

# REALFLIGHT<sup>®</sup> **DRONE** Flight Simulator



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Great Planes Model Manufacturing



## Master the aerial camera.

GREAT PLANES

# **RealFlight Drone**

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## Introduction

### *Welcome to the RealFlight Drone Flight Simulator*

**R**ealFlight Drone is without question, the most advanced drone simulation available. RealFlight Drone is so technologically advanced and so realistic, you'll find it hard to believe that it's only a simulation. RealFlight Drone is the ideal way to learn to fly, practice maneuvers, or just have an incredible amount of fun.

The following section briefly outlines some of the exciting features in RealFlight Drone. Subsequent chapters will describe all RealFlight features in complete detail. We strongly suggest that you peruse this manual in its entirety, as it explains every feature and option, as well as how to use them.

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

## RealFlight Drone Feature Highlights

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

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

- A high quality USB controller for RealFlight Drone.
- A built-in interface for (optionally) using your own R/C transmitter to control RealFlight Drone.
- QuickSelect™ Buttons—take control of RealFlight's menus and options from the InterLink Elite without touching the keyboard or mouse.
- High-speed response to control inputs.
- Digitally precise inputs with digital trims for unmatched control precision.

- A keyboard-free push button reset of the simulation.
- Instantly rewind your current flight and start over from any point.

### **Menu-Driven Interface-**

RealFlight Drone 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 unmatched in its ability to re-create the lifelike characteristics of model flying. RealFlight Drone's physics engine has been tried and approved by world-class pilots. Furthermore, aircraft in RealFlight Drone 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 RealFlight Drone!
- **Challenges-** These game-like events provide a fun way to test and develop your skills. Each has multiple levels. Difficulties increase as you move from one level to the next. Successfully earning a medal in each challenge unlocks new content.
- **Ghost Runs-** Compete against your best time in the Challenges with ghosted images of your flights, pushing you to complete each level faster.
- **Instant Rewind-** Test your pattern flying over and over again with the new Rewind feature. Hold the Reset button and watch your flight rewind. Let go of the button at the point you wish to re-start your flight. Use the data lever on the controller to seek forward or backwards through your flight.
- **InterLink Elite QuickSelect™-** With RealFlight Drone's InterLink Elite, you're able to make quick changes such as, selecting a different aircraft or airport without touching the keyboard or mouse.
- **Quick Load-** Know the name of the aircraft or flying site you wish to use? Open the Quick Load gadget to quickly search and load the aircraft.
- **Real Rendering™-** Taking advantage of cutting edge 3D graphics technology, RealFlight not only flies realistically; it also looks true to life.
- **Night Flying-** Just because the sun is down, doesn't mean that 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.
- **"Full Coverage" collision detection-** Instead of using sensors at only a few points along the aircraft, "Full Coverage" blankets the entire aircraft with detection 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 Drone introduces drone pilots to R/C's most realistic wind model. All the 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.
- **Flying Sites with 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, RealFlight Drone'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 RealFlight Drone'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.
- **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. The sounds are so lifelike, you'll swear you are at the field!
- **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 of the viewport's vantage points, zoom level, and direction of view.
- **Launcher**- RealFlight Drone's Launcher allows for easy one-click access to program upgrades, online registration, and technical support.
- **Extensive Help materials**- RealFlight Drone 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 Drone is a menu-driven program, 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 any topics 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 Drone, it helps to first understand how to get the most out of your computer.*

**R**ealFlight Drone 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 Drone. You'll be able to enjoy the simulator on most modern computers, but having the most up to date hardware for your computer will greatly increase your enjoyment.

## System Requirements

You will find the suggested system requirements for the RealFlight Drone R/C Flight Simulator listed below. The minimum recommended system requirements are the bare minimum PC configuration for installing RealFlight Drone. Meeting the minimum requirements will allow you to enjoy RealFlight Drone. However, in order to take complete advantage of the many features and functions offered by RealFlight Drone, you should have a computer that meets or exceeds 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\* Vista™, Windows\* 7, Windows\* 8 or Windows 10\*

\*Administrator Access Required

Intel Pentium 1.0GHz or equivalent

512 MB RAM

3 GB Hard Drive Space

DVD Drive

3D Accelerated Video with:

- 32 MB Dedicated Video Memory
- Full DirectX 9 compliant (Shader Model 2.0 or better)
- Available USB port

### **Optimal System-**

- For best graphical performance

Dual Core 2.4GHz CPU

2 GB RAM

3D Accelerated Video with:

- 512 MB dedicated video memory

## **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 Drone 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 RealFlight Drone, a new video card will also work with many other games or simulators, improving their performance as well.

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 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 into it. 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 aircraft can cost you a lot of time and money. Try to identify what you did incorrectly, and use 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 drone flight, 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 start you on your adventure.*

This chapter covers the installation procedure for RealFlight Drone, it describes the basics of running the program, and introduces you to some of RealFlight's frequently used features.

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

Second, *Exploring RealFlight Drone*, offers a brief tour of the RealFlight Drone 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 Drone's features. We strongly suggest that you also read the subsequent chapters, which describe the various features in comprehensive detail.

## Installing RealFlight Drone

Regardless of whether you plan to use the InterLink controller by itself, or your own R/C radio through the built-in transmitter interface, follow the instructions on Program Installation in this section.

### **Program Installation-**

RealFlight Drone 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 Drone software and hardware. Upon completion of this section, you should be able to fly the aircraft on your PC.

The InterLink controller's built-in transmitter interface also allows you to use your own R/C transmitter to control RealFlight Drone 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 explains how to use the transmitter interface option in the InterLink 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 Microsoft 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 the article Q01-1038, “Locating and installing drivers”, at the following address: <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.

#### **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.



**It is imperative that you plug in your controller into the computer first, before installing the RealFlight software!**

1. Firmly plug into an available USB port on the PC. You do not have to shut the PC down to plug the controller in.



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

Please note: It is possible that Windows will need to install the appropriate files for the InterLink Elite to function properly. Please have your Windows disc available in case it is required.

### **Installing the Software-**

After you have completed installation of the InterLink Elite Controller, you are now ready to install RealFlight Drone.

1. Before installing the software, make sure to close any applications that you are running. This includes virus scanning software and other similar background applications.
2. Insert the **RealFlight Drone disc** into the appropriate DVD drive.
3. If Auto-Play is active, setup will begin automatically when the DVD 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 DVD drive) and click **OK**.



Follow the on-screen instructions to complete the setup procedure. 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. 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.

#### **Starting RealFlight Drone-**

1. Double-click the **RealFlight Drone Launcher** located on your desktop.
2. Type the **software serial number** and the **InterLink 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. Once the



serial numbers are entered properly, you will see that the OK button will now become active and allow you to continue.



3. Click **OK**. RealFlight Drone will attempt to activate your software. The activation process must proceed in order to run RealFlight Drone. If the computer is not currently connected to the internet, this activation process will fail to connect to the activation server and the following window will appear.



If you do not have internet access on the computer which RealFlight Drone is installed, follow the on-screen prompts. Write down the serial numbers and activation code that appear and log on to [www.realflight.com/RFDrone](http://www.realflight.com/RFDrone) on a different computer to activate RealFlight Drone. Alternatively, you may contact Software Support via email or phone.

4. Once activated, the RealFlight Drone Launcher will appear. Click **Run RealFlight**. RealFlight Drone will start with the default aircraft and default flying site.

## Using Your Own R/C Radio

The RealFlight Drone InterLink Elite controller has two different modes of operation. By itself, it serves as a realistic ‘standalone’ controller or joystick. Alternatively, it has a built-in interface that lets you use your own R/C transmitter to control RealFlight Drone.

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

### Connecting Your Transmitter to the InterLink Elite-

You can use your R/C transmitter to control RealFlight Drone by connecting it to the InterLink Elite controller, ‘buddy box’ style (see diagrams). RealFlight Drone includes several 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® and Spektrum® radios.
- If your transmitter's buddy box port requires the micro (square) connector, use the square adapter cord included with the simulator.

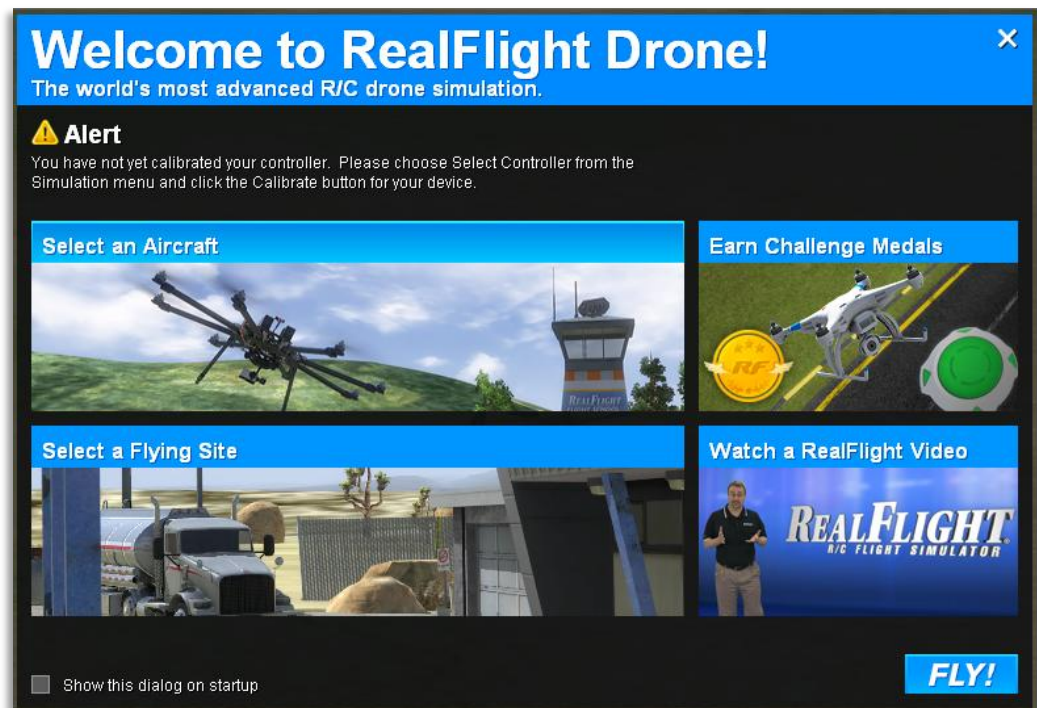
## Exploring RealFlight Drone

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

### Start the Program-

1. For best performance, close all open applications.
2. Double-click the **RealFlight Drone Launcher** located on your desktop.
3. To start the simulation, click the **Run RealFlight** button.

The program will start by displaying a Welcome Screen. The Welcome Screen allows you to choose an aircraft, flying site or challenges.



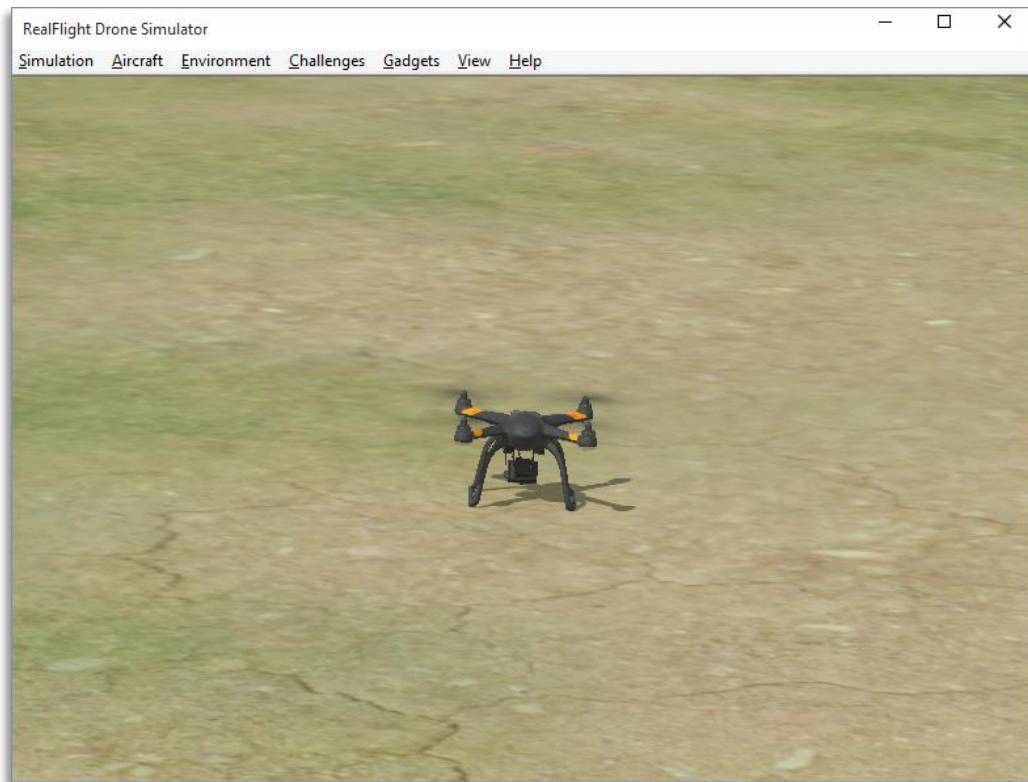
If you'd like, you can disable the Welcome Screen by unchecking the box labeled *Show this dialog on startup*. You may access the Welcome Screen at any time through the Help menu.

### **The Main RealFlight Display-**

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



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

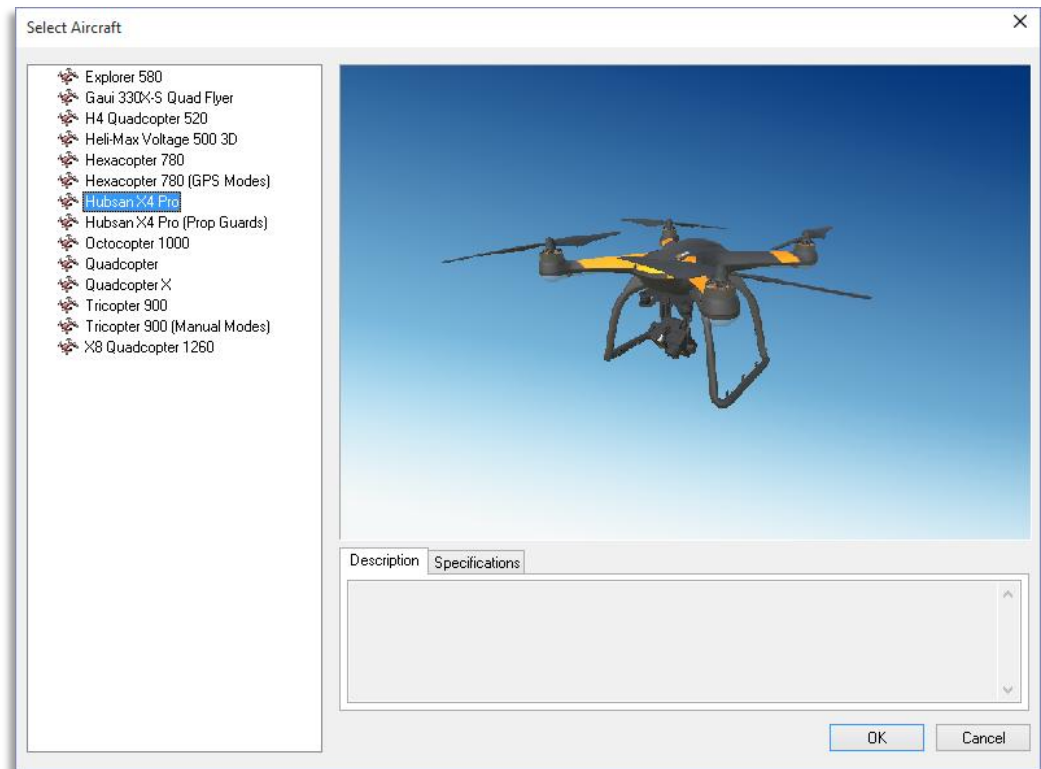
Please note: It is also possible to access many of the features and functions of RealFlight Drone using hotkeys. Pressing the H key on the keyboard activates the Keyboard Commands dialog, which summarizes the available hotkeys.

### **Aircraft Selection-**

When you start RealFlight Drone for the first time, you will immediately be piloting a drone. No special options or complicated choices are required to start flying. Grab the InterLink Elite controller and give it a go.

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 RealFlight Drone is listed along the left-hand side. To select an aircraft from the list, click on the desired aircraft. The selected model will now appear in the ReadySelect™ preview box. Additionally, the aircraft's 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 newly selected aircraft.

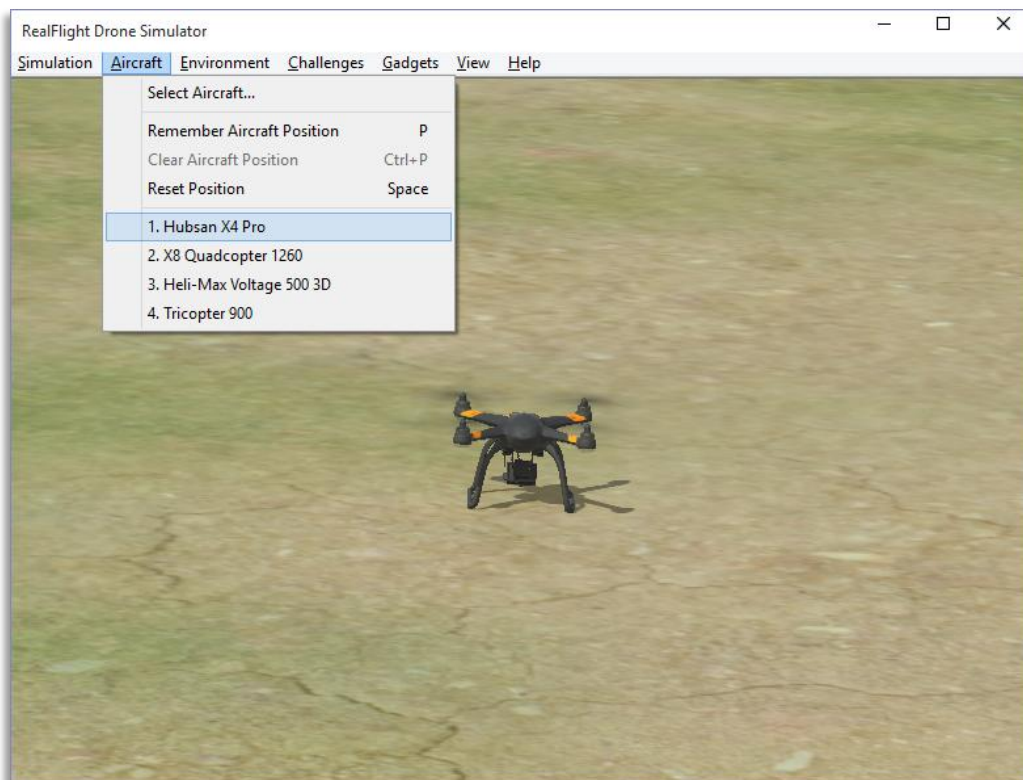
Complete information pertaining to the **Select Aircraft...** menu item is available in Chapter 6 of this manual, **The Aircraft Menu**.

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 a quadcopter icon, should be the highlighted tab. Press the **Menu/Select** button once again to bring up the QuickSelect 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. 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. Further instructions can be found on page 72.

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)-**

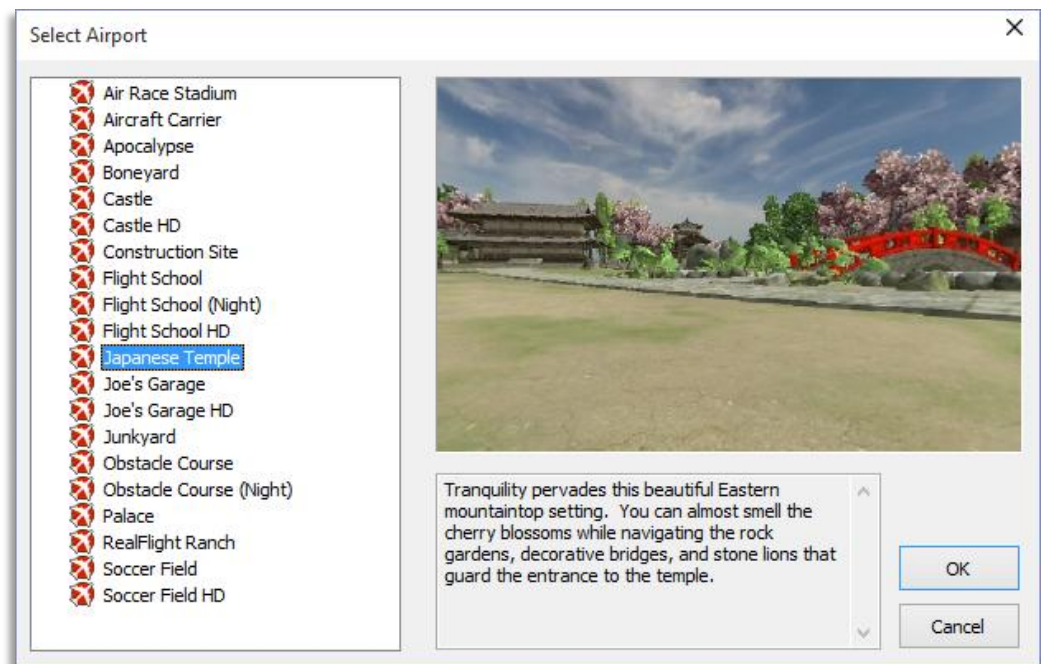
If you have selected any different aircraft previously, you will note that these aircraft appear on a list in the Aircraft menu; as shown below. This list is at the very bottom of the menu. This list is commonly referred to as a Most Recently Used, or MRU list. It is limited to the eight most recently 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 selecting an aircraft. To select a new flying location, click the **Environment** menu title. Next, click the **Select Airport...** menu item found in the drop-down menu. This opens the Select Airport dialog.



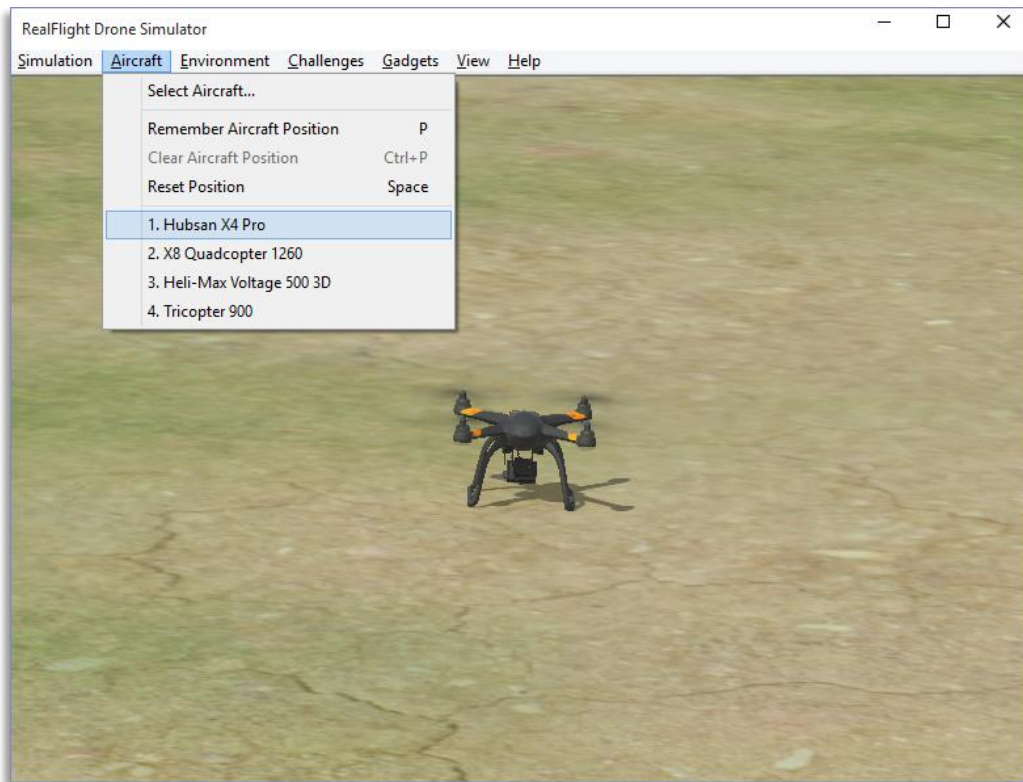


To select an airport from the list, click on the desired airport. The selected airport will now appear in the preview box. Additionally, an airport description will appear in the information pane, which appears just below the preview window. When you are satisfied with your selection, click **OK** to 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 previously for selecting 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 Environment 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.

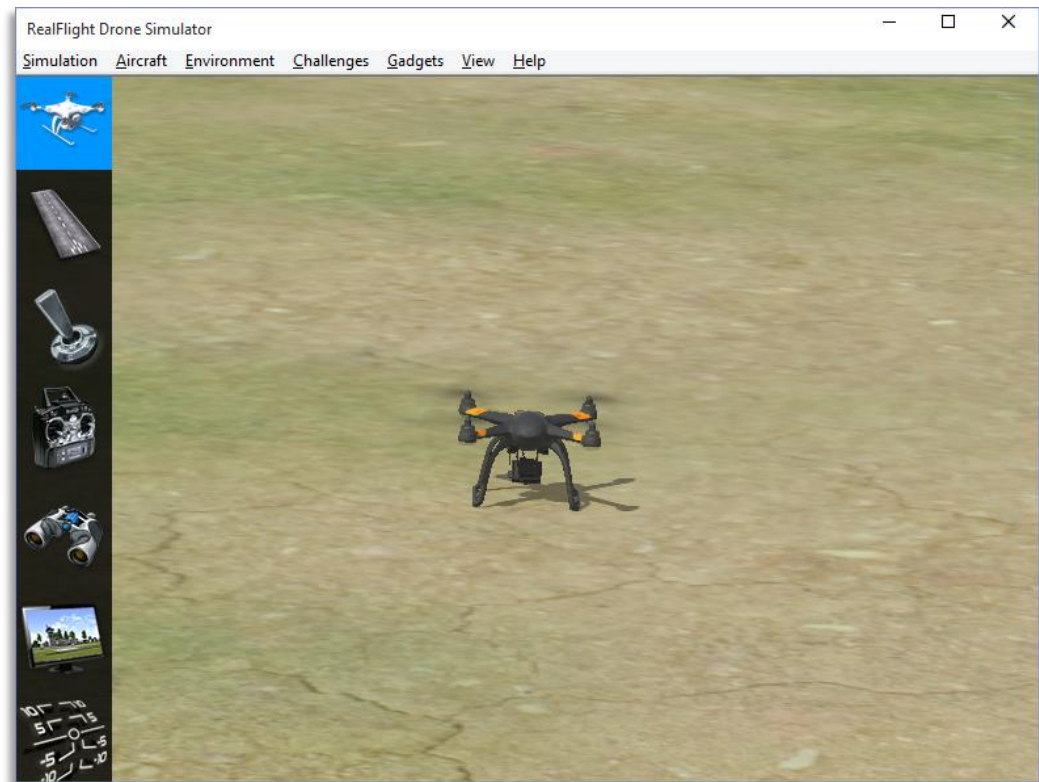


### QuickSelect Tabs-

With the InterLink Elite controller, RealFlight Drone offers a revolutionary method for accessing 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: Aircraft Selection, Flying Site Selection, Flight Modes, On-Screen Radio, Binocular View, Viewport, and Heads Up Display (HUD).

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.

You can also access the QuickSelect tabs with the mouse by moving the mouse cursor over to the left side of the screen. The QuickSelect tabs will appear and you may click on the desired icon.



For additional information on how to use the QuickSelect tabs, please refer to the information contained in the section entitled QuickSelect- on page 30.

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

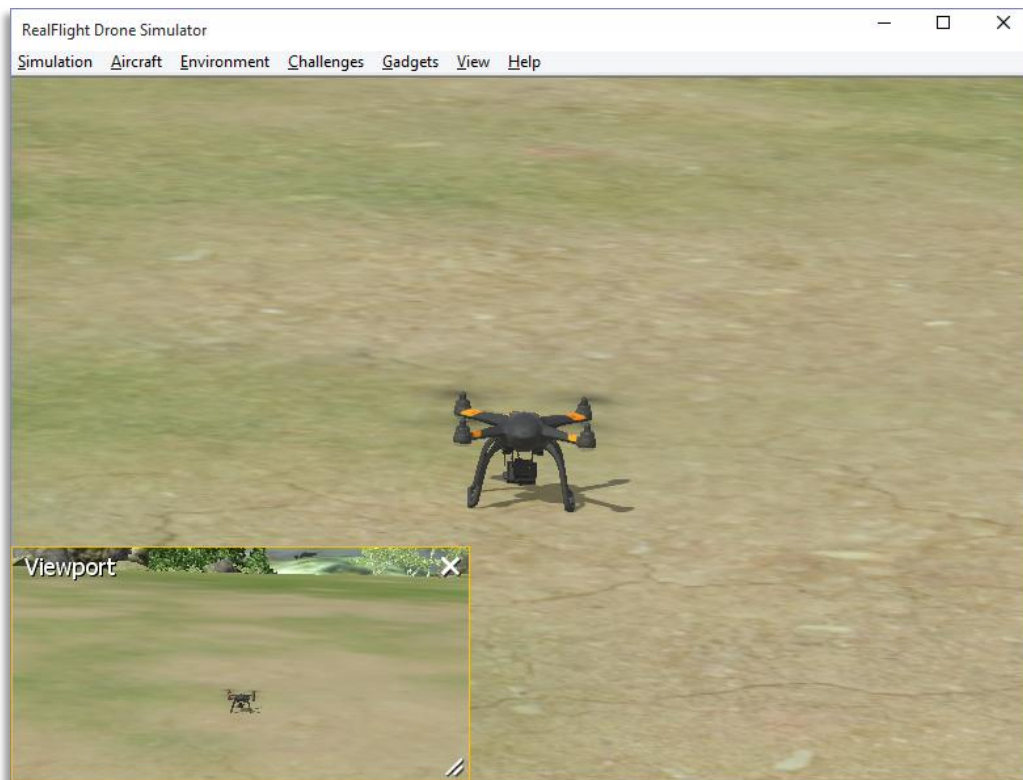
- The easiest method of resetting your aircraft to its original takeoff position is to press the reset button located on the front of the InterLink controller. Alternatively, you can reset the aircraft by pressing the space bar on the keyboard, or by selecting the Reset Position menu item, which is located in the Aircraft menu.
- To 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 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 zoom level, 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 the mouse. You can also adjust all of the viewport's properties independently of the main window. The viewport may be utilized for a variety of applications, such as changing the viewing perspective of your simulation.

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

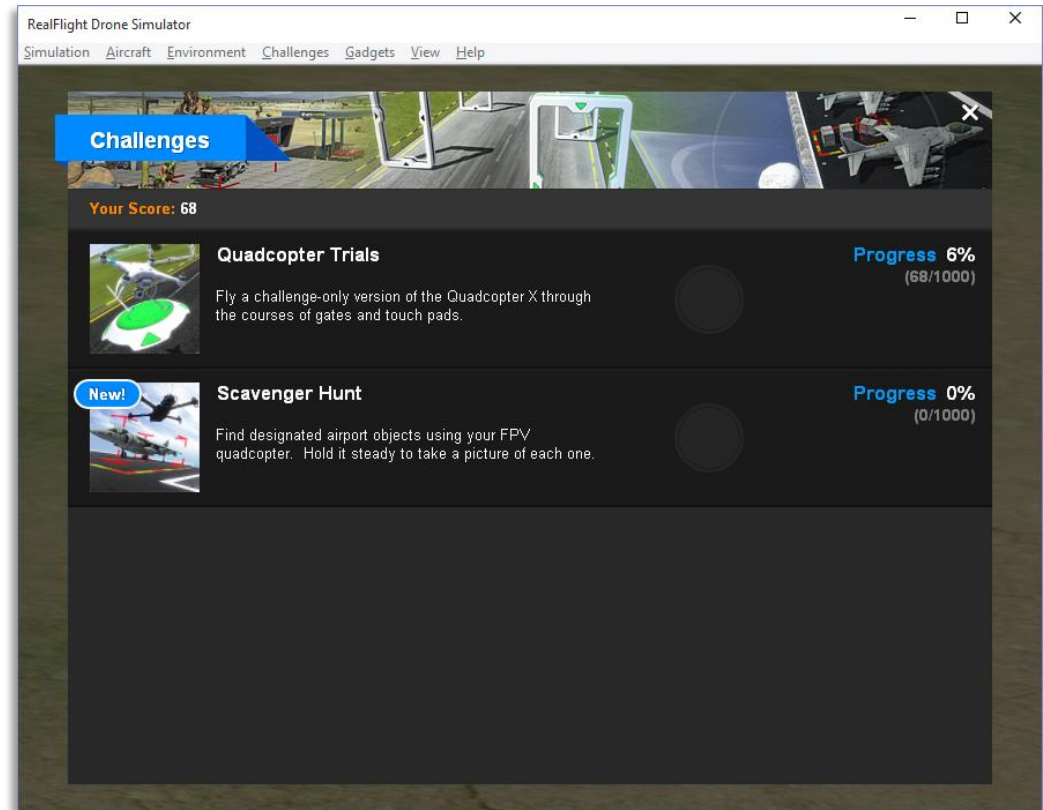


To change the vantage point within the active viewport, press the 'C' key on the keyboard. This toggles through the various camera modes, including chase view and a fixed viewpoint, or what you would see if you were standing at the side of the runway.

Also, some aircraft include onboard cameras for additional viewing perspectives. The View chapter of this manual contains a thorough explanation of the viewport and camera options.

## Challenges-

RealFlight Drone offers challenges to help you test and refine your flying skills. As you improve your skills and score well in the challenges, more levels become available, each progressing higher in difficulty.



Do well in these challenges, and you may be rewarded for your efforts with new content, including new aircraft to fly.

## Keyboard Commands

Many options throughout RealFlight may be activated quickly by a simple press of a key on the keyboard. Below is a list of functions and their related keys. You may also access this list in the simulator by pressing 'H' on the keyboard.

### Virtual Channels –

Channel 5	Y
Channel 6	U
Channel 7	I
Channel 8	O



**Gadget Commands –**

Flight Modes Gadget	1
Radio Gadget	2
Binocular Gadget	3
Viewport Gadget	4
Heads-Up Display	9

**View Commands –**

Reset Aircraft	Space
Zoom Reset	Backspace
Zoom In	+
Zoom Out	-
Quick Look at Windsock	Up Arrow
Quick Look at Ground	Down Arrow
Fixed Camera	F1
Nose Camera	F2
Chase Camera	F3
Onboard Cameras	F4-F10
Set Viewport Camera	Ctrl + F1-F10
Change Camera Mode	C
Follow Camera	Shift + C
Pivot Camera	E
Orbit Camera	Ctrl + E
Select Pit Position	X
Select Previous Pit Position	Shift + X
Select Default Pit Position	Ctrl + X
Change Zoom Mode	Z
Change Movement Mode	Q

**Movement Commands –**

Move Forward	W
Move Backwards	S
Move Left	A
Move Right	D
Move Slow	Ctrl
Move Fast	Shift
Move Very Fast	Shift + Ctrl

**Environment Commands –**

Increase Wind Direction	Home
Decrease Wind Direction	End
Increase Wind Speed	Page Up
Decrease Wind Speed	Page Down

Increase Turbulence	Insert
Decrease Turbulence	Delete
Increase Sun Azimuth	Shift + Home
Decrease Sun Azimuth	Shift + End
Increase Sun Inclination	Shift + Page Up
Decrease Sun Inclination	Shift + Page Down

#### **Miscellaneous Commands –**

Take Screenshot	Tab
Look at My Aircraft	T
Remember Aircraft Position	P
Clear Position	Ctrl + P
Quick Load Gadget	Ctrl + F
Mute/Unmute Audio	M
View Keyboard Commands	H

## **Where to Go From Here**

The examples in this chapter only scratch the surface of RealFlight Drone's unparalleled capabilities. We encourage you to explore RealFlight Drone 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'd like to learn more about a particular menu or item, look it up in the table of contents.
- If you would like RealFlight Drone to perform a certain function but cannot locate the appropriate command, check the index.
- Use the Help option in RealFlight's Help menu.
- Talk to other RealFlight users at [www.knifeedge.com/forums](http://www.knifeedge.com/forums).





## Controlling RF Drone

*Take command of your Drone with the InterLink Elite.*

The transmitter is a key component in all types of R/C flying, including multirotor drones. 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 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 simulator control method goes further to enrich your 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, Spektrum and Futaba transmitters.
- 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. Simply plug it in and go!

## Start Flying!

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

If you are flying with your own radio through the InterLink Elite, please refer to the Select Controller section on page 34.

### 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 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 along 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.



Select Aircraft



Binocular View



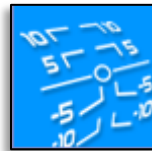
Select Airport



Viewport



Flight Modes



Heads-Up-Display



Radio Gadget



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



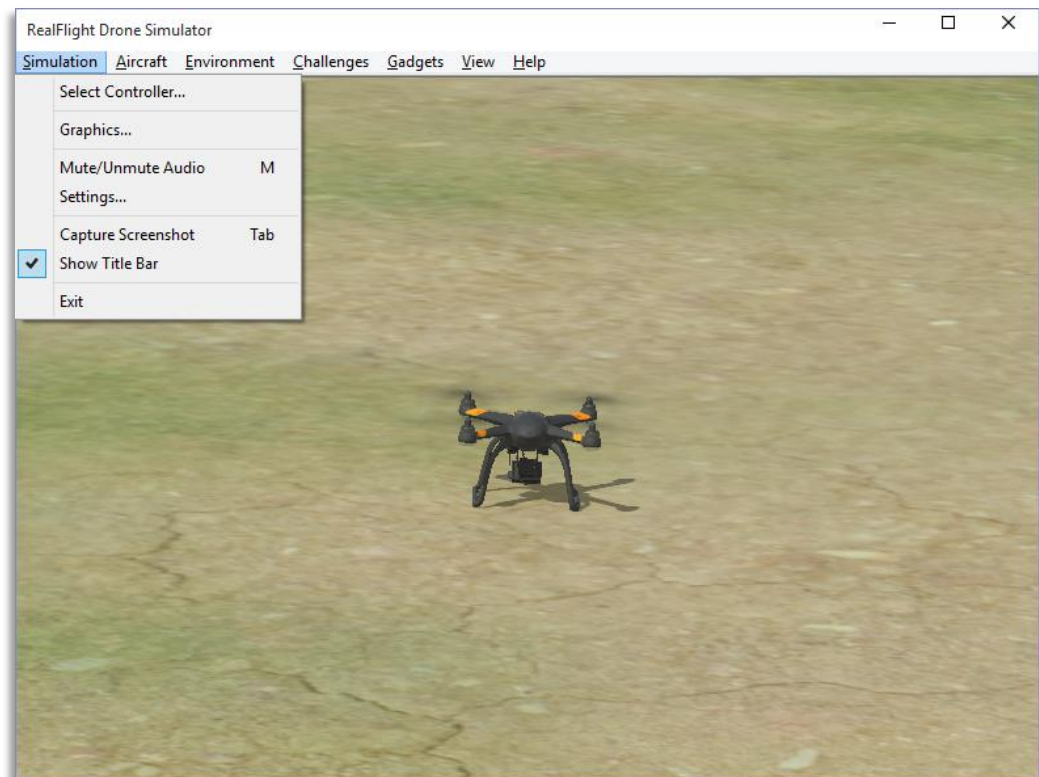


## The Simulation Menu

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

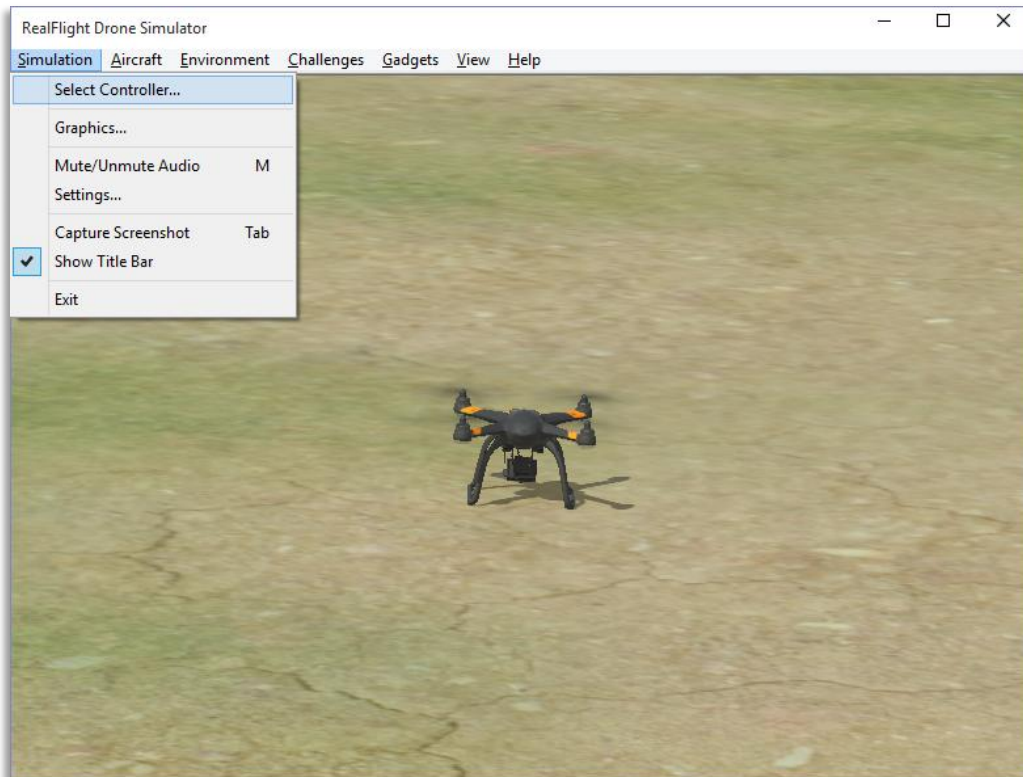
The Simulation menu gives you access to many simulator related features, such as switching controller methods, changing simulator settings, or adjusting the graphics.

Clicking the Simulation menu will open the drop-down menu as illustrated in the following screen shot.

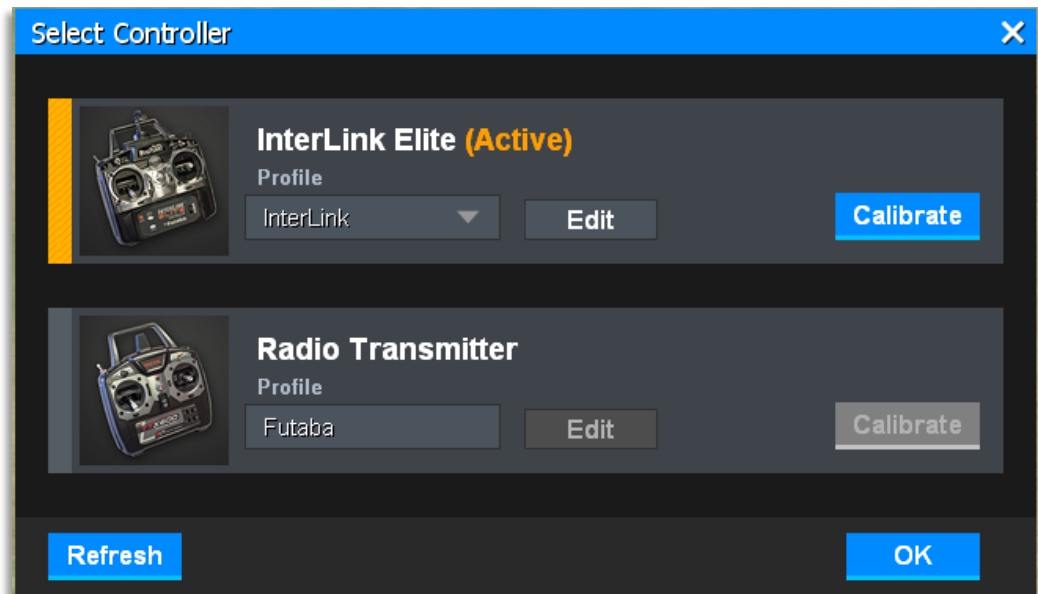


## Select Controller...

RealFlight Drone includes features to help walk you through setting up your choice of controller.



After clicking **Select Controller...**, a new window appears with all the controllers available to you. For many users, you will only see one controller listed. If you happen to have a real transmitter plugged into the InterLink Elite, for example, your screen may look something like the following:



The controller that is currently in use for flight will have an orange bar next to it as well as “(Active)” next to the name. A few options are available to you from this window:

- **Profile** – RealFlight allows you to save profiles for the different radios you might want to fly with. Choose the profile that best matches your controller from this drop down list.
- **Edit** – Clicking Edit on the Active controller will open a new screen that gives you access to modify and adjust the controller’s channels and other parameters. See below for more information.
- **Calibrate** – To insure that your controller is properly calibrated to fly aircraft in RealFlight, click Calibrate on the Active controller. See more information about the calibration process below.
- **Refresh** – If, at any time, you plugged in a radio and turned it on while this screen is visible, click Refresh to update the list to include your new controller method.

To switch the Active controller, simply click on an available controller listed. You will see the orange selection bar switch to the new controller as well as “(Active)” appear next to the name.

There are hundreds of radios that are compatible with RealFlight, but not all of them function exactly the same. Some may have a different channel order, or possibly reversed. To assist you with making, changing and saving these settings, RealFlight offers controller Profiles.

### Edit-

If you wish to use a radio that is not listed in the Profile drop down list, pick something similar, then click **Edit**. The following screen will appear:



The screenshot shows a window titled "Edit Profile: InterLink" with a close button (X) in the top right corner. The window contains a table with four columns: "Input Ch.", "Reverse", "Value", and "RealFlight Ch.". There are 12 rows of channels. The "Reverse" column has checkboxes. The "Value" column has horizontal bars representing current values. The "RealFlight Ch." column has dropdown menus. At the bottom, there is a checkbox labeled "Enable Software Radio Dual Rates and Expo" and three buttons: "Save", "Save As...", and "Close".

Input Ch.	Reverse	Value	RealFlight Ch.
Channel 1 - Roll	<input type="checkbox"/>	<div><div></div></div>	1 Aileron ▼
Channel 2 - Pitch	<input type="checkbox"/>	<div><div></div></div>	2 Elevator ▼
Channel 3 - Throttle	<input type="checkbox"/>	<div><div></div></div>	3 Throttle ▼
Channel 4 - Yaw	<input type="checkbox"/>	<div><div></div></div>	4 Rudder ▼
Channel 5 - Dual Rates	<input type="checkbox"/>	<div><div></div></div>	5 Dual Rates ▼
Channel 6 - Knob	<input type="checkbox"/>	<div><div></div></div>	6 Flaps ▼
Channel 7 - Smoke	<input type="checkbox"/>	<div><div></div></div>	7 Smoke ▼
Channel 8 - 3 Pos. Sw.	<input type="checkbox"/>	<div><div></div></div>	8 Mode ▼
Channel 9	<input type="checkbox"/>	<div><div></div></div>	9 ▼
Channel 10	<input type="checkbox"/>	<div><div></div></div>	10 ▼
Channel 11	<input type="checkbox"/>	<div><div></div></div>	11 ▼
Channel 12	<input type="checkbox"/>	<div><div></div></div>	12 ▼

☒ Enable Software Radio Dual Rates and Expo

Save Save As... Close

The four columns visible include:

- Input Channel – This is the list of channels that RealFlight uses for its aircraft. These cannot be modified.
- Reverse – Check this box to reverse the direction of a channel
- Value – The bars that appear in this column show the current value for each input channel. For example, if you move the throttle stick on your controller, the associated bar will move.
- RealFlight Channel – This is the channel on your radio that is assigned to the Channel column.



Using the information from these columns, you can edit the channel lineup to match your radio. For example, if your radio outputs the throttle on channel 1, you will follow these steps to correctly assign it to RealFlight's throttle:

1. Find "3 Throttle" from the channel column.
2. Change the Input channel assigned to throttle to Channel 1.
3. The Value for throttle to move to the far right at full throttle and to the far left at idle. If this is backwards, click the Reverse box for this assignment.

Repeat for all other channels you wish to reassign.

### **Enable Software Radio Dual Rates and Expo-**

Some radios allow you to program the expos and dual rates on your transmitter. If you prefer this method, make sure **Enable Software Radio Dual Rates and Expo** is unchecked. This will bypass RealFlight's software radio in favor of your transmitter's settings.

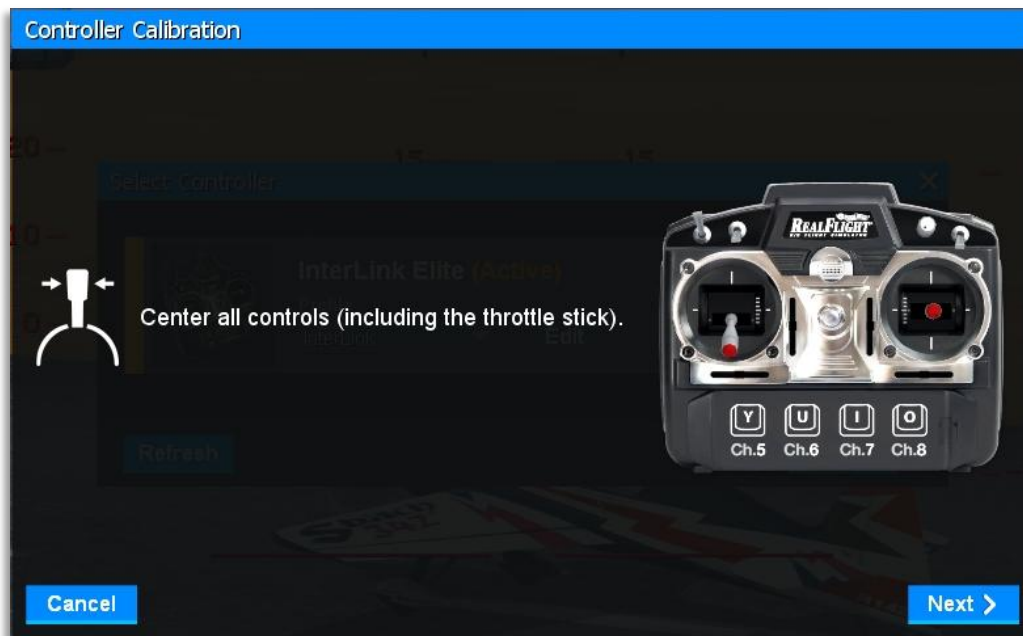
On the other hand, if you are flying with the InterLink Elite or with a radio that does not offer dual rates and expo functionality, you will want to enable this feature. Then, make sure you assign a channel to "5 Dual Rates" in the channel assignments above. RealFlight will then handle all rates and expos for you.

### **Save and Save As-**

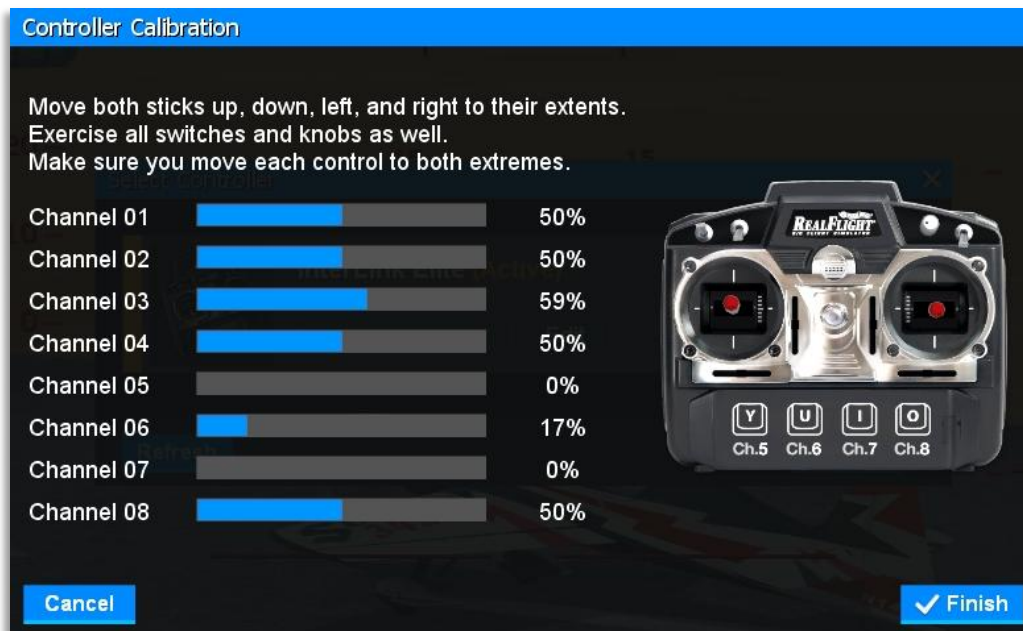
After making changes to your controller profile, you will want to save all modifications. Note that you cannot make changes to stock profiles that are included with RealFlight. If you made changes to a stock profile, the **Save** button will be disabled. Click the **Save As** button to save the profile under a different name.

### **Calibrate-**

Clicking the **Calibrate** button on the Active controller allows you to adjust and fine-tune the controller input for the simulation, so that you will achieve the desired responses. Once clicked, the following screen appears:



As directed, place all sticks 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 Select Controller screen with a calibrated controller.

### **Virtual Channels-**

Many aircraft that are included with RealFlight require 5, 6, 7 or even 8 channels to completely operate them effectively. Some radios have fewer channels. If you are flying with a radio that has fewer channels than the currently selected aircraft requires, you can use the keyboard.

Channel 5 Key: Y

Pressing **Y** will act like a two-position switch. Press the key to flip the switch to its opposite position.

Channel 6 Key: U

Pressing **U** will activate the knob to one extreme or the other, while holding the key down will slowly rotate the knob.

Channel 7 Key: I

Pressing **I** will act like a two-position switch. Press the key to flip the switch to its opposite position.

Channel 8 Key: O

Pressing **O** will act like a three-position switch. A quick press of the key will flip the switch to one extreme or the other, while holding the key down will place the switch to its center position.

It might be help to display the Radio Gadget to view these channels in action and to assist you in learning how they function.

### **Graphics...**

Not all computers are created equal. You might find that RealFlight will perform better if you reduce the graphics quality of the simulator. Alternatively, if you have a high-end computer, you might enjoy the visualizations better by increasing the graphics quality.



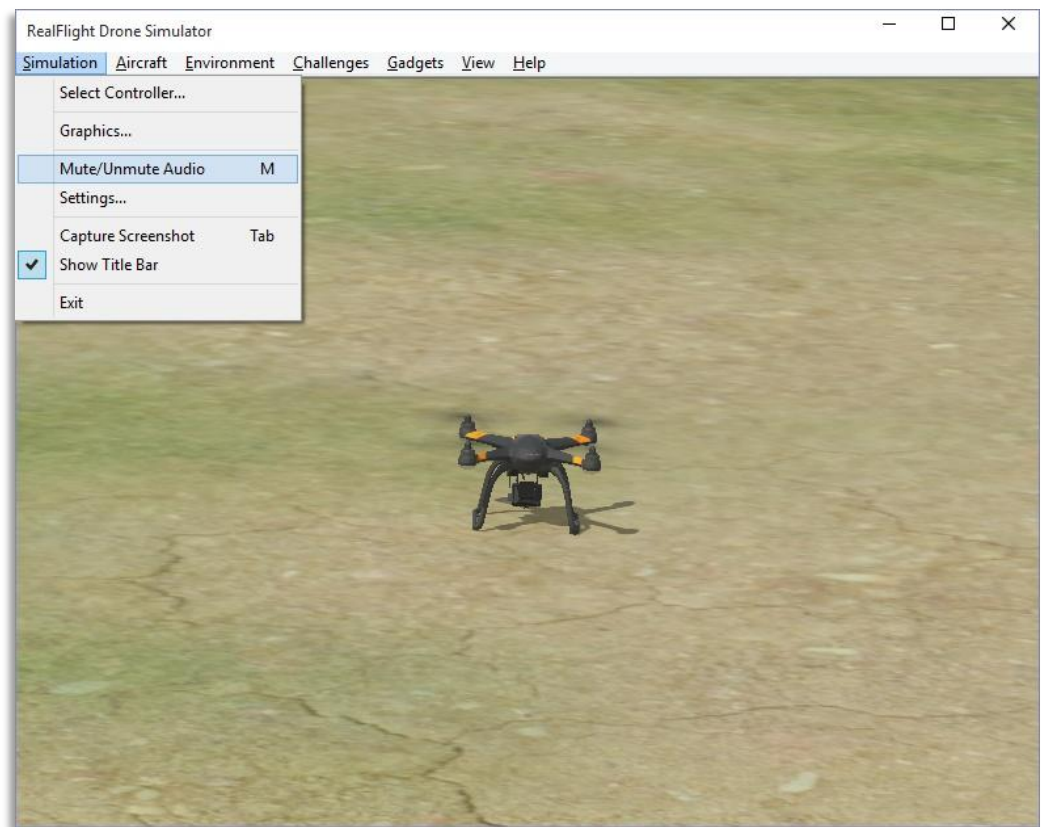
At the bottom of the Graphics Quality Settings dialog, you will notice a slider. Moving this from Low to Highest will alter the screen shot displayed above the slider, depicting the current selection. If you find RealFlight is not performing at its peak, try reducing these setting.

The slider will be set at Custom if you decide to alter individual graphics parameters in the Settings dialog. See Settings on page 41 for more information.



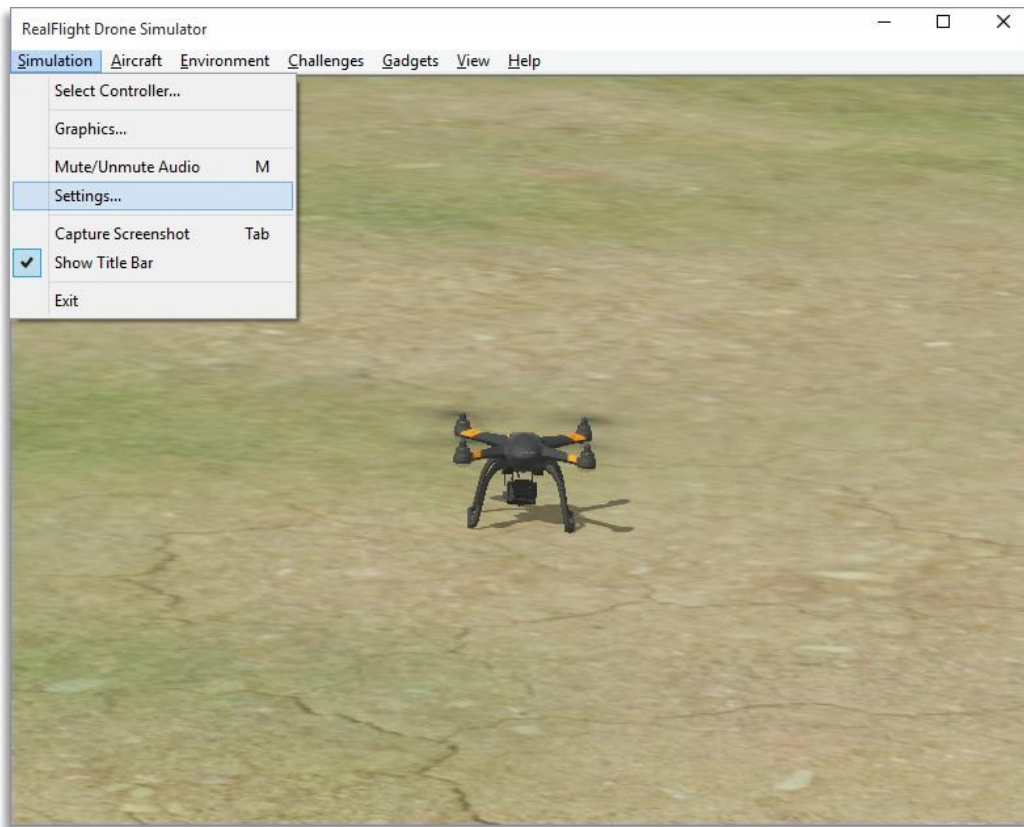
## Mute/Unmute Audio

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.

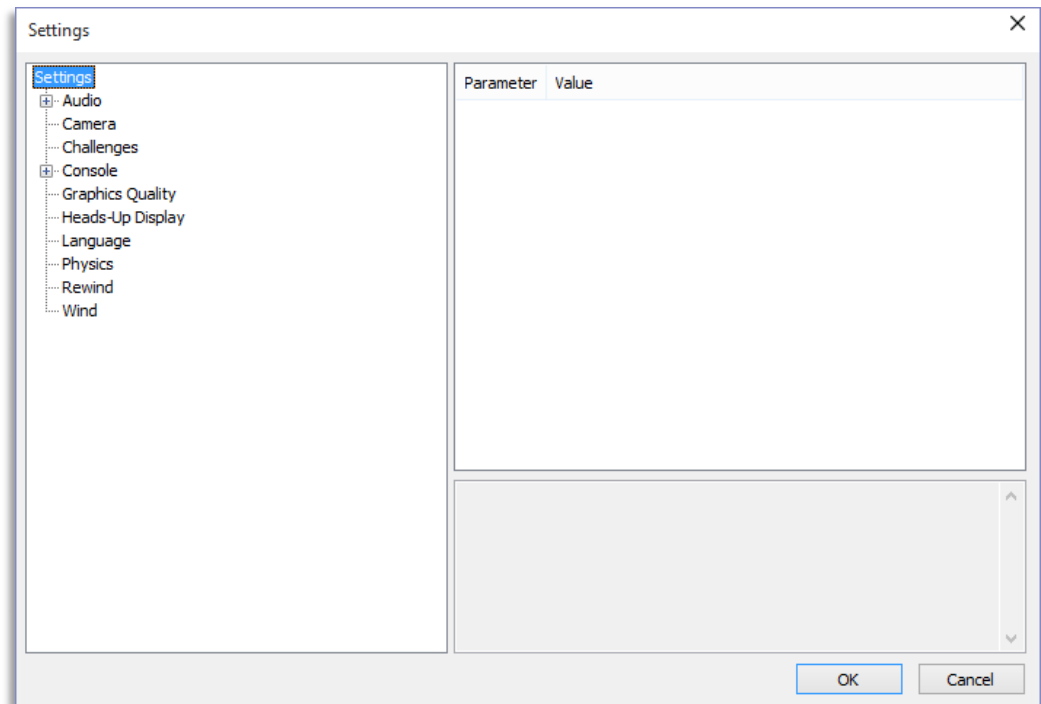


## Settings

The Settings option is an integral part of the RealFlight Drone software. This menu item allows you to adjust a multitude of features and functions within the simulation.

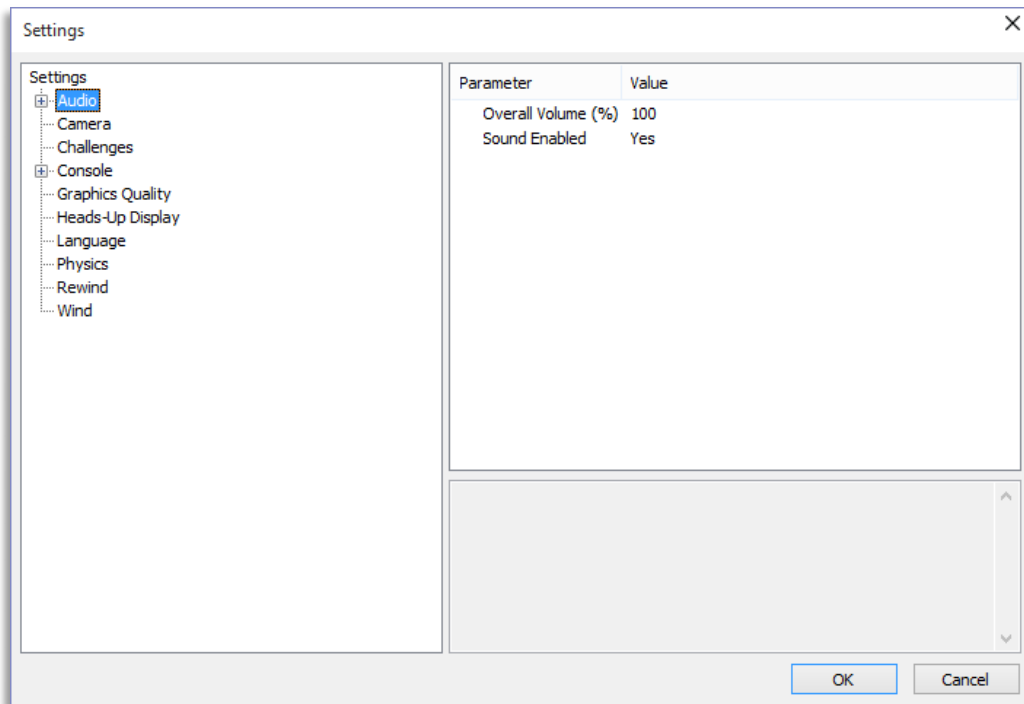


To access this menu item, click on the **Simulation** menu followed by the **Settings...** menu item. The Settings dialog will appear, showing the available options.



## Audio-

The Audio settings allow you to adjust the volume levels for the aircraft and various options in the simulation. 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. Double-click on the **Audio** name, or click on the **[+]** (plus) to expand the list and show the Audio options.



#### **Overall Volume (%)**

This parameter, found when the Audio setting is selected, controls the volume for all sounds in RealFlight.

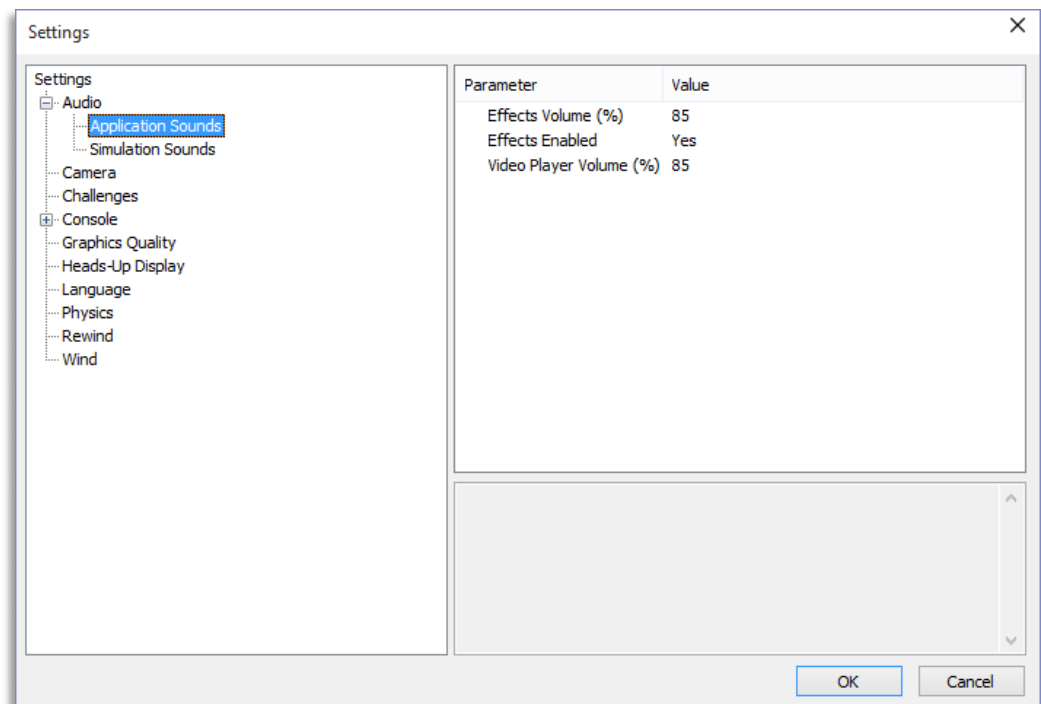
#### **Sound Enabled-**

This will mute or unmute all sounds in RealFlight. You can select the **Mute/Unmute Audio** menu item from the Simulation menu, or simply press **M** on the keyboard to toggle this setting on or off.

#### **Application Sounds-**

The Application Sounds section controls the effects and video player sounds in the simulation.

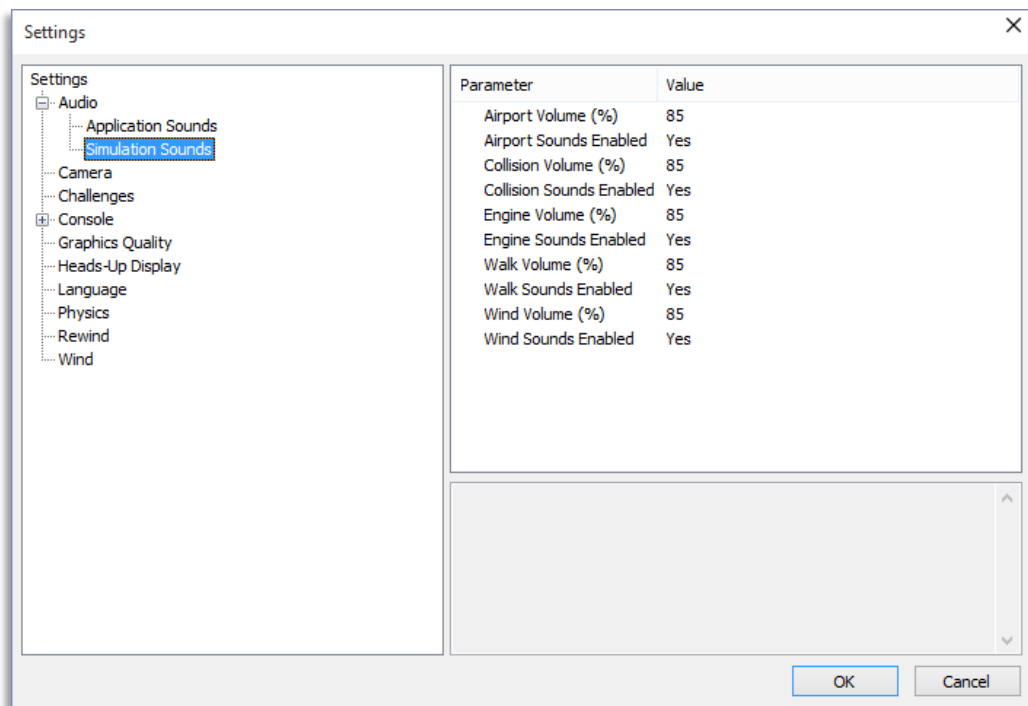




- Effects Volume (%) – This setting adjusts the master volume level for sounds.
- Effects Enabled – Choosing No for this option will mute all sounds for the simulator.
- Video Player Volume (%) – This setting adjusts the volume level that the RealFlight Guided Tour video plays at.

#### **Simulation Sounds-**

The Simulation Sounds section controls the various options related to the miscellaneous sounds in the simulation. RealFlight allows you to make modifications to the various sounds based upon your preferences.



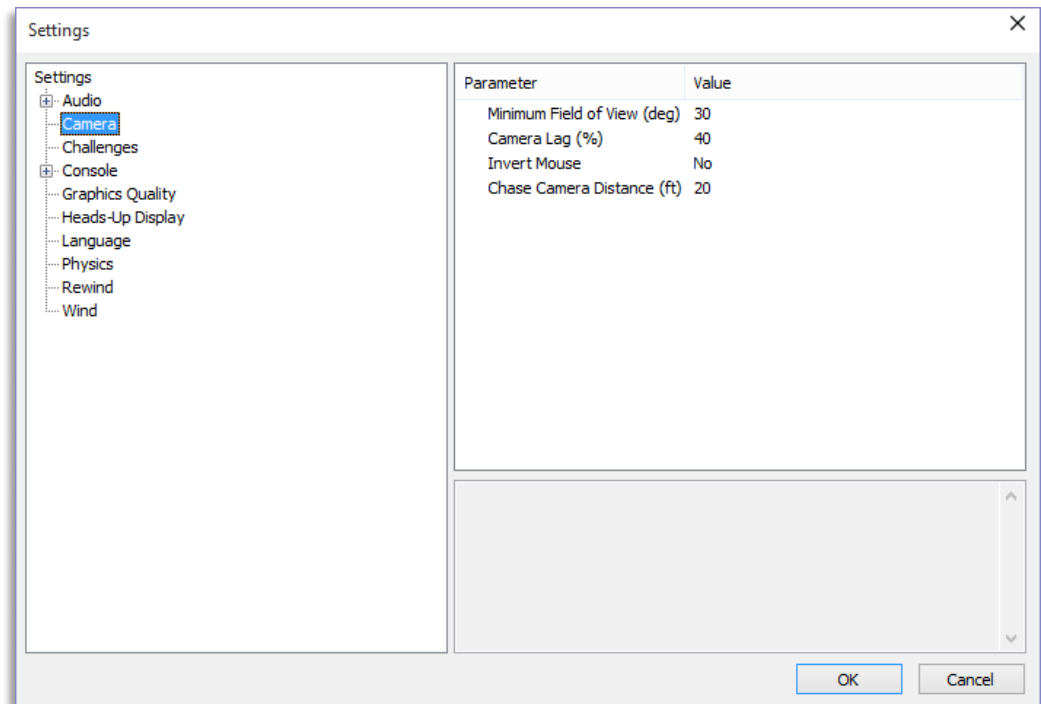
For each type of sound that is adjustable, there are two parameters that can be changed. First is the Volume, which is a percentage of the overall volume. The second is whether the sound should be enabled or muted.

The different sound types are:

- Airport – the ambient sounds around the airport.
- Collision – the crashing sounds associated with collisions.
- Engine – the motor sounds.
- Walk – the walking sound when moving the camera position.
- Wind – the sound produced by the wind.

## Camera-

The camera options 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 chapter 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 the "Fixed View" camera mode only. They are not applicable to the cockpit, chase, or onboard views.

### **Invert Mouse-**

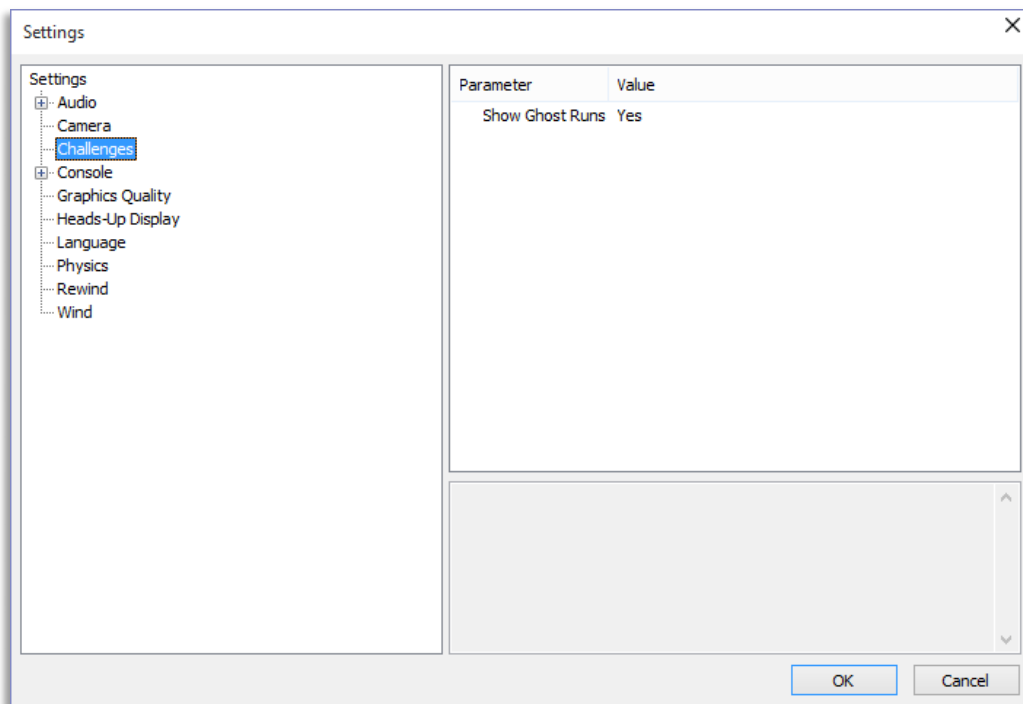
Setting this parameter to **Yes** will invert the vertical, or up/down movement of the mouse when you are in walk mode.

### **Chase Camera Distance (ft)-**

This parameter allows you to adjust the distance which the Chase Camera will follow the aircraft from behind. Adjusting this value may assist you in Challenges like Balloon Burst.

## **Challenges-**

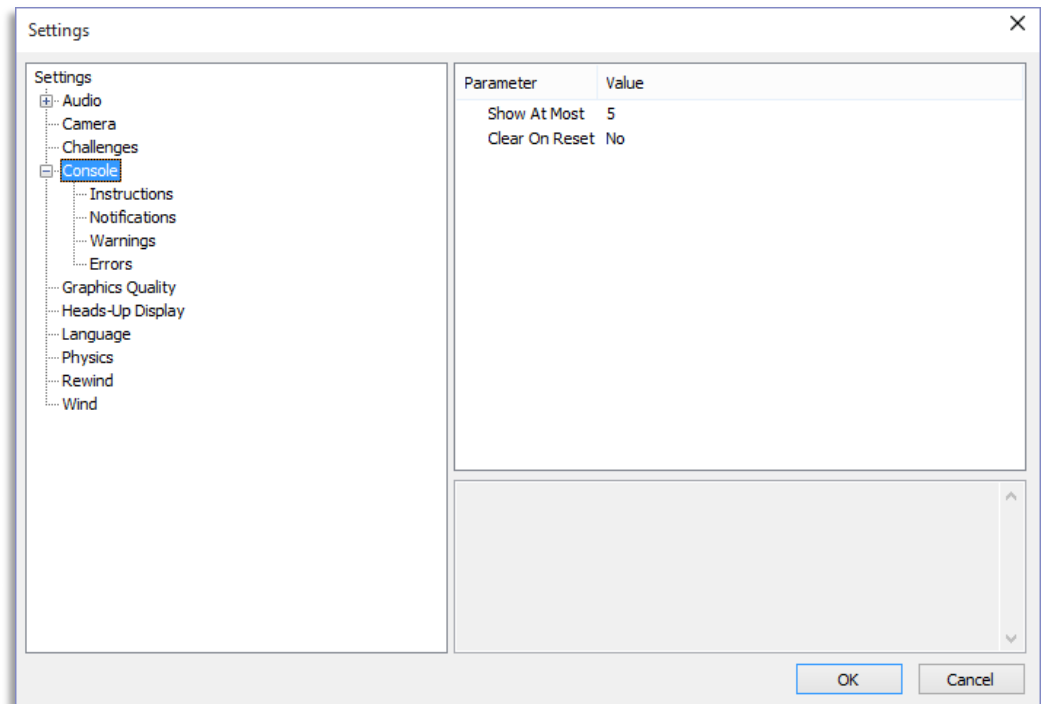
The Challenges option has one parameter which you can modify. From here, you can choose if RealFlight Drone will display your best flights in the Challenges as a ghosted image. This allows you to compete against your best time. Please note: Ghost Runs are enabled only after you successfully complete any 5 challenge levels.



This option is on by default.

## **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 affect 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.

#### **Clear on Reset-**

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

Using either the mouse or the up/down arrow keys on the keyboard, select **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:

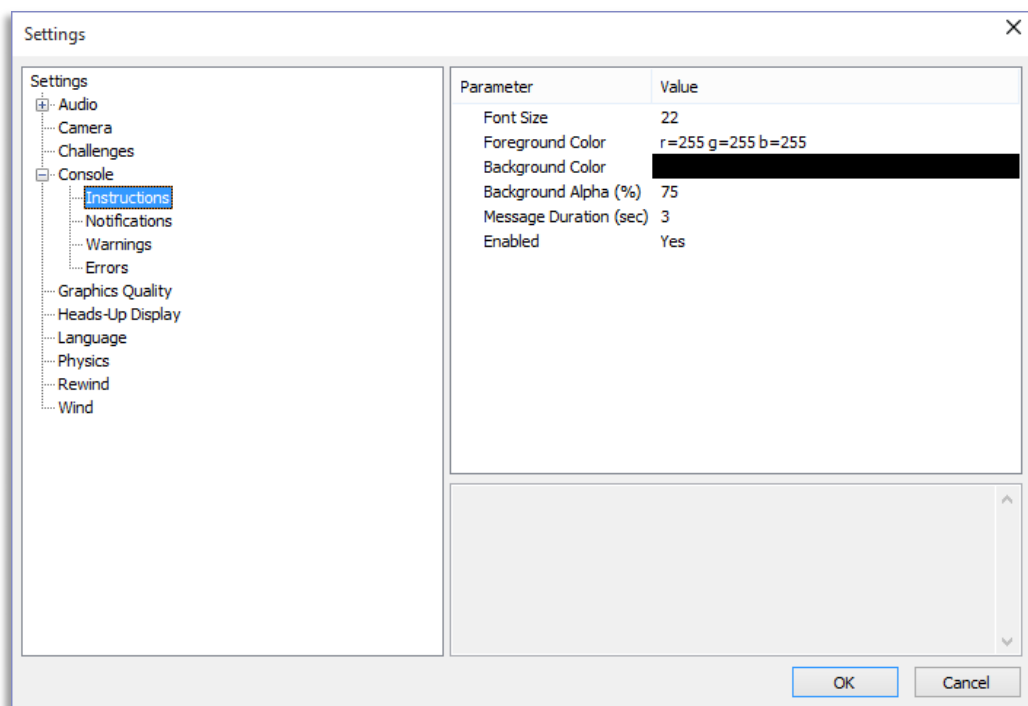
- Instructions
- Notifications

- Warnings
- Errors

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-

This option determines the settings for the system Instructions messages. To select the Instructions options, click on the Instructions name.



### Font Size-

This option allows you to adjust the font size for the messages pertaining to the instructions. Please note: this only affects the Instructions. It does not affect 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 color palette for the foreground color, click on the **current value**, then click the **more options** button that appears to the right (the gray button with the ellipsis). 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-

This setting allows you 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**.

To access the color palette for the background color, click on the **current displayed color**, then click the **more options** button that appears to the right (the gray button with the ellipsis). 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. The higher the value, the longer the message remains on-screen.

#### **Enabled-**

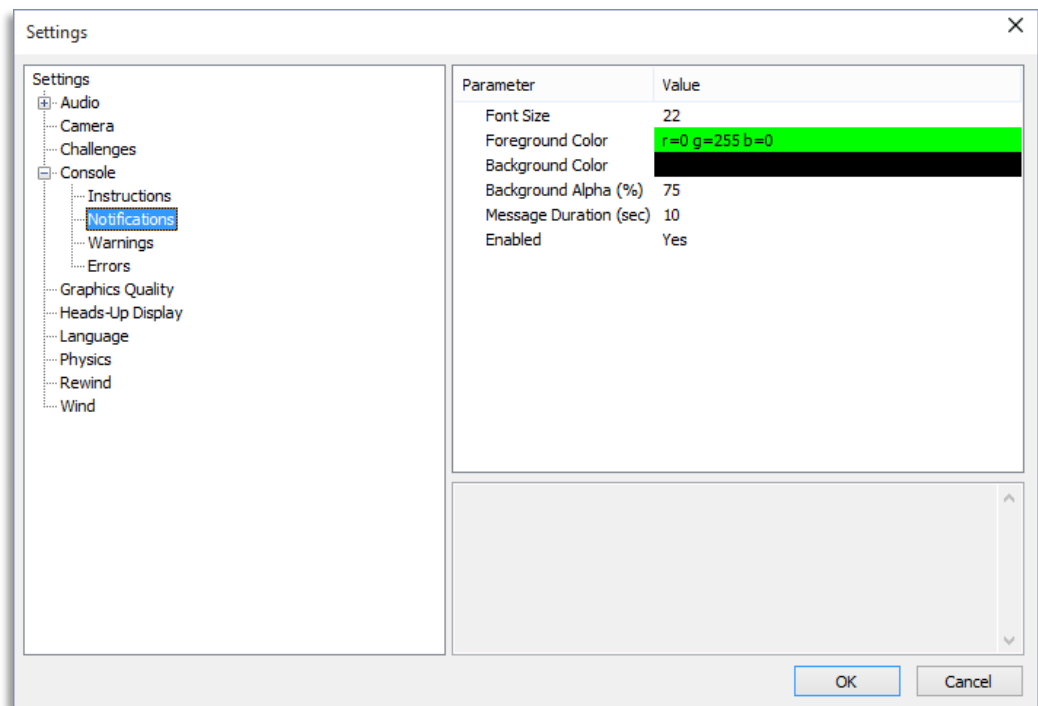
This option determines whether Instructions messages are displayed or not.

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-**

This option determines the settings for the system Notifications messages.

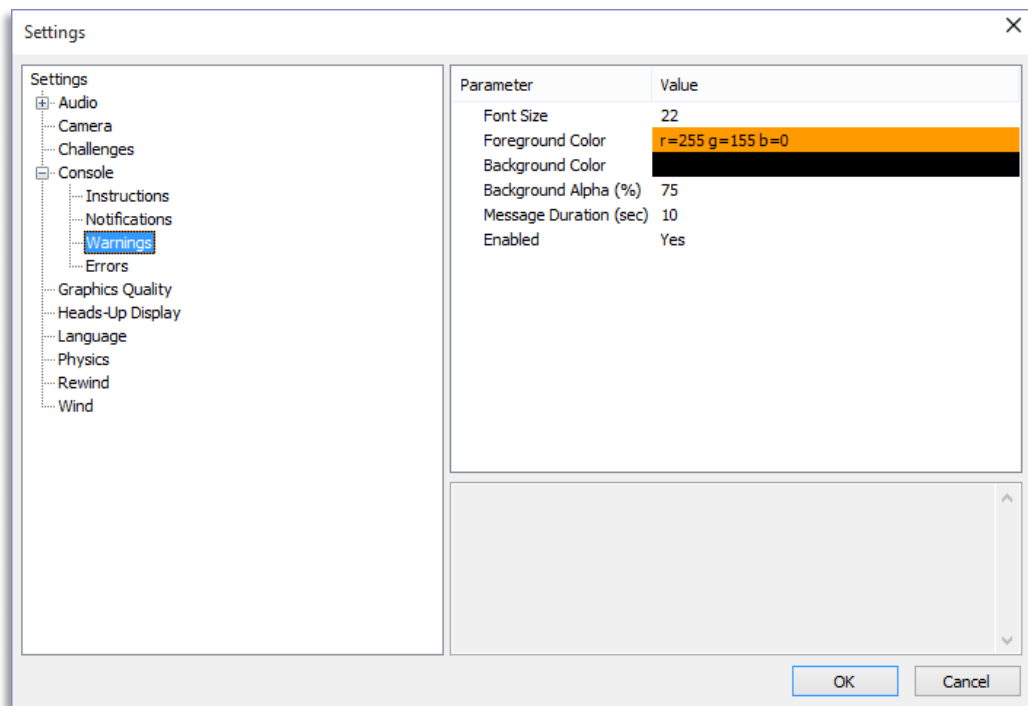




These options function in the same manner as the options for the Instructions messages, except that they only affect Notification messages.

### **Warnings-**

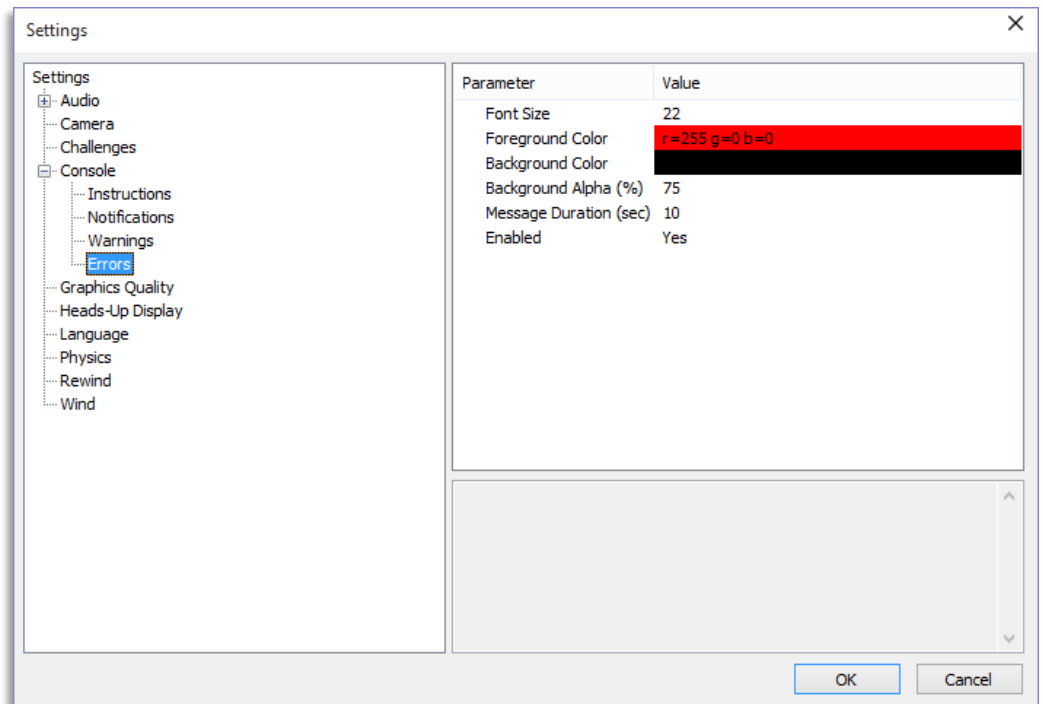
This option determines the settings for the system Warning messages.



These options function in the same manner as the options for the Instructions messages, except that they only affect Warning messages.

### **Errors-**

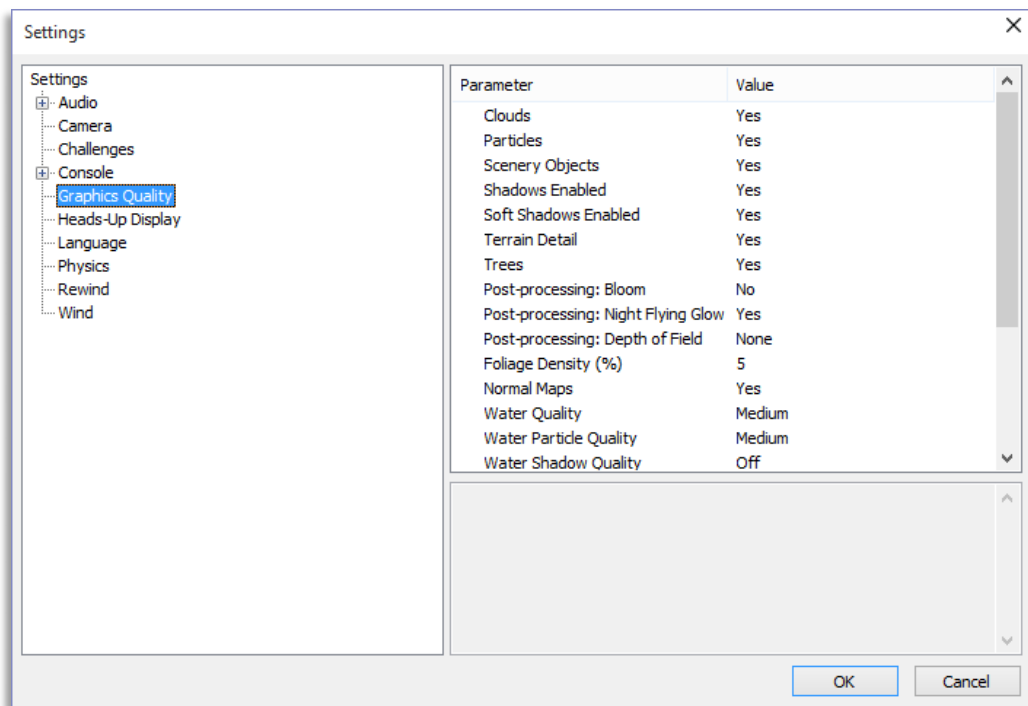
This option allows you to modify the behavior of system error messages.



These options function in the same manner as the options for the Instructions messages, except that they only affect Error messages.

### **Graphics Quality-**

The Graphics 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.



Please note: Many of the adjustments will not take place immediately. In many cases, you will need to restart the simulator in order for the selection(s) 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 for things like water and smoke.

Click on the respective value indicator. From the pull-down options select either **Yes** (RealFlight Drone will display smoke), or **No** (RealFlight Drone 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 hide the shadows.

#### **Soft Shadows Enabled-**

This option determines whether or not RealFlight Drone displays softer, more realistic appearing shadows.

Enabling this option may adversely impact performance. If you notice a poor frame rate while running RealFlight, try turning this option to **No**.

#### **Terrain Detail-**

This option determines whether or not RealFlight Drone 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 or not RealFlight Drone will 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**.

#### **Post-processing: Bloom-**

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

Please note: Enabling the Post-Processing: Bloom effect may adversely impact performance. If you notice a poor frame rate while running RealFlight, try turning this option to **No**.

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

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

Please note: Enabling the Post-Processing: Night Flying Glow effect may adversely impact performance. If you notice a poor frame rate while running RealFlight, try turning this option to **No**.

#### **Post-processing: Depth of Field-**

This option affects the strength of the depth-of-field effect. A stronger effect will cause out of focus objects to appear more blurry – great for screen shots. Some pilots will prefer to turn this setting lower for actual flight.

#### **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.

#### **Normal Maps-**

Normal Maps add increased details to aircraft and objects without a large increase in video card processing. Normal Maps are part of the Real Rendering feature in RealFlight.

#### **Water Quality-**

This setting specifies the quality of the water in the simulation. 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 frame rate is low, we suggest reducing the water quality.

#### **Water Particle Quality-**

This setting controls the different type of graphical particles related to water. A **Low** setting turns off all water particle effects while a **High** setting will show wakes, splashes, and ripple effects.

#### **Water Shadow Quality-**

Turning this setting **On**, will show shadows on the surface of the water as well as on the surface beneath the water for a more realistic appearance.

#### **Shadow Quality-**

This setting specifies the quality of the shadows in the simulation. 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 frame rate is low, we suggest you reduce the shadow quality.

#### **Shadow Map Quality-**

Shadow Map Quality setting controls the size of the shadow texture. A larger size texture will show more detail for a more realistic appearance. A higher setting improves the look of the shadows but requires additional processing power. If your frame rate is low, try reducing the shadow map quality.

#### **Particle Quality-**

This setting adjusts the quality of the smoke, debris and other small objects during the simulation. If the frame rate 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.

#### **Screenshot Quality-**

This setting adjusts the quality of the screenshots. At a low quality, all screenshots are saved as JPG files. If the quality is set to high, screenshots are saved as BMP files.

To change this setting, click on the existing screenshot 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-**

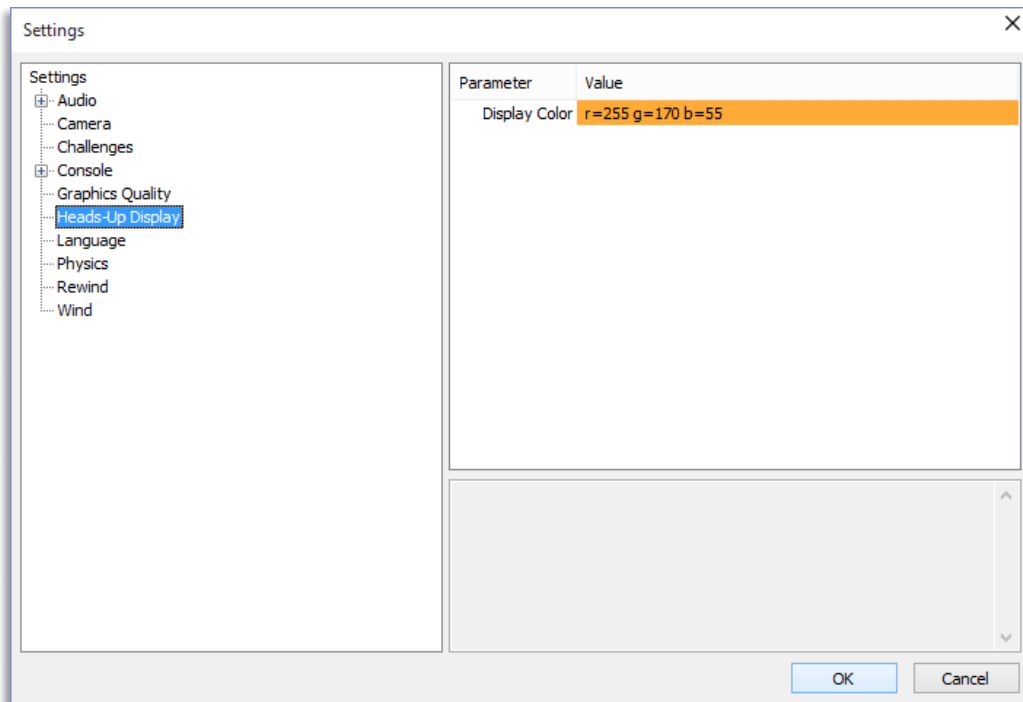
This setting adjusts the quality level of miscellaneous items in your simulation.

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.

## Heads-Up Display-

Heads-Up Display is a useful tool to display a variety of flight data in real time similar to a FPV (First Person Video) system. Depending on the environment, you may wish to change the color of the HUD.



To change the color, click on the **current value**, then click the **more options** button that appears to the right (the gray button with the ellipsis). This will reveal a screen that appears as follows:

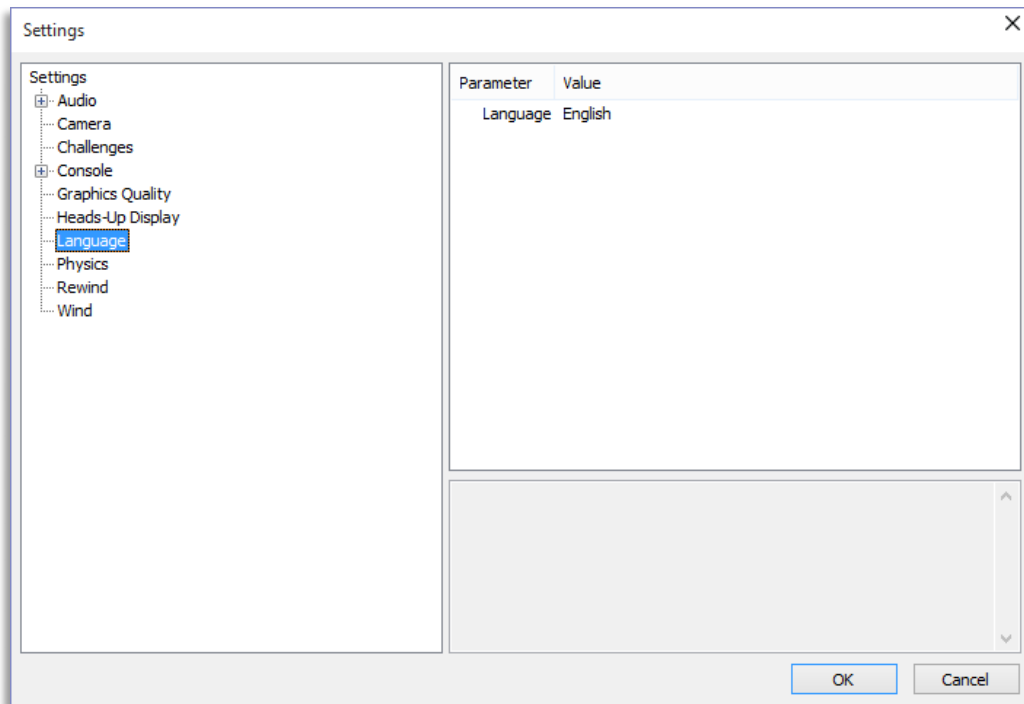




To select a color, click the desired color on the palette. If you wish to make a custom color, click the **Define Custom Colors** button and create the color or colors to suit your tastes. Click **OK** to finalize the selection. The selected color will be reflected immediately in the value column.

### **Language-**

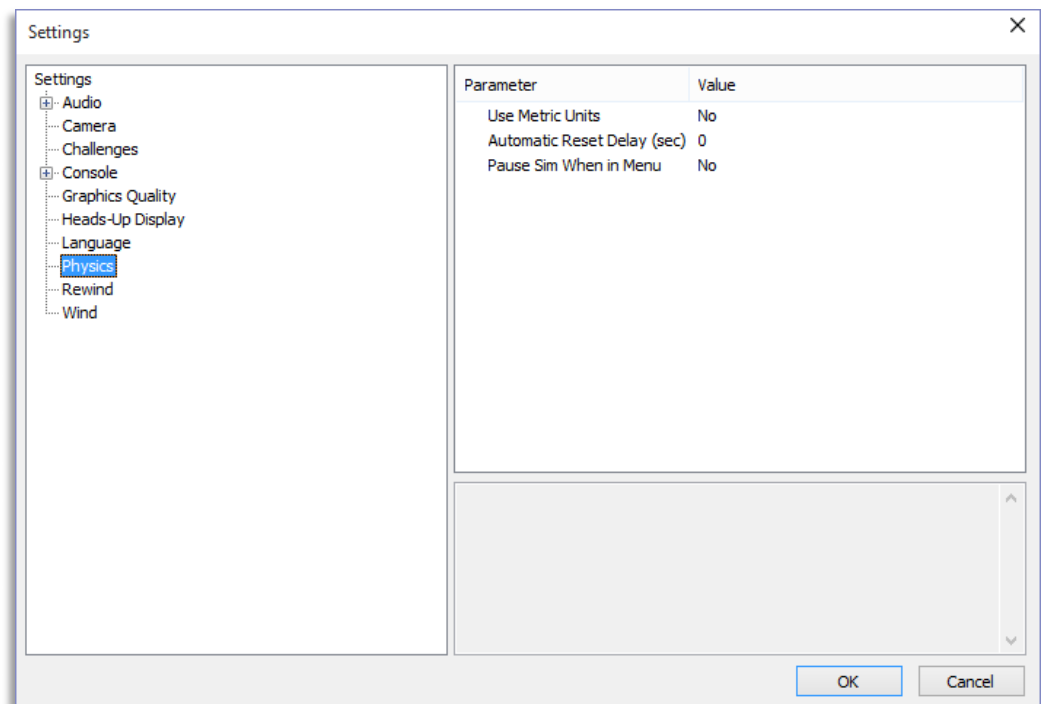
If you wish to adjust the text throughout the simulator to a different language, you can make that change from this setting. You must restart RealFlight for the change to take effect.



To select an alternate language, click the respective value, select the language preference from the drop-down list that appears.

### **Physics-**

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



#### **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.

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

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

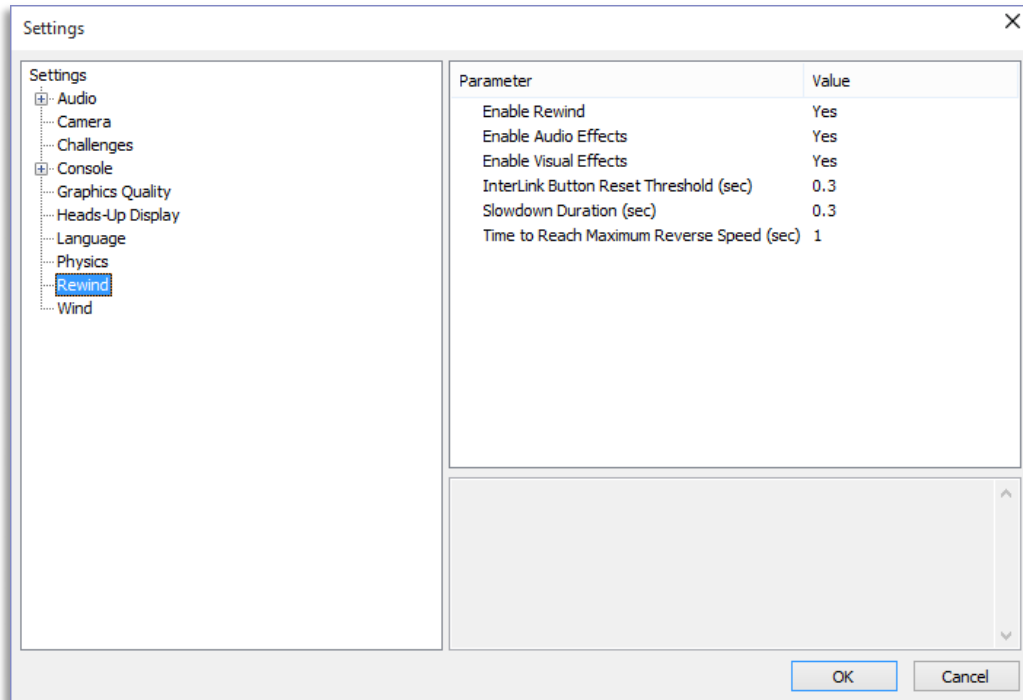
To adjust the Reset Delay, click the respective value. Enter the desired value directly from the keyboard or use the mouse wheel.

#### **Pause Sim When in Menu-**

This setting, when enabled, will pause your flight when you access any of the menus. If set to **No**, your flight will continue even when you access the menus. train

## Rewind-

The rewind section allows you to control the parameters for the Rewind feature. You may disable the Rewind feature altogether, or alter how it functions with the followings settings.



### Enable Rewind-

The Rewind feature is enabled by default. If you wish to turn off this feature, change this setting to **No**.

### Enable Audio Effects-

If you wish to turn off the unique audio effects when activating the Rewind feature, change this setting to **No**. This setting is set to **Yes** by default.

### Enable Visual Effects-

If you wish to turn off the video tape graphical effects when activating the Rewind feature, change this setting to **No**. This setting is set to **Yes** by default.

### InterLink Button Reset Threshold (sec)-

The Rewind feature is only activated if the Reset button is held down for a specific amount of time. This setting allows you to adjust that threshold. If the Reset button is released before this time limit, the flight is simply reset as normal.

**Slowdown Duration (sec)-**

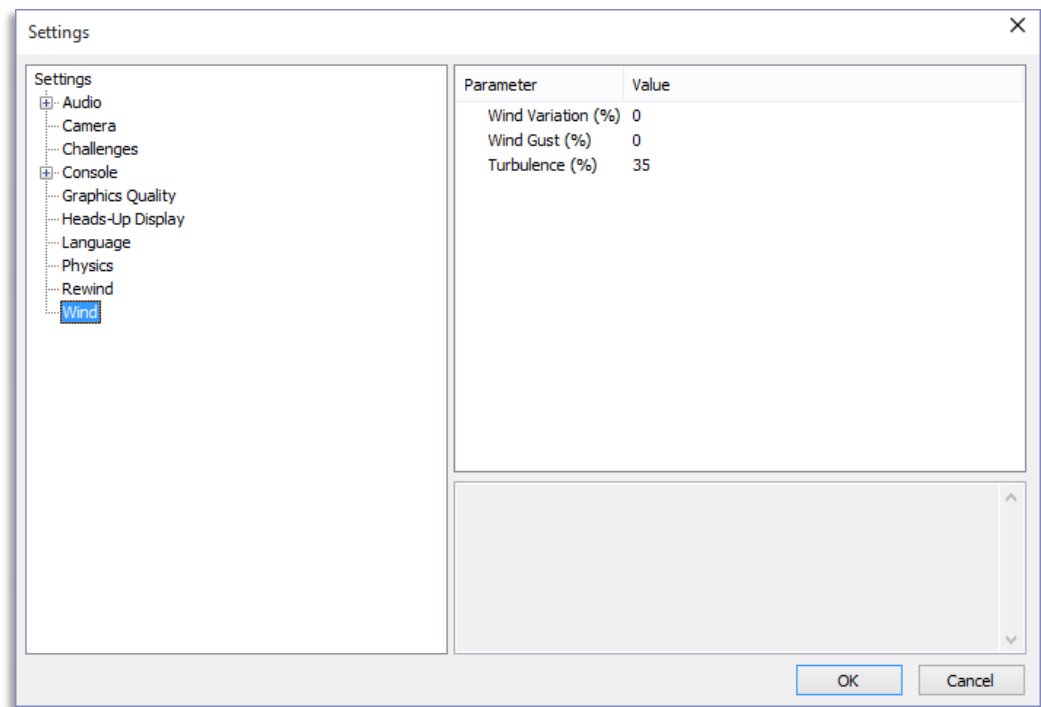
Before the Rewind feature kicks in fully, your flight will slow to a stop, then proceed in reverse. The Slowdown Duration setting allows you to adjust how long this process takes.

**Time to Reach Maximum Reverse Speed (sec)-**

This setting allows you to adjust the amount of time it takes before the Rewind feature is functioning at full speed.

**Wind-**

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.

**Wind Variation (%)**

This adjustment represents the variation in the wind speed and direction in relation 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 100. 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).

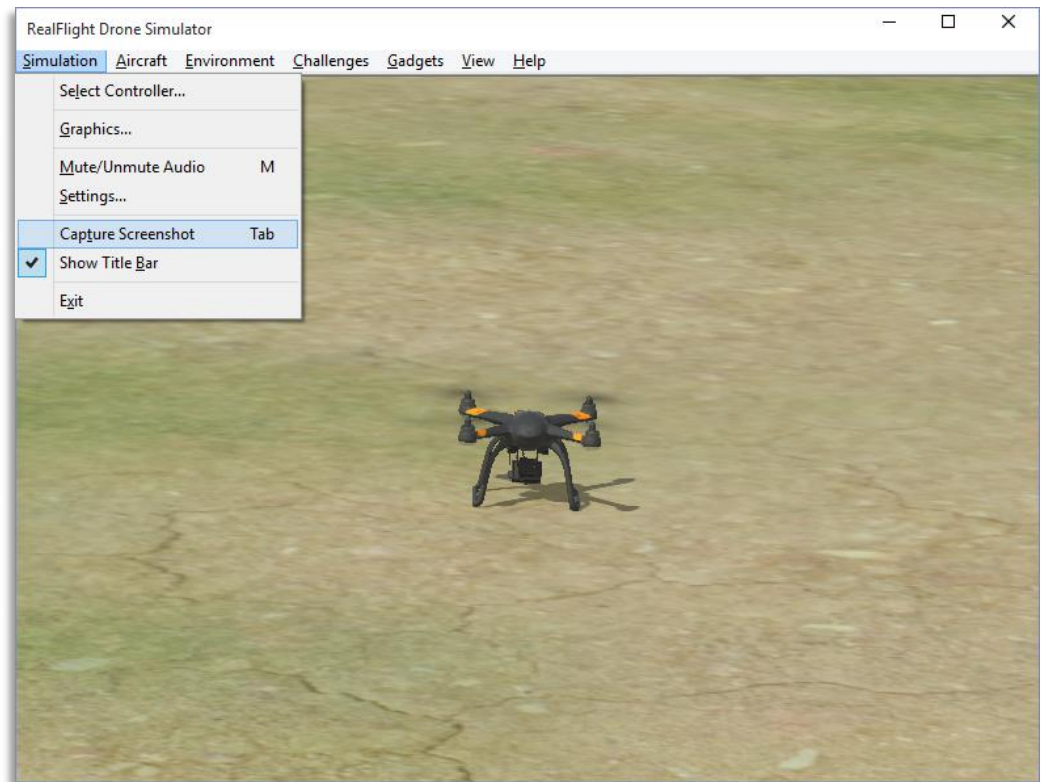
**Turbulence (%)**

This option allows you to adjust the strength of the turbulence. Since this setting represents a median, some turbulence will be more severe, 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 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.

A small icon of a document tab with the word "Tab" written on it.**Capture Screenshot**

Just like the perfect photo opportunity at the local flying field, RealFlight Drone 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.

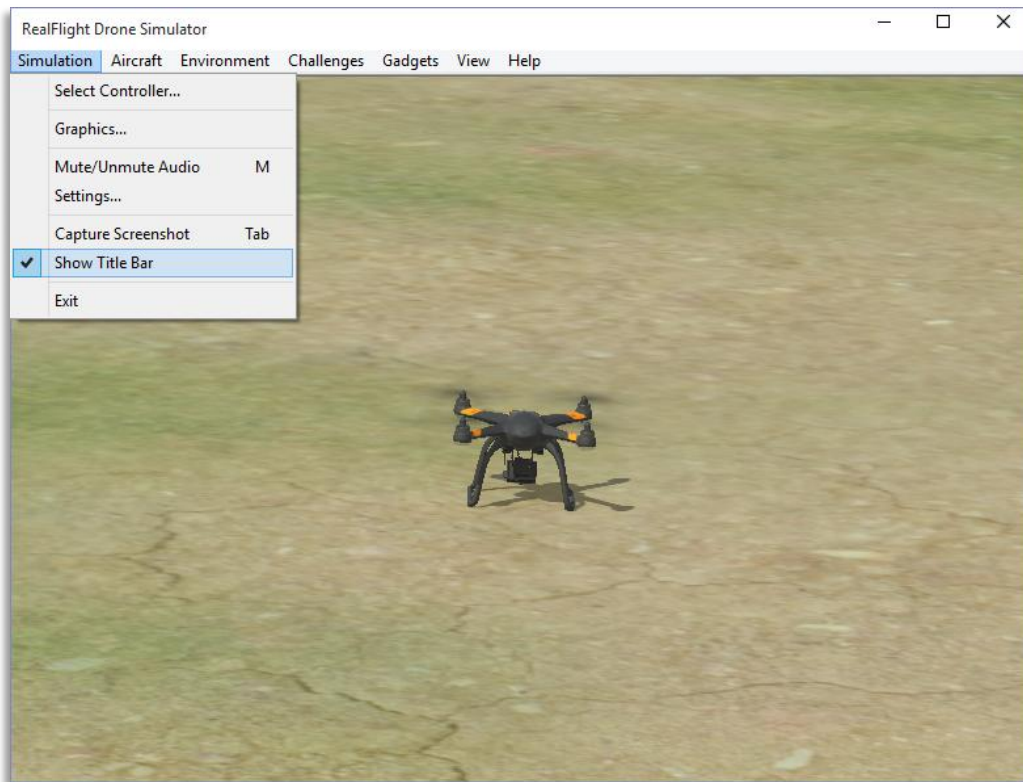


To snap a screenshot, click the **Capture Screenshot** menu item. Alternatively, press the **Tab** key on the keyboard.

Screenshots are stored in the My Documents folder. Each time a screenshot is captured, you will receive an on-screen notification as to the storage location.

## Show Title Bar

This menu item determines whether or not the RealFlight Drone title bar is displayed on the screen. By default, the title bar is enabled.



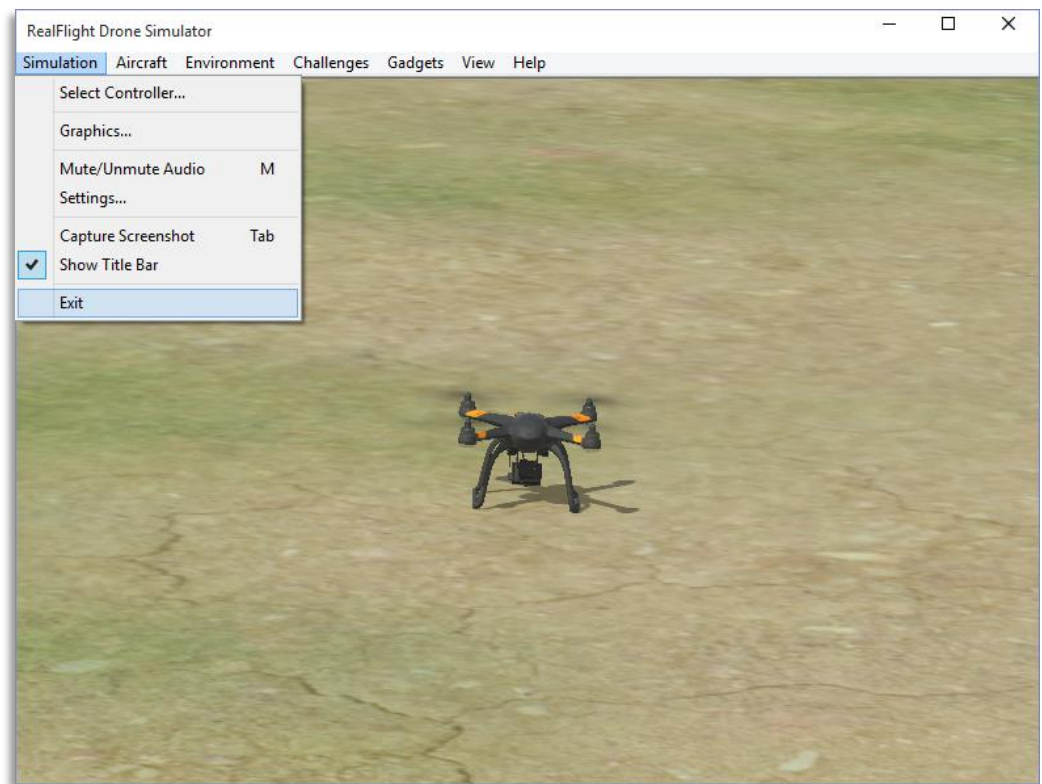
To access this menu item, click on the **Simulation** menu followed by the **Show Title Bar**. This will remove the RealFlight Drone title bar from the screen.

Please note: Removing the title bar also eliminates the ability to minimize or maximize the screen.

## Exit

Use this menu item to exit the program entirely.



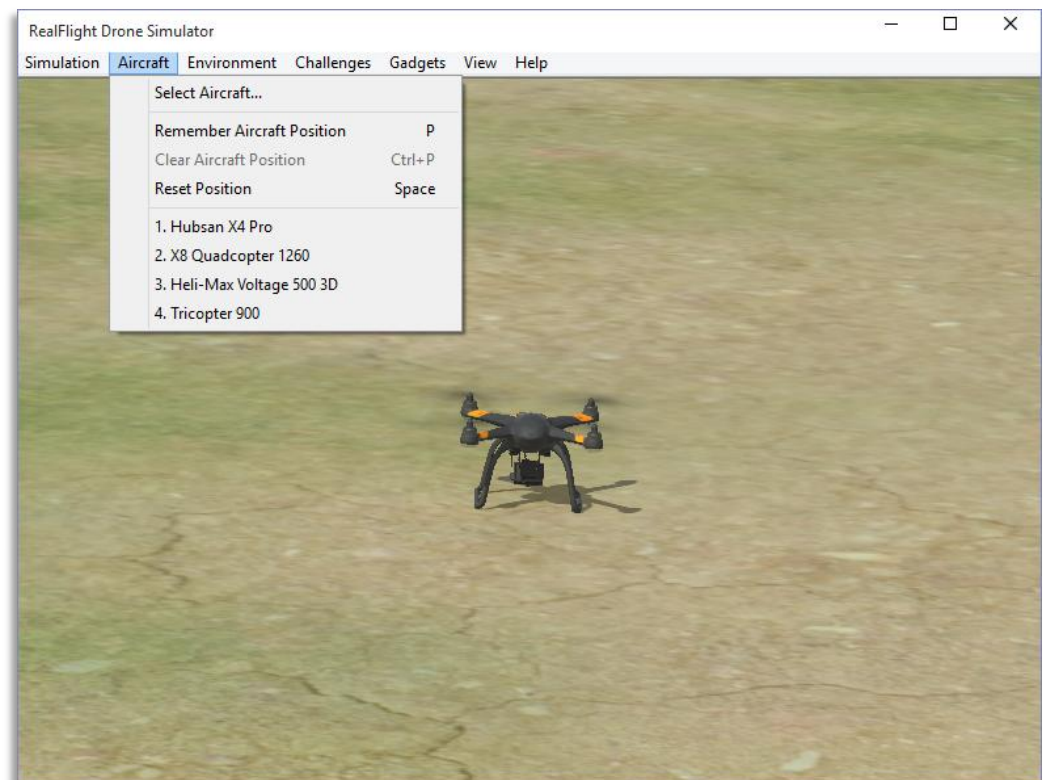




## The Aircraft Menu

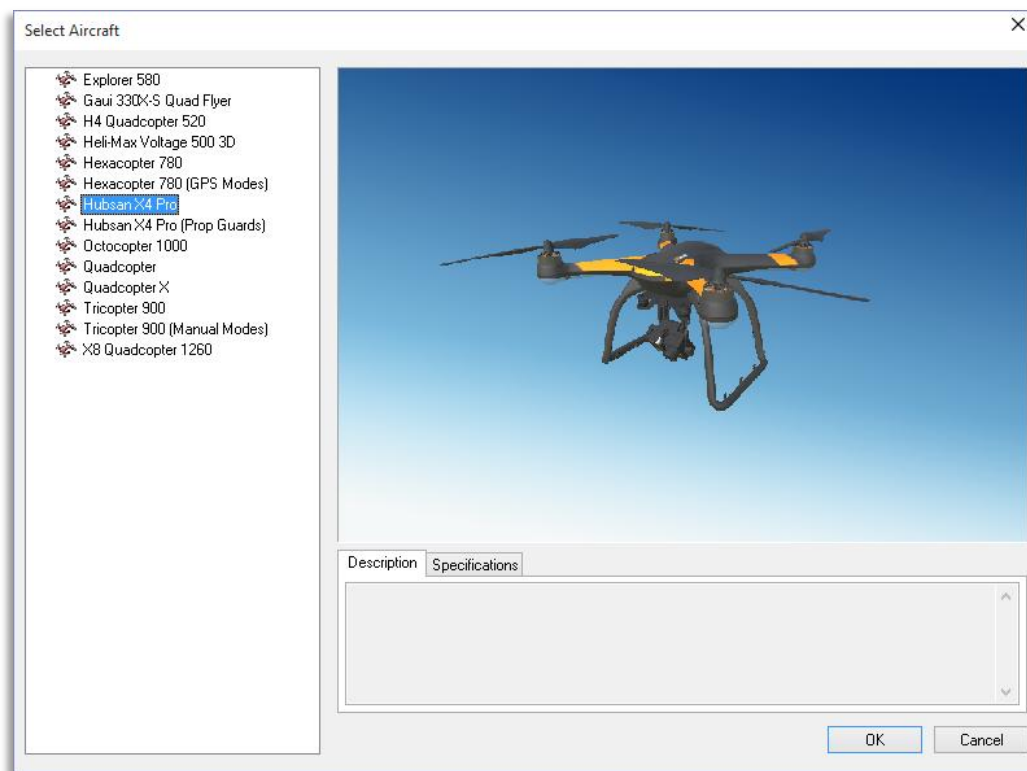
*Offers access to a variety of aircraft-related features, functions, and options*

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



## 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 quadcopter tab highlighted, press the **Menu/Select** button again. This will bring up the Select Aircraft QuickSelect 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.

### 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.

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 and out or move the gimbals to see the control surfaces move. To resume rotating automatically, right-click the preview screen.

#### Description/Specifications-

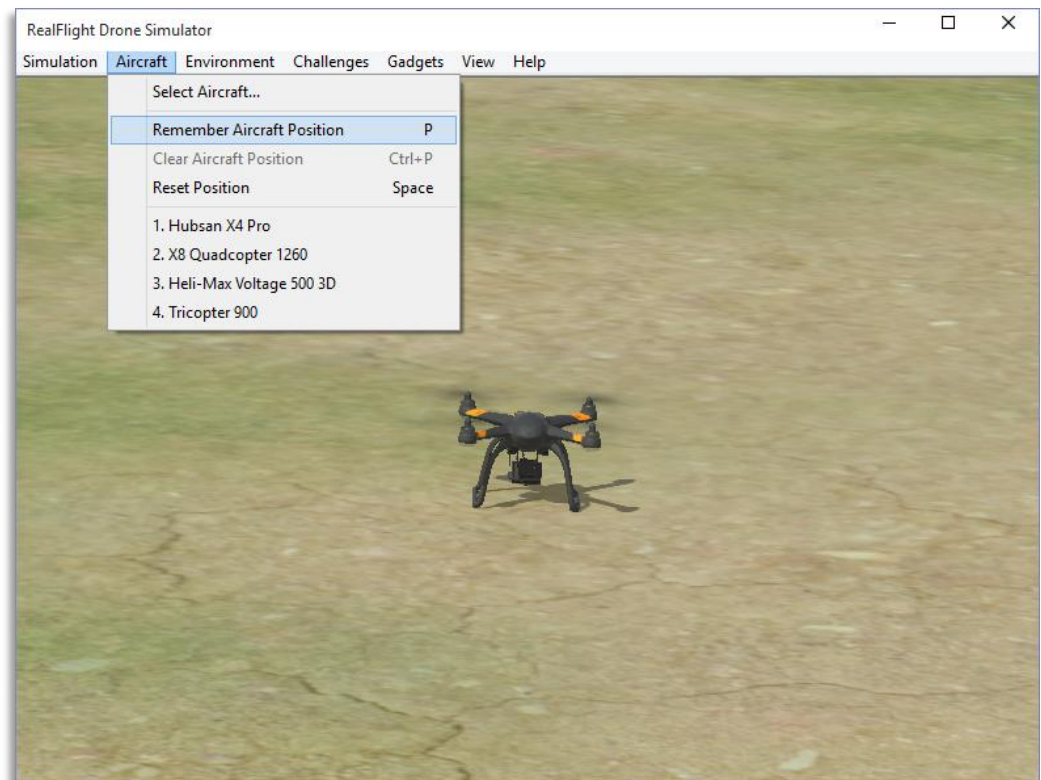
The pane below the Aircraft Preview box shows either the aircraft description or aircraft specifications. This box provides you with a brief history of the aircraft (if applicable) and serves to provide you with specific information pertaining to the model selected.

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



## Remember Aircraft Position

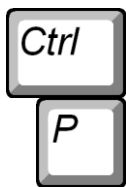
The Remember Aircraft Position menu item saves the current position of the aircraft. When you reset the aircraft, it will return to the same position (speed, attitude, heading, etc.). This feature is ideal for practicing maneuvers.



To activate this menu item, click the **Remember Aircraft Position** menu item when the aircraft is in the desired location and altitude.

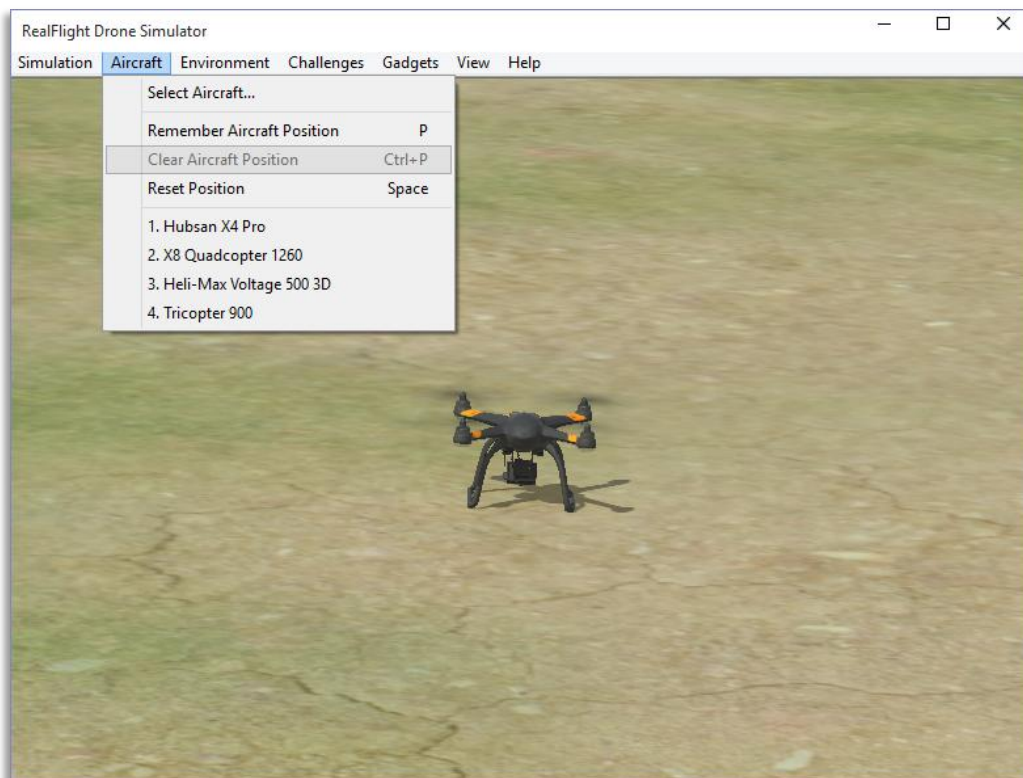
Each time the aircraft is reset, it will begin flight from the saved location.

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.

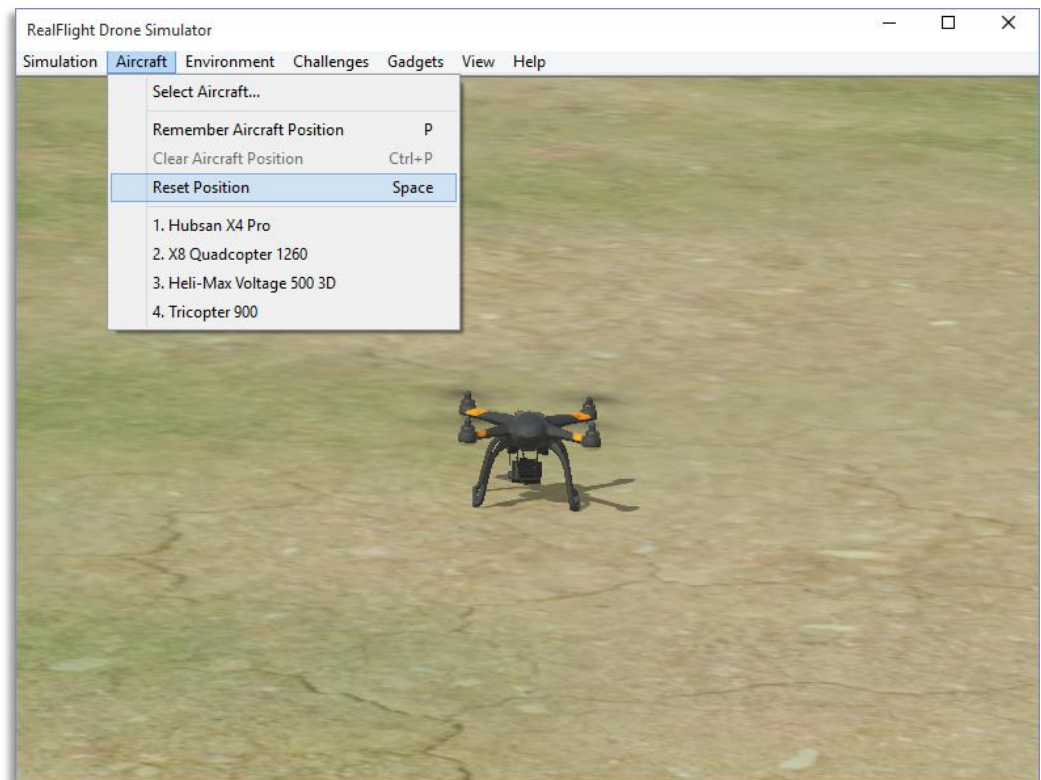




## Reset Position

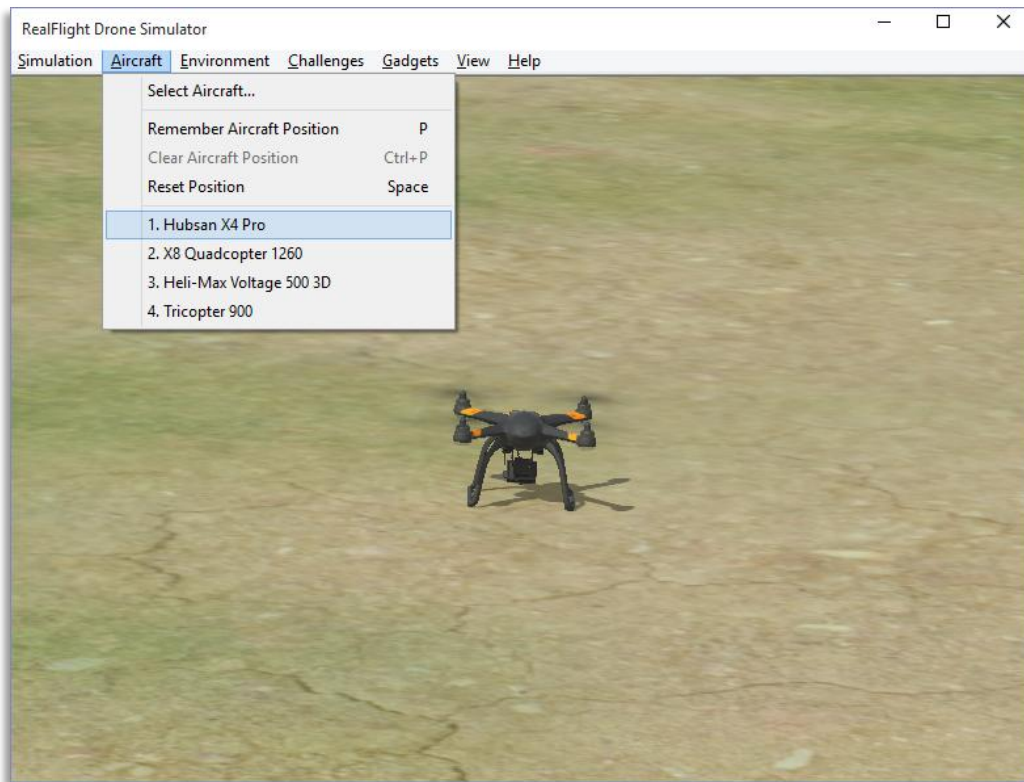
There are three ways to reset the aircraft to its takeoff position:

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.



## Aircraft MRU

The final items in the Aircraft menu indicate the most recently used aircraft. 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.

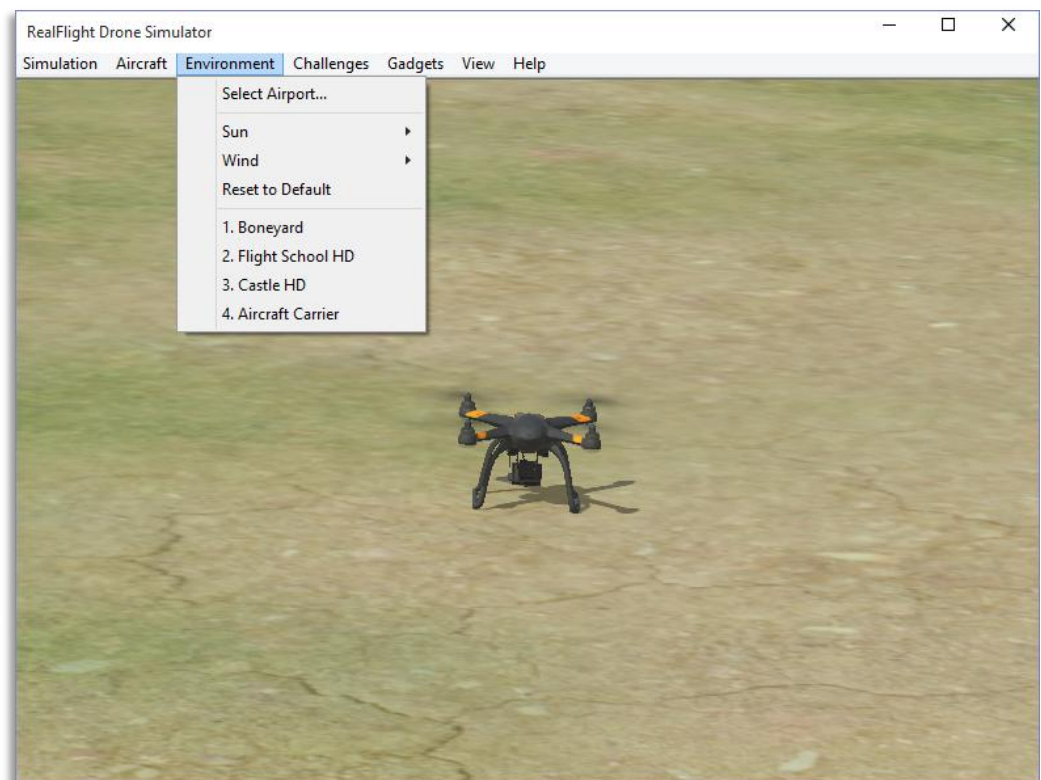


## The Environment Menu

*Allows access to a variety of environment-related features, functions and options*

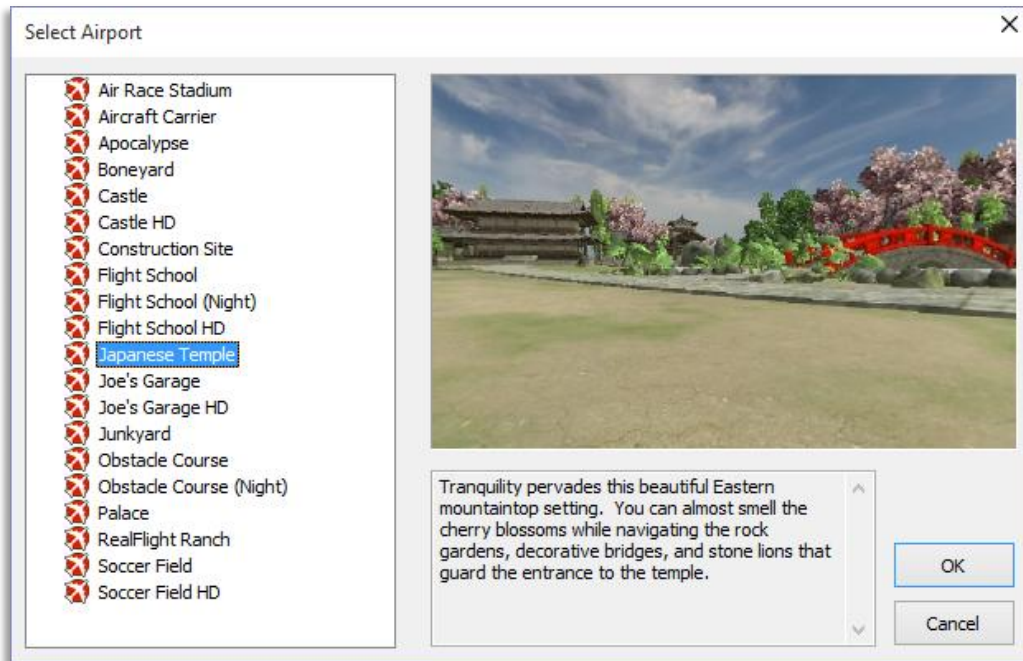
The Environment menu gives you access to many scenery related features, such as changing flying sites, or adjusting weather related items.

Clicking the Environment menu will open the drop-down menu as illustrated in the following screen shot.



## 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.



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 QuickSelect dialog window.

You can continue using the **QuickSelect** button in this dialog to select a new airport, or press **Reset** to resume flying without making any changes.

The rotating image on the right side of the screen provides you with a preview of what to expect at the desired location. The airport information pane 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.

### **Movement Modes-**

RealFlight Drone's Movement Modes allows you to explore the scenery without an aircraft. 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.

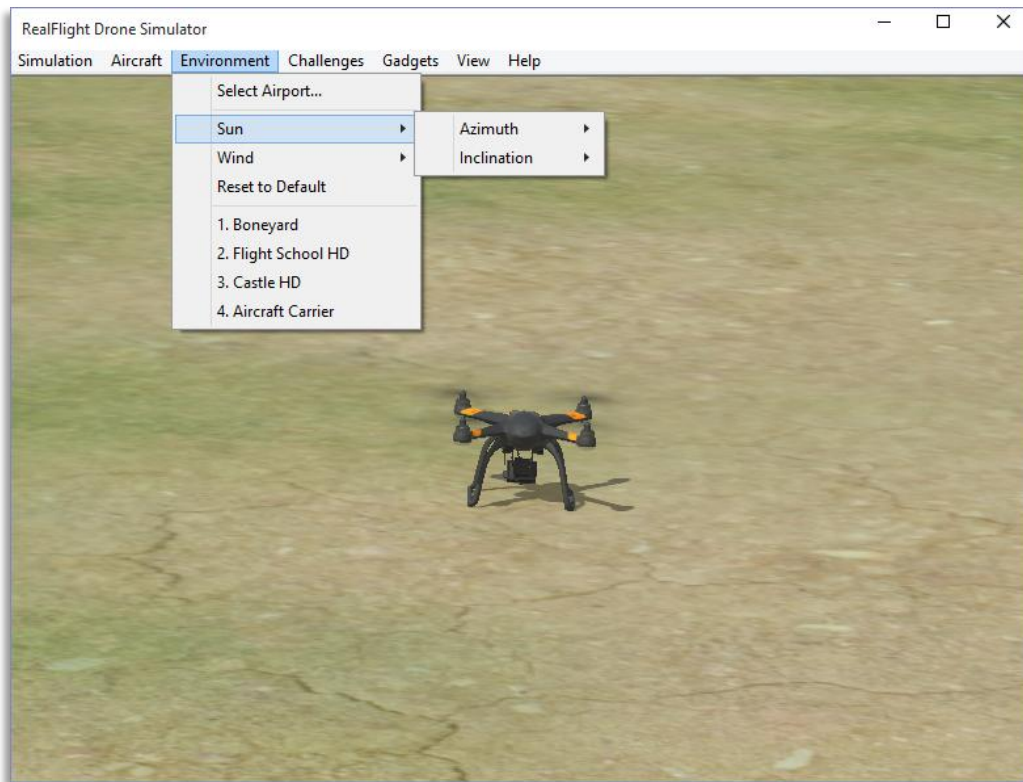
Once you have entered the desired Movement Mode, use the '**W**', '**S**', '**A**' and '**D**' keys on your keyboard to control the movements. If you wish to increase the speed of your movement, press and hold the **Shift** key at the same time you are using the '**W**', '**S**', '**A**' or '**D**' key.

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 travel. 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.

### **Sun-**

RealFlight Drone gives you the ability to adjust the position of the sun in the sky. By changing the Azimuth, you can rotate the sun around. 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.

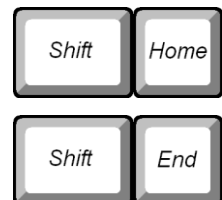


### Adjusting the Sun Azimuth-

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.

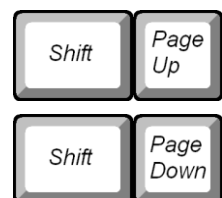
When altering the azimuth, the simulation temporarily displays the new location in the lower left corner of the window.



### 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 in the sky, click **Increase**. Click **Decrease** to lower the sun, or to set it below the horizon to make it night time.

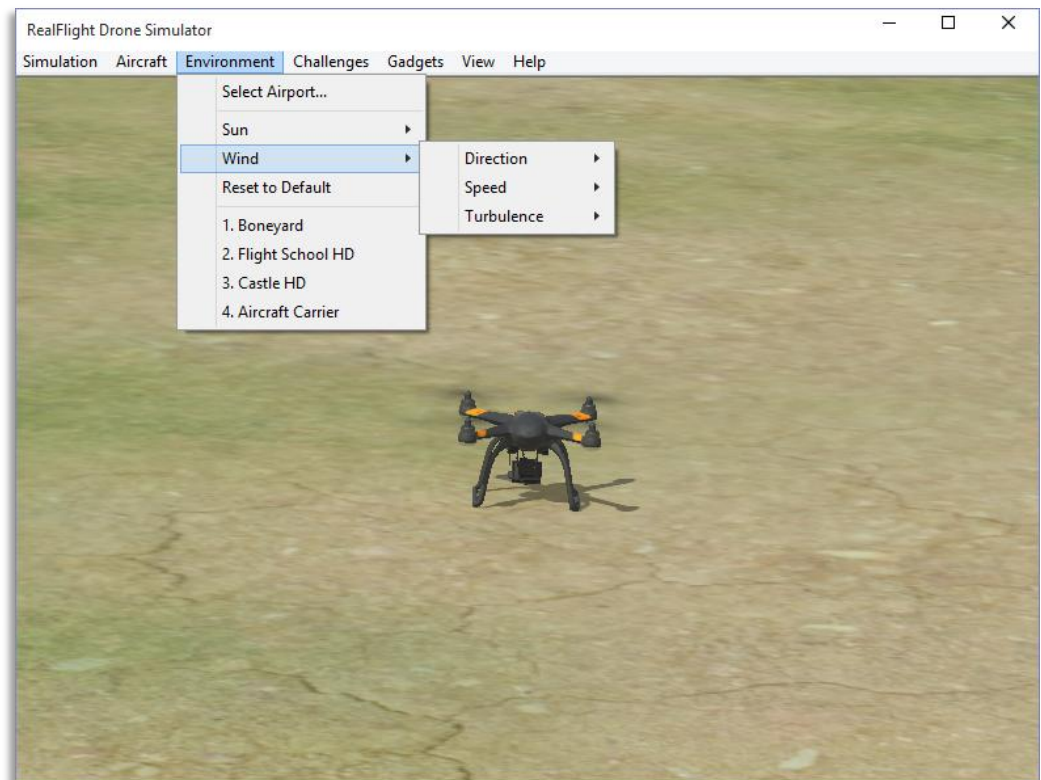


When altering the inclination, the simulation temporarily displays the new location in the lower left corner of the window.

At night time, RealFlight Drone will automatically enable lighting effects on the objects and aircraft that offer the lighting abilities.

## Wind

RealFlight Drone's TruFlo Wind Dynamics offers the most realistic wind model of any R/C simulator. Its 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.



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

### Adjusting the Wind Direction-

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

Selecting the **Wind** menu item brings up the Speed, Direction, and Turbulence 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.

When altering the wind direction, the simulation temporarily displays the new wind direction, in degrees, 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 less-than-perfect wind conditions that frequently occur at an R/C field. To adjust the speed of the wind, select the **Wind** menu. 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.

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

### Adjusting the Turbulence-

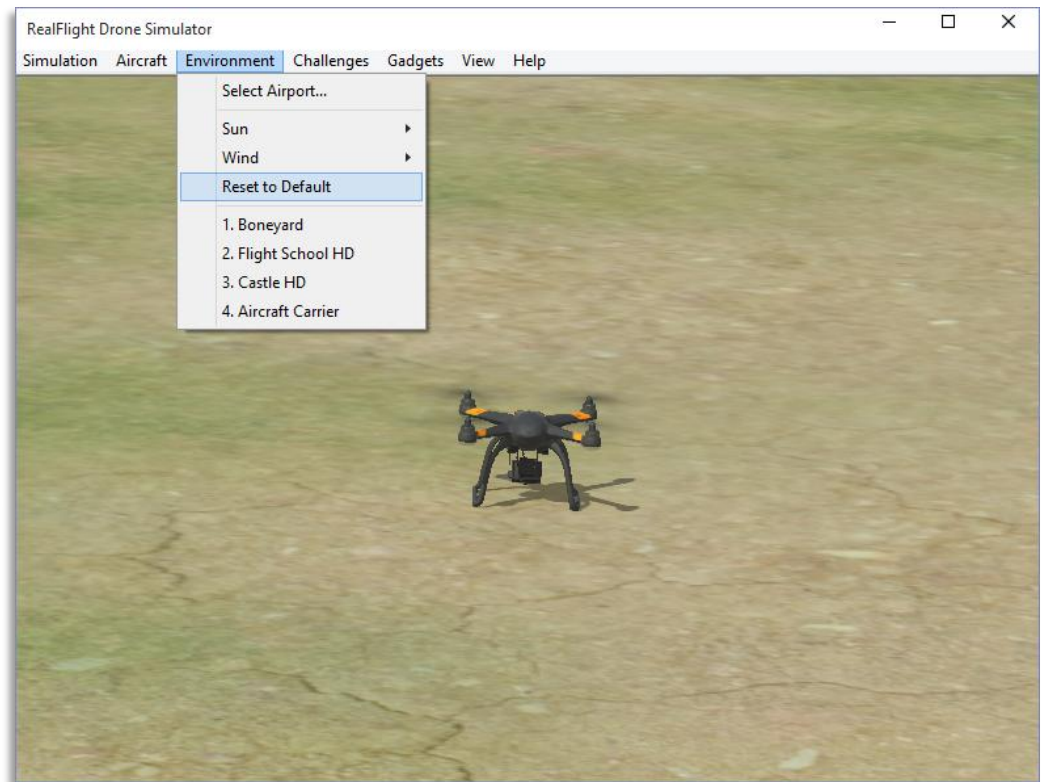
Increasing the turbulence is another ideal method for learning to fly in challenging conditions. Drone and full-scale pilots alike will all agree that winds are not constant. This setting accurately reflects the lifelike effects of turbulence.

To adjust the turbulence, select the **Wind** menu, and highlight the **Turbulence** menu item in the pull-down selections. To increase the speed of the turbulence, click on the **Increase** option in the pull-down selections. Clicking the **Decrease** option reduces the turbulence.

## Reset to Default

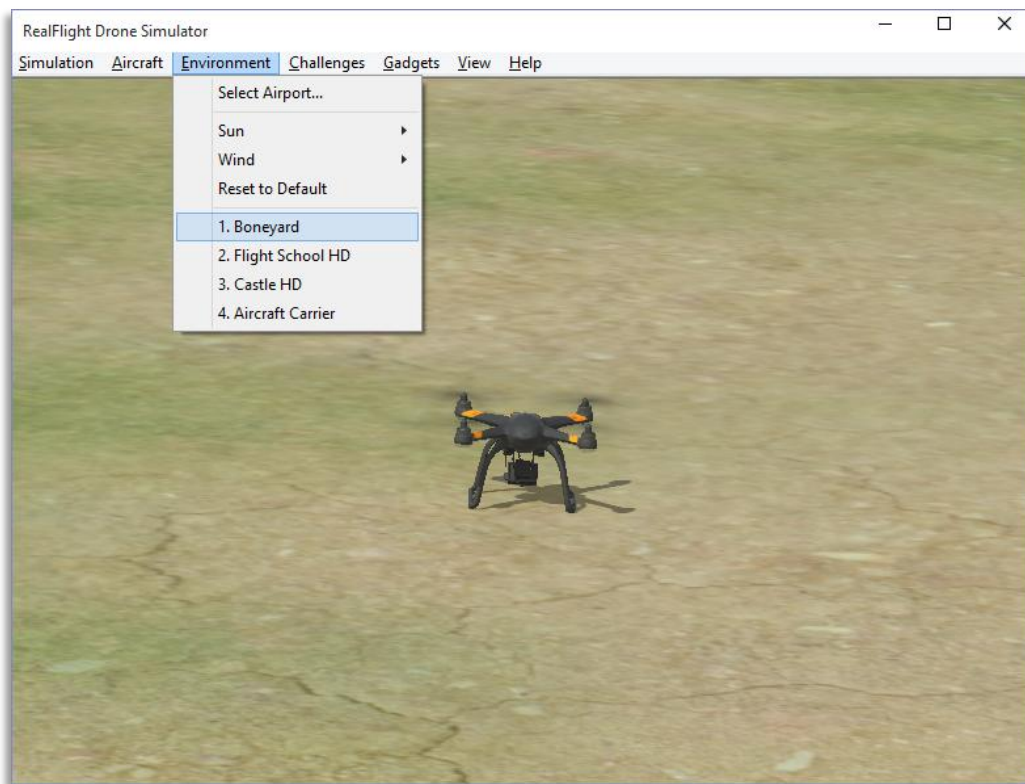
Selecting **Reset to Default** will adjust all weather and environment parameters back to their default settings for the currently selected flying site.





## 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.

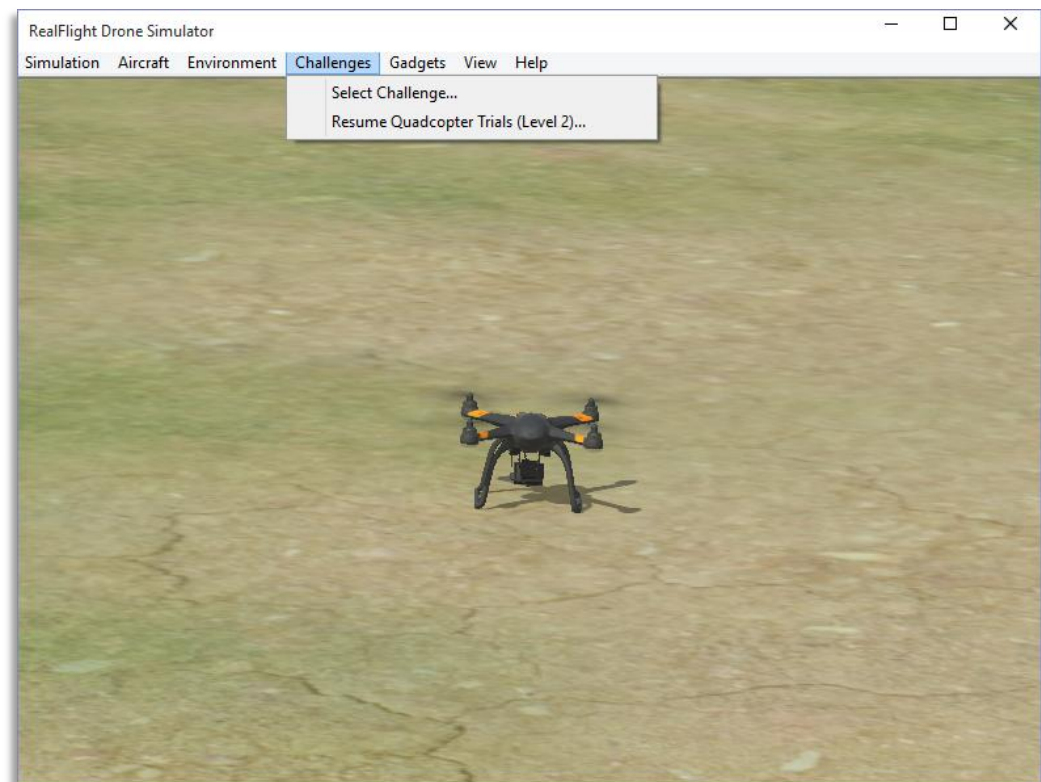




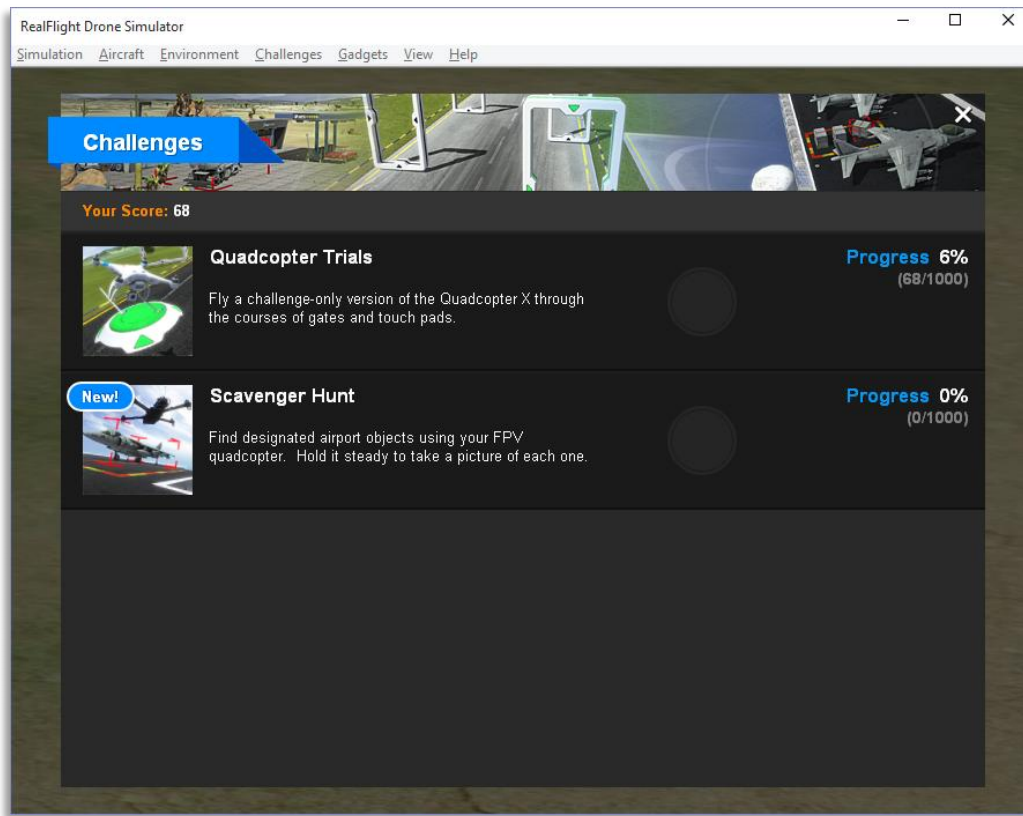
## Challenges Menu

*Test and improve your flying skills with exciting pilot challenges*

The Challenges menu allows you to practice and improve your flying skills while adding some excitement and fun along the way. There are a variety of challenges available with rewards that unlock as you complete more difficult levels.



Clicking **Select Challenges** menu item will display the following screen:



Information and a number of options are available to you from this screen. The most obvious is the list of the different types of challenges available. Displayed with each Challenge are any medals that you might have won, along with your progress.

### **Ghost Run-**

Once you have completed 5 levels of any Challenges, you are then allowed to compete against your best times. You'll notice a ghosted image of an aircraft flying through levels you have already completed. This ghosted aircraft represents your best time for that level, giving you something to compete against.

## **Quadcopter Trials**

You think you have what it takes to fly a Quadcopter? Then the Quadcopter Trials will test your skills.



You'll be walking and following a quadcopter through a number of obstacles. Some you must fly through, while others are platforms you must land on.

Scoring is based on how quickly you can fly through each level. Do well through this challenge, and you'll be rewarded at the end.

## Scavenger Hunt

Flying multi-rotor aircraft from First Person View has become a popular past time. Now you can try your hand at doing so, and testing your skills at the same time with the Scavenger Hunt Challenge.



With each level, you must locate objects around the flying site that are highlighted in a red box. Fly to them closely, and hold that object inside your targeting circle. Once held there long enough, a picture will be snapped by your on-board camera. At that point, you must find the next object.

Scoring is provided based on how quickly you can find and snap a picture of each object. Try capturing your pictures in different order, finding the best path, to increase your time.

## During Flight

While competing in a challenge, a number of options are available to you. First, in the upper left corner is information pertinent to the current challenge. It will display your current time.

Upper right hand corner of the screen are four buttons:

- Pause – As the name implies, this will pause your flight. Click the **Resume** button that is now visible to continue.

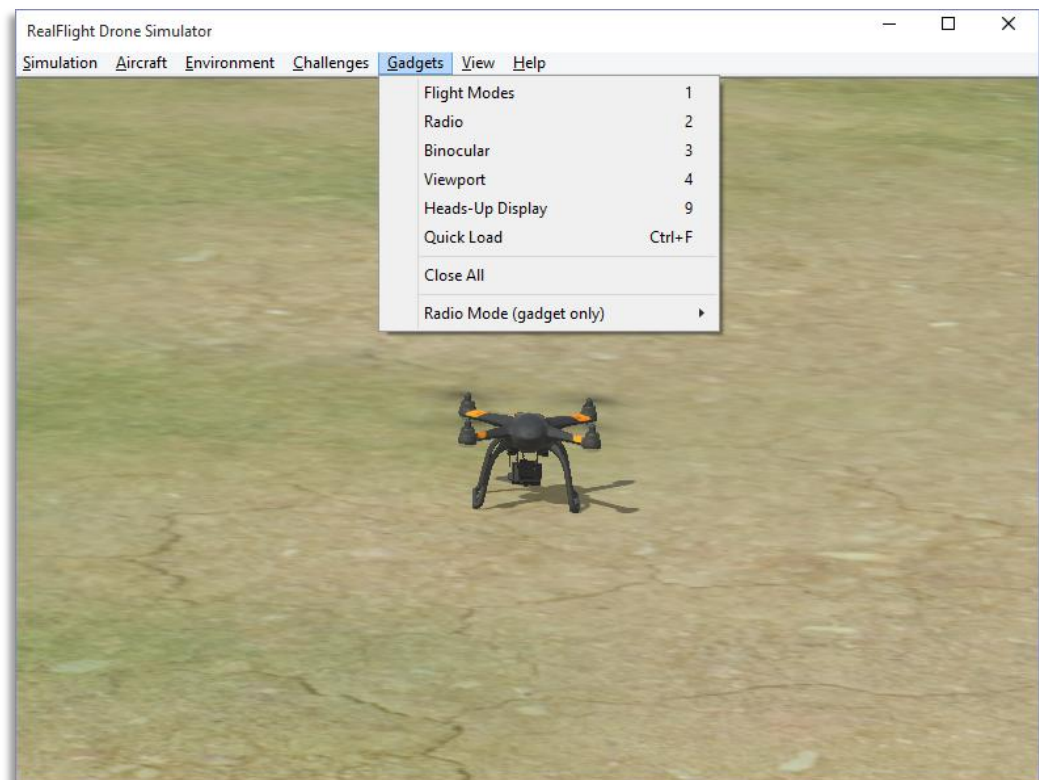
- Restart – Clicking this will return you to the Begin screen where you can view your current high score, description of the current challenge, or return to the level selection screen.



## Gadgets Menu

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

The Gadget menu offers you a selection of on-screen tools to assist while flying your drone. A Gadget is an on-screen display that provides you with information pertaining to a certain aspect of your simulation. To access the Gadgets menu item, click the **Gadgets** menu title. This will open the list of available gadgets for the simulation.



1

## Flight Modes

Many drones offer multiple Flight Modes, depending on the features built-in to the flight controller. These can consist of Return-to-Home or Headless-Mode. At times, it can be difficult to remember what mode you are in, or what modes are available with the currently selected drone. The Flight Modes Gadget can help you with this.



To access the Flight Modes Gadget, click the **Gadgets** menu title, followed by the **Flight Modes** menu item.



You may also load the Flight Modes using the InterLink Elite with the QuickSelect buttons. Press the **Menu/Select** button. Then press down twice on the **Data Lever** until the Flight Modes tab is highlighted. The Flight Modes tab looks like a transmitter switch. Press the **Menu/Select** button again to activate the Flight Modes Gadget. Repeat these steps to remove it from the screen.

2

## Radio

The on-screen radio display is useful for many facets of flight. For example, when used in conjunction with Virtual Flight Instruction, this allows you to see real-time control input from the professionals. Observing the link between controller movements and aircraft performance will advance your knowledge and understanding of a maneuver.





To access the Radio, click the **Gadgets** menu title, followed by the **Radio** menu item.



You may also load the Radio using the InterLink Elite with the QuickSelect buttons. Press the **Menu/Select** button. Then press down three times on the **Data Lever** until the Radio tab is highlighted. Press the **Menu/Select** button again to activate the on-screen Radio. Repeat these steps to remove the Radio from the screen.

If you click the on-screen radio, the entire viewport is displayed, including the title bar.

To resize the viewport, position the cursor over the lower right corner of the viewport's frame. Using the mouse, drag the frame according to your wishes. If you drag it downward, the vertical size of the viewport will increase. Dragging the frame to the right or left increases or decreases the width of the viewport respectively.

Clicking on the '**X**' in the title tab of the frame removes it from the screen.

3

## Binocular

The Binocular option will show a perfectly zoomed aircraft, as if you were looking through a pair of binoculars. The background of the viewport box becomes transparent. This provides a visual indicator alerting you that you are using “binocular vision.”



The Binocular option is a great way to see the control surfaces on an aircraft that is too far away to see in the main view. Although not realistic, it does help to see the effects of control input.

The Binocular view will automatically hide when the aircraft is close enough to be seen in the main window. The Binocular icon will be visible to indicate that this gadget is still active. The view will reappear when the aircraft flies off into the distance. If you wish for the Binocular view to remain on the screen permanently, simply click the thumbtack button in the gadget's title bar.

To access the Binocular menu item, click the **Gadgets** menu title. Next, click **Binocular**.



You may also load the Binocular viewport using the InterLink Elite with the QuickSelect buttons. Press the **Menu/Select** button. Then press down four times on the **Data Lever** until the Binocular tab is highlighted. Press the **Menu/Select** button again to activate the Binocular viewport. Repeat these steps to remove the Binocular viewport from the screen.

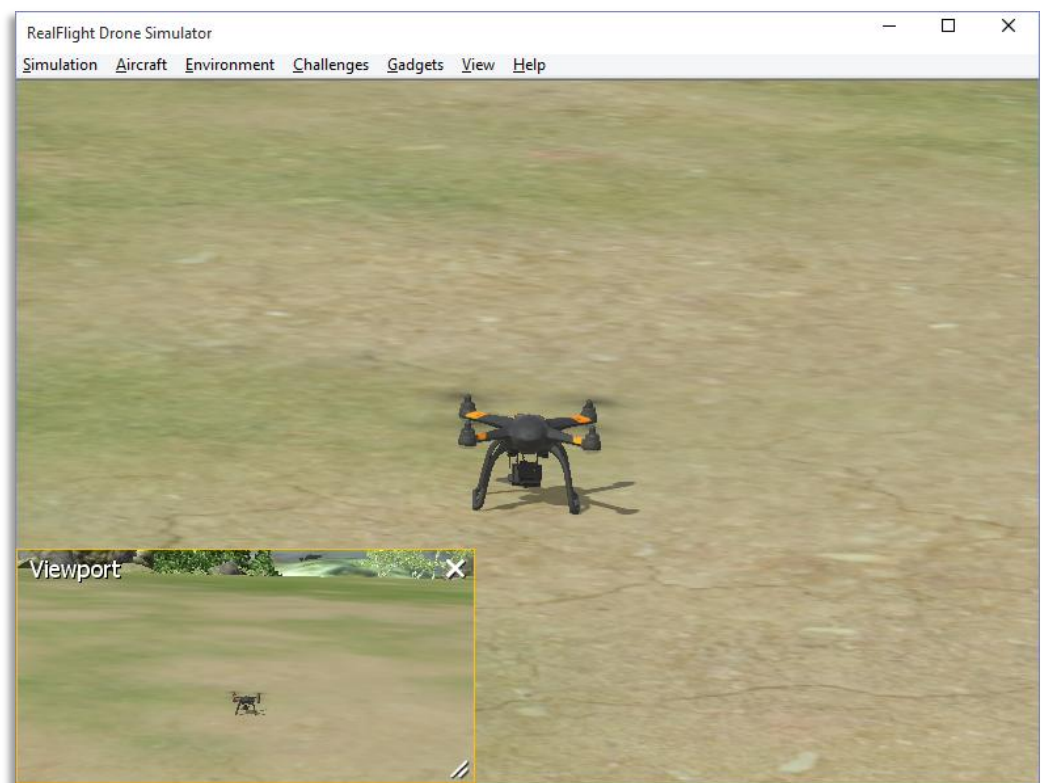
To resize the viewport, position the cursor over the arrow indication found in the lower right corner of the viewport's frame. Click and hold on the arrow. Using the mouse, drag the frame according to your wishes. If you drag it downward, the vertical size of the viewport will increase. Dragging the frame to the right or left increases or decreases the width of the viewport accordingly.

Clicking on the 'X' in the title tab of the frame removes the frame from the screen.



## Viewport

The Viewport menu item allows you to open up a smaller window to you can adjust independently from the main simulator screen. This works much like a picture-in-picture features found on many TVs.



Once you create a new viewport, you can resize or reposition it by dragging with your mouse. You can also fully adjust all the viewport's properties (zoom level, vantage point options, etc.), independent of any properties of the main window.

To access the Viewport menu item, click on the **Gadgets** menu. Then select **Viewport**.



You may also load the Viewport using the InterLink Elite with the QuickSelect buttons. Press the **Menu/Select** button. Then press down five times on the **Data Lever** until the Viewport tab, pictured with a computer monitor, is highlighted. Press the **Menu/Select** button again to activate the Viewport. Repeat these steps to remove the Viewport from the screen.

To change the vantage point options and features, use the commands found in the View menu. Ensure that the viewport you wish to modify is the active viewport, or the modifications will not take effect. Alternatively, you may click the left or right arrows that appear at the bottom of the Viewport. This options appears when you move the

Clicking on the '**X**' in the viewport's title bar removes it from the screen.



## Heads-Up Display

The Heads-Up Display (HUD) projects an FPV (First Person Video) or combat jet-like display over the screen that provides useful data in real time.



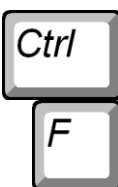
You may load the HUD using the InterLink Elite with the QuickSelect buttons. Press the **Menu/Select** button. Then press down on the **Data Lever** until the last tab is highlighted. Press the **Menu/Select** button again to activate the HUD. Repeat these steps to remove the HUD from the screen.



Information displayed by location on screen:

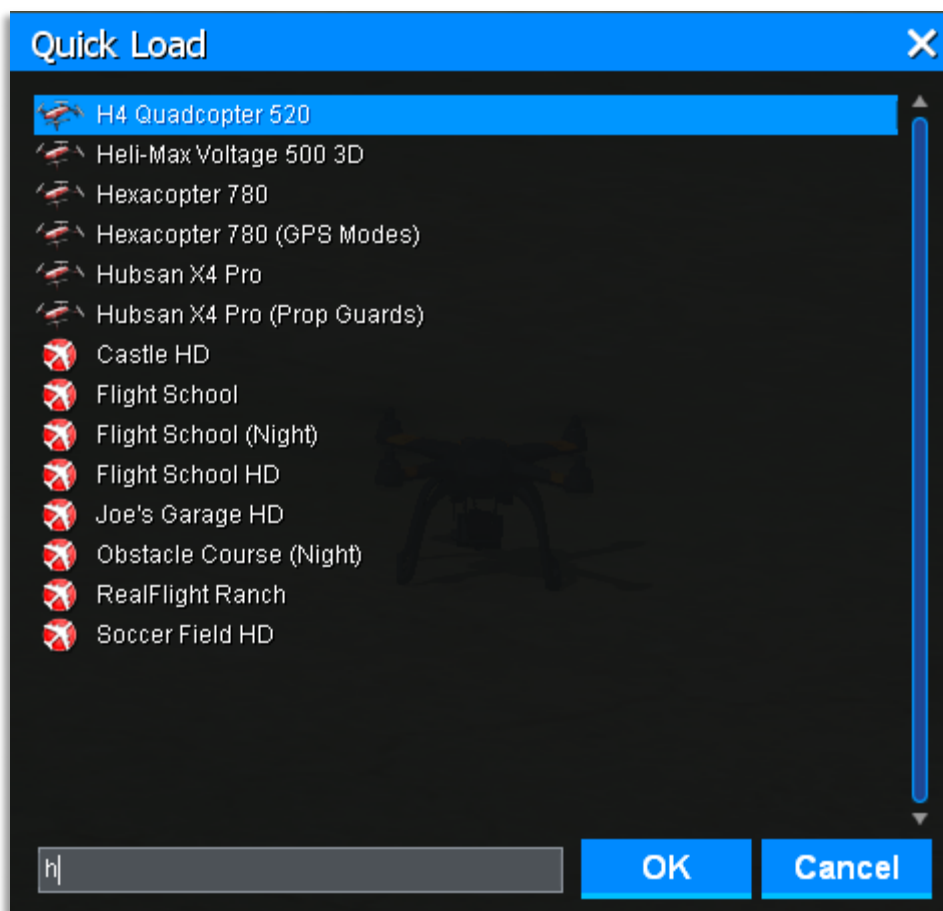
- Upper left – Fuel Remaining
- Top center – Heading
- Upper right – Variometer; rate of climb or decent.
- Left side – Airspeed
- Center – Pitch ladder, showing the aircraft's pitch and roll in relationship to the horizon.
- Right side – Altitude
- Bottom center – Direction and distance to your starting location.

While the HUD can be displayed at any time, it's most useful when flying from the FPV perspective.



## Quick Load...

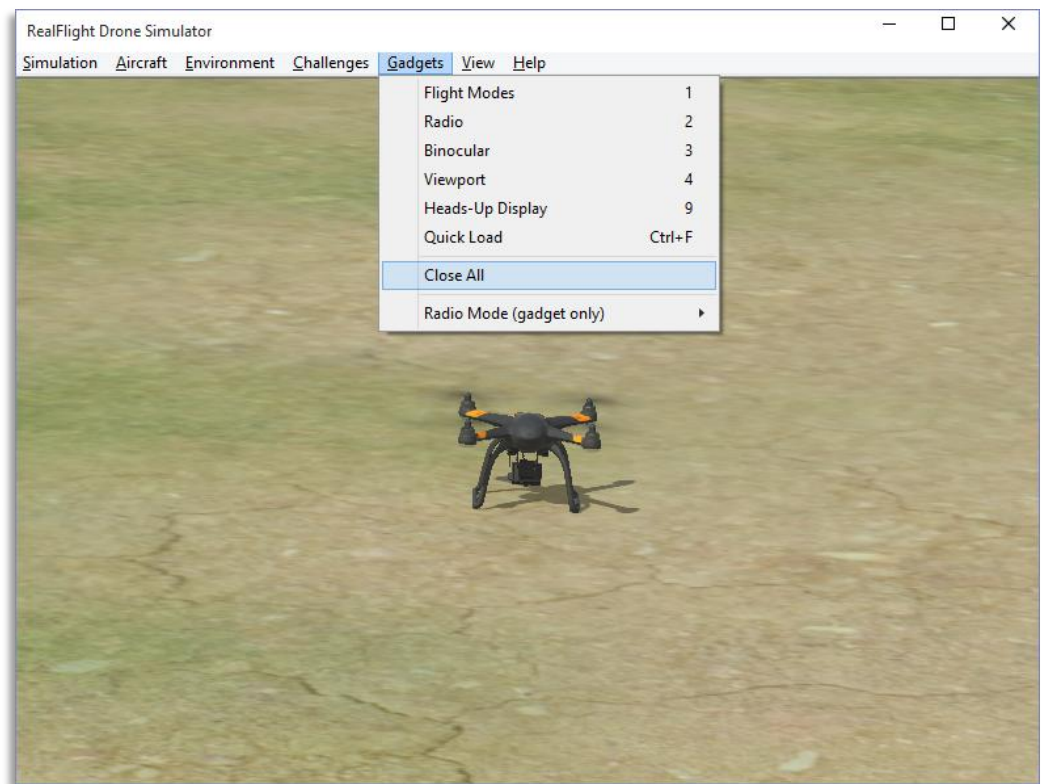
The Quick Load gadget allows you to rapidly search and select a new aircraft or flying site. Select **Quick Load** from the Gadgets menu, or press ‘**Ctrl + F**’ to display the following gadget:



To begin your search, begin typing the name of the aircraft or airport you wish to load. As you type, any aircraft or airport that is installed that match what you type will begin to appear. The more precise the search word, the narrower the selection of rows available. Select the aircraft or airport you wish to load, and then click **OK**.

## Close All

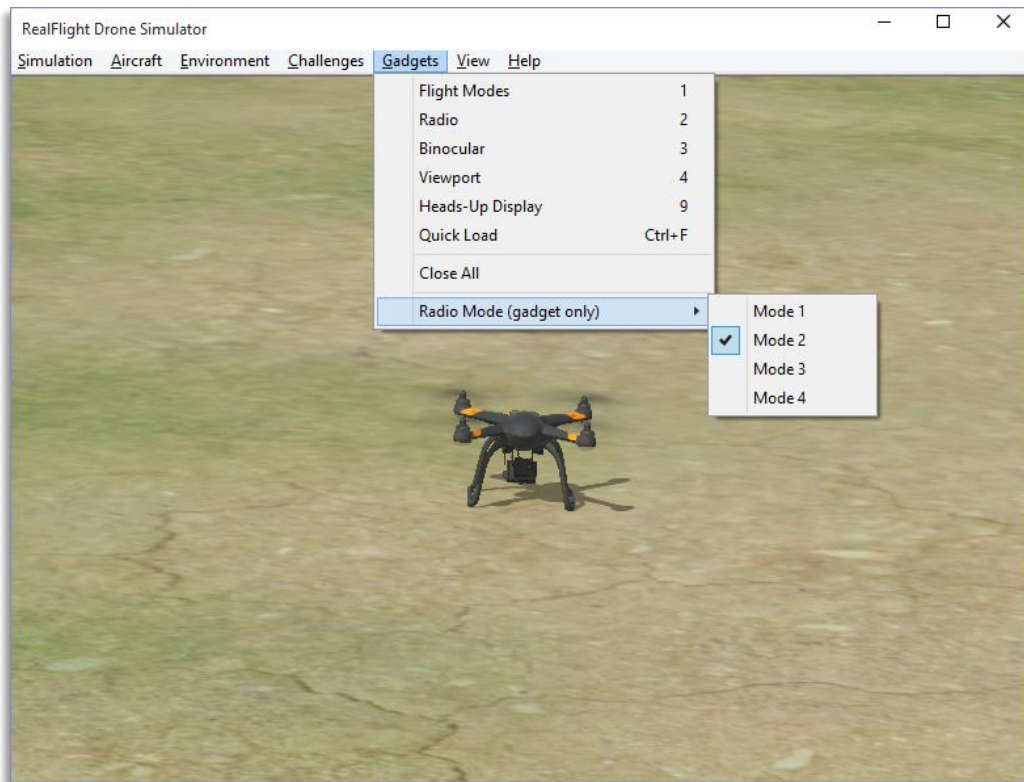
This menu item closes all open gadgets. It offers the user an easy method to clean up the screen without having to close each gadget separately.



## Radio Mode (gadget only)-

This option allows you to change the Mode in which the on-screen radio is displayed. For example, if you prefer to fly with the throttle and rudder on the left stick, and ailerons and elevator on the right stick, then you fly Mode 2. Some pilots prefer Mode 1. In this mode, the left stick controls the rudder and elevator; the right stick controls the throttle and ailerons.





Whichever mode you fly, you will want the on-screen radio to match. Select **Radio Mode (gadget only)** to show the list of available radio modes. Click the mode that is appropriate for you.

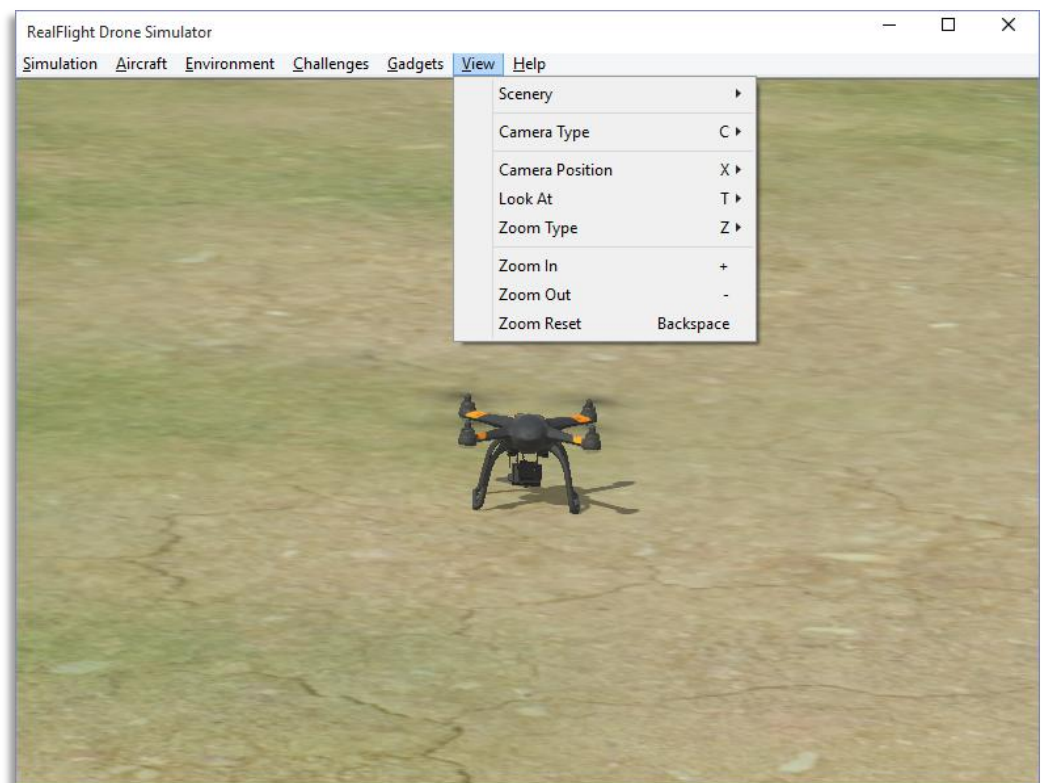


# Chapter 10

## View Menu

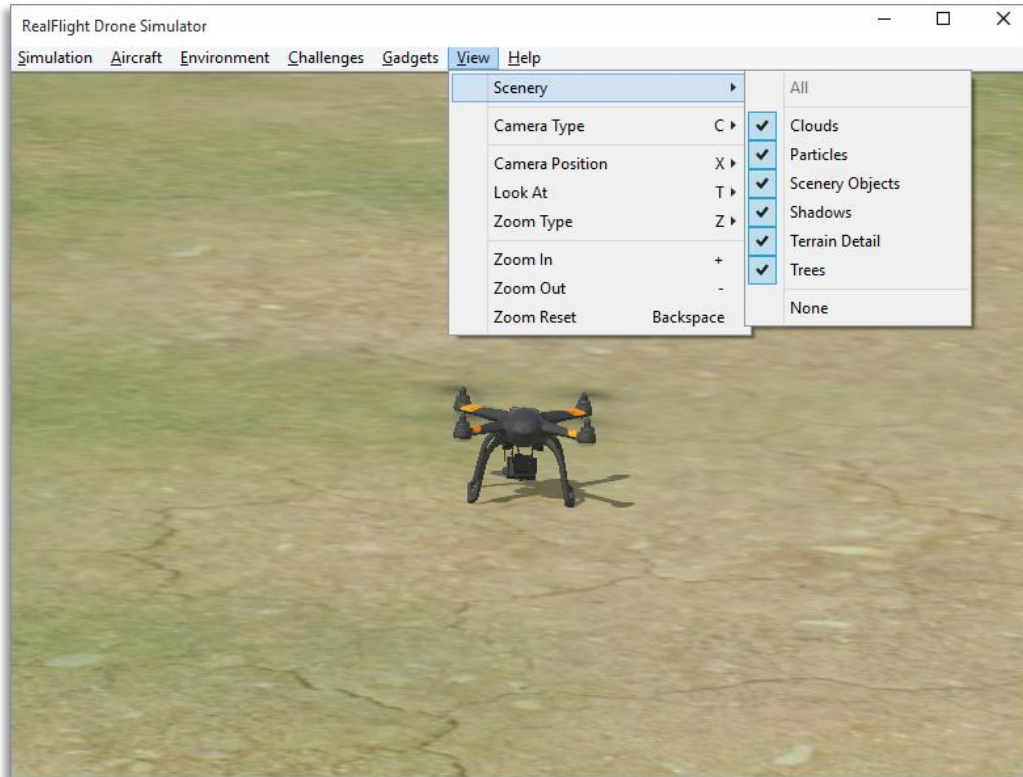
*Adjust your vantage point, change your location, and more.*

This menu allows you to adjust the various view-related features and functions of the simulation. The View menu adjusts what you are looking at and where you are looking from.



## Scenery

The Scenery menu item is used to determine whether to show or hide scenery objects in the airport.



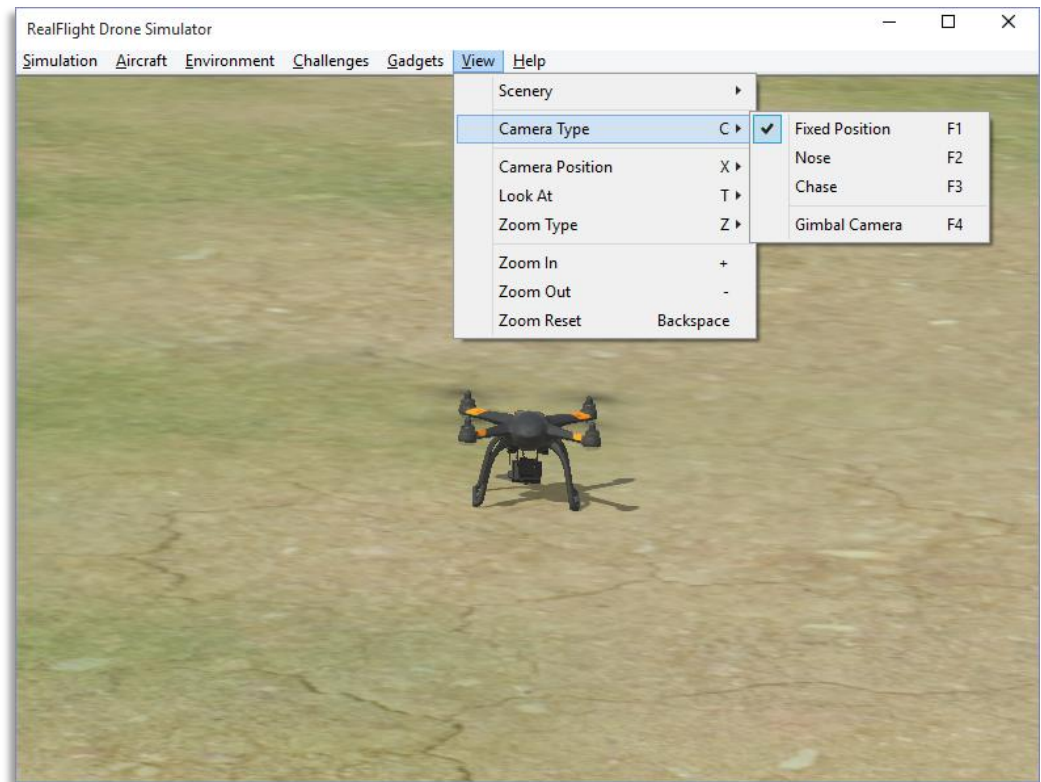
Selecting this item brings forth a pull-down menu with a list of items you can show (make visible within the simulation) or hide (remove from visibility). To show items, check them in the drop-down menu. To hide items, click on them to remove their respective checkmark.

If the frame rate slows dramatically, try eliminating some of the items listed in the Scenery sub-menu. This will improve the frame rate. To remove all items from the scene, click **None**.



## Camera Type

The **Camera Type** menu item determines the Camera Type for the active viewport. Each viewport is independently adjustable. Select from a **Fixed Position**, **Nose** or a **Chase** view. If your aircraft is equipped with on-board cameras, they will be listed here as well.



To access the Camera Type adjustments, click on the **View** menu followed by the **Camera Type** menu item. Select your preferred view from the pull-down list.



### **Fixed Position-**

In this mode, the camera remains in a fixed, stationary position. The position is determined by the Camera Position setting.



### **Nose-**

The Nose selection places the camera at the front of the aircraft looking forward.

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.



### **Chase-**

The Chase mode positions the camera behind the aircraft. The camera will follow the aircraft as it moves.

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.

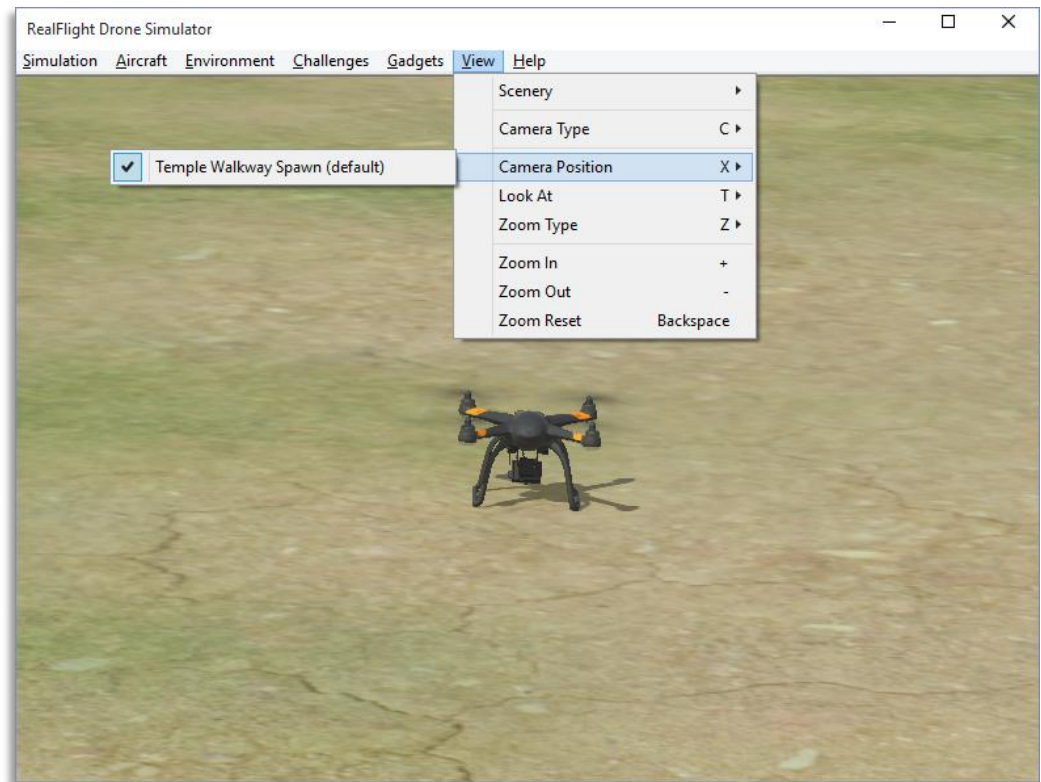
### **Onboard Cameras-**

Typically these take the form of a fixed or gimbaled camera mounted beneath the aircraft. Depending on the aircraft, though, there may be additional cameras available elsewhere on and around the aircraft, looking at a variety of different directions and perspectives.



## **Camera Position**

This menu item determines where the camera will be situated when view from the ground. Depending upon the airport selected, there may be one or more Pilot Spawn locations to use as camera positions.



RealFlight Drone automatically picks the default Pilot Spawn for the airport that you have loaded.

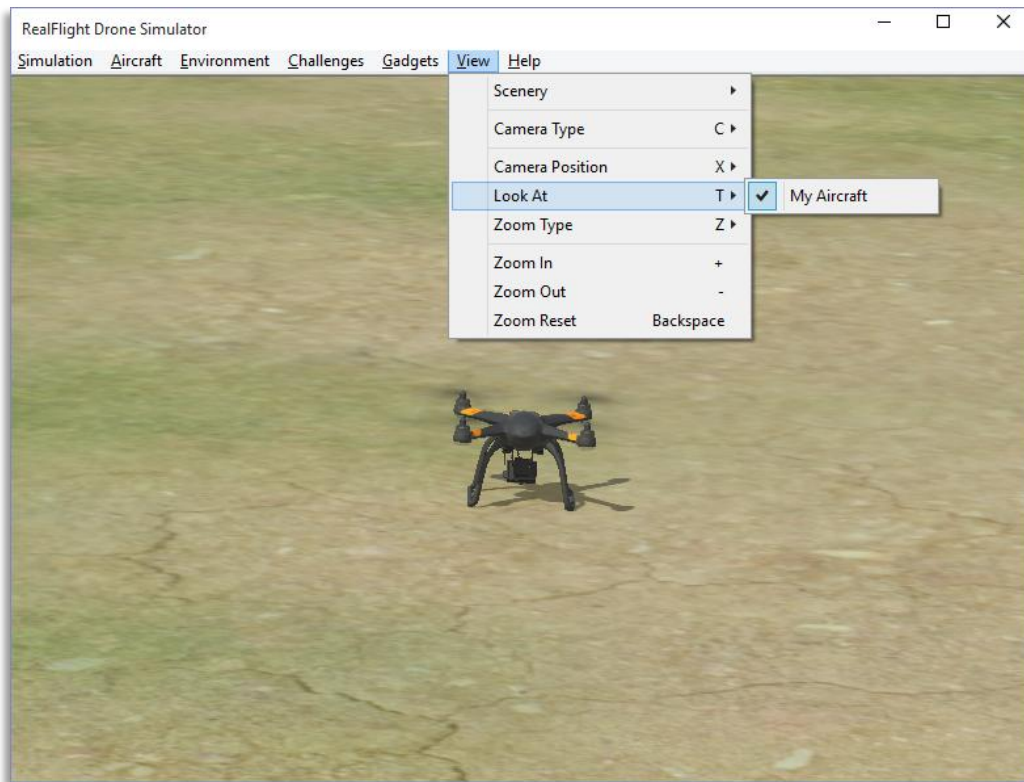
To change the setting, click on the viewport to you wish to modify. This becomes the active view in the simulation. To access the Camera Position adjustments, click on the **View** menu followed by the **Camera Position** menu item. Select your preferred view from the drop-down list.

You may also press the keyboard's **X** key to toggle through the available Camera Position options. If the airport has two pilot spawn locations, for example, pressing the **X** key will toggle back and forth between these two locations.



## Look At

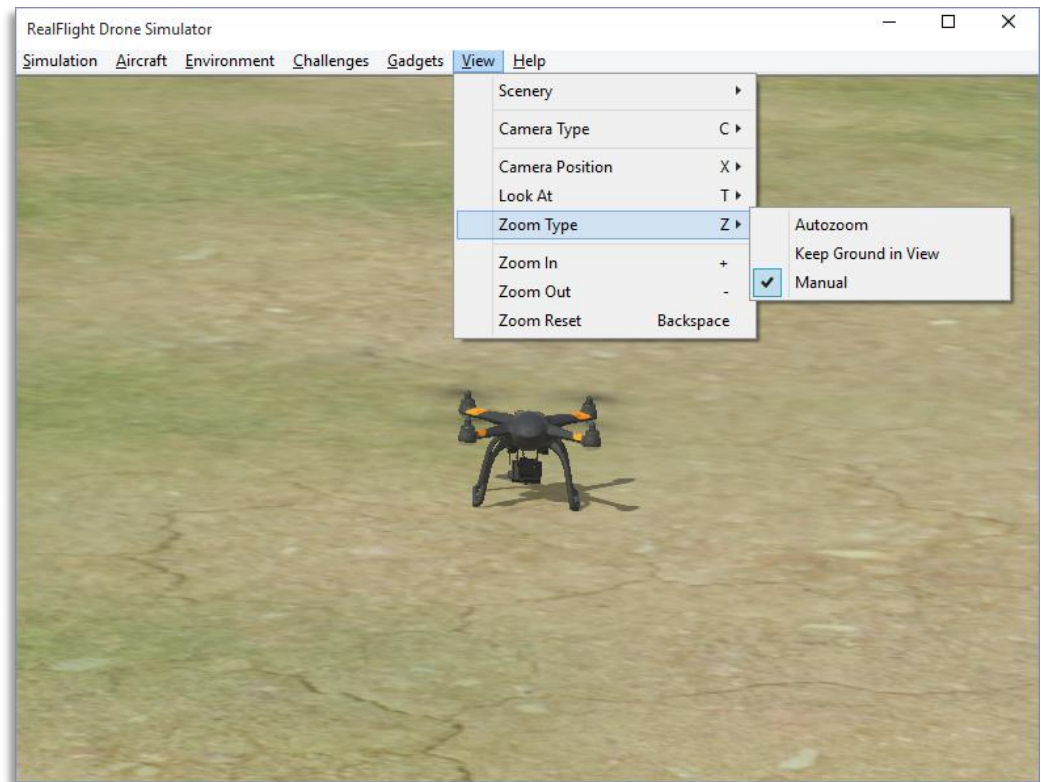
This menu item will force the camera to look at your aircraft, if you have moved to where you no longer can see it. Usually you will want the camera to remain focused on your aircraft.



## Zoom Type

The Zoom Type menu item allows you to change the type of zoom used in the simulation.





Click on the viewport that you wish to modify. This becomes the active view in the simulation. To access the Zoom Type menu item, click on the **View** menu followed by the **Zoom Type** menu item. Select the **Zoom Type** option that accomplishes your goal. You may choose between **Manual**, **Autozoom**, and **Keep Ground in View**.

### **Autozoom-**

This zoom type adjusts the zoom range based on the distance of the aircraft from the pilot. The camera automatically zooms in as the aircraft gets further from the pilot and then automatically zooms out as the aircraft gets closer to the pilot.

### **Keep Ground in View-**

This zoom type attempts adjust the camera so that the aircraft and the ground are always in view. This is the only zoom type that disallows zooming in and out.

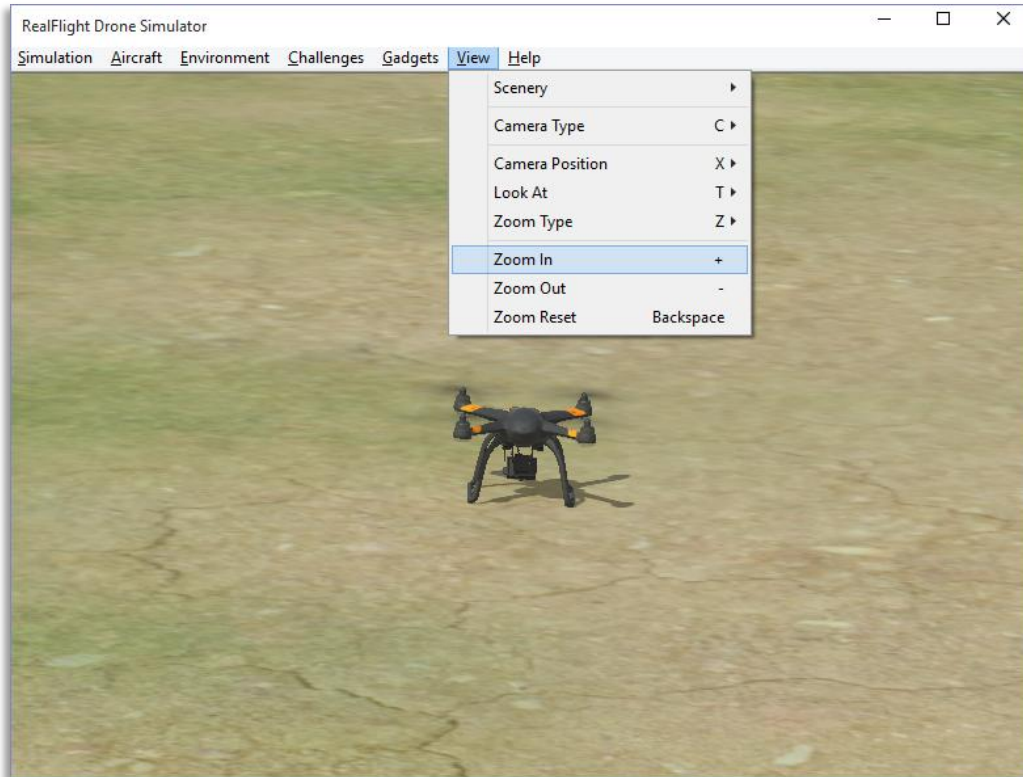
### **Manual-**

This enables the standard view with zoom capabilities. See the *Zoom In* and *Zoom Out* sections below for more information.



## Zoom In

Once you have selected the type of zoom that you desire, RealFlight allows you to customize it further by zooming in.



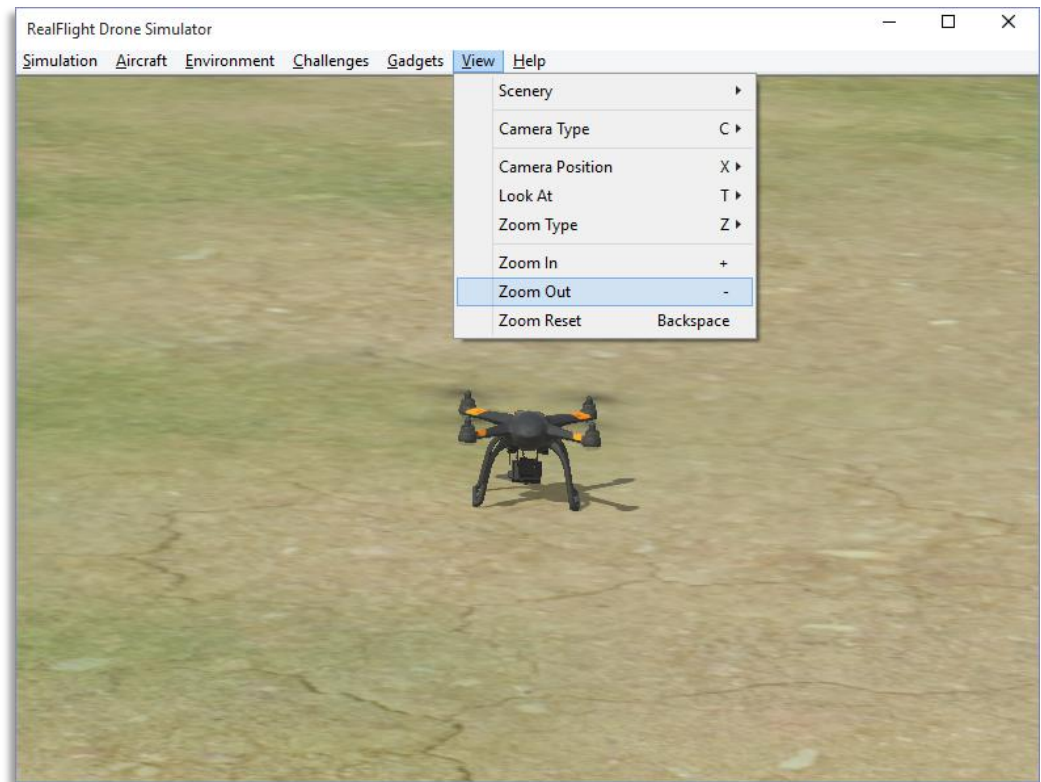
Click on the viewport that you wish to modify. This becomes the active view in the simulation. To access the Zoom In menu item, click on the **View** menu followed by the **Zoom In** menu item.



## Zoom Out

Once you have selected the type of zoom that you want you can customize it further by zooming out. Zooming Out decreases the magnification.



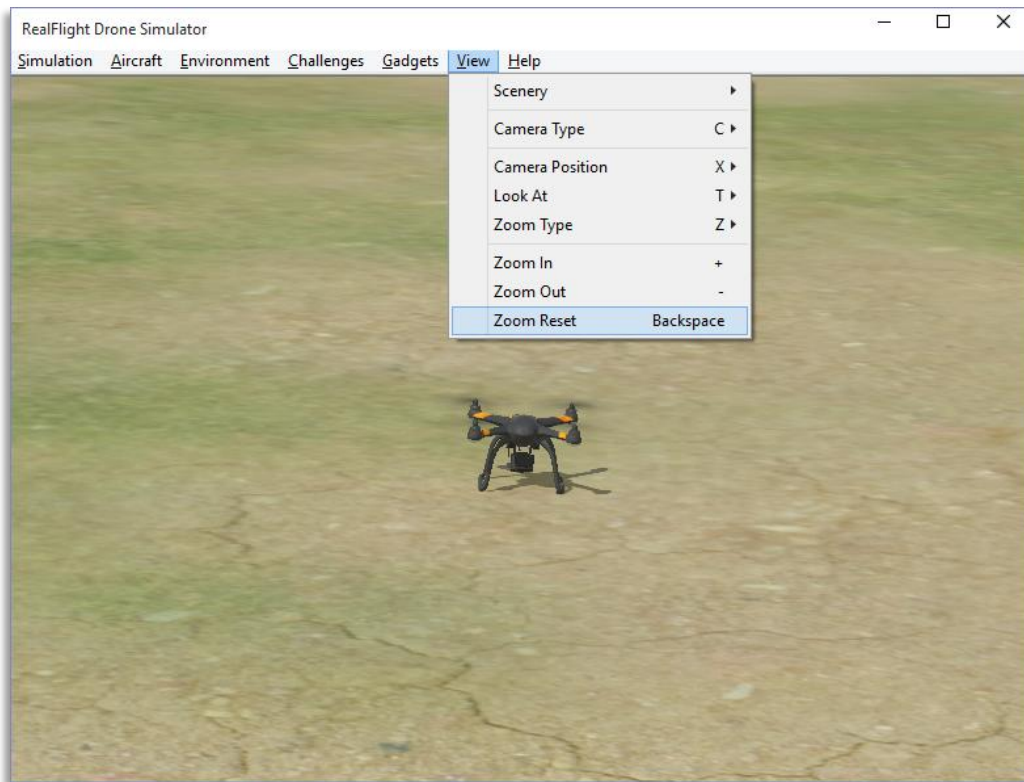


Click on the viewport that you wish to modify. This becomes the active view in the simulation. To access the Zoom Out menu item, click on the **View** menu followed by the **Zoom Out** menu item.



## Zoom Reset

This selection resets the zoom magnification level to its default value. This is useful if you are zoomed way in or way out and want to return quickly to the default level of magnification.



Click on the viewport that you wish to modify. This becomes the active view in the simulation. To access the Zoom Reset menu item, click on the **View** menu followed by the **Zoom Reset** menu item.

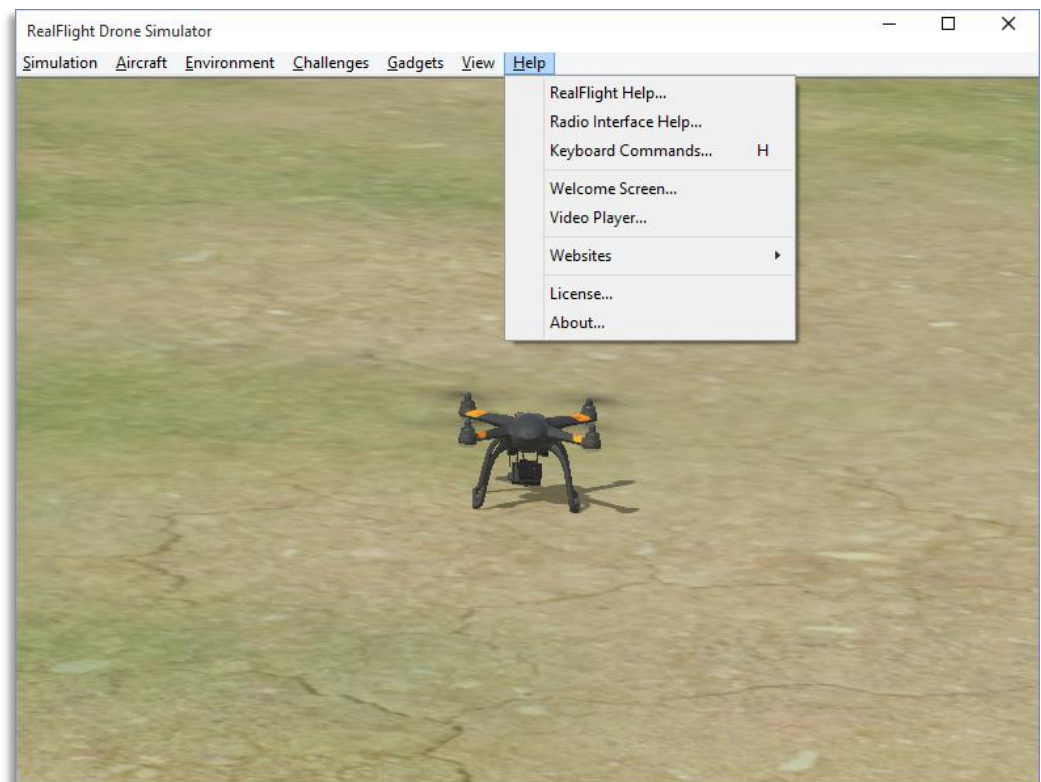
# Chapter 14

## Help Menu

*When all else fails, ask for help.*

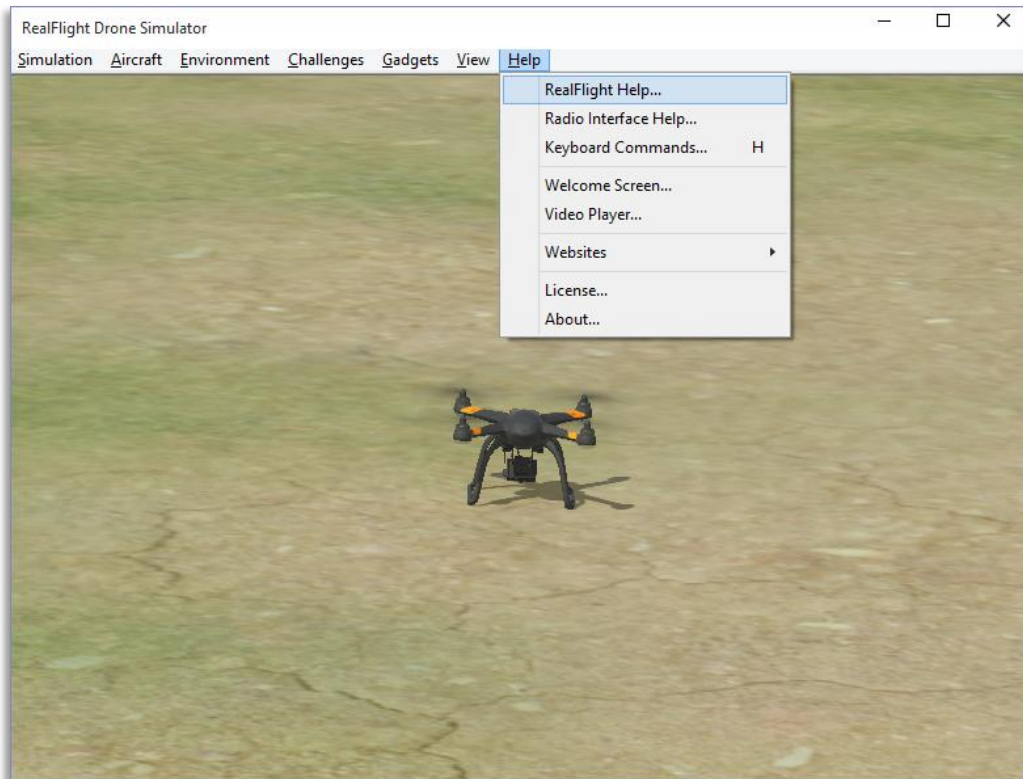
This menu provides you with miscellaneous assistance and guidance with a variety of simulator-related issues.

To access the Help files, click on the Help menu title.



## RealFlight Help

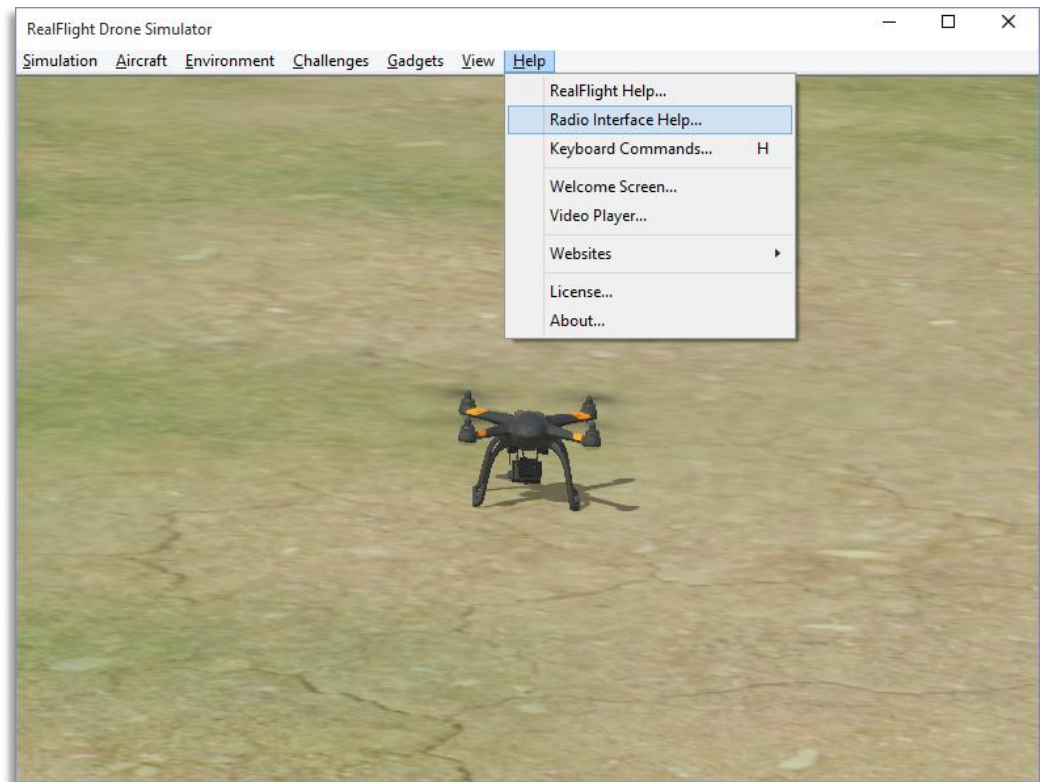
This menu item accesses RealFlight Drone's manual which you are reading now.



To access the **RealFlight Help** file, click on the **Help** menu title.

## Radio Interface Help

We understand that setting up RealFlight to function correctly with your real transmitter can be daunting the first time. To assist you with this particular task, we've provided a guide to walk you through this setup.



To access this guide, click the **Radio Interface Help** menu item.

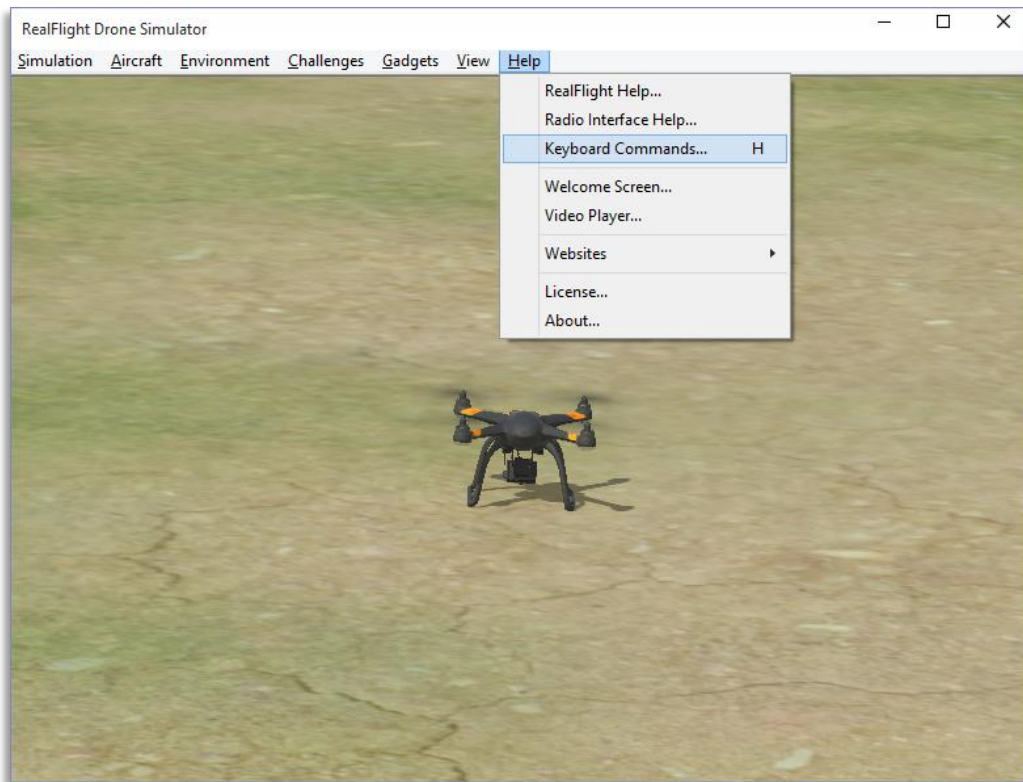


## Keyboard Commands

RealFlight allows you to access menu and other commands from your computer's keyboard. A key that directly invokes a command is called a "quick key" or "hot key".

For example, pressing the **[+] (plus)** key on the keyboard's number pad incrementally zooms your view towards the aircraft. This is exactly the same result that arises if you select Zoom In from RealFlight Drone's View menu item. Consequently, we say that the **[+] (plus)** is a hot key for the Zoom In command.





To access the Keyboard Commands, click the **Help** menu title, followed by the **Keyboard Commands** menu item.

The following overlay will appear:

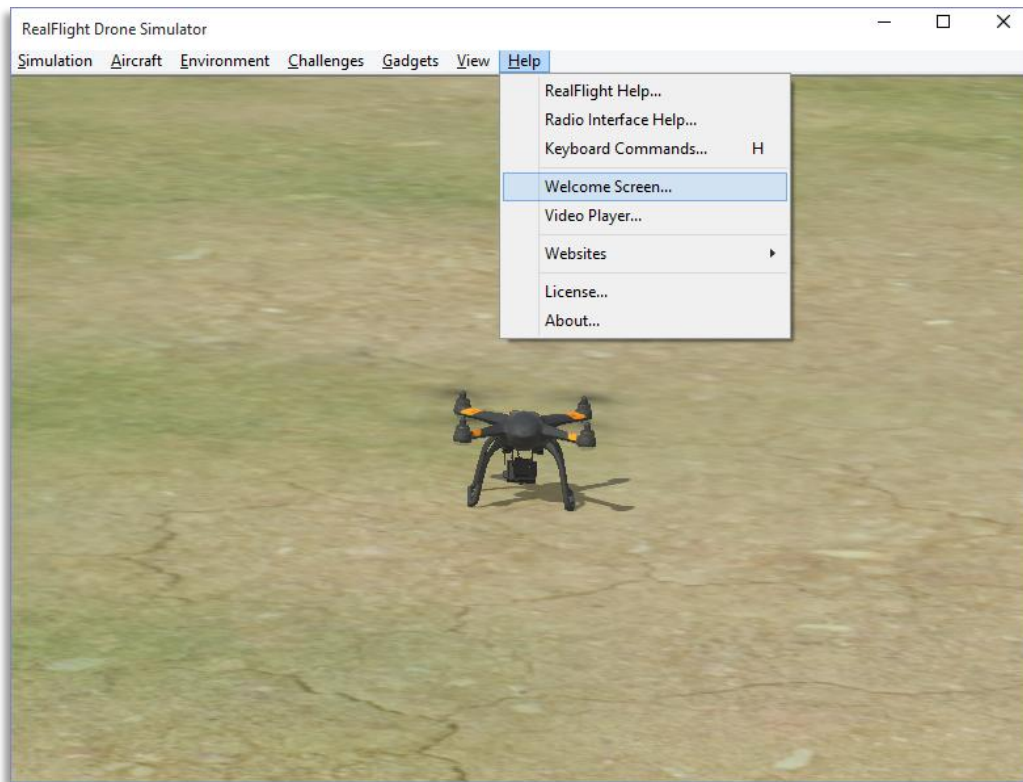


The Keyboard Commands screen contains all of the information pertaining to the hot keys. To view the entire list, drag the scroll bar on the right side of the Keyboard Commands screen down. Alternatively, this list is also contained on the back cover of the Installation Guide which accompanied this software.

Clicking on the 'X' in the title tab of the frame will remove it from the screen.

## Welcome Screen

The Welcome Screen that appears when you first start RealFlight can be accessed at any time from this menu item.

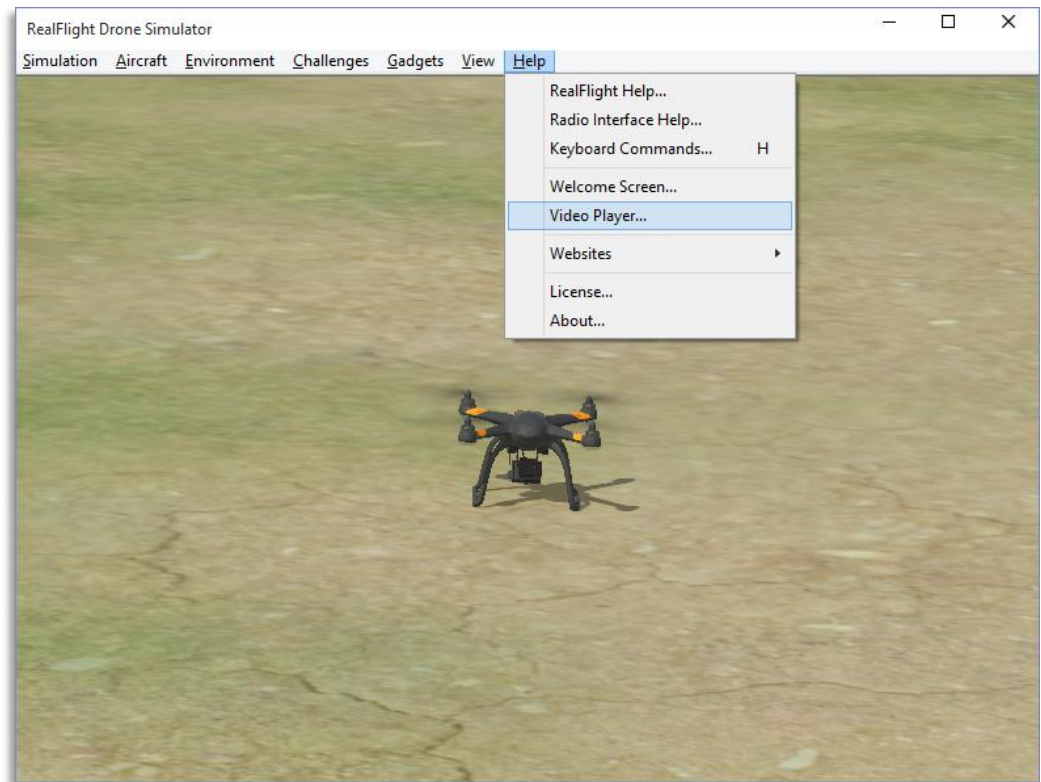


The Welcome Screen gives you the ability to change aircraft and flying sites. You may also select a most recently flown aircraft, or open the video player window.

## Video Player

At some point, you may wish to expand your flying skills beyond drones to other types of aircraft, like planes and helicopters. At that time, we suggest considering upgrading to the full version of RealFlight. Click this menu item to view a guided tour of many of the features available to you if you upgrade.

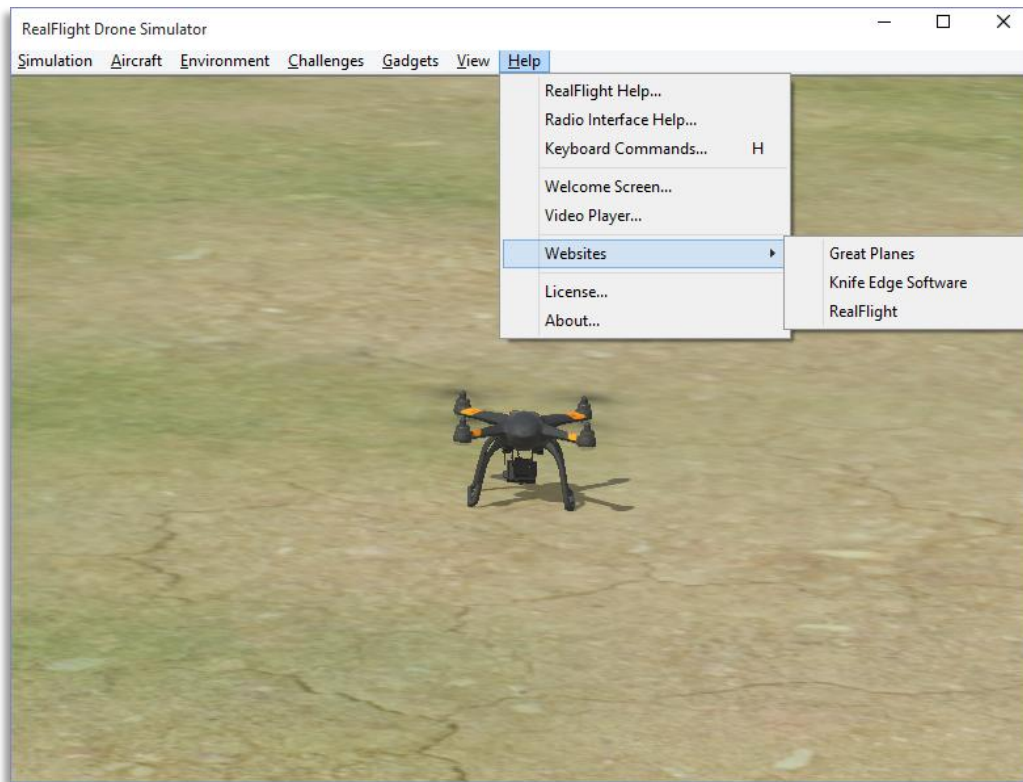




The Video Player is also accessible from the Welcome Screen.

## Websites

This menu item contains direct links to the RealFlight related websites. Please ensure that you are connected to the internet before making your selection. The options include:



### **Great Planes-**

Publishers of RealFlight Drone. Visit this site for information pertaining to the many other Great Planes products available.

### **Knife Edge Software-**

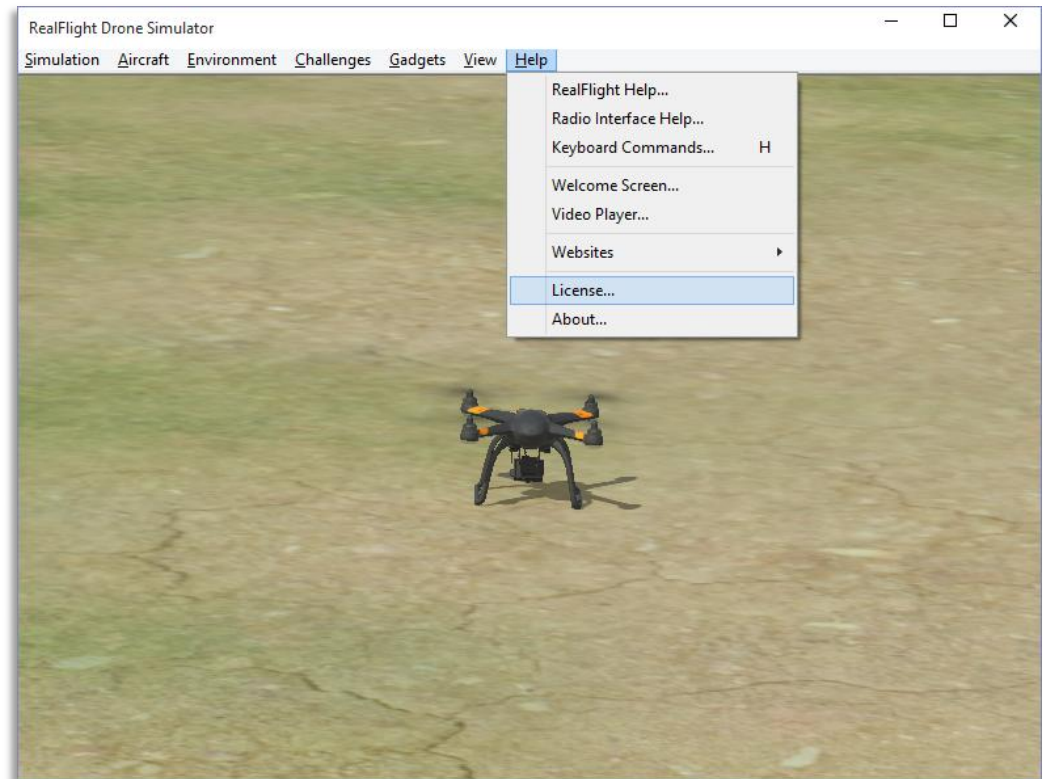
Developers of RealFlight Drone. Visit the Knife Edge forums to share experiences and technical support with other RealFlight owners. The Knife Edge forums also play host to a wide variety of free, downloadable aircraft, trim schemes, flying sites and more for the full version of RealFlight.

### **RealFlight-**

Visit the RealFlight website for more information about the RealFlight family of products, search the knowledge base for technical support, or for information on how to contact our support staff if you have questions.

## License

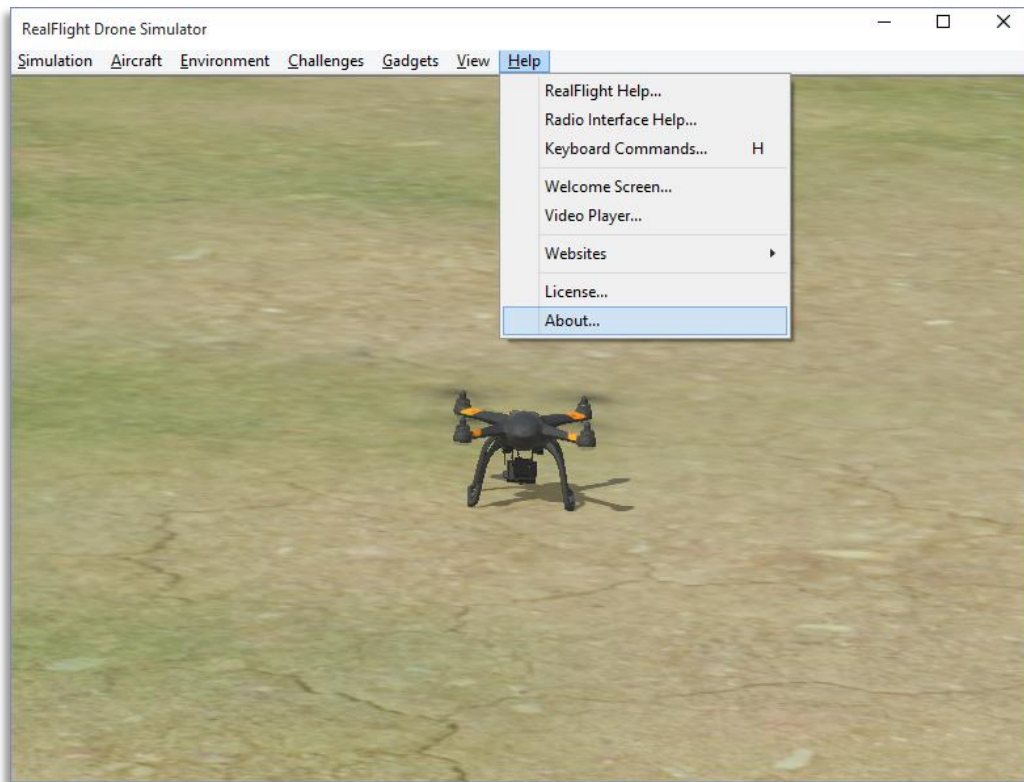
This menu item contains the End Users License Agreement (EULA) for the RealFlight Drone Flight Simulator. Please read it carefully.



Clicking on the 'X' in the title tab of the frame will remove it from the screen.

## About

The **About...** menu item contains miscellaneous information pertaining to your software including your RealFlight serial number, InterLink Elite serial number and the version number of the software that you are currently operating.



Also seen in the About screen are the credits and names of the people that have worked together to bring you the world's most realistic R/C simulator, RealFlight Drone.

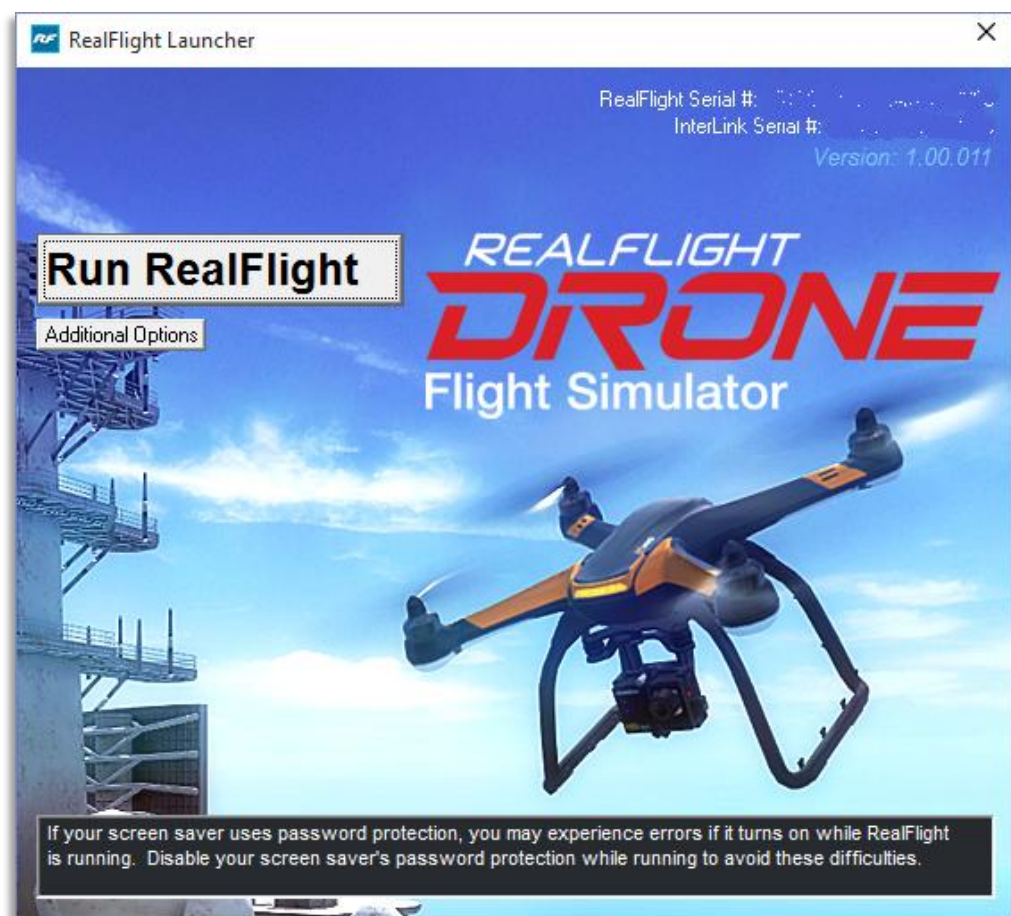
Clicking on the 'X' in the title tab of the frame will remove the About window.

## RealFlight Drone Launcher

*The RealFlight Drone Launcher is the gateway to simulator fun!*

This item allows you to run the simulation, register and update the software, and much, much more.

To run RealFlight or to access the additional options, click the **RealFlight Drone Launcher** icon located on your desktop.





## Run RealFlight

To start running RealFlight, double-click the **RealFlight Drone Launcher** located on your desktop. Next, click the **Run RealFlight** button. The simulation will begin loading the terrain, airport objects, textures, etc. Your simulation experience will begin as soon as the loading process completes.

## Additional Options

Click on the **Additional Options** button to access a variety of useful RealFlight Drone information and miscellaneous functions.

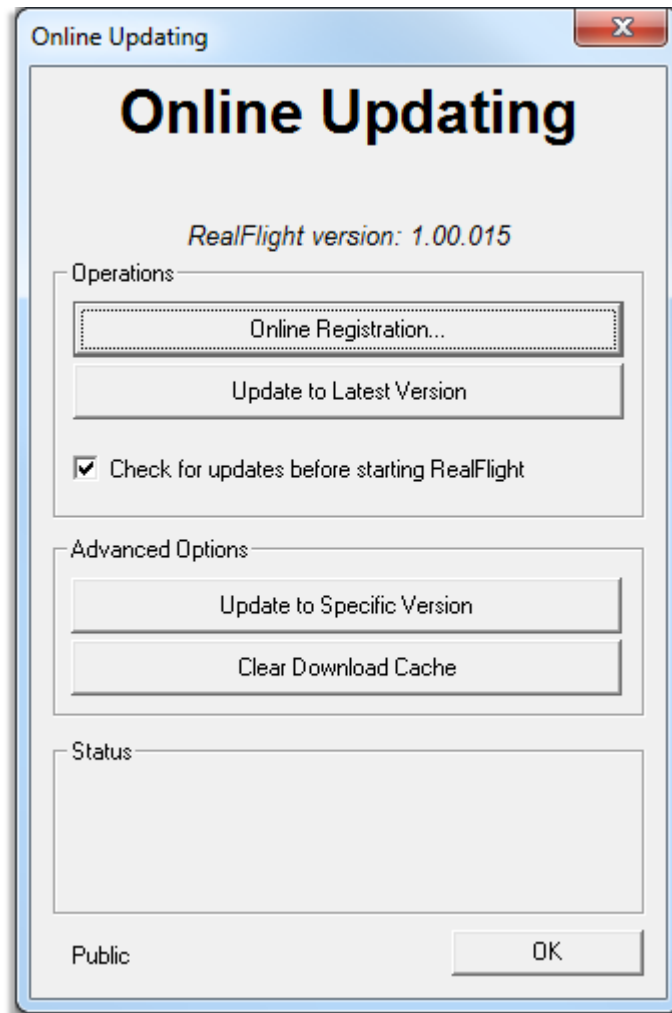


### Restore Defaults-

Use this button to restore RealFlight Drone's default settings. It is designed to simply restore the factory default values and settings for the simulation.

### Registration/Updates-

Use this button to register and update the software.



### Online Registration-

This button allows you to register your copy of RealFlight Drone. The registration information entitles you to complimentary technical support and free online updates.

Please enter all of the required information to complete the registration. If you forget your password, contact the Great Planes Software Support team. To do so, email them at [rfsupport@greatplanes.com](mailto:rfsupport@greatplanes.com) or telephone them at 217-398-8970 (option #1). They will confirm your identity, and reset your password.

**RealFlight Newsletter-**

Periodically, Great Planes will send out an electronic newsletter to customers that are subscribed. The newsletter includes information about new products, shows we are attending, tips and tricks and other useful items. If you wish to receive this newsletter check the box labeled **Yes, I want to receive the RealFlight newsletter via email.**

**Hardware Information-**

RealFlight Drone offers the option of automatically sending us information pertaining to your system hardware and settings when you register. If you leave the Send Hardware Information box checked when you register, RealFlight Drone will send us this information.

This hardware information will assist us in diagnosing any problems you may encounter later, should you need to contact Technical Support. Consequently, we suggest that you leave this box checked when registering.

This feature is optional. If you uncheck the box, RealFlight Drone will not send us any information about your system. Alternatively, you can view exactly what information RealFlight will send us before you decide. To view the information, click the **Technical Support** button on the main RealFlight Drone Launcher window. When the Technical Support page appears, click **Assemble System Information**.

**Update to Latest Version-**

After registering (you only need to register once), you may update to the latest version of the software. This will download all necessary files and correctly install the upgrade.

Click this button to update to the latest version of RealFlight Drone.

Please note: Your PC must be connected to the internet in order to check for updates.

**Check for Updates Before Starting RealFlight-**

If you check this box, every time you run the RealFlight Drone software it will check to determine whether or not there is a more recent version of RealFlight Drone available to you. If a new version exists, RealFlight Drone will ask if you wish to download and install the newer build.

Please note: Your PC must be connected to the internet in order to check for updates.



### **Update to Specific Version-**

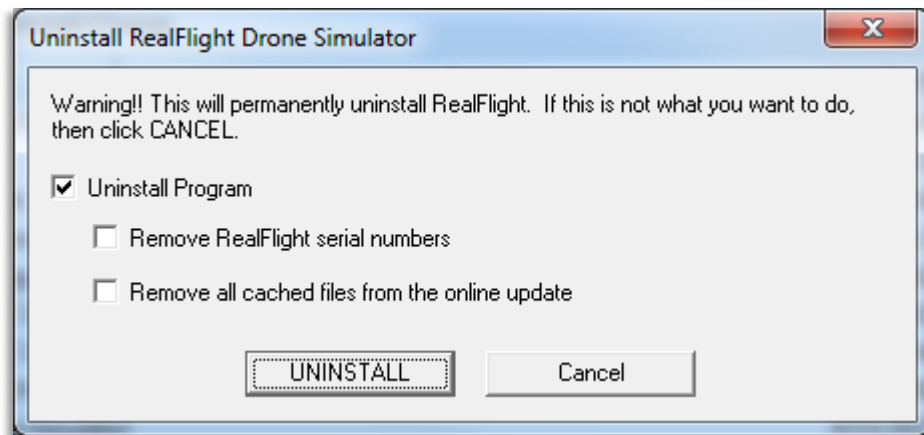
If you are experiencing difficulties with a version you have installed, this will allow you to retrieve a previous version of the software. If the previous version fixes your problem, please contact our technical support team at [rfsupport@greatplanes.com](mailto:rfsupport@greatplanes.com) and let them know about the difficulty encountered.

### **Clear Download Cache-**

Occasionally, files may become corrupt during a download. If you are having difficulties with the online updates, remove all cached files using this option. Next, choose **Update to Specific Version** and then select the **Completely Refresh** option.

## **Uninstalling RealFlight-**

Click the **Uninstall RealFlight** button to uninstall the software. The following dialog will appear:



The RealFlight Drone Launcher will remove all necessary RealFlight Drone files.

### **Uninstall Program-**

Choose this option to uninstall only the RealFlight Drone program itself.

### **Remove Serial Numbers-**

Choose this option to remove the serial numbers from your system. This will remove the RealFlight and InterLink serial numbers as well as your online activation.

### **Remove All Cached Files From The Online Update-**

Choose this option to remove all cached download files from your system. If you uninstall these files, future downloads may take a little longer.

### View Web Site-

Click the **View Web Site** to visit the RealFlight web site. A browser window will open for you and you will be automatically directed to the site.

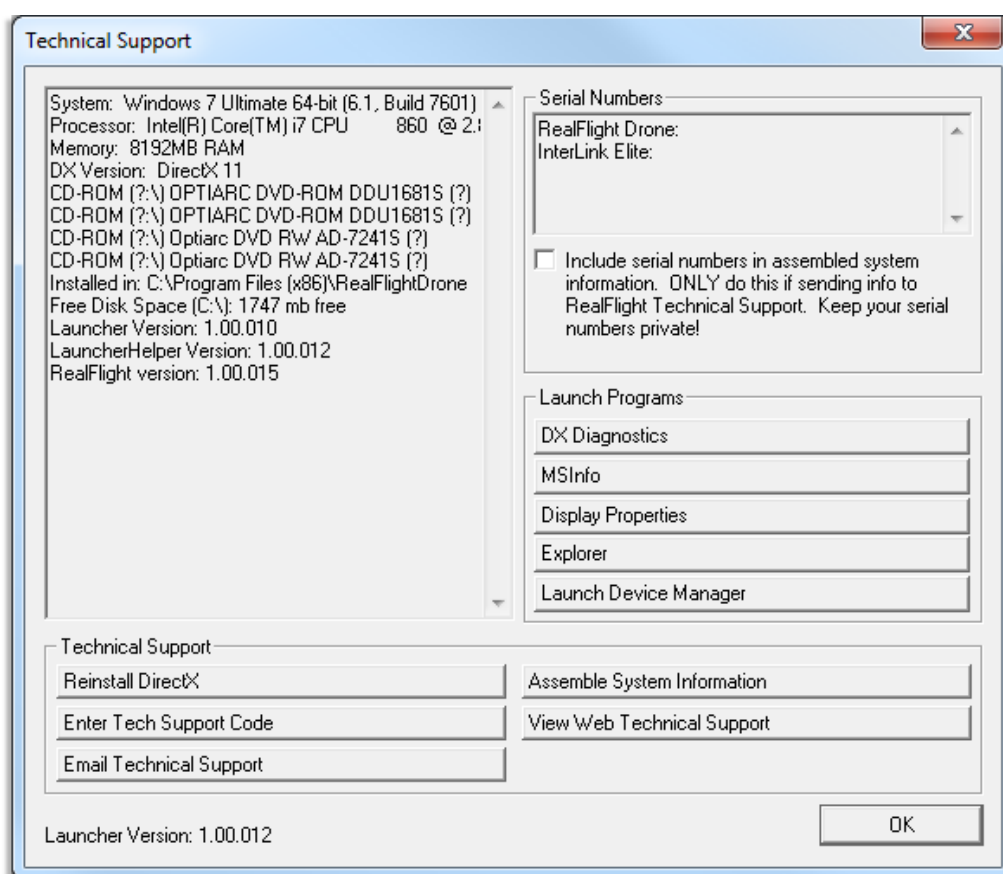
Please note: Your PC must be connected to the internet in order to view the RealFlight web site.

### Read Help File-

Press the **Read Help File** button to bring up the manual, this document that you are reading now, for RealFlight Drone.

### Technical Support-

Press the **Technical Support** button to bring up technical support information pertaining to your system. If you encounter any difficulties with RealFlight, this information can help you to resolve the situation on your own, or may assist Great Planes' Support Staff to diagnose the problem.



### System Information-

The pave on the upper-left portion of the window displays a list of the critical system information. Before you email technical support, or report a bug with

the software, please be sure to cut and paste this information into your email. This will greatly assist them in diagnosing the difficulty.

#### **Reinstall DirectX-**

Choose this option to reinstall Microsoft's DirectX on your computer. Occasionally this will fix corrupted installations.

#### **Enter Technical Support Code-**

Choose this option to enter a technical support code. If you do encounter problems running RealFlight, our Technical Support team may supply you with a code to input here. Entering this code will help them diagnose or resolve your difficulty.



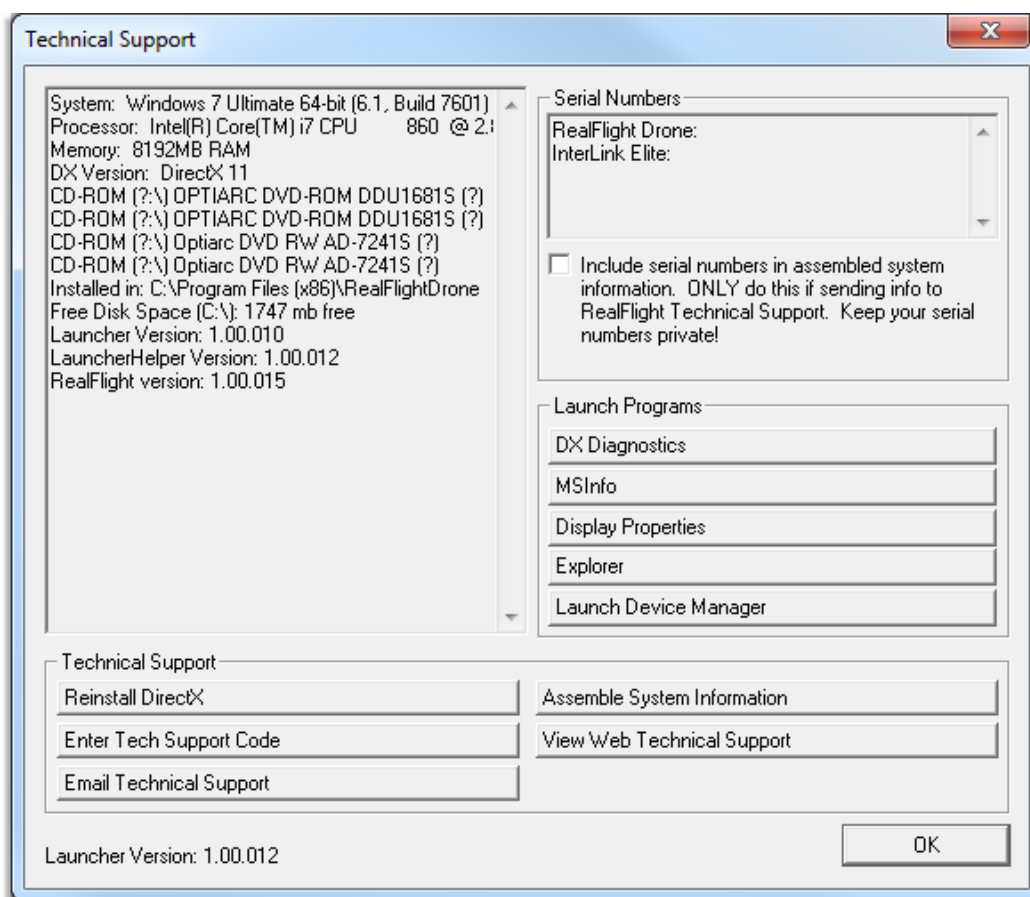
#### **Email Technical Support-**

This gives you the email address [rfsupport@greatplanes.com](mailto:rfsupport@greatplanes.com) to which you can email your difficulties. If you do email us, please be sure to attach the Assemble System Information output to your email.

You will receive an auto-reply message back confirming that Great Planes Support Staff received your email. If you do not receive the auto-reply message, please double-check that you sent your email to the correct email address.

#### **Assemble System Information-**

Choose this option to collect critical information about your system, and about your RealFlight settings. You may find this information useful if you try to troubleshoot problems on your own. Moreover, if needed you can cut and paste this information into an email to Great Planes Support Staff.



### **View Web Technical Support-**

Choosing this option will open a browser window, and take you to a web site that contains the most up-to-date technical support information for RealFlight.

### **View Tasks-**

This shows you a list of all tasks that are running on your computer. Some tasks can interfere with RealFlight Drone and may need to be closed.

### **Include Serial Numbers-**

Check this box if you plan to assemble all system information to send to Great Planes Support Staff. If you are sending this information to anyone else, don't check this box. The serial numbers are unique to you, and should only be shared with Great Planes Support Staff.

### **DX Diagnostics-**

This brings up Microsoft's DXDIAG utility. Using this utility can further help diagnose your system.

Please note: If you send us information about your system to help us diagnose a problem, please do not use DXDIAG to generate that information. Instead, use the “Assemble System Information” option. The “Assemble System Information” output file contains more information than the DXDIAG output.

**MSInfo-**

This option will run MSInfo. This will give you even more information about your system. This program is not always installed on a particular computer, but normally comes with programs such as Microsoft Office®.

**Display Properties-**

This brings up the display properties for your monitor. You can use this page to change the resolution of your desktop.

**Explorer-**

This button launches Windows Explorer. This Microsoft Windows utility can help you locate, move and back up your files.

**Launch Device Manager-**

This button launches the Device Manager. This Microsoft Windows utility will help you determine driver dates, as well as installing and updating video and sound card drivers.



## If You Experience Difficulties

*Tips and tricks for solving the more common problems.*

The RealFlight Drone simulator is on the cutting edge of technology, and therefore operates using advanced hardware. Consequently, there is always the remote possibility you may experience a few slight difficulties. Should the need arise, we provide extensive resources to help.

Besides providing the best R/C simulator, we sincerely feel that we provide the best, most extensive product support of any simulator. Since hardware, drivers, and operating systems are always changing, we work hard to keep our support team up-to-date on the latest information available to ensure that you have the most enjoyable experience possible.

This section begins with a summary of the various sources of RealFlight Drone information including support and problem solving assistance. Then, we will show you some simple but powerful steps that can resolve or prevent most RealFlight Drone difficulties. Finally, if these steps fail to solve your difficulty, we will explain the most effective ways to acquire additional assistance.

### How to Get Help and Information

As a RealFlight Drone user, you have access to an incredible amount of information about this product. Much of this information can help you resolve difficulties, or correctly access and use program features. Here is where you can find it:

- The manual. Most common RealFlight difficulties can be resolved by following the instructions in later sections of this chapter; however there is also additional information throughout other chapters that may be of assistance.

- Visit our product Knowledge Base at [www.gpssoftware.com](http://www.gpssoftware.com). This is a great resource and is an indexed, searchable collection of articles that describe solutions to almost every known situation with RealFlight and all of our other software products. In fact, this is the same information database used by our product support technicians.
- Visit the Knife Edge Software Message Boards at [www.knifeedge.com/forums/](http://www.knifeedge.com/forums/). This is a place where owners of RealFlight and other Knife Edge products post questions, comments, and responses. Sometimes our product support technicians and product developers from Knife Edge post replies and announcements as well. You may find a thread that discusses the same difficulties that you are experiencing.
- Contact our Technical Support department by email at: [rfsupport@greatplanes.com](mailto:rfsupport@greatplanes.com). Alternatively, our staff is also available via telephone or postal mail at:

RealFlight Technical Support  
 3002 North Apollo Drive  
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 Champaign, IL 61822  
 Voice phone: (217) 398-8970 (Option 1)  
 FAX: (217) 398-7721

The product support teams are specially trained, and have many resources to help you resolve problems with RealFlight Drone.

## Before You Do Anything Else

If you are experiencing difficulties with RealFlight Drone, you should always try the steps below first. These steps really do cure most problems our users experience. Even if you are not having a problem, these same steps often assist in the operation of both RealFlight and your computer.

- Update your video and sound card drivers (see instructions below).
- Update to the latest version of RealFlight Drone.
- If these steps do not work, proceed to the next section.

### Update Your Drivers-

Before you do anything else, you should make sure you have updated your video and sound drivers. A large number of difficulties encountered by RealFlight users can be cured by updating drivers.



A driver is a software program that controls your video or sound card. Each card manufacturer provides drivers for its own cards. To work correctly, RealFlight relies on your video and sound card drivers.

It is very important to use the latest available driver for your card. Card manufacturers frequently release updated drivers to fix problems that occur when the driver is used with programs such as RealFlight Drone. The driver that came with your new computer, on your Windows disc, or on the disc included with the new card you bought, may not be the latest version.

If you do not know how to update drivers, you can find instructions in our Knowledge Base article *Q01-1038, How to Update Drivers*, at <http://www.gpssoftware.com/kb/q01-1038.htm>. This page will take you through the process step-by-step, and has links to driver download sites for most manufacturers.

### **Update to the Latest Version of RealFlight Drone-**

As we regularly release program updates, the difficulty that you are seeing may already be fixed in an update. Even if you just bought RealFlight, you should update to the latest version. It's free and only requires a few minutes of your time.

## **If You Need Additional Assistance**

You have updated drivers and updated RealFlight Drone and you are still having problems. What next?

As a first step, we suggest checking our Knowledge Base at [www.gpssoftware.com](http://www.gpssoftware.com). This is an easy to use, searchable database of known problems and solutions for RealFlight, RealRace, and our other software products. This is the same database that our Product Support technicians use when helping customers. We constantly update the knowledge base to address new problems as we discover them. In many cases, you will be able to find an article that gives clear, concise instructions for resolving your difficulty.

You may want to check the Knife Edge Forums at [www.knifeedge.com/forums/](http://www.knifeedge.com/forums/). This is a place where owners of RealFlight and other Knife Edge products post questions, comments and responses about problems. You may find a discussion thread about the problem you are experiencing.

You can also contact Technical Support at Great Planes via email at: [rfsupport@greatplanes.com](mailto:rfsupport@greatplanes.com).

**IMPORTANT.** If you do contact Technical Support, you can help us enormously by providing detailed information about your computer system. Since your problem may only occur on a particular video or sound card, particular driver version, etc., we may

need this information to help us diagnose your problem. To compile your system information, use the **RealFlight Drone Launcher**. Click the **Additional Options** button. Next, click the **Technical Support** button, followed by the **Assemble System Information** button. This will create a file called “c:\launcheroutput.txt”, which contains your system information. Attach this file to an email and send it to us at [rfsupport@greatplanes.com](mailto:rfsupport@greatplanes.com).

## Examples of Common Problems and Solutions

### If You Don't See Your Problem in This Chapter-

This chapter contains a few examples of common difficulties and concerns that RealFlight users have experienced.

Remember that we can never provide a complete list of difficulties and solutions in a program manual. That's because RealFlight - and the computers, cards, and drivers it uses - are constantly evolving. As such, we maintain a detailed Knowledge Base at [www.gpssoftware.com](http://www.gpssoftware.com). By keeping our Knowledge Base online, we can provide you with the latest information about resolving any difficulties that might arise. If you don't see your difficulty described in this chapter, please check the Knowledge Base.

In this chapter, we've simply tried to pick a very short list of the most asked about issues.

### My computer “freezes” when I run RealFlight-

Sometimes, you may also notice sound skipping or repeating, or a computer reboot while flying. To resolve this type of problem, you must update the drivers for your video and sound cards. ***This is very important.*** Card manufacturers regularly update their drivers to fix this type of problem. Even the driver that came with your new computer may not be the most recent.

Sometimes a card manufacturer will offer a choice between a “recommended” driver, and another driver (often called “special purpose”, “alternate”, or “beta” driver). If RealFlight Drone “freezes” with the “recommended” driver, try using the alternate driver instead.

If you are sure that you are using the latest drivers, and have followed all the other steps in the previous section (update RealFlight Drone, test DirectX) and are still having difficulty with your computer locking up while running RealFlight, please contact Great Planes Technical Support.

### **Improving RealFlight Drone Performance-**

During installation, RealFlight Drone analyzes your computer's hardware specifications. RealFlight Drone then tries to optimize its configuration to best take advantage of that hardware, and achieve the best possible performance.

However, if the performance is less than you desire, you can adjust some of RealFlight Drone's settings to improve the simulation speed and frame rate:

- Ensure that the drivers for the video and sound cards are up-to-date.
- Turn off all other programs, especially virus checkers and network applications (such as Instant Messengers) while running RealFlight Drone. Use **CTRL-ALT-DELETE** and check the Task Manager to verify that nothing else is running in the background.
- Reduce the texture, water, shadows and other graphics quality in RealFlight. This can have a profound effect on cards that do not have a high texture memory. See the Settings section starting on page 40 for more information.
- Eliminate the items shown in the simulation. To do so, access the **View** menu title then, access the **Scenery** menu item. Click an item, type to remove it from the simulation. It may be necessary to eliminate several items before performance meets your expectations.
- Reduce the number of open Gadgets and Viewports. Click the **X** on each Gadget or Viewport that you wish to close.

### **Other Common Problems-**

Here are some other things you may want to watch for:

- Check the DVD for scratches or blemishes. Even minor scratches or fingerprints can cause random problems that appear to be program bugs.
- Verify that all other programs are closed prior to starting RealFlight Drone. RealFlight works best when it is the only program running.
- If all else fails, try rebooting your computer occasionally, Windows may become unstable after prolonged and continuous use. A simple reboot may clear up any difficulty.

## Transmitter Modes

Throughout world, pilots will fly using radios in different Modes. The Mode refers to the transmitter's gimbal stick assignments which determine the flight mode of your controller. There are two main modes of control. Mode 1, mostly used in Europe and Mode 2 which is the predominant method of controlling aircraft.

### Mode 1-

A controller which is designated as Mode 1 means that it contains the throttle and aileron on the right stick. The left stick will, therefore, control the elevator and rudder.



Elevator



Rudder



Throttle



Aileron

### Mode 2-

A controller which is designated as Mode 2 will have the left stick controlling the throttle and the rudder. Conversely, the right stick will control the elevator and the ailerons.



Throttle



Rudder



Elevator



Aileron

## Convert Mode 2 to Mode 1

The RealFlight InterLink Elite is primarily offered in the Mode 2 configuration. If you wish to convert your InterLink controller to Mode 1 for use with RealFlight, please following these directions.

### Tools Required-

- Medium Phillips-head screwdriver
- Hemostats (preferred), or needle nose pliers

### Instructions-

Please read all instruction carefully before you begin this conversion. Great Planes will not accept responsibility for incidental damage to your InterLink controller or personal computer as a result of failure to adhering to these instructions properly. Please control Software Support prior to performing this conversion if you have any questions about this procedure.

1. Make sure your InterLink Elite controller is completely disconnected from your computer. Failure to do so could result in permanent damage to your InterLink Elite controller and/or your computer.
2. Remove the four screws from the rear of the controller, remove the case rear half, and lay the controller face-down on your workspace.
3. Remove the silver metal ratchet lever and screw from the gimbal on the right-hand side. Rotate the metal ratchet 180 degrees, so the screw hole is now on the bottom right side of the gimbal, and the ratchet end is now pointing upward nearest the switch on the top right side, and resting on the ribbed surface of the gimbal. Line up the lever's hole over the plastic mounting stud on the gimbal, insert the screw and tighten to a snug fit (making sure the lever

maintains proper alignment over the ribbed area of the gimbal). DO NOT OVERTIGHTEN, as the plastic gimbal may become easily stripped.

4. On the right-hand gimbal, notice there is an arm and spring type lever mounted vertically along the inner-left side of the gimbal, the spring attached at the lower end to a plastic mounting stud. This arm and spring assembly must now be moved to the left-hand gimbal. Using pliers, gently pry the head of the spring upwards off of the plastic arm. Now remove the spring and arm from the gimbal (this may require slight maneuvering of the parts to get them out from behind the main body of the gimbal). NOTE: Pivot the arm outward, then slide to the side to remove it from the gimbal.
5. Looking at the left-hand gimbal from the back, on the inner-right side, notice a similar arm and spring mounting lugs as were on the other gimbal, except the spring lug is now on the top end and the pivot arm lug is on the bottom end. Take the arm just removed from the other gimbal, insert the pivot end onto the round pivot lug on the lower inside part of this gimbal and rotate the arm upward over the gimbal. Insert the spring down into the gimbal so the loop on the opposite end hooks onto the plastic lug located on the inside top-end of the gimbal. Once hooked, gently pull the opposite end of the spring outward and loop it over the end of the plastic arm. If any questions arise to the assembly of the arm and spring, refer to the arm already in place on the bottom of the gimbal, as they are assembled in the same manner.
6. Both gimbals are now in the Mode 1 configuration. No alteration of any wires is necessary. Reinstall the rear of the case onto the front half, care that no wires are pinched between the two case halves. Reinstall the four case screws.

### **Configure RealFlight-**

Once you have made the changes to your InterLink controller, you will now need to make some minor changes in RealFlight to match your controller's configuration.

First, adjust the channel mapping by editing the InterLink Profile. See Select Controller section on page 34 for more information about this process.

Last, make sure the on-screen Radio Gadget is also switched to Mode 1, found under the Gadgets menu. See Radio Mode on page 99 for more details.

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**A Big Thanks Also  
To**

The families of those who put many late nights into the  
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**And To Knife Edge  
Mascots**

The All-Seeing Gnome  
LuLu the Hula Girl

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