

Remember that Channel Mapping is used to set the input channels for your transmitter. This means that you are setting the channels used to monitor physical movements or positions of your transmitter's sticks, switches, and knobs. Unless you change transmitters, you should only need to set this once. *Only use the Channel Mapping... menu item to tell RealFlight which channel your controller is using for each stick/knob/switch input, not what control function you want that stick/knob/switch to perform.*

The Software Radio controls mixing, exponential, and other channel processing that a computer radio would normally perform. The Software Radio determines the control function you want each stick/knob/switch setting to perform. You will most likely want to adjust this differently for various aircraft. For example, the mixing utilized for your glider will probably not be very useful on a jet.

The Electronics options modify the servo properties (e.g., servo speed) as well as adjusting the input channels in the same way as the Channel Mapping... wizard. However, changes made using the Electronics options only apply to the particular aircraft that you are editing. *Use the Electronics options only when you want to edit a specific servo property (like servo speed) or if for some reason you need to reassign an input channel for one aircraft only.* In most cases, you should not need to do the latter. Instead, you should normally use the software radio to configure control outputs.

A good rule of thumb: *if a setting will not be the same for every aircraft, you should not try to implement the setting by using the Channel Mapping... menu item.* Instead, adjust the Software Radio.

Events Menu

Challenge your flying skills by competing in events, by yourself, or join others online.

An event is an organized flying contest with a set of rules. RealFlight G4 supports five types of events: Autorotation/Deadstick, Free Style, Limbo, Pylon Racing and Spot Landing. You can participate in these events by yourself or compete with other RealFlight G4 users over the internet.

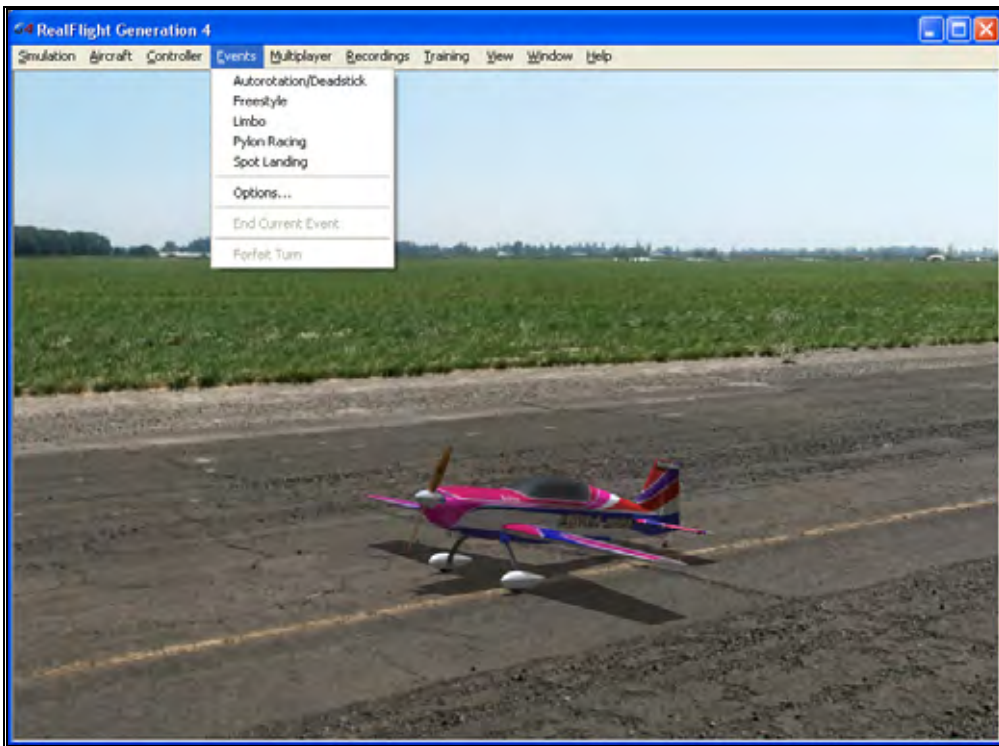
To participate in an event alone, all you have to do is start the event. RealFlight G4 does the rest.

If you want to compete with other RealFlight G4 users, you must first start a multiplayer session (or join an existing one). See the Multiplayer chapter for additional information on how to do so.

When all of the participants have joined the session, the session host will start the event. This enrolls every member of the multiplayer session in the Event. If any multiplayer session members want to leave the event, they can do so while remaining a part of the multiplayer session.

RealFlight G4 limits you to running only one event at a time. This rule also applies to multiplayer sessions.

The Events menu accesses all events, and event-related options. When you open the menu, the items are:

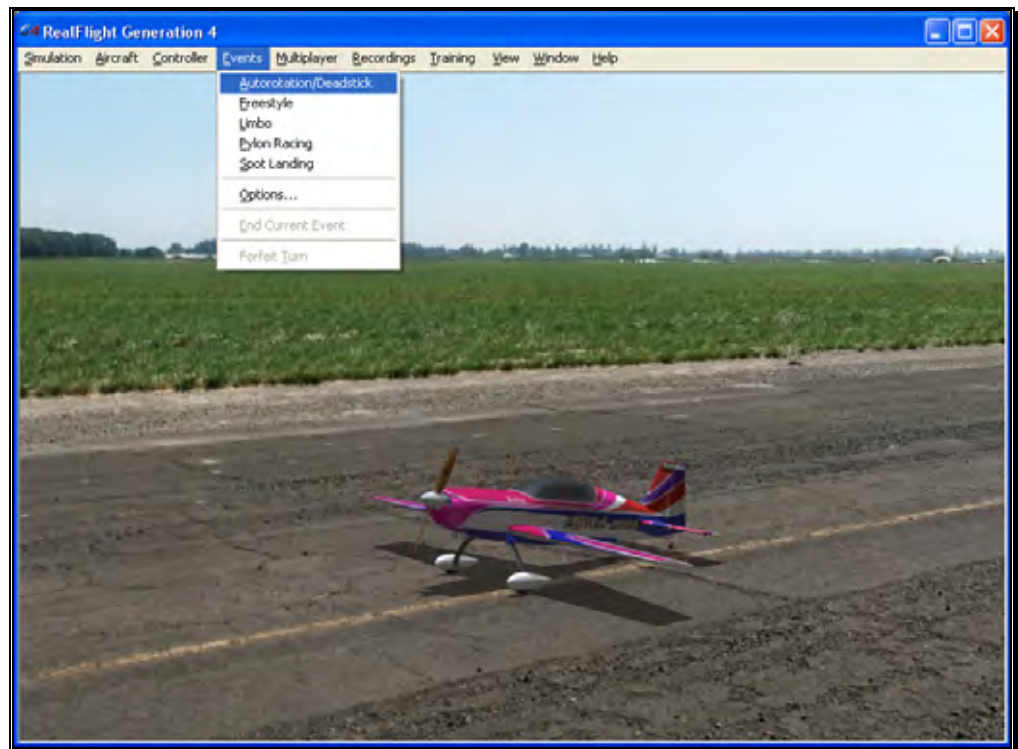


- Autorotation/Deadstick
- Freestyle
- Limbo
- Pylon Racing
- Spot Landing
- Options...
- End Current Event
- Forfeit Turn

Some of these items may be grayed out if they do not apply to the current situation. For example, you cannot end the current event unless an event is already running. Consequently, the End Current Event menu item will be grayed out.

Autorotation/Deadstick

The Autorotation/Deadstick event is similar to the Spot Landing event mentioned below. This event requires that you make a landing with all power off.



The goal of this event is to land the airplane, or autorotate the helicopter, into the marked zones. The various landing zones have different point values assigned to them. Generally, the zones that are more difficult to target are awarded higher point values. If participating in a multiplayer event, the player with the highest points total at the end wins.

It is possible to enable the software to “kill” the player’s engine when their aircraft passes a particular altitude.

Selecting Your Name for the Event-

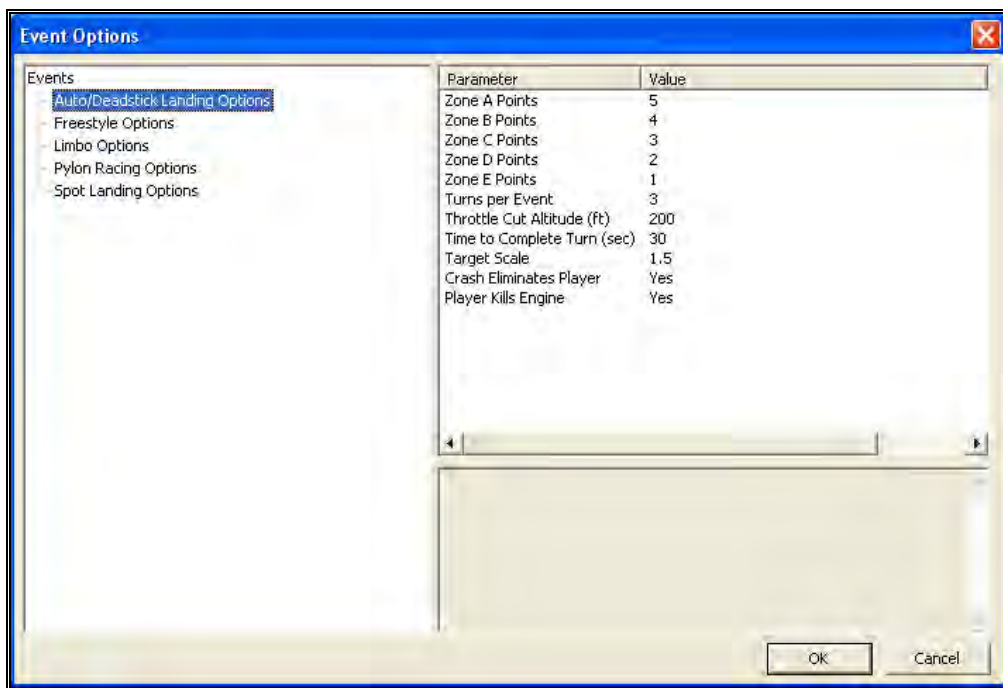
If you have already entered a name in the Settings... menu item, this name will be utilized for single player and multiplayer events. If you have not entered a name, please do so in the space provided when you select an event. Click **OK** when completed.

To select a different name for this event, click on the **Simulation** menu, followed by the **Settings...** menu item. Next, click the **Multiplayer** name. This brings up the

multiplayer options. Click the value found next to the **Pilot Name** item. Use the keyboard to input the name you wish to utilize for the events.

Options-

The Options... menu item adjusts the parameters and rules for each event. To access the Options... menu item, click the **Events** menu followed by the **Options...** menu item. Next, from the column on the left side, select the event that you wish to adjust. The selections that appear will depend upon the event selected. This section examines the selections available for the Autorotation/Deadstick Landing Options.



Zone Point Values- Zones A through E-

The landing zones are divided into five segments. In the default settings, each segment has a different point value assigned to it based upon degree of difficulty. Zone A is the smallest, most difficult target. Therefore, it offers the highest point value. Zone B, which surrounds the center, offers the second highest points, followed by Zone C, D and E.

To adjust the values of these points, click on the values in the column to the right of the respective Zone Points. For example, to adjust the points for Zone A, click on the corresponding Value in the column next to Zone A. Enter the desired value directly from the keyboard or via the mouse wheel.

Turns Per Event-

This option determines the number of turns that each player is allotted per event. When each player has taken the designated number of turns, the event

is over. The only exception is if the host activates the Crash Eliminates Player setting. In this case, the event will end if all of the players crash before they reach the turn limit.

To adjust the number of turns, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Throttle cut altitude-

As mentioned previously, in an Autorotation/Deadstick event, the host can set the rules so that the throttle is cut manually or automatically. This section refers to the settings for a manual throttle cut. For information on automatic throttle cuts, please see the *Player Kills Engine* section below.

To adjust the altitude at which the throttle is cut, click on the corresponding value. Enter the desired altitude value directly from the keyboard or via the mouse wheel.

Time to Complete Turn (sec)-

This is the amount of time allotted for each player to complete his or her turn.

Note: the countdown or timer is initiated at takeoff.

To adjust the amount of time to complete the Event, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Target Scale-

This option determines the size of the landing targets.

To modify the size of the landing area, enter a number in the corresponding value column. Enter the desired value directly from the keyboard or via the mouse wheel. The size of the targets will scale proportionally.

Crash Eliminates Player-

This option determines whether a crash eliminates a player from the competition. If No, the player will be able to continue his/her turn regardless of whether or not they have crashed. If Yes, the event is over for them as soon as a crash occurs.

To set Crash Eliminates Player option, click the value in the corresponding column. From the pull-down list, select either **Yes** or **No**.

Player Kills Engine-

This option determines whether you want to cut off the engine manually or allow RealFlight G4 to do so for you. If enabled, the player must manually kill the engine above the Throttle Cut Altitude. RealFlight will display the engine

cut notification for you on-screen. With automatic throttle cutting, RealFlight G4 will automatically cut the throttle as soon as the aircraft crosses the minimum altitude threshold. Again, RealFlight will display the engine cut notification for you on-screen.

To set Player Kills Engine option, click the value in the corresponding column. From the drop-down list, select either **Yes** (manual cut required) or **No** (automatic cut at altitude).

Autorotation/Deadstick Instructions

You can run an autorotation competition in either a single player or multiplayer environment.



The person who starts the event decides upon the applicable rules and parameters. For example, you can set:

- The time allotment for each player's turn.
- How many turns each player receives.

- Whether a player's engine is automatically or manually killed during a turn.
- The altitude at which an engine must be killed.
- The physical dimensions of the landing target.
- Whether or not a crash automatically disqualifies a player.
- Point values of the different zones within the landing target.

RealFlight G4 automatically applies the rules you choose, and keeps track of scores. During the event, the announcer's voice will guide you through each phase of the competition.

Rules

The Autorotation/Deadstick course consists of a target:

The object of the Autorotation/Deadstick event is to fly your model over the target, kill the engine, then touch down as close as possible to the center of the target. Players take turns making landing attempts. When your turn comes, you will normally takeoff, gain altitude until you are above the minimum Throttle Cut Altitude, fly towards the target, and then kill your engine and autorotate or glide to the ground.

If the host so decides, you must kill your engine before dropping below the minimum altitude to kill engine. Alternatively, the host can decide that your engine will automatically shut off when you pass below this altitude. The host must also decide on the minimum Throttle Cut Altitude.

A "touch down" occurs when any part of your airplane or helicopter touches ground. Each touch down is marked with an 'X' on the spot at which the aircraft landed.

Please note: this is not necessarily the point at which the aircraft stopped moving.

An "attempt" means you have passed below the minimum altitude to kill your engine. Once your engine is disabled, you cannot reactivate it until your turn expires. Additionally, you must land successfully (without crashing) to receive any points for your attempt.

Furthermore, you must complete your landing before your turn time expires. If you do not touch down in time, you will lose your turn.

The points you receive during a turn are dependent upon where you touch down. Within the target, each colored zone has a different point value. Normally, the closer to the center you land, the more points you will receive. Your touch down point is the point on the ground directly below the center of your aircraft, no matter what part of your aircraft touches first.

The event continues until the players complete all of their turns, all of the players are disqualified (usually by crashing), or everyone has left the event. The player with the highest point total at the end of the event is the winner.

Events Viewport Display Box-

During the event, a situational screen will appear on your display. This screen serves several purposes: it indicates the player's name, tracks the amount of time remaining to complete the event, and indicates the remaining altitude before the engine is cut.

If you do not wish to view this information, double-click on the **title bar** of the display box. This will hide the information. To view it once again, simply double-click the **title bar** again.

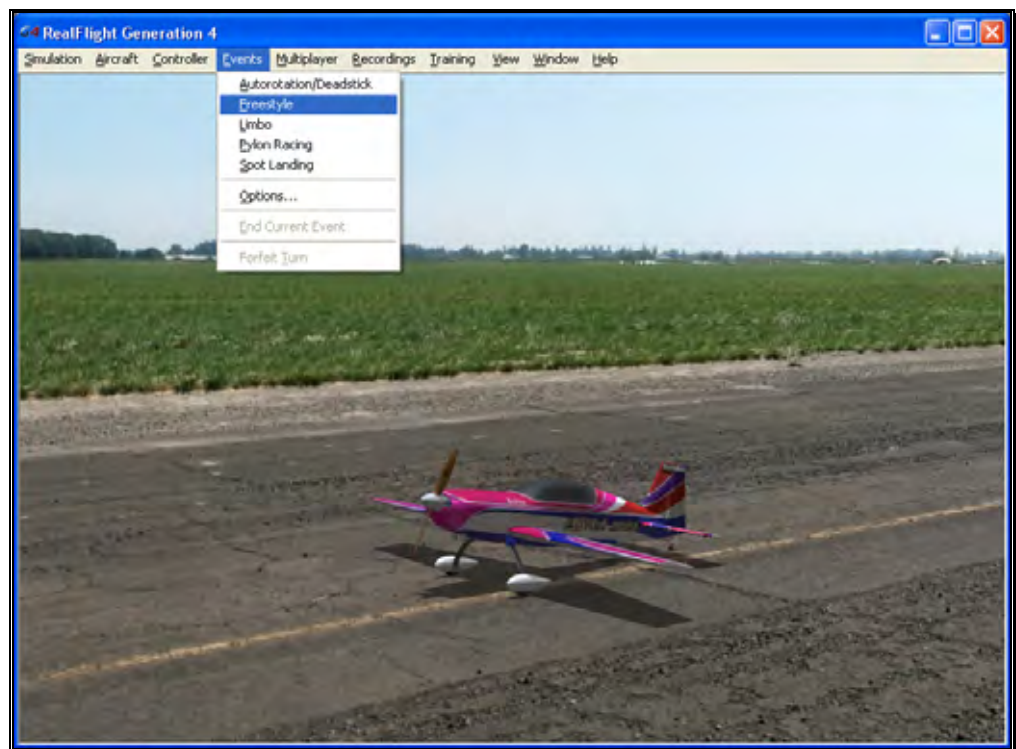
To reveal the statistics for the event, click the **arrow** button in the upper right corner of the box. Click the **arrow** button one more time to hide this information.

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 will increase/decrease the width of the viewport respectively.

Clicking on the 'X' in the title tab of the viewport will close the viewport.

Freestyle

RealFlight G4's Freestyle event lets you make the rules. When you start a Freestyle event, RealFlight G4 will allot every player a set of turns. Each player's turn ends when that player's time expires (or if the player crashes). When this occurs, the next player's turn begins. What players do during their respective turns is completely up to the participants. We've included some possible freestyle examples below.



Whatever activity you pick, RealFlight will see that each player receives a timed turn. You can use freestyle with any aircraft (airplanes or helis).

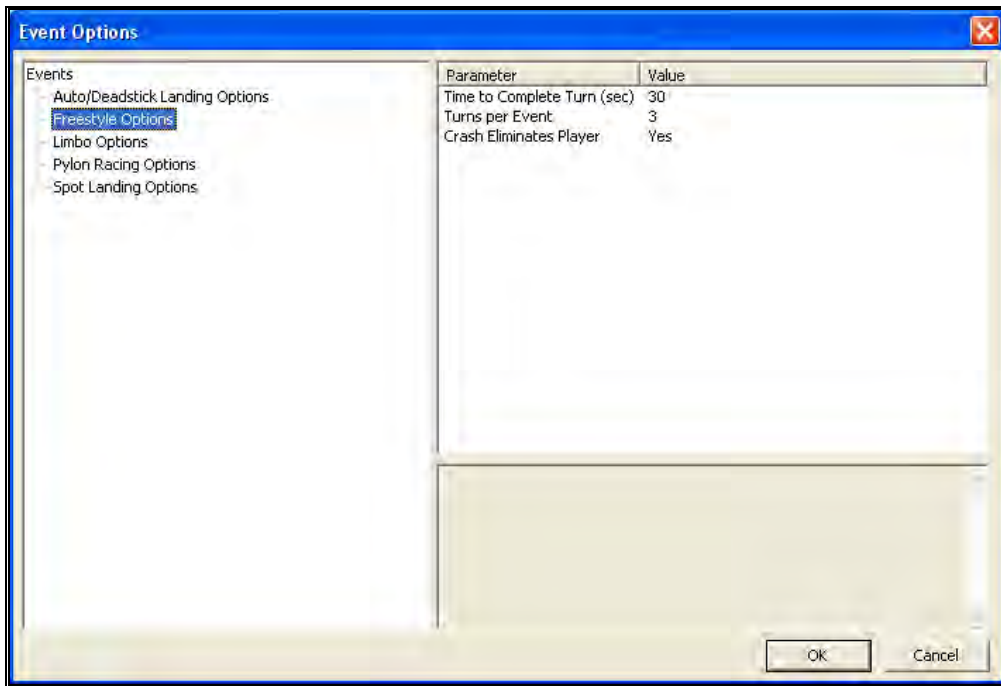
Selecting Your Name For the Event

If you have already entered a name in the Settings... menu item, this name will be utilized for single player and multiplayer events. If you have not entered a name, please do so in the space provided when you select an event. Click **OK** when completed.

To select a different name for this event, click on the **Simulation** menu, followed by the **Settings...** menu item. Next, click the **Multiplayer** name. This will bring up the multiplayer options. Click the value found next to the **Pilot Name** item. Use the keyboard to input the name you wish to utilize for the events.

Options

As the name suggests, the Options... menu item is used to adjust the parameters and rules for each of the events. The *Autorotation/Deadstick* Event section discusses general notes for this option. This section examines the selections available for the Freestyle options.



Time to Complete Turn (sec)-

This is the amount of time allotted for players to complete their turn.

Please note: the time begins at takeoff.

To adjust the amount of time to complete the event, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Turns Per Event-

This option determines the number of turns that will be allotted to a player for the event. The event is over when each player has taken this number of turns, or sooner if the host activates the Crash Eliminates Player option and a crash occurs.

To adjust the number of turns, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Crash Eliminates Player-

This option determines whether a crash eliminates a player from the competition. If No, the player will be able to continue his/her turn regardless of whether or not they've crashed. If Yes, the event is over for them as soon as they crash.

To determine whether a crash eliminates a player, click the value in the corresponding column. From the pull-down list, select either **Yes** or **No**.

Freestyle Instructions

You will usually want to use Freestyle in a multiplayer environment, but it works in single player mode as well.



Before you start this event, you will ordinarily decide what the participants must do. You may just want to use the event to give everyone an equal chance to showcase his or her aerobatic skills. This will prevent you from worrying about your scoring. If you want to have a competition, we suggest that before you begin the event:

- Everyone should agree on the rules.
- The host may need to edit the airport to add any equipment (pylons, runways, fences, obstacle rings, limbo poles, etc.) that you will need for the event.
- Everyone should agree how the event will be judged. You could appoint one player to decide on a score for every other player, or have everyone in your session vote on the best maneuver, etc.

The person who starts the Event (multiplayer session host) can pick:

- How much time each player is allotted per turn
- How many turns each player receives, and
- Whether a player who crashes is automatically disqualified

We emphasize, *the only limit on the freestyle event is your imagination*. A few examples of what you might wish to do:

- Touch and Go. Appoint one partner to count runway touches, the contestant with the most touches in a turn wins.
- Aerobatics. Players use their turns to perform any stunt they want. At the end, everyone votes on the best stunt.
- Obstacle course. Set up a long obstacle (table, etc.) close to the ground and take turns flying under it; land or takeoff from ramps, circle around pylons, etc.

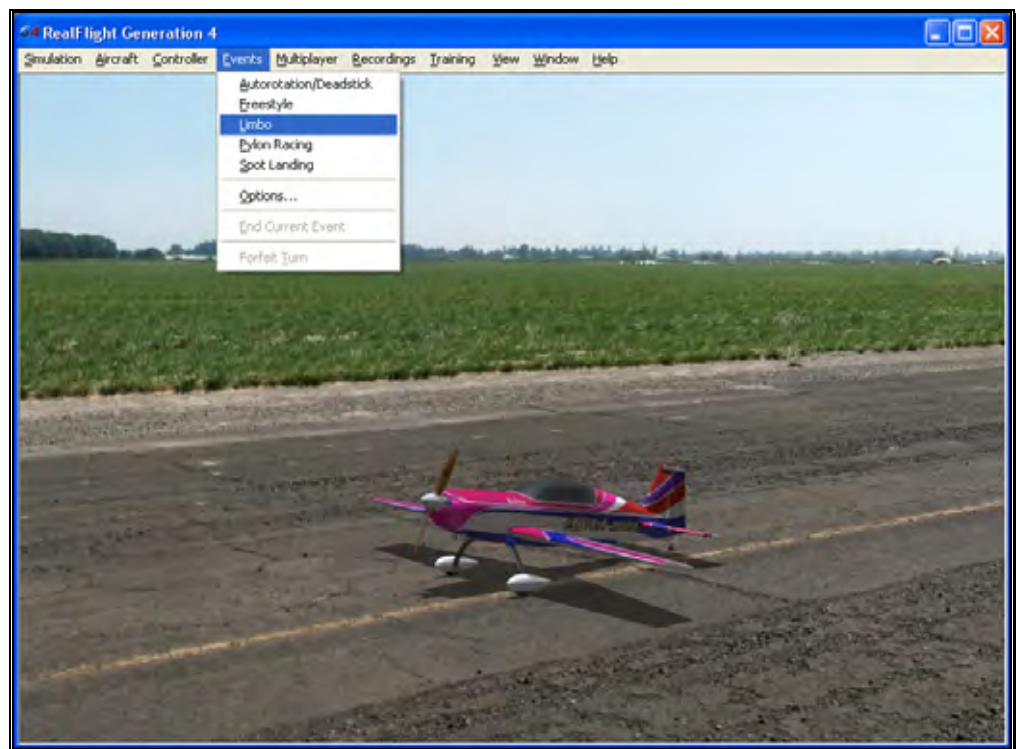
It does not have to be a contest. You might all just want to take an equal turn at using the runway (takeoff, land on alternate turns).

Events Viewport Display Box-

During the event, a situational screen will appear on your display. General notes on this display were discussed in the *Autorotation/Deadstick* event section.

Limbo

A limbo event is a contest of piloting skill and courage. Players attempt to maneuver their aircraft under a horizontal bar suspended across two vertical bars. After each successive pass, the bar is lowered. The event continues until only one pilot remains.



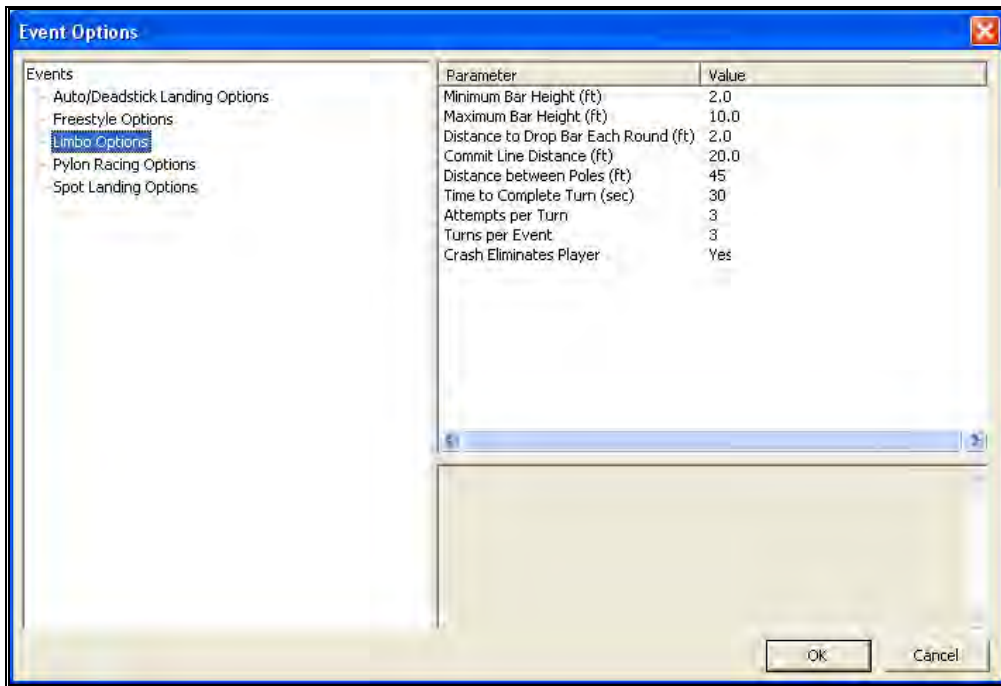
Selecting Your Name For the Event-

If you have already entered a name in the Settings... menu item, this name will be utilized for single player and multiplayer events. If you have not entered a name, please do so in the space provided when you select an event. Click **OK** when completed.

To select a different name for this event, click on the **Simulation** menu, followed by the **Settings...** menu item. Next, click the **Multiplayer** name. This will bring up the multiplayer options. Click the value found next to the **Pilot Name** item. Use the keyboard to input the name you wish to utilize for the events.

Options-

The Options... menu item is used to adjust the parameters and rules for each of the Events. See the *Autorotation/Deadstick* section for general notes about this screen. This section examines the specific selections available for the Limbo options.



Minimum Bar Height-

This setting determines the lowest height that the bar will reach during the Event.

To adjust the Minimum Bar Height, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Maximum Bar Height-

This setting determines the highest setting (starting value) that the bar will reach during the event.

To adjust the Maximum Bar Height, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Distance to Drop Bar each Round-

After a participant successfully passes under the limbo bar, on their next attempt the bar will lower by the amount indicated in this setting.

To adjust the distance by which the bar will be lowered each round, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Commit Line Distance-

This indicates the distance between the commitment lines and the limbo bar. There is a commitment line on either side of the limbo bar and participants

may approach from either side. These lines detect an attempted pass at the limbo bar.

To adjust the distance, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Distance Between Poles-

The value entered here indicates the distance between the two vertical poles that support the limbo bar. The wider the space between the poles, the easier it is to pass through the gate, so to speak.

To adjust the distance, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Time to Complete Turn (sec)-

This is the amount of time allotted for each player to complete his or her turn.

Please note: the countdown or timer is initiated at takeoff.

To adjust the amount of time to complete the Event, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Attempts Per Turn-

This value indicates the number of attempts that each pilot is allotted at any given height of the limbo bar before being eliminated for that turn.

To adjust the number of attempts, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Turns Per Event-

This option determines the number of turns per player for this event. When this number is reached, the event is over. If the host activates the Crash Eliminates Player option, however, the event may end sooner.

To adjust the number of turns, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Crash Eliminates Player-

This option is used to determine whether a crash eliminates the player from the competition. If No, the player will be able to continue his/her turn regardless of whether or not they have crashed. If Yes, the event is over for them as soon as a crash occurs.

To determine whether or not a crash eliminates a player, click the value in the corresponding column. From the drop-down list, select either **Yes** or **No**.

Limbo Instructions

A limbo competition can be run in either a single player or multiplayer environment.

The limbo course consists of a limbo pole, and two attempt lines (also called commitment lines), one on each side of the limbo pole.



The object of limbo is to fly an aircraft past the attempt line, then under the limbo bar, in the time allowed. Players take turns attempting to fly under the bar. When your turn comes, you will normally takeoff, circle back towards the limbo pole, then pass across the attempt line and under the bar, then land. If you successfully fly under the bar, the bar height will be lowered prior to your next turn.

An “attempt” means you have crossed the attempt line, approaching the limbo bar. You can make multiple attempts, if necessary, during a turn.

You have anywhere from 10 seconds to five minutes between the moment you first lift off and the moment you successfully pass under the bar. If you fail to make it under the bar in time, you lose your turn. (Before the event begins, the host decides the exact time limit.)

You can approach the limbo bar from either direction (i.e., you can cross either attempt line). For an attempt to count, you must be approaching the limbo bar when you cross an attempt line. Your aircraft must be airborne when it crosses the attempt line *and* when it passes under the bar (i.e., if you taxi, your attempt will not count).

The event continues until each player has made it under the lowest bar height, or has been disqualified (usually by crashing), or has left the event.

The player with the highest score wins. Your score for each successful turn is:

$(\text{time between first liftoff and successful pass}) \times (\text{height cleared}) / 100$

Notice that you will achieve or earn the highest score by passing under the bar as soon as possible after takeoff.

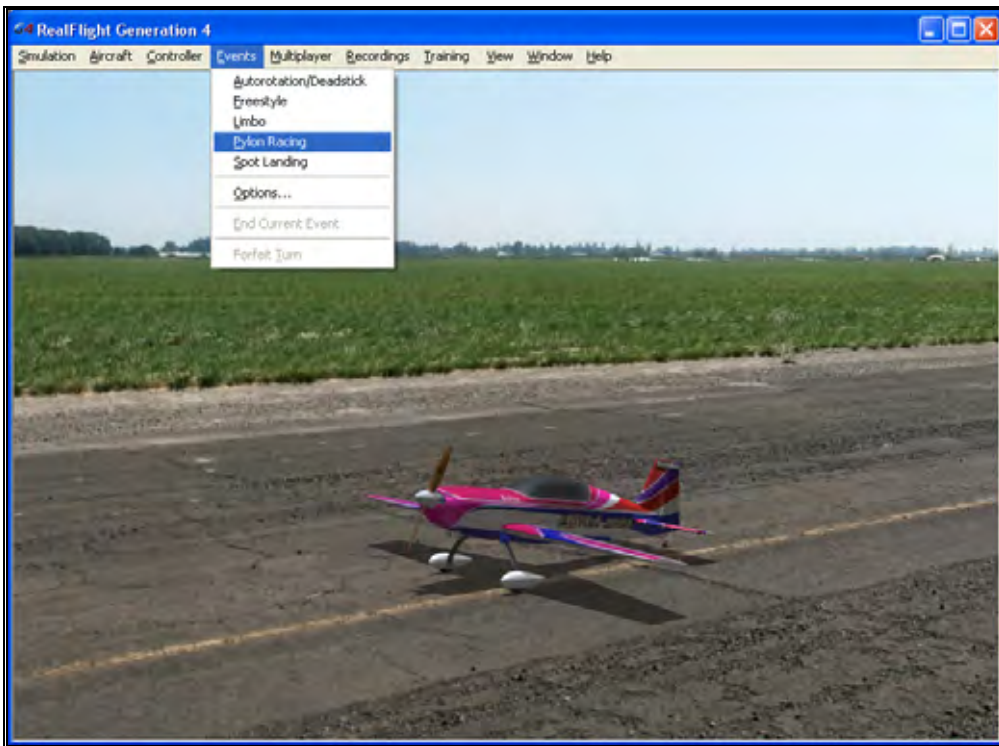
If you did not make it under the bar, your score for that turn is zero.

Events Viewport Display Box-

During the event, a situational screen will appear on your display. This screen serves several purposes. General notes on the functionality for this window were discussed in the *Autorotation/Deadstick* event section.

Pylon Racing

In pylon racing, pilots race their planes around a closed course. Pylon Racing challenges the pilots' nerves and skills as they attempt to round the pylons, avoid mid-air collisions, and finish first, without cutting any pylons.



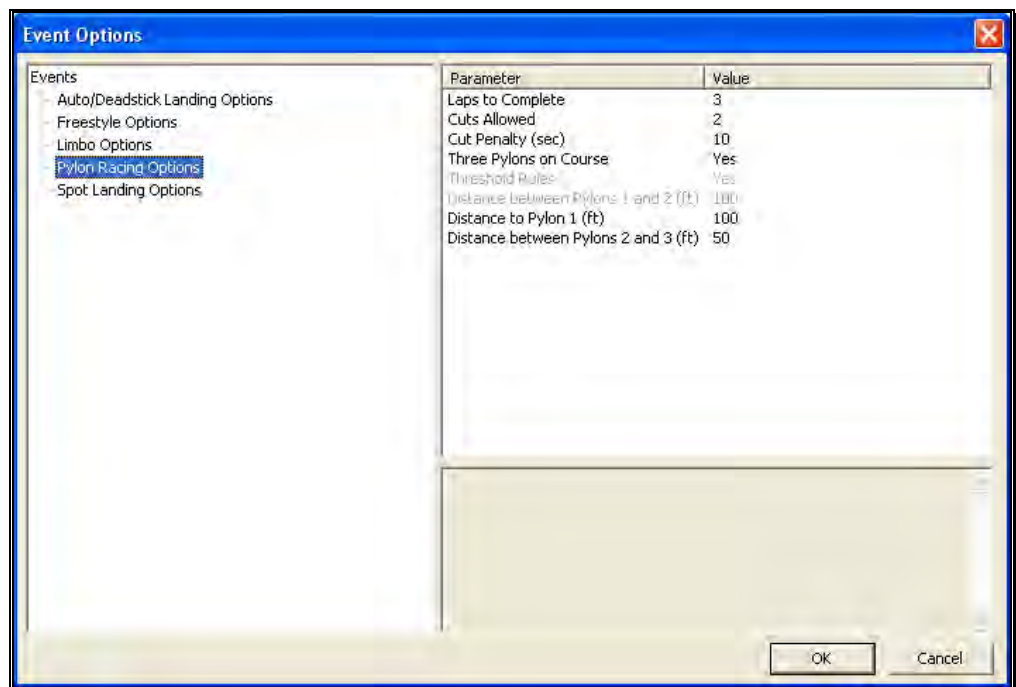
Selecting Your Name For the Event-

If you have already entered a name in the Settings... menu item, this name will be utilized for single player and multiplayer events. If you have not entered a name, please do so in the space provided when you select an event. Click **OK** when completed.

To select a different name for this event, click on the **Simulation** menu, followed by the **Settings...** menu item. Next, click the **Multiplayer** name. This will bring up the multiplayer options. Click the value found next to the **Pilot Name** item. Use the keyboard to input the name you wish to utilize for the events.

Options

As the name suggests, the Options... menu item is used to adjust the parameters and rules for each of the Events. To access the Options... menu item, click the **Events** menu followed by the **Options...** menu item. Next, from the left hand column, click on the event for which you wish to adjust the Options.... The selections that appear will be dependent upon the event selected. This section examines the selections available for the Pylon Racing Options.



Laps to complete-

This value determines the number of laps that each participant must complete in the event. The person who completes the laps in the shortest amount of time (after penalties) is the winner.

To adjust the number of laps, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Cuts Allowed-

This setting dictates the number of cuts (passes inside a pylon) that a racer is allowed before being eliminated from the event.

To adjust the number of allowable cuts, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Cut Penalty (sec)-

This option determines the time penalty that a player receives for each cut they make during a race. If the player exceeds the number of allowable cuts, they are eliminated from the race.

To adjust the penalty seconds per cut, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Three Pylons on Course-

This setting determines whether the course is a three-pylon course or a two-pylon course. If Yes is selected, the course is a three-pylon course. If No, the course is a two-pylon course.

To set this option, click the value in the corresponding column. From the pull-down list, select either Yes (three pylon course) or No (two pylon course).

Threshold Rules-

In threshold racing, the planes do not actually have to go around the pylon. Rather, they only have to break the plane of the pylon. This option is only enabled for two pylon courses. It is grayed out (not applicable) on three pylon courses.

To determine whether the Threshold Rules will be utilized, click the value in the corresponding column. From the pull-down list, select either **Yes** or **No**.

Distance between pylons 1 and 2-

If you have selected a two-pylon course, this option indicates the distance between the two pylons. Increasing the value places the pylons farther apart.

To adjust the distance, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Distance to pylon 1-

This is the distance from the starting point to pylon number 1. This option is only applicable to three-pylon courses.

To adjust the distance, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

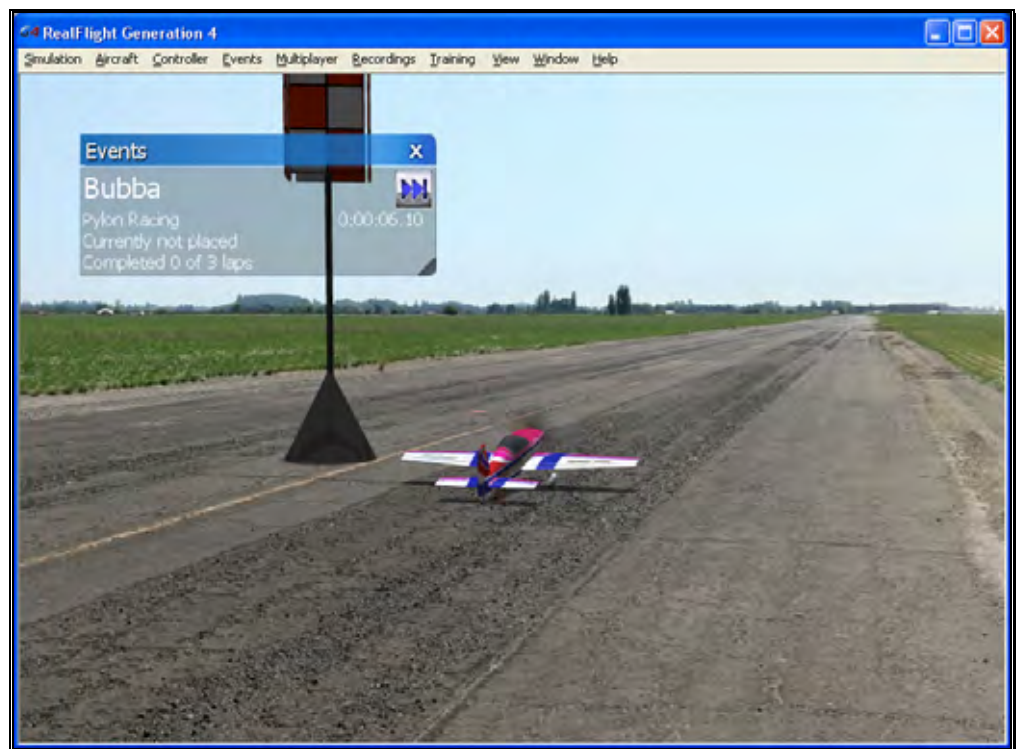
Distance between pylons 2 and 3-

If you have selected a three-pylon course, this option indicates the distance between the pylons two and three. Increasing the value places the pylons farther apart.

To adjust the distance, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Pylon Racing Instructions

You can run a pylon race in either a single player or multiplayer environment.



The person who starts the event (the host) decides upon the applicable rules and parameters. For example, the host can set:

- How many pylons mark the course (two or three).
- Regular or threshold-style racing (two-pylon races only).
- The number of laps in the race.
- The distances between pylons.

RealFlight G4 automatically applies the rules you choose, and keeps track of scores. During the event, an announcer's voice will guide you through each phase of the competition.

Pylon Racing Rules-

A pylon-racing course consists of two or three pylons. Here is an example of a three-pylon course:

For both two-pylon and three-pylon races, the object is to takeoff and circle the pylons (without "cutting") in the shortest amount of time. A pylon race usually has two or more laps. All racers start simultaneously. The race continues until each player is either finished or disqualified (usually by cutting or crashing).

All players start at the same point on the runway. When you hear the horn sound, takeoff and start the race.

In pylon racing, you always circle the pylons counterclockwise viewed from above—that is, when you come to a pylon you always turn left. As you approach each pylon, you will hear a voice telling you when to start your turn. When you have made a successful turn, you will hear a brief tone.

“Cutting” is illegal. The first time you cut during a race, you are penalized one lap. The second time you cut, you are disqualified. To avoid being called for a cut, your entire aircraft must normally go completely around each pylon.

Exception: in a two-pylon style course, you can choose to use threshold-racing rules. In threshold racing, your aircraft only has to “break the plane” of the pylon to get credit for a legal turn. This allows pilots to find independent race lines, which may reduce collisions during a race. Before the race begins, the host chooses whether the race will follow regular or threshold rules.

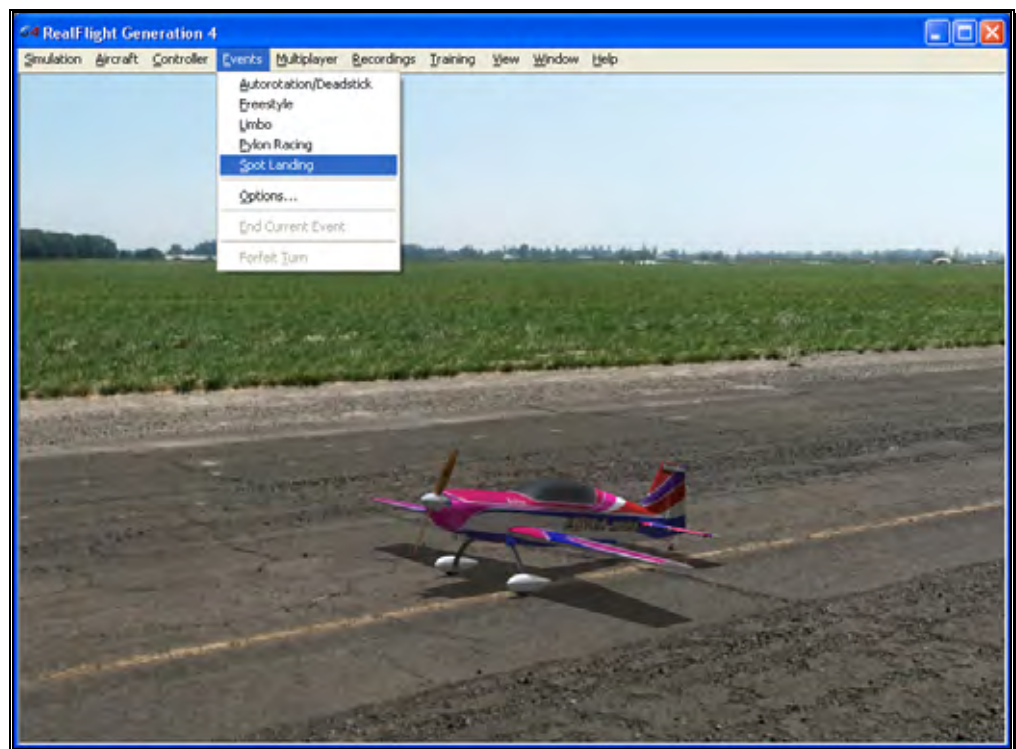
The pilot who finishes the required number of laps in the shortest amount of time wins the race.

Events Viewport Display Box

During the Event, a situational screen will appear on your display. This screen serves several purposes. General notes on this screen were discussed in the *Autorotation/Deadstick* event section.

Spot Landing

In a Spot Landing event, pilots take turns trying to touch their aircraft down within marked zones. Generally, the zones that are more difficult to target have higher point values. In a multiplayer event, the player with the highest points total wins.

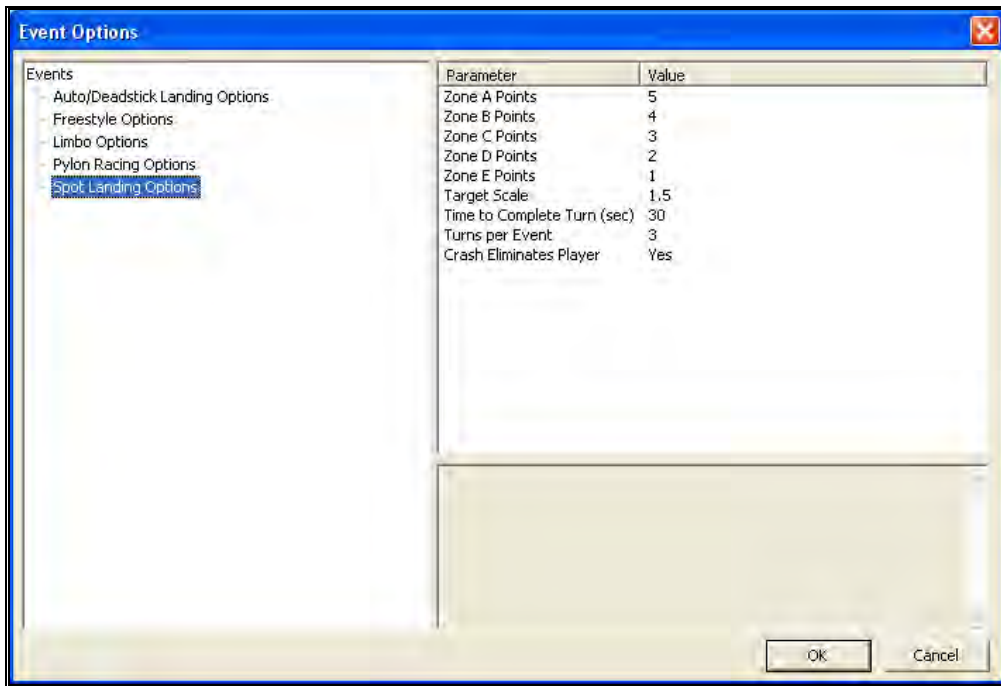


Selecting Your Name For the Event-

To select a different name for this event, click on the **Simulation** menu, followed by the **Settings...** menu item. Next, click the **Multiplayer** name. This will bring up the multiplayer options. Click the value found next to the **Pilot Name** item. Use the keyboard to input the name you wish to utilize for the events.

Options-

As the name suggests, the Options... menu item adjusts the parameters and rules for each of the Events. To access the Options... menu item, click the **Events** menu followed by the **Options...** menu item. Click on the event, located in the left column that you wish to adjust. The options that appear are dependent upon the event selected. This section discusses the selections available for the Spot Landing options.



Zone Point Values- Zones A through E

The landing zones are divided into five segments. In the default settings, each segment has a different point value assigned to it based upon degree of difficulty. Zone A is the most difficult to hit. Therefore, it offers the highest point value. Zone B, which surrounds the center, offers the second highest points, followed by Zone C, D and E.

To adjust the point values of the different zones, click on the values in the column to the right of the respective Zone Points. For example, to adjust the points for Zone A, click on the corresponding value in the column next to Zone A. Enter the desired value directly from the keyboard or via the mouse wheel.

Target Scale-

This option determines the size of the landing targets. To increase the size of the landing area, enter a larger number in the corresponding value column. The target size will scale proportionally.

Time to Complete Turn (sec)-

This is the amount of time allotted for players to complete their turn.

Please note: this time begins at takeoff.

To adjust the amount of time to complete the event, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Turns Per Event-

This option determines the number of turns allotted to the player for the Event. The event is over when each player has completed the number of turns specified. If the Crash Eliminates Players option is enabled, the event can also end when all of the players have been eliminated due to crashing.

To adjust the number of turns, click on the corresponding value. Enter the desired value directly from the keyboard or via the mouse wheel.

Crash Eliminates Players-

This option determines whether a crash eliminates a player from the competition. If No, players will be able to continue their turns regardless of whether or not they crash. If Yes, the event is over for them as soon as they crash.

To determine whether a crash eliminates the player, click the value in the corresponding column. From the pull-down list, select either **Yes** or **No**.

Spot Landing Instructions

A spot landing competition can take place in either a single player or multiplayer environment.



The person who starts the event (the host) is responsible for selecting the rules. For example, you can set:

- How much time each player receives per turn.
- How many turns allowed per player.
- The physical dimensions of the landing target.
- Whether a crash automatically disqualifies the player.
- Point values of the different zones within the landing target.

RealFlight G4 automatically applies the rules you choose, and keeps track of scores. During the event, the announcer's voice will guide you through each phase of the competition.

Rules-

The object is to touch down as close as possible to the center of the target. Players take turns making landing attempts. When your turn comes, you will normally takeoff, gain altitude and then fly towards the target on a landing approach.

A “touch down” occurs when any part of your airplane or helicopter touches the ground. A large, visible ‘X’ marks each touch down on the spot where the aircraft landed.

Please note: this is not necessarily the point at which the aircraft stopped moving.

Furthermore, you must complete your landing before time expires, thus ending your turn. If you do not touch down in time, you lose your turn.

The points you receive during a turn are dependent upon where you touch down. Within the target, each colored zone has a different point value. Normally, the closer to the center you land, the more points you receive. Your touch down point is the point on the ground directly below the center of your aircraft, no matter what part of your aircraft touches first.

The event continues until each player has completed all of his or her turns, or has been disqualified (usually by crashing), or has left the event. The player with the highest point total is the winner.

You also have a limit on how many landing attempts you can make during your turn. The host sets this limit at the start of the event.

You can approach the target from either direction (i.e., you can cross either attempt line). For an attempt to count, you must be approaching the target when you cross an attempt line. The aircraft must be airborne when it crosses the attempt line (i.e., if you taxi, the attempt will not count).

You can only touch down once per turn, so if it looks like you may miss the target, pull up, circle around, and try again.

The event continues until the players have completed all of their turns, all of the players have been disqualified (usually by crashing), or everyone has left the event.

The player with the highest total score wins.

Events Viewport Display Box-

During the event, a situational screen will appear on your display. The *Autorotation/Deadstick* event section provides general notes on this display box.

Options

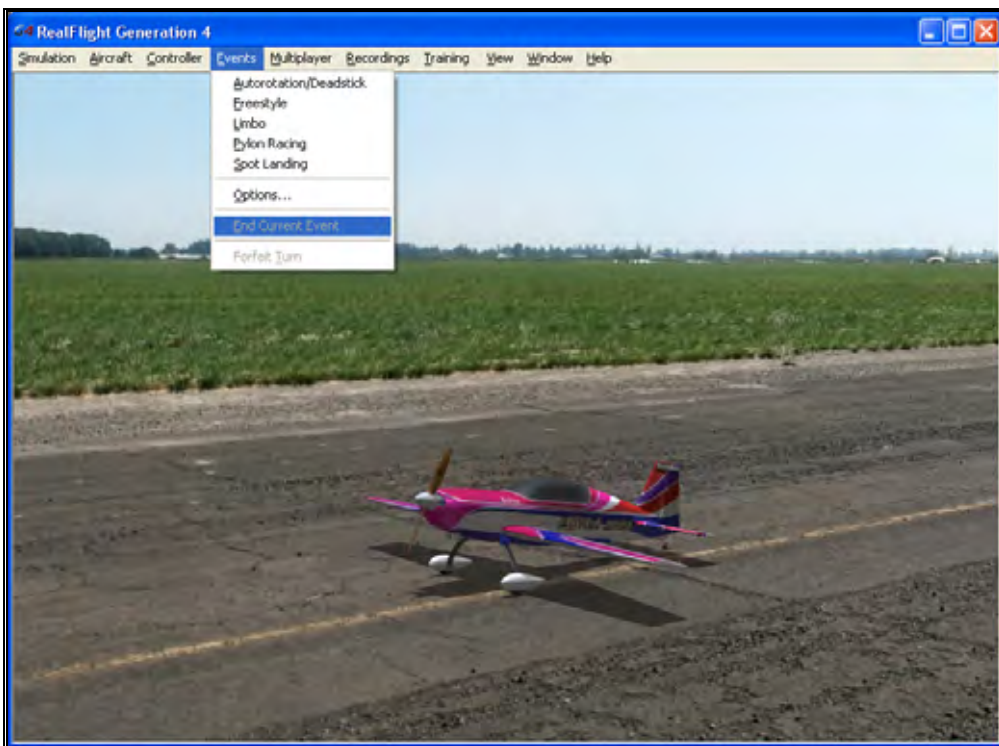
The Options... menu item allows you to determine the various settings and parameters

for the respective events. The options available to you are dependent upon the Event selected.

To access the Options... menu item, click on the **Events** menu followed by the **Options...** menu item. Next, select the Event for which you would like to view the Options.... For further information as to the Options... available for each event, see the applicable event as discussed previously.

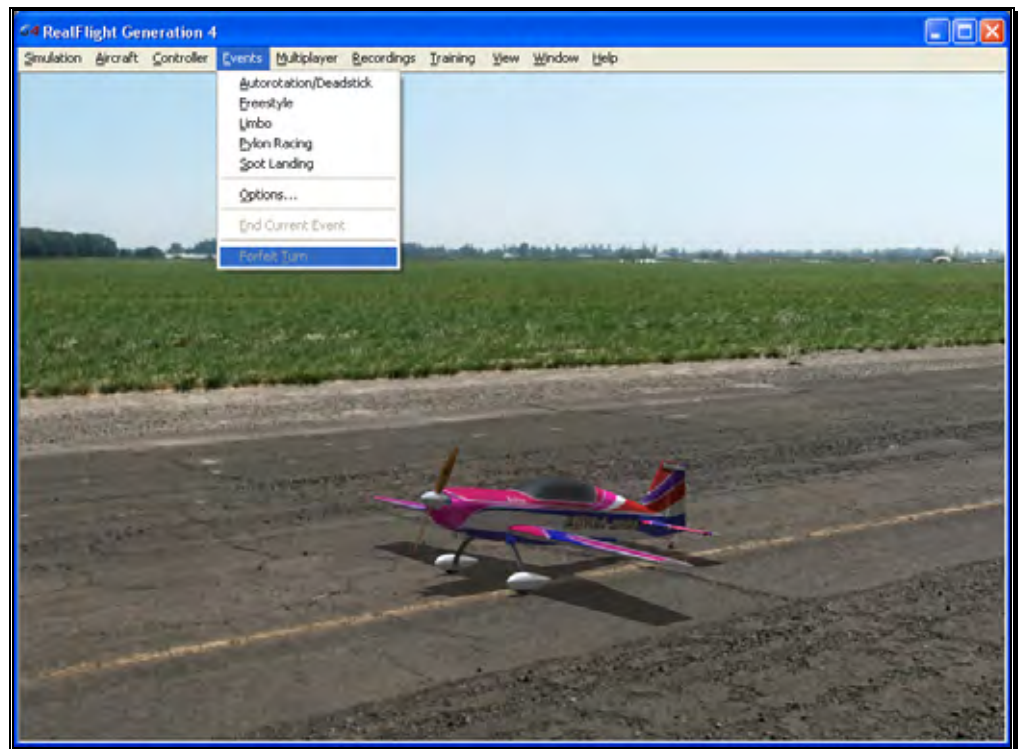
End Current Event

This menu item immediately ends the current event. If there are no events in progress, this menu item is grayed out. If you are in a multiplayer session and are not the person hosting this session, the option is also grayed out.



Forfeit Turn

This item allows you to forfeit one turn. If you are a multiplayer participant, all other pilots will take their turns before you can participate again.



This item is grayed out if you are playing an event where players do not take turns (e.g. Pylon Racing).

Multiplayer Menu

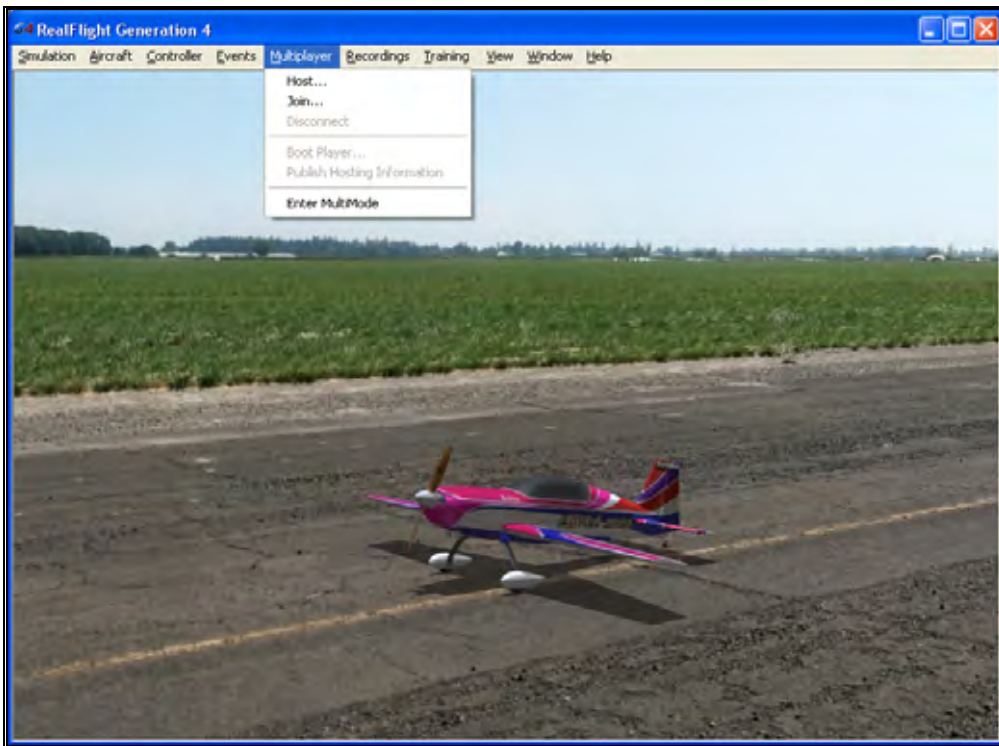
Fly with friends, at the same computer, or over the internet.

The Multiplayer option allows you to fly with others. In fact, you are able to share the skies with up to seven additional pilots. These other pilots can be across the street, around the block, or around the world!

There are two ways to link up with the additional pilots; via a LAN (Local Area Network), or over the internet. In order to do so, you will need a TCP/IP connection, either through your LAN or an ISP (Internet Service Provider).

Every session requires someone to serve as host. The host initiates the multiplayer session. When the Host starts a session, other participants may join in.

The Multiplayer menu allows you to access a variety of multiplayer-related features, functions and options. Clicking the **Multiplayer** menu brings forth a pull-down menu, which will look similar to the following screen shot:



- Host...
- Join...
- Disconnect
- Boot Player...
- Publish Hosting Information
- Enter MultiMode

Some of these items will be grayed out if they do not apply to the current situation. For example, you cannot disconnect unless you are currently connected. As such, the Disconnect menu item is grayed out unless you are in a multiplayer session.

When you participate in multiplayer sessions, the menu commands you will access depend on whether you are the host or whether you opt to join someone else's session. These commands also depend upon whether you already have a specific session you want to join.

Depending on what options the participants utilize, it is possible to have a private session that is only open to players who know the host's IP address.

Please note: a computer's IP address is its internet "postal code". It tells other computers on the internet how to contact that computer. The following sections will explain more about IP addresses as necessary.

It is also possible to participate in a public session using our list server. The list server is a publicly available list of open RealFlight G4 sessions. Currently we provide the list server to all RealFlight G4 owners, free of charge. The list server allows you to participate in multiplayer sessions with other RealFlight G4 users anywhere in the world.

IMPORTANT INFORMATION ABOUT THE LIST SERVER: At the time of this writing we are providing the list server service on a trial basis. This service may be modified, interrupted or cancelled at any time without notice. In particular, we make no guarantee about the reliability of this service. To use this service you must register your product and may need to obtain product updates. Inclusion of this manual on your RealFlight CD-ROM does not imply that this service will be available at the time you purchase this product. Moreover, we reserve the right to bar any individual user, or all users at individual IP addresses or domains, from using the list server at our discretion. Abusive behavior, for example, will not be tolerated.

Chatting

During Multiplayer sessions, you may want to chat with other participants. Doing so is as simple as typing a message much like popular instant messenger programs.

To send a chat message, press the **Enter** key to bring up the Chat field at the bottom of the screen. Next, using the keyboard, type the message you wish to send. Press the **Enter** key again on the keyboard to send the message.

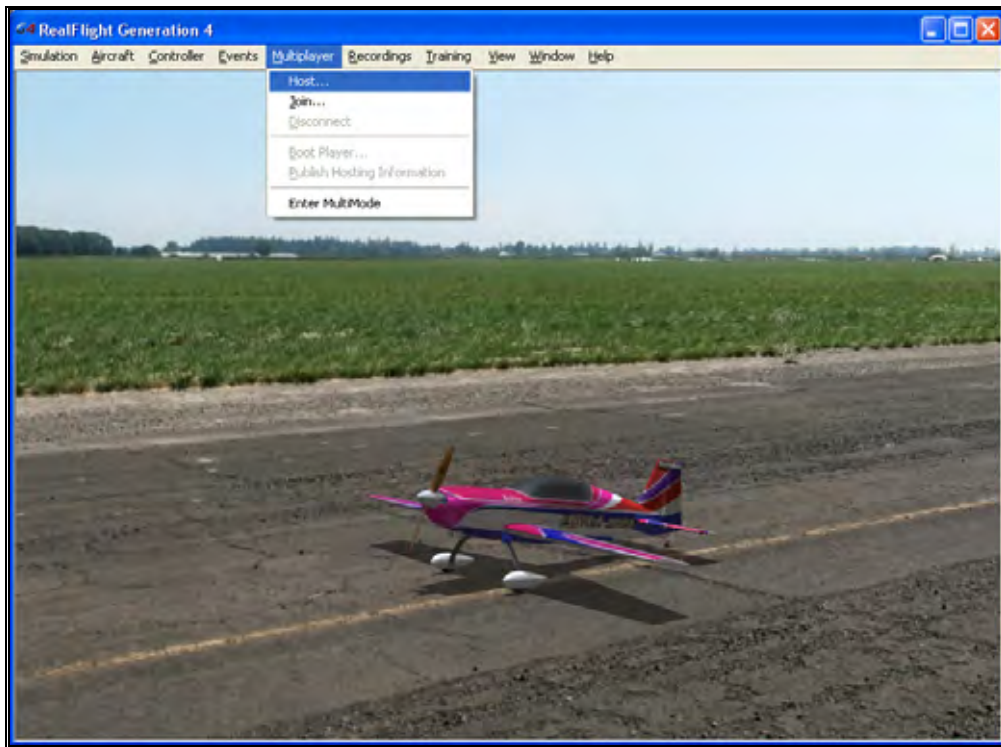
Please note: all messages are viewable by all participants. RealFlight G4 does not offer private chat.

Any messages received from other participants will appear at the bottom of the screen.

Host

Every multiplayer session requires one participant to function as the host. If you are the host, you will be the one who starts the session. When you leave the session one of

the remaining participants automatically assumes the role of Host. The host is also the one who starts and ends the events (Limbo, Pylon Racing, etc.).



Once you have started the session, other players may join in as they wish.

If you opt to broadcast the session to the list server, the session is known as a public session. The session will be open to all G4 owners searching for multiplayer events.

If you wish to keep the session private, only those participants to whom you have provided your IP address will be able to join.

The procedures for starting public and private sessions are very similar. In order to join your session, the participants will usually need to know the IP (Internet Protocol) address of your computer. The exception is if you are holding the session over a LAN, in which case the other players do not need to know your IP address. For a public session, your partners can retrieve your IP from the list server. For a private session, you must provide the IP address directly to the desired participants. When the session starts, RealFlight G4 will display your IP in the lower left corner of the main display.

To access the Host... menu item, click on the **Multiplayer** menu followed by the **Host...** menu item.

Host Information-

The Host Information allows you the ability to name your multiplayer session. You can also choose the maximum number of pilots and whether or not you wish to make your multiplayer session public or private.

**Session Name-**

Using the keyboard, enter the name of the session that you will be hosting.

Please note: this is the name of your session, not necessarily your personal name. In fact, you might find it useful to use a descriptive name such as “3D Fun Fly.” This is particularly useful when other participants are searching for a likely session to join.

Max Players-

To adjust the maximum number of players allowed in your session, click the down arrow. Enter the number directly from your keyboard or use the mouse wheel.

Currently, a multiplayer session may not have more than eight members. If the host computer is somewhat slow or has a poor internet connection, you may want to limit the number of participants.

Optional Port Number-

For users that are behind firewalls, you may want to use a port other than the default port (which is 2302). Most users should leave this field blank.

Broadcast to the List Server-

Clicking this option allows your session to be posted on the list server. This allows other RealFlight G4 users to join your session. This is a good option if you are looking for new (or additional) partners to fly with. If you check this box, you will be prompted for session information (see next section).

If you leave this box unchecked, your session will not be posted on our list server and you will have a private session. You will have to directly provide

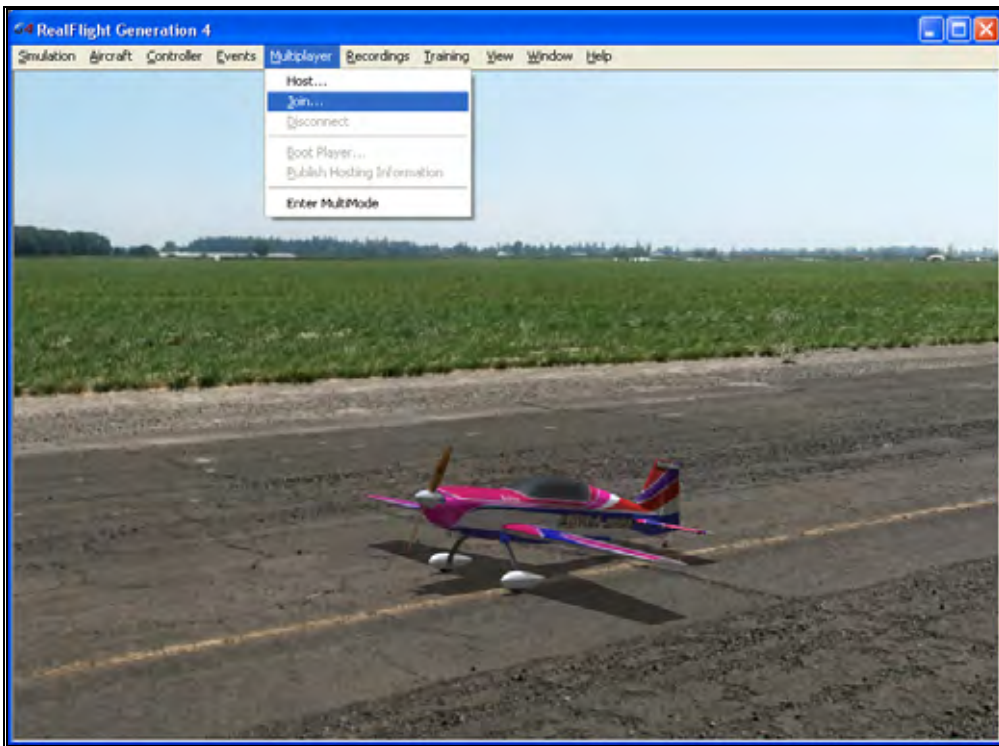
your IP address to your multiplayer partners (through phone, email, chat room, or whatever means you wish). This is a good option if you want to limit your session to a private group of friends.

If you do not want to broadcast your session information now, you can do so after the start of the session (see section pertaining to Publish Hosting Information on page 186).

Finally, please remember that at the time of this writing, we are providing the list server on a trial basis only. This service may be modified, interrupted or discontinued at any time without notice.

Join

This option allows you to participate in a Multiplayer session without being the Host of the session yourself.



To access the Join... menu item, click on the **Multiplayer** menu followed by the **Join...** menu item.

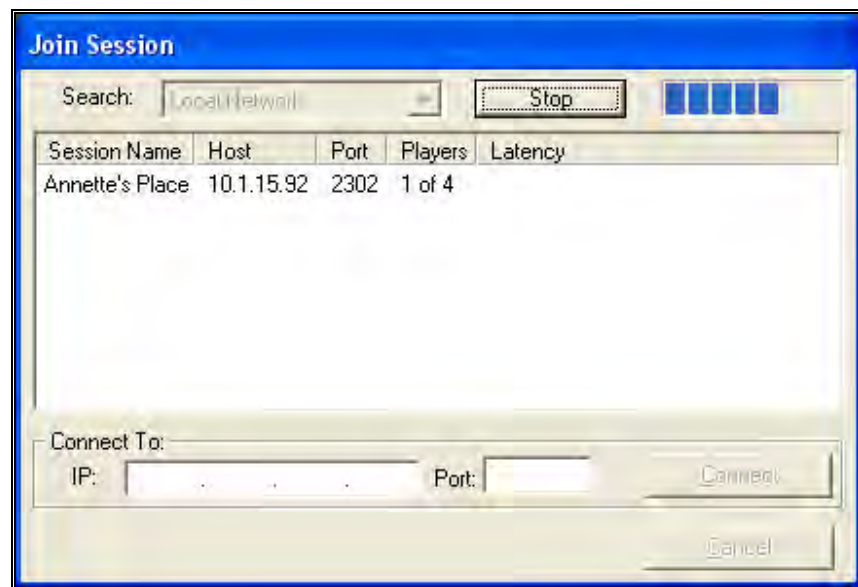
Before you can join a session, you will need two things:

- A network connection and
- The IP address of the session Host (unless the session is taking place over a LAN [Local Area Network]).

You can get the IP address directly from the Host (in the case of a private session), or from our list server (in the case of a public session).

Join Session-

This dialog allows you to select the multiplayer session that you wish to join. It also provides you with a variety of information pertaining to the various sessions available to you.



Search Function-

The Search function checks two distinct areas for multiplayer sessions. RealFlight G4 (at your discretion) will search the list server and the Local Network for multiplayer sessions.

To determine the Search area, click the down arrow next to the Start button. This activates the pull-down selections. Click on the location that you wish to search.

After making your selection, click the **Start** button to begin the search. When the search completes, the respective sessions and information appear in the dialog above. To select one of these sessions, click on the respective session

and then click **OK**. Alternatively, you may double-click on the Session Name to join.

Note: if you are using an updated version of Windows XP (Service Pack 2 or later), you may have Windows Firewall installed and running. If this is the case, Windows Firewall will pop up a warning dialog (similar to that shown below) the first time you use the Search function. You must select the Unblock option in order to allow RealFlight G4 to continue searching.

Session Name-

The Session Name column displays the name of all available sessions. If you have not searched (and found) a session, or entered an IP address, the Session Name will remain blank.

Host-

This column shows the IP address of the host computer. If you have accessed the address via the Search function, this information is automatically filled in for you when you select the session. If you participate in a multiplayer session via a LAN, you do not need to fill in the IP address. If you participate in a private session, fill in the IP address here. When completed, click **OK** to proceed.

Port-

This information is important if you are attempting to participate in a multiplayer session and the computer is located behind a firewall or NAT. The Port Number will route your computer's data through the firewall. It is imperative that this port number matches the port number of the host.

Players-

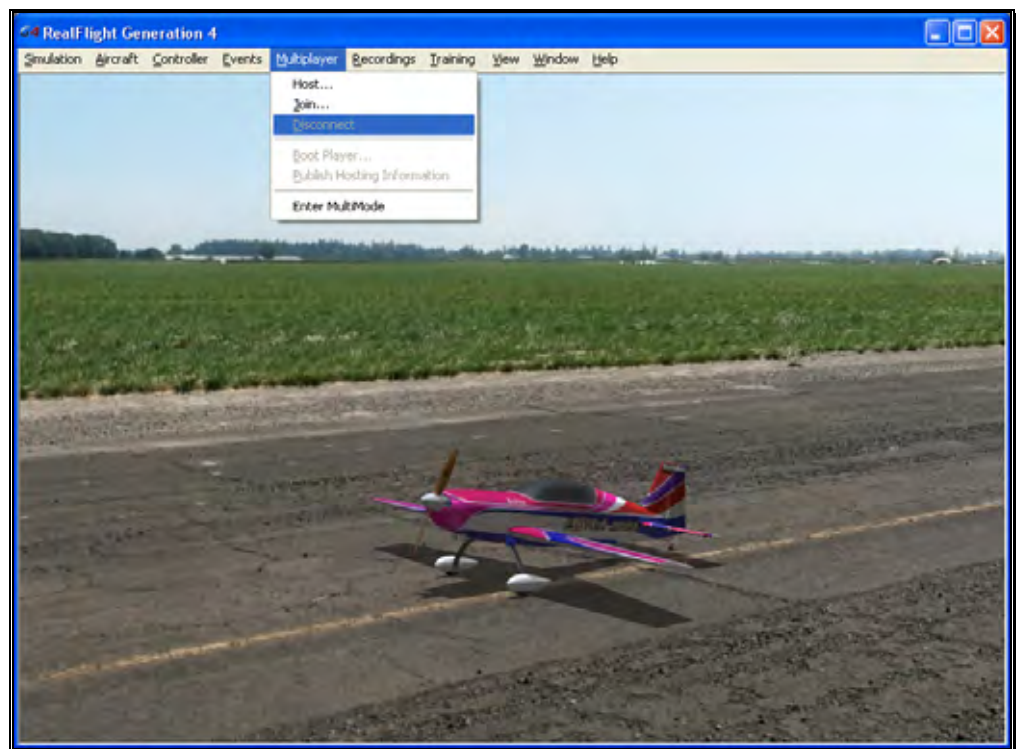
This column shows the users how many players are participating in a given multiplayer session. The host determines the number of allowable participants.

Latency-

Latency is the amount of time it takes a packet of information to travel from its source to the destination. The larger the number, the slower the information travels. High latency can result in sluggishness and "lag" while running the simulation. As such, you will want to avoid sessions where the latency number is high.

Disconnect...

This menu item is used to disconnect from, or exit, the multiplayer session.

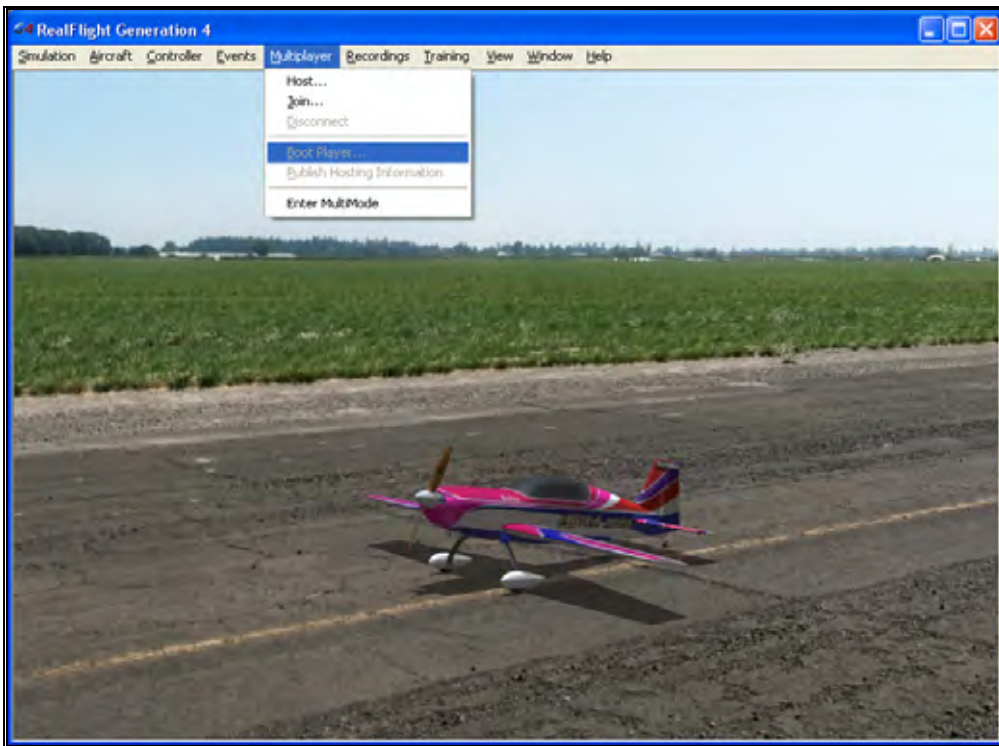


To access the Disconnect... menu item, click on the **Multiplayer** menu followed by the **Disconnect...** menu item.

Please note: if you are not currently participating in a multiplayer session, this item will be grayed out and will not be accessible.

Boot Player...

This menu item is used to drop a participant from a multiplayer session. It is only available if you are the Host of the session. Otherwise, this item is grayed out and inaccessible.

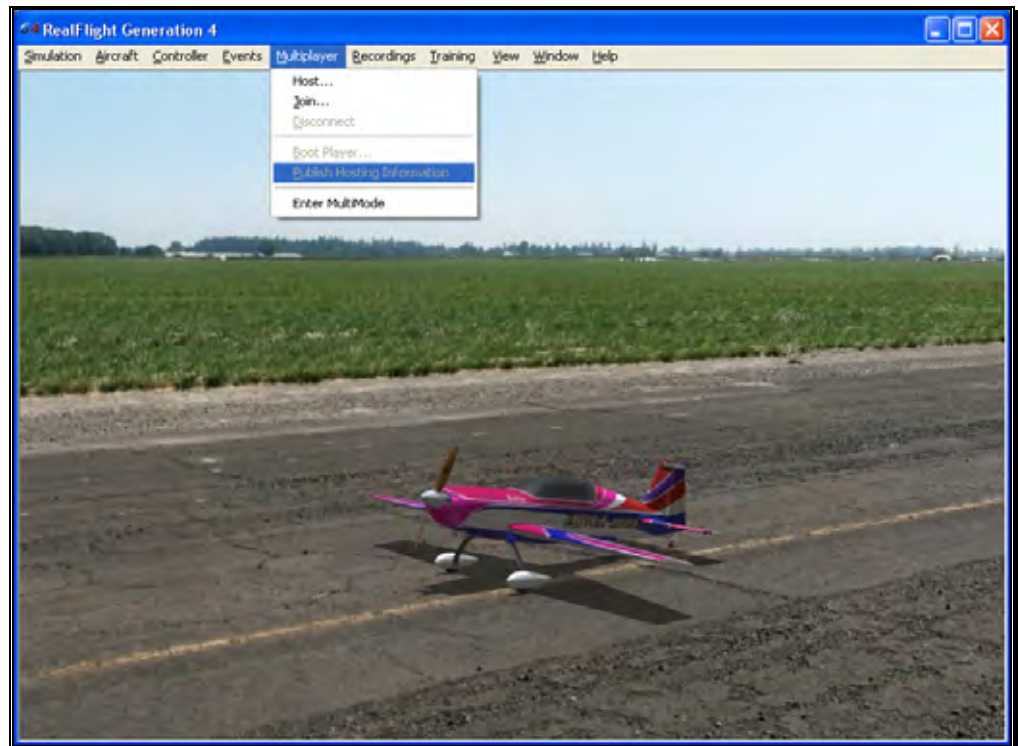


To access the Boot Player... menu item, click on the **Multiplayer** menu followed by the **Boot Player...** menu item.

The booted player will receive an on-screen message advising him/her that the host has booted (removed) them from the session.

Publish Hosting Information

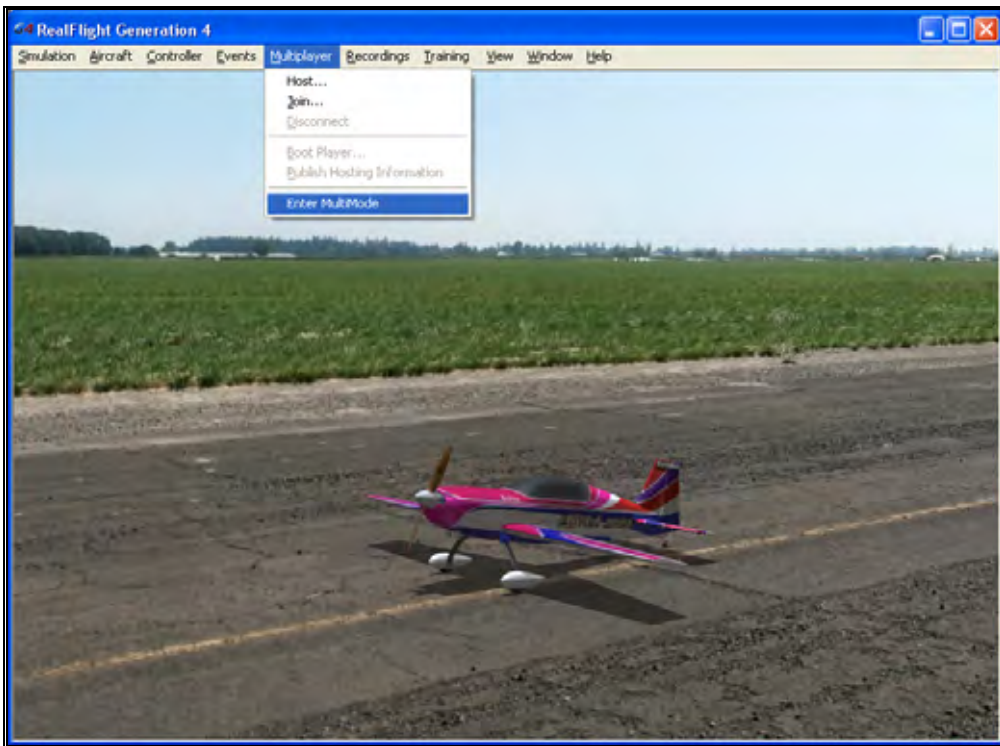
You can make your session public (placed on the list server) when you first start the session. Alternatively, you can do this while the session is in progress by selecting this menu item. When you click OK, RealFlight G4 publishes your session information to the list server, where everyone can see it.



Please note: at the time of this writing, we are providing the list server on a trial basis only. This service may be modified, interrupted or discontinued at any time without notice.

Enter MultiMode

MultiMode allows you to fly with another pilot on the same PC, with each pilot controlling his or her own aircraft. This feature is ideal for offering personal flight instruction, practicing formation flights, or simply for chasing one another across the skies.



To access the MultiMode menu item, click on the **Multiplayer** menu followed by the **MultiMode** menu item.



MultiMode will split the screen either horizontally (default) or vertically. You can change this options in the Settings window. Simply click the **Simulation** menu, followed by **Settings**. On the left side of the Settings screen that appears, choose **Multiplayer**. On the right, you can adjust the **Multimode Screen Layout** to Horizontal or Vertical.

All options available in RealFlight are also available in MultiMode. The difference is most will function on the half of the screen that currently is active. To determine which half has the focus or is active, look for the yellow outline. To change focus, click the half that doesn't have the yellow outline. You'll notice the focus change when you do so.

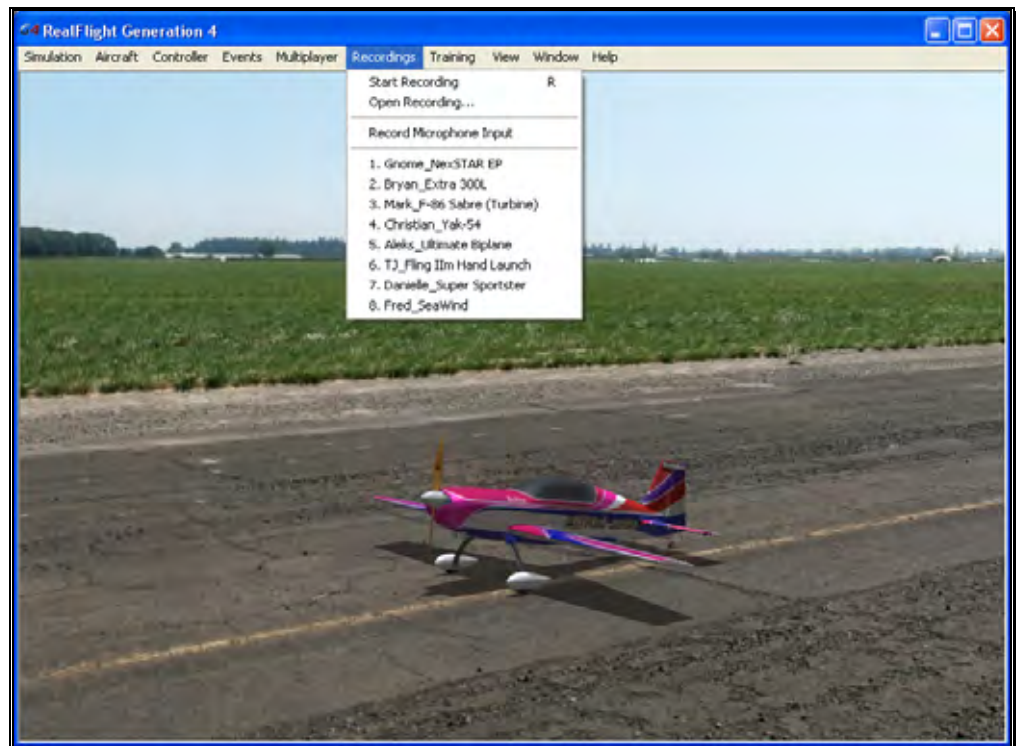
For example, if you are flying in MultiMode with a horizontally split screen, you might notice that the yellow outline is around the type half. If you want to change the aircraft for the person flying on the bottom half of the screen, first click that half of the window so it has the focus or is the active screen. Select an aircraft following the normal procedure.

To exit MultiMode, select **Exit MultiMode** menu item under the **Multiplayer** main menu.

Recordings Menu

Save and playback RealFlight memories.

The Recordings menu is used to start and stop recordings to assist you in your R/C ventures. RealFlight G4 also allows you to record your flights for later playback -- complete with audio voiceovers. You can even share your flights with friends and fellow pilots.



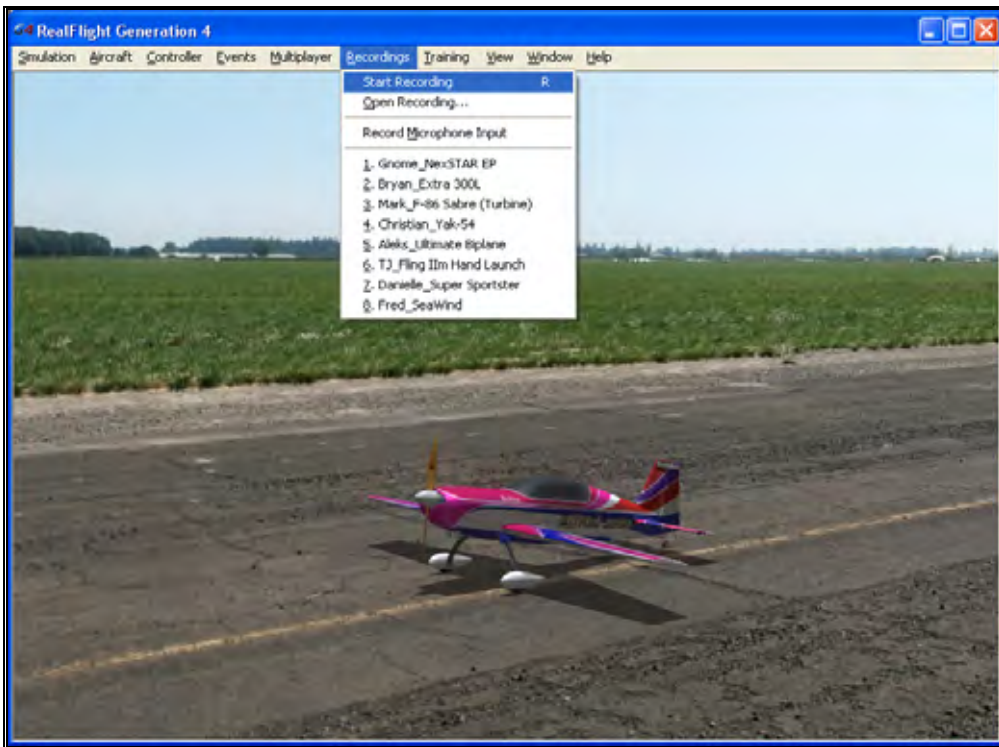
Menu options that are available for Recordings are:

- Start/Stop Recording

- Open Recording
- Record Microphone Input
- Recordings MRU

Start Recording

Click on the **Recording** menu followed by the **Start Recording** menu item. RealFlight G4 will start recording your flight immediately. An on-screen message will confirm that the recording has started.



Alternatively, you may also press the keyboard's **'R'** key to start a recording.

RealFlight will continue recording your flight until you select the **Stop Recording** menu item or press **'R'** again to stop recording.

Stop Recording

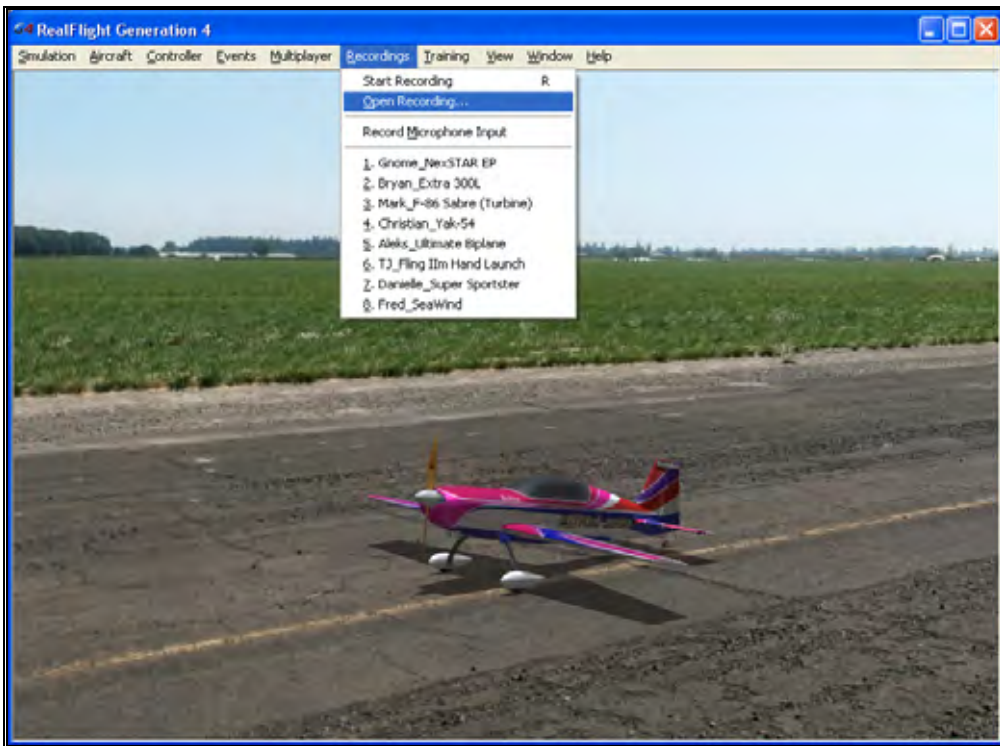
The Stop Recording menu item is not visible until the Start Recording menu item activates. To stop the recording of your flight at any time, click the **Recording** menu title, followed by the **Stop Recording** option. RealFlight G4 will stop recording at this time. RealFlight G4 automatically saves all recordings for playback later. For information on how to delete a recording, please see the Open Recording... section which follows.

Alternatively, you may also press the keyboard's **R** key to stop recording.

When RealFlight G4 stops recording, an on-screen message appears which indicates the default name of the recording that has just been completed. For information on how to change the name of a recording, please see the Open Recording... section which follows.

Open Recording...

This menu item allows you to access the recording files. It also allows you to perform a variety of modifications to the files such as renaming them or deleting them. To access the recordings, click the **Recording** menu title, followed by the **Open Recording...** menu item.



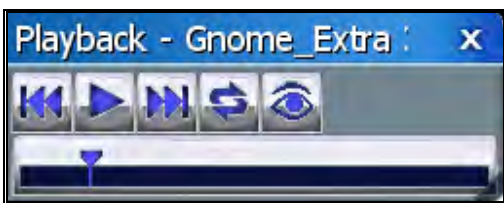
To open a recording, click on the file name. Next, click on the **Open** button. Alternatively, you may double-click on the file. Regardless of which method you utilize, this will start RealFlight's Playback Gadget. For more information on the Playback Gadget, please refer to the information below.

If you wish to rename the recording, simply right click on the respective Recording, select rename from the drop-down menu and rename the file.

To delete a recording, right click on the Recording file and select **Delete** from the pull-down list.

Playback Gadget-

When you open a recording, RealFlight G4's playback gadget appears on the screen. This gadget allows you to control the playback of the recordings using simple mouse commands. It features DVD-like controls that start, stop, or pause the playback. It is also possible to modify the playback gadget.



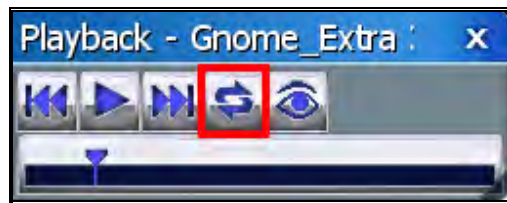
If you do not wish to view the playback information, double-click the **title bar** of the display box. This will hide the information. To view it once again, simply double-click the **title bar** again.

To resize the playback gadget display, position the cursor over the lower right corner of the frame. Using the mouse drag the frame according to your wishes. Dragging the frame to the right or left increases or decreases the width of the viewport, respectively.

Clicking on the 'X' in the viewport's title tab removes it from the screen and exits the playback.

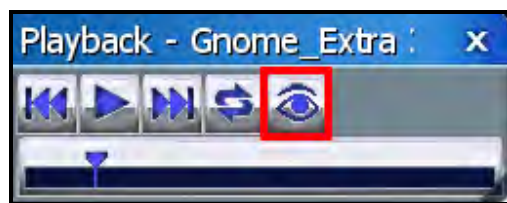
Loop Play-

The arrows that forms a circle causes the recording to loop (i.e., play continuously). The continuous loop is activated when the arrows are illuminated. To stop the looping, click on the loop button again.



Look at Recording-

Click on the 'eye' to look at the respective Recording. This causes the camera to treat the recording as its target object, rather than your aircraft. If you have multiple recordings playing, choose the 'eye' of the Recording you wish to view.



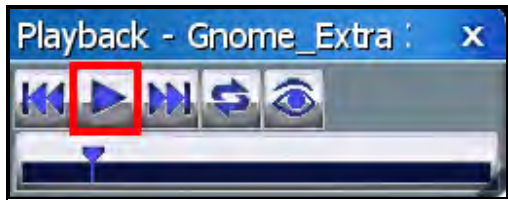
Left/Right Arrows-

The left and right arrows rewind (left) or fast forward (right) the recording. Alternatively, you may click on the position indicator, hold the mouse button and drag the indicator to the desired position.

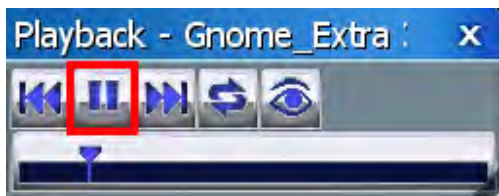


Playback/Pause-

If the recording is paused, the playback button will be the single arrow pointing to the right. To resume playback of the recording, click this arrow.



If the recording is playing, the playback button will switch to a pause button. To pause playback, press this button. You may continue at any time by pressing the playback button once again.

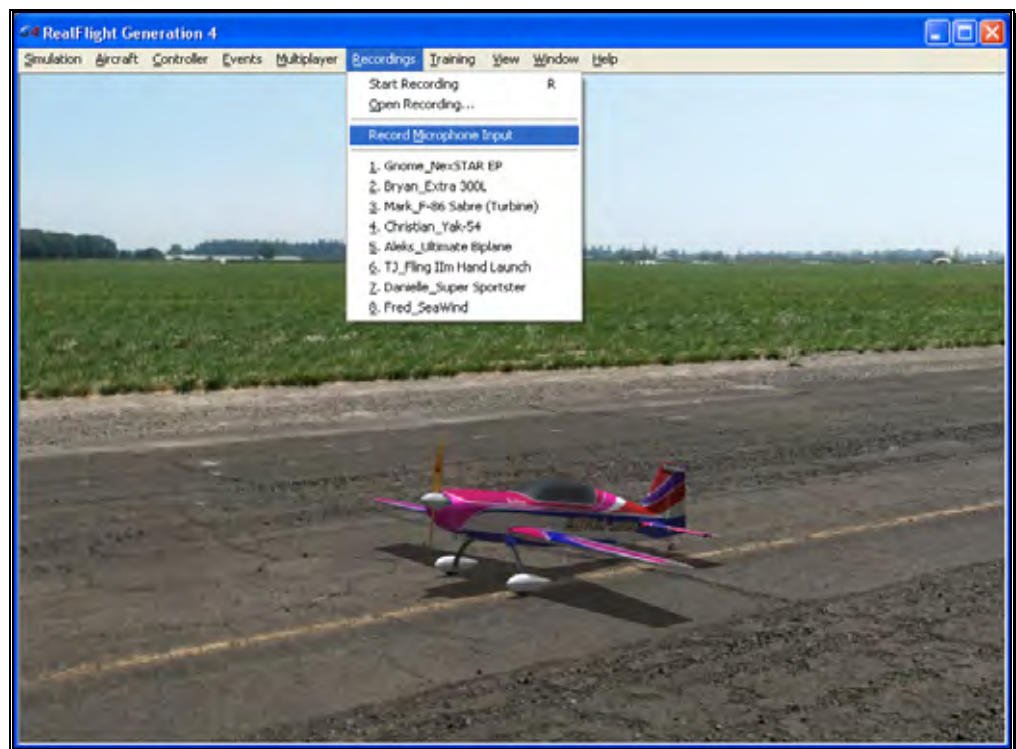
**Position of Recording-**

The slider bar and position indicator are used to track the progress of the recording playback.

It is also possible to use the position indicator to select the point at which you wish the recording to begin playing. Using the mouse drag, position the slider bar to the position desired.

Record Microphone Input

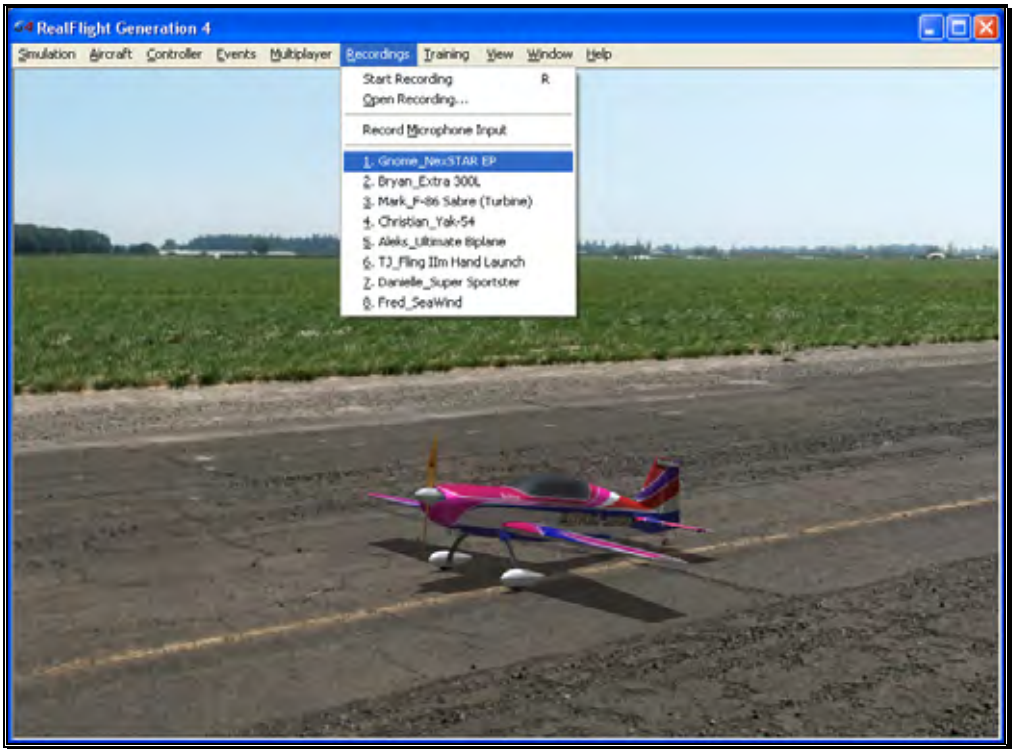
RealFlight G4 also allows you to add your voice or other audio to the recordings. If selected, the Record Microphone Input menu item activates and allows you to record audio input to accompany your recording.



Adding your voiceover to the recordings is a fantastic way to create personalized training lessons. This feature presents you with the ability to create your own Virtual Flight Instructions that you can share with other RealFlight G4 owners around the world!

Recordings MRU

If you have previously selected a recording, you will note that it appears on a list in the Recordings menu title. Lists such as this are commonly referred to as Most Recently Used, or MRU lists. The MRU list is limited to the eight most recently selected recordings. If you wish to view one of these recordings simply click on the name of the recording and it will begin.



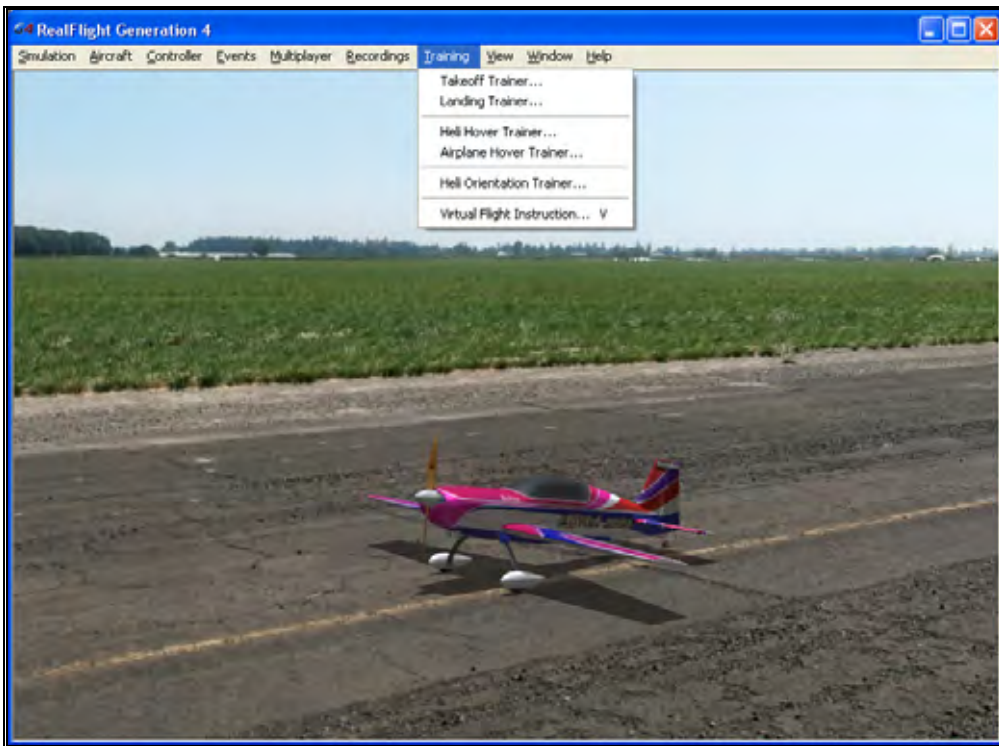
Training Menu

Practice makes perfect. RealFlight's Training Aids make practicing a little more enjoyable.

RealFlight G4 offers a number of training aids. These training aids are designed for modelers of all skill levels.

Helicopter pilots will benefit from the Heli Hover Trainer, Heli Orientation Trainer and the helicopter Virtual Flight Instructions. The Heli Hover Trainer and Heli Orientation Trainer offer modelers the chance to practice their stick control and helicopter attitude recognition. With Virtual Flight Instructions, R/C professionals offer audio and visual instruction on how to perform basic, intermediate and advanced maneuvers.

Airplane modelers will also benefit from the Takeoff Trainer, Landing Trainer, Airplane Hover Trainer and Virtual Flight Instructions.

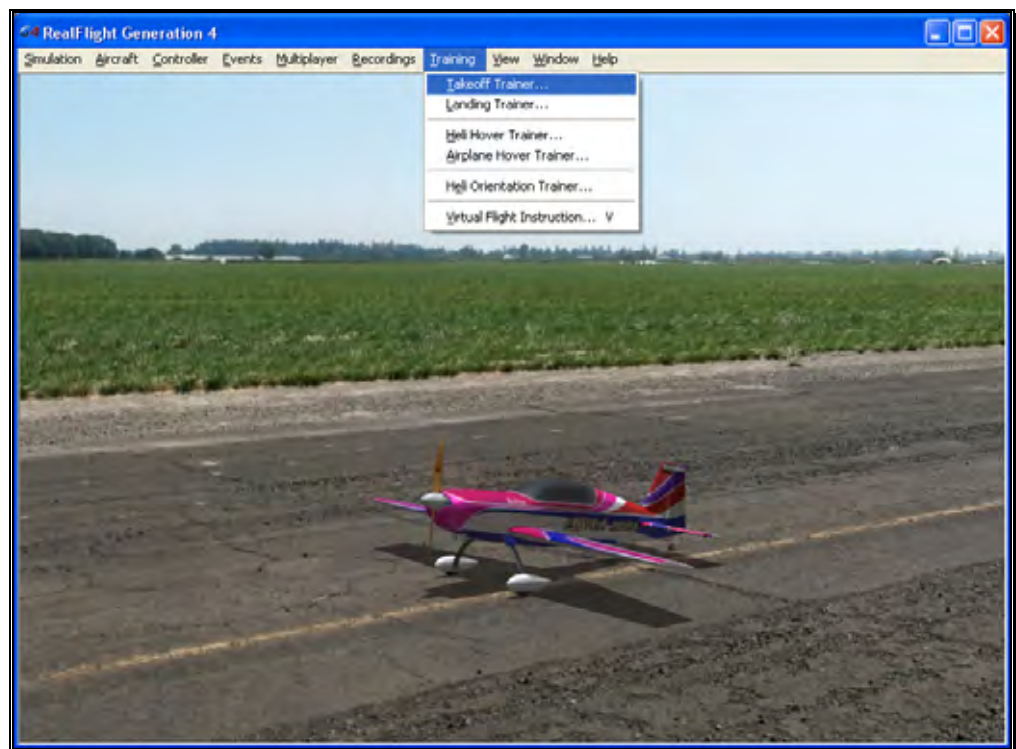


Once you click on the **T**rainning menu, the following menu options appear:

- Takeoff Trainer...
- Landing Trainer...
- Heli Hover Trainer...
- Airplane Hover Trainer...
- Heli Orientation Trainer...
- Virtual Flight Instruction...

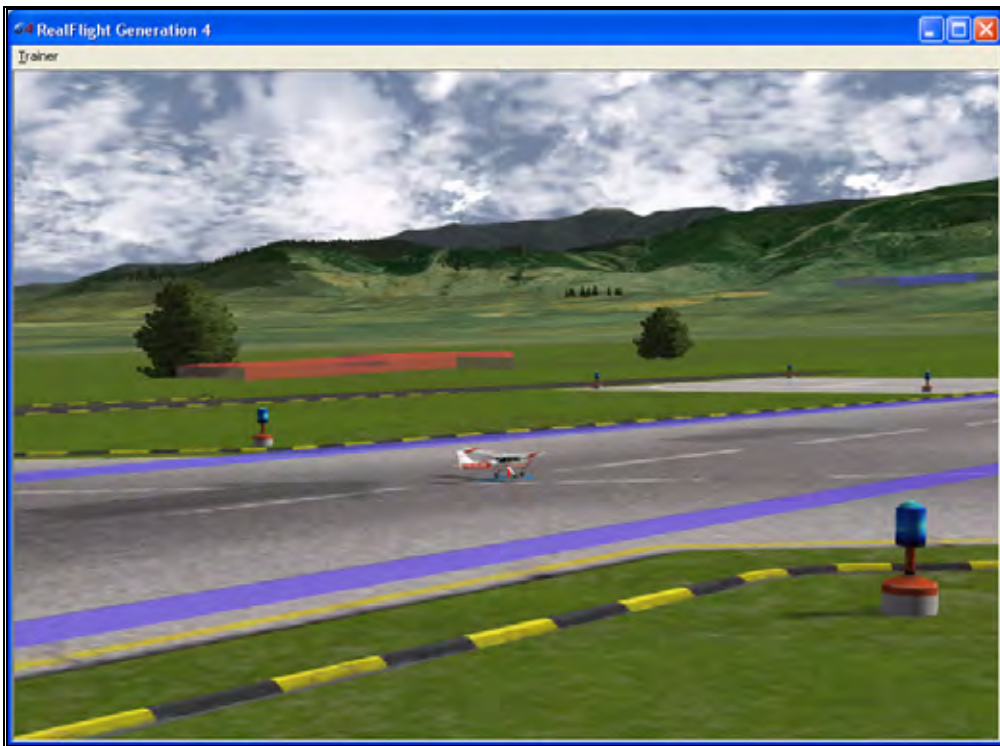
Takeoff Trainer

The Takeoff Trainer offers a great way for first time pilots to learn the basics of taking off an airplane. With this trainer, you have the ability to adjust wind settings, takeoff direction, and overall difficulty to stay on the runway.



To start the trainer, click **Takeoff Trainer...** menu item from the **Training** menu. The trainer will start automatically.

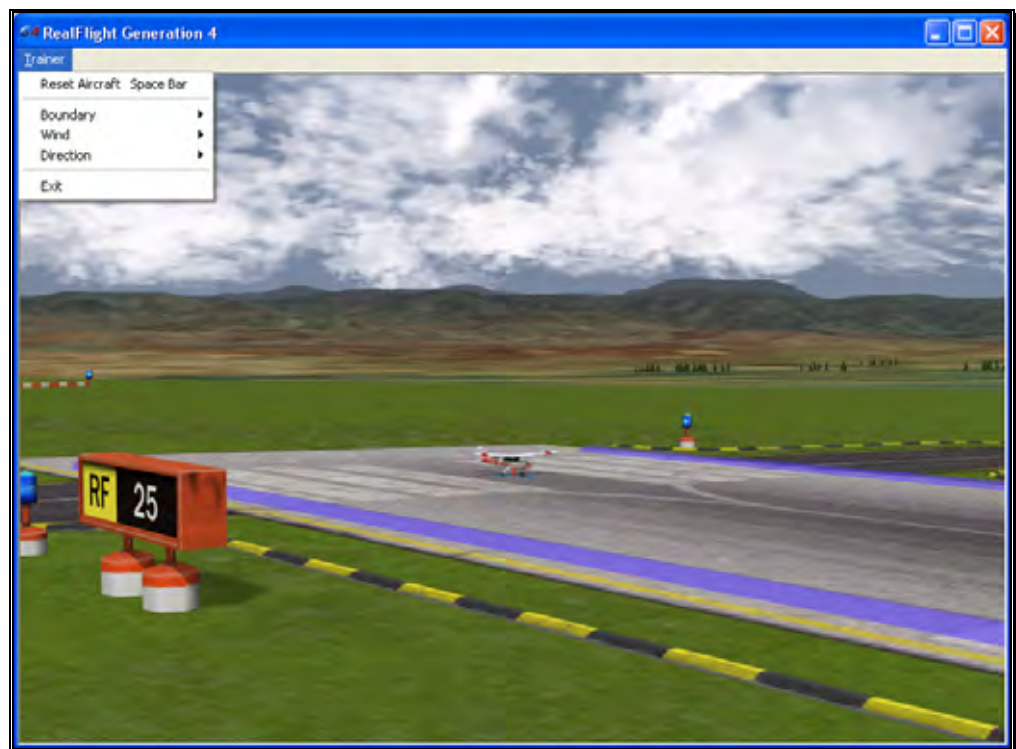
The Takeoff Trainer feature is based on RealFlight's Flight School flying site. As such, you'll notice that RealFlight automatically uses the Flight School airport. You'll see that the NexSTAR trainer sitting at the end of the runway, waiting for your inputs. The goal is to takeoff as straight as possible down the runway, pulling back gently on the elevator. As you takeoff, you'll notice a number of arrows in the sky. These arrows indicate the path that you should follow. The arrows will appear red in color if you are on the correct path, blue if you are not.



You'll also notice the menus have changed, which we'll discuss here.

Trainer Menu-

The Trainer Menu contains the following menu items:



- Reset Aircraft
- Boundary
- Wind
- Direction
- Exit

Reset Aircraft-

If you crash or fly too far out of the boundary area, there are three ways to reset the aircraft:

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 Aircraft** menu item

Boundary-

The Boundary menu item allows you to change the size of the runway path for which you must stay inside while taking off. To change the size or the boundary, select the **Boundary** menu item from the **Trainer** menu. A sub-menu will appear with the following options.

- None – Eliminates the boundary all together.
- Small – Creates a tighter boundary which is excellent training for practicing precise takeoffs.
- Medium – Creates a medium path boundary.
- Large – Creates a large boundary.

Once you select a boundary size, you'll notice one blue line on either side of the runway. During takeoff, you must try to stay inside these lines. If you get too close, they will turn red. Correct the flight path of your airplane so that you are more centered on the runway.

Wind-

Not everyday can be an ideal day to fly. Every pilot must learn how to takeoff with different wind conditions. The Wind menu will allow you to adjust the direction of the wind. When you select the **Wind** menu item, the following options will appear.

- None – Turns the wind off to simulate a calm day.
- Crosswind Left – This will set the wind to blow from the left of the aircraft.
- Crosswind Right – This will set the wind to blow from the right of the aircraft.
- Upwind (Normal) – Upwind will set the wind to blow towards the nose of the aircraft.
- Downwind (Dangerous) – This will create a tail wind, making it more difficult to takeoff due to the decrease in airspeed.

Direction-

The Direction menu will allow you to change the direction in which you takeoff. For an R/C pilot, you don't have the luxury of sitting in the airplane, so you must learn how to control the airplane from any direction. Selecting the Direction menu will show the following options.

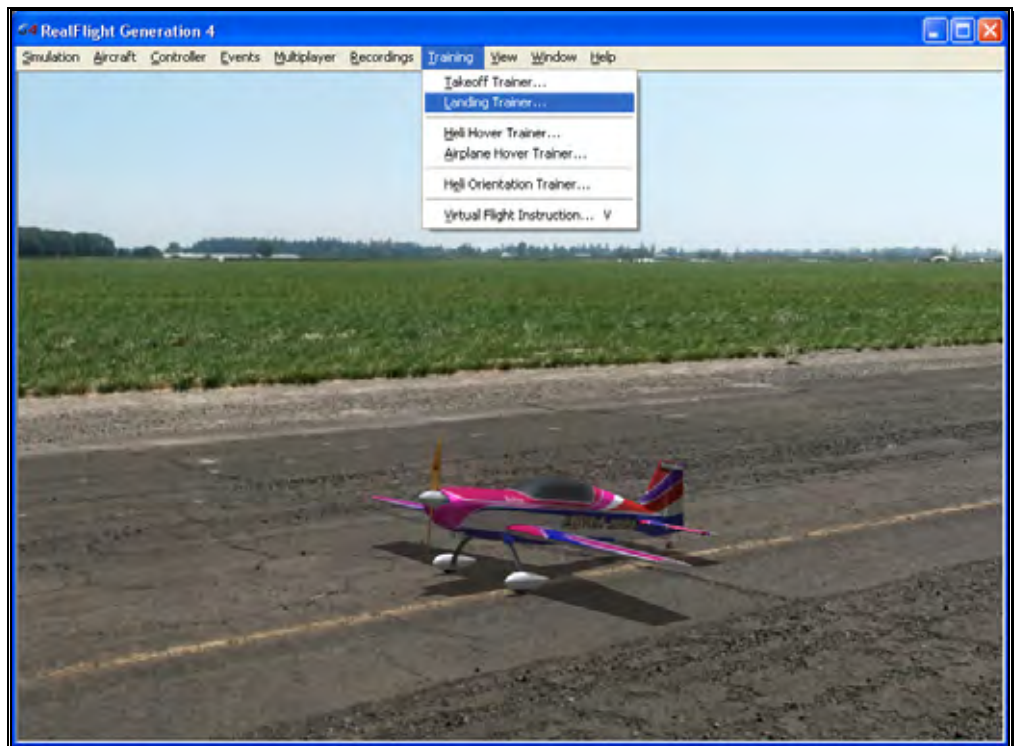
- Left to Right – Take off from the left side of the runway, heading to the right.
- Right to Left – Take off from the right end of the runway, heading to the left.

Exit-

If you wish to leave the Takeoff Trainer and return to the simulation, select the **Exit** menu item.

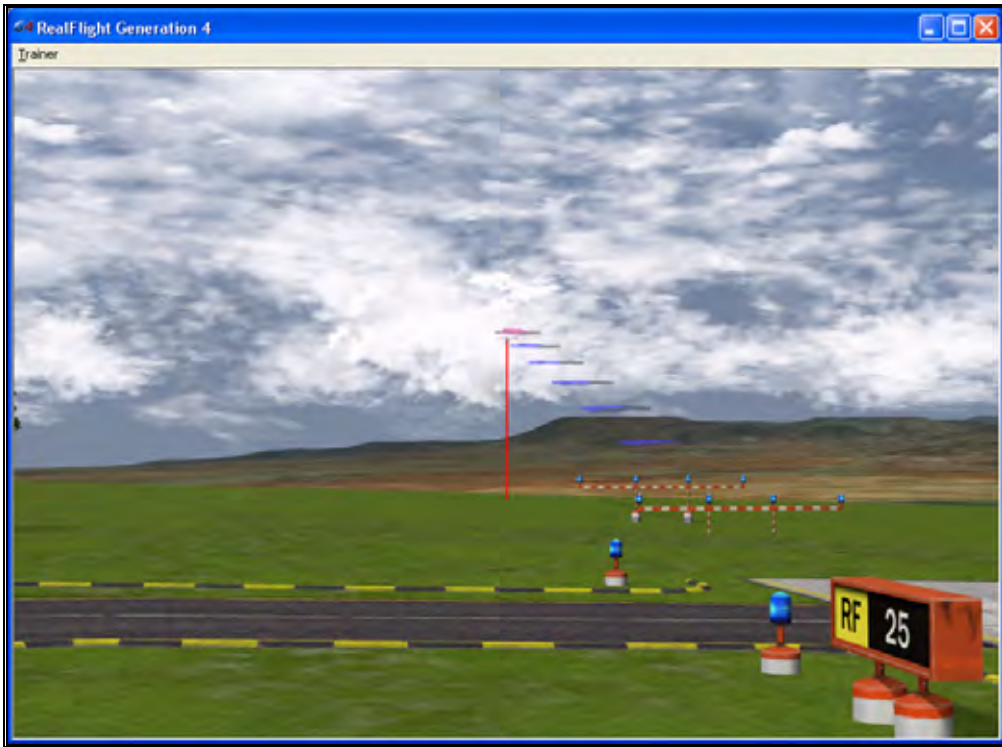
Landing Trainer

The old saying goes, “Take offs are easy, landings are the hard part.” Once you master the Takeoff Trainer, the next step is to learn how to land, which is what the Landing Trainer is designed to do.

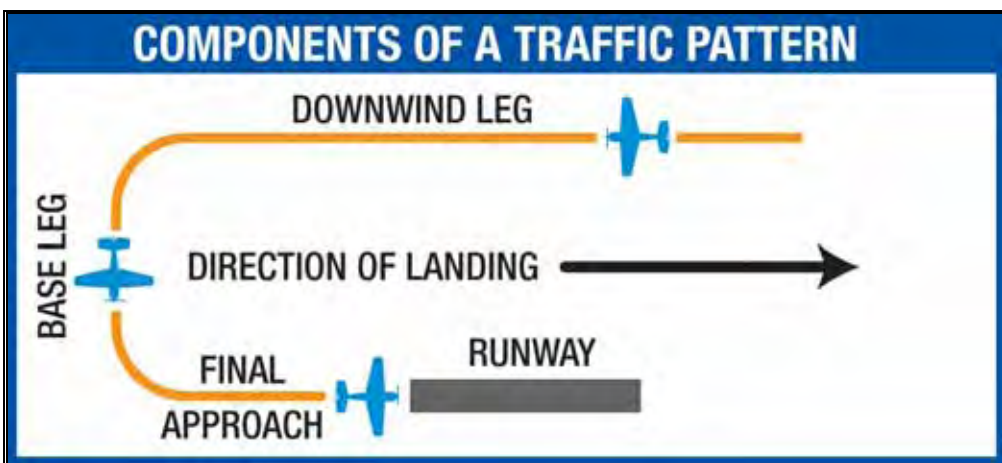


To start the Landing Trainer, click the **Training** menu, followed by the **Landing Trainer...** menu item.

You'll notice that RealFlight switched airports to Flight School, if you were not there already. For this training session, you'll be piloting Hobbico's NexSTAR. You'll also have options, should you wish, to adjust where to start the landing, wind direction, and how difficult it should be to hit the runway.



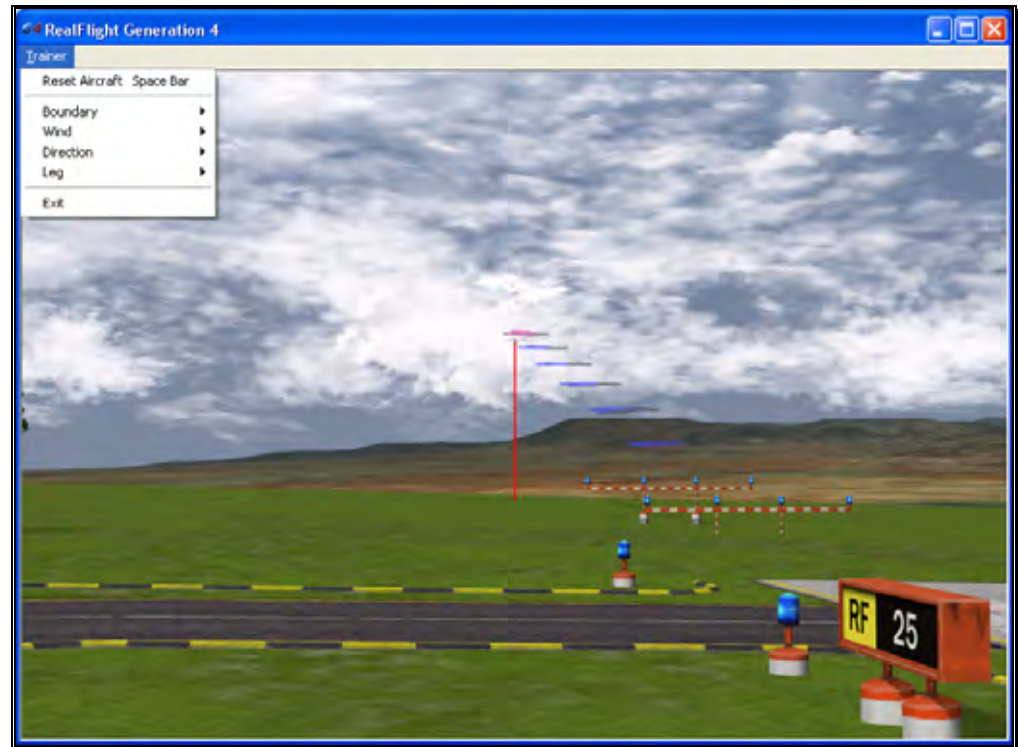
For landings, it's important to understand the different legs during the approach to the runway.



When you start the Landing Trainer, you'll notice a new menu has appeared.

Trainer Menu-

The Trainer Menu contains the following menu items:



- Reset Aircraft
- Boundary
- Wind
- Direction
- Leg
- Exit

Reset Aircraft-

If you crash or fly outside the boundary, there are three ways to reset the aircraft:

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 Aircraft** menu item.

Boundary-

The Boundary menu item allows you to change the size of the runway path in which you must land between. To change the size of the boundary, select the **Boundary** menu item from the **Trainer** menu. A sub-menu will appear with the following options.

- None – Eliminates the boundary all together.
- Small – Creates a tighter boundary which is excellent training for precise landings.
- Medium – Creates a medium path boundary.
- Large – Creates a large boundary.

Once you select a boundary size, you'll notice one blue line on either side of the runway. During your landing, you must try to stay between these lines. If you get too close, they will turn red. Correct the flight path of your airplane so that you are more centered on the runway.

Wind-

Every pilot must learn how to land with different wind conditions. In some respects, this can be more difficult than takeoffs, since you must learn how to deal with different wind conditions for each leg of the approach. The Wind menu will allow you to adjust the direction of the wind. When you select the **Wind** menu item, the following options will appear.

- None – Turns the wind off to simulate a calm day.
- Crosswind Left – This will set the wind to blow left across the runway.
- Crosswind Right – This will set the wind to blow from the right across the runway.
- Upwind (Normal) – Upwind will set the wind to blow towards the nose of the aircraft as you are on your final leg.
- Downwind (Dangerous) – This will create a tail wind during the final leg, making it more difficult to land due to the decrease in airspeed.

Direction-

It's important to learn how to land from any direction. This menu item will change the approach direction to learn the controls from a different aspect. The choices that appear when you select the Direction menu item are as follows.

- Left to Right – This will set you up to land on the runway from the left end flying towards the right.
- Right to Left - This will set you up to land on the runway from the right end flying towards the left.

Leg-

The Leg menu item allows you to practice each leg of the approach. The options are as follows.

- Downwind – This sets the aircraft up on the downwind side, or parallel to the runway. From here, you must fly the Downwind, turn to Base, and then the Final for the landing.
- Base – This sets the aircraft up for the Base leg of the approach. You must complete the Base leg and then turn to the Final leg prior to landing.
- Final – The Final leg will set you up for the landing.

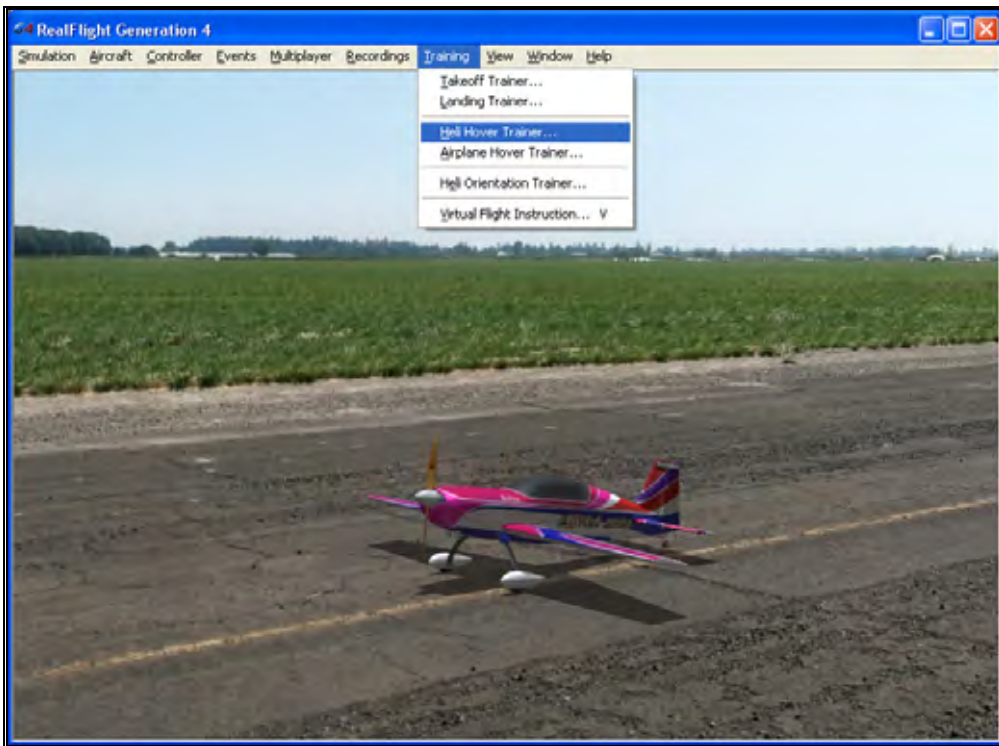
When the training lesson begins, the NexSTAR will be placed at the beginning of the Leg you choose. Simply hit the **Reset** button on the InterLink Elite to begin flying.

Exit-

If you wish to leave the Landing Trainer and return to the simulation, select the **Exit** menu item.

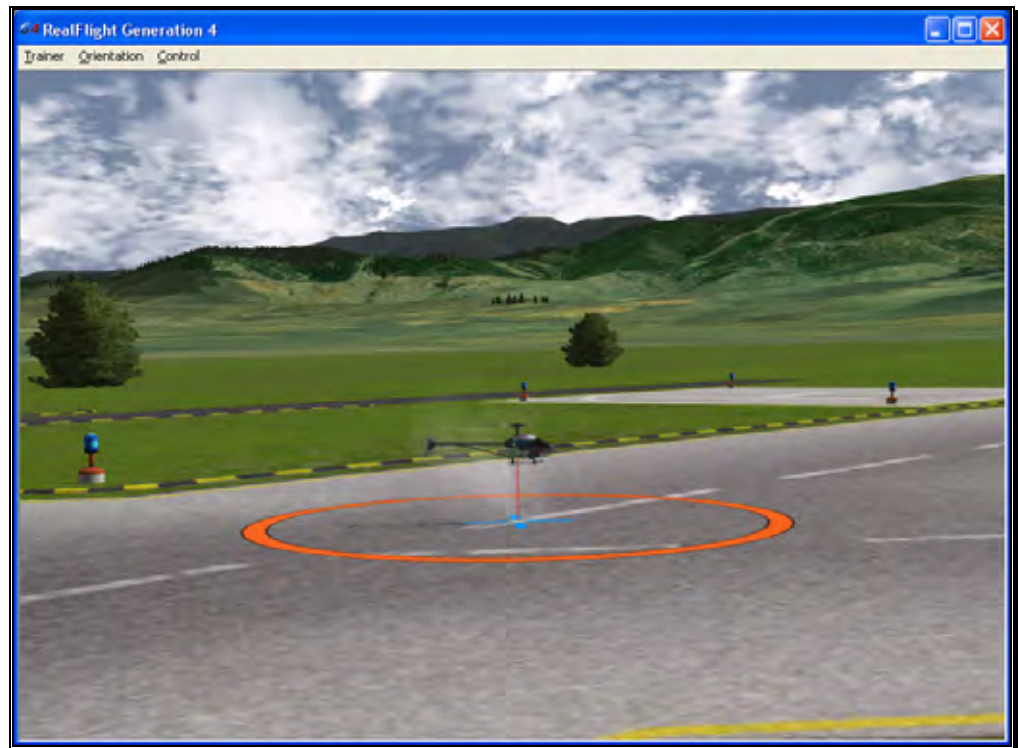
Heli Hover Trainer

The Heli Hover Trainer offers you a great way to learn how to precisely control a helicopter in a hover. With the Heli Hover Trainer, you pick which channels you wish to control and RealFlight will take care of the rest for you.



To start the trainer, click **Heli Hover Trainer...** menu item from the **Training** menu. The trainer will start automatically.

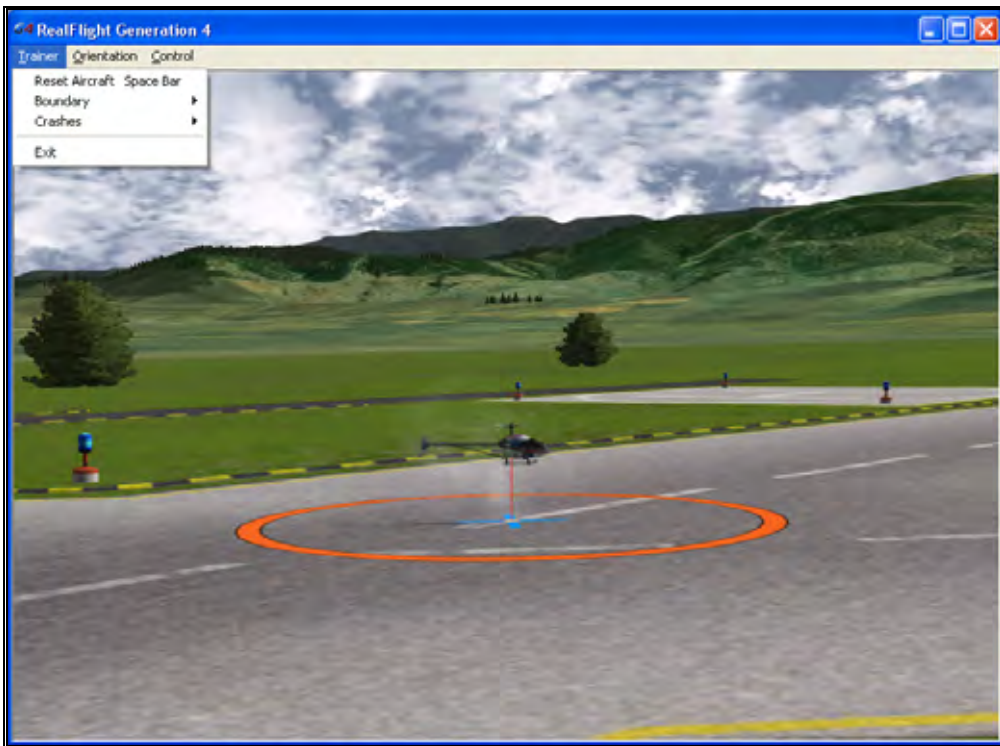
You'll notice a circle on the ground. This circle represents the training boundary. If your helicopter ventures beyond this boundary, it will break apart and the session will begin once again. You'll also note two 'X' marks within the boundary. The circle represents the true center of the boundary, the 'X' represents the current location of your helicopter. The goal is to control the helicopter in a stable hover, keeping it as close to the center of the circle as possible.



You'll also notice that the menu options have changed.

Trainer Menu-

The Trainer Menu contains the following menu items:



- Reset Aircraft
- Boundary
- Crashes
- Exit

Reset Aircraft-

If you crash or fly outside the circle, there are three ways to reset the aircraft:

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 Aircraft** menu item.

Boundary-

The Boundary menu item allows you to change the size of the circle, or eliminate it altogether. To change the size of the boundary, select the **Boundary** menu item from the **Trainer** menu. A drop down menu will appear with the following options.

- None – Eliminate the boundary circle.
- Small – Creates a small circle.
- Medium – Creates a medium sized circle.
- Large – Creates a large circle.

Crashes-

After a crash, RealFlight may automatically reset your helicopter for you, if so desired. This option is on by default. If you would prefer to turn this option off, select the **Crashes** menu item, then select the **Automatically Reset Aircraft**. If a checkmark appears next to this menu item, then this feature is activated. If the checkmark does not appear, it is not active.

If Automatically Reset Aircraft is enabled, you may adjust how quickly the reset happens. To adjust this delay, select the **Crashes** menu item followed by the **Reset Delay** menu item. Four options will be available to you:

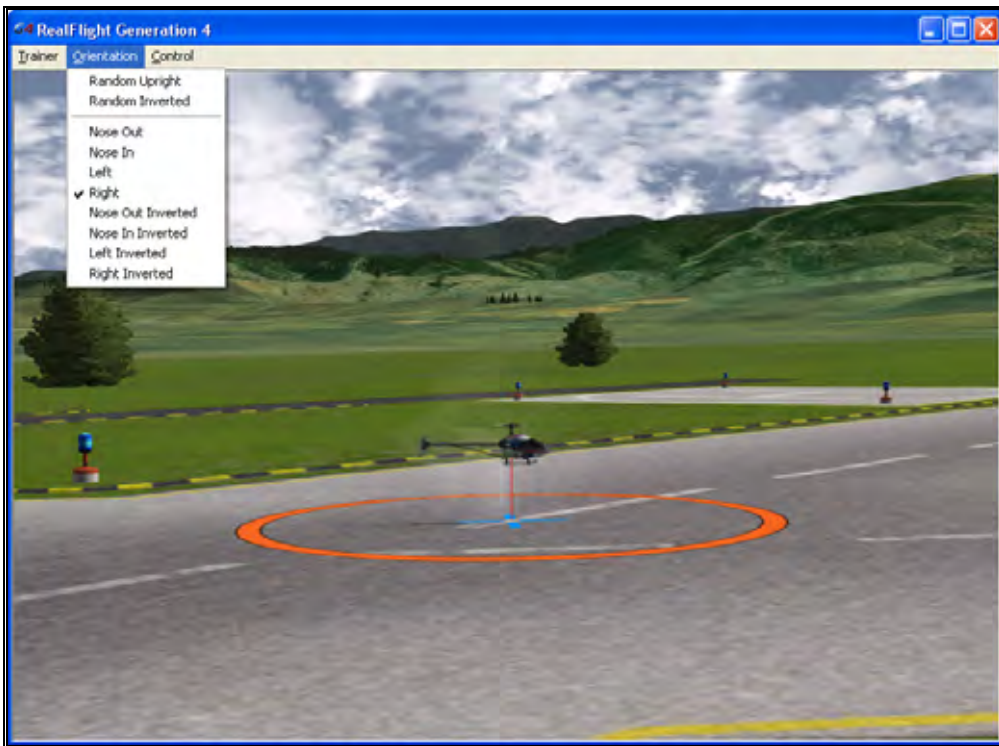
- None – No delay will be set. The aircraft will reset immediately.
- Short – The aircraft will reset approximately one second after it crashes.
- Medium – The aircraft will reset approximately three seconds after it crashes.
- Long – The aircraft will reset approximately six seconds after it crashes.

Exit-

If you wish to leave the Heli Hover Trainer and return to the simulator, select the **Exit** menu item.

Orientation Menu-

The Orientation menu allows you the option to select the position and attitude of the heli when the session begins or the helicopter is reset.

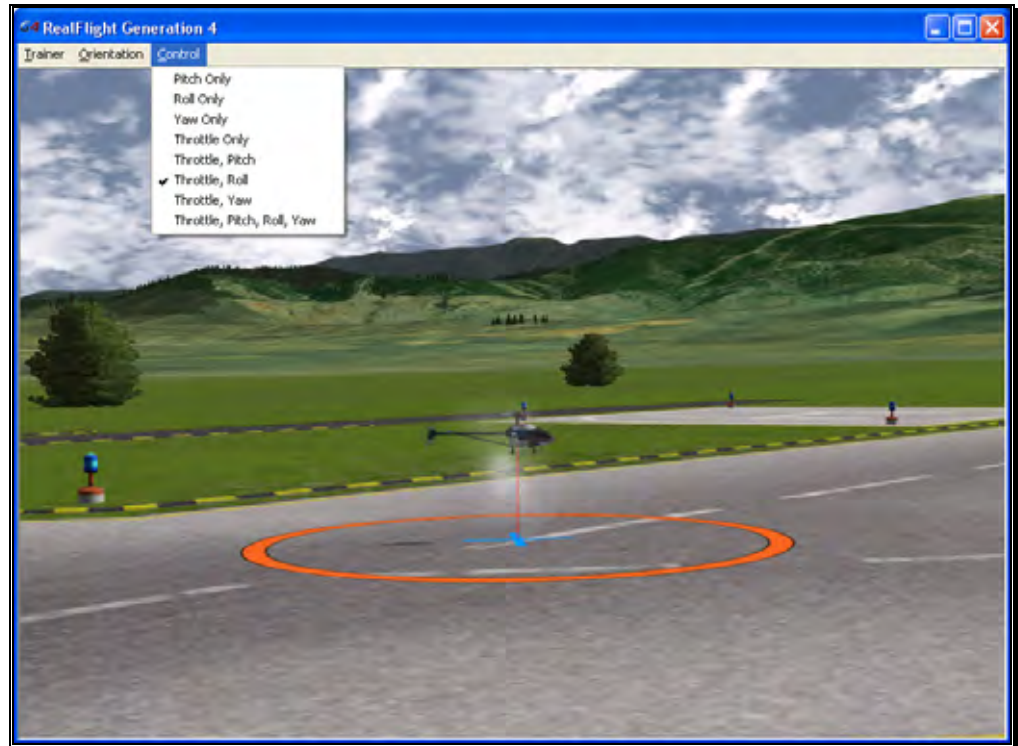


A checkmark will appear next to the currently selected orientation. The options available are:

- Random Upright – The heli will start in the upright position, but it will randomly face either to the right, left, nose out, or nose in.
- Random Inverted – The heli will start in the inverted position, but it will randomly face either to the right, left, nose out, or nose in.
- Nose Out – The heli will start upright, facing nose out. This option is the best selection for beginning heli pilots.
- Nose In – The heli will start upright, facing nose in.
- Left – The heli will start upright, facing to the left.
- Right – The heli will start upright, facing to the right.
- Nose Out Inverted – The heli will start inverted, facing nose out.
- Nose In Inverted – The heli will start inverted, facing nose in.
- Left Inverted – The heli will start inverted, facing to the left.
- Right Inverted – The heli will start inverted, facing to the right.

Control Menu-

The Control menu allows you to select which channel or channels to control. All other channels are controlled by RealFlight, allowing you to learn just the controls you wish, and adding more as you become more comfortable and confident.



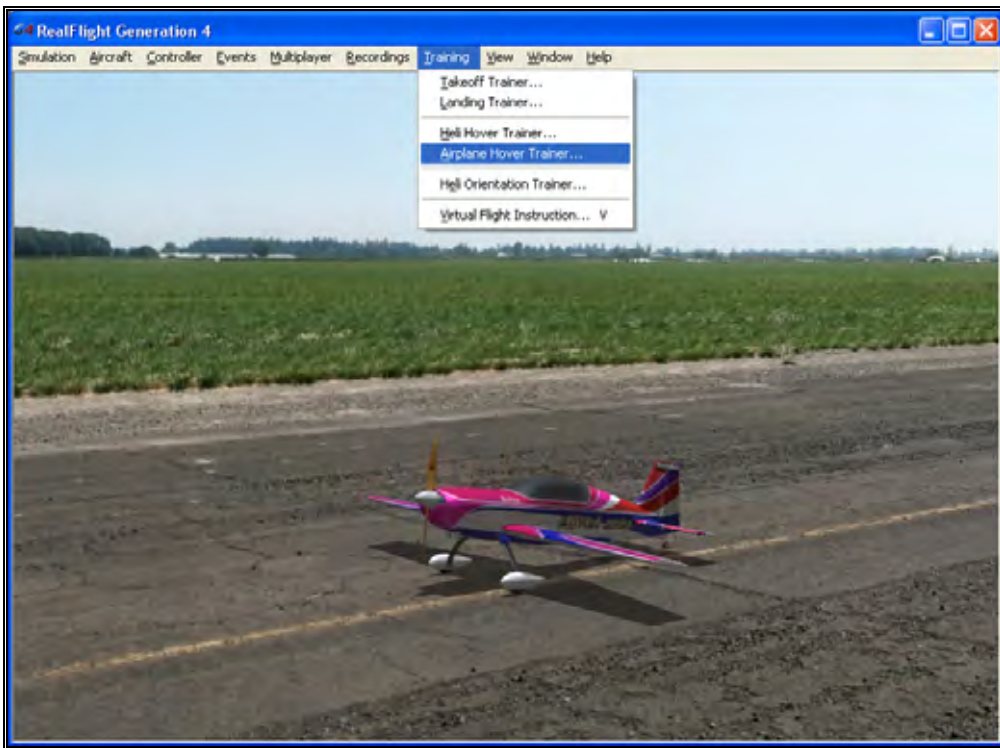
A checkmark will appear in the menu next to the currently selected item. Your options are:

- Pitch Only – You control only the pitch of the heli, RealFlight will control the roll, yaw, and throttle.
- Roll Only – You control only the roll of the heli, RealFlight will control the pitch, yaw, and throttle.
- Yaw Only – You control only the yaw of the heli, RealFlight will control the roll, pitch, and throttle.
- Throttle Only – You control only the throttle of the heli, RealFlight will control the roll, yaw, and pitch.
- Throttle, Pitch – You control both the throttle and pitch of the heli, RealFlight will control the roll, and yaw.
- Throttle, Roll – You control both the throttle and roll of the heli, RealFlight will control the pitch, and yaw.

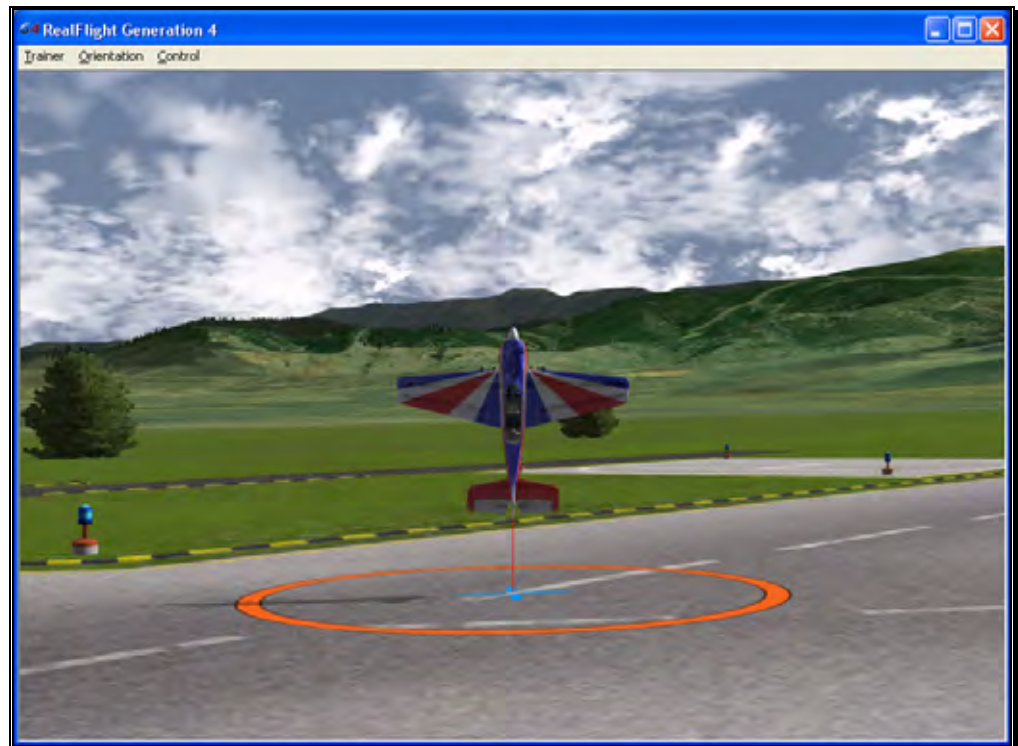
- Throttle, Yaw – You control both the throttle and yaw of the heli, RealFlight will control the roll, and pitch.
- Throttle, Pitch, Roll, Yaw – You control all channels for the heli.

Airplane Hover Trainer

The Airplane Hover Trainer offers you a great way to learn how to control an aerobatic airplane in a torque roll. With the Airplane Hover Trainer, you pick which channels you wish to control. RealFlight automatically controls the rest.



To start the trainer, click **Airplane Hover Trainer...** menu item from the **Training** menu. The trainer will start automatically.

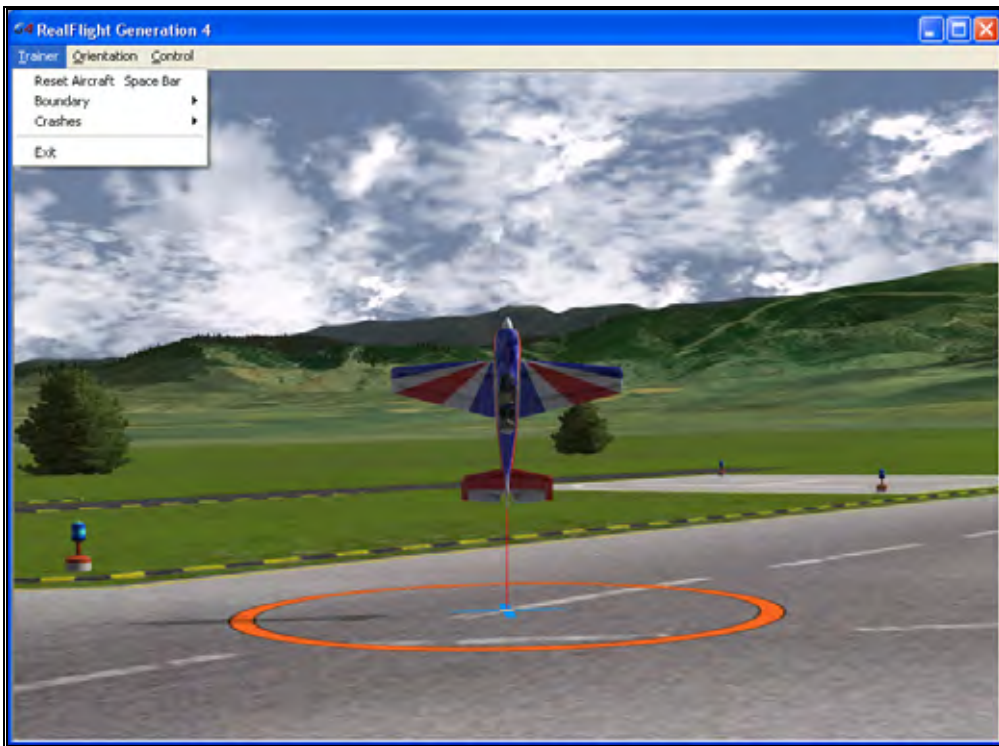


You'll notice a circle on the ground. This circle represents the training boundary. If your airplane ventures beyond this boundary, it will break apart and the session will begin once again. You'll also notice two 'X' marks within the boundary. One represents the true center of the boundary; the second is your airplane location. The goal is to control the airplane in a stable hover, keeping it as close to the center of the circle as possible.

You'll also notice the menus have changed, which we'll explain here.

Trainer Menu-

The Trainer Menu contains the following menu items:



- Reset Aircraft
- Boundary
- Crashes
- Exit

Reset Aircraft-

If you crash or fly outside the circle, there are three ways to reset the aircraft:

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 Aircraft** menu item.

Boundary-

The Boundary menu item allows you to change the size of the circle, or eliminate altogether. To change the size or the boundary, select the **Boundary** menu item from the **Trainer** menu. A drop down menu will appear with the following options.

- None – Eliminates the boundary circle.
- Small – Creates a small circle.
- Medium – Creates a medium-sized circle.
- Large – Creates a large circle.

Crashes-

After a crash, RealFlight may automatically reset your aircraft for you, if so desired. This option is on by default. If you would prefer to turn this option off, select the **Crashes** menu item, then select the **Automatically Reset Aircraft**. If a checkmark appears next to this menu item, then this feature is activated. If the checkmark does not appear, it is not active.

If Automatically Reset Aircraft is enabled, you can adjust how quickly the reset happens. To adjust this delay, select the **Crashes** menu item followed by the **Reset Delay** menu item. Four options will be available to you:

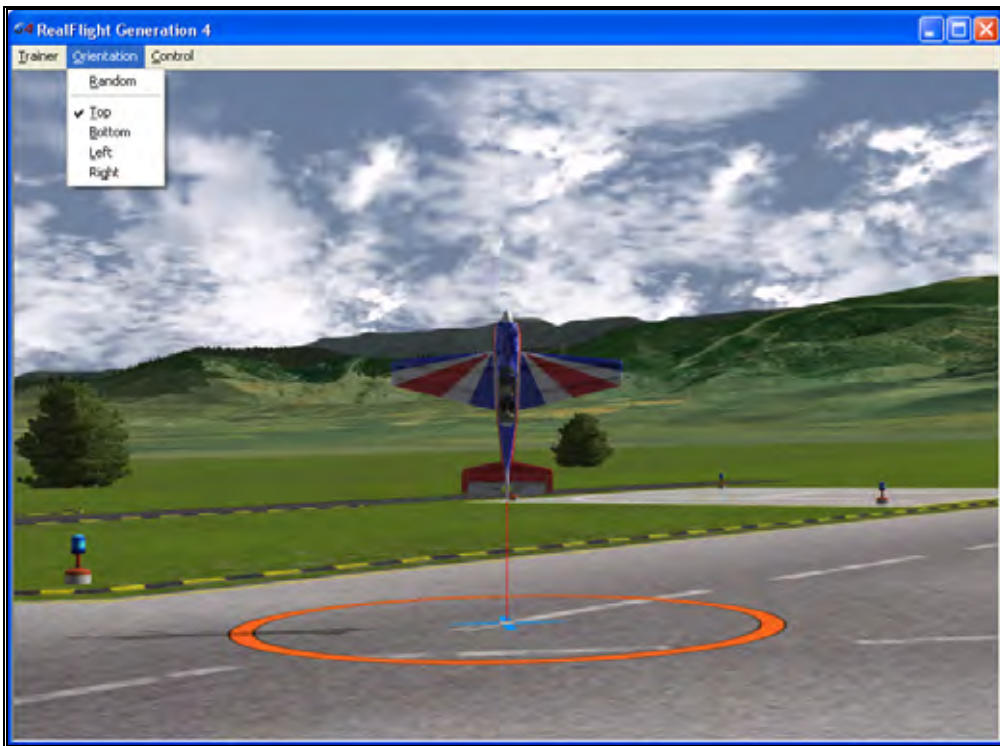
- None – No delay will be set. The aircraft will reset instantaneously.
- Short – The aircraft will reset approximately one second after it crashes.
- Medium – The aircraft will reset approximately three seconds after it crashes.
- Long – The aircraft will reset approximately six seconds after it crashes.

Exit-

If you wish to leave the Airplane Hover Trainer and return to the simulator, select the **Exit** menu item.

Orientation Menu-

The Orientation menu allows you the option to select the position and attitude of the helicopter when the session begins or the airplane is reset.

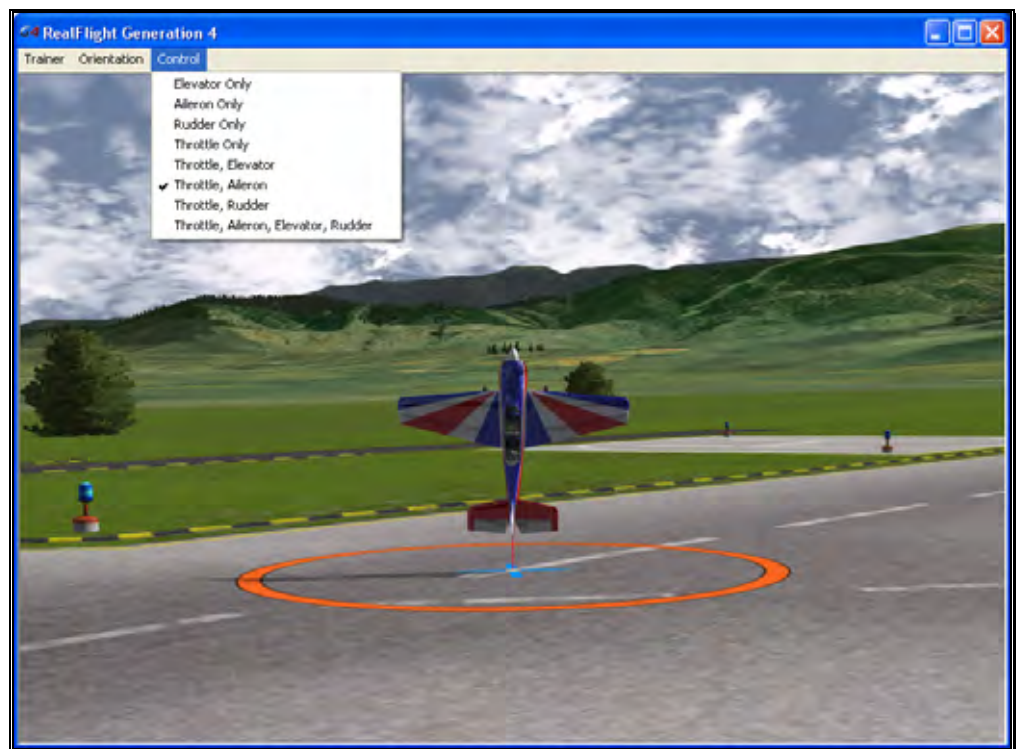


A checkmark will appear next to the currently selected orientation. The options available are:

- Random – The airplane will start in a random position, with either the top, bottom, left side or right side facing you.
- Top – The airplane will start with the top of the aircraft facing you.
- Bottom – The airplane will start with the bottom of the aircraft facing you.
- Left – The airplane will start with the left side of the aircraft facing you.
- Right – The airplane will start with the right side of the aircraft facing you.

Control Menu-

The Control menu allows you to select which channel or channels to control. The remaining channels are controlled by RealFlight, allowing you to learn just the controls you wish, and adding more as you become more comfortable and confident.

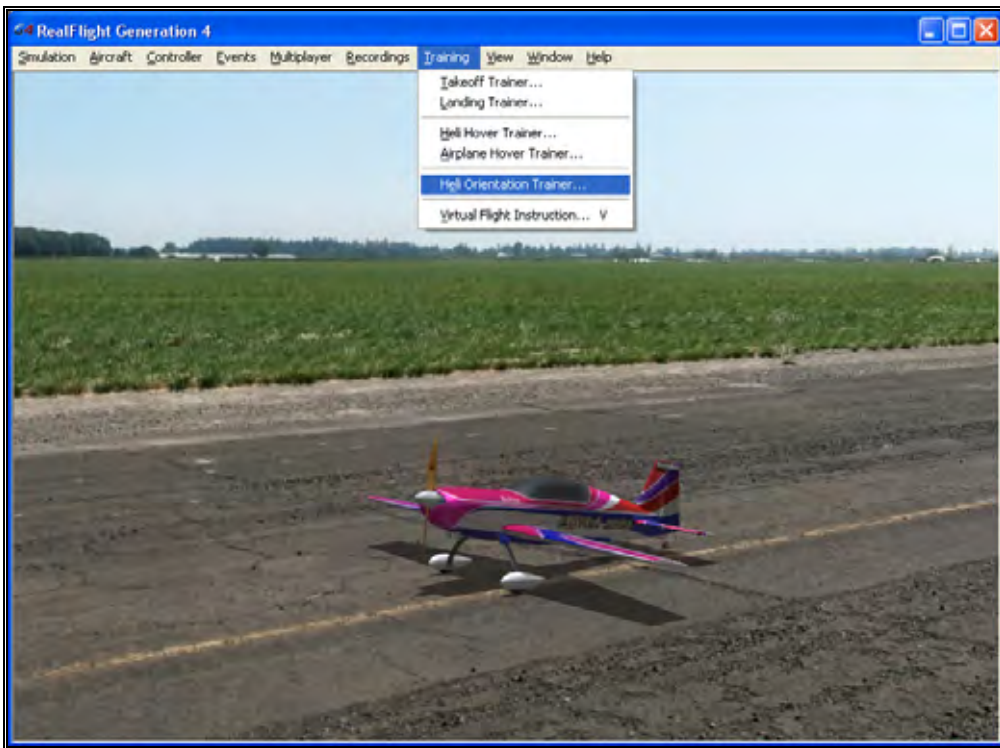


A checkmark will appear in the menu next to the currently selected item. Your options are:

- Elevator Only – Check this to control only the elevator of the aircraft. RealFlight will control the throttle, ailerons, and rudder for you.
- Aileron Only – Check this to control only the ailerons of the aircraft. RealFlight will control the throttle, elevator, and rudder for you.
- Rudder Only – Check this to control only the rudder of the aircraft. RealFlight will control the throttle, ailerons, and elevator for you.
- Throttle Only – Check this to control only the throttle of the aircraft. RealFlight will control the elevator, ailerons, and rudder for you.
- Throttle, Elevator – Check this to control the throttle and elevator of the aircraft. RealFlight will control the ailerons and rudder for you.
- Throttle, Aileron – Check this to control the throttle and ailerons of the aircraft. RealFlight will control the elevator and rudder for you.
- Throttle, Rudder – Check this to control the throttle and rudder of the aircraft. RealFlight will control the elevator and ailerons for you.
- Throttle, Aileron, Elevator, Rudder – Check this to control all four channels. You will not receive any assistance from RealFlight.

Heli Orientation Trainer

As you become more proficient with hovering a helicopter, you can test your skills with the Heli Orientation Trainer. The Heli Orientation Trainer challenges you to keep your helicopter in the same location as the trainer helicopter. As you succeed in doing so, the trainer helicopter will move, and the level of difficulty will increase.



To start the trainer, select **Heli Orientation Trainer** menu item from the **Training** menu.

The Heli Orientation Trainer has a number of different levels, each with an increasing level of difficulty than the previous. To pass a level you must hover your helicopter in close proximity to the trainer helicopter. As you do so, the trainer helicopter will turn from blue to red, and the progress bar at the top of the screen will increase, indicating that your task is nearly complete.



In the upper right corner, a countdown timer is visible. This is the amount of time you have to fill the progress bar and complete the task. If you fail to do so, both the timer, and the progress bar will reset to zero. You must begin once again.

The number displayed in the upper left corner indicates the number of locations the trainer helicopter will stop for the current level. It will also indicate how many of these locations you have completed. For example, if it displays 1/3, you have successfully completed one spot out of three for the current level.

As you advance to the next level, you may be responsible for controlling more channels, the allotted time might also decrease and the trainer heli will stop in more locations. Additionally, you might experience any combination of these circumstances to increase the difficulty.

Heli Orientation Menu-

The Heli Orientation menu is the only menu accessible while the trainer is running. Two options are available in the Heli Orientation menu:



Select Level-

A drop-down menu will display the levels available to you. For example, if you have only progressed to Level 2, you will not be able to access Level 3 or higher in this menu.

A checkmark will appear next to the level you are currently flying.

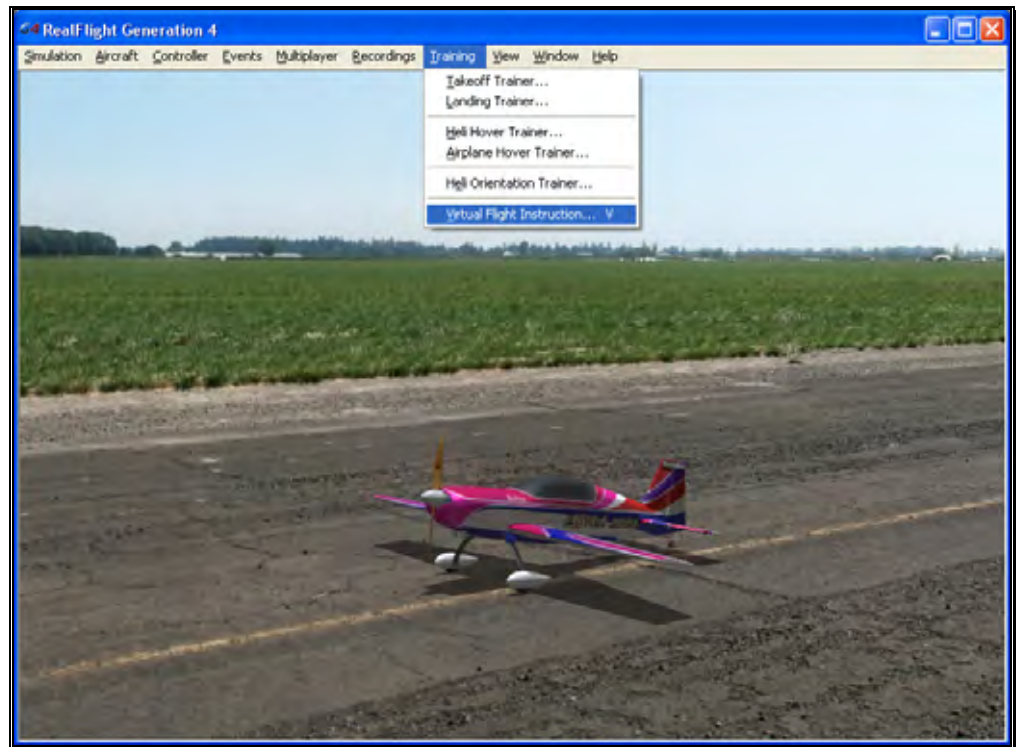
Exit-

To return to the simulator, select **Exit** to leave the Heli Orientation Trainer.

Virtual Flight Instruction

RealFlight Generation 4 includes on-screen flight training from some of R/C's best pilots. John Glezellis, Frank Noll Jr., Jason Shulman, Pete Niotis, Todd Bennett, Brian Bremer and Jim Bourke are your instructors taking you through a variety of skill levels of R/C. There are basics for beginners as well as more advanced maneuvers for intermediate pilots. G4 also includes instructions on how to perform some of today's hottest 3D flight maneuvers! G4 includes voice instruction as well as an on-screen

radio that shows the exact movements that the instructor is using. VFI is the perfect training tool for pilots of all skill levels.



To access the VFI menu item, click the **Training** menu followed by the **Virtual Flight Instruction...** menu item. Alternatively, you may also access the VFI by pressing the **V** key on the keyboard. Determine whether you wish to participate in a helicopter or airplane training session. Open the respective genre by clicking the **[+]** (**plus**) or double-clicking the listing. Next, select the pilot you wish to view. To select and begin your training, either double-click the respective maneuver or highlight the maneuver and click **OK**.



By default, G4's radio gadget appears on-screen. This digital transmitter is a visual guide to display the stick inputs, in real-time, utilized for the recordings. For additional information, please refer to the Radio- section on page 245.

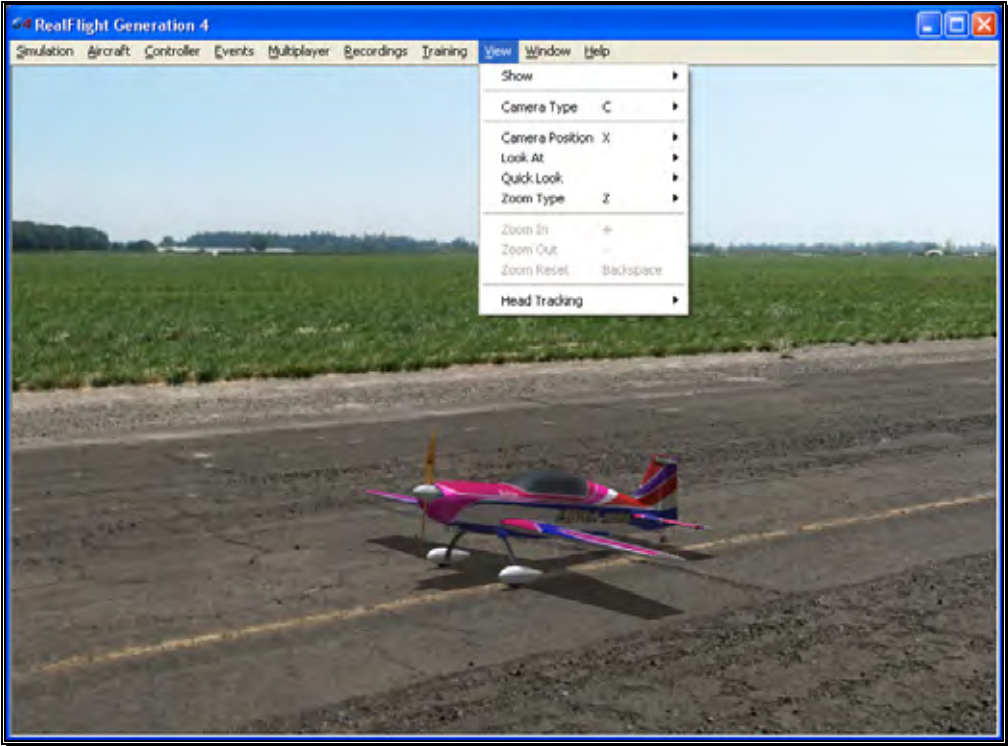


Chapter 12

View Menu

Adjust your vantage point, change your perspective and more.

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

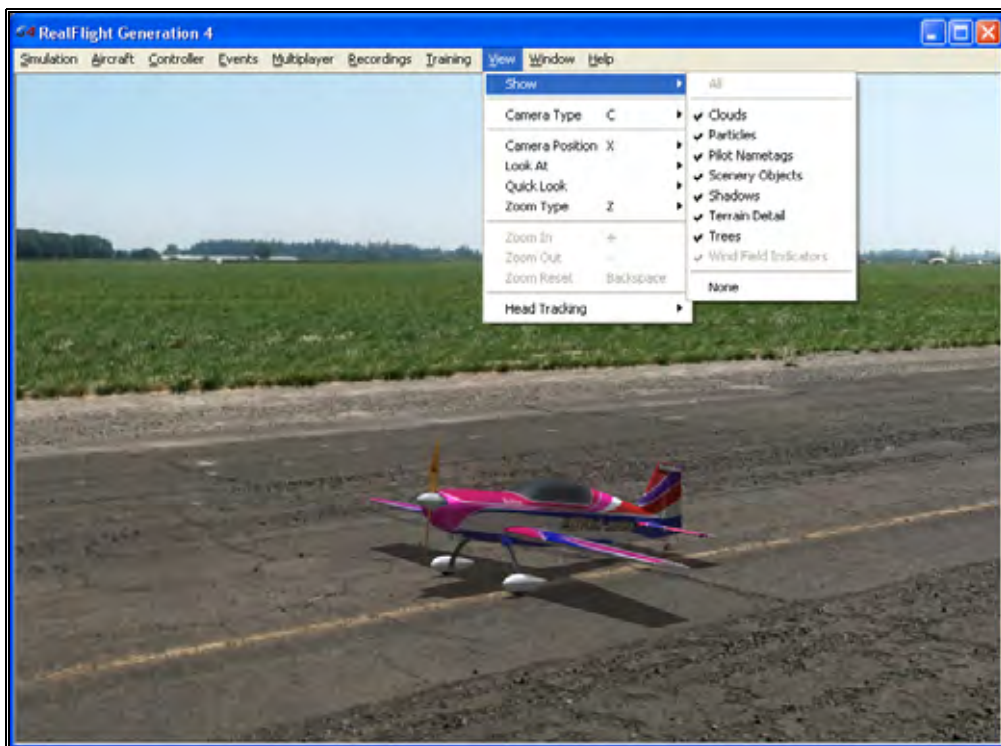


- Show
- Camera Type
- Camera Position

- Look at
- Quick Look
- Zoom Type
- Zoom In
- Zoom Out
- Zoom Reset
- Head Tracking

Show

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



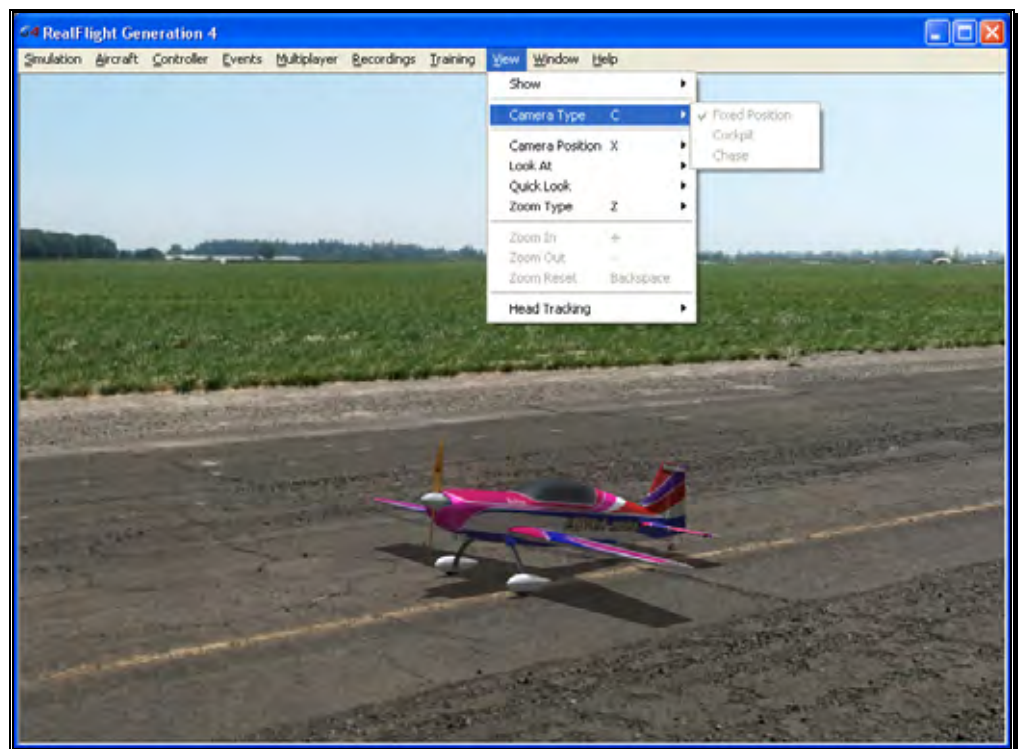
Selecting this item brings forth a pull-down menu with a list of items you can show (make visible within the simulation) or hide (remove from visibility). To show items, check them in the drop-down menu. To hide items, click on them to remove their respective checkmark.

If the frame rate slows dramatically, try eliminating some of the items listed in the Show menu title. This will improve the frame rate.

To access this menu item, click on the **View** menu followed by the **Show** menu item.

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, Cockpit or a Chase view.



If more than one viewport is open, click on the viewport that you wish to modify. This becomes the active view in the simulation. 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.

Alternatively, you may press the keyboard's **'C'** key to toggle through the available Camera Type options.

Please note: some airports do not allow Camera Type adjustments.

Fixed Position-

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

Cockpit-

The Cockpit selection places the camera inside the aircraft as if you were a full-scale pilot.

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-

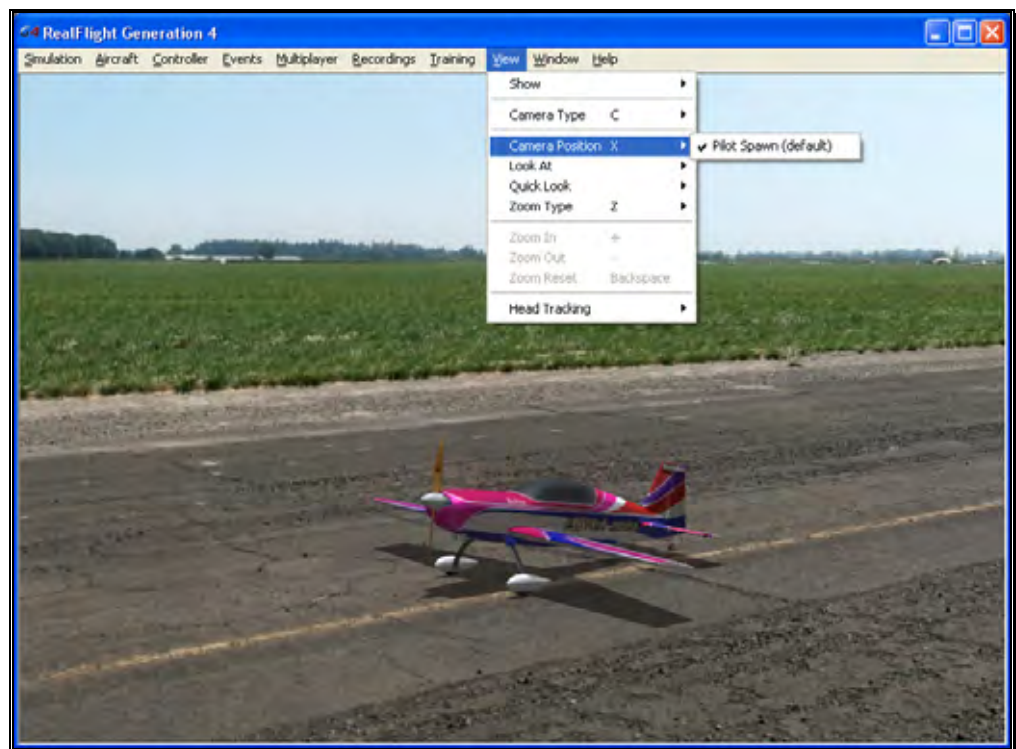
The Chase mode positions the camera behind the aircraft. The camera will follow the aircraft as it moves.

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.

Camera Position

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



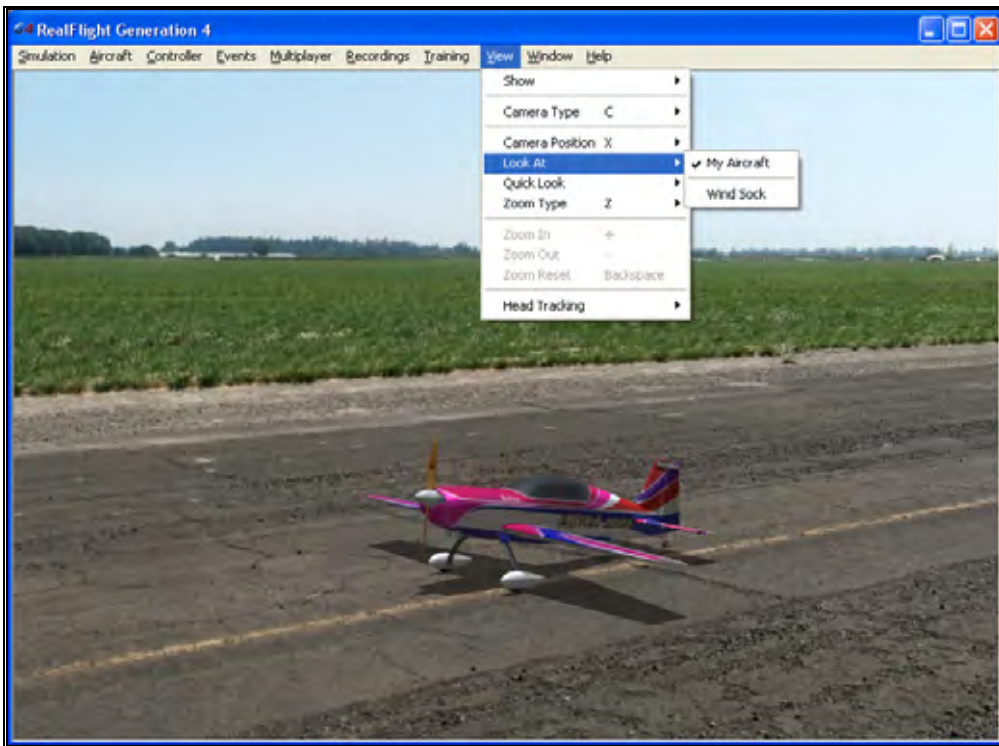
RealFlight G4 automatically picks the Pilot Spawn location that is closest to where the aircraft lands (or crashes, as the case may be).

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

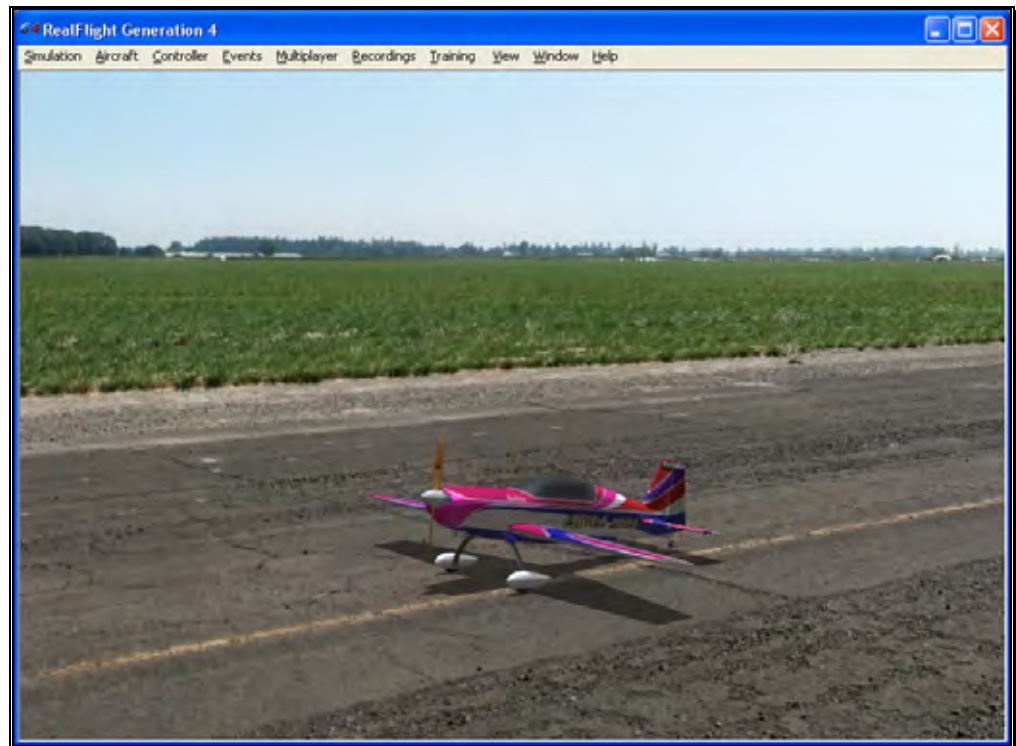
This menu item changes what the camera looks at. Usually you will want the camera to remain focused on your aircraft.



Click on the viewport that you wish to modify. This becomes the active view in the simulation. To access the list of things to look at, click on the **View** menu followed by the **Look At** menu item. Then select an item to look at. For example, if you are in a multiplayer or MultiMode session, the other players in the session will be listed in the popup menu. Select a player to look at his/her aircraft.

Quick Look

This feature allows you to quickly glance at an object. When you activate this option, the camera briefly looks at the selected item and then returns to the previous vantage point for the active viewport.



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

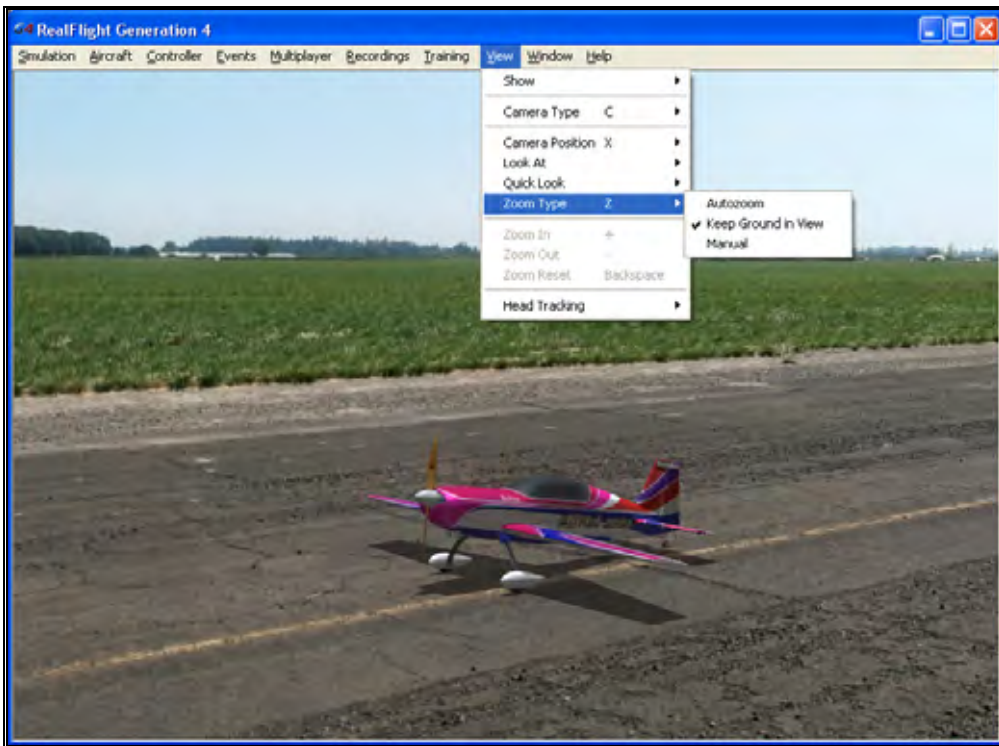


Using the InterLink Elite controller, you can also activate the Quick Look options with the QuickSelect buttons. By pressing up on the **Data Lever**, RealFlight will briefly change the camera to look at the Wind Sock. Pressing down will briefly bring the Ground into view.

Alternatively, after you have activated the correct viewport, you can press a key on your keyboard to activate the Quick Look feature. The up arrow will look at the windsock, and the down arrow will look at the ground.

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.

Alternatively, after you have activated the correct viewport, press the keyboard's '**Z**' key. Each time you press the '**Z**' key you will toggle to the next Zoom Type.

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-

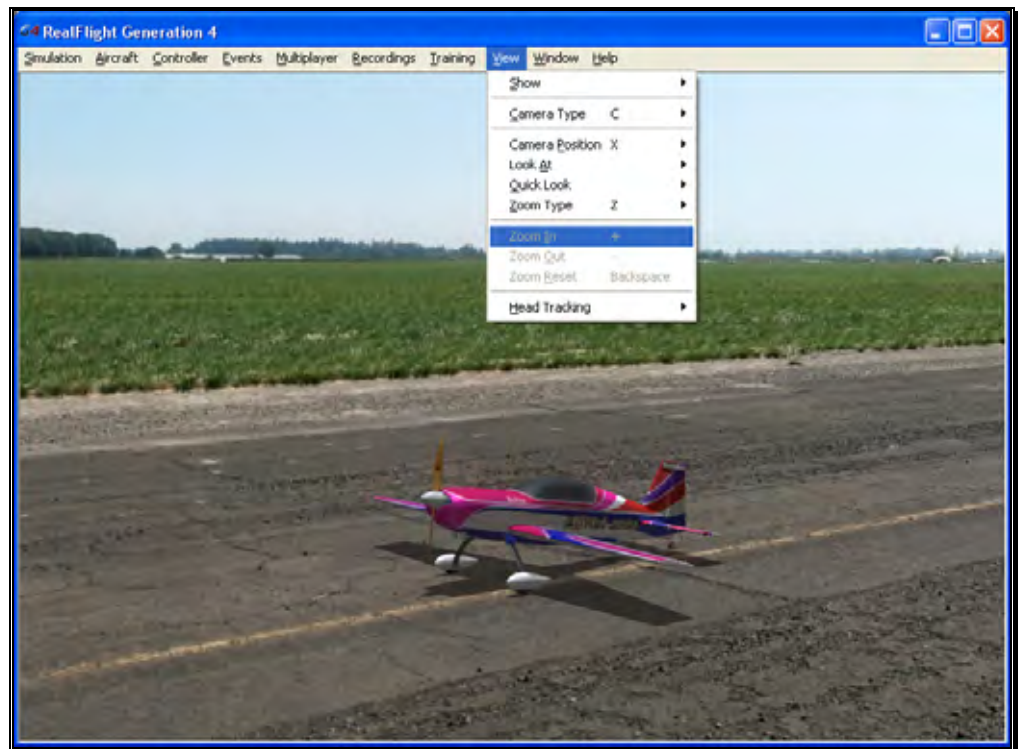
This zoom type adjusts the camera so that the aircraft and the ground are always in view. This is the only zoom type that disallows zooming in and out.

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.

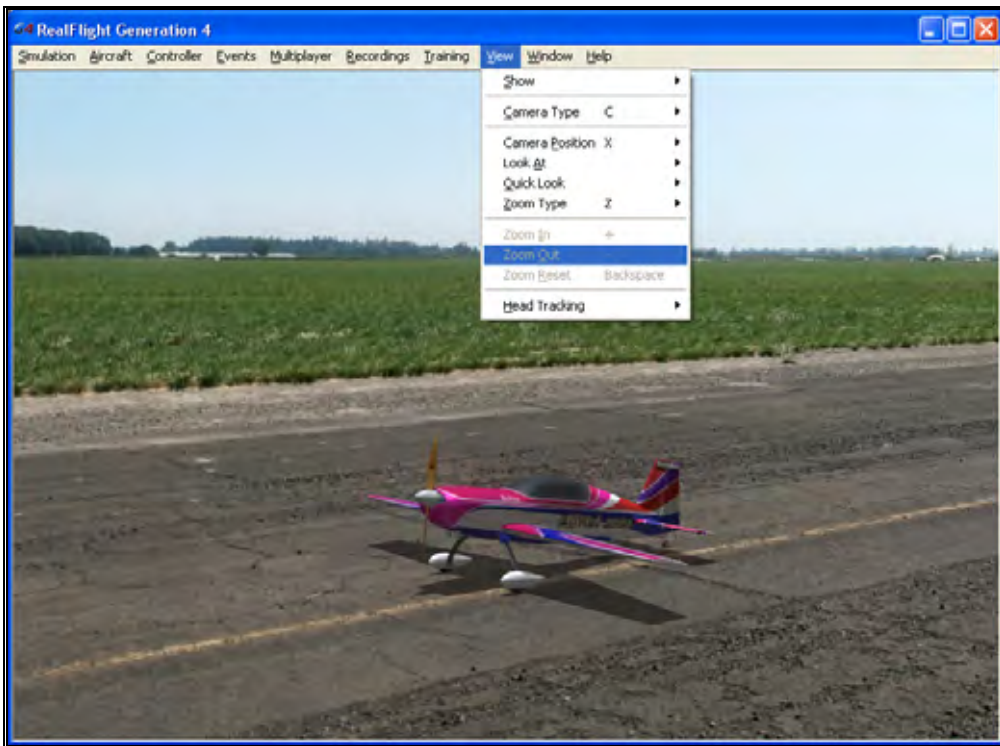


Click on the viewport that you wish to modify. This becomes the active view in the simulation. To access the Zoom In menu item, click on the **View** menu followed by the **Zoom In** menu item.

Alternatively, after you have activated the correct viewport, press the **[+] (plus)** key on your keyboard. Each time you press the **[+] (plus)** key you will zoom in incrementally.

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.

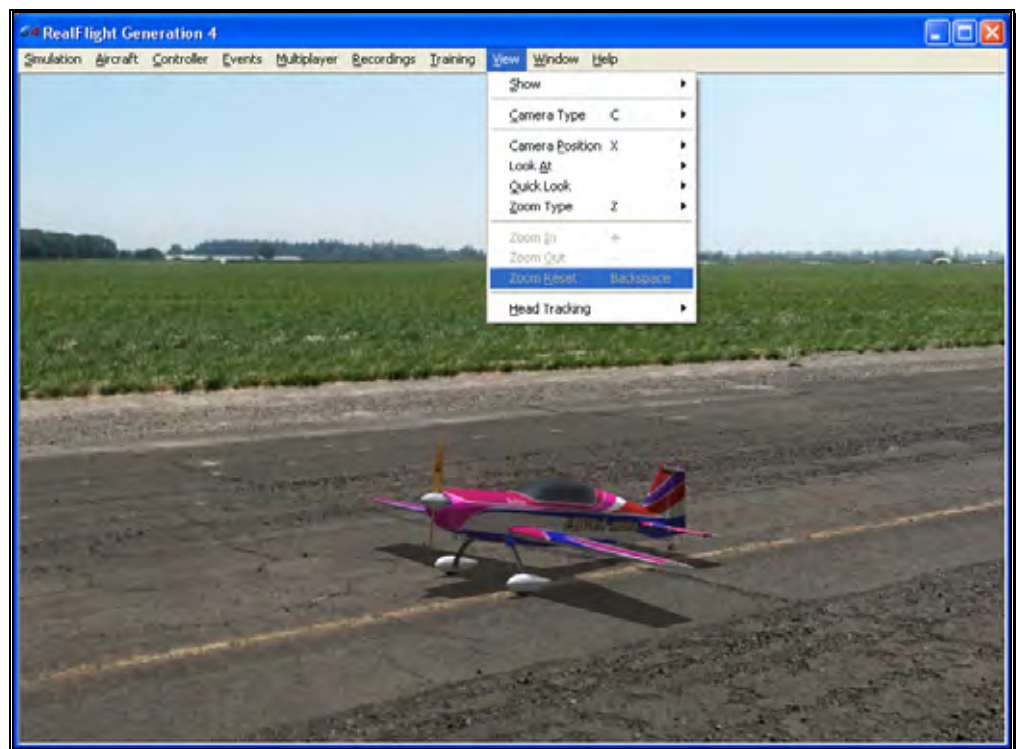


Click on the viewport that you wish to modify. This becomes the active view in the simulation. To access the Zoom Out menu item, click on the **View** menu followed by the **Zoom Out** menu item.

After you have activated the correct viewport, you may also press the **[-] (minus)** key on your keyboard. Each time you press the **[-] (minus)** key you will zoom out incrementally.

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.

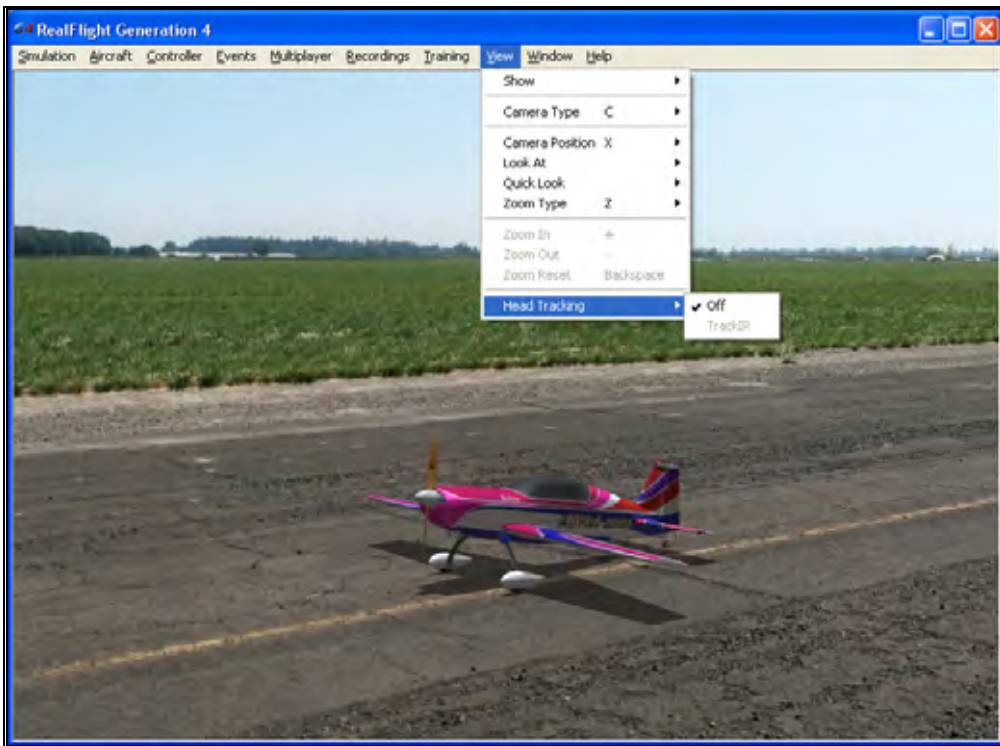


Click on the viewport that you wish to modify. This becomes the active view in the simulation. To access the Zoom Reset menu item, click on the **View** menu followed by the **Zoom Reset** menu item.

Once you have activated the correct viewport, you may also press the **Backspace** key on your keyboard to reset the zoom level.

Head Tracking

RealFlight G4 is compatible with TrackIR from NaturalPoint. With a TrackIR plugged into your computer, you can control the camera with the movement of your head as if you are at the field looking around.



For example, if you are flying at a high altitude and wish to line up with the runway, at a flying field you would look down briefly. With the TrackIR, you would do the same at your computer. With a small movement of your head, you can look down at the runway and back up to your aircraft.

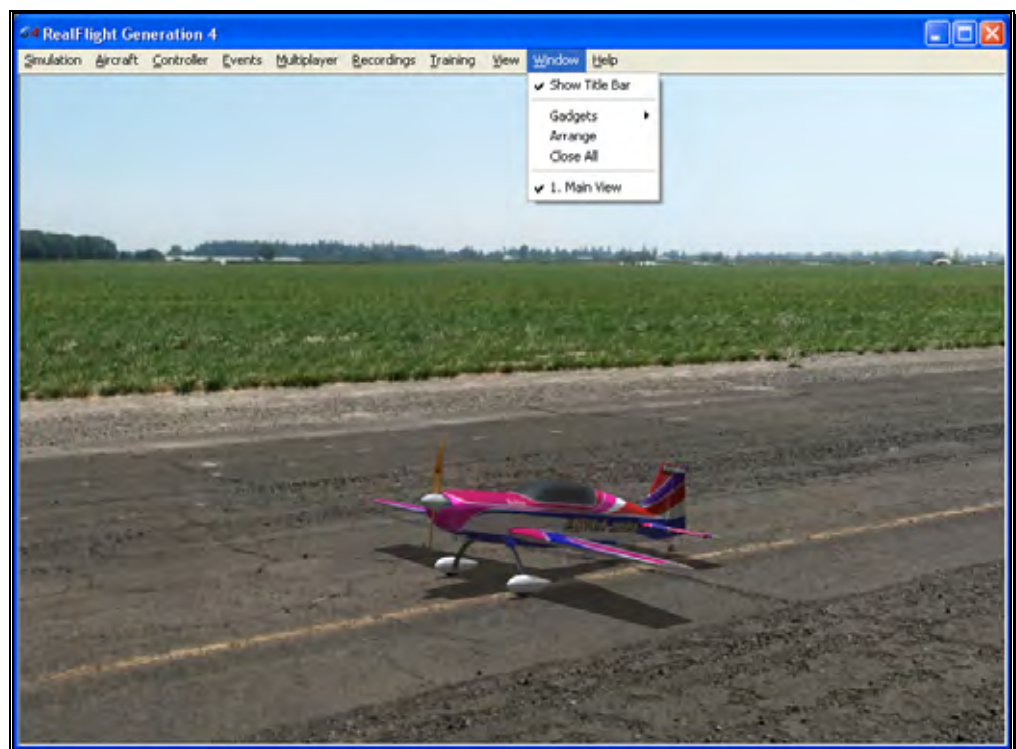
For more information about TrackIR, and where to purchase one, visit NaturalPoint's website at:

<http://www.naturalpoint.com/trackir/>

Window Menu

Tools to add more excitement to your RealFlight enjoyment.

The Window menu allows you to manage the existing windows or viewports, to create new ones, and to select from recently used Windows. The Window menu also gives you access to a variety of on-screen gadgets that offer real-time information about your current flight.



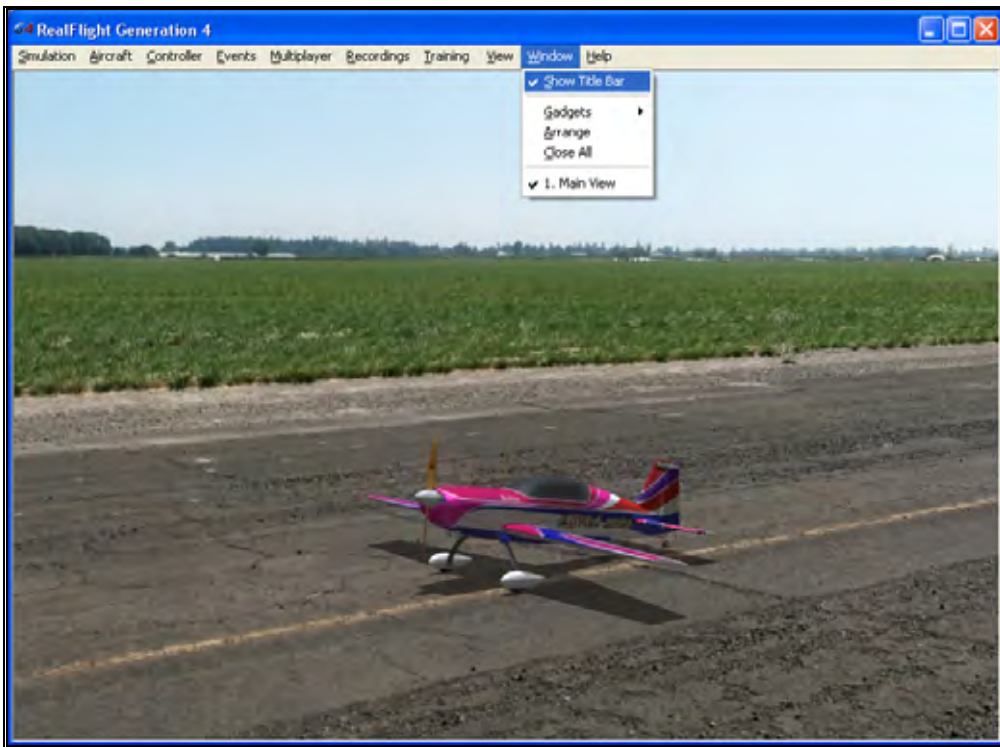
The Window menu offers the following options:

- Show Title Bar

- Gadgets
- Arrange
- Close All
- Window list

Show Title Bar

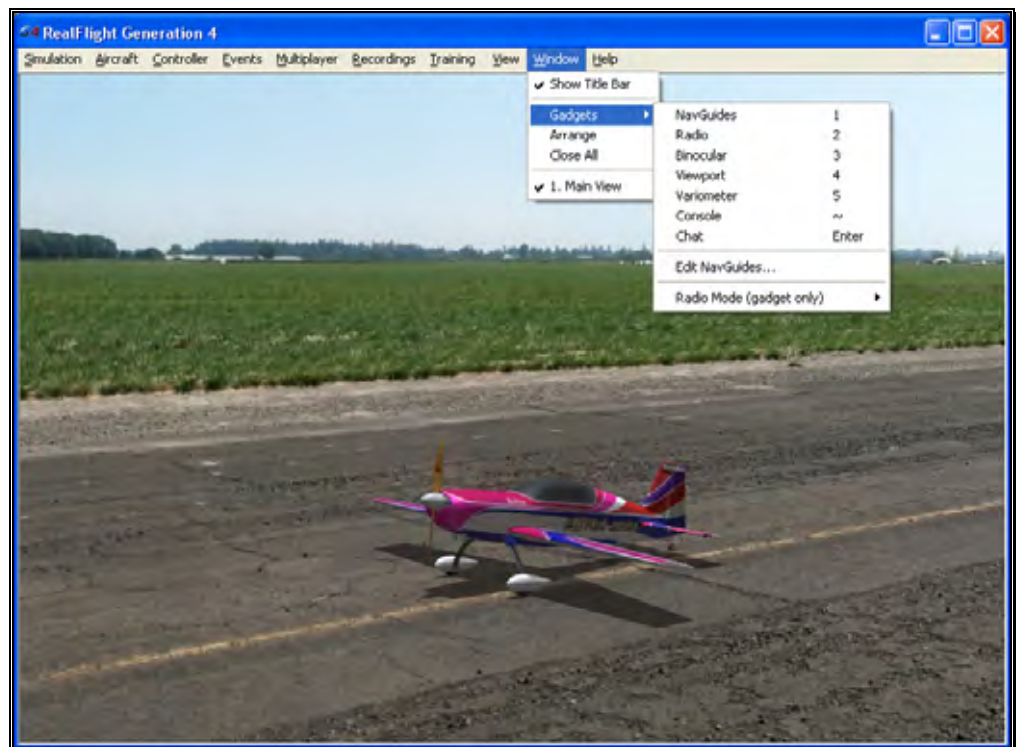
This menu item determines whether or not the G4 title bar is displayed on the screen. By default, the title bar is enabled.



To access this menu item, click on the **Window** menu followed by the **Show Title Bar**. This will remove the RealFlight Generation 4 title bar from the screen. Please note: removing the title bar also eliminates the ability to minimize or maximize the screen.

Gadgets

A Gadget is an on-screen display that provides you with information pertaining to a certain item in your simulation. To access the Gadgets menu item, click the **Window** menu followed by the **Gadgets** menu item. This will open the list of gadgets for the simulation.



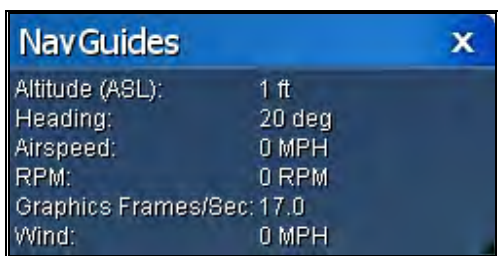
Selecting this menu item will bring up the Gadgets list as follows:

- NavGuides
- Radio
- Binocular
- Viewport
- Variometer
- Console

- Chat
- Edit NavGuides
- Radio Mode (gadget only)

NavGuides-

A NavGuide is an on-screen display that allows you to view some basic information pertaining to your aircraft. If you wish to alter the contents of the NavGuide, please refer to the Edit NavGuides... section later in this chapter.



To access the NavGuides, click the **Window** menu title, followed by the **Gadgets** menu item. Next, click the **NavGuides** menu item. You may also bring up the NavGuides by pressing the keyboard's **'1'** key.



You may also load the NavGuides using the InterLink Elite with the QuickSelect buttons. Press the **Menu/Select** button. Then press down twice on the **Data Lever** until the NavGuides tab is highlighted. It looks like an aircraft gauge. Press the **Menu/Select** button again to activate the NavGuides. Repeat these steps to remove the NavGuides from the screen.

When the NavGuides are active, an overlay screen will appear on your display. This screen displays the NavGuides information to you.

If you do not wish to view this information, double-click on the **title bar** of the display box. This hides the information. To view it once again, simply double-click the **title bar**.

To resize the overlay, position the cursor over the arrow indication found in the lower right corner of the 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 respectively.

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

Items included by default in the NavGuides are the following:

Altitude (ASL)-

This option displays the altitude for the respective aircraft above sea level. Even though the aircraft may be taxiing on the runway, the altitude may reflect hundreds or thousands of feet, if applicable.

Heading-

This option displays the heading of the aircraft. The heading is displayed in degrees, as they would appear on a compass. “0” degrees is North, “90” degrees is East, “180” degrees is South and “270” degrees is West.

Airspeed-

This option displays the airspeed for the aircraft.

RPM-

This option indicates the current revolutions per minute, or RPM's, for the engine.

Graphics Frames/Sec-

This is an abbreviated version of Frames per Second, or FPS. While the data displayed is not relevant to your aircraft, it is used to provide you with feedback on how your computer is performing at any given time. The higher the frames per second, the smoother the simulation will appear.

Wind-

This option displays the current wind speed at the flying site.

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 **Window** menu title, followed by the **Gadgets** menu item. Next, click the **Radio** menu item.

You may also bring up the Radio by pressing the keyboard's '2' key.



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.

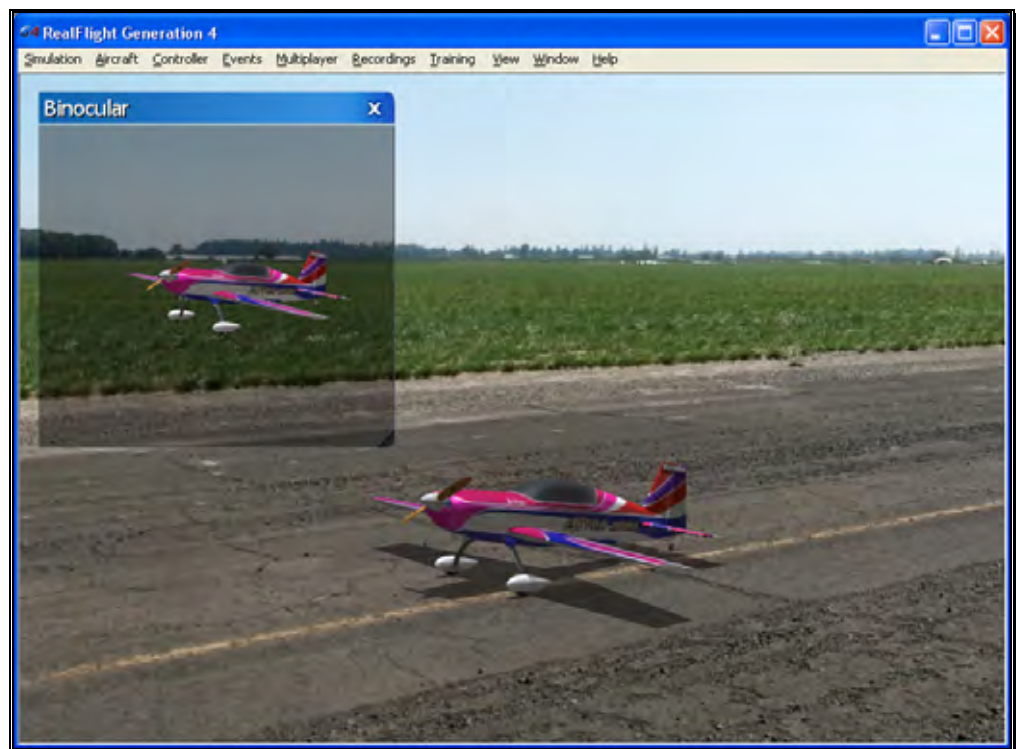
If you click the on-screen radio, the entire viewport is displayed, including the title bar.

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.

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 control input.

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

You may also bring up the Binocular option by pressing the keyboard's '3' key.



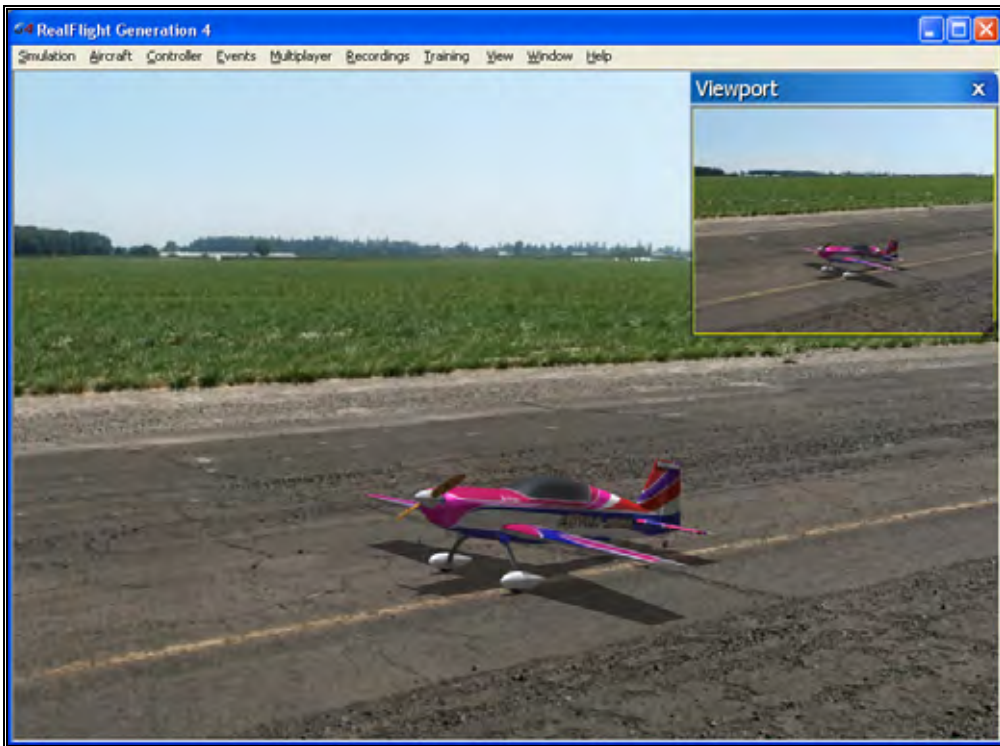
You may also load the Binocular viewport using the InterLink Elite with the QuickSelect buttons. Press the **Menu/Select** button. Then press down four times on the **Data Lever** until the Binocular tab is highlighted. Press the **Menu/Select** button again to activate the Binocular viewport. Repeat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

Clicking the Binocular viewport will display the title bar and frame. 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, as appropriate.

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 **Window** menu followed by the **Gadgets** menu item. Then select **Viewport**.

You may also bring up the Viewport by pressing the keyboard's '4' key.



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 video camera, 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.

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

Variometer-

A variometer is an instrument designed to indicate the rate of climb or descent of an aircraft. The variometer is useful to pilots flying powered aircraft so they can ascertain that level flight is maintained. This is useful during turning maneuvers. Glider pilots typically make the most use of a variometer, to help determine the areas of rising or sinking air currents.



To access the Variometer, click the **Window** menu title, followed by the **Gadgets** menu item. Next, click the **Variometer** menu item.

You may also bring up the Variometer by pressing the keyboard's **'5'** key.



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

The variometer available in RealFlight also offers an audio indicator, much like the real instrument. As the rate of climb increases, the pitch in the audio tone will increase, as well. The opposite holds true, as the descent of the aircraft increases, the pitch in the audio tone decreases accordingly.

If you wish to turn off the audio cues, click the button with the **speaker symbol** in the lower right corner on the variometer. To turn the audio back on, click the button once again.

The variometer in RealFlight G4 is split into two parts. The left side of the variometer includes a status meter which indicates whether the aircraft is ascending, descending or maintaining level flight. If the bar is in the green, the aircraft is rising. If it is in the red, then the aircraft is descending. If it remains stationary in the middle, the aircraft is maintaining its altitude. The farther the bar moves from the center, the faster the change in altitude. On the right, there are three readouts that offer the following.

- Rate – This indicates the rate of change in altitude.
- ASL – This shows the altitude above sea level.
- AGL – This indicates the altitude above ground level.

Clicking the Variometer viewport will display the title bar and frame. Clicking on the 'X' in the title tab of the frame removes the frame from the screen.

Console-

The Console, and its related commands, will generally be used only by RealFlight's power users or those with advanced knowledge of gaming systems, etc. As such, we will simply scratch the surface of the Console in this manual. For additional information and assistance, we encourage users to visit the RealFlight forums at:

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

To access the Console, press the '~' key. A complete list of commands is available by typing 'help' in the command line and pressing Enter.

Chat-

Chatting offers the ability to communicate with other RealFlight players during a multiplayer session. Select this menu item to bring up the chat field at the bottom of the simulator screen. To send a message, type your message in the field and press **Enter** on the keyboard.

Alternatively, press the **Enter** key first to bring up the Chat field at the bottom of the screen. Next, using the keyboard, type the message you wish to send. Press the **Enter** key again on the keyboard to send the message.

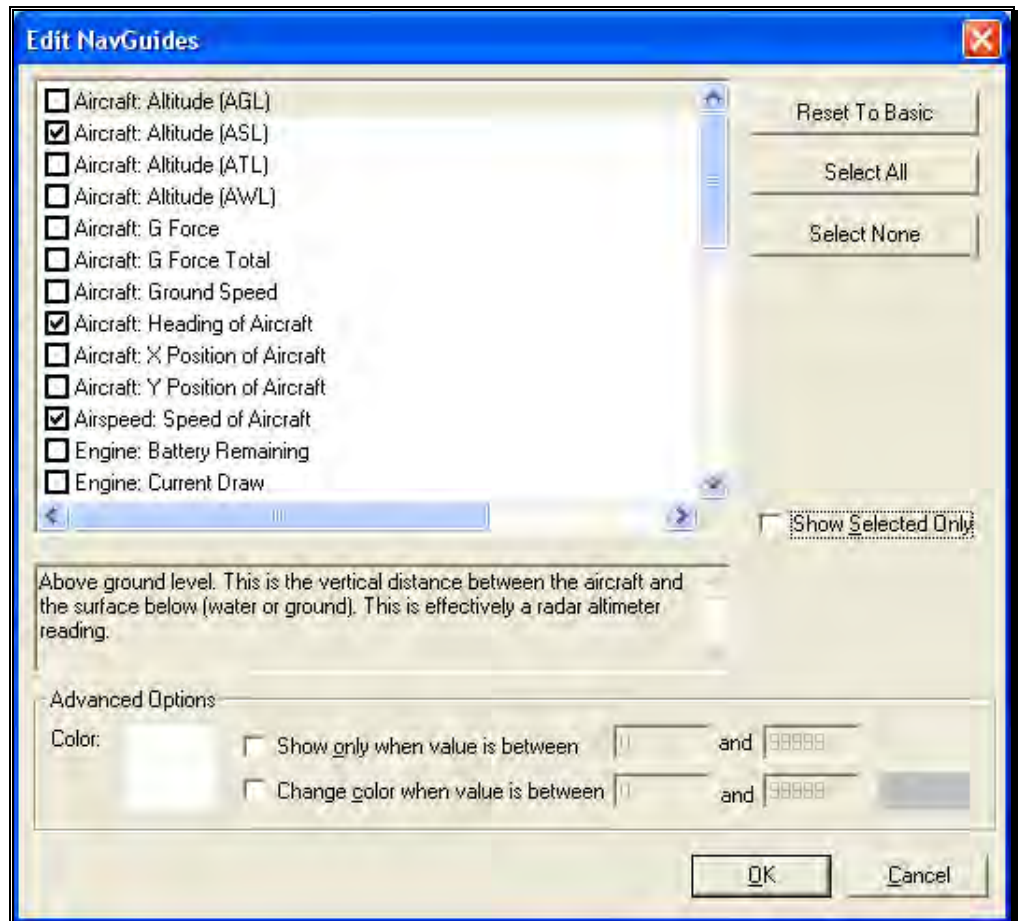
Please note: all messages are viewable by all participants. RealFlight G4 does not offer private chat.

Any messages received from other participants will appear at the bottom of the screen.

Edit NavGuides...

This menu item allows you to modify the data displayed in the NavGuides box.

To access the Edit NavGuides feature, click the **View** menu title, followed by the **Gadgets** menu item. Next, click the **Edit NavGuides...** menu item.



Modifying the NavGuides-

To add any of the options from the left column to the NavGuides display, click in the box next to the respective item.

The pane below the list of the Edit NavGuides dialog box contains a description of the respective item.

The Reset To Basic button returns all NavGuides to their default values and options. If you wish to choose all items in the NavGuides list, click the **Select All** button. All NavGuides items will then be shown in the on-screen display. To remove all items from the list, click the **Select None** button.

The NavGuides available are listed in the following table:

Option	Description
Aircraft: Altitude (AGL)	Check this item to display the current altitude of the aircraft above ground level.
Aircraft: Altitude (ASL)	Check this item to display the current altitude of the aircraft above sea level.
Aircraft: Altitude (ATL)	Check this item to display the current altitude of the aircraft compared to the terrain below. This option does not account for water.
Aircraft: Altitude (AWL)	Check this item to display the current altitude of the aircraft above the body of water at the airport.
Aircraft: G Force	Check this item to display the gravitational load of the aircraft is experiencing as felt by the pilot.
Aircraft: G Force Total	Check this item to display the gravitational load of the aircraft is experiencing in any direction.
Aircraft: Ground Speed	Check this item to display the current ground speed of the aircraft.
Aircraft: Heading of Aircraft	Check this item to display the current heading of the aircraft. This heading is displayed in degrees, as they would appear on a compass. "0" degrees is North, "90" degrees is East, "180" degrees is South and "270" degrees is West.
Aircraft: X Position of Aircraft	Check this item to display the current X position of the aircraft.
Aircraft: Y Position of Aircraft	Check this item to display the current Y position of the aircraft.
Airspeed: Speed of Aircraft	Check this item to display the current airspeed of the aircraft.
Engine: Battery Remaining	Check this item to display the remaining capacity in the battery pack.
Engine: Current Draw	Check this item to display the amount of current that the motor is draining from the battery pack.
Engine: Fuel Remaining	Check this item to display the amount of fuel remaining.
Engine: Motor Efficiency	Check this item to display the efficiency of the electric motor.
Engine: Power In	Check this item to display the amount of power being transferred to the electric motor.
Engine: Power Out	Check this item to display the amount of power being generated by the engine.
Engine: RPM	Check this item to display the RPM's of the engine. Note: this measurement does not take into account any gear reduction which might be utilized.
Engine: Voltage	Check this item to determine the voltage across the electric motor.
Helicopter: Main Rotor RPM	Check this item to display the current main rotor RPM of the helicopter.

Helicopter: Tail Rotor RPM	Check this item to display the tail rotor RPM of the helicopter.
Pilot: Distance to Aircraft	Check this item to display the current distance from the pilot to the aircraft.
Pilot: Field Of View	Check this item to display the field of view angle for the main window.
Pilot: Height (AGL)	Check this item to display the height of the pilot above the surface below, water or ground.
Pilot: Height (ASL)	Check this item to display the height of the pilot above sea level.
Pilot: Height (ATL)	Check this item to display the height of the pilot above the terrain, not including any body of water.
Pilot: Height (AWL)	Check this item to display the height of the pilot above the body of water at the airport.
Pilot: Look Direction	Check this item to display the compass direction in which the pilot is looking.
Pilot: Zoom Magnification	Check this item to display the amount of zoom being utilized; 1 is equivalent to normal eyesight.
System: Graphics Frame Rate	Check this item to display the number of times the screen updates per second.
System: Physics Frame Rate	Check this item to display the number of times the physics system updates per second.
Wind Direction	Check this item to display the direction that the wind is blowing.
Wind Speed	Check this item to display the velocity of the wind at the current time.
Wind Updraft	Check this item to display the velocity of the wind in the upward direction.

Color-

This setting adjusts the Color for the selected item. To select an alternate Color, click on the color swatch. This will open the color palette dialog and you may choose an alternate color for the item.

Show only when value is between-

Click on the box to activate the option for **Show only when value is between**. If the aircraft parameter falls within the specified range, the selected item will appear in the NavGuides. If the parameter is not within the specified range, the item will not be shown.

To adjust the range, click on the respective value box and input the value via your keyboard.

Change color when value is between-

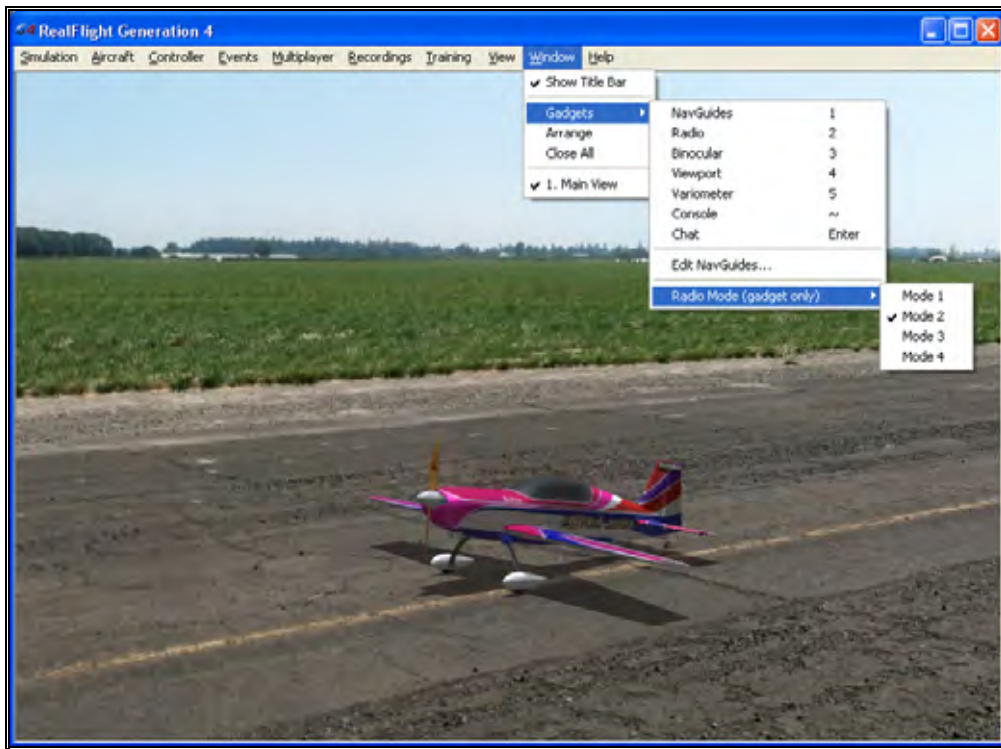
Click on the box to activate the option for **Change color when value is between**. If the aircraft parameter falls within the desired range, the selected

item will appear in the NavGuides in the alternate color. If the parameter is outside of the specified range, the item will be shown in the primary color.

To adjust the range, click on the respective value box and input the value via your keyboard.

Radio Mode (gadget only)-

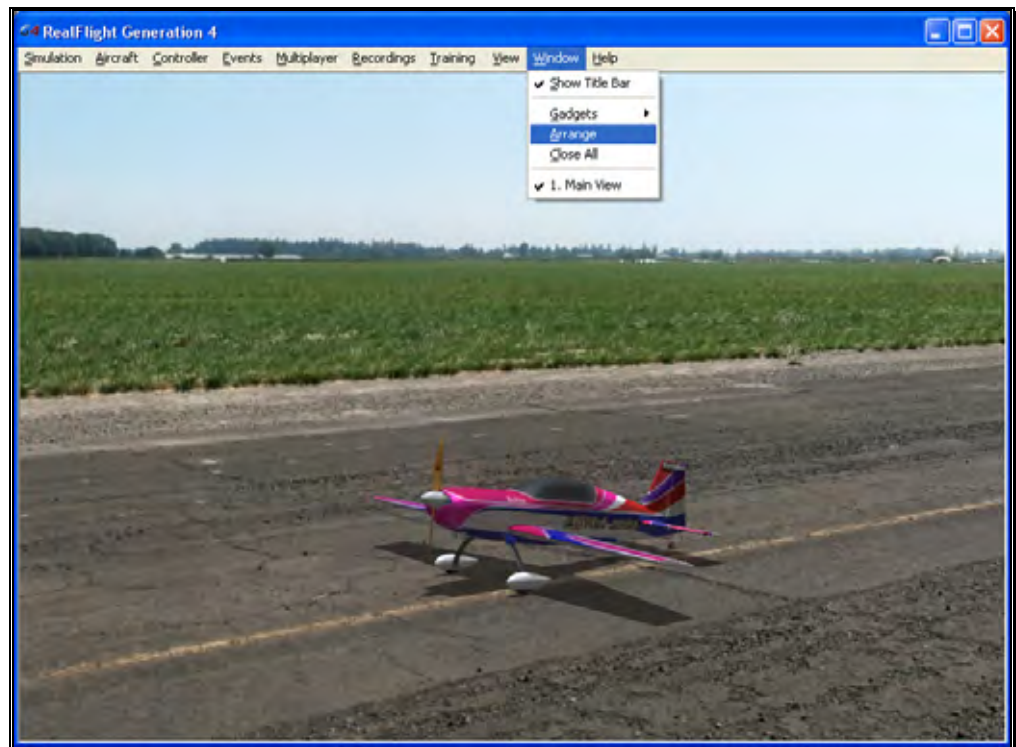
This option allows you to change the Mode in which the on-screen radio is displayed. For example, if you prefer to fly with the throttle and rudder on the left stick, and ailerons and elevator on the right stick, then you fly Mode 2. Some modelers prefer Mode 1. In this mode, the left stick controls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

Arrange

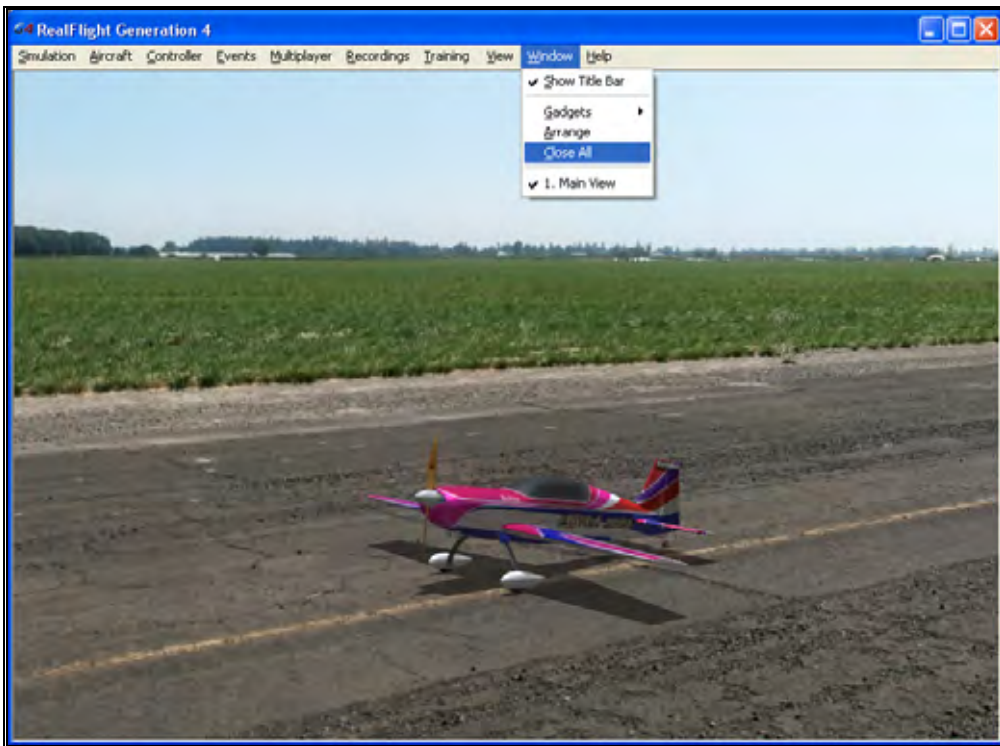
This menu item allows you to organize the on-screen viewports. This is especially helpful when there are multiple windows open that overlap one another.



Click on the **Window** menu followed by the **Arrange** menu item to activate this option.

Close All

This menu item closes all open Windows with the exception of the main Window. It offers the user an easy method to clean up the screen without having to close each window separately.



To access the Close All menu item, click on the **Window** menu followed by the **Close All** menu item.

Viewport List

As you add more viewports to the screen, note that they appear on a list in the Window menu title. If you wish to change the active view to one of these viewports, simply click on the viewport name in the list.



To determine the active window, simply search for the yellow outline that surrounds the active window. In the example above, the active window is Binocular.

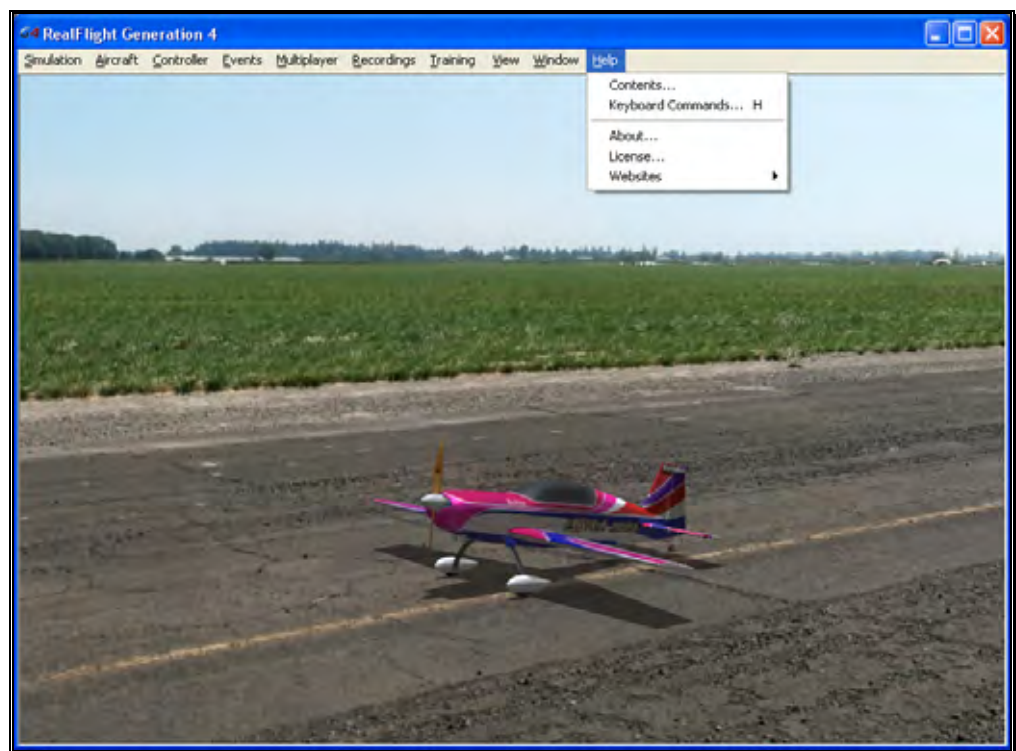
To change the active window, click on, or in, the window that you wish to become active.

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.



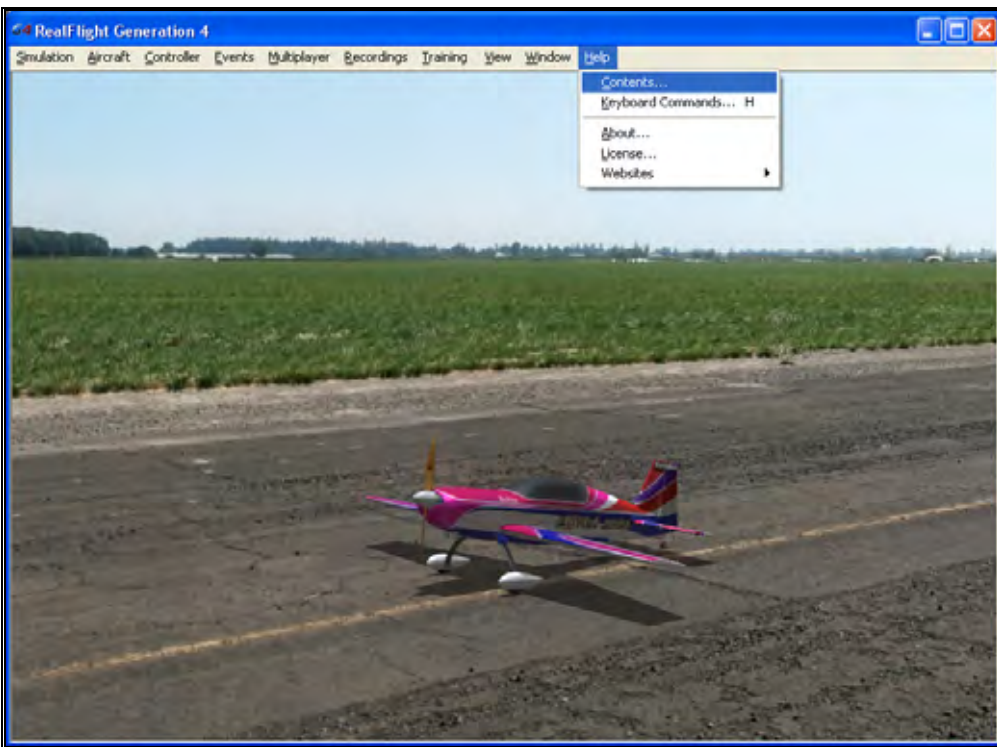
The menu items available under the Help menu are:

- Contents...

- Keyboard Commands...
- About...
- License...
- Websites

Contents

This menu item accesses RealFlight G4's manual which you are reading now.

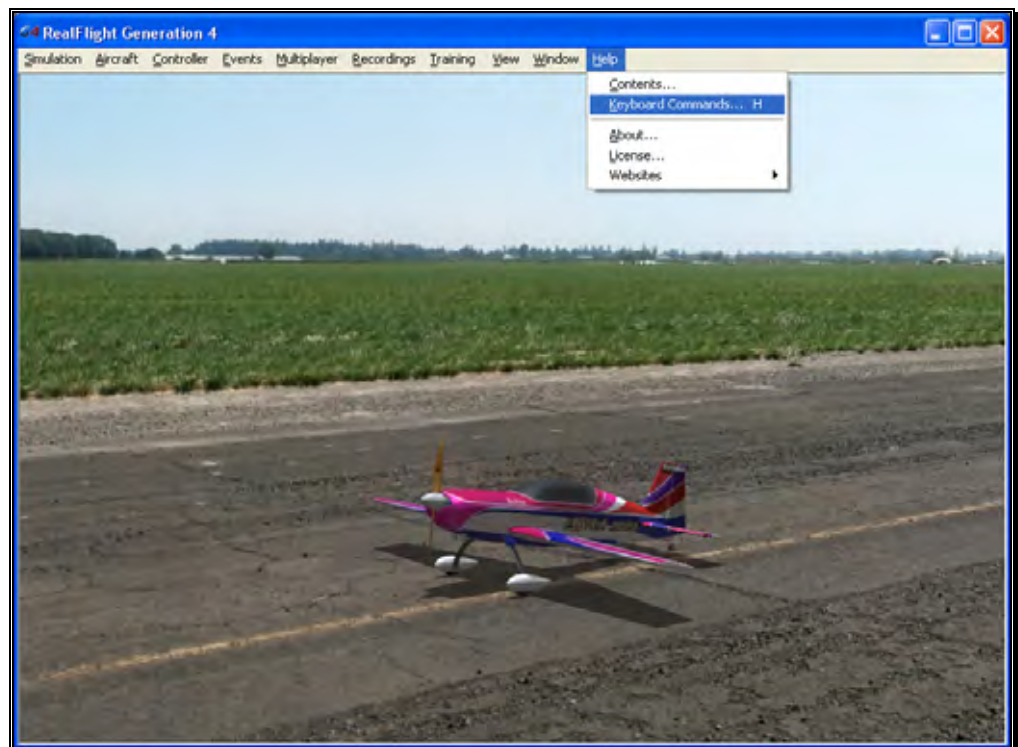


To access the **Contents...** files, click on the **Help** menu title.

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".

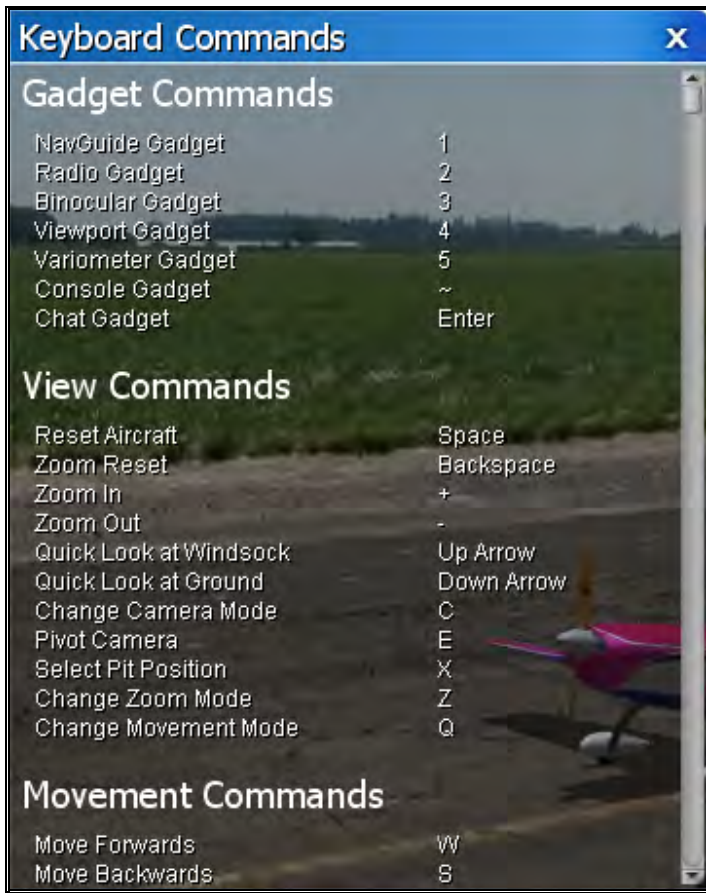
For example, pressing the [+] (plus) key on the keyboard's number pad incrementally zooms your view towards the aircraft. This is exactly the same result that arises if you select Zoom In from G4's View menu item. Consequently, we say that the [+] (plus) is a hot key for the Zoom In command.



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

Alternatively, you may also bring up the Keyboard Commands by pressing the keyboard's **H** key.

The following overlay will appear:



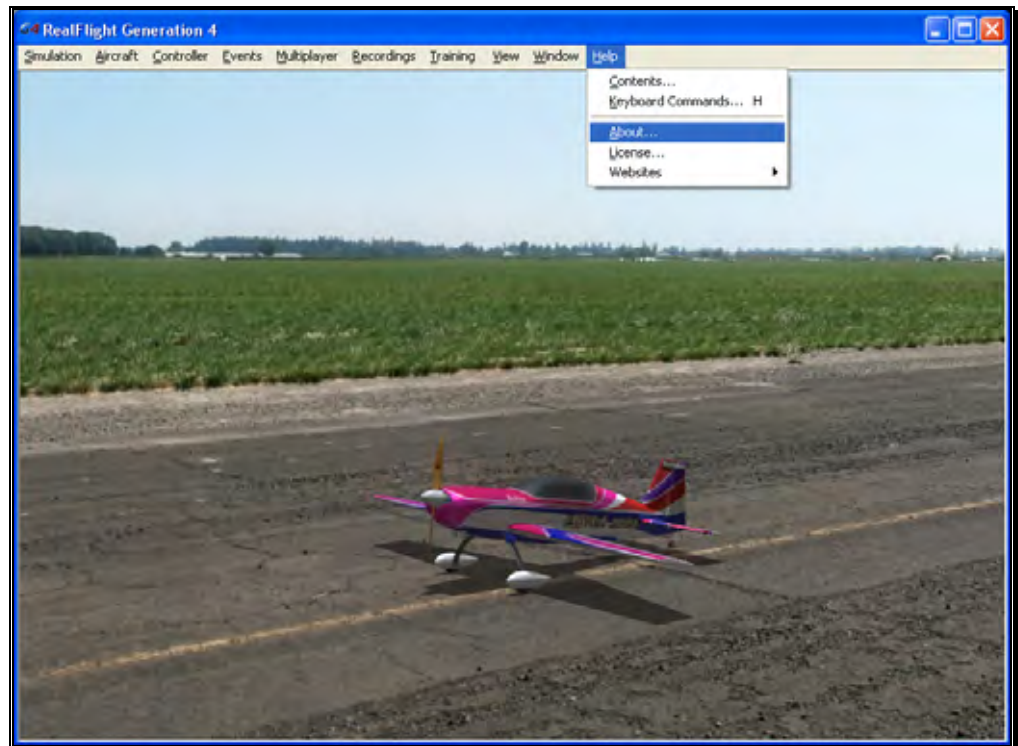
The Keyboard Commands screen contains all of the information pertaining to the hot keys. To view the entire list, drag the scroll bar on the right side of the Keyboard Commands screen down. Alternatively, this list is also contained in the inside rear cover of the Installation Guide which accompanied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

If you do not wish to view this information, double-click on the **title bar** of the display box. This will hide the information. To view it once again, simply double-click the **title bar**.

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. The About... menu contains your RealFlight serial number, InterLink Elite serial number and the version number of the software that you are currently operating.

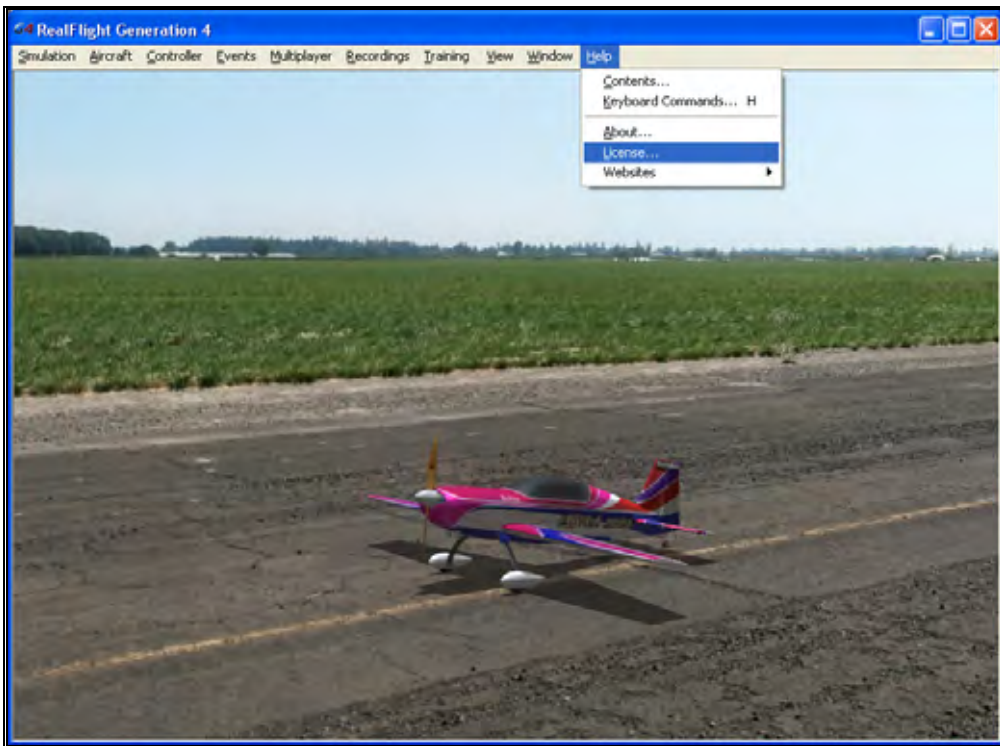


Also seen in the About screen are the credits and names of the people that have worked together to bring you the world's most realistic R/C simulator, RealFlight Generation 4.

Clicking on the 'X' in the title tab of the frame or clicking anywhere on the main simulator screen will remove the About window.

License

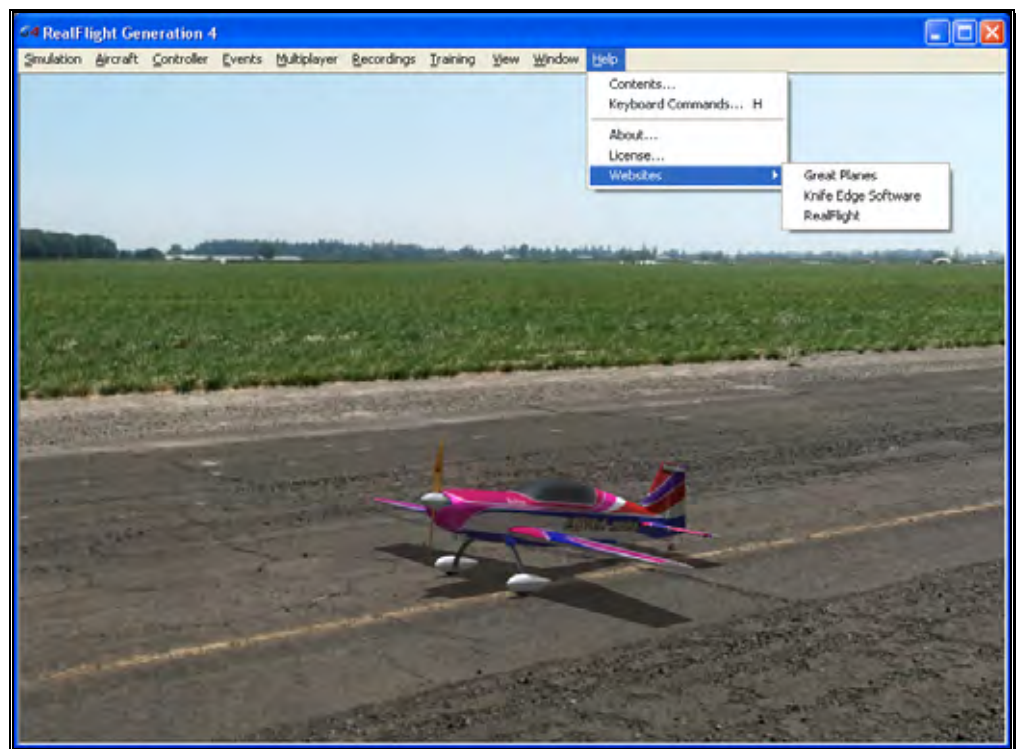
This menu item contains the End Users License Agreement (EULA) for the RealFlight R/C Flight Simulator. Please read it carefully.



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

Websites

This menu item contains links to the RealFlight related websites. The options include:



Great Planes-

Publishers of RealFlight G4. Visit this site for information pertaining to the many other Great Planes products available.

Knife Edge Software-

Developers of RealFlight G4. 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.

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.

Basics of Flying

Understanding the fundamentals of radio control flying.

Before taking control of a transmitter, it helps to understand the basics of flight, and the functionality of the gimbals, sticks and switches to properly control the aircraft. This chapter reviews the basics of flying an airplane or a helicopter to help get you started down the right path.

Airplane Basics

Before you fly the plane, make sure all switches are in their off or low rates, positions. The switches may be assigned to different items depending on how you have configured your controller and which aircraft you are flying. If you are using your own transmitter to control RealFlight, please consult your transmitter owner's manual for more information.

The InterLink Elite features digital trim tabs which are more precise and offer trim memory within the simulation. Trim tabs are the small slider controls on the controller (two per controller stick). They “trim” the aircraft so that it flies straight and level. For example, if an airplane has a tendency to veer slightly downward, you may need to add a slight “up” nudge to the elevator. You can do this by sliding the elevator trim, a click or two at a time, towards the bottom of the controller.

Crashing-

Takeoffs are optional, but landings are mandatory. For any type of aircraft or flying, successfully landing an aircraft is a crucial skill to master.

The key to a perfect landing is undivided concentration. Pay close attention to the altitude, orientation, and speed of the aircraft as it approaches the runway. Should you happen to crash, use each crash as a learning experience to perfect your approach and the landing.

RealFlight has several tools to help you stay on top of things during approach and landing. See the “Landings” section below for some ideas.

Out at the field a crash might result in one or more of the following:

- Bruise your ego
- End flying for the day
- Cost you money
- Cost you time to rebuild
- Cause injury to yourself or a bystander
- Even win you a nice “best crash trophy!”

Of course, when you crash on the simulator, there is really no harm done. None, that is, except the bad habits you may acquire. We suggest that you take the crashes seriously and learn from each one. By doing so, you will be a better pilot out at the field.

Airplane Flight-

RealFlight G4 accurately simulates how R/C aircraft really fly. This allows you to practice R/C flight without worrying about expensive crashes. Additionally, RealFlight G4 is ideal for practicing new maneuvers and experimenting with various parameter adjustments.

It is important to remember, however, that a simulator will only help you learn to fly if you let it. Otherwise, it is just a game. Learning to fly R/C aircraft requires a commitment. One does not just grab the sticks and start dazzling the crowds. A methodical, patient approach will help you get the most out of this simulator.

This section is not designed to teach you how to fly. However, it will help you enhance your experience with the simulator and obtain the most from your experiences.

Takeoffs-

When you are taking off, start with the throttle in low position and slowly increase throttle by pushing the throttle stick away from you towards the top of the transmitter until you are at about half speed. Stay in the middle of the runway (you can steer the plane using the rudder). When you have built up enough speed, gradually pull back on the elevator stick to climb off the runway. If the plane is tracking well, apply the rest of the power more quickly, climb out, and gain altitude.

Be careful not to veer off the runway. In a real plane, chances are that you would crash (or get stopped on the grass). Usually this means bent landing

gear and a broken prop. If your plane has retracts, they could even be torn out of the wing.

For the best practice, it's recommended that you utilized the Takeoff Trainer available with RealFlight G4. For more information, see the Takeoff Trainer section on page 200.

Landings-

It is very important to land on the runway, rather than veering off, or touching down before you reach the runway. Either of the latter usually produces a moderately expensive crash. If you “cartwheel” (wing tip hits the ground first), the wing can break, resulting in lengthy down time while you repair your airplane.

Start by aligning your plane parallel with the runway. Fly the approach normally, using your throttle to control the rate of descent. Try to land at the slowest speed possible. If your plane has flaps, use them to kill speed (but be careful; with flaps down your plane will try to pitch up and climb). If your plane has retractable landing gear, lower them. As you touch down, remember to keep your nose up!

RealFlight has several tools to help you practice landings.

- Before you try to land yourself, you may want to get a lesson from a pro. To do so, click the **Training** menu followed by the **Virtual Flight Instruction...** menu item. Choose **Jason Shulman** as the instructor. From the list of options, select the **Landing** maneuver.
- Gain experience through the Landing Trainer. It offers guidance and helps set you up for the perfect landing. See the Landing Trainer on page 205 for more information.
- During your approach, use the NavGuides to keep track of your speed, altitude, and distance above ground.

Aerobatics-

When you practice aerobatics, the three important steps are:

- Start the plane *straight and level*, in a controlled situation
- Perform the maneuver
- Return to a straight, controlled situation

Anyone can give it full throttle, jam the sticks in all directions and watch the plane tumble and roll. However, this is *not* what you will do out in the field. Do this and you will not have control of the airplane!

The key to properly performing the maneuver is in the setup. Doing so will allow you to cleanly finish and your experience will be more rewarding as well as more realistic.

Concentrate on making the maneuvers “clean and crisp.” If you are doing a roll, try to keep the plane on a straight line as you roll. If you are doing a loop, try to make a perfectly round circle.

If you want to practice aerobatics using RealFlight G4, try the Virtual Flight Instruction feature (accessible via the Training menu). The Virtual Flight Instruction feature provides a series of personal lessons taught by pros.

Throttle Management-

Avoid the temptation of giving the plane full throttle and keeping it there for hours at a time. This teaches you bad habits and makes even a good flier look like a rookie out at the field.

Many of the maneuvers require proper throttle management in order to make a maneuver look good. Loops, stalls, torque rolls, touch-and-goes are just a few examples. Try doing various maneuvers at differing speeds. Try performing a slow roll at medium throttle and keeping a perfectly straight line. This difficult maneuver will earn you more praise at the field than doing a full speed, full stick roll.

Rudder Management-

Most airplanes can (more or less) be effectively flown with just the elevator and ailerons. Good pilots will tell you that the proper use of the rudder is just as important, however. Many aerobatic maneuvers require excellent rudder usage.

Rudder control is especially important when landing in a crosswind. Pilots that cannot use the rudder usually land in the tall grass (embarrassing!). Pilots that do use the rudder can land on the numbers almost every time.

Helicopter Basics

A model helicopter is a very complicated machine, which operates on the same aerodynamic principles as its full-scale counterpart. These principles are quite complicated to explain and understand. However, it is not necessary to understand all

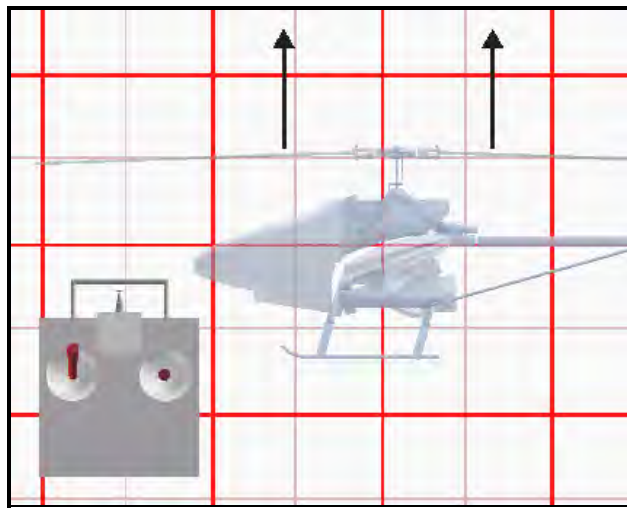
the underlying aerodynamics in order to successfully fly a model helicopter (or a computer simulation).

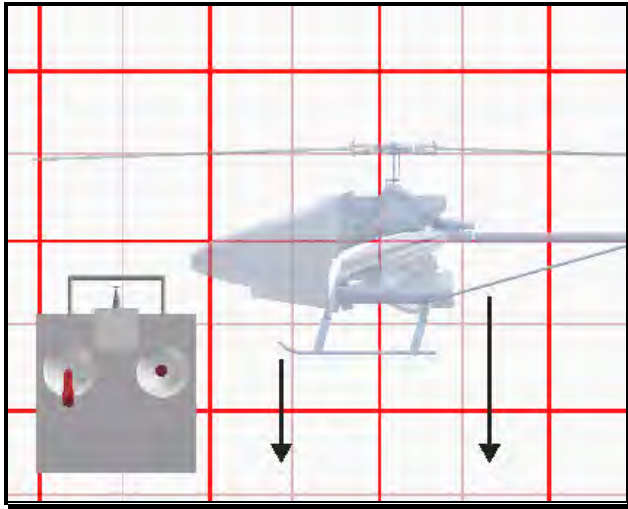
The following will help you to better understand the basics of helicopter flight, and the relationship between control stick movements and the actions of the machine. Refer to these instructions often as you become more proficient.

Please note: the inputs below are shown using a Mode 2 transmitter.

Collective (Left Stick – Vertical Movement)-

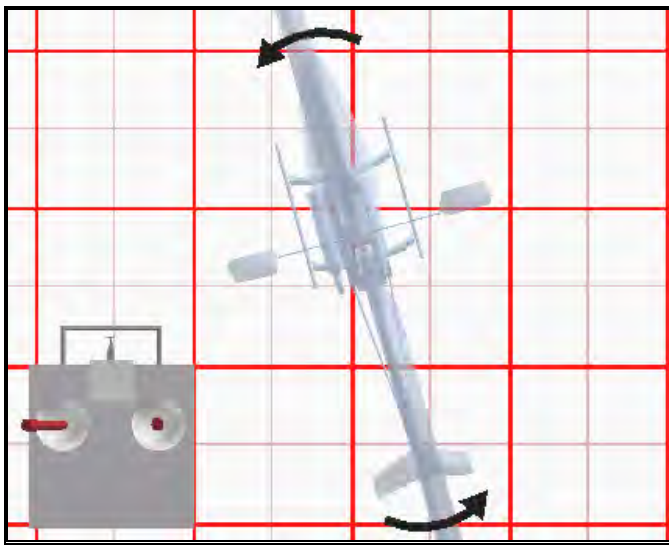
The spinning main rotor blades, which act like rotating wings, lift the helicopter into the air. Changing the pitch (angle of attack) and speed of the blades, using the “collective” and throttle causes the helicopter to rise and descend vertically. Adjusting “collective” increases and decreases the blade pitch. The “throttle” control increases and decreases engine RPM. On a model helicopter, the collective and throttle controls are mixed electronically, and controlled by the throttle stick on the transmitter or controller.

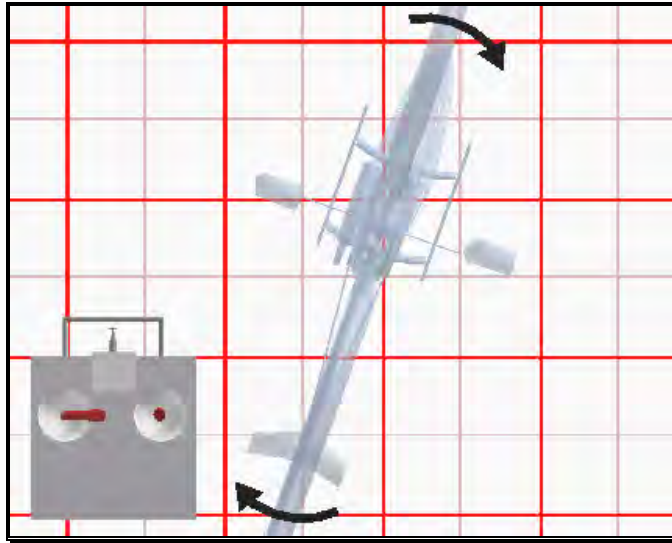




Rudder (Left Stick – Horizontal Movement)-

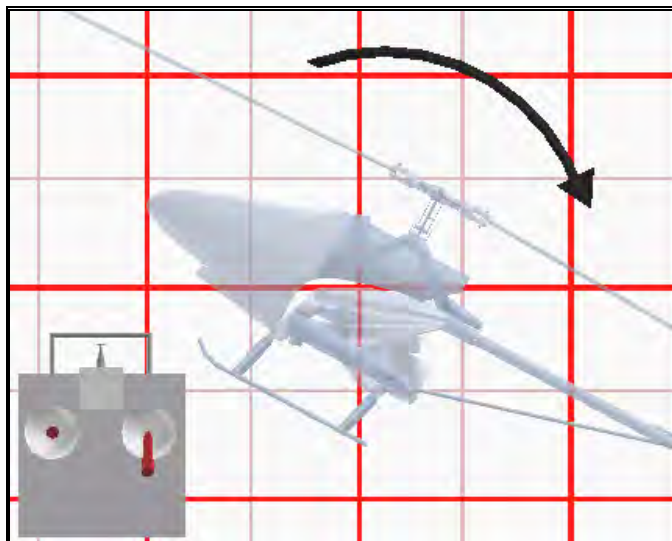
To turn the nose of the helicopter left or right, change the tail rotor pitch (by using the “rudder” control). Changes in collective stick movement will require changes in the amount of rudder input to maintain the desired heading.

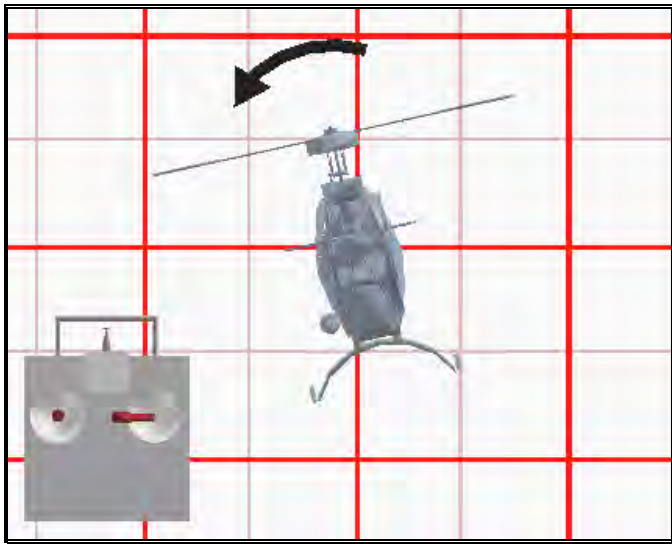
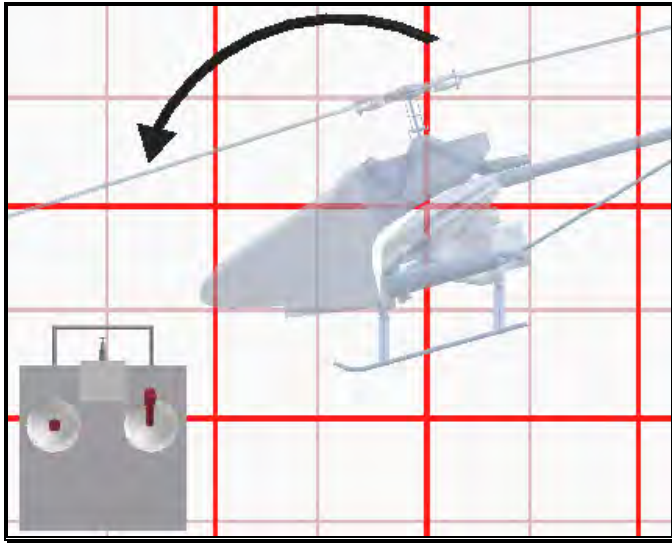


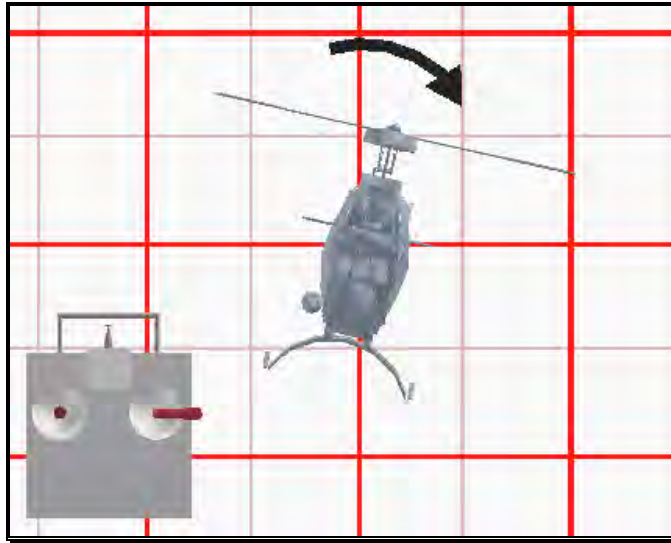


Cyclic Stick (Right Stick)-

The cyclic stick replaces the “aileron” and “elevator” controls found on a fixed-wing aircraft. “Cyclic” is the term given to the control of the main rotor that allows the helicopter to fly forward, backward, left and right. Forward cyclic stick movement causes the helicopter to pitch forward, left cyclic causes the helicopter to tilt sideways to the left, on so on. You move the helicopter forward or sideways using a *coordinated* movement of both the cyclic and collective control sticks. Moving the cyclic stick to the right, while simultaneously increasing collective, will cause the helicopter to move sideways to the right. “Rudder” control is used to maintain the heading.







Idle-Up-

A switch on the controller actuates a special function, known as “idle-up.” Idle-up offers an alternate throttle and pitch curve, different from the curves used for hovering. Idle-up is usually used for aerobatics, when the pilot wants engine power added when pitch is subtracted. For example, inverted hovering requires positive throttle and negative pitch. As such, pulling the collective stick back provides positive throttle AND increased pitch simultaneously.

Throttle Hold-

Another special function is known as the “throttle hold”. When activated, this switch sets your throttle to idle but allows the collective to function normally. This allows you to practice autorotations without shutting the engine off.

Gyro-

Any sudden change to the torque of the main rotor, such as a quick change in RPM or a wind gust, can cause the helicopter to turn unintentionally to an unwanted direction. An electronic device known as a gyroscope (gyro) is used to “monitor” and correct for this by giving commands to the rudder control to help stabilize the machine.

Gyros come in a variety of types, each with different features. A normal gyro will not return the helicopter to its former heading; it will simply dampen the unwanted sudden movement. We recommend you start by using the heading hold gyro instead; it will maintain course and keep the nose of the helicopter pointed in the desired direction regardless of outside forces.

Helicopter Flight

Hovering-

The machine hovers by adjusting the collective/throttle control to maintain altitude, the rudder to maintain heading, and minute adjustments to the cyclic controls to maintain location. Hovering is the most important aspect of helicopter flight to master, since every other movement of the machine begins and ends with a hover.

Forward Flight-

The helicopter moves forward by changing cyclic (moving the cyclic control forward). This causes the rotor head, and thus the helicopter to tilt forward, resulting in a forward thrust. As the cyclic increases, the collective must also be increased to maintain the desired flight path. As forward speed increases, the collective can be reduced slightly.

Backward Flight-

Backward flight is accomplished by moving the cyclic control aft, which causes the rotor head, and thus the helicopter to tilt backward. As the cyclic is moved aft, the collective must also be increased to maintain desired flight path. As backward speed increases, the collective can be reduced slightly.

Sideways Flight-

Moving the cyclic control left will cause the rotor head, and thus the helicopter to tilt left. Add collective and left rudder to cause the helicopter to “slide” sideways to the left. As speed increases, it will require progressively more rudder to maintain heading.

To move right, simply follow the same procedure, but reverse the cyclic and rudder movements (move cyclic right, apply right rudder).

Turning-

From forward flight-

Moving the cyclic control left, while applying a small amount of aft cyclic and feeding in left “rudder”, will cause the helicopter to make a coordinated turn to the left. Right movement of the cyclic and rudder sticks will cause the heli to turn to the right.

From a hover-

Use the rudder to rotate the nose of the helicopter in the direction you want.

Learning to fly a model helicopter is more difficult and challenging than any other genre of radio control modeling, but is also the most rewarding as you master the techniques required for sustained hover and forward flight. Computer simulation of model helicopter flight is an excellent tool for learning the basics and dramatically reducing the learning curve when you move on to the actual model itself.

RealFlight G4 Launcher

The RealFlight G4 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 G4 Launcher** located on your desktop.



Run RealFlight

To start running RealFlight, press the **RealFlight G4 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 information pertaining to RealFlight G4.



Restore Defaults-

Use this button to restore RealFlight G4's default settings. Doing so will NOT remove custom aircraft, flying sites, etc. Rather, 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 G4. The registration information entitles you to complimentary technical support and free online updates.

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

Hardware Information-

RealFlight G4 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 G4 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 G4 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. 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 Latest Version.

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 G4 software it will check to determine whether or not there is a more recent version of RealFlight G4 available to you. If a new version exists, RealFlight G4 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-

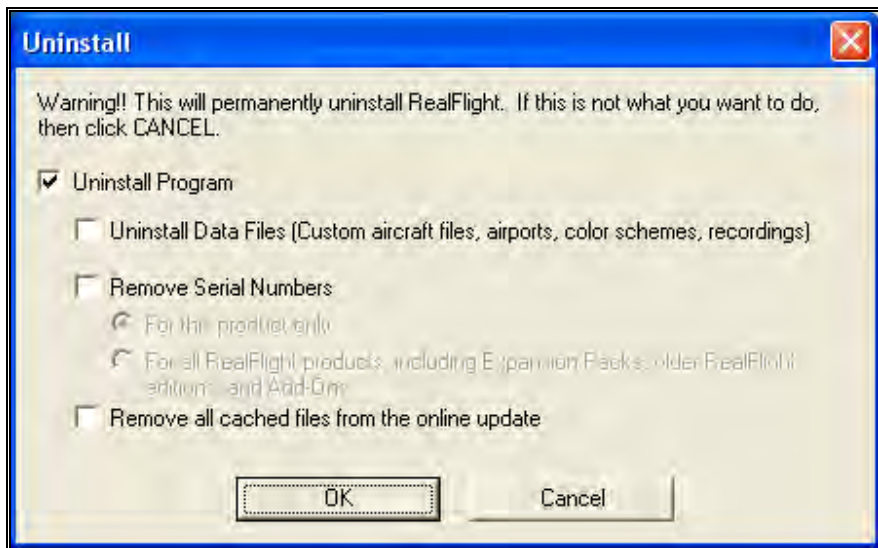
If you are experiencing difficulties with a version you have installed, this will allow you to retrieve a previous version of the software. If the previous version fixes your problem, please contact our technical support team at rfsupport@greatplanes.com and let them know about the difficulty encountered.

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:



We suggest that you use this method, not the “Add/Remove Programs” feature in Windows, to uninstall RealFlight G4. The RealFlight G4 launcher will remove all necessary RealFlight G4 files.

Uninstall Program-

Choose this option to uninstall only the RealFlight G4 program itself.

Uninstall Data Files-

Choose this option to uninstall any user files such as customized airports, customized aircraft, color schemes, songs etc. *Be careful with this option!* You could lose a lot of your work by inadvertently uninstalling these files.

Remove Serial Numbers-

Choose this option to remove the serial numbers from your system. You have two options available if you check this box.

- For this product only
- For all RealFlight products, including Expansion Packs, older RealFlight editions, and Add-Ons

Remove All Cached Files From The Online Update-

Choose this to 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.

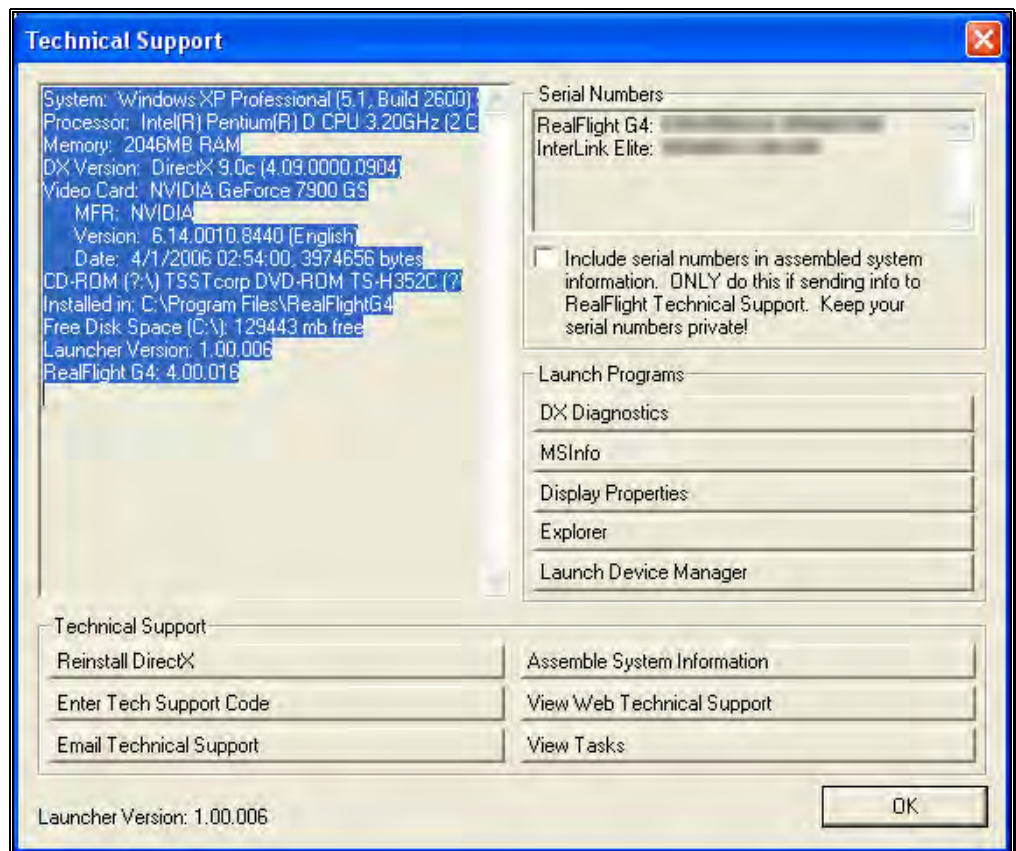
Please note: your PC must be connected to the internet in order to view the RealFlight web site.

Read Help File

Press the **Read Help File** button to bring up the manual, this document that you are reading now, file for RealFlight G4.

Technical Support-

Press the **Technical Support** button to bring up technical support information pertaining 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

This 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 DirectX. 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.



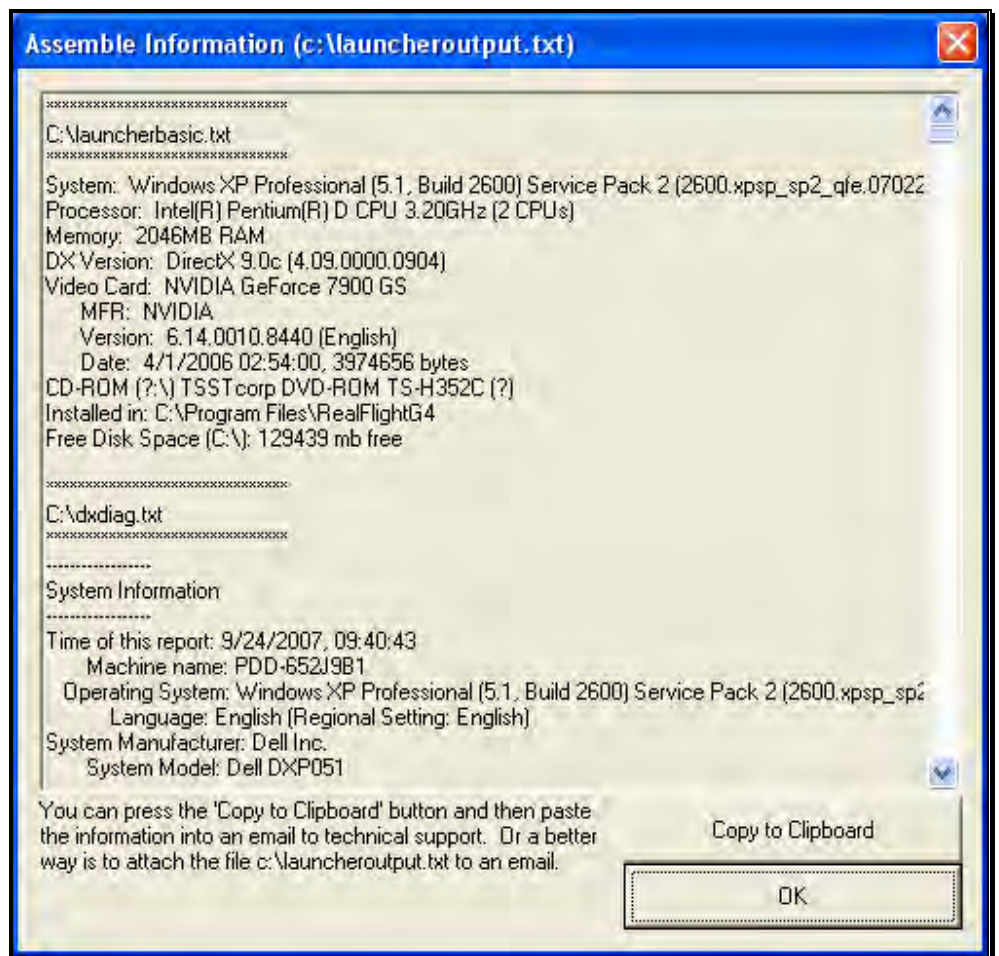
Email Technical Support

This gives you the email address rfsupport@greatplanes.com 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 G4.

View Tasks-

This shows you a list of all tasks that are running on your computer. Some tasks can interfere with RealFlight G4 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.

Important: if you send us information about your system to help us diagnose a problem, please do not use DXDIAG to generate that information. Instead, please use the "Assemble System Information". 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 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 backup 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 G4 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 for any R/C simulator. Since cards, 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 G4 information including support and problem solving assistance. Then, we will show you some simple but powerful steps that can resolve or prevent most RealFlight G4 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 G4 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 <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, RealRace, 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 <http://www.knifeedge.com/forums/>. This is a place where owners of RealFlight, RealRace, 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. Alternatively, our staff is also available via telephone or postal mail at:

RealFlight Technical Support
 3002 North Apollo Drive
 Suite #1
 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 G4.

Before You Do Anything Else

If you are experiencing difficulties with RealFlight G4, 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.

Here are the steps you should take (instructions for each step follow):

- Update your video and sound card drivers (see instructions below).
- Update to the latest version of RealFlight G4.
- If the problem persists, run the DirectX test programs.
- 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 G4. The driver that came with your new computer, on your Windows CD-ROM, or on a CD-ROM 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 G4-

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.

Run the DirectX Test Programs-

If you have updated your drivers and RealFlight to the latest versions, and your problem persists, you should try to run the DirectX samples that come with RealFlight.

The DirectX samples (DirectDraw, Direct3D, Sound, etc.) are test programs written by Microsoft. These samples ship with DirectX, and are designed to check whether your DirectX installation, video/sound cards and drivers, etc., are working correctly. They should work on any DirectX 9 compliant driver.

These samples are found in the Technical Support area of the software. Click the Technical Support button followed by the DX Diagnostics button. Next, click either the Sound or the Music tabs, then the Test DirectX Music/Sound buttons. Once these tests have been completed, press the Display tab to access the Test DirectDraw and TestDirect3D buttons.

The most important tests are DirectDraw and Direct3D, both of which test your video card and driver. If you are having any graphics difficulty in RealFlight G4 (including RealFlight G4 "freezing" your system so that you have to reboot), look for the same problem in these tests. If the problem occurs only after you have run RealFlight G4 for a long time, make sure to run the tests for a comparable length of time.

If your RealFlight G4 problem also occurs in Billboard, the problem lies with your video driver, not RealFlight G4. To resolve the problem, try finding updated drivers for your card (see above). If the problem still occurs with the latest drivers, you will need to report this problem to the card manufacturer. Be sure to tell them that you tested the card by using Billboard. Please note: in rare cases, a newer video driver may have more problems than a previous version. After exhausting all other options, you might try obtaining an older driver from the manufacturer to eliminate this possible cause as well.

If You Need Additional Assistance

If you have updated drivers and updated RealFlight G4, your system successfully runs the DirectX sample programs, and you are still having problems. What next?

As a first step, we suggest checking our Knowledge Base at <http://www.gpssoftware.com>. This is an easy to use, searchable, browsable 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 also want to check the Knife Edge Message Boards at <http://www.knifeedge.com/forums/>. This is a place where owners of RealFlight, RealRace, 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.

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 G4 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.

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 <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 (variously called "special purpose", "alternate", or "beta" driver). If RealFlight G4 "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 G4, test DirectX) and are still having difficulty with your computer locking up while running RealFlight, please contact Great Planes Technical Support.

Improving RealFlight G4 Performance-

During installation, RealFlight G4 analyzes your computer's hardware specifications. RealFlight G4 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 G4'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 G4. Use **CTRL-ALT-**

DELETE and check the Task Manager to verify that nothing else is running in the background.

- Reduce the texture and water quality. This can have a profound effect on cards that do not have a high texture memory. See the Settings section starting on page 75 for more information.
- Eliminate the items shown in the simulation. To do so, access the **View** menu title, then access the **Show** 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.
- Reduce the number of recordings currently in use.

Other Common Problems-

Here are some other things you may want watch for.

- Check the CD-ROM for scratches or blemishes. Even minor scratches or fingerprints can cause random problems that appear to be program bugs.
- Make sure your hard drive has at least 500 MB of space available. To check this:
 1. Double click on the **My Computer** icon on your desktop
 2. Right click on your main **hard drive** (usually drive “C:\”)
 3. When the popup menu appears, select **Properties**
 4. In the dialog that appears, view the amount of space available on the drive

If you need additional space, try emptying the Recycle Bin.

- Verify that all other programs are closed prior to starting RealFlight G4. RealFlight works best when it is the only program running.
- If all else fails, try rebooting your computer. Occasionally, Windows (particularly 98 and ME) may become unstable after prolonged and continuous use. A simple reboot may clear up any difficulties.

Glossary

180-Degree Turn

R/C Term

This basic flight practice starts with a takeoff, and then demonstrates 180 degree turns on a flight path parallel to the runway.

360-Degree Turn

R/C Term

In this practice, you will learn to fly the aircraft in a complete circle (360-degree turn). This maneuver is a great way to learn control inputs for turns while keeping the same radius and altitude.

3D Acceleration

Computer Term

3D operations require a huge number of calculations. Modern computers offload many of these calculations to the video card, rather than performing the calculations directly on your computer's CPU. This speeds up the simulation and allows for faster frame rates, thereby increasing the realism of the simulation.

ATV

R/C Term

Amount of servo travel. For instance, 50% ATV would mean the servo's maximum travel is 50% of its physical limit.

AccuModel

RealFlight Term

RealFlight G4's AccuModel aircraft editor offers the most powerful, most flexible aircraft editor ever released in an R/C simulator.

Active View

RealFlight Term

The active view is the view that is affected by the commands in the View menu. Only one view at a time is active. You can make a view active by clicking on it with the mouse. When you want to control a view's properties, you must first make it the active view.

Advanced Flight Recorder (AFR)

RealFlight Term

This feature allows the pilot to not only view prerecorded maneuvers, but also allows them to record their own. During the playback of maneuvers, the pilot has the ability to select from a number of different options such as fast forwarding, rewinding, looping, speeding up and slowing down the recordings. These recordings may also be sent to others via the internet. The pilot can also activate an on-screen transmitter to watch the stick inputs for each pre-recorded maneuver.

Adverse Yaw

R/C Term

The tendency of an airplane to yaw in the opposite direction of the roll. For instance, when right aileron is applied, the airplane yaws to the left, thus opposing the turn. Adverse yaw is common in trainer type airplanes having flat bottom wings. It is most noticeable at slow speeds and high angles of attack, such as during takeoffs and when stretching a landing approach. Caused by the unequal drag of the upward and downward deflection of the ailerons, this undesirable trait can be minimized by setting up the ailerons with Differential Throw or by coordinating the turns, using the aileron and rudder controls simultaneously.

Aileron

R/C Term

Hinged control surfaces located on the trailing edge of the wing, one on each side, used to provide control of the airplane about the roll axis. The control direction is often confusing to first time modelers. For a right roll or turn, the right hand aileron moves upward and the left hand aileron moves downward. The movements are reversed for a left roll or turn.

Airfoil

R/C Term

A surface (such as a wing or propeller blade) with a shape and orientation such that it provides or controls stability, direction, lift, or propulsion.

Airframe

RealFlight Term

A term used to describe the general components of an aircraft when using RealFlight G4's AccuModel aircraft editor. For example, selecting the airframe will call up the fuselage, wing(s) and tail of an airplane.

Angle of Attack

R/C Term

The angle that the wing penetrates the air. As the angle of attack increases so does lift and drag, up to a point.

Arm

R/C Term

In this context, the arm is the distance from the point of the application of a force to the axis of rotation. If you press down on the tip of a wing, for example, the arm is the distance from the point where you are pressing to the root of the wing.

Auto-Play

Computer Term

A Windows feature that automatically detects when a CD-ROM is inserted and runs the specified program on the CD-ROM.

Autorotation

R/C Term

A maneuver in which the pilot attempts to bring the helicopter in for a landing without power from the engine. The momentum of the spinning rotor blades is enough to slow the helicopter prior to landing.

Autorotation Event

RealFlight Term

An event where players attempt to autorotate onto a target (similar to Spot Landing). Each player takes a turn. Players collect different point amounts based on landing location. The Autorotation Event works for helicopters only. The Deadstick Event is for airplanes.

Avalanche

R/C Term

The Avalanche is a loop with a snap roll at the top of the loop. This snap roll must be centered at the top of the loop.

Bloom Effect

RealFlight Term

The effect creates a feathering of light around brighter objects, giving it a more realistic look. This is more noticeable at brightly lit airports around aircraft that are lighter in color.

Channel Mapping

RealFlight Term

This term describes the ability of RealFlight G4 to alter the mapping or input of the servos to accurately reflect the actual controls from an R/C controller.

Chat

RealFlight Term

This is a real-time communication between two G4 users which is conducted via the PC. G4's multiplayer feature enables a public chat if so desired.

Child/Children Item(s)

RealFlight Term

In many of RealFlight G4's selection windows, items are displayed in a hierarchy format. An item that belongs to a higher group, or parent, is considered the child item.

Chord

R/C Term

The chord of a wing or surface is the width of the surface. A wider chord offers increased lift. However, a wider chord also generates more drag when the aircraft rolls.

CG

R/C Term

CG is the abbreviation for the phrase Center Of Gravity. This is the point at which the aircraft balances fore to aft and side-to-side. The location of this point is crucial to how the aircraft reacts in the air. For airplanes, a tail-heavy plane will be very

snappy, but generally unstable and susceptible to frequent stalls. Conversely, a nose-heavy plane will tend to track better and be less sensitive to control inputs, but will generally drop its nose when the throttle is reduced to idle. This makes the plane more difficult to land, since it takes more effort to hold the nose up. A nose heavy airplane will have to come in faster to land safely.

Collective

R/C Term

A mechanism on a helicopter that changes the pitch of the main blades, thereby allowing the helicopter to ascend or descend accordingly. This is the control that adjusts the pitch of the rotor blades.

Collision Detection

RealFlight Term

RealFlight G4 sports the most advanced collision detection modeling ever used in an R/C model simulation. It blankets the entire aircraft, ensuring accurate modeling of the aircraft when it collides with objects and items within the simulation.

Coning

R/C Term

When a helicopter hovers, the blades form a slight "cone" when viewed from the side. The Coning effect is caused by the balance between lift and centrifugal forces on the blades.

Control Surface

R/C Term

Generally defined as the portion of the airfoil that moves. Examples include ailerons, elevators, rudders, flaps, and spoilers.

Controller

RealFlight Term

A device used to control an aircraft in RealFlight. G4 ships with the Great Planes' USB InterLink Elite Controller by Futaba. This device can be used as a standalone controller, or as an interface to use your own R/C transmitter. Previous versions of RealFlight shipped with either a Futaba game port controller or a Transmitter Adapter Interface. For information on the latter two controllers, please see the manuals that came on the program CD with those versions of RealFlight.

Cuban Eight

R/C Term

This maneuver requires that the pilot perform a half roll on each of the descending forty-five degree down lines, allowing the pilot to fly a horizontal figure eight without performing an outside loop.

Cyclic

R/C Term

Refers to the changing of a main rotor blade's pitch as the rotor head rotates. Pitch is added while the blade is pointing in one direction (e.g. while the

blade is over the canopy), and removed while the blade is pointing the the opposite direction (e.g. while the blade is over the tail boom). This causes the helicopter to pitch and roll.

Data Lever

RealFlight Term

RealFlight G4's InterLink Elite has the ability to make on-screen selections, or quickly look at the windsock or ground. This can be done with the Data Lever, located at the bottom right-hand corner of the InterLink Elite controller.

Deadstick

R/C Term

A term used to describe unpowered flight (glide) when the engine ceases operation.

Deadstick Landing Event

RealFlight Term

See Autorotation Event. The Deadstick Landing Event is specific to airplanes.

Dihedral

R/C Term

The V-shaped bend in a wing. Increasing the dihedral usually enhances the aerodynamic stability of an airplane, and causes the rudder to control both the roll and yaw axis. This is why some trainers and sailplanes require only three channels of radio control (i.e., they have no ailerons).

Direct Control Interface

RealFlight Term

This is a method for using your own radio to completely control the aircraft. This usually means you have a separate radio program on your radio for each aircraft that you want to fly in RealFlight G4 with this method. All mixing and radio functions are performed on your radio and RealFlight simply passes the values directly to the aircraft servos. This is in contrast to the Joystick Emulation Interface.

Direct3D Technology

Computer Term

A Microsoft DirectX technology used to render the 3D image when you have a graphics accelerator card. It works best on faster computers.

DirectX

Computer Term

A technology created by Microsoft that controls graphics and sound operations.

Dithering

R/C Term

A method of removing and/or simulating colors that may not be available to the graphics processing unit.

Down Thrust

R/C Term

This is the downward angle of the engine in relationship to the centerline of the airplane. Down Thrust helps overcome the normal climbing

tendency of flat bottom wings.

Driver

Computer Term

A software program that controls a card (e.g., video or sound card) in your computer. Card manufacturers usually provide drivers as well. Card manufacturers frequently update their drivers to fix bugs or to make their cards compatible with new software and hardware. You can often find an updated driver for your video or sound card by visiting the card manufacturers web site and following links to “Drivers,” “Support,” “Downloads”, or “Upgrades.”

Edit NavGuides

RealFlight Term

A NavGuide is a gadget that displays continuously updated information about your aircraft. The Edit NavGuides dialog is used to customize the NavGuides gadgets.

Elevator (Maneuver)

R/C Term

The Elevator is a maneuver in which the aircraft is made to stall completely with a large amount of elevator throw. The aircraft will descend almost vertically much like an elevator. To perform the Elevator, make sure that you have sufficient altitude, dive the aircraft vertically towards the ground and pull full up on the elevator stick.

Elevator (Control Surface)

R/C Term

Hinged control surface located at the trailing edge of the horizontal stabilizer, which provides control of the airplane about the pitch axis and causes the airplane to climb or dive. The correct direction of control is to pull the transmitter Elevator control stick back, toward the bottom of the transmitter, to move the Elevator upward, which causes the airplane to climb. Move the Elevator in the other direction to dive.

Endpoint Adjustment

R/C Term

This radio feature adjusts the length of servo travel in one direction (a single channel will have adjustments for two endpoints). If, for example, your aircraft rolls faster one way than the other, endpoint adjustments can correct the problem.

Event

RealFlight Term

An organized flying contest with a set of rules. RealFlight G4 currently supports five types of Events: Limbo, Spot Landing, Pylon Racing, Autorotation/Deadstick and Freestyle. You can participate in Events by yourself or with other RealFlight users over the internet. Use the Event

menu to start an Event.

Exponential

R/C Term

A feature commonly found on computer radios that desensitizes the servo when the sticks are close to the neutral position. The further the stick position from center, the faster the control response.

Figure 8

R/C Term

This is an excellent maneuver to learn perspective and orientation of the aircraft from all angles. Use the ailerons and elevator to turn the aircraft left and right. Use the elevator to ensure that the aircraft maintains a constant altitude, forming an '8' in the sky.

Flap

R/C Term

For Airplanes: hinged control surface located at the trailing edge of the wing inboard of the ailerons. The Flaps are lowered to produce more aerodynamic lift from the wing, allowing a slower takeoff and landing speed. Flaps are often found on scale models, but usually not on basic trainers.

For Helicopters: Flapping is an up-and-down motion of the main rotor blade's tip. With a "dual-damped" head, (as used in the Kyosho Concept helicopters, for example) both blades are able to Flap independently. With "solid axle" heads (as used in the Hirobo Shuttle helicopters, among others), moving one blade up causes the other to move down.

Flapping Head

R/C Term

This describes a type of rotor head in which the two blades are not connected directly. Each blade is independent of the other, usually resulting in a helicopter with smoother performance.

Flare

R/C Term

The point during the landing approach in which the pilot increases the amount of up elevator to smooth the touchdown of the airplane.

FlexiField

RealFlight Term

FlexiField is the most advanced flying site editor ever unveiled. It presents the modeler with the ability to adjust the flying site in virtually any manner desired. The user can add trees, selecting the type, size and color; add, move, size and orient buildings, walls and other scenery objects; position and orient the runway; even choose the amount and type of lighting at the flying site.

Flight Failures

RealFlight Term

RealFlight G4 authentically recreates common difficulties that may be experienced at your local flying site. Practicing with flight failures enabled is a good way to practice for emergencies.

Flight Playback Gadget

RealFlight Term

A gadget that lets you control playback of flight recordings using mouse actions.

Float Fly

R/C Term

The ability to takeoff and land a radio controlled aircraft from water.

Flybar Paddles

R/C Term

These are the short blades on the end of the flybar. Available in a variety of weights and airfoils, these paddles assist the main blades in producing lift, etc.

Four-Point Roll

R/C Term

These maneuvers are very similar to a slow roll with the exception of a hesitation at either $\frac{1}{4}$ of the roll or at $\frac{1}{8}$ of the roll. It is important to remember to use rudder and elevator to keep the aircraft flying in a straight line.

Frame Rate

Computer Term

Frame Rate is the number of times per second that RealFlight creates a different picture to display on your monitor. Frame rate is determined by the speed of your CPU and graphics card, and how many RealFlight options you turn on. This is not the same as refresh rate, which is the number of times per second that your monitor retraces an image on its screen.

Freestyle Event

RealFlight Term

An event where players decide on the rules. RealFlight G4 sees that each player gets a turn; it is the players' responsibility to judge the competition. Use this event when you have devised a group activity that requires every player to take a turn.

Fuselage

R/C Term

Generally speaking, this is the main part of the airplane that holds the wings and engine. The fuselage is often thought of as the "body" of the airplane. This term is also used to refer to a "body" that might be used on helicopters.

Futaba

R/C Term

Maker of high quality R/C products, including the USB InterLink Elite controller shipped with RealFlight G4.

Gadget

RealFlight Term

An on-screen display that shows you continuously updated information about your aircraft, or lets you

control RealFlight features using mouse clicks.

Global Wind

RealFlight Term

This term describes the overall wind conditions in the simulation.

Governor

R/C Term

A device used to help maintain a constant RPM (head speed). Generally used in helicopters rather than airplanes.

Grouping

RealFlight Term

A collection of scenery objects or foliage objects in your airport. Every object in the airfield must belong to one Group. You can place all of your airport's scenery objects in a single Group, or create multiple Groups to place objects in categories with related objects. For example, you could have a Group for Trees and another group for Buildings within a particular airport.

Gyro

R/C Term

A device, most commonly used in helicopters, that aids in controlling the yawing action of the helicopter by automatically adjusting the deflection of the tail rotor blades.

HAL Device

Computer Term

A hardware-accelerated 3D video card driver. "HAL" is an abbreviation for the phrase "Hardware Abstraction Layer" that uses software drivers to communicate between RealFlight's software and the hardware of the PC.

Harrier

Computer Term

A Harrier is a slow forward progression of the aircraft with the nose held high. Use the elevator to stall the forward progress of the aircraft. Add in more up elevator until the nose approaches 45 degrees. The throttle should be used to control the forward progress of the aircraft, without climbing.

Host

RealFlight Term

In RealFlight G4, every multiplayer session requires one player to serve as Host. The Host starts the session, and then the other players join. Other players can leave the session whenever they want, but only the Host can terminate the entire session. The Host must start any multiplayer event (Limbo, Spot Landing, Pylon Racing, Autorotation, Freestyle).

Hot Pluggable/Hot Swappable

Computer Term

A device is said to be Hot Pluggable or Hot Swappable when you can safely connect or disconnect it without turning off your computer or rebooting.

Hub

R/C Term

The centralized mechanical device used to attach the main rotor blades and paddles.

Humpty-Bump

R/C Term

This aerobatic maneuver consists of two vertical lines connected by a half circle flown across the top.

IP Address

Computer Term

Whenever your computer is connected to the internet, it has an IP address. This number is a string of digits and periods, and looks something like “123.45.6.78”. The IP address is like an internet “zip code” that tells other computers where to look for your computer. Depending on your internet connection, your IP address may always be the same, or may change each time you connect to the internet. For other RealFlight G4 users to join your Multiplayer session, they must obtain your IP address. You can either provide it to them directly, or post it through the RealFlight list server.

Immelman Turn

R/C Term

The aircraft will enter a half loop from straight and level flight followed immediately by a half roll to straight and level flight.

Interface Mode

RealFlight Term

With RealFlight G4 set to Interface Mode, you are using the InterLink Elite Controller as an interface to your own R/C radio. In Interface Mode, your own radio controls RealFlight G4. Conversely, in Joystick Mode the InterLink Elite Controller (used as a mockup of a R/C transmitter) controls the RealFlight G4 aircraft.

InterLink Elite Controller

RealFlight Term

Great Planes’ USB InterLink Elite Controller by Futaba is a USB device shipped with RealFlight G4. The InterLink Elite Controller can be used as a standalone “mockup” R/C controller, as an interface for using your own R/C transmitter to control RealFlight, or both simultaneously!

Joystick

Computer Term

A device that connects to your computer to provide control input for the simulated aircraft. The InterLink Elite controller that comes with

RealFlight G4 is considered a Joystick.

Joystick Emulation Interface

RealFlight Term

A term used to describe using your own radio to emulate the Interlink Joystick. This allows you to use your own radio to fly any of the stock aircraft in RealFlight G4. Actual radio functions such as mixing and ATVs are performed in the RealFlight software, not on your radio. This is in contrast to the Direct Control Interface.

Joystick Mode

RealFlight Term

With RealFlight G4 set to this mode, RealFlight G4 is controlled by the InterLink Elite controller used as a mockup of a R/C transmitter.

Launcher

RealFlight Term

The RealFlight G4 Launcher is useful for many aspects of the G4 program, including loading the simulator, compiling system information for technical support, or uninstalling RealFlight.

LAN

Computer Term

Local Area Network. This is usually a network where the computers are connected with high speed network cards.

Lead Lag

R/C Term

A helicopter term describing the hinge point where the blade attaches to the hub. This allows the blade to move forward and backward at certain times during the blades rotation.

Leading Edge

R/C Term

The very front edge of the wing or stabilizer. This is the edge that hits the air first.

Limbo

R/C Term

An event (flying competition) in which pilots take turns flying their aircraft under a Limbo bar. The pilot that clears the lowest bar height wins.

List Server

RealFlight Term

RealFlight G4's Multiplayer function lets you publicly "post" your session, so that any RealFlight G4 user, anywhere in the world, can find out about your session and join you (assuming you have not reached the enrollment limit of your session). The place where you post your session is called a List Server. Use of the List Server is optional. You can preserve privacy by not posting your session, and privately communicating your IP address to your selected multiplayer partners.

Please note that the free, public list server for use by RealFlight owners may be modified or discontinued

without notice at any time.

Low Rates

R/C Term

A switch on the radio that reduces the servo movement to much smaller extremes, thus making the model respond more slowly to a given control input.

Mode

R/C Term

Also known as Flight Mode or Stick Mode, this refers to the transmitter's gimbal stick assignments (locations) 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 commonly used in the United States.

Most Recently Used (MRU)

Computer Term

MRU refers to the list of documents which were last accessed. For RealFlight G4, MRU's appear for airports, aircraft and recordings.

MultiMode

RealFlight Term

A G4 feature that allows two users to fly simultaneously on the same PC.

Multiplayer

Computer Term

A RealFlight G4 feature that uses Microsoft's DirectX technology to connect with other RealFlight G4 users over a network.

Multiplayer Session

RealFlight Term

A network connection between RealFlight G4 users that allows each user to fly in the same "virtual world," and allows all participants to see and interact with each other's aircraft.

NavGuides

RealFlight Term

A gadget that displays continuously updated information about your aircraft and the virtual world.

Parent Item

RealFlight Term

In many of RealFlight G4's selection windows, items are displayed in a hierarchy format. An item that has additional item within it is considered the parent item.

PhotoField

RealFlight Term

A technology that creates a flying field by using a panoramic photograph as a background for a flat terrain.

Pirouette

R/C Term

The yawing action of a helicopter that looks much like an ice skater spinning in a circle. One Pirouette is equal to one 360-degree rotation.

Pitch Axis

R/C Term

The airplane axis is controlled by the elevator. Pitch is illustrated by holding the airplane at each wingtip. Raising or lowering the nose is the pitch movement. This is how the climb or dive is controlled.

Plumb String

R/C Term

When you measure your aircraft for RealFlight, some measurements require that you have a reference line running straight up and down. To make such a line, we tie a weight to the free end of a string, and let the weight dangle. Because the string is then “plumb” (oriented straight up and down), it is called a Plumb String. A Plumb String is particularly useful in measuring an aircraft’s center of gravity.

Point Rolls

R/C Term

These maneuvers are very similar to a roll with the exception of a hesitation at either 1/4 or 1/8 of the roll.

Private Session

RealFlight Term

A multiplayer session that is not published on our list server. For a private session, the host must distribute his/her IP address to each participant, who must manually enter this information to join.

Propeller

R/C Term

Props are generally designated by two numbers (for instance, “10 – 6”). The first number is the length (10" in the example) of the prop. The second number is the pitch or angle of the blades. In this example, the “6” represents the distance the propeller will move forward in one revolution.

Public Session

RealFlight Term

A multiplayer session that is published on a list server.

Pylon Racing

R/C Term

An event (flying competition) in which pilots take turns flying their aircraft around a closed course. Pylons mark the course perimeter. The pilot that finishes the course first wins.

QuickSelect

RealFlight Term

RealFlight G4 InterLink Elite allows you to make changes to the simulator with the controller using the buttons at the bottom. Manipulating these buttons through the on-screen QuickSelect tabs offer the ability to change aircraft, flying sites, and more.

RAM

Computer Term

Random Access Memory.

ReadySelect

RealFlight Term

This is the name given to RealFlight G4's rotating preview box. This allows a rapid view of the aircraft from all angles.

RealPhysics 3D

RealFlight Term

This is RealFlight's exclusive physics modeling technology. RealPhysics 3D authentically replicates the actual physics of model aircraft by performing hundreds of thousands of floating point calculations each second while delivering sizzling real time performance.

Refresh Rate

Computer Term

The number of times per second that your monitor retraces an image on its screen. This is different from the Frame Rate.

Resolution

Computer Term

When used in the context of screen Resolution, this term describes the picture quality of the screen. Lower Resolutions will produce an image that is not as sharp as higher Resolutions.

Roll Axis

R/C Term

The airplane axis controlled by the ailerons. Roll is illustrated by holding the airplane by the nose and tail. Dropping either wingtip is the roll movement. Roll is used to bank or turn the airplane. In most airplanes, the ailerons control roll. However, when the main wing has dihedral, the plane can be banked using the rudder only. Consequently, many planes with wing dihedral do not have ailerons, and the rudder controls both roll and yaw. This is one reason why most trainer aircraft have a large amount of dihedral -- a plane with large dihedral can be controlled using fewer input channels.

Rolloff Factor

RealFlight Term

This phrase describes how rapidly the volume of a sound increases or decreases as the source draws closer or moves farther away.

Root

RealFlight Term

In many of RealFlight G4's selection windows, items are displayed in a hierarchy format. The upper most item in this hierarchy is considered the Root item.

Rudder

R/C Term

Hinged control surface located at the trailing edge of the vertical stabilizer, which provides control of the airplane about the Yaw axis (causing the airplane

to Yaw left or right). Left Rudder movement causes the airplane to Yaw left, and right Rudder movement causes it to Yaw right.

Servo

R/C Term

An electromechanical device that moves the control surfaces or throttle of an airplane according to commands from a receiver. This device does the physical work of moving parts around inside the aircraft.

Session

RealFlight Term

See "Multiplayer Session."

Software Radio

RealFlight Term

This term describes RealFlight G4's ability to accurately mimic a computer transmitter (complete with mixing, etc.) in the simulation.

Sound Card

Computer Term

A card inside your computer that controls audio (what you hear over your computer speakers). Most sound cards plug into your computer's motherboard. You can upgrade your sound card (or the software driver that controls it) without getting a new computer.

Specular Highlights

Computer Term

A graphics rendering technique that makes surfaces (e.g., MonoKote™) appear reflective, or "shiny", in direct light (e.g., sunlight).

Split S

R/C Term

The Split S is another step in learning to combine loops and rolls and is a great maneuver to decrease your altitude. A half roll precedes a half loop, making the maneuver a mirror image of the Immelman. The Split S provides course reversal and an easy increase in speed.

Spot Landing

R/C Term

An event (flying competition) in which pilots take turns trying to touch their aircraft down within a small marked landing area. Each pilot receives a score based on touch down location. The pilot with the highest score wins the event.

Stall

R/C Term

When an airplane's angle of attack is too great to generate lift (regardless of airspeed), the plane will dive and rapidly lose altitude. This is known as a stall. Every airfoil has an angle of attack at which it generates maximum lift. The airfoil will stall beyond this angle.

Swash Plate

R/C Term

The mechanism in a helicopter rotor that turns non-rotating control movements into rotating control movements.

Thermal System

R/C Term

This phrase describes the wind flow and effects for the thermals in RealFlight G4.

Throttle Hold

R/C Term

This is used to keep the throttle at a set position, yet allows input to the collective of the helicopter. Generally this function is used to practice autorotation.

Tip Stall

R/C Term

This is when the airplane reaches its stall speed and one wing drops.

Torque Roll

R/C Term

The Torque Roll occurs when the nose of the airplane is pointed vertically and the airplane hovers in place. The aircraft will rotate left around its roll axis.

Touch and Go

R/C Term

Landing and taking off without a pause. Often confused with a good bounce.

Trailing Edge

R/C Term

The rearmost edge of the wing or stabilizer.

Trainer

R/C Term

A model designed to be inherently stable and fly at low speeds, to give first-time modelers time to think and react as they learn to fly.

Training Aids

RealFlight Term

RealFlight G4 offers a variety of features to learn new maneuvers. These consist of training aids that take you through, step-by-step, basic flight lessons, such as Takeoffs and Landings for airplanes, and Hovering practice for helicopters. Pre-recorded lessons are also available from professional pilots.

TruFlo Wind Dynamics

RealFlight Term

RealFlight G4's TruFlo Wind Dynamics is the most accurate wind model ever released in an R/C simulator. It combines five different wind models to recreate the ever-changing wind fields found at a real flying site.

Turbulence System

RealFlight Term

This is the ability of RealFlight to induce turbulent, rough air, as would be experienced at the flying site.

USB

Computer Term

USB, or Universal Serial Bus, is a connection protocol for computer peripheral devices (like Great Planes' USB InterLink Elite Controller by Futaba).

USB technology allows you to connect multiple devices to your computer, and supports high data transfer rates and is hot swappable. USB devices have a special connector that only fits into a USB port. Most modern personal computers have USB ports, which are usually clearly labeled. Some computers have one or more USB ports on the front of the computer housing, although the USB ports are usually on the back of the computer.

Variometer

R/C Term

An instrument designed to indicate the rate of climb or descent of an aircraft.

Video Card

Computer Term

A card inside your computer that produces the images on your video monitor. Most modern 3D video cards have accelerated 3D operations—that is, they perform numerical calculations for rendering a 3D scene, to free up your computer's CPU to perform other tasks. The video card plugs into your computer's motherboard. You can upgrade your video card (or the software driver that controls it) without replacing your computer.

Viewport

RealFlight Term

A picture-in-picture display set within the RealFlight G4 main display. The Viewport is independently adjustable and serves as its own unique “window on the world”.

Virtual Flight Instruction

RealFlight Term

This RealFlight G4 feature lets you choose from a variety of prerecorded maneuver training lessons. The maneuver is then demonstrated on screen, along with the instructor's voice and control stick movements. You can index, pause and even loop the maneuver playback for training purposes.

Virtual Revolution

RealFlight Term

This is the exclusive sound technology used by RealFlight G4. As with the original RealFlight programs, the sounds are Doppler-correct. If the user's sound card supports it, surround sound is also available.

Washout

R/C Term

An intentional twist in the wing, which causes the wing tips to have a lower angle of attack than the wing root. In other words, the trailing edge is higher than the leading edge at the wing tips. Washout helps to prevent tip stalls.

Waterfall

R/C Tern

The Waterfall is a maneuver where the plane pivots 360 degrees in the pitch axis with as little forward motion and altitude deviation as possible. As the name suggests, this maneuver resembles a waterfall during flight.

Wing Loading

R/C Tern

The amount of weight per square foot that has to be overcome to provide lift. It is normally expressed in ounces per square foot. This specification can be easily calculated as follows: first determine the area of the wing in square inches. Then simply divide by 144 to obtain square feet. Divide the total weight (in ounces) of the airplane by the wing area (in square feet).

This information is valuable when deciding on which airplane to build next. Planes with high wing loading must fly faster to stay in the air. These are generally "performance" airplanes. Conversely, a plane with lower wing loading does not need as much air flowing around the wing to keep it flying. Gliders and trainer airplanes fall into this category because in this case, slow, efficient flight is highly desirable.

Yaw Axis

R/C Tern

The airplane axis controlled by the rudder. Yaw is illustrated by hanging the airplane level by a wire located at the center of gravity. Left or right movement of the nose is the Yaw movement.

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