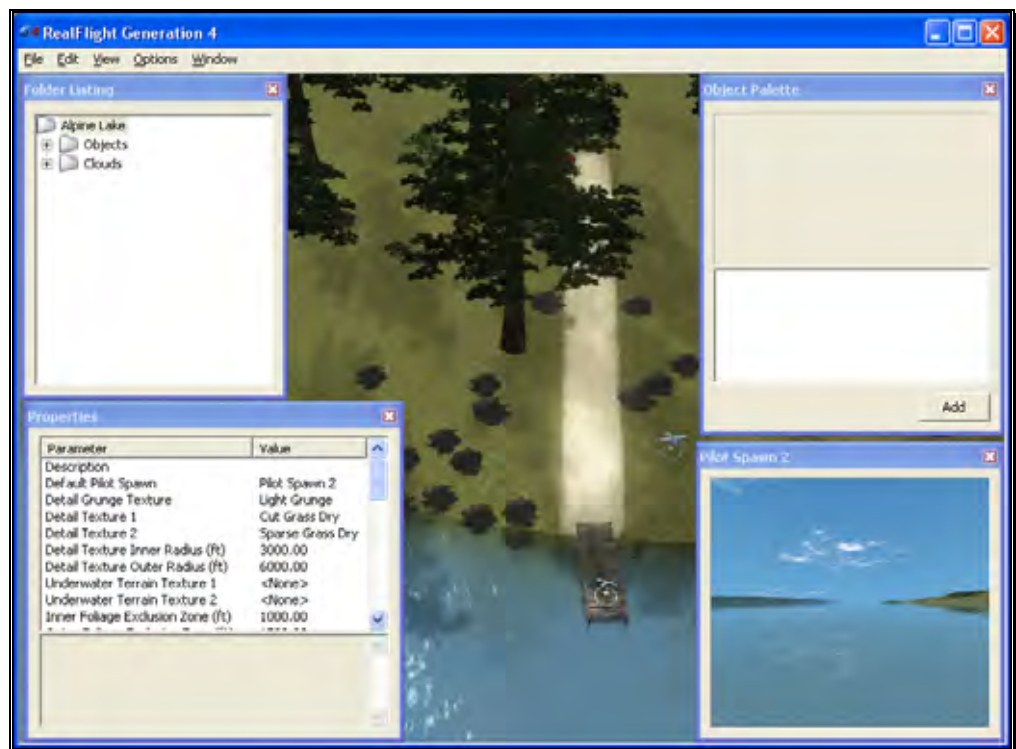
The Landing Trainer feature, is designed to enhance a pilot's landing skills. As with full-scale aircraft, it is imperative that an R/C pilot be well-versed in the proper technique of landing their aircraft in various conditions. Failure to land an aircraft properly may result in a damaged aircraft...or perhaps even destroy it entirely.

To select the Landing Trainer feature, click on the **Training** menu title followed by the **Landing Trainer...** menu item. The Landing Trainer will begin with the aircraft in a pre-determined position using its default settings. If, however, you wish to alter any of the settings, click on the **Trainer** menu title. For additional information pertaining to these settings, please refer to the section entitled Landing Trainer located on page 205 in this manual.



**Airport Editing-**

RealFlight G4 offers the most powerful, flexible flying site editor ever produced on an R/C simulation. G4's FlexiField™ editor allows you to completely customize virtually every aspect of your flying sites.



You can add, remove, change orientation, or resize virtually every aspect of your flying site. You can alter the position and orientation of the ground objects (such as runways) that ‘snap’ to the terrain—you can even have a runway running up a hill! It’s even possible to control lighting, terrain, clouds, fog/haze, and much more. FlexiField provides you with almost unlimited freedom to create the flying environment you want. Moreover, when you’ve created an airport, you can share it with other RealFlight G4 users.

To learn more about the FlexiField flying site editor, please refer to the section titled *Edit Current Airport...* on page 40.

## Where to Go From Here

The examples in this chapter only scratch the surface of RealFlight G4’s unparalleled capabilities. You can fly with others over the internet, fly with a friend using MultiMode on the same PC, try your hand at a limbo event, customize your aircraft’s flight parameters, and much, much more! We encourage you to explore RealFlight G4 using some of the methods below.

- Browse through the menus. Many of the menus are self-explanatory, providing you with a more thorough look at the software. If you're adventuresome, dive right in and start making modifications to an aircraft or a flying site! It's a great way to learn more about what makes G4 tick!
- If you'd like to learn more about a particular menu or item, look it up in the table of contents.
- If you would like RealFlight G4 to perform a certain function but cannot locate the appropriate command, check the index.
- Use the Help facilities in RealFlight's Help menu.
- Talk to other RealFlight users, at [www.knifeedge.com](http://www.knifeedge.com).

## The InterLink Elite Controller

*The InterLink Elite is your all-access pass to the RealFlight world.*

**T**he R/C transmitter is a key component in all types of R/C flying. This unique method of control is part of what separates R/C from every other type of aviation. Consequently, a realistically simulated transmitter is an important key to an authentic simulation of the R/C experience.

With this in mind, we at Great Planes are proud to offer our revolutionary USB InterLink Elite (U.S. Patent #6,842,804 and #7,010,628) controller, made by Futaba. The InterLink Elite controller was designed from the ground up to meet the needs of the R/C purist. We believe that no other R/C simulator control method goes farther to enrich your R/C simulator experience.



### **Features of the InterLink Elite Controller-**

- USB compatibility and convenience. The InterLink Elite offers the “plug and play” convenience, “hot pluggable” installation and removal, as well as the high-speed digital performance made possible by Universal Serial Bus (USB) technology.
- High quality “mockup” transmitter. Use the InterLink Elite controller by itself as a pseudo R/C transmitter, with the controls you expect in a standard 8-channel radio. The mockup transmitter features two 2-position switches, one 3-position switch, a rotary knob, knurled control sticks with adjustable length and a push-button reset.
- Built-in Transmitter interface. If you so choose, you can use your own FM or FM-compatible R/C transmitter to control RealFlight, using the InterLink Elite controller’s built-in interface. You can even switch back and forth between the pseudo controller and your own transmitter! Interface adapter cords are included for most JR, Futaba and Hitec transmitters.
- Simultaneous interface and controller. The InterLink Elite makes it possible for two modelers to fly on the same PC, each using his/her own controller to pilot the aircraft.
- QuickSelect menu controls. With the InterLink Elite, you’re able to make a variety of common adjustments to the simulator (such as, selecting a different aircraft or airport.) without having to touch the keyboard and mouse.
- Easy setup and use. Unlike other computer joysticks, in most cases, you do not even have to calibrate the InterLink Elite controller. Simply plug it in and go!
- Simulate sophisticated computer radios. The InterLink Elite, used in conjunction with the RealFlight software, allows you to simulate the programmability (mixing, exponential, etc.) of sophisticated computer radios.

## **Start Flying!**

When you start RealFlight for the first time, the software will automatically detect the InterLink Elite controller. Simply add throttle and start flying right away.

RealFlight, by default, uses the InterLink Joystick setting. This setting affords G4 the plug-and-play capability in the simulation. In this mode, the InterLink Joystick allows the InterLink Elite to control all functions associated with the flight of your aircraft.

The InterLink Elite also allows you to use your own R/C transmitter to control the RealFlight aircraft. This is referred to as the Transmitter Interface Mode.

### QuickSelect-

The InterLink Elite also offers QuickSelect buttons located at the bottom of the controller. These buttons allow you to make simple changes to the simulator without having to put the controller down and reach for the keyboard and/or mouse. This makes it convenient to change the current aircraft and airport, or display popular on-screen gadgets.

To access the QuickSelect tabs, press the **Menu/Select** button to display a number of tabs on the left side of the simulator. Use the Up and Down direction on the **Data Lever**, located on the lower right side of the controller, to scroll through these options. Pressing the **Menu/Select** button again will select the highlighted tab. Pressing the **Cancel** button on the InterLink Elite will exit out of the tabs and hide them.

The options available are:



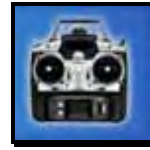
Select Aircraft



Select Airport



NavGuide Gadget



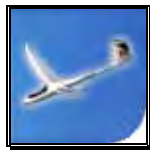
Radio Gadget



Binocular View



Viewport



Variometer

When using the QuickSelect buttons in the Select Aircraft or Select Airport dialog screen, press **Menu/Select** to select the current highlighted item. Pressing **Cancel** on the InterLink Elite will move you up a level so you can quickly change folders. To exit out of these dialog screens without making any changes, simply press the **Reset** button.





Look for the icon to the left throughout this manual for suggestions on when to use the QuickSelect buttons.

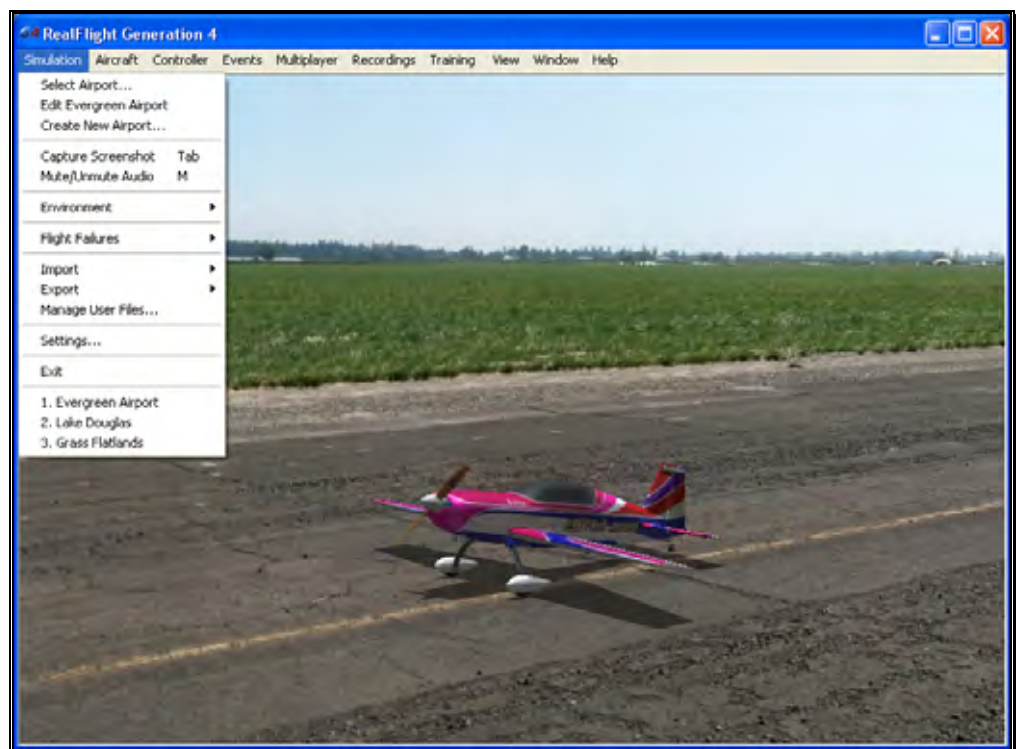


## The Simulation Menu

*Allowing access to a variety of simulation-related features, functions and options.*

The Simulation menu brings forth a pull-down menu, giving you access to many simulator related features, such as changing flying sites, or importing and exporting RealFlight files.

Clicking the Simulation menu will bring forth a screen that looks similar to the following screen shot.



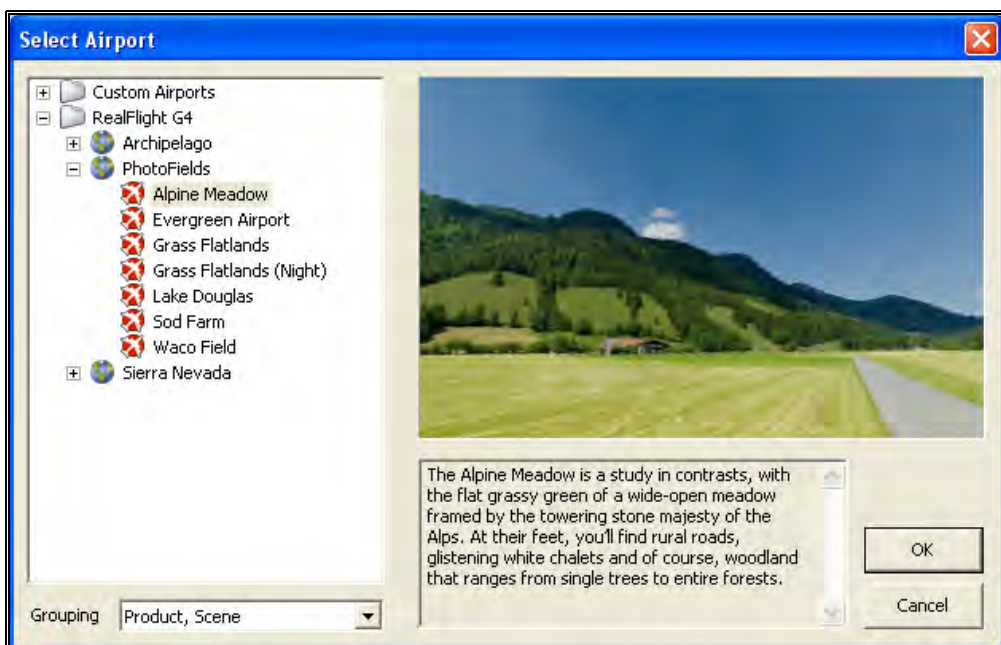
Menu items that are available are:

- Select Airport...
- Edit *Airport Name*

- Create New Airport...
- Capture Screenshot
- Mute Audio
- Environment
- Flight Failures
- Import
- Export
- Manage User Files
- Settings
- Exit
- Airport MRU

## Select Airport...

When you click on **Select Airport...** the following dialog appears:



This dialog lets you choose the flying site that you wish to use for your flight. Each location offers its own unique characteristics and challenges.

The list on the left of the dialog box displays all of the flying sites available to you. If you have created any flying sites, those sites will also be visible here.

The flying sites are listed in files and folders in accordance with the software from which they were loaded. If, for example, you have installed Expansion Pack 2, the sites from this disk will be listed, alphabetically, beneath the Expansion Pack 2 folder. You can change how the airports are organized by clicking on the Grouping drop-down and select another grouping option. The options are:

**Product, Scene:** As explained above, airports are first grouped into folders by the product in which they are contained. Within each group they are then grouped further by scene.

**Product:** Airports are grouped by product alone.

**Scene:** Airports are grouped by scene alone.

**None:** Airports are not grouped into folders at all. Rather, they are listed alphabetically.

Click the **[+] (plus)** or the **[-] (minus)** symbol to reveal or hide the respective airports within these folders. To select an airport, click on the name of the airport at which you wish to fly.

The rotating image on the right side of the screen provides you with a preview of what to expect at the desired location. The dialog box below the terrain map contains a description and pertinent information regarding the highlighted airport.

Have some fun while you're in the Select Airport dialog. Using the mouse, click and drag the preview screen to point the camera angle to your choosing. To resume rotating automatically, right-click the preview screen.

When you are satisfied with your selection, click **OK** to return to your flight using the new airport selection.

The Cancel button will return you to the simulation at the previously selected flying site.



Change airports simply by using the InterLink Elite. Press the **Menu/Select** button, then, using the **Data Lever**, move down one tab and press the **Menu/Select** button again. This will bring up the Select Airport dialog window. You can continue using the **QuickSelect** buttons in this dialog to select a new airport, or press **Reset** to resume flying without making any changes.

### **Movement Modes**

If applicable to the respective airports, Generation 4's Movement Modes allow you to explore the scenery without an aircraft. Movement is not possible at PhotoField airports.

To select a Movement Mode, press the **'Q'** key on your keyboard. You can press the **'Q'** key repeatedly to cycle through the available modes: Walk, Fly or Hover.

Walk mode simulates the effect of you, the pilot, physically walking across the field, complete with sound effects. The Fly mode allows you to move through the air and position the camera anywhere that you desire.

Once you have entered the desired Movement Mode, use the **'W'**, **'S'**, **'A'** and **'D'** keys on your keyboard to control the movements. If you wish to increase the speed of your movement, press and hold the **Shift** key at the same time you are using the **'W'**, **'S'**, **'A'** or **'D'** key.

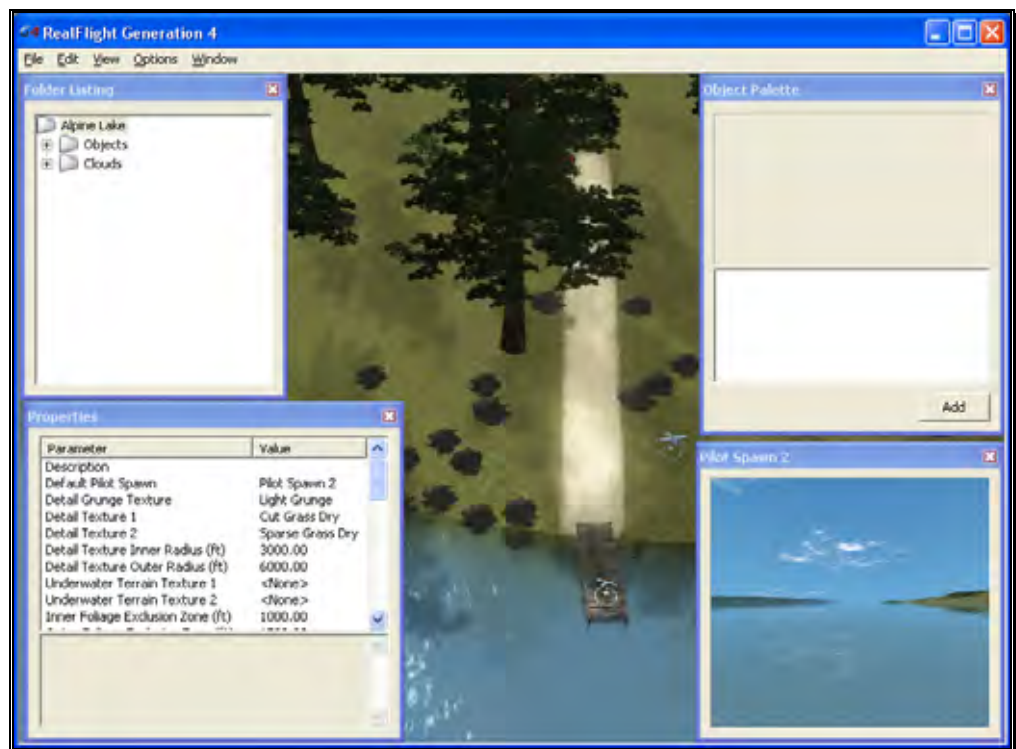
The mouse wheel controls the angle or height at which you traverse the scenery. To increase the altitude, roll the wheel away from you. This is known as the Hover Mode.

You may also control the zoom levels during your travels. Press the **[+] (plus)** key to Zoom In and the **[-] (minus)** key to Zoom Out. The **Backspace** key resets the zoom level to its default value.

### **Edit Current Airport...**

RealFlight G4 offers unparalleled freedom to edit flying sites. You can add and remove objects, alter their location, rotate, and even resize items. It is also possible to alter the atmospheric or lighting conditions at the various flying locations. The first several times you access the airport editing function, the possibilities might seem daunting. It will require some getting used to before you are comfortable with this feature and its related functions. The best way to do so is to simply dive in and experiment.

To modify the currently selected flying location, click the **Simulation** menu followed by the **Edit <Current Airport>...** menu item, where <Current Airport> is the name of the airport you have loaded at the moment. This activates RealFlight G4's FlexiField flying site editor, with the currently active airport loaded and ready to edit.



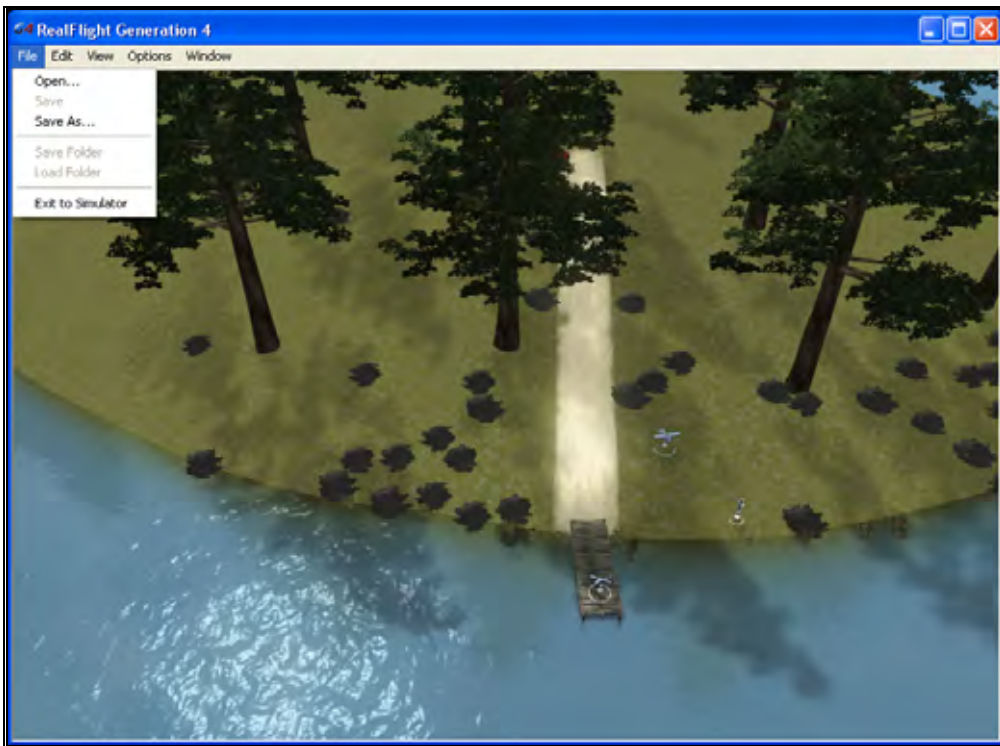
#### **Airport Editor Menus-**

Selecting the Edit Current Airport option activates the screen shown above. There are five menus in the Airport Editor dialog:

- File
- Edit
- View
- Options
- Window

#### **File Menu-**

This menu and its menu items are used to manipulate and control the various folders and related items in the airport editor.



**Open-**

This menu item is used to open existing and edited airports. Selecting this menu item opens the Select Airport dialog.

**Save-**

This option becomes active once you have renamed and saved the edited airport. Prior to doing so this option remains inactive and grayed out.

**Save As-**

Upon completion of the airport editing, click this menu item to save the modifications. You will be asked to create a name for this new airport. After you have renamed the airport, click **OK** to accept the new name. Afterwards, the airport will appear in the airport listings found in the Select Airport... which is located in the Simulation menu.

**Save folder-**

This option allows you to select an entire sub-folder in an airport and save it as a new file. For example, it is possible to select the entire "Objects" sub-folder in RealFlight Ranch and save it off to a disc.

To save the folder, right click on the existing folder and select Save Folder. This brings forth a dialog that allows you to determine the new folder's name as well as the location where it will be saved.

Alternatively, with the respective folder highlighted click on the File menu and select Save Folder menu item from the pull-down menu.

#### **Load Folder-**

This option allows you to load a folder from the saved folders. To do so, right click on an existing folder. Next, select the folder from the list.

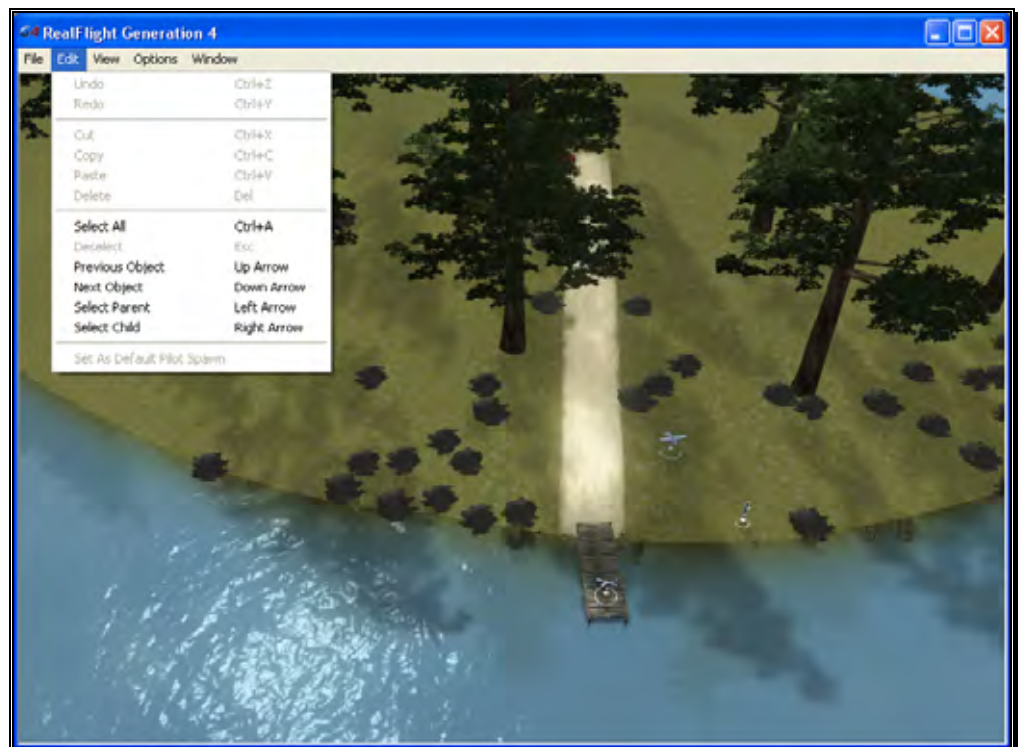
Alternatively, with the respective folder highlighted click on the File menu and select Load Folder menu item from the pull-down menu.

#### **Exit to Simulator-**

Use this option to cease editing the airport and return to the simulation. If you have not made any changes to the airport, you will return directly to the simulation. If you have unsaved changes, a message box will ask for confirmation before returning to the simulation.

#### **Edit Menu-**

This menu may be used for some simple editing functions on the selected airport.





**Undo-**

Select this to undo the last change you made in the airport editor.

**Redo-**

Choose Redo to repeat the last action you did in the airport editor.

**Cut-**

Select one or more objects at the airport and choose Cut to remove the selected objects. The objects are stored temporarily in RealFlight's memory and can be pasted back into an airport.

**Copy-**

Like the Cut options, Copy will store the selected objects in RealFlight's memory allowing you to later paste it into an airport. Unlike Cut, the selected object will remain at the current airport.

**Paste-**

If any objects have been cut or copied, choose Paste to add them to the current airport.

**Delete-**

Delete will remove the selected objects from the airport they cannot be retrieved later. Therefore, you cannot paste the object(s) back in the scenery.

**Select All-**

This menu option will select all objects at the airport you are currently editing.

**Deselect-**

Choosing this menu option will deselect any airport objects that might be selected at the moment. If no objects are selected, Deselect will remain grayed out.

**Previous Object-**

If any airport object is currently selected, choosing Previous Object will select the item on the folder list that is the preceding object.

**Next Object-**

If any airport object is current selected, choosing Next Object will select the next object in the folder list.

### Select Parent-

All objects belong to a group or parent. To pick the parent that the current selected object belongs to, choose Select Parent.

### Select Child-

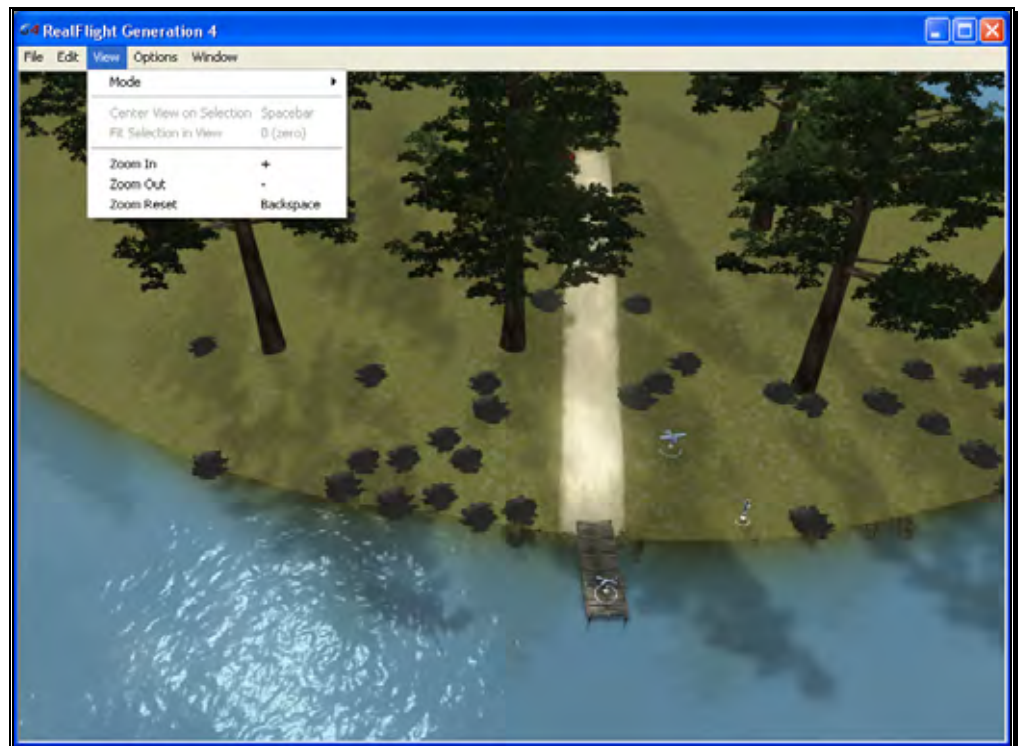
If a group is currently selected, choose Select Child to select the first object listed in that group.

### Set As Default Pilot Spawn-

Choose a pilot spawn and click this menu option to set it to the default spawning point. This point will be the default camera position each time you load the current airport.

### View menu-

This menu allows you to make alterations and modifications related to the perspective of the simulation during the editing process. Modifications to the vantage point do not have any effect on the simulation during its operation.



### Mode-

The Mode menu is utilized to alter the camera perspective when viewing the scene. There are three distinct view modes in G4: Pan Camera, Pivot Camera

and Normal Camera. These modes, as well as the methods to access them will be discussed in depth in the sections that follow.

### **Pan Camera-**

The Pan Camera option allows the camera to shift the vantage point on the selected scenery.

There are several ways to access the Pan Camera mode. The first, and probably the easiest, is to press the 'C' key on your keyboard. Alternatively, you may right click on the scene and select Pan Camera from the available options. The final method that may be used is to select Pan Camera through the View menu and Mode menu item.

To increase the pan view, rotate the mouse wheel towards the computer screen. Alternatively, you may also press the [-] (minus) key on the number pad of the keyboard. This causes the camera to pan out incrementally.

Conversely, to decrease the pan view, either rotate the mouse wheel away from the computer screen or press the [+] (plus) key on the keyboard's number pad. This causes the camera to pan in incrementally.

To move an object within the scene, left click on the object with the mouse, continue to hold the button down, and move the mouse within the scene. The selected object will move along with the mouse cursor.

You can exit this mode by using the menus or by hitting the 'Z' key, which returns you to the normal viewing mode.

### **Pivot Camera-**

The Pivot Camera mode, as the name suggests, pivots or rotates the camera in relationship to a particular object or location.

There are several ways to access the Pivot Camera mode. The first, and probably the easiest, is to press the 'X' key on your keyboard. Alternatively, you may right click on the scene and select Pivot Camera from the available options. The final method that may be used is to select Pivot Camera View menu and Mode menu item.

To increase the pivot view, rotate the mouse wheel towards the computer screen. Alternatively, you may also press the [-] (minus) key on the number pad of the keyboard. Doing so will cause the camera to shift incrementally.

Conversely, to decrease the pivot view, either rotate the mouse wheel away from the computer screen or press the **[+] (plus)** key on the keyboard's number pad. Again, this will shift the camera incrementally.

To exit the Pivot Camera feature, right click in the editing view once again and then mouse click the desired option in the popup menu. You can also exit this mode by hitting the **'Z'** key, which returns you to the normal viewing mode.

#### **Normal Camera-**

This mode returns the camera to its normal, or default perspective.

There are several ways to access the Normal Camera mode. The easiest is to simply press the **'Z'** key on the keyboard. Alternatively, you may right click in the scene and select Normal Camera from the options listed. Finally, you may select Normal Camera through the View menu and Mode menu item.

#### **Center View on Selection-**

This option centers the vantage point on a particular object. This is useful for repositioning, resizing, rotating, etc.

If you have not selected an object from the Folder Listing or highlighted an object in the scene, this option will remain inactive or grayed out. If, however, you have made a selection or highlighted an object, there are several ways to select the Center View on Selection option.

Simply right click on the selected object or folder in the Folder Listing. Alternatively, in the scene, right click on the highlighted object and select the Center View on Selection from the options listed. The final option is to use the View menu and select the Center View on Selection option.

To magnify the view or zoom in on the selected item, press the **[+] (plus)** key on the keyboard. Each time you press the **[+] (plus)** key or select the **Zoom In** menu item, the zoom level increases incrementally. Alternatively, you may select the Zoom In option from the View menu.

To decrease the magnification, or zoom away from the selected item, press the **[-] (minus)** key on the keyboard. Each time you press the **[-] (minus)** key or select the **Zoom Out** menu item, the zoom level decreases incrementally. Alternatively, you may select the Zoom Out option from the View menu.

### **Fit Selection in View-**

This option is utilized to ensure that your selection fits in the view. If, for example, your zoom magnification is at an extremely high level, the object may not completely fit on the screen. This feature ensures that it will.

To access the Fit Selection In View, right click on the highlighted object in the scene and select the Fit Selection In View from the options listed. The final option is to use the View menu and select the Fit Selection In View option.

To magnify the view or zoom in on the selected item, press the **[+] (plus)** key on the keyboard. Each time you press the **[+] (plus)** key or select the **Zoom In** menu item, the zoom level increases incrementally. Alternatively, you may select the Zoom In option from the View menu.

To decrease the magnification, or zoom away from the selected item, press the **[-] (minus)** key on the keyboard. Each time you press the **[-] (minus)** key or select the **Zoom Out** menu item, the zoom level decreases incrementally. Alternatively, you may select the Zoom Out option from the View menu.

### **Zoom In-**

Click this menu item to magnify or zoom in on the selected item. Alternatively, you may magnify the view or zoom in on the selected item by pressing the **[+] (plus)** key on the keyboard. Each time you press the **[+] (plus)** key or select the **Zoom In** menu item, the zoom level increases incrementally.

### **Zoom Out-**

Click this item to reduce the magnification, or zoom out of the current view. Alternatively, press the **[-] (minus)** key on the keyboard. Alternatively, you may zoom out via G4's menus. Each time the **[-] (minus)** key or the **Zoom Out** menu item are pressed or selected, the view will decrease incrementally.

### **Zoom Reset-**

This menu item resets the view to the default magnification. Alternatively, you may also press the **Backspace** on the keyboard to reset the zoom to its default value.

### **Options Menu-**

The Options Menu allows you to adjust how many of the functions in the airport editor will work.



#### **Selectable Items-**

The Selectable Items menu determines whether a particular type of object may be clicked and selected on-screen.

To eliminate the possibility of selecting an item, simply mouse click on the desired listing in the pull-down menu. This capability is useful if there are many objects clustered in a small area and you want to select just one of them. For example, suppose that an airport has a tight cluster of trees with a dirt pile in the middle. If you want to select the dirt pile, it may be easier to turn off the tree selection first. This will allow you to easily select the dirt pile without the trees getting in the way.

#### **Add Object Grouping-**

The items available for addition in RealFlight G4 are all grouped or organized accordingly. This menu item determines the methodology by which they are grouped in the Object Palette window.

#### **Product, Type, Name-**

Selecting this option causes the objects in the Object Palette to be displayed by the Product then by the Type and finally by the Name. That is, objects are first listed within the product in which they appear (e.g., G4, Expansion Packs, etc.). Within the product, the objects are

then classified by Type (e.g., Buildings, Trees, etc.). Once you've selected the Product and Type of object that is desired, the objects are then listed alphabetically by Name.

For information on adding objects and how to use the Object Palette, please refer to the Object Palette section of this manual.

**Type, Name-**

This option causes the objects in the Object Palette to display by the Type and the Name designations only. They are not sorted by the Product in which they appear. Objects that appear in G4, Expansion Packs, etc. will be included on one extensive listing.

This option is useful if you are unsure as to which product included a particular object.

**Name-**

Selecting this option causes the objects to be listed in alphabetical order by their name designations (e.g., Barn). This listing is extensive as it includes all of the objects available to you.

This option is useful if you are unsure as to which product contained the object or if you are unsure as to the type of object that you wish to utilize. It also offers a rapid overview as to the number and breadth of objects available to you.

**Rotation Snap-**

When rotating an object on the flying site, you have the ability to control the amount of rotation with the Rotation Snap. There are four snap settings that may be utilized in the editor to provide quick orientation settings for placing objects.

**None**

The object rotates without any restrictions. This is useful for making minor refinements to object placement.

**45 Degrees**

The object will rotate 45 degrees each time if this option is selected. This is useful for making large changes to object position.

**15 Degrees**

The object will rotate 15 degrees each time if this option is selected.

### **5 Degrees**

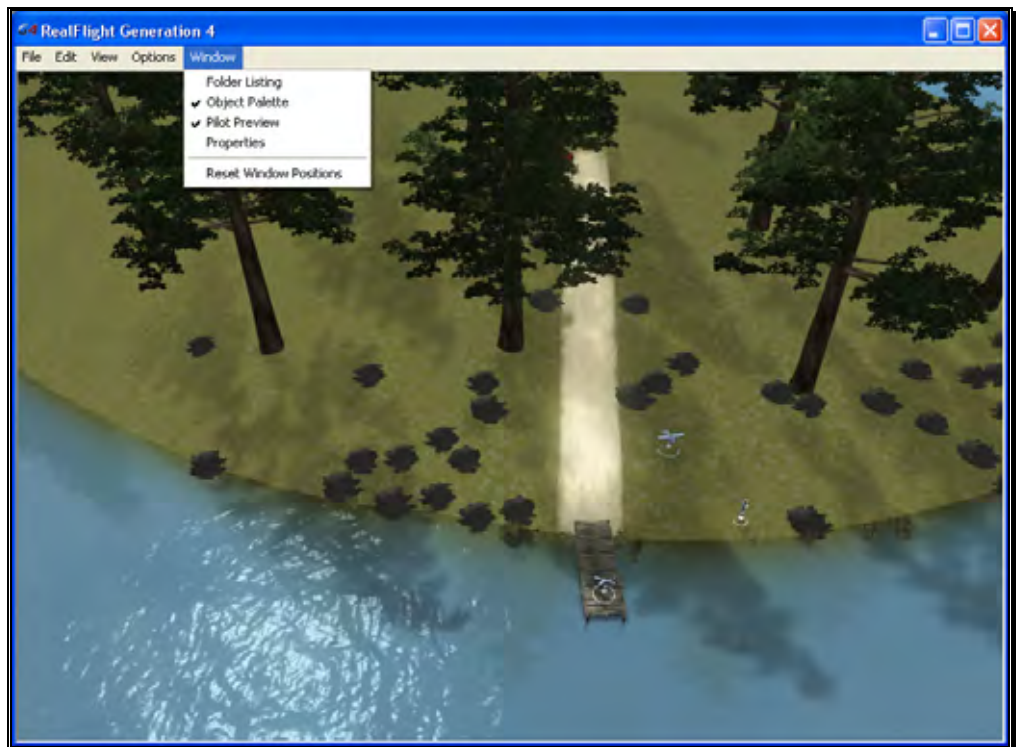
The object will rotate 5 degrees each time if this option is selected.

### **Display Metric Units-**

Click this item with your mouse to switch the measurement indicators in the Properties pane from SAE (feet, inches, pounds) to metric (meters, centimeters, kilograms).

### **Window Menu-**

This menu item activates or eliminates items from the display or window. For example, if you were to click the Properties item in the pull-down menu this would eliminate the Properties window from the screen.



### **Folder Listing-**

This listing includes all of the folders available to you for use in the airport editor. Selecting this item from the pull-down menu will remove the Folder Listing dialog from the screen.



**Object Palette-**

The Object Palette includes the complete selection of objects available to you for use in editing an airport. Selecting this item from the pull-down menu will remove the Object Palette dialog from the screen.

**Pilot Preview-**

Selecting this item from the pull-down menu will eliminate the pilot's perspective from the screen.

**Properties-**

Selecting this item from the pull-down menu will remove the Properties dialog from the screen.

**Reset Window Position-**

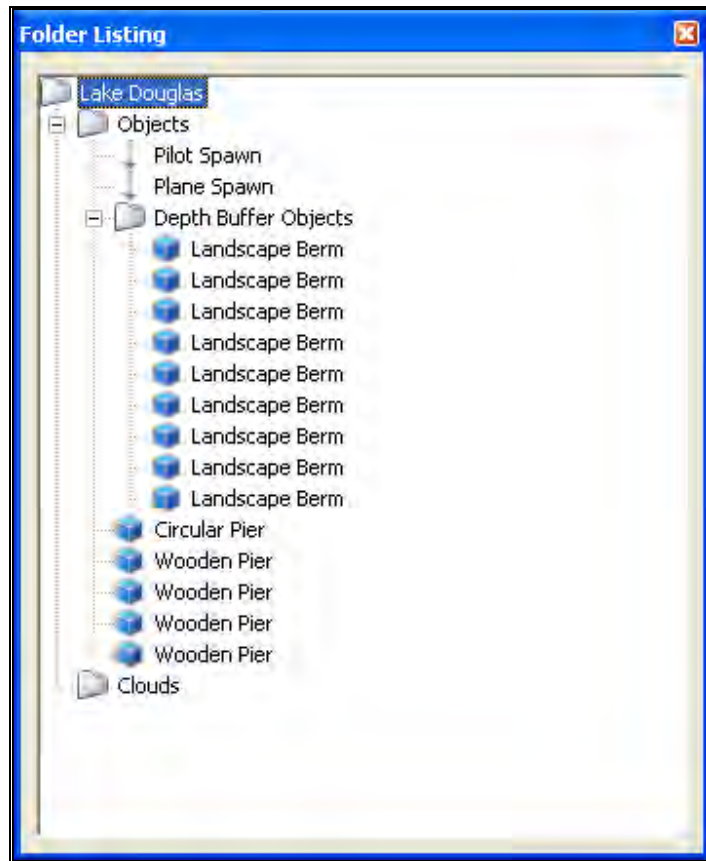
This menu item resets the positions of the airport editing windows back to their default locations. Additionally, if you have removed any of the default windows, they will return to the screen at this time.

## Utilizing the Editor

Opening the airport editor reveals four distinct windows. For the purpose of clarity, we will examine each window individually. It is, however, important to note that these windows interact with one another.

**Folder Listing Window-**

The Folder Listing window consists of the folders and items (objects) that comprise the currently selected airport.



To determine what items are contained within the Objects and Clouds folders, click on the **[+]** (**plus**) or double-click on the name itself (e.g., Objects). Doing so brings up the various sub-folders that are contained within the main item.

As denoted by the **[+]** (plus) symbols, these folders, in turn, also have another level. Again, to open these respective levels, click on the **[+]** (**plus**) icon or double-click the folder name.

Alternatively, clicking on an object in the scene will highlight the respective object. It will also open the folder that contains the object. The converse is also true, clicking the folder or object in the Folder Listing menu will highlight the respective item as well.

If you wish to move an object from one folder to another, mouse click and hold the object to be moved. Next, drag the object to the desired location (folder) using the mouse and release. The object will be listed at the bottom of the folder in which it has been situated. Please note: this removes the object from the original folder.

You may use either of two methods to delete an object from the folder, and therefore the scene as well.

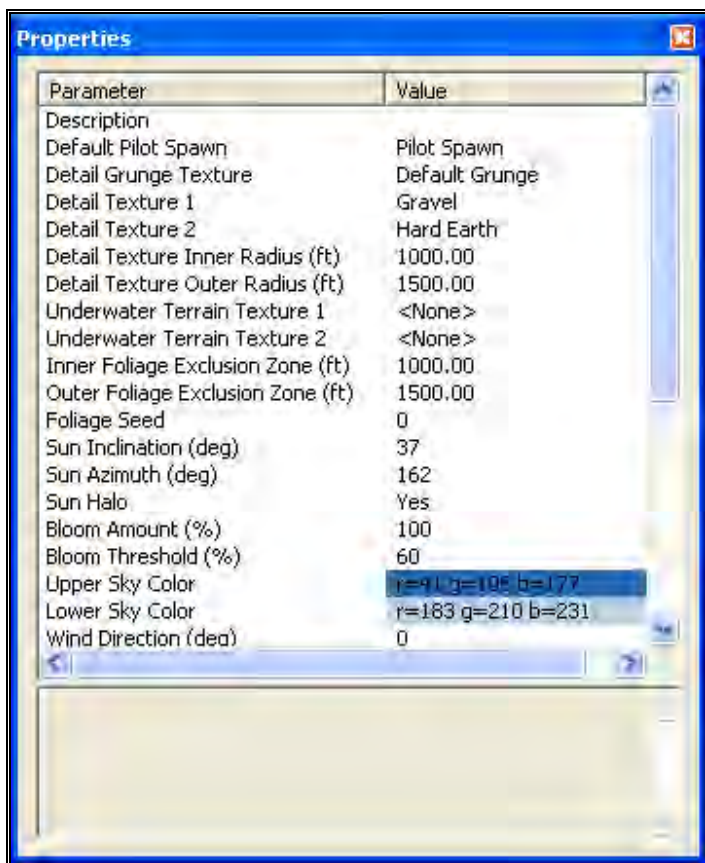
First, you can highlight the object or sub-folder (e.g., Fences) in the Folder Listing and press the **Delete** key on the keyboard.

Alternatively, with the object or sub-folder highlighted, right click and select the **Delete Object** pull-down option.

### Properties Window-

The Properties window indicates the detailed information for the item highlighted in the Airport Editor window. Consequently, the contents of the Properties window vary depending upon the selection in the Folder Listing window.

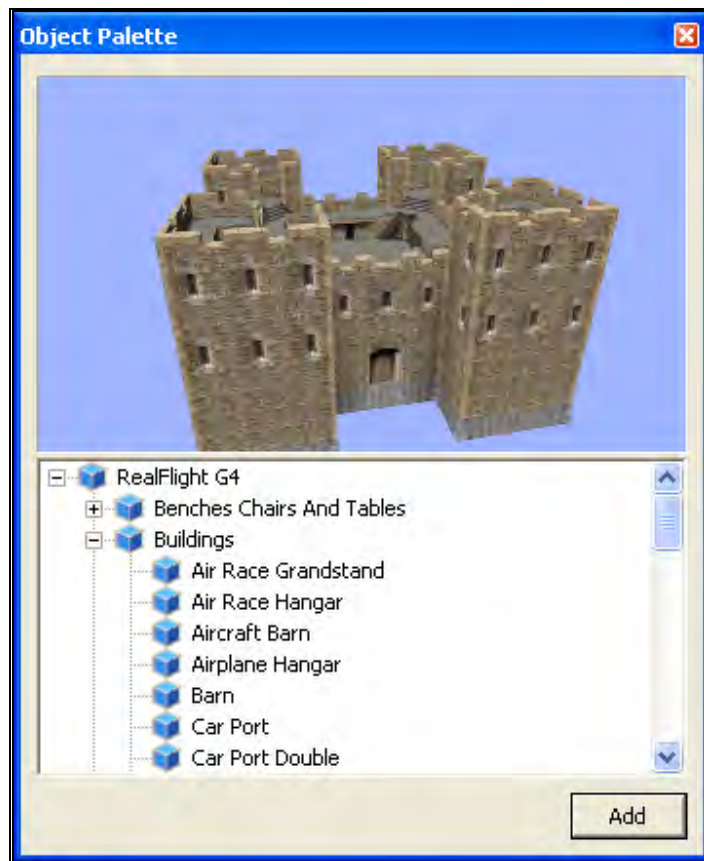
The example below indicates what is displayed if the flying site's root or top-level folder is highlighted. Regardless of what is selected, the Properties are all very similar in nature and in their method of modification.



An asterisk to the left of an item indicates that it has been modified. Right clicking the item will bring up the Restore Original Value or Set to Default Value options.

### Object Palette Window-

The Object Palette window is used to add a new object or objects to the airport. The object window consists of two separate sections: the preview box in the top section of the window, and the objects list in the bottom section.



All objects are grouped according to their root directory. Within the root directory the grouping is further refined. For example, you will find all available benches in the Benches, Chairs and Tables group. This, of course, assumes that you are utilizing the Product, Type, Name or Type, Name as determined by the Add Object Grouping Selection in the Options menu.

Each object group is preceded with a [+] (plus) and an icon. The [+] (plus) indicates that there is another expansion level, or selection, available to you. Clicking on the [+] (plus) or double-clicking the respective root directory name (e.g., RealFlight G4) will bring forward the pull-down menu of the items contained within the specified folder.

If, for example, you wanted to add a bench to the current airport, take the following steps:

1. Click on the **[+]** (**plus**) icon in front of the Benches, Chairs and Tables group (or, double-click the group name itself). This reveals the next expansion level to you.
2. From this expansion list, select the **'Bench'** object. The selected object appears in the preview box.
3. Click the **Add** button, which adds the object to the scene.

You will find additional information pertaining to object placement, positioning, etc., in the Properties section of this chapter.

You may use any one of several available methods to change the location of an object in the airport. To use the drag and drop method, click on the object to highlight it, as shown below. Once you have highlighted the object, press and hold the mouse button. Move the mouse to the desired location and then release the button to drop the object in the new location.

Alternatively, with the object highlighted, right click the mouse elsewhere in the scenery. This brings up a pop-up menu with several options available to you. To move the selected object, point the mouse to the location that you desire and click the Move Here option.

G4 also allows you to easily replicate the selected objects. To do so, hold the 'Ctrl' key down, click and hold the mouse button and use the mouse to drag the object to a new location. You will see that the original object stays in place. Release the mouse button and the 'Ctrl' key to drop the new item in place.

Once you have added an object to the airport, you can modify it freely. Refer to the Properties Window – Object Selection section for information on how to do so.

#### **Pilot Preview-**

This window provides you with the ability to view the scene from the pilot's perspective. It is very useful when editing PhotoField airports.



The number of pilot perspectives available to you varies; dependent upon the selected scene. For example, RealFlight Ranch offers: Runway Center, Runway End and Helipad as the viewing options. To select amongst these options, open the Spawn Folder in the Folder Listing. Use the up/down arrow keys on the keyboard or the mouse to select the desired perspective.

It is also possible to modify the selected vantage points. For example, you may Zoom In and Out, or simply scan the horizon. Note that in order to modify the vantage point, the Pilot Preview window must be the active window. To ensure that the Pilot Preview window is the active window, simply click on, or in, this window.

To magnify the view or zoom in on the selected item, press the **[+] (plus)** key on the keyboard. Each time you press the **[+] (plus)** key or select the **Zoom In** menu item, the zoom level increases incrementally.

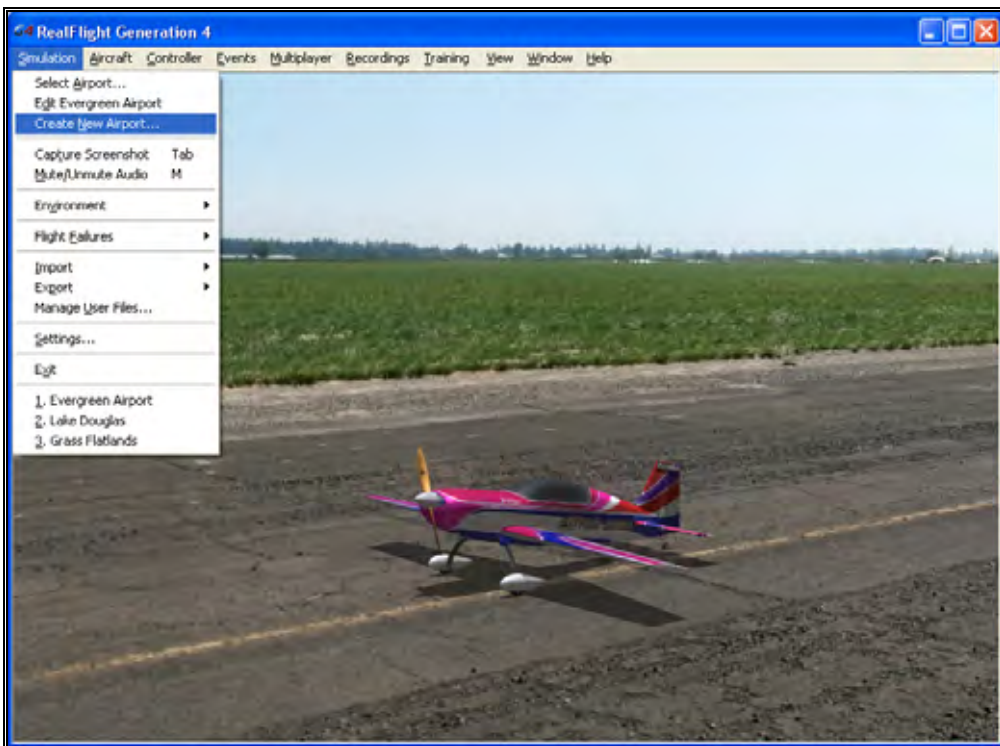
To decrease the magnification, or zoom away from the selected item, press the **[-] (minus)** key on the keyboard. Each time you press the **[-] (minus)** key or select the **Zoom Out** menu item, the zoom level decreases incrementally.

In most cases, you can also use the scroll wheel on the mouse to zoom in and out on the scenery

RealFlight also allows you to scan the scene. To do so, press and hold the mouse button. Moving the mouse will shift the scenery.

## Create New Airport

This menu enables you to create an entirely new airport, starting with a fresh canvas. The FlexiField flying site editor provides you with virtually unlimited editing options, limited only by your imagination.



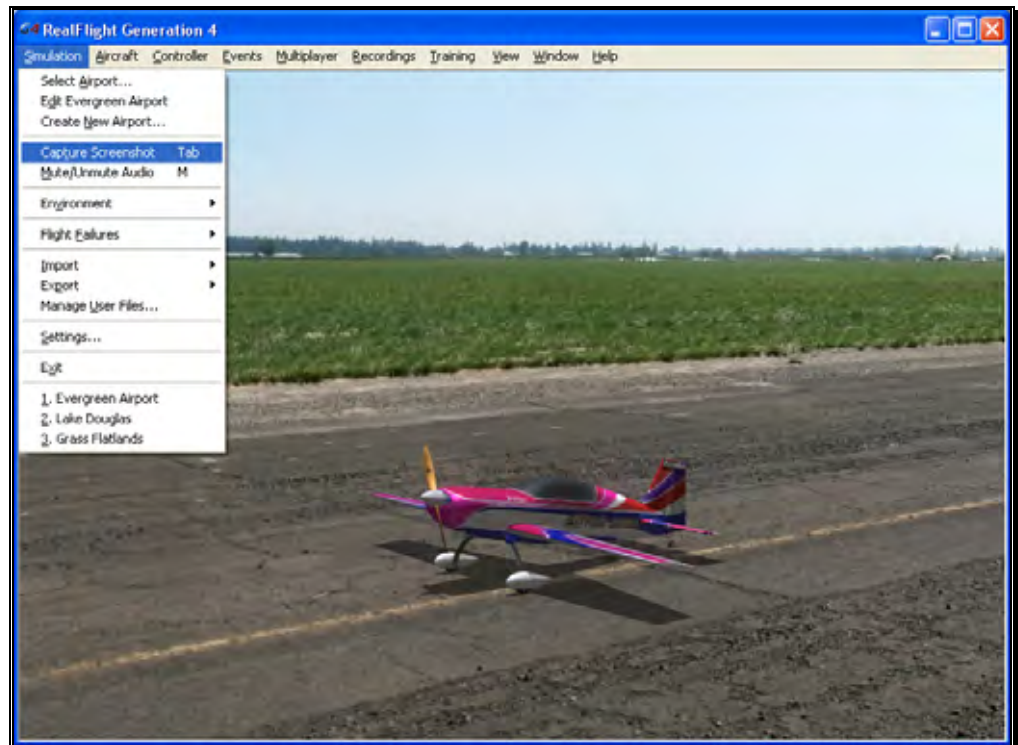
The options available to you when creating an airport are identical to those found in the section pertaining to the airport editor above. As such, we will avoid duplicating these instructions. Instead, we encourage you to experiment with the options, settings and choices as you see fit.

After you have finished creating your airport, click the file menu and save the airport. The airport name will appear in your RealFlight G4 directory for future use.

## Capture Screenshot

Just like the perfect photo opportunity at the local flying field, RealFlight G4 offers the

chance to snap off screenshots. Captured screenshots are great to share with friends, add as your desktop wallpaper, or put on the internet for the world to see.



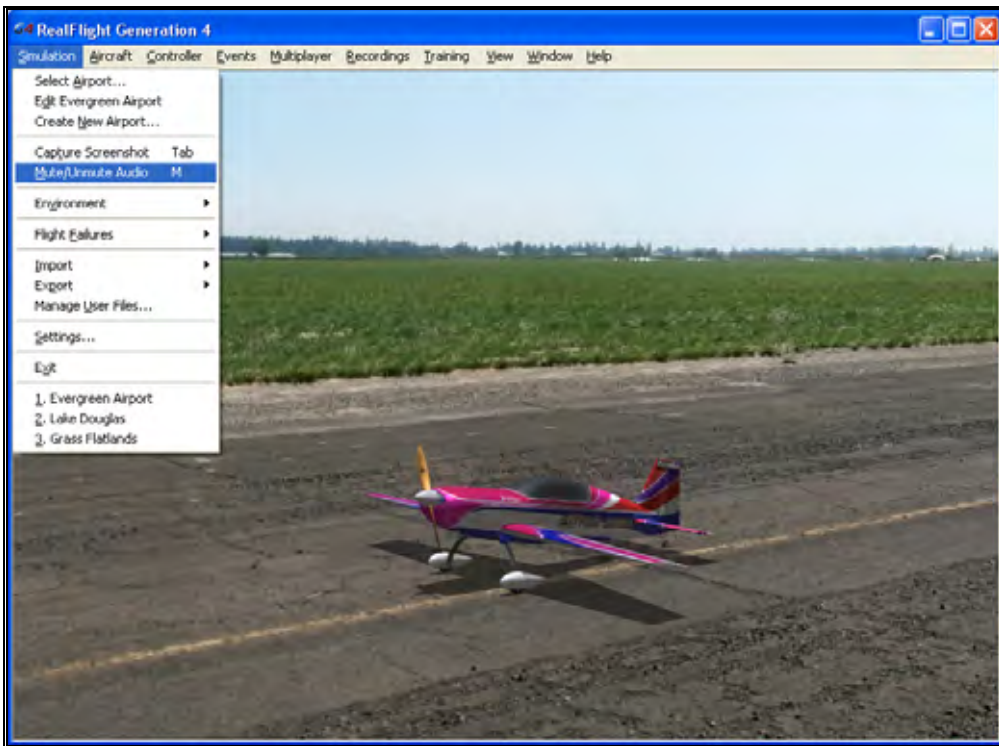
To snap a screenshot, click the **Capture Screenshot** menu item. Alternatively, press the **Tab** key on the keyboard.

Screenshots are stored in the My Documents folder.

## Mute/Unmute Audio

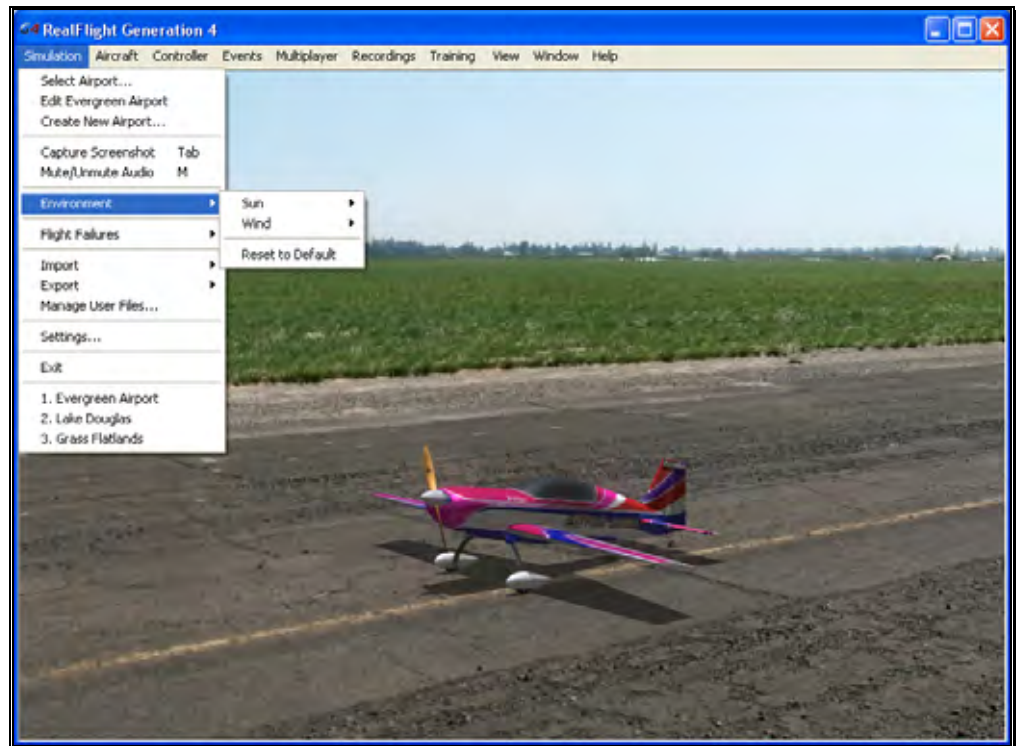
At times, you may want to fly without any sound. Choose this menu item to mute the audio. Select it again to activate the sounds.





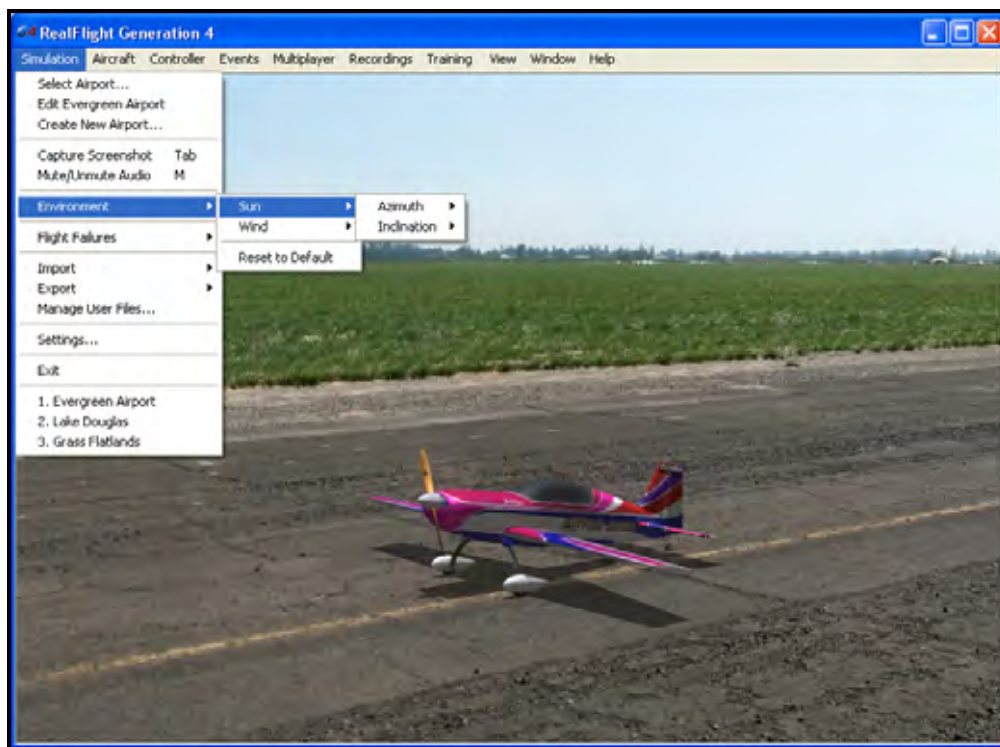
## Environment

The Environment menu item has a number of sub menus that allows you to adjust the sun location and wind settings.



### **Sun-**

RealFlight G4 gives you the ability to adjust the position of the sun in the sky. By change the Azimuth, you can rotate the sun around you. Change the Inclination to adjust how high in the sky the sun should be, or turn day into night by moving the sun below the horizon.



The sun settings are not applicable at PhotoField flying sites.

#### **Adjusting the Sun Azimuth-**

If you customize an airport, and find that the sun is always in your flight path, adjusting the sun's Azimuth is a good way to move it around the sky, out of your way.

To adjust the Azimuth, select the **Sun** menu. This will bring forth the Azimuth and Inclination options. Highlight the **Azimuth** menu item in the pull-down selections. To rotate the sun to the right, click **Increase**. Clicking **Decrease** will rotate the sun to the left.

Alternatively, you may increase or decrease the Azimuth by pressing **Shift + Home** or **Shift + End**.

When altering the Azimuth, the simulation temporarily displays the new location in the lower left corner of the window.

#### **Adjusting the Sun Inclination-**

To position the sun higher in the sky, or set it below the horizon, modify the Inclination.

To adjust the Inclination, select the **Sun** menu. This will bring forth the Azimuth and Inclination options. Highlight the **Inclination** menu item in the pull-down selections. To raise the sun higher into the sky, click **Increase**. Click **Decrease** lower the sun, or to set it below the horizon to make it night time.

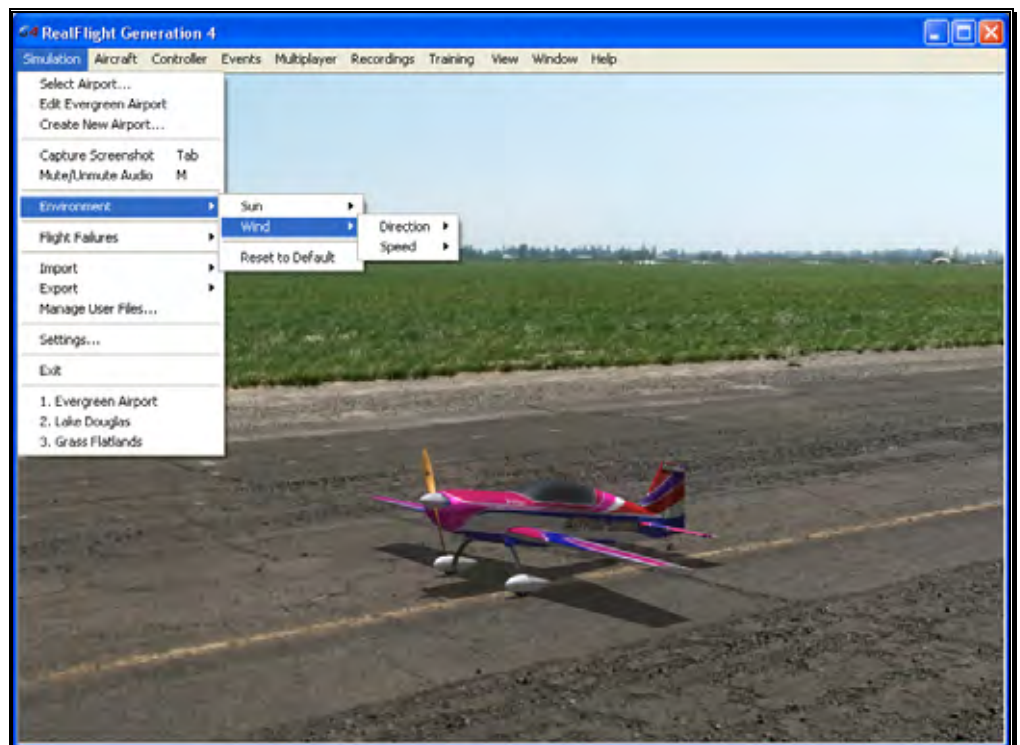
Alternatively, you may increase or decrease the Inclination by pressing **Shift + Page Up** or **Shift + Page Down**.

When altering the Inclination, the simulation temporarily displays the new location in the lower left corner of the window.

At night time, RealFlight G4 will automatic turn on the lighting effects on objects and aircraft that offer the lighting abilities.

### Wind-

RealFlight G4's TruFlo Wind Dynamics offers the most realistic wind model of any R/C simulator. Its five components work together to capture this complex, ever-changing force with unmatched realism. Just as it would at the field, your model will encounter a variety of wind forces as it soars across the skies in RealFlight. Sailplane enthusiasts will appreciate the lifelike effect of the winds as they follow the drafts on the slopes and hills of G4.



RealFlight offers you the ability to adjust both the speed and direction of the wind. To access the Wind settings, click on the Simulation menu followed by the Wind menu item. Several methods may be utilized to adjust the wind speed and direction.

#### **Adjusting the Wind Direction-**

RealFlight G4 also allows you to alter the direction (expressed in degrees) of the wind as well. This function is perfect for practicing crosswind landings.

Selecting the **Wind** menu item brings up the Speed and Direction options. To adjust the wind direction, highlight the **Direction** menu item in the drop-down selections. To increase the degree of wind direction, click on the **Increase** option in the drop-down selections. Likewise, clicking the **Decrease** option lowers the degree of wind direction. The wind direction degree increases and decreases in 15-degree increments.

You may also adjust the Direction through the Settings... menu item. This method allows you to adjust the direction in one-degree increments.

Alternatively, you may increase the angle of the wind direction by pressing the **Home** key on the keyboard. To decrease the angle of the wind direction, press the **End** key on the keyboard.

When altering the wind direction, the simulation temporarily displays the new wind direction in the lower left corner of the window.

#### **Adjusting the Wind Speed-**

Increasing the wind speed is an ideal way to learn to fly in the less-than-perfect wind conditions that frequently occur at an R/C field. To adjust the speed of the wind, select the **Wind** menu. This will bring forth the Speed and Directions options. To adjust the speed of the wind, highlight the **Speed** menu item in the pull-down selections. To increase the speed of the wind, click on the **Increase** option in the pull-down selections. Clicking the **Decrease** option reduces the wind speed.

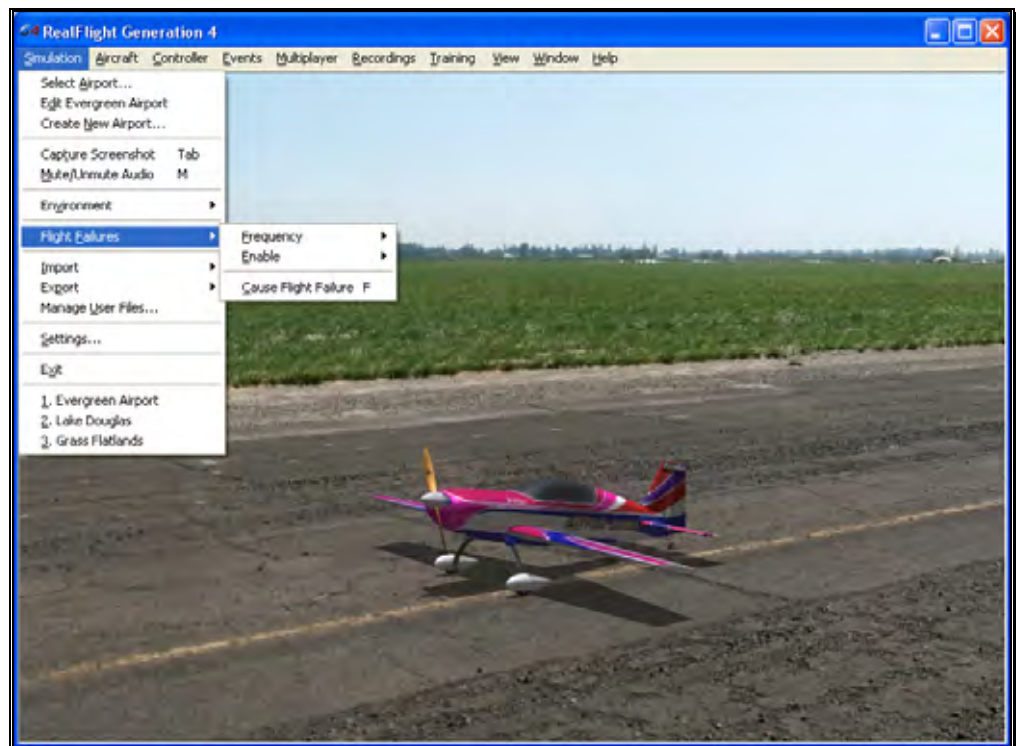
Alternatively, you may increase the wind speed by pressing the **Page Up** key on your keyboard. To decrease the speed of the wind, press the **Page Down** key on your keyboard. Each time the Page Up or Page Down is pressed the wind is increased or decreased incrementally.

When altering the wind speed, the simulation temporarily displays the new wind speed in the lower left corner of the window.

Alternatively, you may adjust the Wind through the Settings... menu item. For information on how to do so, please refer to the Settings section on page 75.

## Flight Failures

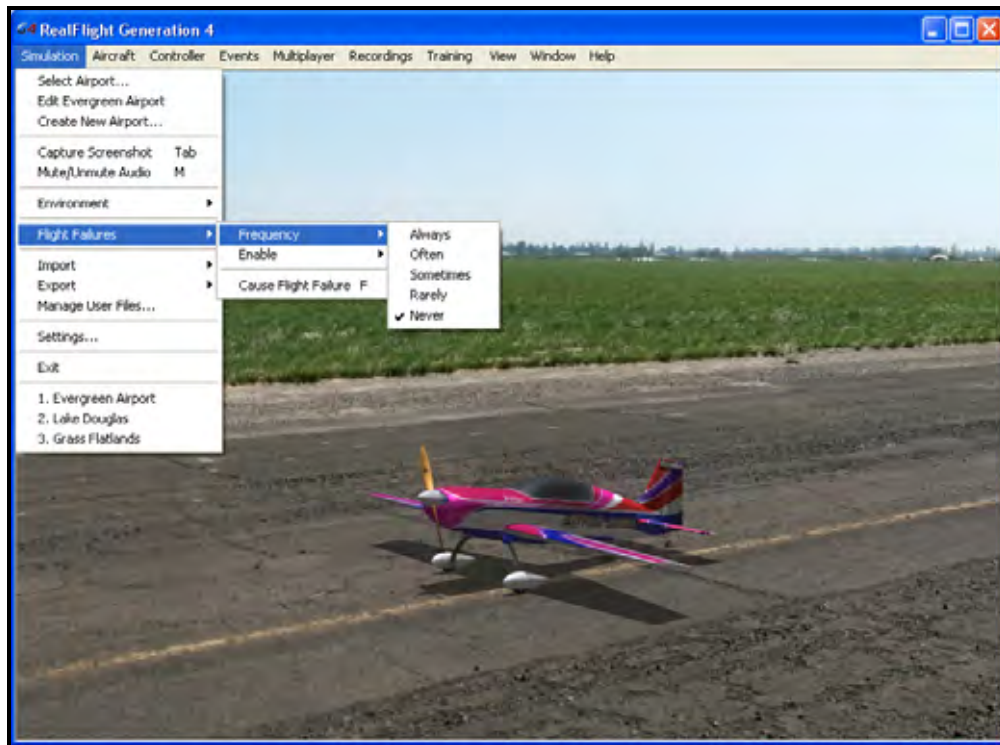
RealFlight G4 offers the ability to simulate common failures for your aircraft. This feature aids in teaching you how to remain calm and react appropriately when an actual failure occurs at your R/C field. RealFlight G4 allows you to determine both the types of flight failures that you will face as well as how often those failures will occur.



### Adjust the Rate of Occurrence-

There are several methods available to adjust the frequency at which flight failures will occur. To use the first method, click on the **Simulation** menu followed by the **Flight Failures** menu item, and then the **Frequency** menu item. This brings up a sub-menu as shown in the screen below. Once the sub-

menu is visible, simply mouse click on one of the options in the pull-down menu.



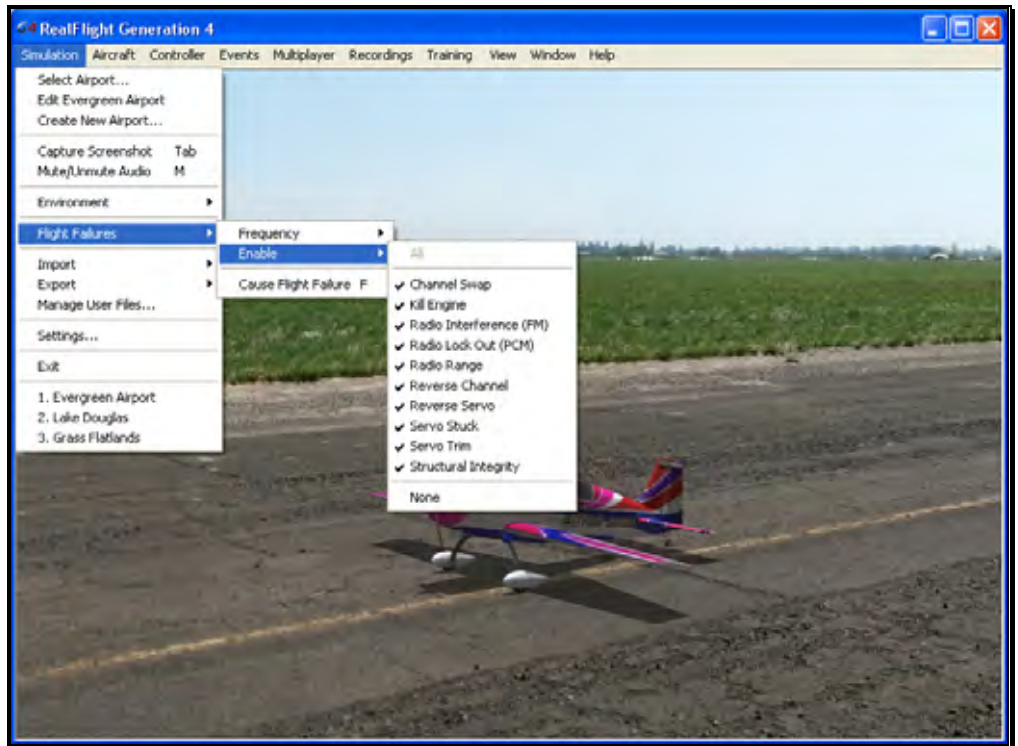
Alternatively, you can adjust the rate of occurrence in the Settings... menu item. To access this menu item, click on the **Simulation** menu followed by the **Settings...** menu item. Next, click on the **Flight Failures** listing. You can bring forth the Flight Failures options by clicking on the **[+] (plus)** or by double-clicking on the Flight Failures listing itself. To adjust the frequency of occurrence, click on the value as indicated in the column to the right of the probability indicator.

The Settings section on page 75 discusses the Flight Failures options in detail.

If you do not wish to experience any flight failures, click the **Never** option in the drop-down menu. Conversely, if you wish to gain a great deal of experience at handling emergencies, click the **Always** option. The Always options means that each time you reset the aircraft, something is guaranteed to go wrong. Maybe not right away – an engine failure will usually wait until some entirely inconvenient time to reveal itself, but it will happen. The Rarely option corresponds to roughly a 5% chance per reset that something will fail.

### Selecting the Type of Flight Failures-

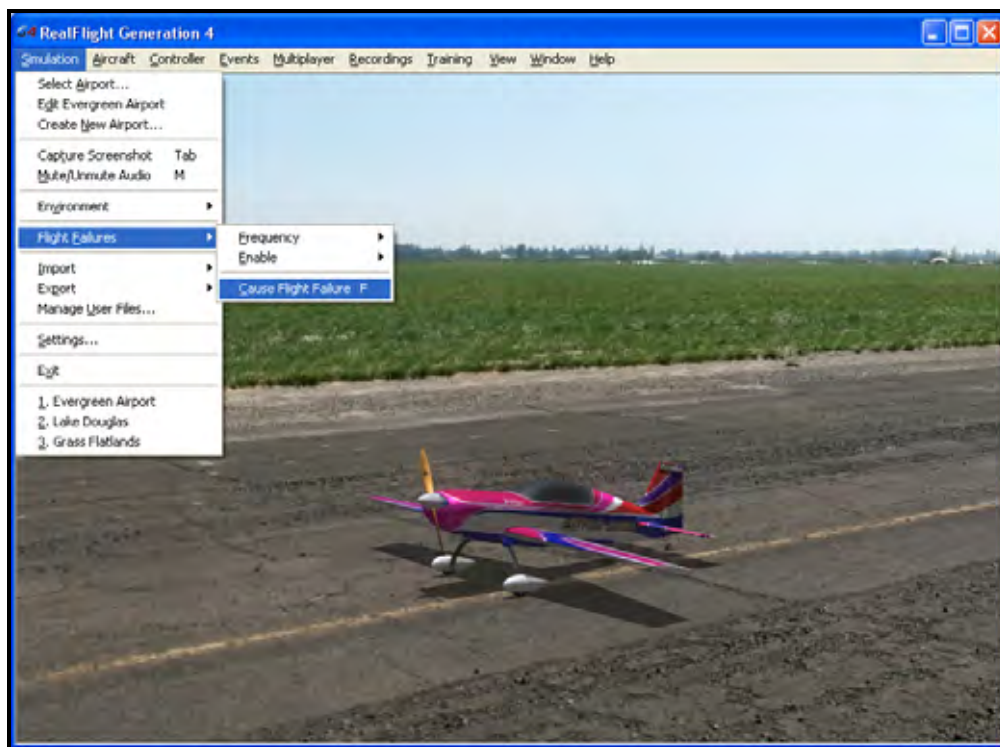
As noted previously, RealFlight G4 also allows you to determine the type of flight failures that you will experience within the simulation. To do so, click the **Simulation** menu followed by the **Flight Failures** menu item. Next, select **Enable** to bring forth the list of available flight failures. If an item has a check mark next to it, then that flight failure is enabled. To disable the flight failure, click on it with the mouse.



### Cause Flight Failure-

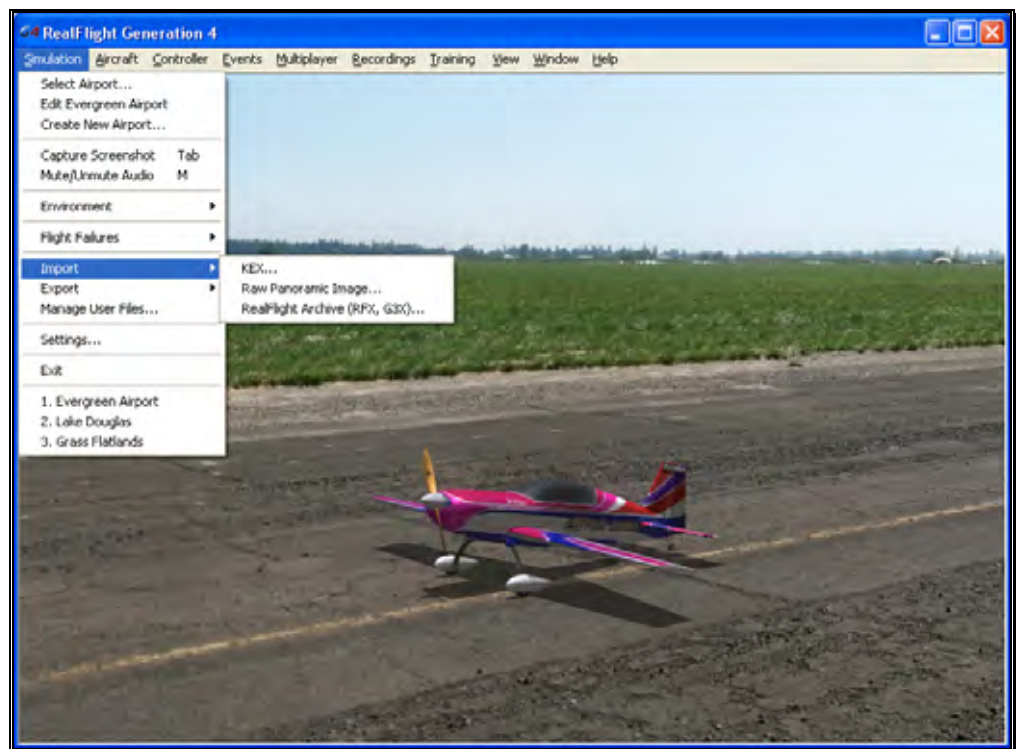
This feature causes a flight failure to occur. To access this menu item, click on the **Simulation** menu, and then click on the **Cause Flight Failures** menu item. As an alternative, press the 'F' key on your keyboard to cause a flight failure.





## Import

The Import menu item allows you to utilize, or import, content created by other users. There are three types of files that are associated with RealFlight G4; each will be covered in the section that follows.



### **KEX-**

Knife Edge Software has created a plug-in, or software module that functions with popular 3D modeling tools to create subject matter for the RealFlight software.

The KEX importer is used to bring the model from the plug-in into the simulation itself.

For more information, see: <http://www.knifeedge.com/KEmax/>

### **Raw Panoramic Image-**

This file type refers to the panoramic image that helps generate the PhotoField flying sites. This option allows you to create a PhotoField using a panoramic image that you may have downloaded or created yourself. It works best with large images (8000x4000) that are equirectangular, spanning 360 degrees horizontal by 180 degrees vertical. Click on the **Raw Panoramic Image...** selection to import an image into the simulation. Browse to the location of the image you would like to import. The image may be either a bitmap (.bmp), targa (.tga) or a JPEG (.jpg) file extension.

Once you have located the appropriate folder and desired image, double-click the image. Alternatively, select this image and click **Open**. The conversion

process can take several minutes for large images. When the process is complete, G4 will automatically create a new PhotoField airport that uses your newly imported image.

To edit the new PhotoField airport (for image alignment, object placement, etc.), access the Airport Editor. To do so, click the **Simulation** menu, followed by the **Create New Airport...** menu item. To see the image from the pilot's perspective, refer to the Pilot Preview window. This will make it easier to place objects and adjust the image correctly. If necessary, adjust the image using the Panoramic Image Y Alignment, Panoramic Image X Alignment and/or the Panoramic Image Facing options located in the Properties window.

#### **RealFlight Archive (RFX, G3X)-**

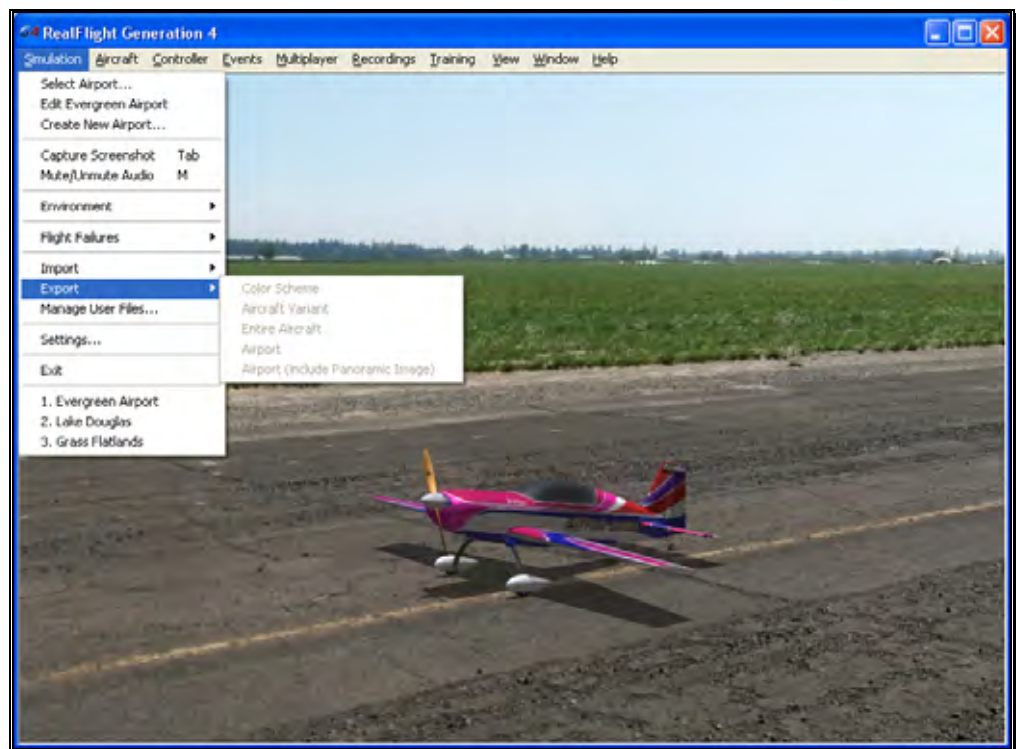
RFX is the file extension that is used for all files exported from RealFlight G4. This menu option allows you to import an RFX file. You will use this for all files that you have downloaded. There is nothing special you need to know about the file beforehand; the RFX importer handles all types of content, including planes, color schemes, airports, PhotoFields, and recordings.

After choosing the Import menu item followed by the RealFlight Archive (RFX, G3X), you will be presented with an Open file dialog. Use this dialog to find the file that you want to import. Double-click the file or click the file and click **Open**. The import process will start immediately and once it's finished you will see a message confirming its success.

This menu item also allows you to import G3X files used in RealFlight G3 and G3.5.

## **Export**

The Export menu item allows you to share user-created content. It is provided in the menu as a shortcut to using the Manage User Files dialog.



G4 users may share the following items: Color Schemes, Aircraft Variant, Entire Aircraft, Airport and Panoramic Images. If one or more of these options on the list is grayed out, it is because the currently loaded color scheme, aircraft, or airport is part of the simulation by default and not available for export.

Once any of these items are exported, you can then share them with friends or the rest of the RealFlight community. The best choice is to upload the files to the RealFlight swap site found at:

<http://www.knifeedge.com/forums/downloads.php?>

#### **Color Scheme-**

This option allows you to share the current aircraft color scheme (a.k.a. trim scheme) with other RealFlight users.

To export a Color Scheme, select the **Export** menu item followed by the **Color Scheme** option. A save dialog will appear so that you can choose where you would like to save the exported color scheme and determine the filename. After saving, a message will appear on-screen advising you whether or not the export was successful. This message will also list the location and name of the file that was exported.

### **Aircraft Variant-**

This option enables you to export an aircraft that has undergone structural modifications such as lengthened wing span, more prop thrust, different airfoils, etc. It is important to note in addition to any wire frame modifications, the Aircraft Variant file option also includes any modifications to the aircraft powerplant, batteries, etc.

To export an aircraft variant, select the **Export** menu item followed by the **Aircraft Variant** option. A save dialog will appear so that you can choose where you would like to save the exported color scheme and determine the filename. A verification message will appear on-screen advising you whether or not the export was successful. This verification message will also list the location and name of the file that was exported.

### **Entire Aircraft-**

This option enables you to export the entire contents of an aircraft such as trim scheme, structural changes, etc.

To do so, select the **Export** menu item followed by the **Entire Aircraft** option. A save dialog will appear so that you can choose where you would like to save the exported color scheme and determine the filename. A verification message will appear on-screen advising you whether or not the export was successful. This verification dialog will also list the location and name of the file that was exported.

### **Airport-**

This option enables you to export a modified airport. Note that any custom panoramic image you may be using with this airport will not be exported. To export an airport with a custom panoramic image, use the “Airport (include Panoramic Image)” option.

To export an airport, select the **Export** menu item followed by the **Airport** option. A save dialog will appear so that you can choose where you would like to save the exported color scheme and determine the filename. After saving, a verification message will appear on-screen advising you whether or not the export was successful. This verification message will also list the location and name of the file that was exported.

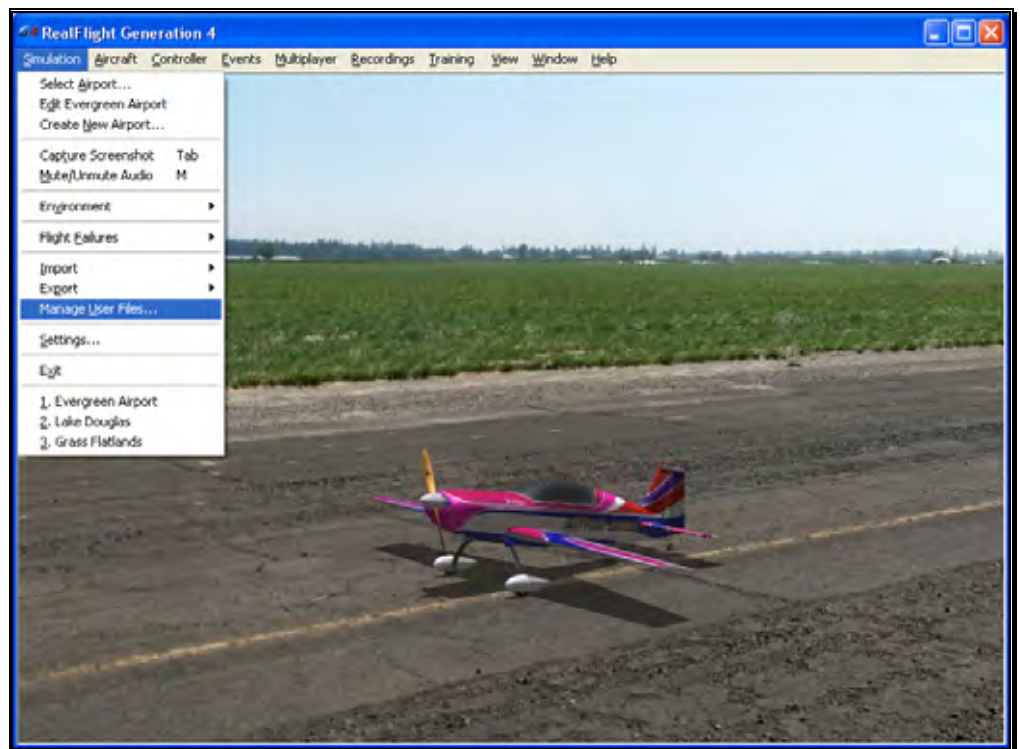
### **Airport (include Panoramic Image)-**

This option enables you to export an airport along with its custom panoramic image. To do so, select the **Export** menu item followed by the **Airport (include Panoramic Image)** option. A save dialog will appear so that you can choose where you want to export the airport and what you want to name the file. A verification message will appear on-screen advising you whether or

not the export was successful. This verification message will also list the location and name of the file that was exported. You may then upload the exported file to a web site for others to enjoy.

## Manage User Files

The Manage User Files menu item allows you to modify the new user content that you have added to the simulation. You will find that the Manage User Files menu item is a handy tool as it maintains all such files in one, easy to find location.



The Manage User Files dialog allows you to copy, rename, delete, or export any custom resource that exists in the simulation. It is important to note that the various Manage User Files buttons will be inactive until a modification to one of the files exists. That is, this menu item is only utilized to modify user-created items. It will not allow you to modify the airports or vehicles included in the RealFlight Generation 4 software.

**Copy-**

This option duplicates the information and data pertaining to the currently selected item. If, for example, you wish to duplicate a flying site located in the User Files, click the Copy button.

Once you have copied the respective file, enter a name for the new item. Using our previous example, simply rename the flying site as desired. This new name will then be used in the Select Airport dialog.

**Rename-**

This option is utilized to rename a user-created item.

To do so, highlight the desired item (flying site, etc.) and click **Rename**. Enter the desired name for the respective item in the dialog provided. The item will now appear in its respective list of offerings with the new name.

**Delete-**

This option is utilized to delete an item entirely. All files associated with the item will be removed from your computer.

Again, it is important to note that users are only allowed to delete items which they, or other users, have created. That is, you are not allowed to delete default items that are included with the software.

To delete a user-created item, select the respective item in the User File menus and click **Delete**. If you wish to delete this item, click **Yes** in the verification dialog. Please note: once deleted this resource will no longer be available in the simulation.

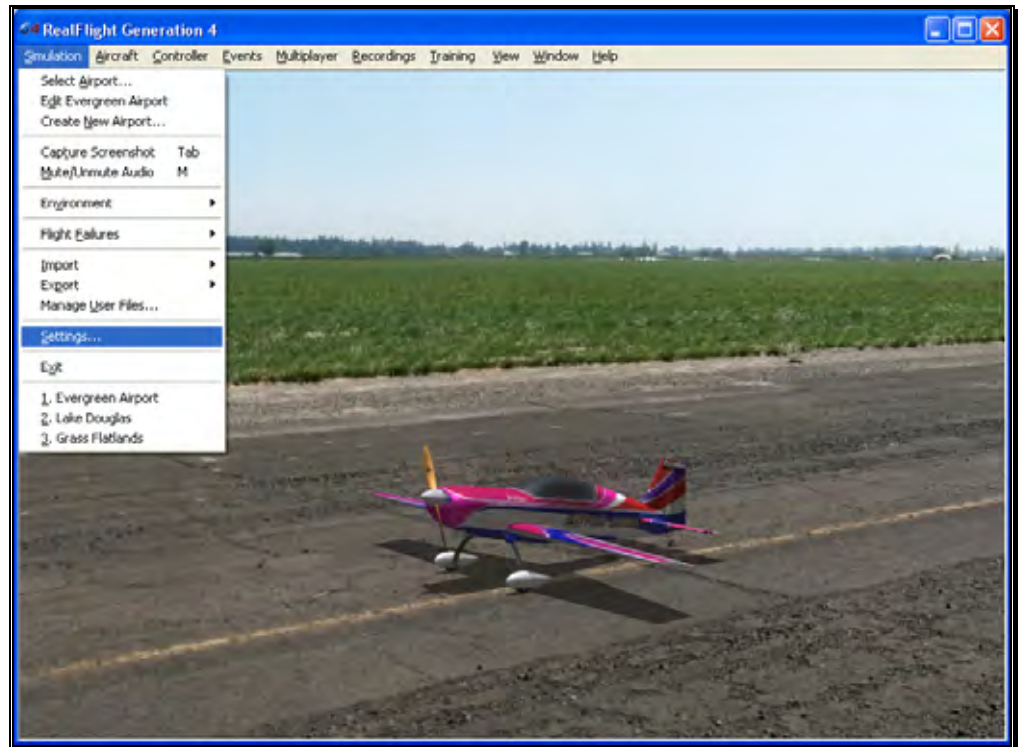
**Export-**

This button is used to Export, or place the airport/aircraft/recording in a location so that the user may share it with others. If you have created interesting or unusual content, we encourage you to share your designs with other RealFlight users. The more content that is shared the more enjoyment everyone will experience.

To export a user-created item, select the respective item in the User File menus and click **Export**. A verification dialog will appear on-screen advising you whether or not the export was successful and the location and name of the file that was exported. You may upload the exported file to a web site, move it to another computer, or email it for others to enjoy.

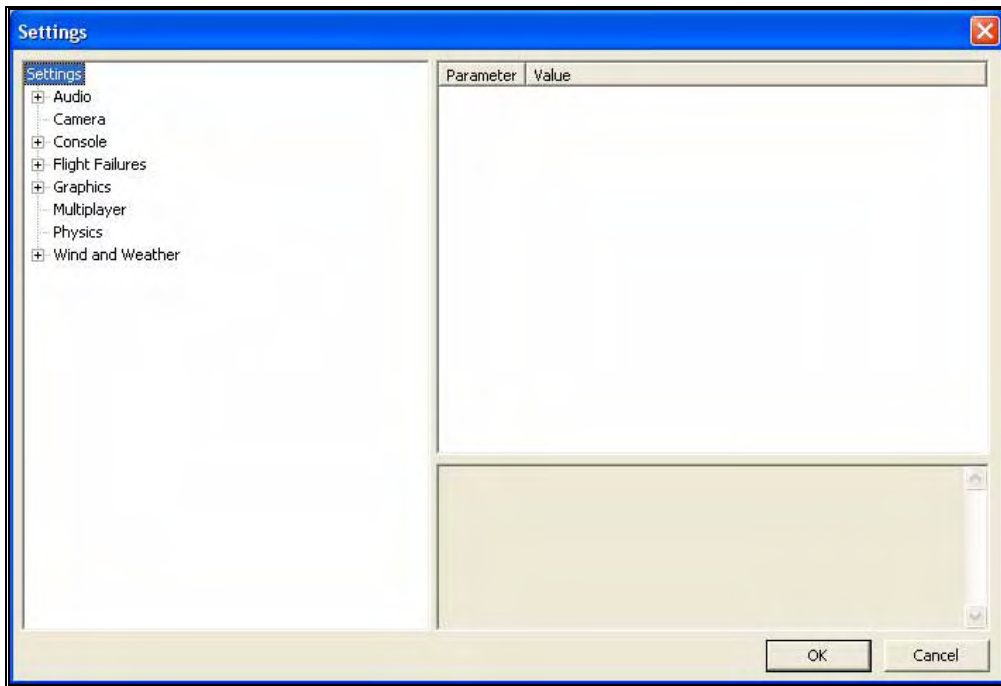
## Settings

The Settings options are an integral part of the G4 software. This menu item allows you to adjust a multitude of features and functions within the simulation.



To access this menu item, click on the **Simulation** menu followed by the **Settings...** menu item. The Settings dialog will appear, showing the available options.





The Settings that are available to you are as follows:

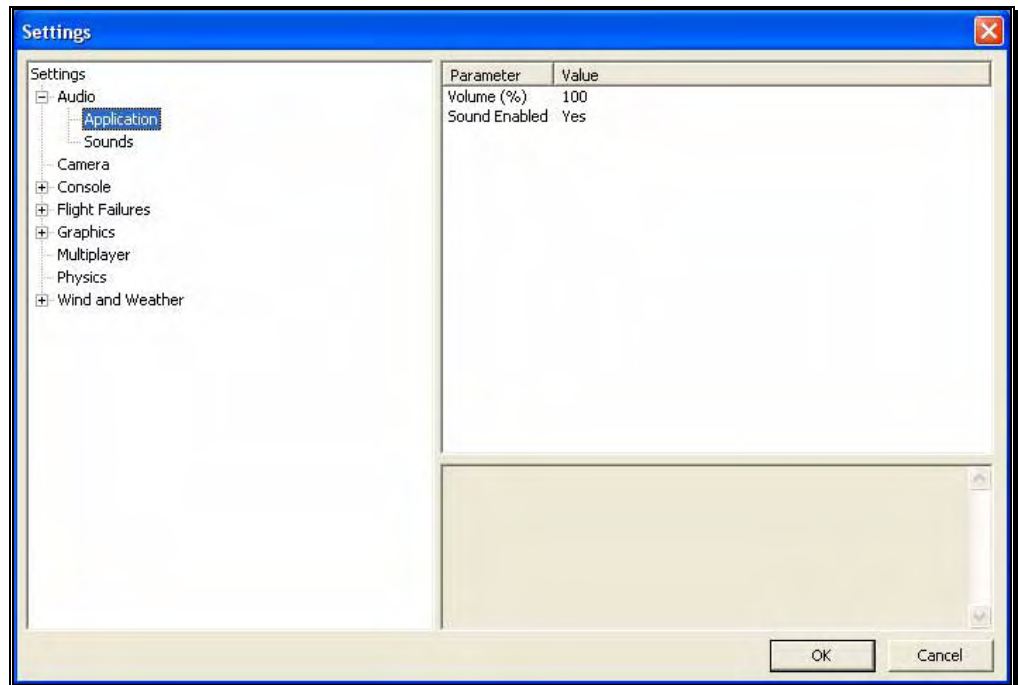
- Audio
- Camera
- Console
- Flight Failures
- Graphics
- Multiplayer
- Physics
- Wind and Weather

**Audio-**

Audio settings are split into two different categories which are as follows. Double-click on the **Audio** name, or click on the **[+] (plus)** to expand the list and show the Audio options.

### **Application-**

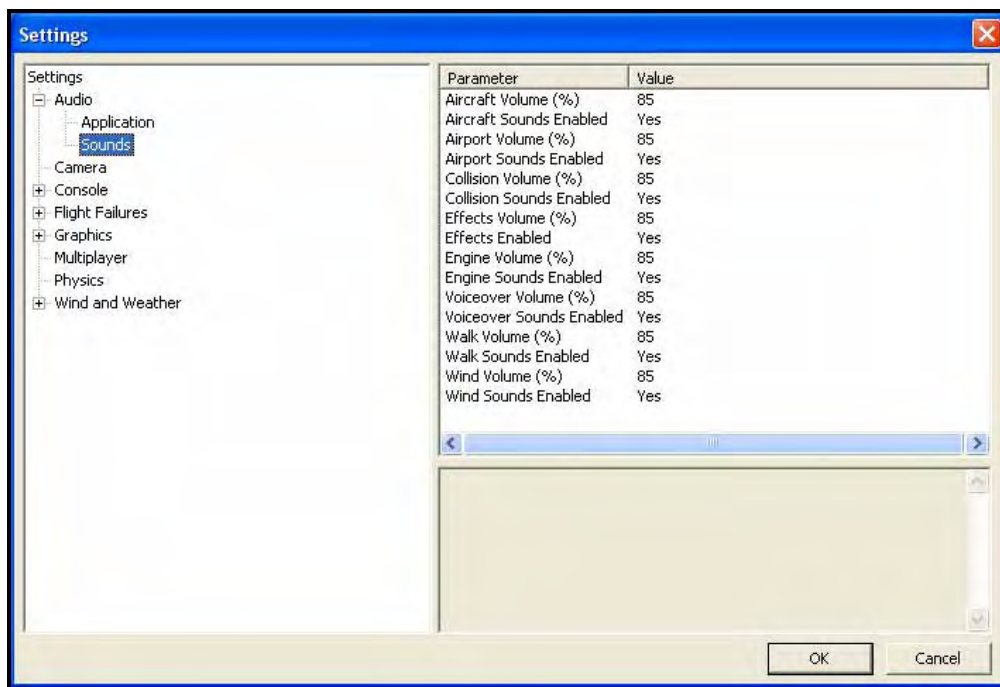
The Application section controls the sound over the entire simulator.



- Volume (%) - This setting adjusts the master volume level for the entire simulator.
- Sound Enabled - Choosing No for this option will mute all sounds for the simulator.

### **Sounds-**

The Sound settings control the various options related to the miscellaneous sounds within the simulation. RealFlight allows you to make modifications to the various sounds based upon your preferences.



For each type of sound that is adjustable, there are two parameters that can be changed. First is the Volume, which is a percentage of the overall volume. The second is whether the sound should be enabled or muted.

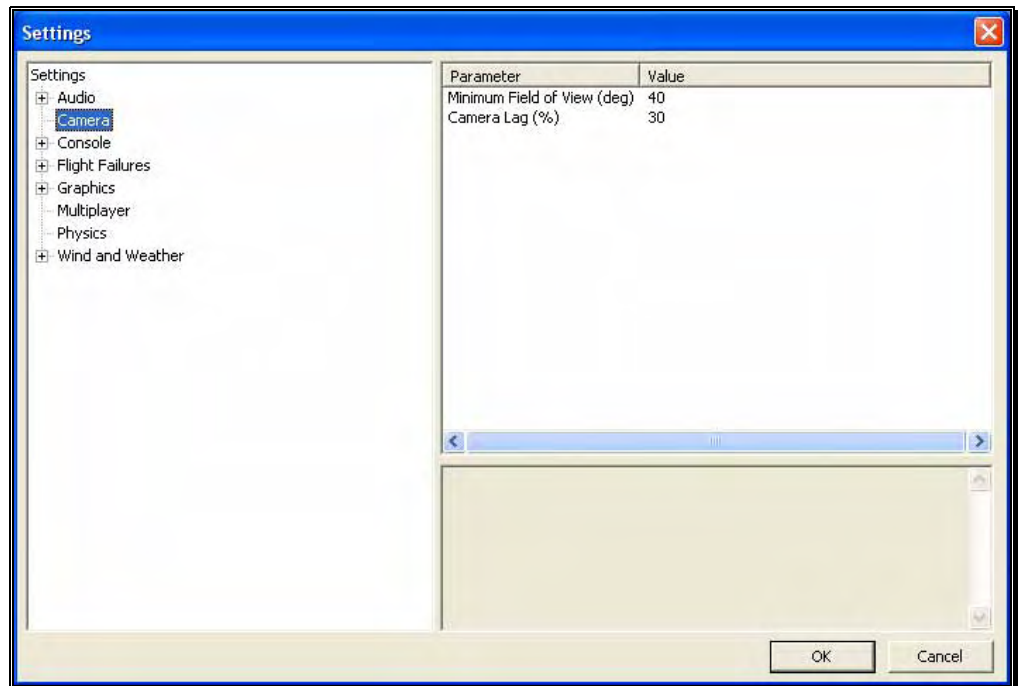
The different sound types are:

- Aircraft – effects aircraft related sounds such as servos.
- Airport – effects the ambient sounds around the airport.
- Collision – adjust these to effect the crashing sounds associated with collisions.
- Effects – this represents the miscellaneous sounds that don't fit into any other category.
- Engine – adjust this to effect the motor and engine sounds.
- Voiceover – these parameters adjust the voiceovers used for the Virtual Flight Instructions.
- Walk – adjusts this to control the walking sound when moving the camera angle.

- Wind – this effects the sound produced by the wind.

### Camera-

The camera options available to you are designed to enhance the field of view when utilizing the Keep Ground in View zoom mode. For additional information on this option, please refer to the View menu section of this manual.



#### Minimum Field of View (deg)-

This setting determines the absolute minimum field of view when utilizing the Keep Ground in View zoom option.

To adjust the minimum field of view, click the existing value. Next, enter the desired value either directly from the keyboard or via the mouse wheel.

#### Camera Lag (%)-

This controls how quickly the camera reacts to the aircraft's movements. If the lag is set to zero, the camera always looks directly at the aircraft. At all other values, the camera will have a spring-like reaction to the aircraft during flight.

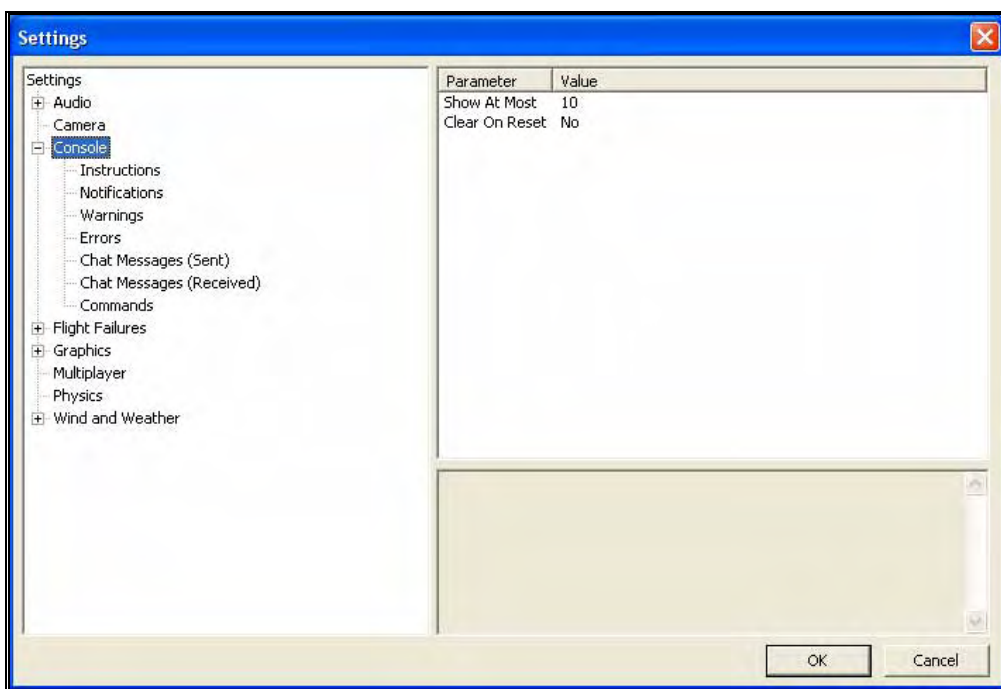
At very high values, the camera hardly ever looks directly at the aircraft, and often the aircraft will fly off the screen as the camera tries to catch up. At lower values, the effect is very subtle and yet still softens the camera movement

enough so that minor changes in the aircraft's speed/position are more noticeable.

Please note: these settings apply to fixed view cameras only. They are not applicable to the cockpit or chase views.

### Console-

The Console option has a number of sub-categories that allow you to perform modifications to the messages that appear on-screen while running the simulator. It also offers two parameters that effect all the sub-categories.



### Show At Most-

This numerical value indicates the maximum number of messages that will appear on your screen at any given time. When the maximum number is surpassed, an older message will be removed and the most recent message will take its place on-screen.

To adjust the number of messages displayed on-screen at one time, click on the value as indicated in the column to the right of the Show At Most indicator. Input the desired value directly from the keyboard or use the mouse wheel.

**Clear on Reset-**

This setting controls whether all the on-screen messages are cleared when the aircraft resets. This prevents the screen from becoming overly cluttered with messages and information.

Using either the up/down arrow keys on the keyboard, or the mouse, select either **Yes** (messages automatically clear) or **No** (messages remain on-screen after a reset) from the pull-down listings. If using the up/down arrow keys, press **Enter** to finalize your selection.

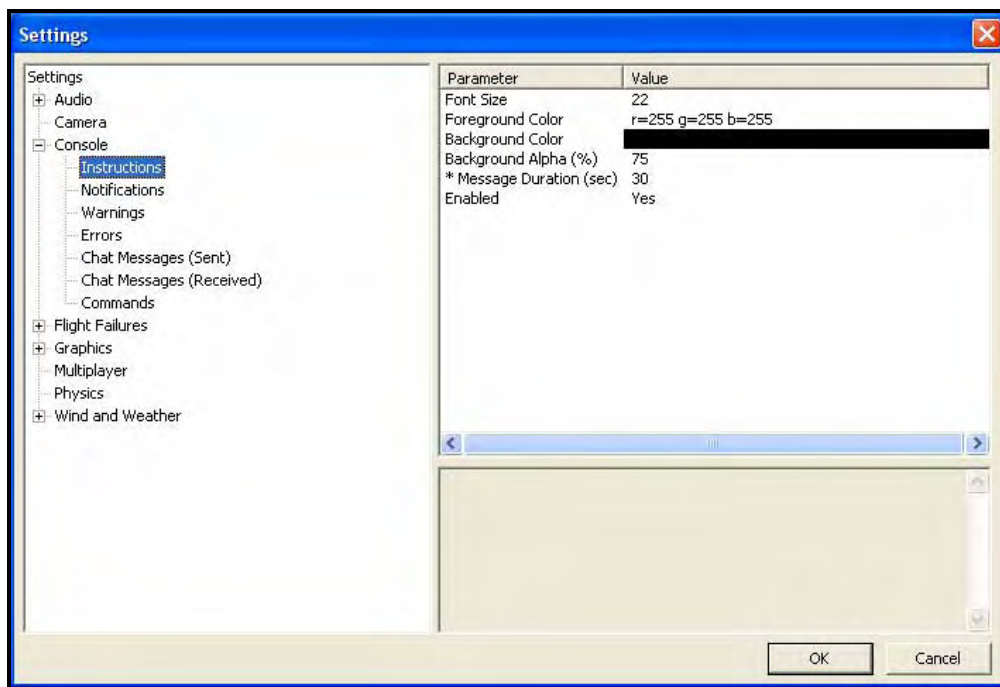
Double-clicking on the **Console** name or clicking on the **[+] (plus)** will bring forth the following options:

- Instructions
- Notifications
- Warnings
- Errors
- Chat Messages (Sent)
- Chat messages (Received)
- Commands

Each of the System Messages screens is independently adjustable and may be tailored to suit your personal preferences. For information on how to do so, please read the following section.

**Instructions-**

As the name suggests, modifications will affect only the System Instructions.



### Font Size-

This option allows you to adjust the font size for the messages pertaining to the instructions. Please note: this only effects the Instructions. It does not effect any other system messages.

To access the Font Size options, click on the value shown in the respective column. The desired values may be input directly from the keyboard or modified using the mouse wheel.

### Foreground Color-

This option allows the user to adjust the color of the foreground for the Instructions messages.

To access the options pertaining to the foreground color, click on the **current value**. Click the **more options** button (the gray folder with the ellipsis) to bring forth the palette of available colors. This will reveal a screen that appears as follows:



To select a color, click the desired color on the palette. If you wish to make a custom color, click the **Define Custom Colors** button and create the color or colors to suit your tastes. Click **OK** to finalize the selection. The selected color will be reflected immediately in the value column.

#### **Background Color-**

As with the Foreground Color, this setting allows the user to adjust the color of the background for the Instructions messages.

To access the options pertaining to the background color, click on the **current displayed color**.

Click the **more options** button (the gray folder with the ellipsis) to bring forth the palette of available colors. To select a color, click the **desired color** on the palette. If you wish to make a custom color, click the **Define Custom Colors** button and create the color or colors to suit your tastes. Click **OK** to finalize the selection. The selected color will be reflected immediately in the value column.

#### **Background Alpha (%)-**

This option adjusts the transparency of the text background for the message.



The desired values may be input directly from the keyboard or modified using the mouse wheel. The higher the value, the more transparent the text background will become.

**Message Duration (sec)-**

This option adjusts the length of time that a message remains on-screen before it disappears.

You may input desired values directly from the keyboard or modify them using the mouse wheel. Of course, the higher the value, the longer the message remains on-screen.

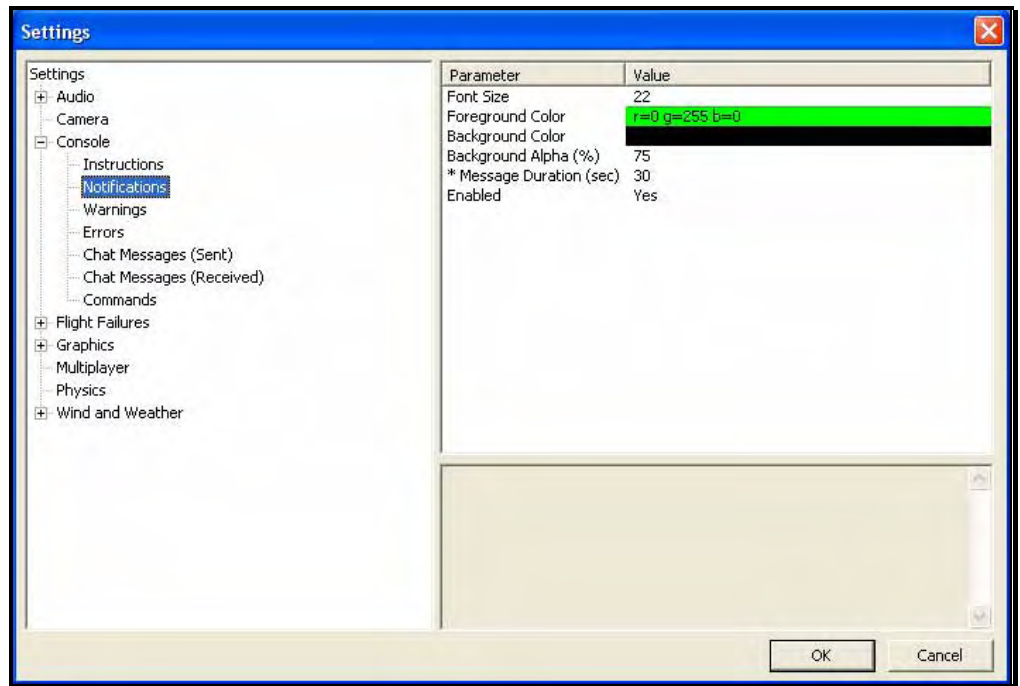
**Enabled-**

This option determines whether Instructions messages are displayed or not.

To determine whether this is enabled, click on the respective value indicator. Using either the up/down arrow keys on the keyboard, or the mouse, select either **Yes** (Instructions messages are enabled) or **No** (Instructions messages are disabled) from the pull-down listings. If using the up/down arrow keys, press **Enter** to finalize your selection.

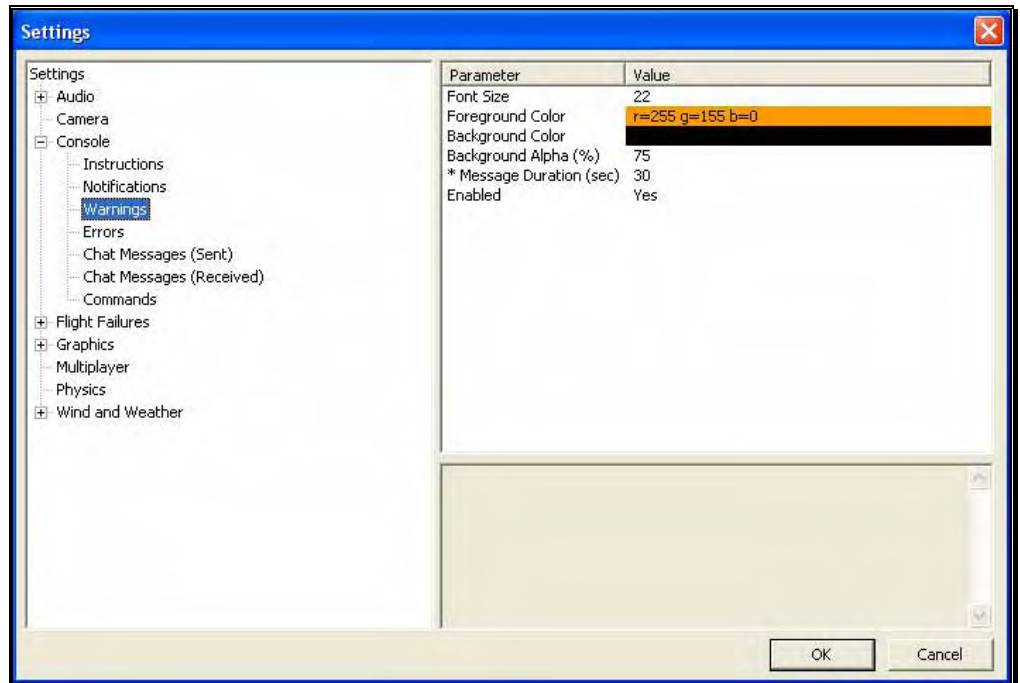
**Notifications-**

To select the Notifications options, click on the Notifications name. These options function in the same manner as the options for the Instructions messages, except that they only affect Notification messages.



**Warnings-**

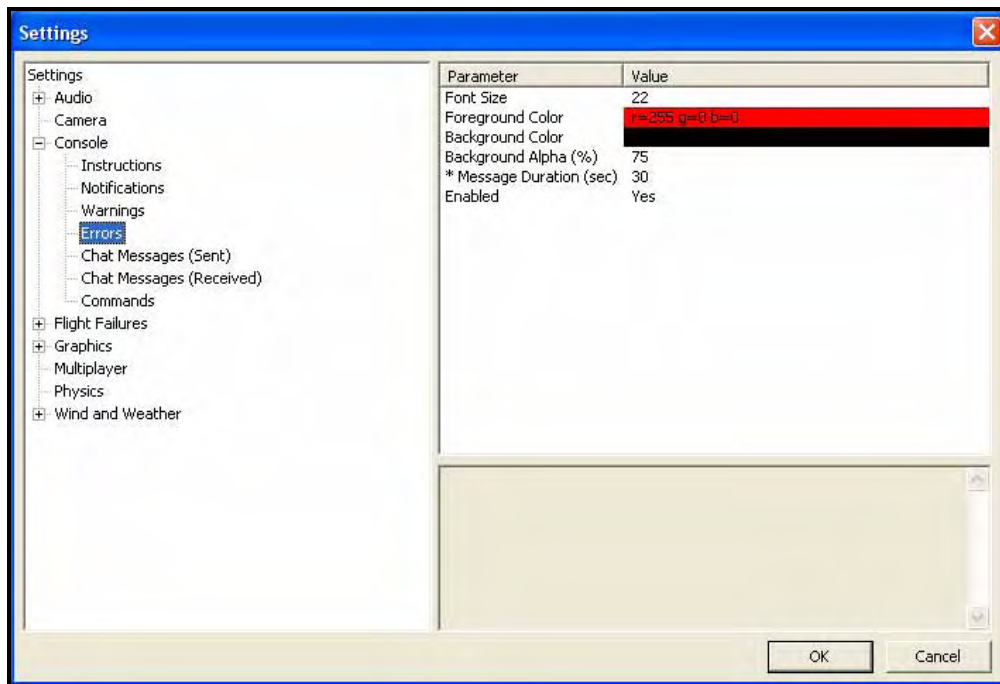
This option determines the settings for the system warning messages.



To select the Warnings options, click on the Warnings name. These options function in the same manner as the options for the Instructions messages, except that they only affect Warning messages.

### **Errors-**

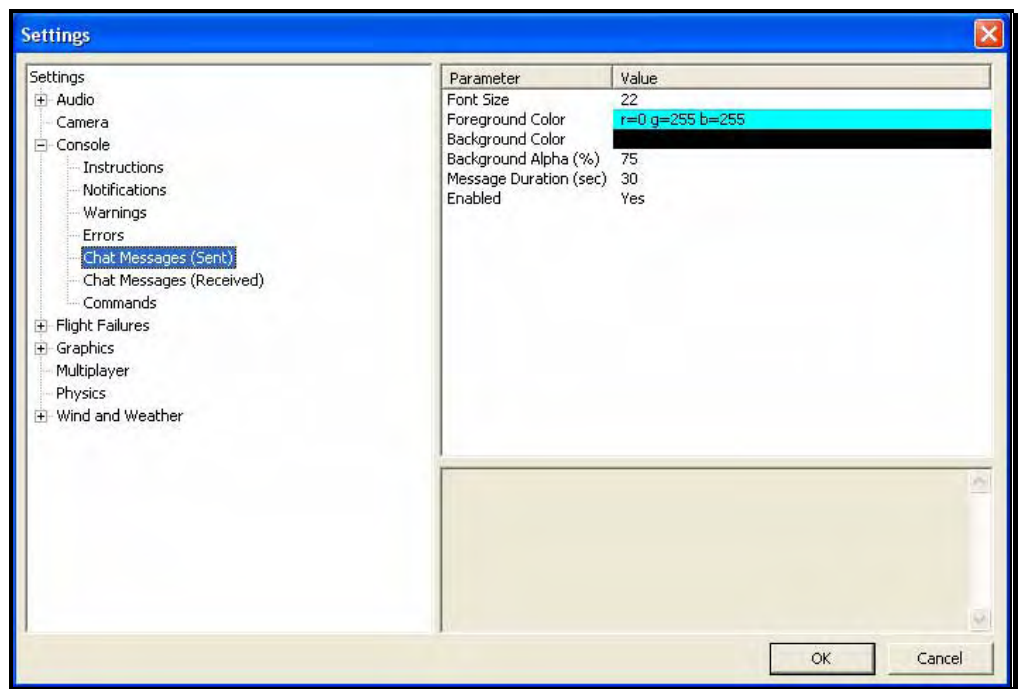
This option allows you to modify the behavior of system error messages.



To select the Errors options, click on the Errors name. These options function in the same manner as the options for the Instructions messages, except that they only affect Error messages.

### **Chat Messages (Sent)-**

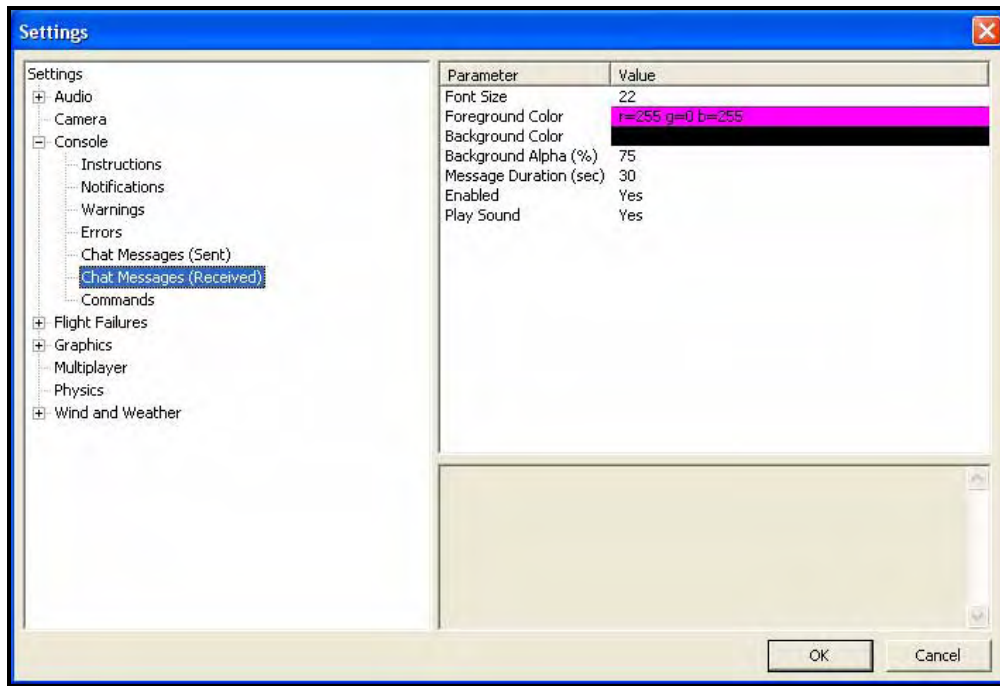
This option allows you to modify the appearance of text that you type for chat messages during multiplayer sessions.



To select the Chat Messages (Sent) options, click on the Chat Messages (Sent) name. These options function in the same manner as the options for the Instructions messages, except that they only affect Chat Messages (Sent) messages.

#### **Chat Messages (Received)-**

This option allows you to modify the appearance of text that you receive from other players during multiplayer sessions.

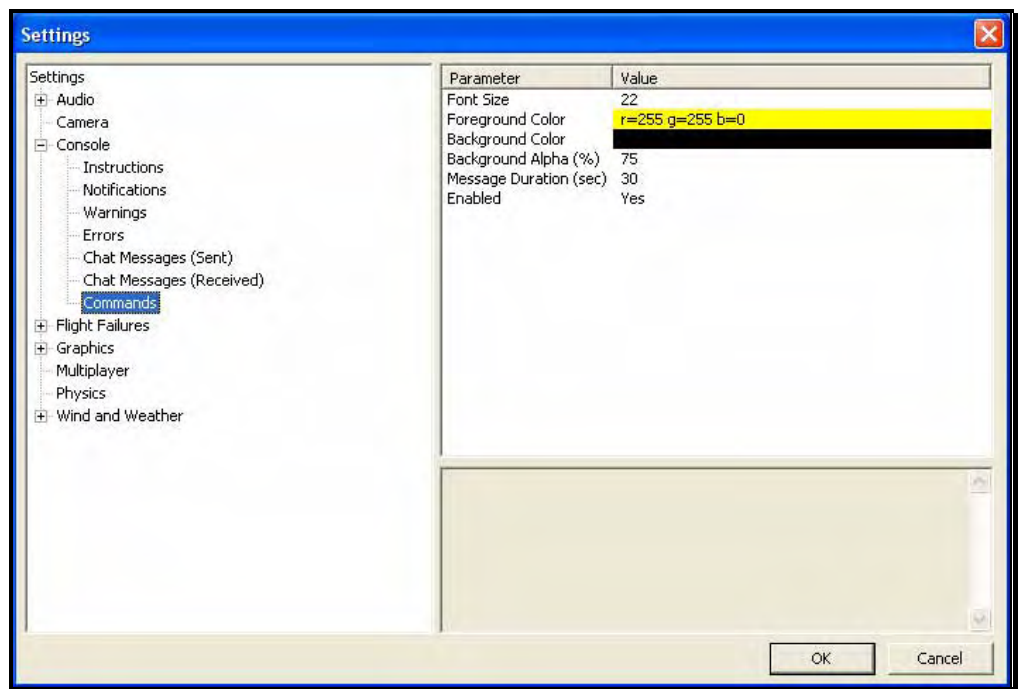


To select the Chat Messages (Received) options, click on the Chat Messages (Received) name. These options function in the same way as the options for the Instructions messages, except that they only affect Chat Messages (Received) messages.

There is one additional parameter available for this option called Play Sound. This allows you to set whether a sound is heard when an incoming chat messages arrives.

#### **Commands-**

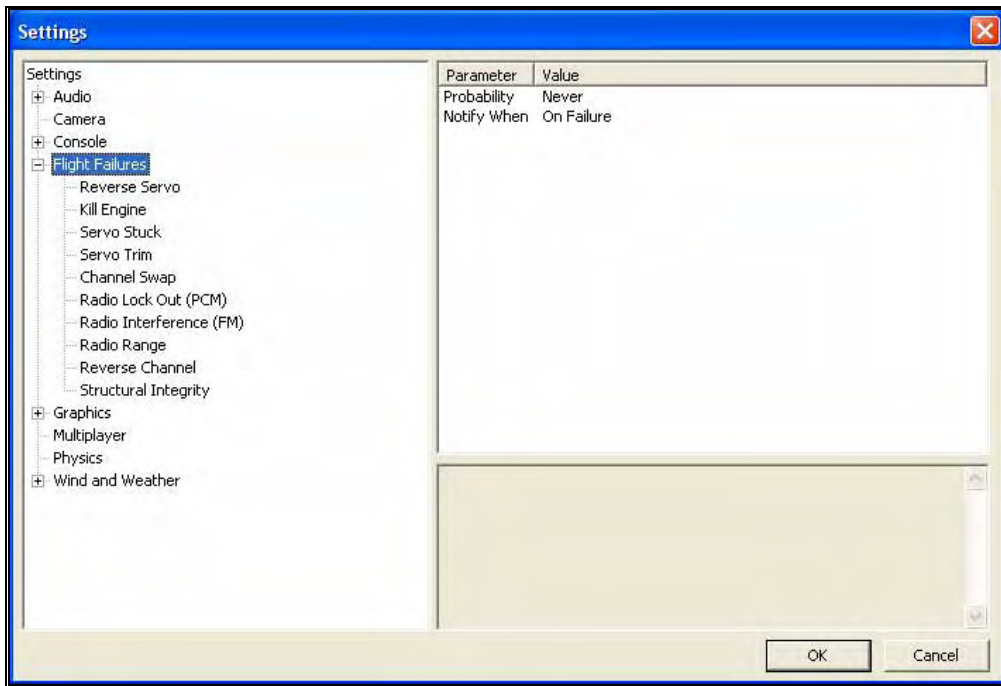
This option allows you to modify the appearance of commands typed in the console screen.



To select the Commands options, click on the Commands name. These options function in the same manner as the options for the Instructions messages, except that they only affect Commands messages.

**Flight Failures-**

To adjust the Probability options or the Notify When settings, click on the **Flight Failures** root directory.



Double-click on the Flight Failures name or click on the **[+] (plus)** to expand the list and show the Flight Failures options. RealFlight defaults all Flight Failures to enabled (active). Each item may be enabled or disabled individually. To disable a specific flight failure, click on the respective failure located within the pull-down list. Next, click on the **Yes** value as indicated in the value column. This brings forth the Yes/No pull-down list. To disable the respective failure, simply choose the **No** option. For example, to disable the Reverse Servo flight failure:

1. Select the **Reverse Servo** option in the **Flight Failures** sub-menu
2. Click the **Yes** in the right hand pane
3. Select **No** from the pull-down list

#### **Probability-**

To adjust the frequency of occurrence, click on the value as indicated in the column to the right of the probability indicator.

If you do not wish to experience any flight failures, select the Never option in the drop-down menu. Conversely, if you wish to gain a great deal of experience at handling emergencies, click the Always option.

#### **Notify When-**

This setting allows you to determine if, or when, RealFlight notifies you as to the flight failure experienced.

To adjust the settings of this feature, click on the value as indicated in the column to the right of the Notify When indicator. Your options are:

After Flight - RealFlight will advise you as to the flight failure experienced upon the completion of the flight.

Before Flight - RealFlight will tell you which flight failure you are about to experience before the flight begins.

Never - RealFlight G4 will never advise you as to the flight failure that you have experienced, or are about to experience. A little mystery is a good thing.

On Failure - RealFlight will tell you about the flight failure just as it occurs.

The different Flight Failures available in RealFlight G4 are as follows:

- Reverse Servo - The travel direction of one of your servos is reversed.
- Kill Engine - The engine will fail or quit in flight, which means that you will have to perform a deadstick landing or autorotation.
- Servo Stuck - A servo will become fixed, or stuck, in a certain position.
- Servo Trim - A servo alters the trim settings, modifying the flight control position.
- Channel Swap - This failure simulates the effect of inadvertently swapping two channels. As an example, you may find that your rudder controls the throttle, and vice versa.
- Radio Lockout (PCM) - The receiver will experience intermittent radio dropouts during which time the aircraft will fail to respond to control inputs.
- Radio Interference (FM) - The receiver will experience intermittent radio interference during which time the servos will behave erratically.
- Radio Range - The receiver will experience interference proportional to the distance between the pilot and the aircraft. If the aircraft is close to the pilot's position, the range problems will be minimal, increasing as the aircraft gets farther away.
- Reverse Channel - One of the channels, selected at random, will operate in reverse direction.
- Structural Integrity – This failure determines how strong the aircraft is and if parts could break off during flight. This failure also has a parameter called Allow



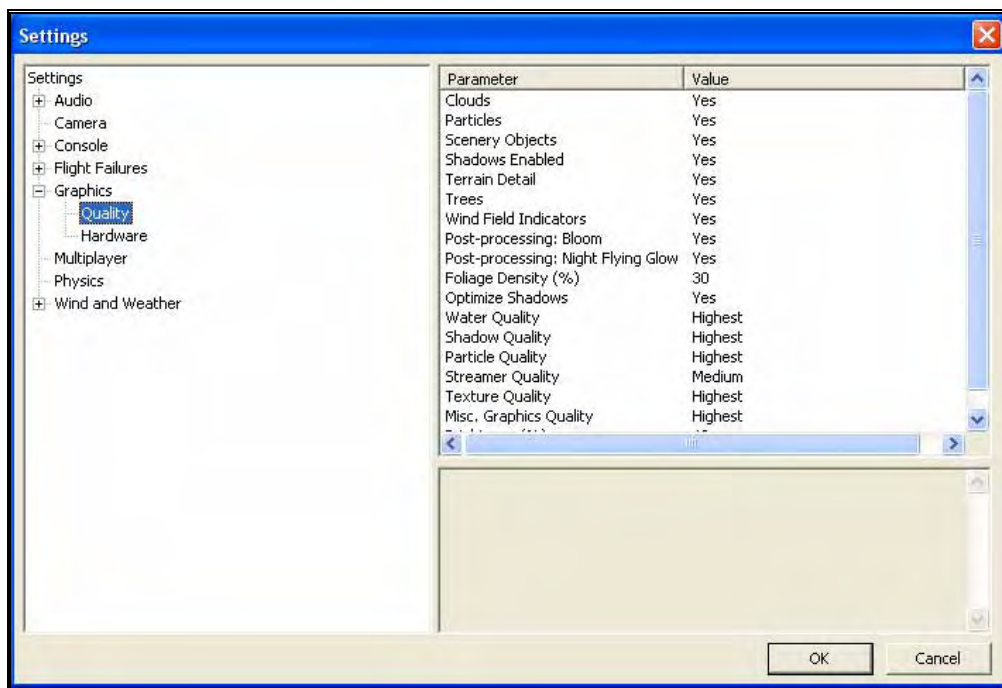
Multiple Failures which allows this flight failure to be triggered more than once during a flight.

### Graphics-

Double-click on the **Graphics** name or click on the **[+]** (**plus**) to expand the menu and display the various Graphics options available to you.

### Quality Options-

The Quality options are quite useful in fine-tuning your simulator to ensure that it runs as efficiently and realistically as possible on your PC. Use the settings in the Graphics options to obtain the perfect blend of optimal visuals and performance from your PC. If you are experiencing slow frame rates or other performance issues, it may be prudent to turn down some graphics quality options.



Note that many of the adjustments will not take place immediately. In many cases, you will need to restart the simulator in order for the option to take effect.

### Clouds-

This option determines whether your flying sites will include clouds in the skyline.

Click on the respective value indicator. From the pull-down options select either **Yes** (clouds will be present) or **No** (clouds will not be present).

#### **Particles-**

This option determines whether RealFlight will utilize particles such as engine smoke.

Click on the respective value indicator. From the pull-down options select either **Yes** (G4 will display smoke) or **No** (G4 will not display smoke).

#### **Scenery Objects-**

This option determines whether the simulation displays background objects such as buildings, rocks, benches, etc. If **Yes** is selected, the background objects will be present. If **No**, the background objects will not appear in the simulation.

To change this setting, first click on the respective value indicator. From the pull-down options select either **Yes** or **No**.

#### **Shadows Enabled-**

The Shadows option determines whether the simulation displays shadows.

To change the Shadows setting, click the value located to the right of the Shadows name. Next, click **Yes** to display the shadows or **No** to eliminate shadows from the simulation.

#### **Terrain Detail-**

This option determines whether or not RealFlight G4 displays the details found in the textures. Modify the Terrain Detail setting by clicking on the value located to the right of the Terrain Detail name. Click **Yes** to display the terrain detail texture or **No** to eliminate the terrain details.

#### **Trees-**

The Trees setting determines whether RealFlight G4 display trees. To change the Trees setting, click the value located to the right of the Trees. Select **No** if you do not wish to display the trees in your simulation. If you wish to view the trees during flight, select **Yes**.

Please note: the display of trees does have an effect on the framerate of your simulation.

**Wind Field Indicators-**

This parameter determines whether or not RealFlight displays the wind field indicators that are present at select airports.

**Post-processing: Bloom-**

The Bloom effect will cause lighter colors or lights to bleed into neighboring parts, enhancing their perceived brightness.

Please note: the Bloom effect does have an effect on the framerate of your simulation.

**Post-processing: Night Flying Glow-**

This option effects whether lights for night flying glow, causing the objects to appear brighter.

Please note: the Night Flying Glow effect does have an effect on the framerate of your simulation.

**Foliage Density (%)**

This setting determines the density and drawing time of the trees and the grass. Lowering the percentage will ensure that the scenery is drawn faster. Again, if you are experiencing low frame rates, lowering this value will speed up the simulation.

To adjust the percentage, click on the value located to the right of the Foliage Density (%) name. Enter the desired input directly from your keyboard, or use the mouse wheel.

**Optimize Shadows-**

This parameter will allow shadows to be rendered faster, increasing the frame rate, if your video card allows it. If you see problems, like flickering, with shadows, try disabling this option.

**Water Quality-**

This setting specifies the quality of the water in the simulation. RealFlight G4 attempts to automatically optimize the settings for your PC. However, it may be necessary for you to perform some manual fine-tuning in order to obtain the best possible performance.

To modify the quality of the water, click on the value indicated in the column to the right of the Water name. Select the desired level for your simulation from the pull-down list. The Highest setting will render the best water, but it requires additional processing power. If your framerate is low, we suggest you reduce the water quality.

Please note: you must restart the simulation for the new setting to take effect.

#### **Shadow Quality-**

This setting specifies the quality of the shadows in the simulation. RealFlight G4 attempts to automatically optimize the settings for your PC. However, it may be necessary for you to perform some manual fine-tuning in order to obtain the best possible performance.

To modify the quality of the shadows, click on the value indicated in the column to the right of the Shadows name. Select the desired level for your simulation from the pull-down list. The Highest setting will render the best shadows, but it requires additional processing power. If your framerate is low, we suggest you reduce the shadow quality.

#### **Particle Quality-**

This setting adjusts the quality of the smoke, debris and other small objects during the simulation. If the framerate drops when the smoke is thick, try lowering the quality of the smoke until you achieve an acceptable frame rate.

To do so, click on the existing particle quality. Next, from the pull-down menu, select the desired quality level.

#### **Streamer Quality-**

This setting adjusts the quality of the streamers during the simulation. If the framerate drops when flying an aircraft with streamers, try lowering the quality of the streamers until you achieve an acceptable frame rate.

To do so, click on the existing streamer quality level. Next, from the pull-down menu, select the desired quality level.

#### **Texture Quality-**

Use this setting to add the realistic textures to the items and various other objects found in the simulation.

To do so, click on the existing texture quality level. Next, from the pull-down menu, select the desired quality option.

Please note: you must restart the simulation for the new setting to take effect.

#### **Misc. Graphics Quality-**

This setting adjusts the quality level of miscellaneous items in your simulation.

To alter the Miscellaneous Graphics level, click on the value located to the right of the Misc. Graphics name. Next, select the desired level to utilize for the graphics.

Please note: you must restart the simulation for the new setting to take effect.

**Brightness (%)**-

This setting adjusts the brightness of the ambient lighting found in the simulation. If dark colors appear to be overly dark, increase the brightness percentage.

To adjust the brightness percentage, click on the current brightness percentage. Enter the desired value directly from the keyboard or use the mouse wheel.

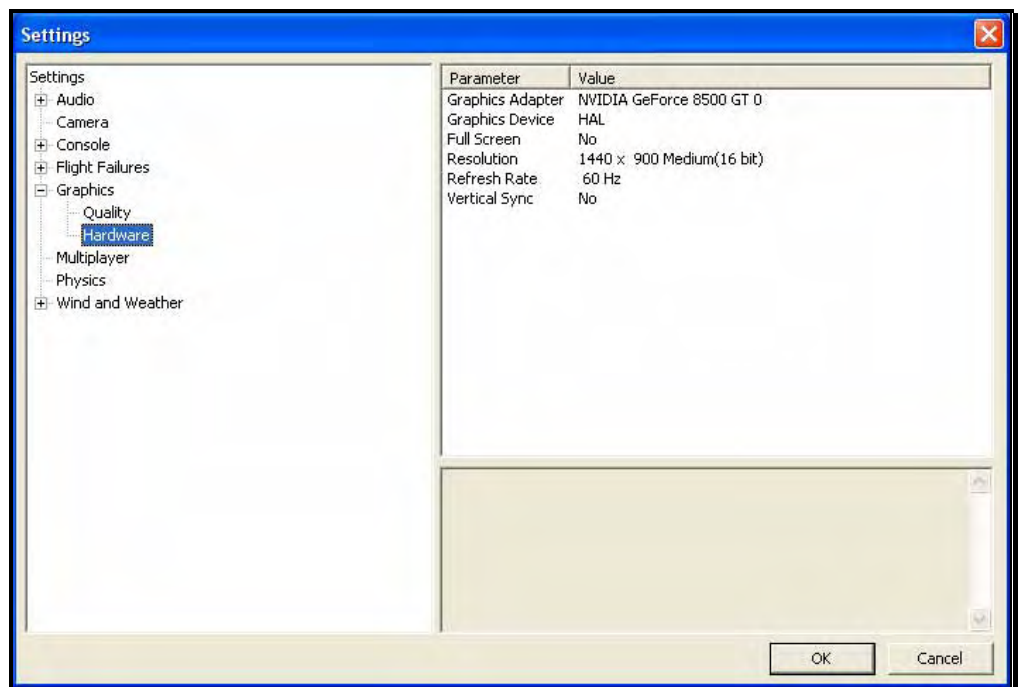
**Contrast (%)**-

The contrast percentage brightens the lighter colored items in the simulation. It does not affect the darker items in the simulation.

To adjust the contrast percentage, click on the contrast percentage. Enter the desired value directly from the keyboard or use the mouse wheel.

**Hardware-**

The Hardware settings are used to adjust the non-software settings to achieve the best possible simulation for your PC.



#### **Graphics Adapter-**

The Graphics Adapter is the device that RealFlight utilizes to run the simulation, generically referred to as a video card. Most PC's have only one video card; however, some PC's are equipped with multiple cards.

To determine if your PC has an additional video card available to you, click on the video card information located in the values column to the right of the Graphics Adapter name. If multiple cards appear in the drop-down selection there is another option for you. If not, your PC is equipped with only one video card.

#### **Graphics Device-**

Some video cards offer multiple devices. HAL (Hardware Abstraction Layer) is the preferred device to use for the graphics rendering. In general, you should never need to modify this setting.

To determine if your PC offers alternative devices, click on the value indicated in the column to the right of the Graphics Device name.

#### **Full Screen-**

This option determines whether RealFlight will run using the entire monitor screen for the simulation. If you decide to run in the Full Screen mode, RealFlight's menus will not appear on the screen.

To access the menu while in Full Screen mode, press either the **ESC** key or the **ALT** key on the keyboard.

To adjust the Full Screen option, click on the value as indicate in the column to the right of the Full Screen name. From the pull-down menu, select Yes to run in Full Screen or No to run in the Windowed mode.

Alternatively, you may access the Full Screen mode by pressing the Alt and Enter keys simultaneously on the keyboard. To exit Full Screen mode, press the **ALT** and **Enter** keys simultaneously.

#### **Resolution-**

This control adjusts the screen resolution and color depth. If your frame rate is unacceptably low, you can improve it by reducing the resolution or color depth. This will reduce some of the rendering processes required of your video card.

To adjust the resolution for your simulation, click the value indicated in the column to the right of the Resolution name. Select the desired level for your simulation from the drop-down list.

Please note: this option is only effective when using RealFlight in the Full Screen mode.

We suggest that you test a variety of resolutions and color options to achieve the optimum performance and setup for your system.

#### **Refresh Rate-**

The refresh rate is the number of times per second that your monitor retraces its video display. Your video hardware (monitor and graphics card) dictates what refresh rates you are able to utilize in the simulation. As with Resolution, this option is only effective when running RealFlight in the Full Screen mode.

To adjust the refresh rate, click the value that is indicated in the column to the right of the Refresh Rate name. If there are multiple options in this list, you might opt for a lower value to determine if this improves the frame rate of your simulation.

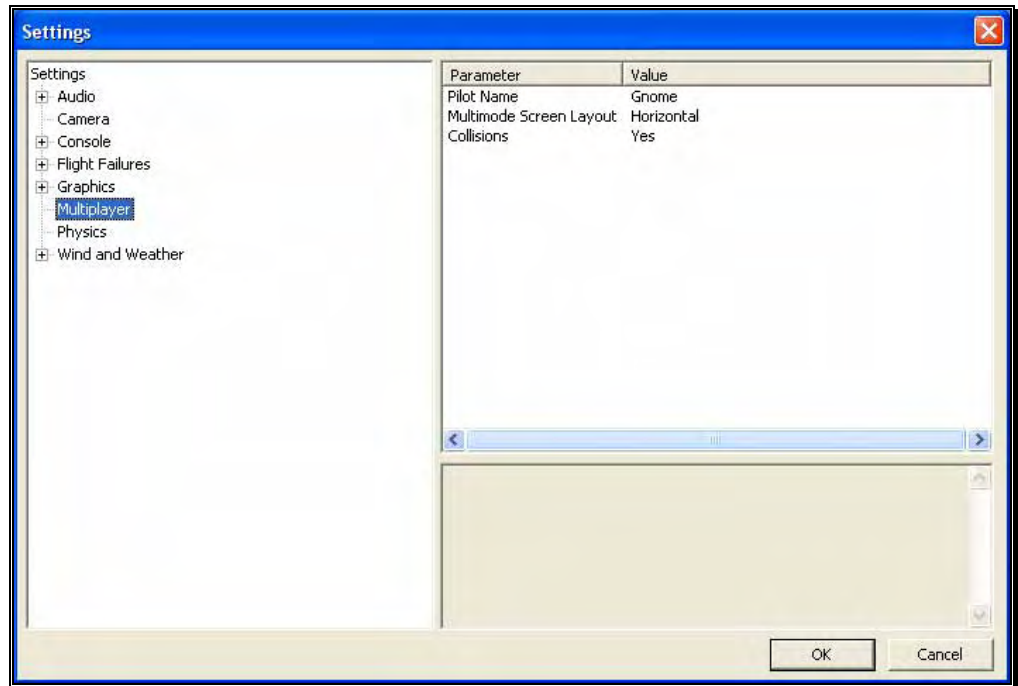
#### **Vertical Sync-**

This option dictates where the monitor will draw the next vertical line. Activating Vertical Synchronization slows the simulation slightly, but it prevents the 'tearing' of on-screen images.

To adjust the Vertical Sync, click the respective value. Select Yes or No from the pull-down menu that appears.

### **Multiplayer-**

Settings available here effect multiplayer parameters, either in split screen MultiMode, or over the internet.



### **Pilot Name-**

This setting allows you to enter a name for the multiplayer sessions. To do so, click on the value that appears to the right of the Pilot Name column. Click the **more options** button (the gray folder with the ellipsis). Enter a name of your choosing. When satisfied, press the **Enter** button on your keyboard.

Please note: when participating in a multiplayer session, other players may be able to view the name you have selected.

### **MultiMode Screen Layout-**

This setting specifies the layout of the screen for the MultiMode option. If you select Vertical, the computer screen will split in half on its vertical axis. If you select Horizontal, the computer screen will split in half on the horizontal axis.

To select which mode best suits your tastes, click on the value displayed to the right of the MultiMode Screen Layout column. Next, select either Horizontal or Vertical from the pull-down options.

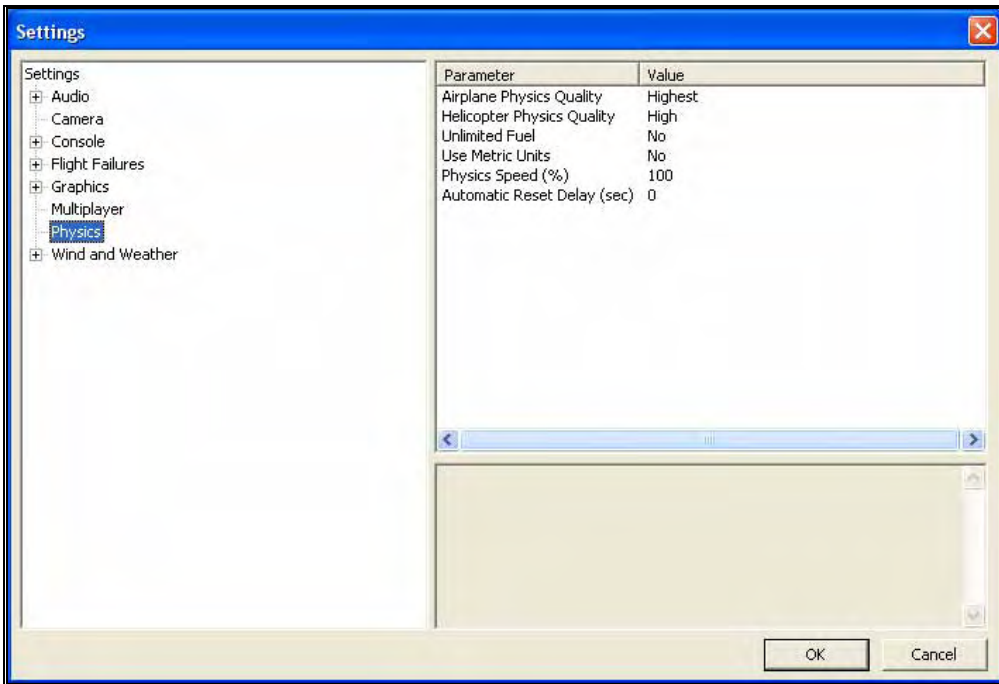


### Collisions-

The Collisions options allows you to enable or disable the collisions between aircraft in Multiplayer sessions. If you are connected via dialup, or have a slow network connection, Select No as this may speed up the performance of the simulator.

### Physics-

The physics options are quite useful in fine-tuning the items applicable to the physics of your simulated aircraft.



### Airplane Physics Quality-

This setting determines the detail level of physics utilized for the airplanes in the simulation. When the physics level is adjusted to the highest setting, the simulation performs the aircraft calculations more accurately and more frequently. Unless you are running the simulation on an older, slower PC, we suggest using either the 'high' or 'highest' settings. Lowering the physics level will reduce the quality and detail level used in the simulation, thereby allowing the simulation to run at a faster rate for slower PC's.

To alter the physics options, click on the value indicated in the column to the right of the Airplane Physics Quality name. Using either the up/down arrow keys on the keyboard, or the mouse, select the level for your simulation from the pull-down list. If using the up/down arrow keys, press Enter to finalize your selection.

**Helicopter Physics Quality-**

This setting determines the detail level of physics utilized for the helicopters in the simulation. When the physics level is adjusted to the highest setting, the simulation performs the aircraft calculations more accurately and more frequently. Unless you are running the simulation on an older, slower PC, we suggest using either the 'high' or 'highest' settings. Lowering the physics level will reduce the quality and detail level used in the simulation, thereby allowing the simulation to run at a faster rate for slower PC's.

To lower the physics option, click on the value indicated in the column to the right of the Helicopter Physics Quality name. Using either the up/down arrow keys on the keyboard, or the mouse, select the level for your simulation from the drop-down list. If using the up/down arrow keys, press Enter to finalize your selection.

**Unlimited Fuel-**

This option determines whether or not your aircraft will run out of fuel. If you select Yes, the engine will run indefinitely – assuming, of course, that you do not crash. If you select No, the aircraft will indeed run out of fuel. The length of time required to do so is based upon a number of factors including the engine utilized and throttle management, just as it would at the flying field.

To determine whether your aircraft will run out of fuel, click on the value column to the right of the Unlimited Fuel option. Using either the up/down arrow keys on the keyboard, or the mouse, select either Yes or No from the pull-down listings. If using the up/down arrow keys, press Enter to finalize your selection.

**Use Metric Units-**

This option determines the unit of measurement for the various displays found in the simulation. RealFlight defaults to display measurement in SAE units. You can easily change this to use metric units.

To do so, click on the value column to the right of the Use Metric Units name. Using either the up/down arrow keys on the keyboard, or the mouse, select either Yes or No from the pull-down listings. If using the up/down arrow keys, press Enter to finalize your selection.

**Physics Speed-**

Expressed as a percentage, this value controls the time scale of the simulation. Reducing the value allows you to create a slow-motion effect. This is useful when learning new skills or maneuvers, as you may slow the aircraft's reaction time.

It is important to note that these adjustments do not affect RealFlight during multiplayer sessions or events.

To adjust the Physics Speed, click the respective value. Enter the desired value directly from the keyboard or use the mouse wheel.

#### **Automatic Reset Delay (sec)-**

This setting will force RealFlight to automatically reset the aircraft after a crash where a piece of the aircraft has broken off.

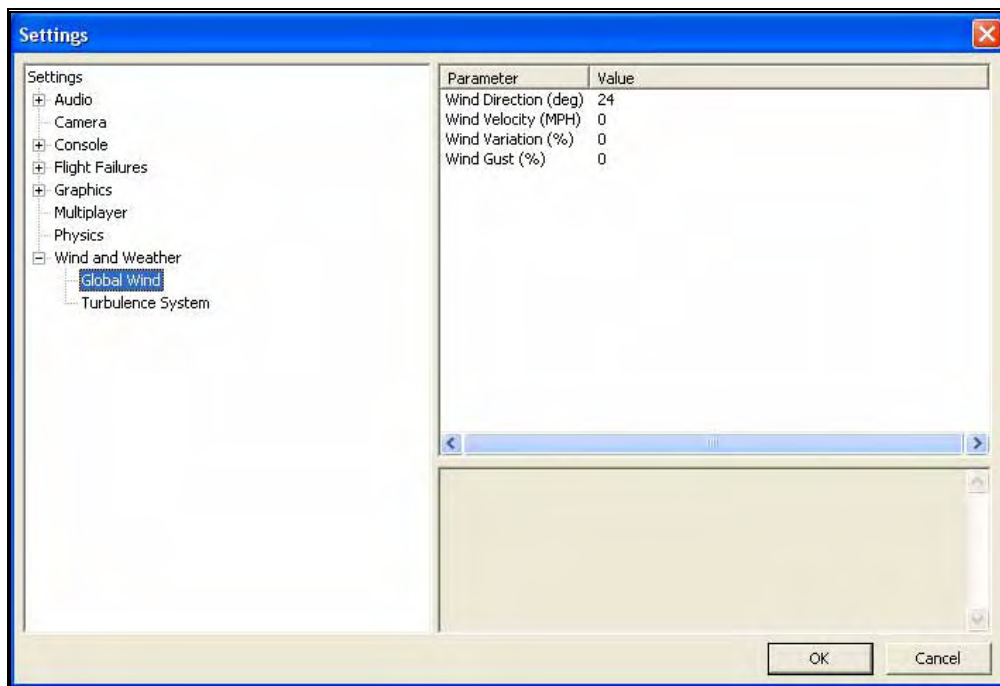
To adjust the Reset Delay, click the respective value. Enter the desired value directly from the keyboard or use the mouse wheel.

#### **Wind and Weather-**

The wind and weather options control the atmospheric conditions encountered in the simulation. You can adjust these to match the conditions typically found at your local flying site.

#### **Global Wind-**

These options determine the global wind conditions for the current airport. Please note: the adjustments made here will temporarily override the airport's default values. Upon selecting an alternative airport or closing RealFlight, the default values will be restored.



#### **Wind Direction (deg)-**

To adjust the wind direction, click on the value indicated to the right of the Wind Direction name. Next, input a numerical value between 0

and 359 degrees to modify the wind direction. Alternatively, the mouse wheel may be used to alter the input value.

You may also adjust the wind direction from the keyboard. Press the Home key to increase the wind direction. The End key will reduce the direction of the wind.

The direction that the wind comes from is expressed in degrees; where 0 is north, 90 is east, 180 is south and 270 is west. It is also possible to adjust the wind direction to any angle in-between.

#### **Wind Velocity (MPH)-**

This setting adjusts the average winds that prevail over the entire simulation. The velocity here is the speed of the wind approximately 6.5 feet (2 meters) above the terrain. RealFlight G4's wind gradient ensures that the wind below this level is slightly slower and that the wind at higher altitudes is faster.

To adjust the wind velocity, click on the value indicated to the right of the Wind Velocity (MPH) name. Next, input a numerical value between 0 and 50, using either your keyboard or the mouse wheel. This will be the wind speed in MPH.

You may also increase/decrease the wind velocity in smaller increments by pressing the Page Up/Page Down keys on the keyboard.

#### **Wind Variation (%)-**

This adjustment represents the variation in the wind speed and direction in correlation to the average speed. Just as the winds that you experience at the local field are not constant, neither are the winds in RealFlight.

To adjust this variable, click on the value indicated to the right of the Wind Variation (%). Using either your keyboard or the mouse wheel, input a numerical value between 0 (unchanging) and 200. A higher value produces more dramatic changes in the wind.

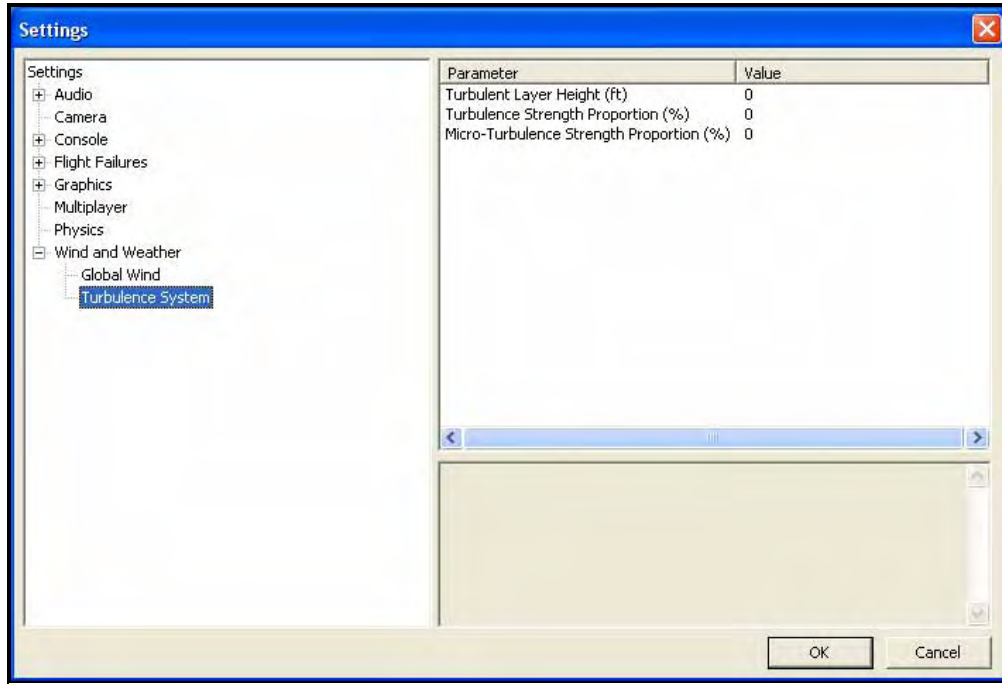
#### **Wind Gust (%)-**

This value represents the change of the wind speed and direction corresponding to a proportion of the wind speed it calculates in one second.

To adjust this variable, click on the value indicated to the right of the Wind Gust (%). Using either your keyboard or the mouse wheel, input a numerical value between 0 (no changes) and 100 (large changes).

### **Turbulence System-**

RealFlight's wind model is so authentic that it even recreates the turbulence which your aircraft will experience when out at the field.



#### **Turbulent Layer Height-**

Use this setting to mimic the turbulence level at your local flying site. This setting represents the maximum height above the ground at which your aircraft will experience the effects of G4's turbulent winds.

To adjust the Turbulent Layer Height settings, click on the value indicated in the column to the right of this respective option. The desired values may be input directly from the keyboard or modified using the mouse wheel.

#### **Turbulence Strength Proportion (%)-**

This option allows you to adjust the strength of the medium-level turbulence. Since this setting represents a median, some turbulence will be more severe than this, and some turbulence will be less noticeable.

To adjust the Turbulence Strength Proportion (%) settings, click on the value indicated in the column to the right of this respective option. The desired values may be input directly from the keyboard or modified using the mouse wheel. A value of 0% indicates that there will not be any mid-level turbulence.

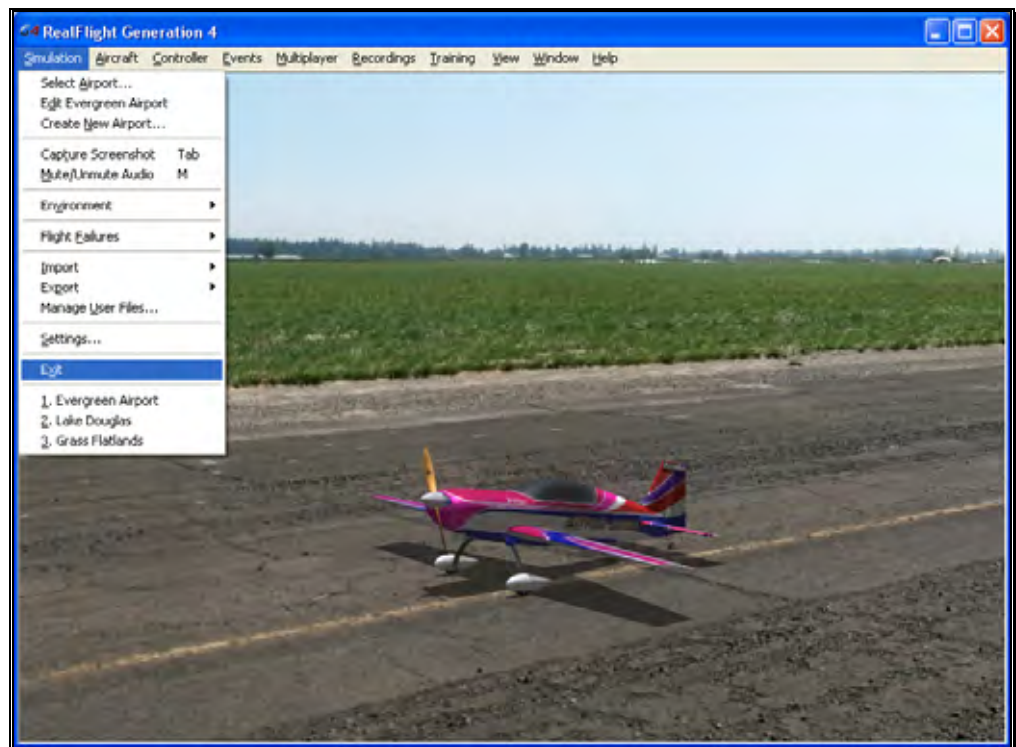
### Micro-Turbulence Strength Proportion (%)

This option allows you to adjust the strength of the lower level turbulence. Some turbulence will be more severe. This is the lowest level of turbulence that you will experience, however.

To adjust the Micro-Turbulence Strength Proportion (%) settings, click on the value indicated in the column to the right of this respective option. The desired values may be input directly from the keyboard or modified using the mouse wheel. A value of 0% indicates that no micro-turbulence will occur.

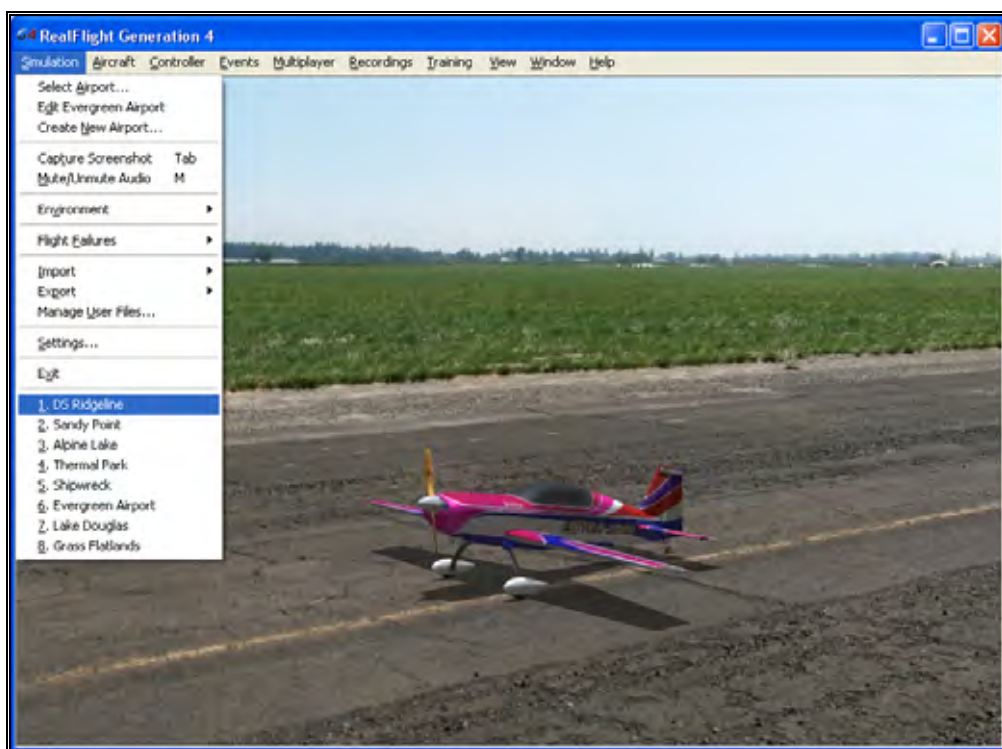
## Exit

Use this menu item to exit the program entirely.



## Airport MRU

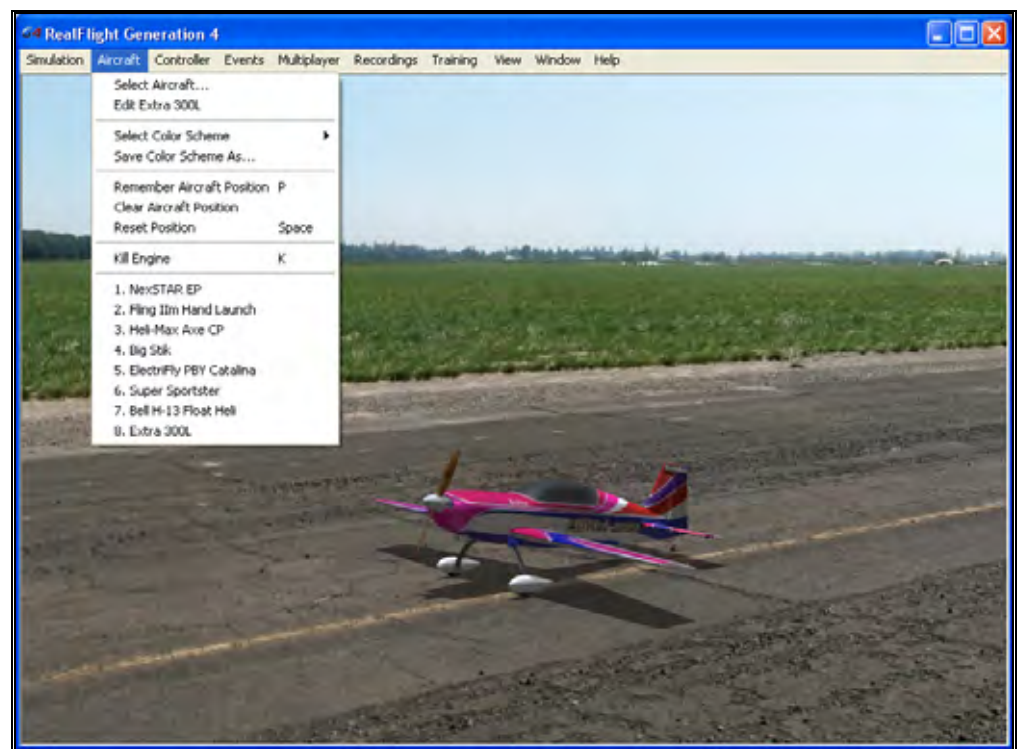
If you have previously selected an alternative flying location, or locations, you will note that it will appear on a list in the Simulation menu. This list is at the very bottom of the menu and is commonly referred to as a Most Recently Used, or MRU list. It is limited to the eight most recently selected locations. If you wish to fly at one of these locations simply click on the respective location and it will begin loading.



## The Aircraft Menu

*Offering access to a variety of aircraft related features, functions and options.*

Clicking the Aircraft menu brings forth a pull-down menu similar to the following screen shot.



The menu items that are available from the Aircraft menu include:

- Select Aircraft...

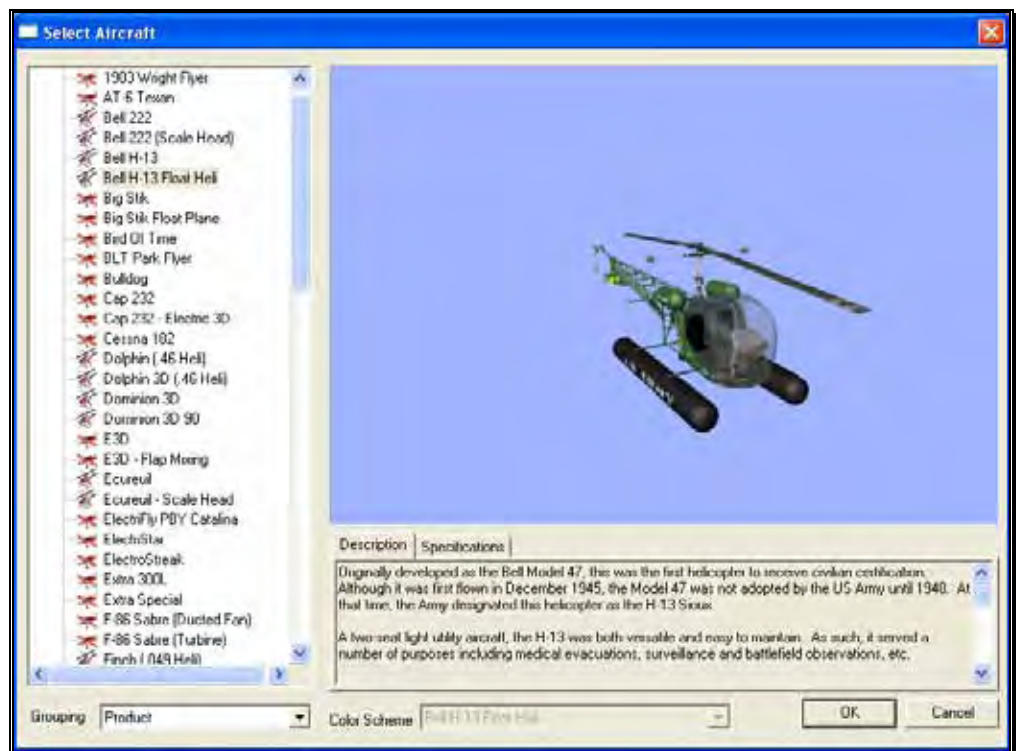


- Edit *Current Aircraft...*
- Select Color Scheme
- Save Color Scheme As...
- Remember Aircraft Position
- Clear Aircraft Position
- Reset Position
- Kill Engine
- Aircraft MRU

The following sections describe the function and purpose of each of these menu items.

## **Aircraft Selection...**

When you click on **Select Aircraft...** the following dialog appears:



This dialog allows you to select the aircraft that you wish to fly.



Change aircraft simply by using the InterLink Elite. Press the **Menu/Select** button, then, with the airplane tab highlighted press the **Menu/Select** button again. This will bring up the Select Aircraft dialog window. You can continue using the **QuickSelect** buttons in this dialog to select a new aircraft, or press **Reset** to resume flying without making any changes.

The list on the left of the dialog box displays all of the aircraft available to you. If you have created any customized aircraft, they will also appear in this list.

By default, the aircraft are listed in files and directories in accordance with the software from which they were loaded. If, for example, you have installed Expansion Pack 2, the aircraft from this disc will be listed, alphabetically, beneath the Expansion Pack 2 directory.

Click the **[+]** (plus) or **[-]** (minus) symbol to reveal or hide the aircraft within these directories and folders.

### Aircraft Selection

Every aircraft has its own unique flying characteristics, special features and functions. To view an aircraft from the listings, simply use the mouse to click on the aircraft name.

Alternatively, use the up/down keys on the keyboard to scroll through the list, one aircraft at a time.

The first time an aircraft is selected, G4 creates a collision mesh for the aircraft. This process may take a few seconds to complete. A progress bar will appear while the collision mesh is being calculated.

Click the [+] (plus) symbol to reveal the aircraft contained within the folder. Using either the up/down arrow keys on the keyboard or the mouse, select the desired aircraft from the listings. If utilizing the up/down arrow keys, click **OK** to finalize your selection. Alternatively, if using the mouse, double-click on the aircraft to load it.

Have some fun while you're in the Select Aircraft dialog. Using the mouse, click and drag the preview screen to point the camera angle to your choosing. Use the scroll wheel to zoom in or out. Or, move the gimbals to see the control surfaces move. To resume rotating automatically, right-click the preview screen.

#### **Description/Specifications-**

The pane below the Aircraft Preview box shows either the aircraft description or aircraft specifications. This box provides you with a brief history of the aircraft (if applicable) and serves to provide you with specific information pertaining to the model selected.

Using the mouse, select either the **Description** or **Specifications** tab.

#### **Grouping-**

This list controls how the dialog organizes the list of available aircraft. By default, the aircraft are sorted by Product. Here is an explanation of the different sorting methods:

**Product, Airframe:** Aircraft are grouped first by which product they are found in (all custom aircraft will be in the "Custom Aircraft" folder). Within each product, the aircraft are further grouped by airframe. For example, "NextSTAR" and "NextSTAR with AFS" are both found in the NexSTAR airframe folder.

**Product:** Aircraft are grouped by product alone.

**Airframe:** Aircraft are grouped by airframe, not by product. Individual aircraft are grouped inside each airframe folder.

**None:** There is no grouping at all. All aircraft are sorted alphabetically.

#### **Color Scheme-**

If applicable, this list contains the alternative trim schemes for the selected model. If the Color Scheme dialog is grayed out, there are no alternative trim schemes available for this particular aircraft.

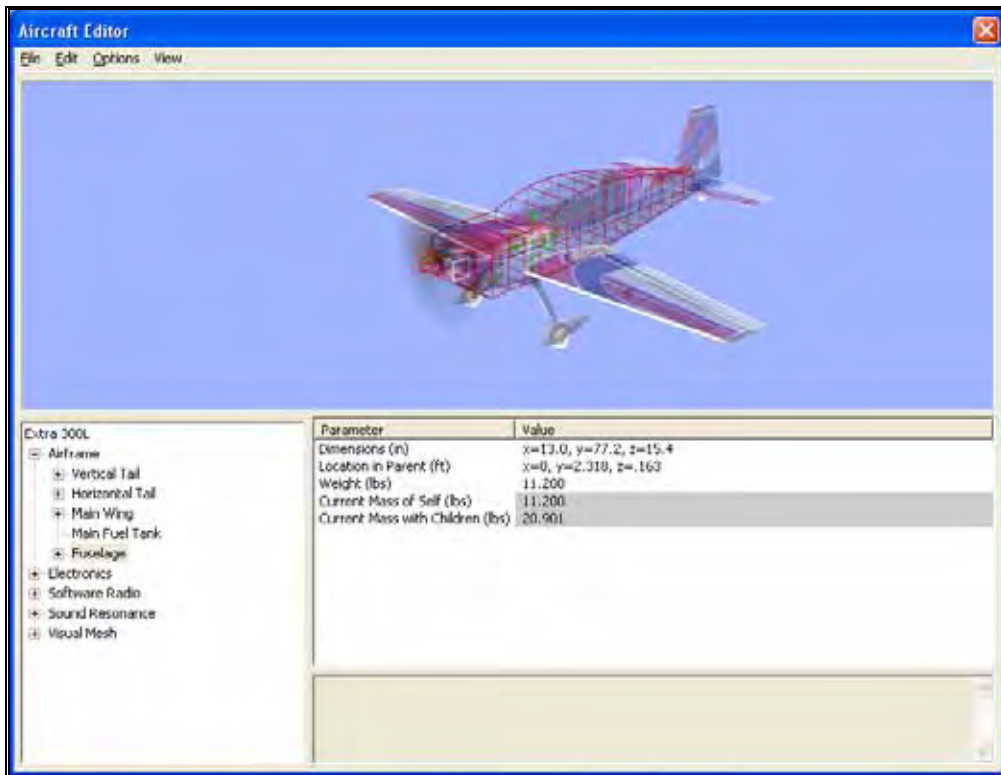
If the list control is active, click on the down arrow to reveal the alternate trim scheme(s). To select an alternate trim scheme, use either the up/down arrow keys on the keyboard or select one with the mouse. When an alternative trim scheme is selected, this scheme will appear immediately in the ReadySelect preview box, replacing the previous trim scheme.

Additionally, modelers may create their own trim schemes in RealFlight using a third-party bitmap editor capable of manipulating Targa (\*.tga) files. Please see the section titled “Save Color Scheme As....”.

## **Edit Current Aircraft**

RealFlight G4 offers the user unparalleled freedom to edit or modify their aircraft. It's possible to add and remove components, alter their location, change airfoils and much, much more! The first several times that you access the aircraft editor, the task might seem daunting. It may require some getting used to before you are comfortable with this feature and its related functions. The best way to do so is to simply dive in and experiment.

To modify the currently selected aircraft, click the **Aircraft** menu followed by the **Edit Current Aircraft** menu item. This brings up the Aircraft Editor dialog, which will allow you to modify any of the hundreds of parameters for the currently selected aircraft.



The Aircraft Editor dialog will have an appearance similar to the screen shot shown below. It may deviate slightly depending upon the type of aircraft that you are editing (i.e., biplane, electric model, etc.). However, all aircraft are edited in a similar manner. As such, this section presents you with the general information necessary to edit any aircraft found in G4.

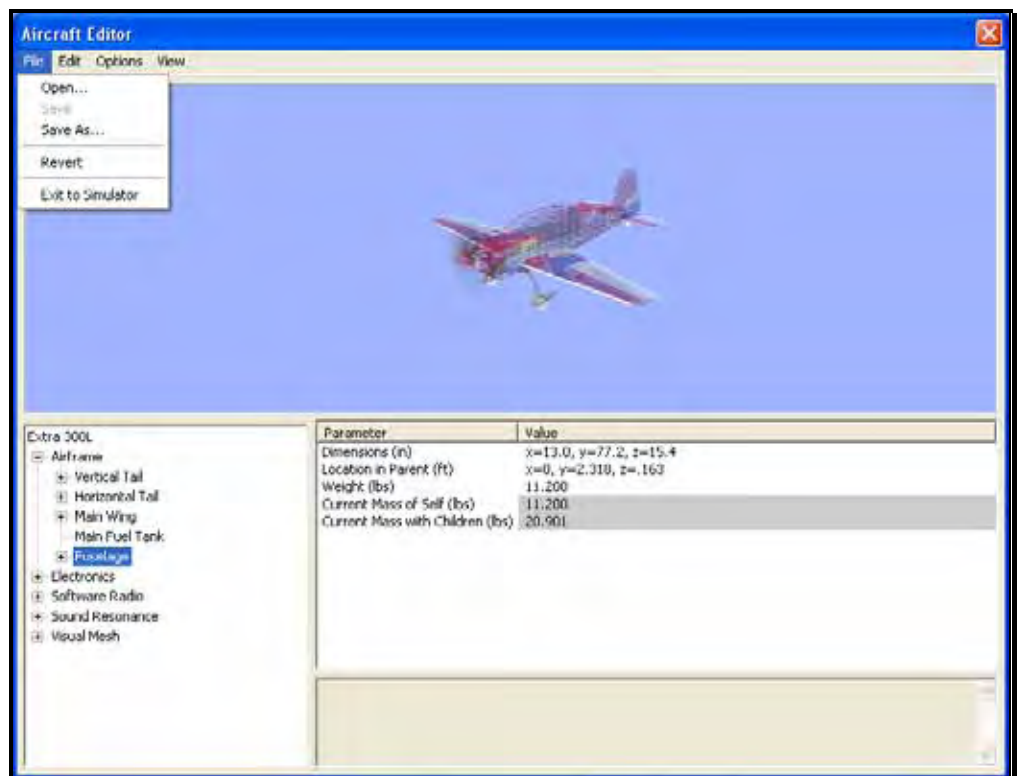
#### **Aircraft Editor Menus-**

Selecting the Edit *Current Aircraft* option activates the screen shown above. The Aircraft Editor dialog has three menu options:

- File
- Edit
- Options
- View

#### **File Menu-**

This menu and its menu items are used to manipulate and control the various folders and related items in the aircraft editor.



#### **Open...-**

This menu item is used to open existing and edited aircraft. Selecting this menu item opens the Select Aircraft dialog. To select an aircraft from this list, follow the procedure described in the Aircraft Selection section of this manual.

#### **Save-**

This option becomes active once you have renamed and saved the edited aircraft. Prior to doing so this option will remain inactive or grayed out. This allows you to make further modifications to the aircraft without renaming it each time.

#### **Save As...-**

Upon completion of the aircraft editing, click this menu item to rename and save the modifications. You will be asked to create a name for this new aircraft. After you have renamed the aircraft, click OK to accept the new name. Afterwards, the aircraft will appear in the aircraft listings found in the Select Aircraft... in the Aircraft menu.

**Revert-**

This menu item allows you to revert, or go back to the settings the last time that the aircraft was saved. If you have not previously saved the aircraft, the aircraft will return to the default settings.

To use this menu item, open the **File** menu and click **Revert**. This will bring forth the verification dialog.

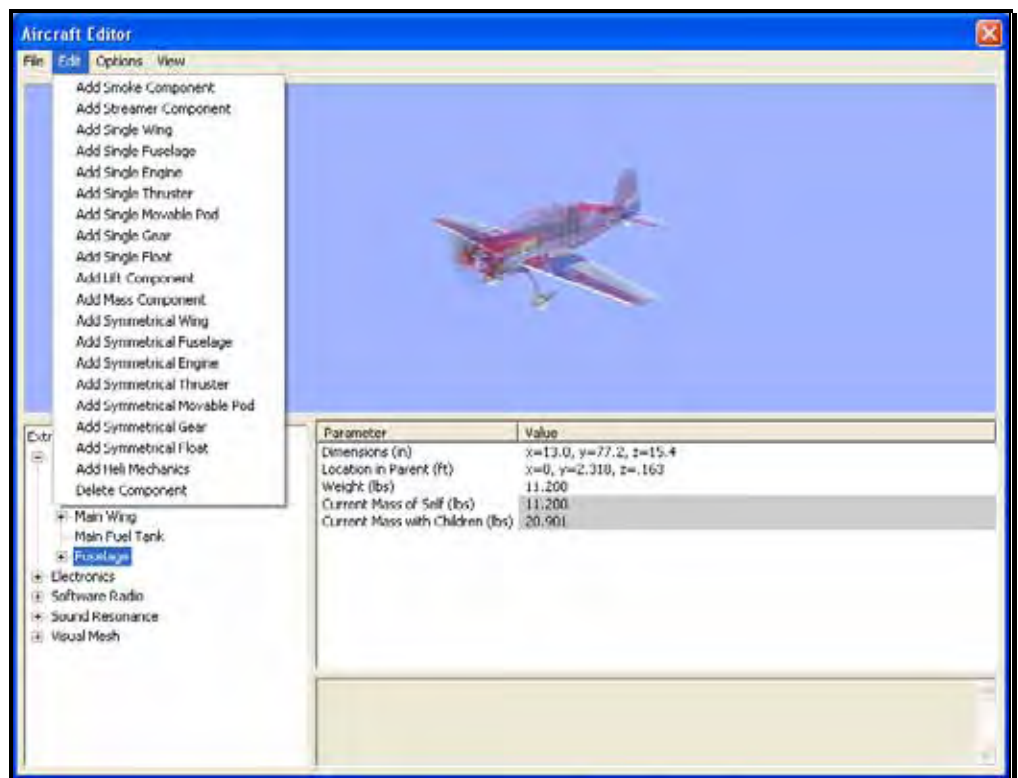
Click **Yes** if you wish to return to the last saved version of this model. Please note: any modifications performed after the last time that this model was saved will be lost. Clicking **No** will allow you to save the modifications or continue refining the aircraft.

**Exit to Simulator-**

This menu item returns you to the simulation. If you have performed any modifications to the aircraft and have not saved these modifications, a verification dialog will appear. Choose **Yes** to save the modifications. If you select **No**, the modifications will be lost. Selecting **Cancel** will return you to the editing dialog.

**Edit Menu-**

As is suggested by the name, this menu is utilized to edit the aircraft. The available options depend upon which item or folder is highlighted in the directory. If you have not highlighted an item or folder, the Edit menu will remain grayed out or inactive.



For example, if the aircraft name is highlighted and the Edit menu is selected, there will not be any actions available to you. If the airframe is highlighted, the aircraft editor will allow you to add various components to the airframe.

Alternatively, if you wish to either add or remove an item from one of the aircraft components, right-click on the respective component. This will bring forth the available options.

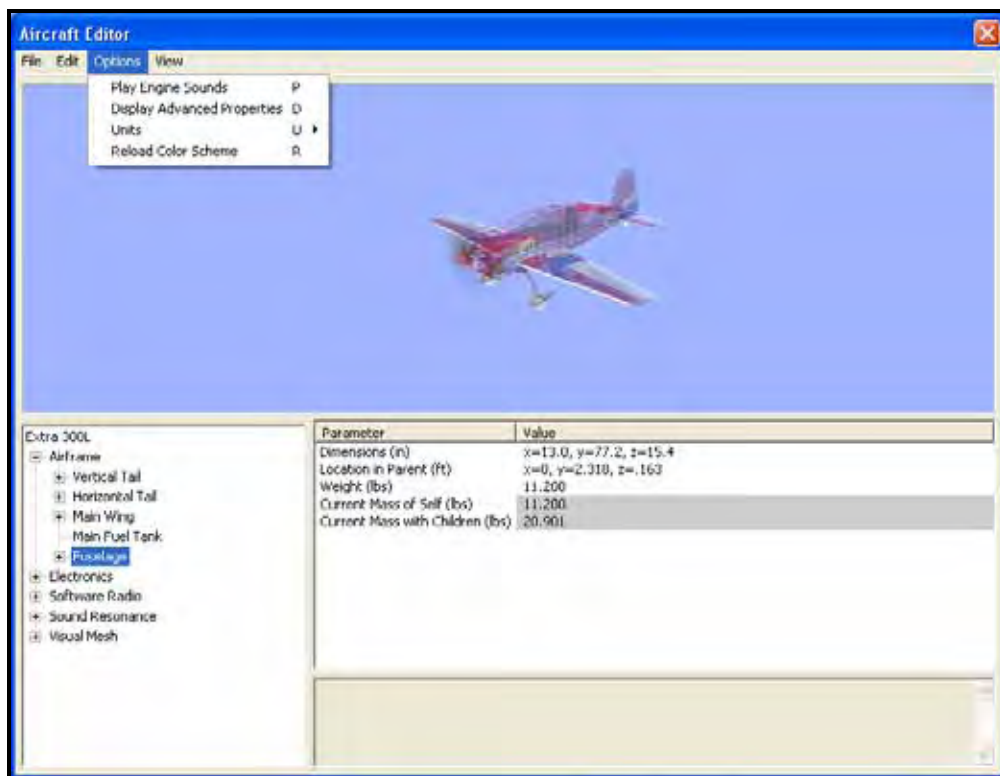
When editing aircraft, you can click and drag the mouse in the preview area to rotate the aircraft to different angles. This helps to better see components you might be modifying.

#### **Options Menu-**

This menu provides you with a number of choices, or options, available to you for use in the aircraft editor.

Selecting the Options menu brings forth the drop-down menu items discussed below.





### **Play Engine Sounds-**

Selecting this menu item plays the respective engine sounds during the editing of this aircraft. Please note: this setting is only temporary. That is, this setting is not retained after you exit the aircraft editor.

To select this option, click the **Play Engine Sounds** menu item. This will place a check mark before the setting and return to the aircraft editor. Additionally, the engine sounds will become audible.

Additionally, you may also press the **'P'** key on the keyboard to enable or disable the engine sounds.

### **Display Advanced Properties-**

This option displays advanced properties for the components in the airframe. Using the advanced properties you may fine-tune the physics calculations performed by RealFlight, in order to adjust the flight performance to your liking. When this option is checked, additional component properties will be displayed in the property listing area of the aircraft editor dialog. These properties are marked as "Advanced" in the following sections.

Additionally, you may also press the **‘D’** key on the keyboard to display or eliminate the advanced properties from the dialog.

#### **Units-**

This option toggles the units of measure between metric and SAE units. It is important to note that modifying this option affects all measurements in the simulation. For example, changing from SAE to metric in the editor also affects the airport editor dialogs.

To modify this option, click the **Display Metric Units** setting. Then select the unit of measurements you would prefer from the drop down menu. The options are **English** or **Metric**. A check mark will appear next to the unit that is currently displayed.

Alternatively, you can press the **‘U’** key on the keyboard to switch between the different units of measurement.

#### **Reload Color Scheme-**

This option allows you to view the results of an edited trim scheme.

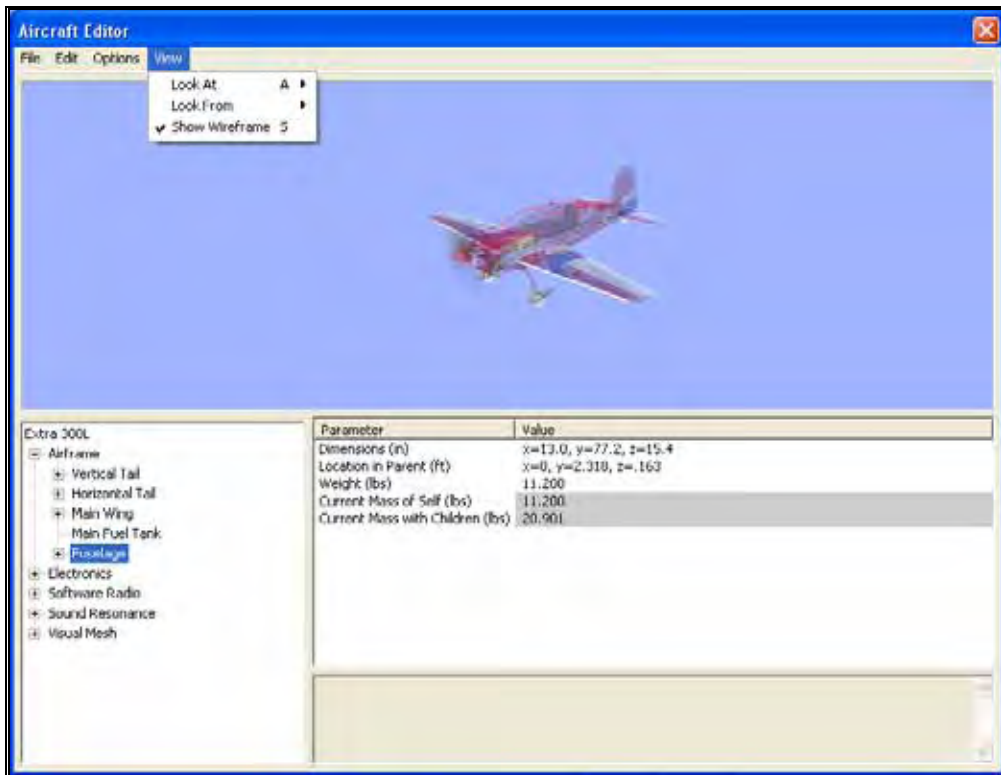
There are two ways that you can do so. The first is to use the **Select Color Scheme** menu, which is found within the **Aircraft** menu. Simply click on the color scheme that you have just edited, and RealFlight will reload the color scheme onto your aircraft and reset the aircraft back on the runway.

Alternatively, within the aircraft editor, click on the **Options** menu item. Select **Reload Color Scheme**. Clicking this reloads the color scheme, showing any changes you have made to the aircraft. To improve visibility of the trim scheme, you may wish to remove the wireframe from the preview. To do so, please follow the procedure noted in the description for “Show Wireframe.”

You can also press the **‘R’** key on the keyboard to reload the color scheme.

#### **View Menu-**

The View menu in the aircraft editor offers choices on the perspectives of the aircraft in the preview window.



### Look At-

This option allows you to determine the view of the aircraft being edited. There are three options available from this menu.

- Aircraft Center- Check this option is you wish to keep the entire aircraft centered in the view.
- Component Center- Check this option to center the view around the component you are editing. For example, if you are modifying the rudder, the aircraft will shift so that the rudder appears in the center of the preview area.
- Component Origin- Checking this option will focus the view on the root, or origin, of the component you are currently modifying. For example, if you have the Main Gear selected, the preview area will be centered at the location where the Main Gear is attached to the fuselage.

To adjust the Look At perspective, click the **Look At** menu item and select the desired view. Alternatively, you may use the 'A' key on the keyboard to toggle through the selections.

**Look From-**

Alternatively, you can select from pre-determine angles from the Look From menu item. They include:

- Above – Look from above the aircraft. Or press the Q key to quickly change to this view.
- Below – Look from below the aircraft. Or press the Shift-Q keys to quickly change to this view.
- Right – Look from right side the aircraft. Or press the W key to quickly change to this view.
- Left – Look from left side the aircraft. Or press the Shift-W keys to quickly change to this view.
- Front – Look from the front of the aircraft. Or press the E key to quickly change to this view.
- Back – Look at the back of the aircraft. Or press the Shift-E keys to quickly change to this view.

**Show Wireframe-**

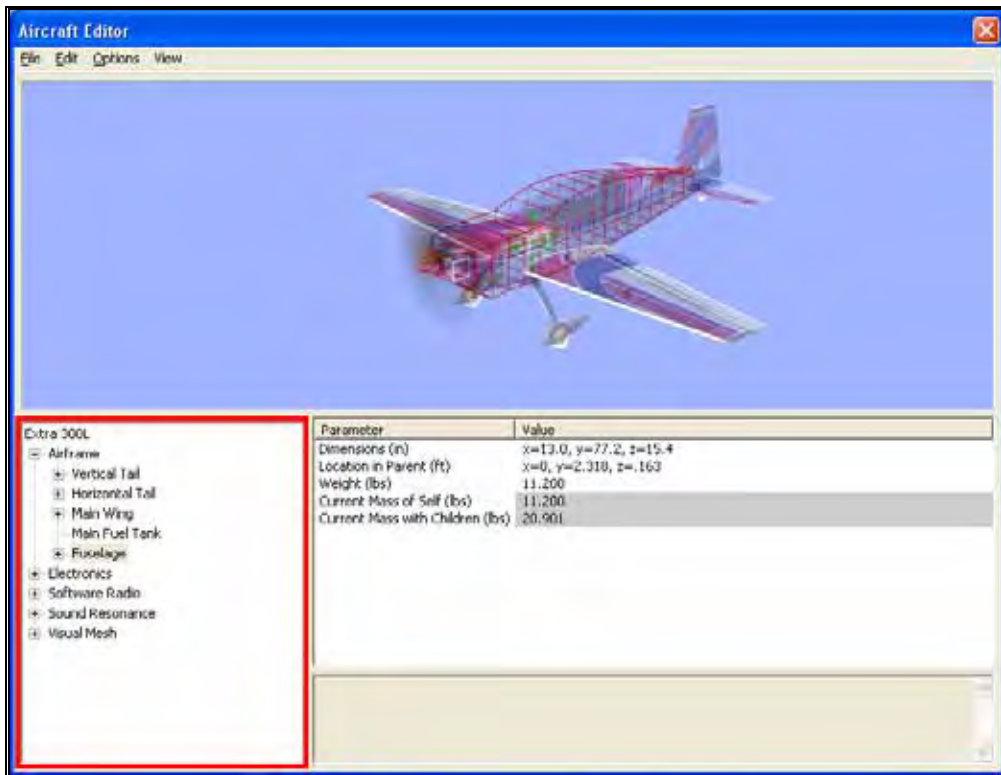
This option determines whether the aircraft displayed in the preview box is shown as a wireframe or is rendered complete with textures, etc. The wireframe option is automatically selected by default.

If you would prefer to view the fully rendered image, click the Show Wireframe option from the pull-down list. This will eliminate the check mark from the setting and return to the aircraft editor. Additionally, the preview aircraft window will show the rendered image of the aircraft.

Alternatively, you may press the ‘S’ key on the keyboard to display or eliminate the wireframe view.

**Aircraft Parts Tree-**

The bottom half of the Aircraft Editor contains three important areas; the Aircraft Parts Tree, Parameter window, and the description pane.

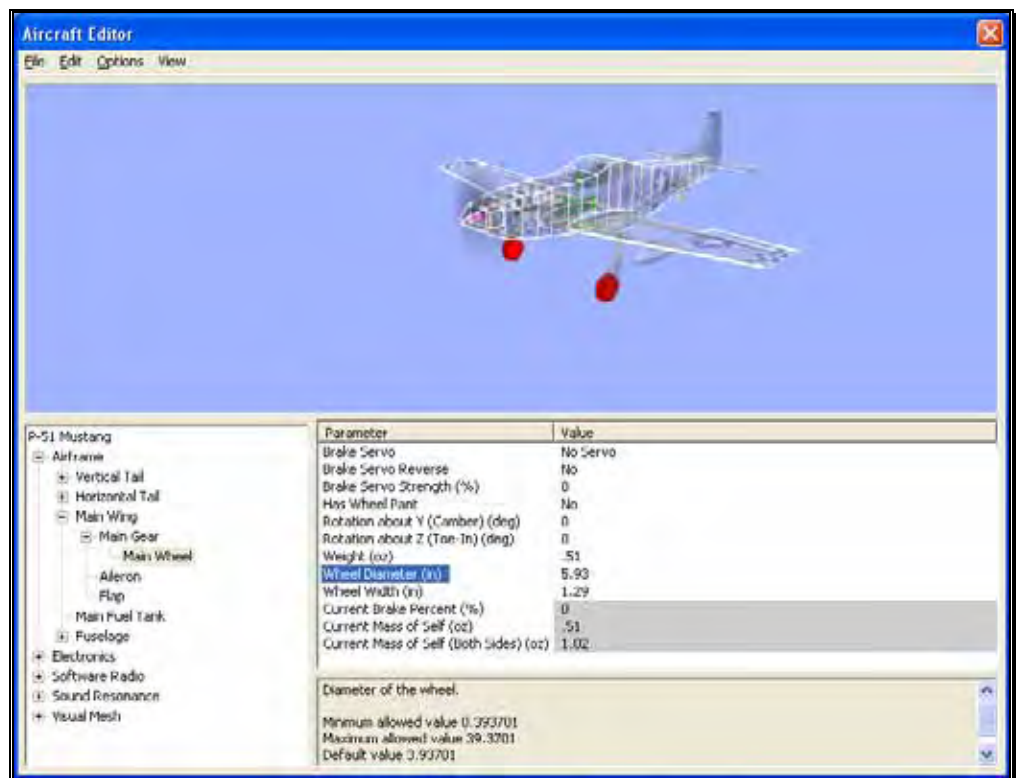


The Aircraft Parts Tree breaks down the entire list of aircraft components and radio data into an easy-to-use hierarchy.

The first item listed is the name of the aircraft you are currently editing, and is considered the root item for all other items listed here. Selecting it will offer a variety of common parameters that you can edit in the Parameter window. These include the description of the aircraft, Launch Method, Power Plant Type and Radio Type.

Below the aircraft name, there are additional options that allow you to customize the individual parts of the aircraft. You also have the ability to modify the electronics and radio program for the aircraft.

Each part belongs to a higher component, or parent, with the root being the highest component. In return, it's possible that the part itself also has children parts that belong to it. For example, if you wish to edit the wheel size on the P-51, you will find it under the following path in the Aircraft Parts Tree:



- P-51 Mustang - root of the aircraft, found at the top of the Aircraft Parts Tree list
  - Airframe – Contains all the physical parts of the aircraft, like wings, fuselage, etc.
    - Main Wing – One of many physical parts found in the Airframe
      - Main Gear – The Main Gear on the P-51 attaches to the wing, therefore, we found it under the Main Wing part.
        - Main Wheel – Finally, you’ll see the wheel component which, understandably, is found under the Main Gear part.

Once the Main Wheel is selected, the Parameter window will change to show all parameters available to the Main Wheel. You’ll notice that one of these parameters is wheel diameter.

All other parts are found and modified in much the same way. If, however, you are unsure as to the location of a part, an easier way to access the part is to click on the desired item in the Preview screen on the top half of the window. For example, if you want to modify the parameters for the horizontal tail of the P-51, simple click on that

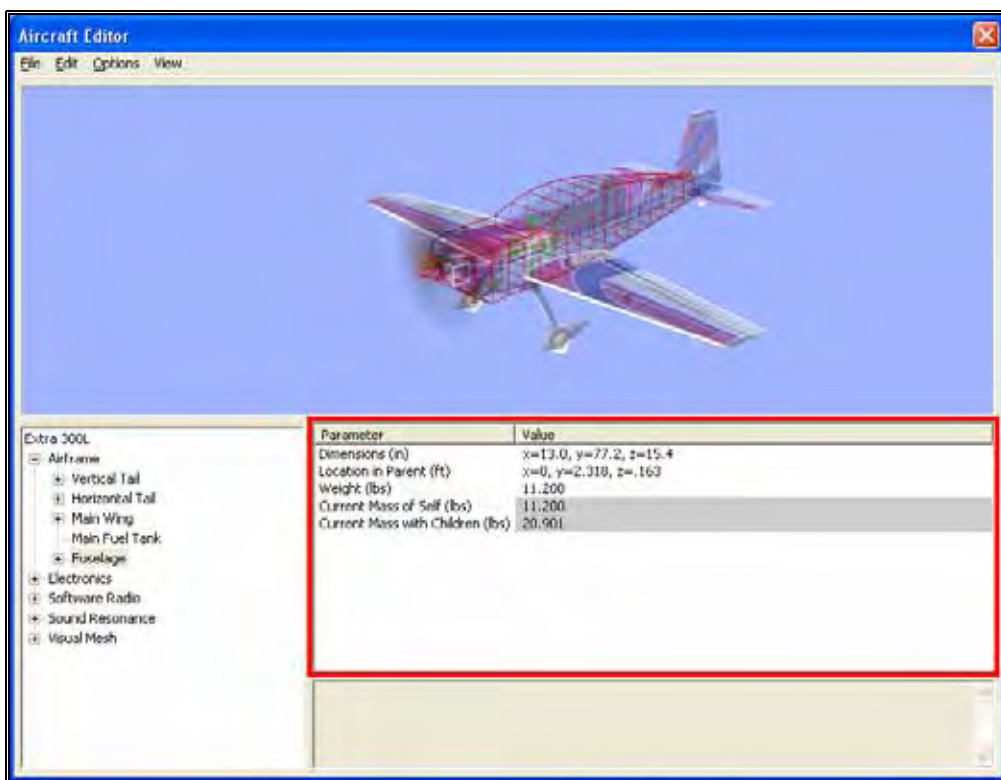
portion of the image. You'll notice that the Horizontal Tail is now selected in the Aircraft Parts Tree.

### Preview Screen-

As mentioned above, to quickly find the part in the Aircraft Parts Tree for modification, you can simply click that part in the Preview screen itself. At times, you'll notice that the part you want to click might be hidden behind another section of the aircraft. If you find yourself in this situation, click and drag the mouse cursor around the Preview screen. This will rotate the aircraft image around so you may view it from different angles. You may also use the scroll wheel on the mouse to zoom in and out for a closer look at the section you are working on.

### Parameter Window-

On the bottom half of the Aircraft Editor, you will see the Parameter window on the right side. This window will list all the parameters available for the currently selected part in the Aircraft Parts Tree.



Clicking on the parameter will allow you to view a description of its use in the Description pane directly below the Parameter window. This will also allow you to modify the currently selected parameter.

### **Add and Removing Components-**

There are times when you may want to add a new component to the aircraft. The first step is to determine the location for the new part. For example, if you were to add flaps, it makes more sense to add it to the main wing, than to the fuselage.

After having determined the location for the new part, you can add it in one of two ways. Select the new part from the **Edit** menu. Alternatively, you can right-click on the component in which you are adding the new part. Again, if you were adding flaps, right-click on the **Main Wing** component, then select **Add Control Surface**.

Removing a component works in much the same way. In the Aircraft Parts Tree, select the component you wish to remove. Then select **Delete Component** from the **Edit** menu. Alternatively, you can accomplish the same thing by right-clicking on the part to remove and selecting **Delete Component**.

### **More Information-**

The Aircraft Editor may seem a little overwhelming at first. The best way to become familiar with the editor and its related functions is to simply use it and start experimenting. RealFlight does not allow you to customize the stock aircraft. As such, if you make a change to one of the stock aircraft, you will be forced to save it under a new name. Therefore, you always have the stock aircraft to default to, should the need arise.

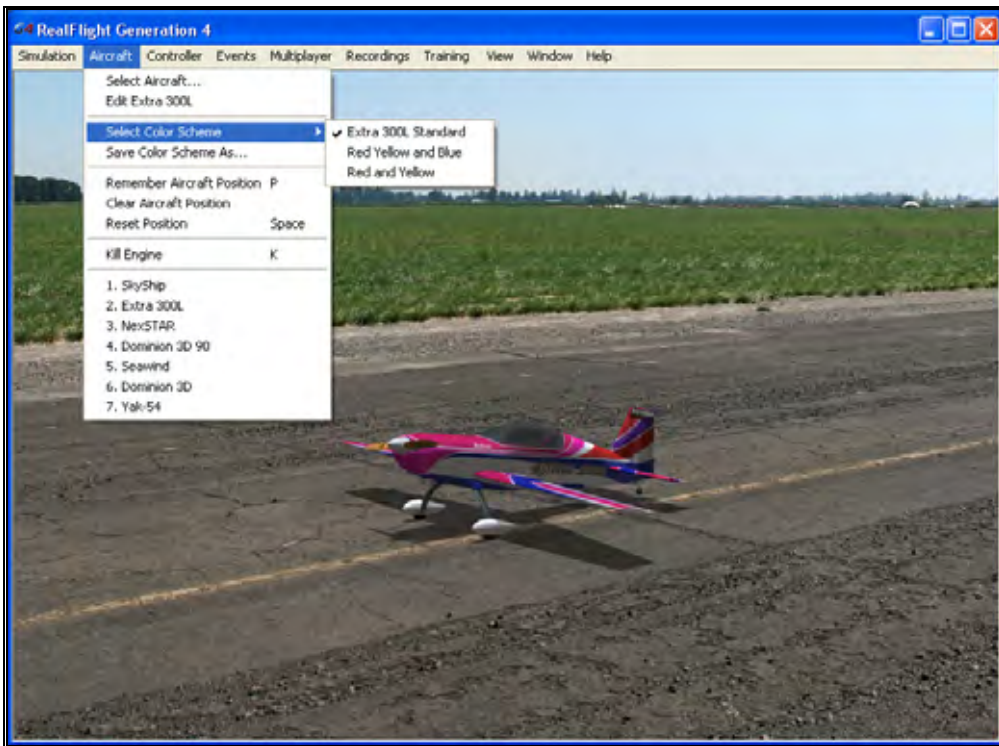
Our online forums and swap pages provide a great source of information, and assistance from other RealFlight users. These pages may be found at:

<http://www.knifeedge.com/forums/>

## **Select Color Scheme**

This menu item allows you to choose an alternative trim scheme (if available) for the current aircraft.

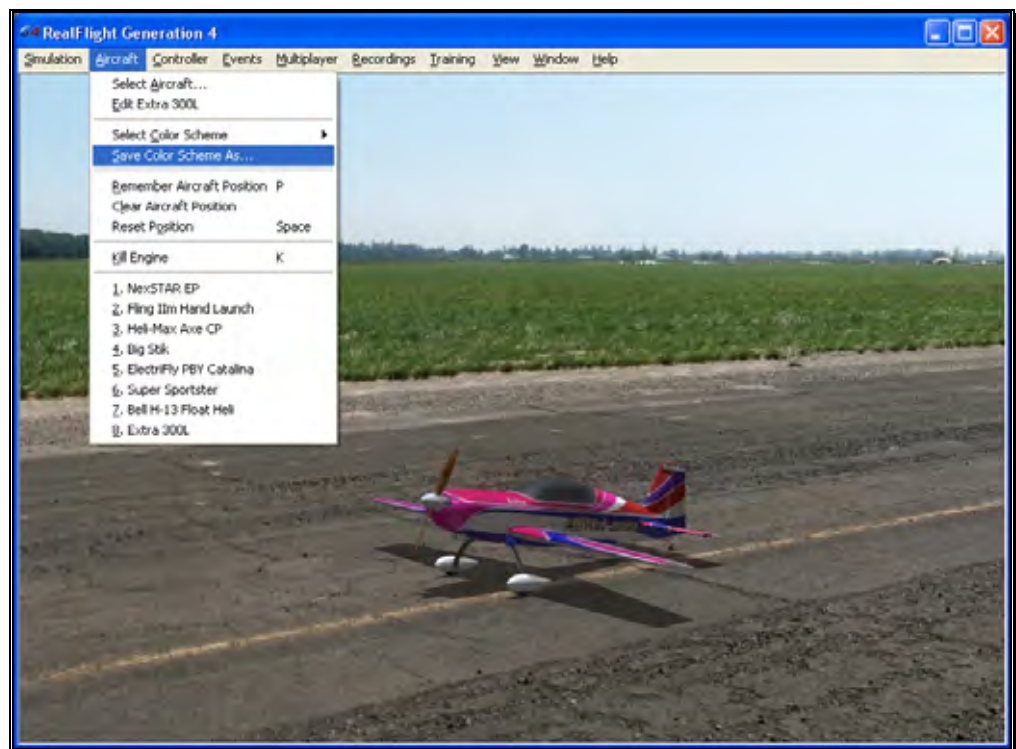




To view the alternative color schemes, click the Select Color Scheme menu item. To select an alternate trim scheme, click the existing selection in the value box. This will bring forth the pull-down menu selections. Use either the Up/down arrow keys on the keyboard, or the mouse to select the desired option. If utilizing the arrow keys, press Enter to finalize the selection. The new trim scheme will appear immediately on the aircraft. Please note: if only one scheme appears in the pull-down menu, alternative schemes are not available for this aircraft.

## Save Color Scheme As...

This menu item is used to create an editable version of the currently selected trim scheme.



RealFlight G4 allows you to create a custom paint/decal scheme for your aircraft. The color schemes you create are limited only by your imagination.

However, only individuals that own, and know how to use, a third-party bitmap editing program such as Adobe® Photoshop®, should attempt to create a custom color scheme. Your editor must be able to read and edit Targa (".tga") files.

To create a custom color scheme click the **Save Color Scheme As...** menu item. Enter the desired name in the dialog box that appears. The location of the file will appear in the lower left corner of the RealFlight screen.

To access the file that contains the custom color scheme, open the My Documents folder. Next, open the **RealFlight G4** folder followed by the **Vehicles** folder. A number of folders are available here, open the folder called **ColorSchemes**. This will bring up all of the custom color schemes that have been stored in RealFlight. The name of the aircraft will precede the name that you have selected for your custom color scheme. Click on the file for which you wish to modify the trim scheme.

***DO NOT ALTER THE NAME OF THIS FILE, AS REALFLIGHT MAY NOT BE ABLE TO CORRELATE THE COLOR SCHEME WITH THE AIRCRAFT.***

Once you have finished editing and saving your color scheme, you will probably want to see the results of your work. There are two ways that you can do so. One is to use the Select Color Scheme menu, which is found within the Aircraft menu. Simply click on the color scheme that you have just edited, and RealFlight will reload the color scheme onto your aircraft and reset the aircraft. Within seconds, you are ready for flight with your new color scheme.

Alternatively, access the Aircraft Editor (see section Edit Current Aircraft on page 111). Within the aircraft editor, look for Reload Color Scheme which is located in the Options menu. Clicking this will reload the color scheme, showing any changes you have made to the aircraft. You can disable the wireframe using the Options menu to improve your view.

While looking in the ColorSchemes directory for your new color scheme, you may also notice a “.colorscheme” file with the same name as the “.tga” file. This file can be opened in a text editor such as Notepad. Within the file, you will find six values to edit: Specular, Reflectivity, PowerSpecularOff, PowerSpecularOn, PowerReflectiveOff, and PowerReflectiveOn.

Specular - A multiplier for the overall specularity of the aircraft. Specular=1 is neutral, Specular=0 disables specular highlights.

Reflectivity - A multiplier for the overall reflectivity of the aircraft. Reflectivity=1 is neutral, Reflectivity=0 disables reflections.

Specular highlights vary from fully off to fully on as the specular power of each piece of the aircraft goes from the value PowerSpecularOff to PowerSpecularOn.

Reflections vary from fully off to fully on as the specular power of each piece of the aircraft goes from the value PowerReflectiveOff to PowerReflectiveOn.

#### **Tips for Color Schemes**

- A quick and easy way to change a color scheme is to replace one color with another. Photoshop has a command that can easily do this called “Replace Color”.
- Make sure you save the file as 32 bit TGA files so that the Alpha Channels are preserved (See below).
- You are only allowed a single Alpha Channel.
- Do NOT alter the resolution of the image.
- Other formats (JPG, BMP, etc) are not allowed.

### Alpha Channels

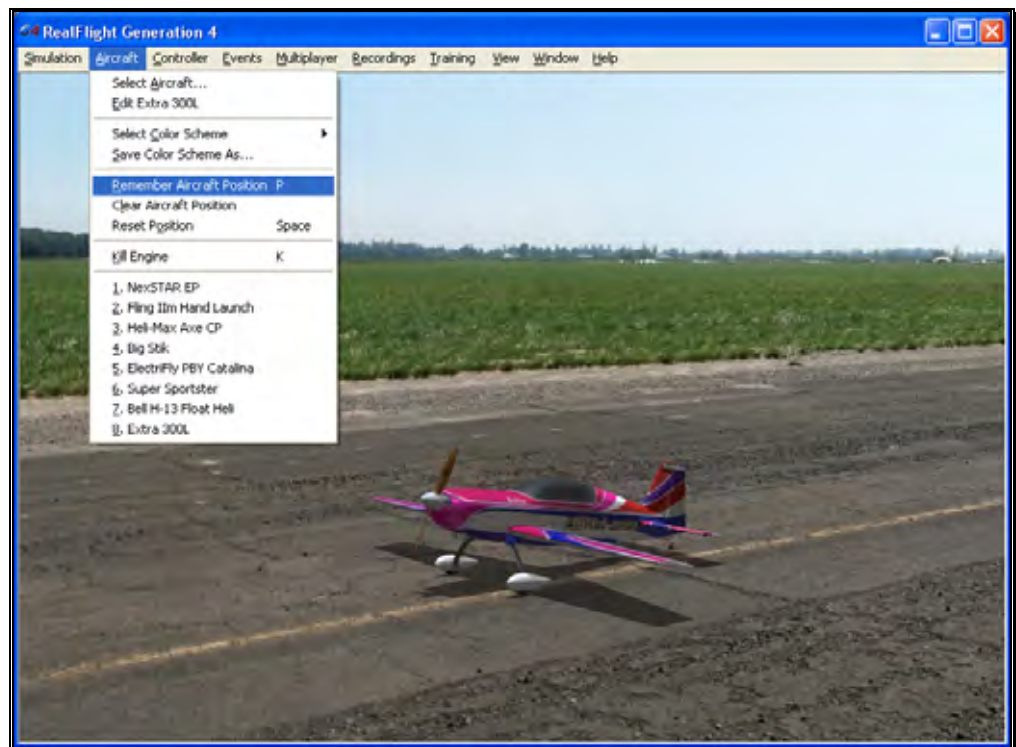
Almost all of the color schemes for the aircrafts incorporate an Alpha Channel, which defines what areas of the color scheme are opaque and what areas are transparent. White portions of the alpha channel will be 100% opaque and Black portions of the alpha channel will be 100% transparent. Shades in-between will be partially transparent.

Consult the image editor's manual to determine how to use Alpha Channels.

*Note: RealFlight uses TGA files instead of the BMP format. This is because BMP formats do not support alpha channels.*

### Remember Aircraft Position

The Remember Aircraft Position menu item saves the current position of the aircraft. When you reset the aircraft, it will return to the same position (speed, attitude, heading, etc.) as when this menu item was selected. This feature is ideal for practicing maneuvers, such as an autorotation in a helicopter.

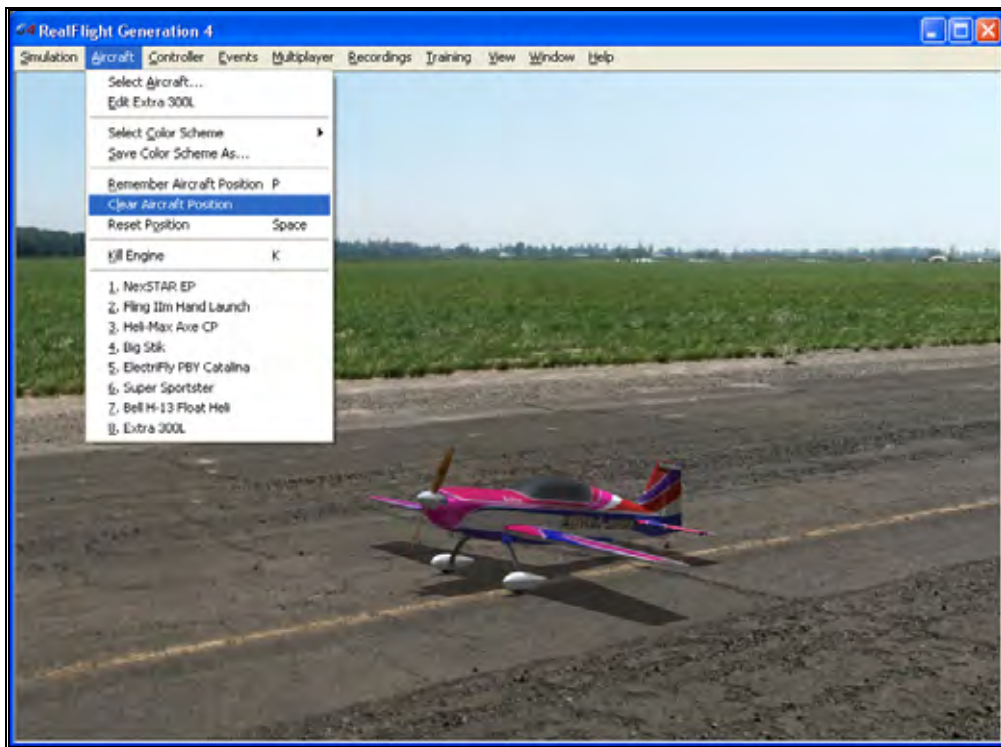


To activate this menu item, click the **Remember Aircraft Position** menu item when the aircraft is in the desired location and altitude. Alternatively, pressing the **'P'** key on the keyboard will also remember the aircraft's position.

Each time the aircraft is reset it will begin flight from the saved location. Please note: the saved position is only temporary. If you select another airport, aircraft, or if you exit the simulation and restart, you will need to save the desired position once again.

## Clear Aircraft Position

This menu item clears the position saved in the Remember Aircraft Position without exiting the simulation, changing flying sites and/or aircraft.

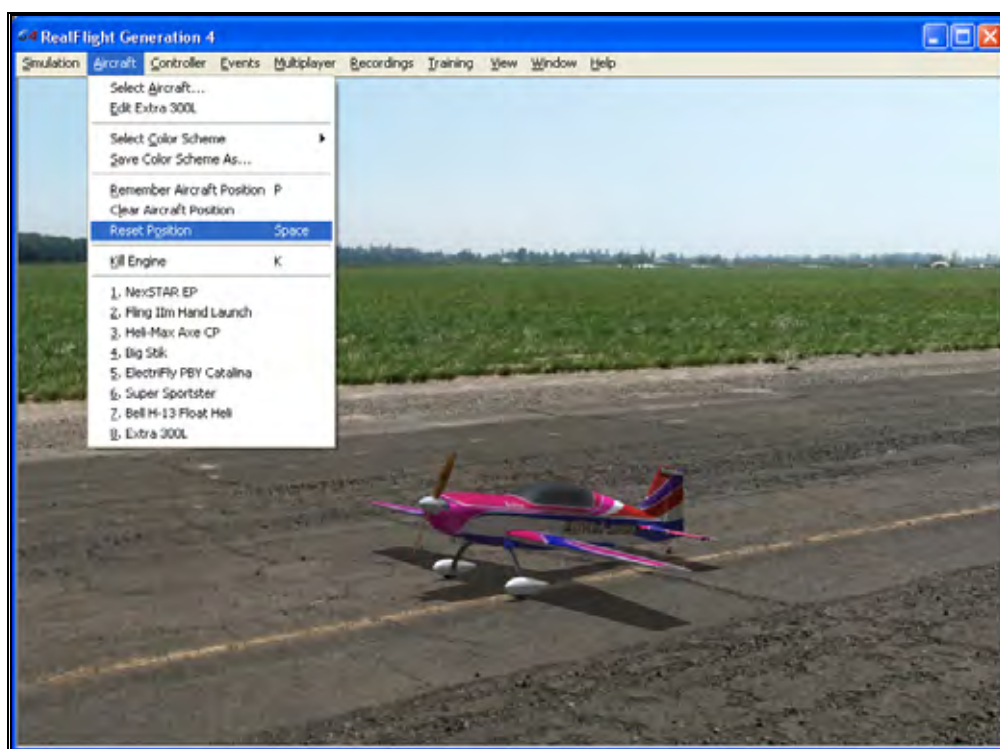


To do so, simply click the **Clear Aircraft Position** menu item. When the aircraft is reset, it will return to one of the default starting positions.

## Reset Position

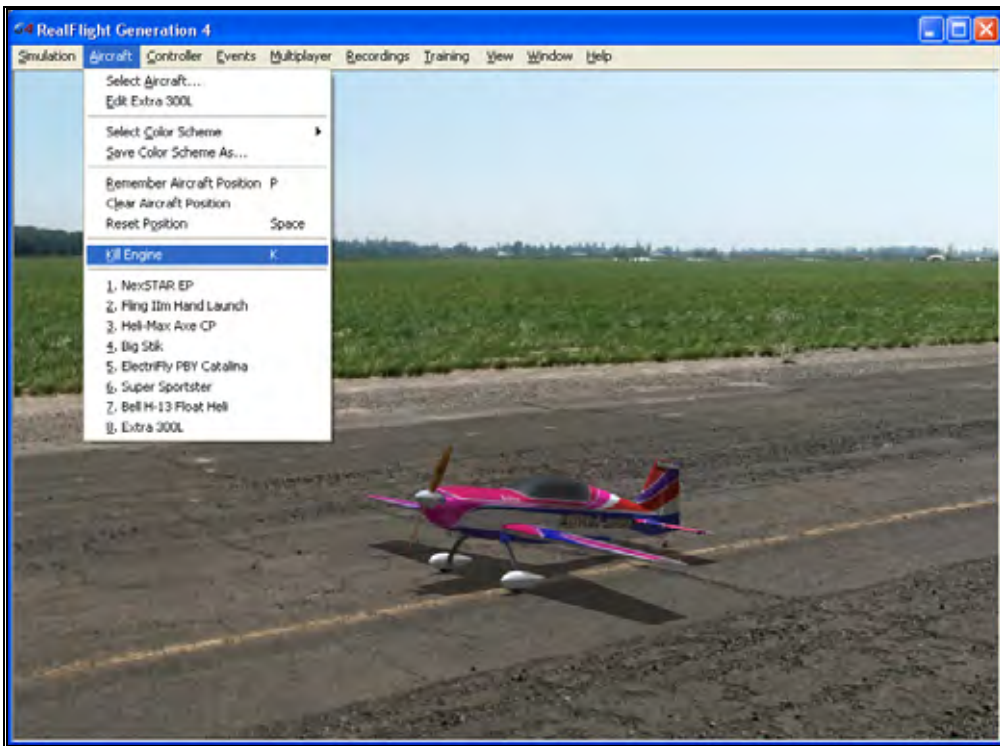
There are three ways to reset the aircraft to its takeoff position:

1. Press the **Reset** button on the InterLink Elite controller. This is probably the fastest and simplest method.
2. Press the keyboard's space bar.
3. Click the **Reset Position** menu item.



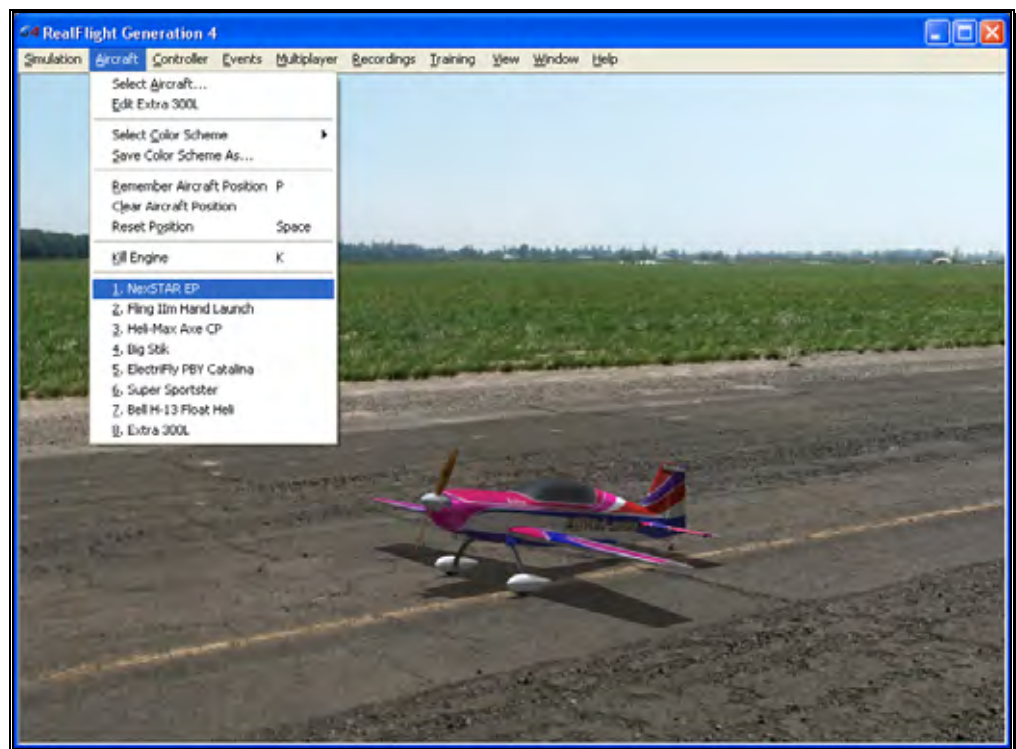
## Kill Engine

Click on this item to instantly stop the motor from running. This is useful when you are practicing dead-stick landings in airplanes and when practicing autorotations for helicopters. Alternatively, you may also press the keyboard's **K** key.



## Aircraft MRU

The final items in the Aircraft menu indicate the most recently used aircraft. The first item is the aircraft that you are currently flying; successive items are aircraft you have previously flown. The MRU shows only the eight most recently selected aircraft.



You can load an aircraft by selecting it from this list. This shortcut allows you to switch between your favorite aircraft without using the Select Aircraft dialog.



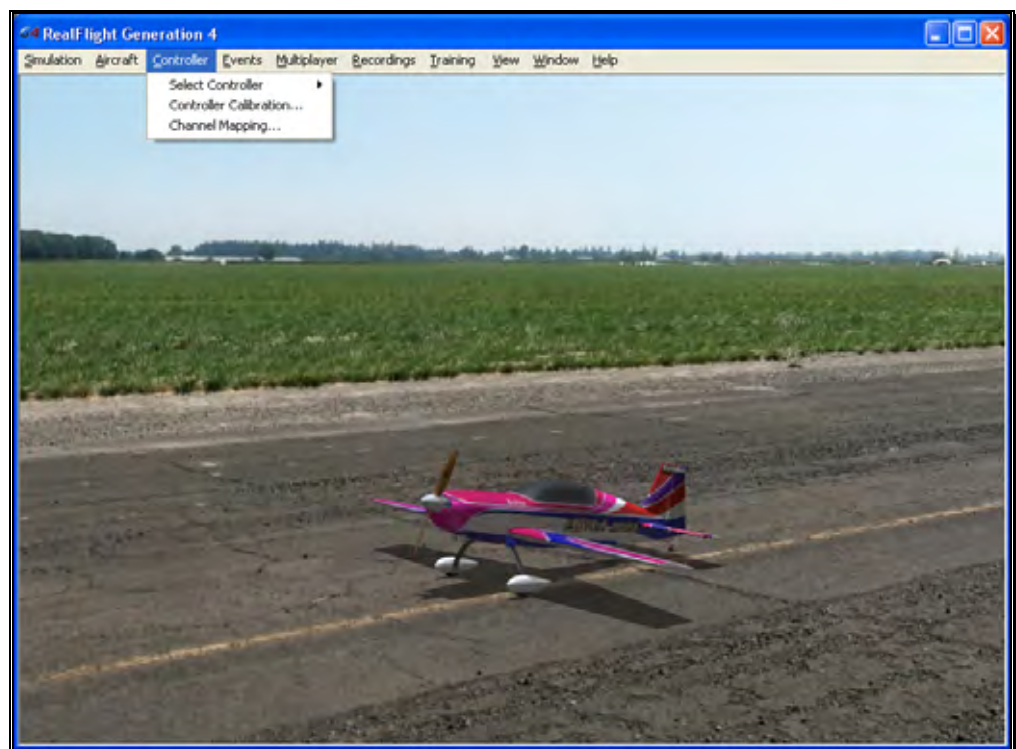


## Controller Menu

*Determine the method of control, map the channels to your liking, and calibrate the controller.*

The Controller menu allows you to select the method of control, calibrate the controller and to map the channels for your desired method of control for RealFlight G4.

When you click the Controller menu, a screen similar to that below will appear:

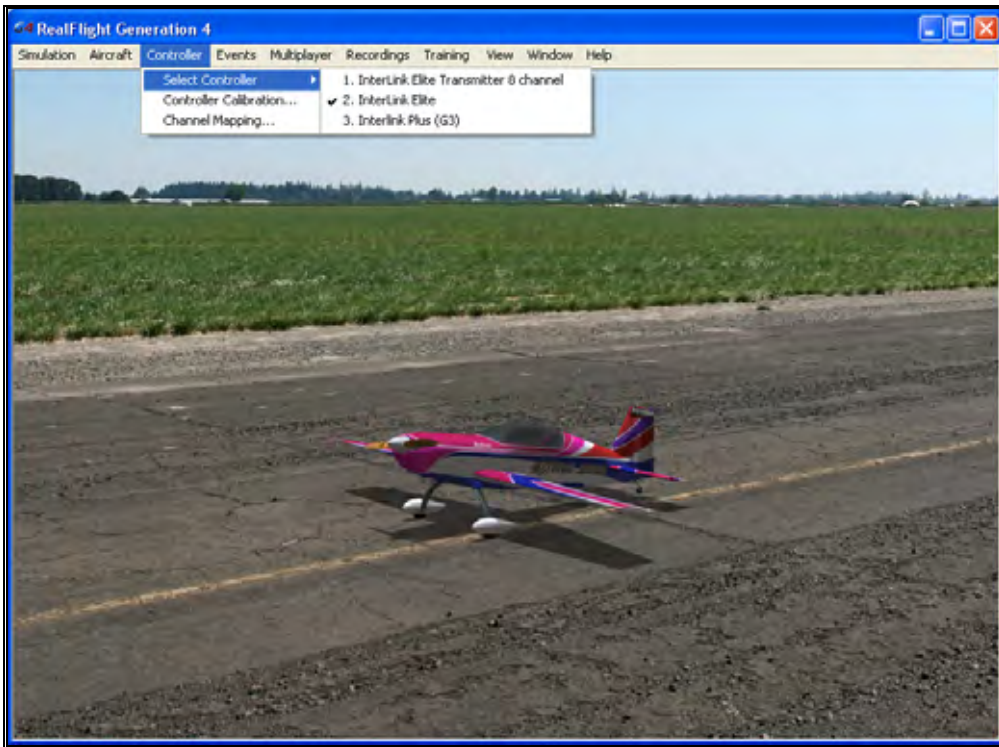


The menu items available are:

- Select Controller
- Controller Calibration...
- Channel Mapping...

## Select Controller

When you click on the Select Controller menu item, the following sub-menu appears:



To choose the method of control, click on the **Select Controller** menu item from the Controller menu. The selection(s) will vary depending on whether or not you have attached an actual R/C transmitter to the interface adapter for the InterLink Elite.

Please note: if you have attached a controller to the InterLink Elite's interface port, RealFlight will pause briefly while it detects the transmitter.

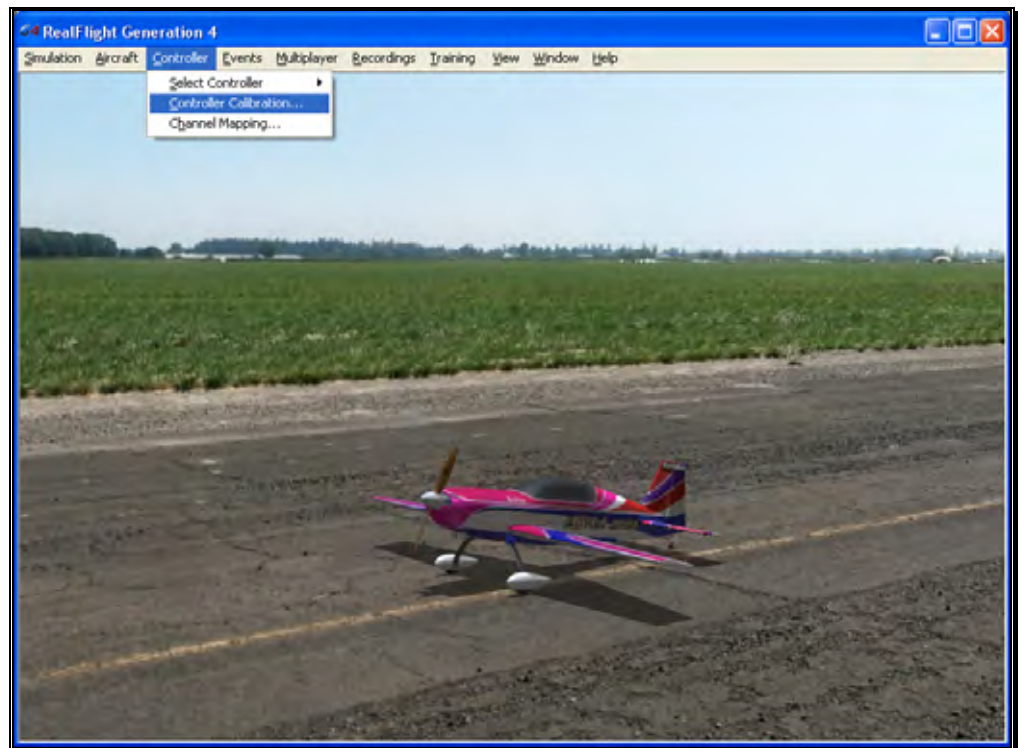
The selections are (usually) InterLink Elite and InterLink Elite Transmitter X Channel. If you will be using your own controller in the simulation, choose the **InterLink Elite Transmitter X Channel**. The sections that follow will explain the differences

between the various modes and methods of control and the means and ways to access and utilize them.

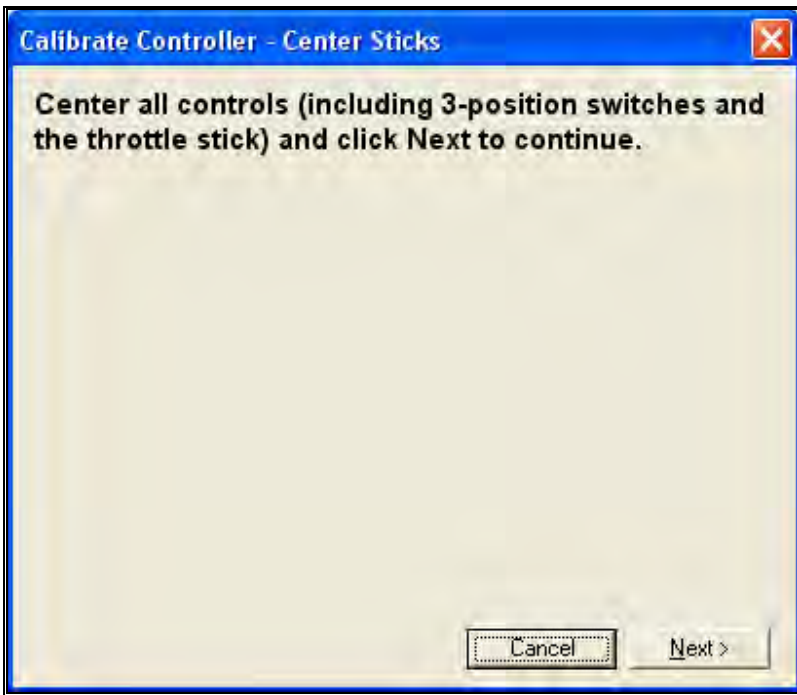
If you have attached a Generation 2 InterLink controller or a G3 InterLink Plus controller in addition to the G4 InterLink Elite, there will be an option allowing you to select these controllers as well.

## Controller Calibration

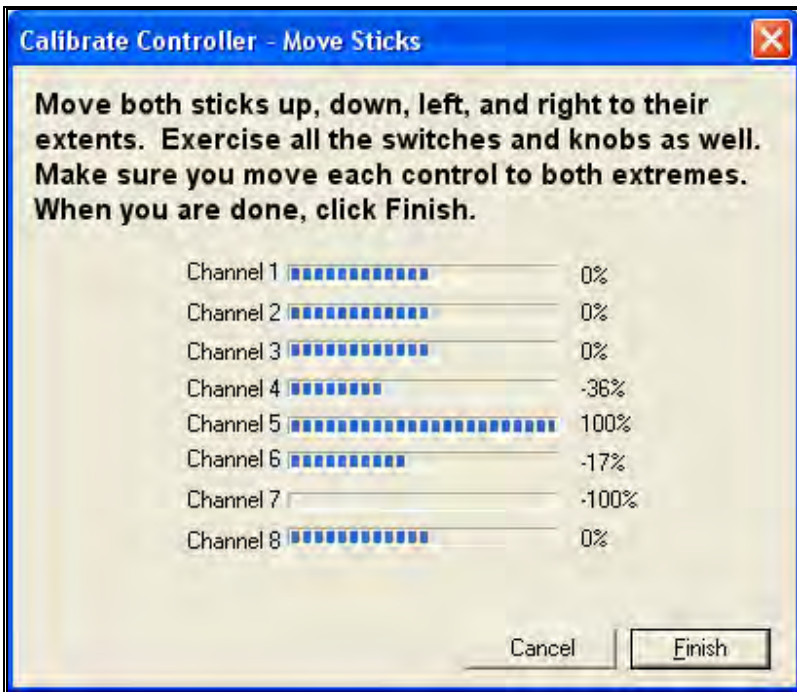
The Controller Calibration... menu item allows you to adjust your controller for use in the simulation. Calibration is the method of fine-tuning the controller input for the simulation, so that you will achieve the desired responses.



Once selected, the following screen appears:



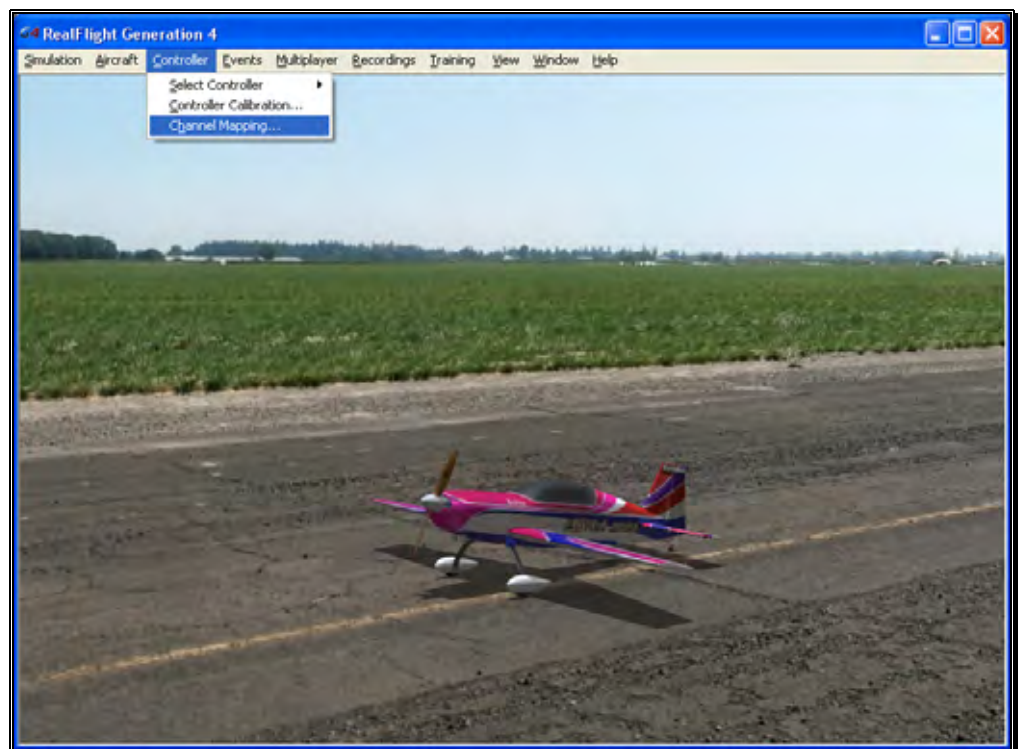
As directed, place all sticks, knobs and switches to their center positions. Click **Next** when finished.



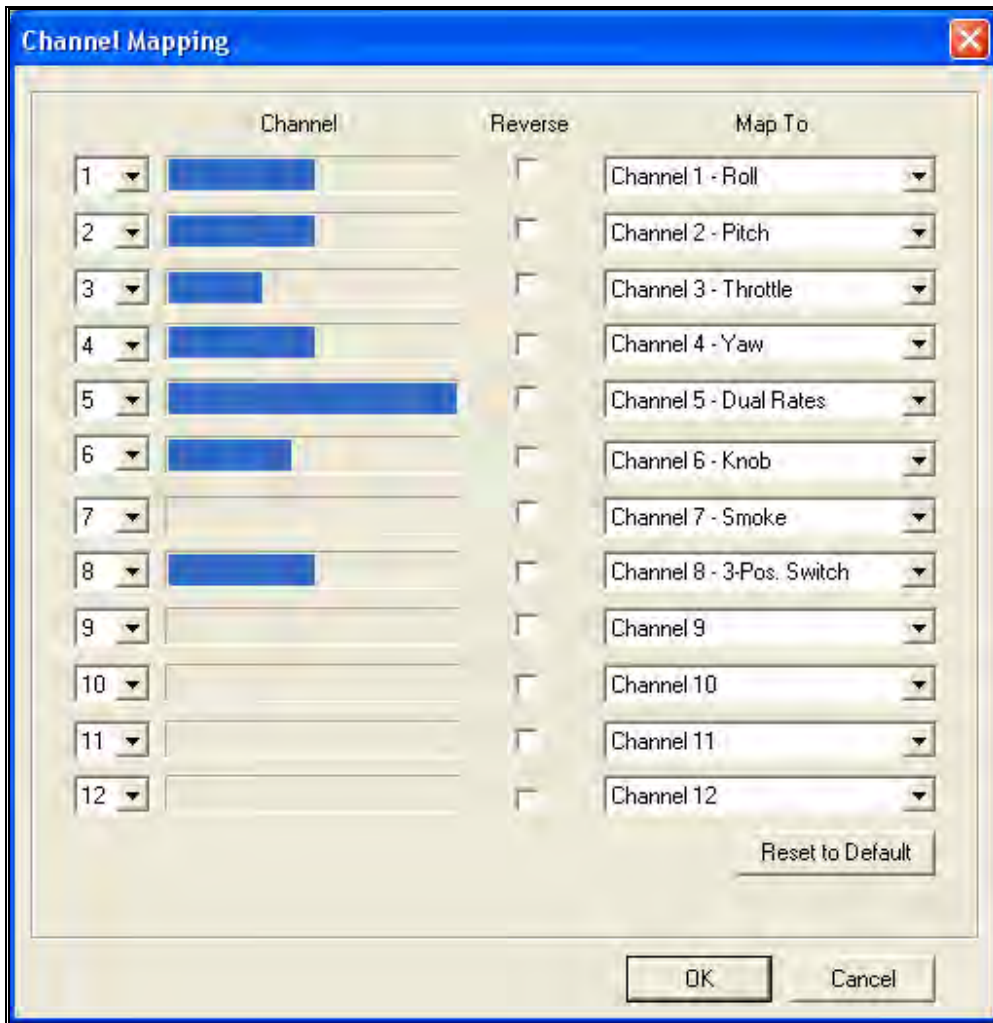
It is imperative to move all of the sticks, knobs and switches through their complete range of motion several times. This is the key to a properly calibrated controller. When completed, click **Finish**. You will now be returned to the simulation with a calibrated controller.

## Channel Mapping...

G4's Channel Mapping feature allows for incredible flexibility and adjustability regardless of radio manufacturer or flight mode utilized. This menu item enables you to define the functionality of the transmitter when utilized in the simulation.



To access the Channel Mapping... menu item, click the **Controller** menu. Next, select the **Channel Mapping...** option. This will bring forth the following screen.



It is important to have a basic understanding of the Channel Mapping... screen prior to actually modifying the actual mapping itself.

**Channel-**

This column corresponds to the actual channel of the transmitter used to control the functionality, as defined in the Map To column.

For example, radio channel 3 on a Futaba radio corresponds to the throttle. As such, the Map To value is defined as throttle. On the other hand, radio channel 3 on a JR radio controls the pitch (elevator).

The first column displayed shows the number for the input channel. You can change this by clicking the down arrow next to the number and selecting a different channel. This is useful if you want the same channel to control multiple functions. For example, with this option you could assign channel 3 to control both throttle and elevator. It's

important to note that this will affect all aircraft. See Edit Current Aircraft on page 111 for information on how to edit the individual aircraft.

The radio channel values serve as placeholders, or reminders, for the functionality of your transmitter with regards to the Map To functions.

#### **Map To-**

The values here define the function or duties that will be performed by the transmitter. Using the example from the Radio Channel above, the Map To for Futaba's Channel 3 dictates that this will control the throttle of the desired aircraft. For JR radios, Channel 3 on the transmitter controls the pitch (elevator).

If your transmitter varies from the default definitions, it is necessary to modify the Map To functions. To do so, click on the **Map To** channel that corresponds to the channel you wish to adjust. Using either the up/down arrow keys on the keyboard or the mouse, select the desired **Map To** channel. If using the up/down keys, press **Enter** to finalize your selection.

If the channels are mapped, or defined properly but control input produces results that are backwards (e.g., increasing the throttle stick actually decreases the throttle on the aircraft), please refer to the *Reverse Channel* section that follows.

#### **Reverse Channel-**

The value here determines whether to reverse the input received from the radio channel. If checked, the input will be reversed.

To adjust the input direction, click on the corresponding **Reverse Channel** checkbox as necessary.

#### **Using RealFlight's Channel Mapping-**

Now that you have a basic understanding of the Channel Mapping, it is time to utilize this knowledge to program the software for your controller.

While watching the channel values, move the gimbal stick that controls the throttle input for your aircraft. Taking note of the value, map this channel to the throttle.

Repeat this procedure for ALL corresponding channels on the transmitter. When you have finished, click **OK**. Next, return to the simulation and test the Channel Mapping to ensure that all channels are mapped correctly and that all function as desired. If not, please return to the Channel Mapping...menu item and refine accordingly.

After you have correctly mapped the channels, it is best to re-calibrate your transmitter. To do so, please see the Controller Calibration section on page 135.



## Joystick Mode vs. Transmitter Mode

In single-player mode, RealFlight allows you to quickly and easily change the method used to control the action in the simulation. RealFlight G4 offers two control modes:

- **Joystick Mode.** Using the InterLink Elite in Joystick Mode, RealFlight G4 accepts control input from the sticks, switches, knob and push-button on the InterLink Elite controller. This is the default mode when you install RealFlight. Again, we suggest that you fine-tune the calibration of the controller. For information on how to do so, please refer to the Controller Calibration section on page 135.
- **Transmitter Mode.** Using the InterLink Elite in the Transmitter Mode, RealFlight G4 accepts commands from your actual R/C transmitter. To use this mode, your transmitter must be connected to the InterLink Elite controller via the InterLink's built-in interface. This is an optional use of the InterLink, and we have provided the necessary cables for using most popular R/C transmitters. Using the Transmitter Mode takes slightly more setup and understanding of your radio than does using the Joystick Mode.
- To switch between these modes, highlight the Select Controller menu item. The InterLink Elite controller will automatically test to determine whether an R/C transmitter is present. After the detection testing completes, select the mode that you wish to utilize for your flight -- either Transmitter Mode or Joystick Mode. Regardless of which mode you select, you will return to the simulation and be ready to start flying immediately.

## InterLink Elite Controller (Joystick Mode)

In Joystick Mode, RealFlight accepts control input from the sticks, switches, rotary knob and push-button found on the InterLink Elite controller. This is the default mode when you install RealFlight G4.

The RealFlight G4 software, working in conjunction with the InterLink Elite controller, actually does all the radio processing to measure the raw stick, switch, knob and push-button input from the controller. It then processes this input to produce the servo outputs that are used to control the aircraft.

Helicopters, for example, ordinarily require a great deal of mixing to achieve flight. This mixing is normally the function of a computer radio. When RealFlight G4 uses the Joystick Mode, the mixing is done by the RealFlight G4 software itself and not by the InterLink Elite controller.

### **Channel Modification-**

It is possible to modify the mixing of the radio in the Software Radio menu. To access the Software Radio menu, click the **Aircraft** menu followed by the **Edit *Current Aircraft*** menu item. Next, click on the **Software Radio** menu.

Every aircraft in RealFlight has its own unique software radio program that maps (converts) the raw stick inputs from the InterLink Elite controller into the correct servo input for that particular aircraft.

### **Controller Calibration-**

Occasionally it may become necessary to fine-tune your InterLink Elite controller's calibration. To do so, click on the **Controller** menu followed by the **Controller Calibration...** menu item. Follow the directions that appear on-screen to complete the calibration procedure.

### **Stick Mapping**

As noted above, RealFlight's Channel Mapping... feature allows you the flexibility to modify the operational mode of the transmitter. Typical operation modes are as follows:

- Transmitter Mode 1 (Europe, Asia) - Mode 1 transmitters have aileron and throttle on the right stick, and rudder and elevator on the left stick.
- Transmitter Mode 2 (USA) - Mode 2 transmitters have aileron and elevator on the right stick; rudder and throttle on the left stick.
- Transmitter Mode 3 - Mode 3 transmitters have rudder and elevator on the right stick; aileron and throttle on the left stick.
- Transmitter Mode 4 - Mode 4 transmitters have rudder and throttle on the right stick, and aileron and elevator on the left stick.

## **InterLink Elite Controller (Transmitter Mode)**

This exciting feature allows you to plug your own R/C transmitter into the back of the InterLink Elite controller. You can then use your own transmitter to control the RealFlight aircraft. With Universal Serial Bus (USB) connectivity, the InterLink Elite controller offers high resolution, rapid data transfer from your transmitter to the PC, and immediate response from the simulated aircraft.

When compared to the Joystick Mode, using your own radio adds a slight amount of complexity and initial configuration setup. The advantage to this method is that it will allow you to become familiar with the programming on your actual R/C transmitter. Additionally, you will develop the 'feel' of using your transmitter rather than the InterLink Elite controller.

**Two ways to use the InterLink Elite Transmitter Mode-**

There are two ways to use Transmitter Mode. They are commonly referred to as the “Pass Through Interface” and “Joystick Emulation Interface” (not to be confused with the “Joystick Mode” in the previous section). Here is a quick chart that will help you decide which mode to use.

	<b>InterLink Elite Joystick Mode</b>	<b>InterLink Elite Transmitter Mode: Joystick Emulation Interface</b>	<b>InterLink Elite Transmitter Mode: Pass Through Interface</b>
Radio used to Fly	InterLink Elite Controller	Your own R/C radio	Your own R/C radio
Ease of Configuration	Very Easy	Medium. Must calibrate and setup radio one time.	Harder. Must separately calibrate and set up radio for each aircraft.
Fly Stock aircraft without Modification	Yes	Yes	No
Gives you the feel of your own radio	No	Yes	Yes
Puts “wear and tear” on your own transmitter	No	Yes	Yes
Allows you to perform mixing in your own radio	No	No	Yes

R/C transmitter required	No	Required: 4-8 channels. Computer radio not required	Required: computer radio with multiple model memory. Recommended: radio with 7-12 channels.
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## Transmitter Mode: Joystick Emulation Interface

The purpose of the Joystick Emulation Interface is to create a program on your own R/C transmitter to provide RealFlight with raw stick inputs. This enables RealFlight to use its own software radio to control all of the stock aircraft.

It also allows you to use a single model memory, or program, on your R/C transmitter to control, without modification, all of the stock aircraft in RealFlight. We suggest that you perform the Channel Mapping and Controller Calibration procedures in this order, respectively. This will prevent you from having to re-calibrate your controller if one (or more) of the channels is not mapped correctly.

### Channel Mapping

Before accessing the Channel Mapping... menu item, you will need to create a new program or model memory on your R/C transmitter. We suggest that you call it RFJOY or something similar.

Please make sure that this new program meets the following criteria:

- Is an airplane program--you do not want a heli program with all of its mixing (since all the mixing will be performed by the RealFlight software)
- Does not have any mixing programmed
- Has trims centered
- Has ATVs set to 100%
- Has dual rates and expo turned off – as these may be emulated in the RealFlight software radio

Prior to starting this wizard, make sure that your transmitter is attached to the InterLink Elite controller and that the controller is on. Click the **Controller** menu followed by the **Select Controller** menu item. There will be a momentary pause while RealFlight detects the R/C transmitter. Next, click **InterLink Elite Transmitter X**

**Channel.** After this is accomplished, click **Channel Mapping...** Follow the on-screen instructions, making sure that you read all of the instructions in each step.

Once you have finished, it is best if you never modify the RealFlight radio program in your transmitter again. A change in this “RFJOY” program will affect every RealFlight aircraft flown with this transmitter. Instead, edit the Software Radio in RealFlight. Changes to the Software Radio only affect the aircraft whose radio you have edited.

### **Controller Calibration**

By calibrating the R/C transmitter for use with RealFlight’s software you are, in essence, advising RealFlight as to the minimum, maximum and center values for each channel on your particular radio.

To calibrate your transmitter, click the **Controller** menu followed by the **Controller Calibration...** menu item. Follow the on-screen instructions to complete the calibration procedure.

You are now ready to fly any of the stock aircraft available in RealFlight.

## **Transmitter Mode: Pass Through Interface**

This is the most advanced method for controlling the RealFlight aircraft. It provides total control of an aircraft from your own radio and utilizes all of your radio’s mixing functionality. All values received by RealFlight are passed directly to the aircraft without modification from the RealFlight software. The disadvantage is that you will have to create a new radio program (model memory) on your R/C transmitter for each aircraft you want to fly with this mode. You must also set up your radio, mixes, trims, dual rates, etc. on the transmitter for each aircraft you want to fly with this mode.

The advantage of this mode is that if you are mainly flying one or two aircraft on RealFlight, you use your own radio program for these aircraft and have complete control over them. It also is a very good tool for learning how to use your own R/C radio as it forces you to set up the transmitter the same way you would have to set it up if you were going to control an actual R/C aircraft.

### **Before you use the Pass Through Interface-**

IMPORTANT! Make sure that you follow the procedures for both the Controller Calibration... AND the Channel Mapping... menu item in the previous sections BEFORE attempting to use the Pass Through Interface. Failure to do so may result in an aircraft that either does not perform adequately or fails to perform at all.

### **Setting the Pass Through Interface-**

After completing the Controller Calibration... and the Channel Mapping... procedures, select the desired aircraft. Next, select the **Edit *Current Aircraft*** menu item. Highlight the aircraft root (name of the aircraft) and select the value for the **Radio Type**. Using either the mouse or the up/down arrow keys on the keyboard, select the **Pass Through** option from the pull-down menu.

### **Mapping channels to Servos-**

If any channels are mapped to the wrong functions on the aircraft, edit the aircraft using the following procedure. Click the **Edit *Current Aircraft*** menu item. Access the **Electronics** options. Double-click the **Electronics** name or click on the **[+] (plus)**. Select the incorrectly mapped channel from the pull-down list that activates. To change the respective channel of operation, click on the corresponding value and select the appropriate option from the pull-down list.

IMPORTANT! Do not change the servo mapping using the Channel Mapping... menu item. If you do so, the change will also affect ALL stock aircraft. Instead, simply change the servo mapping using the Electronics options above for a single aircraft.

### **Sharing Aircraft that use the Pass Through Interface-**

In most cases, when you make a custom aircraft that uses the Pass Through Interface option, you will not be able to provide that aircraft to your friends or submit it to the RealFlight Model Swap Page. This is because the RealFlight software does not receive the necessary input for the radio programming. Consequently, you would have to provide other RealFlight users with all of your R/C radio's settings for that particular aircraft. Moreover, they would have to have the exact same R/C transmitter in order for them to use the aircraft. These complications effectively prohibit swapping aircraft under these conditions.

## **InterLink Elite Controller Tips**

### **What if my transmitter has fewer channels than the model I select?**

This issue can arise when you use your own transmitter to control RealFlight G4. In this situation, we highly recommend that you use the InterLink Elite controller.

### **When to use the Channel Mapping, and when to use the Software Radio or Servo page-**

This issue arises only if you use your own transmitter to control RealFlight. When you use the InterLink Elite controller as a mockup transmitter, you should not alter the Channel Mapping.