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CHAPTER 1. INTRODUCTION

INTRODUCTION

Welcome to the RealFlight NexSTAR Edition R/C Simulator. The NexSTAR Edition is the ideal way to learn to fly, practice maneuvers or just have an incredible amount of fun. It's so realistic, you'll hardly believe it's a simulation.

The NexSTAR Edition offers an amazing array of tools to help you understand how to use the program, and how to improve your R/C piloting skills. From extensive ToolTips that explain every option as you use it, to our Virtual Flight Instructor™ feature, to our extensive manual and technical support, RealFlight NexSTAR Edition is the perfect way to practice flying your new airplane.

After you've mastered the NexSTAR Edition, be sure to check out the complete version of the RealFlight software. The complete version of the software offers many, many exciting options, features and functions that are not found in the NexSTAR Edition. N*o other R/C simulator goes further to enrich your R/C experience*. For more information, please visit: www.realflight.com

CHAPTER 2. BEFORE YOU BEGIN

SYSTEM REQUIREMENTS

The system requirements below are what we consider to be the minimum PC configuration in which the RealFlight NexSTAR Edition software should be installed. Meeting the minimum requirements will allow you to still enjoy the simulation; however, in order to take complete advantage of the many features and functions offered, you should have a computer at, or near, the specifications as listed under the optimum system requirements.

MINIMUM SYSTEM REQUIREMENTS

- Windows® XP*, 2000*, ME or 98SE

  * Local administrator access required for Windows XP or 2000
- Intel® Pentium® 300 or equivalent processor
- 64 MB RAM
- DirectX® 8.1 (or above) compatible video card with at least 8MB of RAM (Note that Voodoo I and Voodoo II cards are not supported because they do not allow you to run in a window or view a menu while full screen)
- DirectX 8.1 (or above) compatible sound card
- 500 MB hard drive space
- 4x CD-ROM drive
- Super VGA monitor
- USB port

SUGGESTIONS FOR OPTIMUM PERFORMANCE

In addition to the requirements above:

- Intel Pentium III 600 (or equivalent) and above processor
- Microsoft® Direct 3D compatible high performance 3D accelerated video card with 16 MB (or more) video RAM
- 16x CD-ROM drive
- 128 MB RAM

VIDEO AND SOUND CARDS

In order to achieve optimum performance and the ultimate satisfaction, there are two important components of your computer that deserve special attention: the video and sound cards.

While the software will work well on a wide variety of hardware configurations, it offers many features that are designed to take particular advantage of the latest video technology. If you have an older computer, or a newer computer with a lower-end video card, you may want to consider purchasing a new video card to take advantage of these features. This moderately priced upgrade can vastly enhance your enjoyment of the RealFlight NexSTAR Edition. Aside from increasing your satisfaction with RealFlight, a new video card will also work with many other games or simulators, improving their performance as well.

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

GETTING THE MOST OUT OF REALFLIGHT NEXSTAR EDITION

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

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

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

CHAPTER 3. GETTING STARTED

OVERVIEW

This chapter covers the installation procedure for the RealFlight NexSTAR Edition software, describes the basics in running the program, and will introduce you to some of the most often used features.

The first section, *Installing RealFlight NexSTAR Edition* offers a step-by-step approach to the installation procedure for both the program software and the USB Transmitter Interface.

The second section, *Exploring RealFlight NexSTAR Edition*, offers a brief tour of the program. You'll learn how to perform some basic functions, such as using the Virtual Flight Instructor feature.

INSTALLING THE REALFLIGHT NEXSTAR EDITION

PROGRAM INSTALLATION

This section will explain how to install the RealFlight NexSTAR Edition software and the USB Transmitter Interface. When you finish this section, you should be able to fly the NexSTAR, using your NexSTAR transmitter to control the airplane.

UPDATE DRIVERS

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

If you're not sure how to update your drivers, you can find instructions in article ***Q01-1038, How to Update Drivers***, at http://www.gpsoftware.com/kb/q01-1038.htm. This article will take you through the process step-by-step, and includes links to driver download sites for most manufacturers.

START INSTALLING THE PROGRAM

Once you've installed the new drivers, you're ready to install the software. First, turn your computer "on" and close any applications you are running. Next, insert the RealFlight NexSTAR Edition CD-ROM into the CD-ROM drive. If Auto-Play is active, the RealFlight NexSTAR Edition Control Panel will appear. Click the **Install CD** button located at the top of the Control Panel to begin the installation process.

If Auto-Play is not active, you will need to locate and run the program "SETUP.EXE" from the root directory of the CD-ROM. To do this, click the **Start** button on the Windows Taskbar, then select **Run** from the **Start** menu. In the **Run** window, type "d:\setup" (assuming "d:\" is the designation for the CD-ROM drive) and press [Enter] or click "OK". This should start the setup program.

RUNNING THE INSTALLATION PROGRAM

Follow the onscreen instructions and fill in the necessary information when queried by the setup program. When the setup program asks for the program serial number, use the RealFlight NexSTAR Edition serial number as it appears on the back side of the CD-ROM case. This number must be entered **exactly** as it appears in order to proceed to the next phase of the installation process.

INSTALL DIRECTX

After the program has finished copying the necessary files, it will ask you if you want to install DirectX. If you do not meet the minimum DirectX version requirement as queried by the RealFlight program, click "Yes" to install this updated version of DirectX.

It will not harm your computer to install DirectX more than once. Therefore, if you are unsure as to the status of this program we suggest that you install it at this time. When DirectX has been installed, click "Finish" to complete the Setup.

CONNECT THE USB TRANSMITTER INTERFACE

Finally, plug the RealFlight NexSTAR Edition Transmitter Interface into a USB port on your computer (see diagram). On most computers, the USB ports are clearly labeled.

Please note, the Transmitter Interface is *hot pluggable* or *hot swappable*. In other words, you can normally plug/unplug the Transmitter Interface without turning your computer off or rebooting.

While your Transmitter Interface is plugged in, and your computer is turned "on", a small green light on the Transmitter Interface should illuminate. This light, labeled "USB Active", indicates that the Transmitter Interface is connected and working.

Grasp the remaining Transmitter Interface cord (the one with the square connector) and firmly plug this into the trainer jack (a.k.a. buddy box) port located in the back of the NexSTAR transmitter. Turn the transmitter's power "on."

RUN REALFLIGHT NEXSTAR EDITION

To complete the installation and start the program, click on the RealFlight NexSTAR Edition icon located on the desktop. RealFlight NexSTAR Edition will guide you through the final installation.

Now you are ready to run the RealFlight NexSTAR Edition simulator.

EXPLORING THE REALFLIGHT NEXSTAR EDITION PROGRAM

Now that you've installed the RealFlight NexSTAR Edition, it's time to begin exploring the program. The following sections will take you on a quick tour of the features and functions. Along the way, we'll show you where to go for help, or how to obtain additional information.

START THE PROGRAM

After installation, you should see a RealFlight NexSTAR Edition icon on your computer's desktop. First, close all open programs and windows (RealFlight performs best when it is the only program running, *i.e.*, not sharing resources with any other programs or applications.) Next, start RealFlight NexSTAR Edition by double-clicking the icon.

THE REALFLIGHT NEXSTAR EDITION'S MAIN DISPLAY

When you first run RealFlight, you should see a window like the one below (assuming your video card supports DirectX Window mode, most cards do).

You can move, resize, minimize, maximize and restore the RealFlight main window just as you would any other application.

You interact with RealFlight using the **menus** in the main window's menu bar:

- **Airport**
- **Aircraft**
- **Options**
- **View**
- **Help**

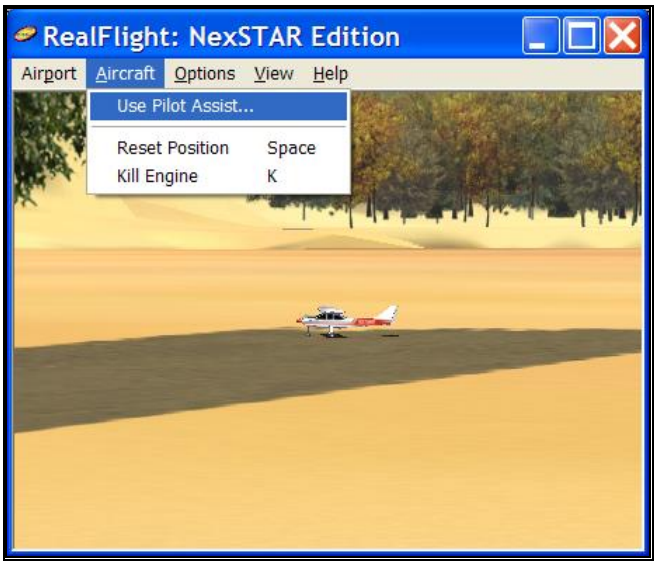
If the simulator is running but you do not see any window borders or menus, you may be running in **full screen mode**. **"Full screen mode"** means that the RealFlight NexSTAR Edition's main display will take up your entire monitor screen. If this is the case, you can access the menus by hitting your keyboard's "ALT" key or, alternatively, the "ESC" key. *For additional information about **window mode** and **full screen mode**, see "Run in Window" on page 26.*

Later in this manual, you'll find a separate chapter for each menu. These later chapters will describe, in detail, every single menu item and option. For now, though, we want to show you two aspects of the RealFlight user interface:

- How to navigate the menus and find out what the different commands do; and
- How to perform some of the most common tasks—optimizing the settings for your PC, accessing the VFI, etc.

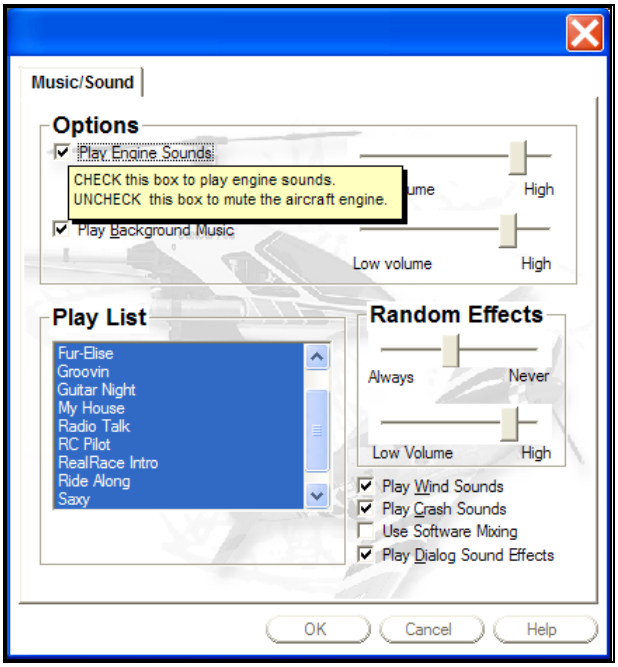
Menus

Menus allow you to access RealFlight commands. To open a menu, click on its title (*e.g.*, **Aircraft**):



Dialog ToolTips

If you see a RealFlight dialog, and want to know what a control (button, checkbox, etc.) in that dialog does, simply place the mouse cursor over the item until a ToolTip window appears. For example:



SOME COMMON TASKS

- To reset your aircraft to its original takeoff position, select “Reset Position” under the “Aircraft” menu. Alternatively, you can also press your keyboard’s space bar.

- To zoom in on an aircraft, select “Zoom in” in the “View” menu. Alternatively, press your keyboard’s F2 key. Repeat to increase the zoom level further. Use F3 to zoom out, or use F1 to reset to the default zoom level.

VIRTUAL FLIGHT INSTRUCTOR™

RealFlight NexSTAR Edition’s Virtual Flight Instructor (VFI) provides you with private flying lessons from an award-winning, industry professional.

To start a lesson, select **Virtual Flight Instructor** located in the **Options** menu. When a dialog appears, select the lesson you want to view.

Click “OK”, and RealFlight does the rest. You will see the instructor’s aircraft fly the maneuver. You’ll hear the instructor’s voice, explaining how it’s done. You can watch the instructor’s actual stick movements using an onscreen, digitized R/C radio.

The main window will show the instructor’s plane. The onscreen radio will show the instructor’s stick movements.

WHERE TO GO FROM HERE

Now that you’ve received a brief overview of the simulator, we encourage you to explore RealFlight further using some of the methods below.

- If you’d like to learn more about a particular menu or item, look it up in this manual’s table of contents.
- If you’d like RealFlight to do something, but can’t find an appropriate command, check this manual’s index.
- Use the Help facilities in RealFlight’s “Help” menu.

- Talk to other RealFlight users. When you visit http://www.knifeedge.com, check out our discussion board.

CHAPTER 4. USING REALFLIGHT

INTRODUCTION

Chapter 3 took you on a brief tour of some of RealFlight's most popular features found in the NexSTAR Edition. This chapter will provide you with a broad overview of all RealFlight features, and advise you how and where to find detailed information about the features that most interest you.

PROGRAM FEATURES

SUMMARY OF FEATURES

- **Next generation graphics technology**— RealFlight takes complete advantage of today's state-of-the-art 3D accelerated video cards, providing the smoothest and most realistic flight experience possible. RealFlight uses incredibly detailed, 24-bit textures on aircraft, trees, buildings and landscape to add to the authenticity.
- Uses **VirtualRevolution™** sound technology— Doppler-correct stereo sounds heighten the realistic effect with actual recordings of an R/C engine. And as the aircraft crosses the field, the engine sound follows, just like its R/C counterpart. Aside from the various ambient noises such as other pilots conversing and birds chirping, RealFlight includes numerous CD-quality soundtracks in a variety of musical styles and original compositions.
- Uses **RealPhysics™** technology— True to the physics of flight, RealFlight's exclusive RealPhysics technology performs hundreds of thousands of floating point operations each second. RealPhysics delivering sizzling real time flight performance and accuracy.
- **VFI (Virtual Flight Instructor)—** VFI gives you personal flight lessons from Mike Cross, a full-time aircraft designer and award winning R/C pilot. Using VFI, you can select a maneuver (i.e. loop, roll, etc.) from an extensive list. VFI then demonstrates the maneuver onscreen, performed by an expert. While you watch, the voice of the

pilot/instructor will explain how to perform the maneuver. You can even watch your instructor's control stick movements in real time to determine proper stick input!

- **Flight Playback Gadget—** Much like a VCR, this feature also allows you to: pause, speed up, slow down, and loop the Virtual Flight Instructor's performance. The pilot has the option to activate the digitized transmitter display so that he/she can view the radio input while flying.
- **Collision Detection—** The collision detection feature senses when the aircraft "bumps" into an object, and causes a crash- just as it would at the field.
- **Control Panel—** The RealFlight NexSTAR Edition's Control Panel allows for easy one-click program updating, online registration, and technical support.
- **Animated control surfaces—** The control surfaces and propeller move for added realism and authenticity.
- **Extensive Help materials—** RealFlight features extensive online ToolTips and diagrams, a detailed manual and technical support to enhance your enjoyment of the program.

WINDOWS XP, 2000, ME AND 98SE COMPATIBLE

RealFlight is a native 32-bit program, designed for Windows XP/2000/ME/98SE. It uses Microsoft's DirectX 8.1 to provide cutting-edge graphics realism.

GRAPHICS

- Supports Gouraud shading, bilinear textures, and dithering.
- Next generation, high quality 3D objects.
- Realistic shading on all objects, including the NexSTAR.
- Transparency. RealFlight uses transparencies to model the airplane propeller for added authenticity.
- High-resolution graphics, including visible panel lines and moving control surfaces, for added realism and authenticity.
- Optimization-- Graphics Optimization sliders allow the user to customize the resolution of the textures, the graphics, and the terrain independently to achieve the most realistic look and "feel" for the simulation. The controls also allow the user to tailor the program to optimize the performance to his/her PC.
- Airplane features moveable control surfaces: ailerons, elevators, rudders, etc., as well as movable prop for added authenticity.

SOUND

- CD-quality soundtrack features a variety of musical styles and original compositions; includes ambient sounds typically heard at flying sites.

- Doppler-correct stereo effects. As the aircraft crosses the field, the engine sounds follow; just like its R/C counterpart.

PHYSICS

- The exclusive RealPhysics technology calculates hundreds of thousands of floating point operations each second, delivering sizzling real time flight performance and unmatched accuracy.
- RealFlight's physics have undergone countless of hours of testing and revisions to ensure that the models not only have a lifelike appearance but also perform just like their r/c counterparts as well.
- RealFlight features detailed collision detection.
- Simple "point-and-click" menus and extensive ToolTips to guide you.

TRANSMITTER INTERFACE FEATURES

This awesome interface brings you:

- Full USB compatibility. The Transmitter Interface plugs directly into your computer's USB port with little, if any, additional setup required.
- High-speed data transfer ensures rapid, digitally precise response to your control input.
- Hot pluggable—connect/disconnect your Transmitter Interface adapter without shutting down or rebooting the PC.
- Total control with your actual R/C transmitter. You'll get the 'feel' for controlling the NexSTAR with the same unit you'll be using at the field.

GRAPHICS AND SOUND QUALITY

The makers of RealFlight continually work to bring you the most realistic graphics and sound possible, since we feel that these are important contributions to your simulation experience. To do so, we take full advantage of modern video and sound hardware. However, we still provide you with extensive, detailed control over graphics and sound quality, so that you can usefully run RealFlight NexSTAR Edition on computers with widely varying speed, power and performance.

FRAME RATE

Frame rate is usually described as how fast the computer can compute and display a new "snapshot". In other words, it is the rate at which **frames** (the individual pictures that are shown in sequence to create the illusion of motion) are displayed in a film or video. Frame rate is measured in frames per second (fps). Like a movie picture, when stills are quickly flashed by, RealFlight creates a sequence of frames that provide the illusion of motion. Television is flickering the pictures at 30 times

per second (30FPS). A typical movie theater displays about 24/48FPS. RealFlight can produce output ranging from 2FPS to over 150FPS.

Frame rate is a function of many things and cannot be "set" by the end user. It is a combination of:

- Computer Speed
- Video card speed
- Sound card speed
- How many optional airport items are selected
- 3D technology selected

In order for the simulator to work best, you should run at a high enough frame rate so that you do not notice the picture moving from one frame to the next. Rather, it should appear as a smooth, fluid motion. If you observe any "stop-and-go" motions from the simulation, there are several things that may improve the frame rate. *For more information, please see "Improving RealFlight Performance" on page 57.*

GRAPHICS QUALITY

RealFlight is capable of many different levels of graphics quality, some of which are entirely dependent upon the video hardware and monitor used. Control graphics variables to configure the simulation to attain the highest possible performance using either the "Graphics Optimizations" or "Direct3D" items in the **Options** menu.

SOUND QUALITY

In order to use your sound card with RealFlight, the sound card must support Microsoft's DirectSound. Many sound cards accelerate the mixing of multiple sounds. RealFlight will take advantage of any acceleration that the card supports. This acceleration will free up your CPU, thereby increasing your frame rate.

TECHNICAL SUPPORT

Besides providing the best R/C simulator, we sincerely feel that we provide the most extensive product support for any R/C simulator. Since cards, drivers, operating systems, etc. are always changing, we work hard to keep our support up to date on the latest issues and problems RealFlight NexSTAR Edition users might encounter.

We provide a wide variety of sources for information, help and advice about installing, using, and resolving problems with RealFlight (as well as our other software products). These sources range from a detailed, publicly accessible product knowledge base, to live technical support, to discussion boards. Should you encounter any problems with RealFlight access any of these sources, many with a click of the mouse or telephone call.

To learn more about RealFlight's many support options, please see "Appendix C. If You Experience Difficulties With RealFlight …" on page 53.

CHAPTER 5. THE NEXSTAR USB TRANSMITTER INTERFACE

ADDING TO THE REALISM

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

With this in mind, we at Great Planes are proud to offer our NexSTAR USB Transmitter Interface.

The NexSTAR USB Transmitter Interface

Features of the NexSTAR USB Transmitter Interface:

- **USB compatibility and convenience**. The ultimate convenience of "plug and play", "hot pluggable" installation and removal, as well as the high-speed digital performance made possible by Universal Serial Bus (USB) technology.
- **Use your Actual R/C transmitter.** The Transmitter Interface allows you to use your NexSTAR transmitter to control the action. This is a great way to familiarize yourself with the controller before heading to the flying field.
- **Easy setup and use**. Pre-calibrated so you don't even have to calibrate your NexSTAR transmitter, unlike other computer joysticks. Simply plug it in and go!

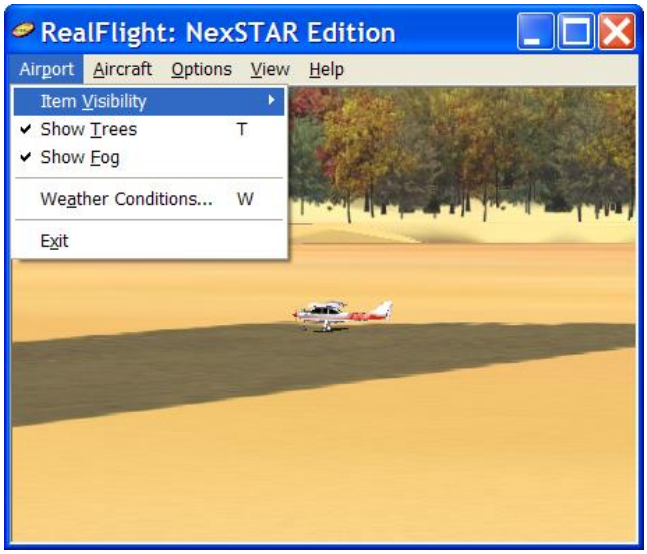
START FLYING!

When you start RealFlight for the first time, the NexSTAR controller is automatically calibrated and ready for use. Simply add throttle and start flying right away.

CHAPTER 6. THE AIRPORT MENU

AIRPORT MENU OVERVIEW

The **Airport** menu allows you to access all airport-related features and options. When you open up the pull-down menu, you will see:



The items in this menu are:

- Item Visibility
- Show Trees
- Show Fog
- Weather Conditions…

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

ITEM VISIBILITY

Use this item to determine whether to show or hide scenery objects in the airport. Moving the mouse cursor over this menu item creates a submenu with a list of items you can show (make visible) or hide (remove from visibility). To show items, select them (check them in the submenu). Conversely, to hide items uncheck them.

SHOW TREES

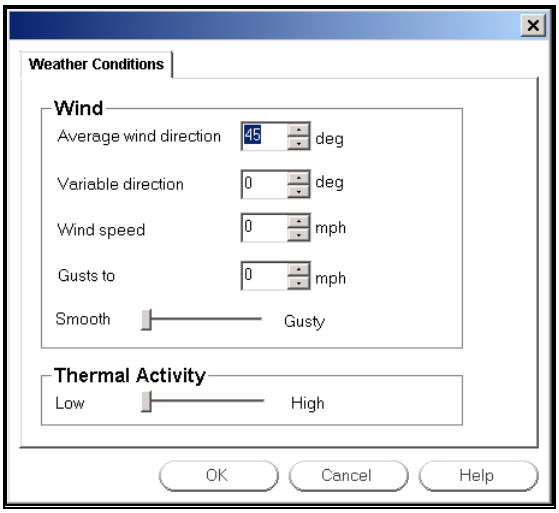
This item lets you determine whether or not the trees/foliage will be visible. This is the universal controller of all the trees/foliage. If this item is checked, then the trees/foliage will be visible. Removing the checkmark will eliminate the trees.

SHOW FOG

Select this item to toggle "on/off" the Fog options for RealFlight. This option may also be toggled on/off with the keyboard "F". Please note, not all video cards support the fog option.

WEATHER CONDITIONS

Select this item to adjust the weather conditions such as wind speed, gust strength, wind direction and thermal activity.



AVERAGE WIND DIRECTION

This indicates the prevailing direction of the wind. "0" degrees is North, "90" degrees is East, "180" degrees is South and "270" degrees is West. The prevailing direction may be adjusted anywhere between "0" degrees and "360" degrees.

VARIABLE DIRECTION

This indicates, in degrees, how the wind direction will vary. If this field reads "0" degrees, the wind direction will remain steady. However, if the field indicates "360" degrees, then the wind may vary through all directions.

WIND SPEED

This field indicates the prevailing wind speed. This is the constant wind speed.

GUSTS TO

This indicates the wind gust speed. The wind speed will intermittently increase to this speed. The Gust slider setting controls the frequency of the wind gusts.

GUST SLIDER

This slider is used to adjust the strength of the wind gusts. If the slider is set to smooth, the simulation will provide an unrealistically smooth flight. Gusty, on the other hand, will provide a simulation that will challenge even the most skilled of pilots.

THERMAL ACTIVITY

This slider indicates the current thermal activity. If the slider is adjusted to the "higher" side of the settings, there are stronger thermal currents. The thermals appear in random locations and will have random strengths. Over time, they will move from one place to another. You can tell when your plane has entered a thermal by watching the plane carefully. When the plane starts to rise quickly, then you have found a thermal. Quickly turn around and try to stay in that thermal to gain altitude.

CHAPTER 7. THE AIRCRAFT MENU

AIRCRAFT MENU OVERVIEW

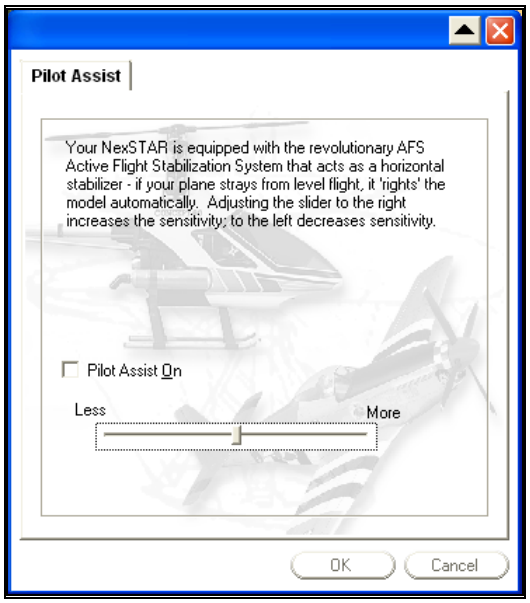
This menu accesses all aircraft related features and options. When you open the **Aircraft** menu, your display will be similar to the following:

The items in this menu are:

- Use Pilot Assist…
- Reset Position
- Kill Engine

USE PILOT ASSIST

Clicking this item opens a dialog box that allows you to control the Pilot Assist System, or the AFS.



The AFS helps you maintain a straight and level flight. If the NexSTAR strays from level flight, you can return the gimbals to the center, or neutral, position and the AFS will automatically level the aircraft for you.

To turn on the AFS, click the "Pilot Assist On" checkbox. To adjust the sensitivity, move the slider from "less" to "more". If you are just beginning, start off further to the "more" side of the slider to increase the sensitivity. As you become more comfortable flying, reduce it towards the "less" end of the slider. The goal is to get to the point where you are comfortable flying without it on.

RESET POSITION

Click on this item to reset the aircraft to the takeoff point. You can accomplish the same task by pressing the keyboard's space bar.

The aircraft will automatically reset itself after a crash.

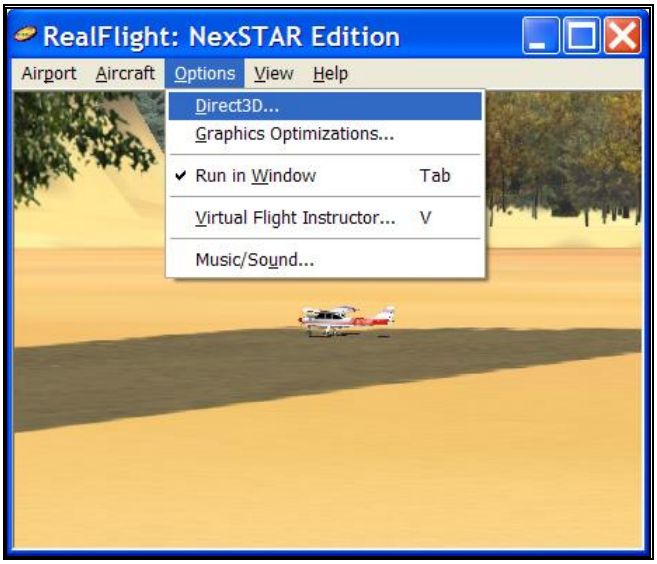
KILL ENGINE

Click on this item to stop the motor from running. This is useful in practicing dead-stick landings. Alternatively, you may also press the keyboard "K".

CHAPTER 8. THE OPTIONS MENU

OPTIONS MENU OVERVIEW

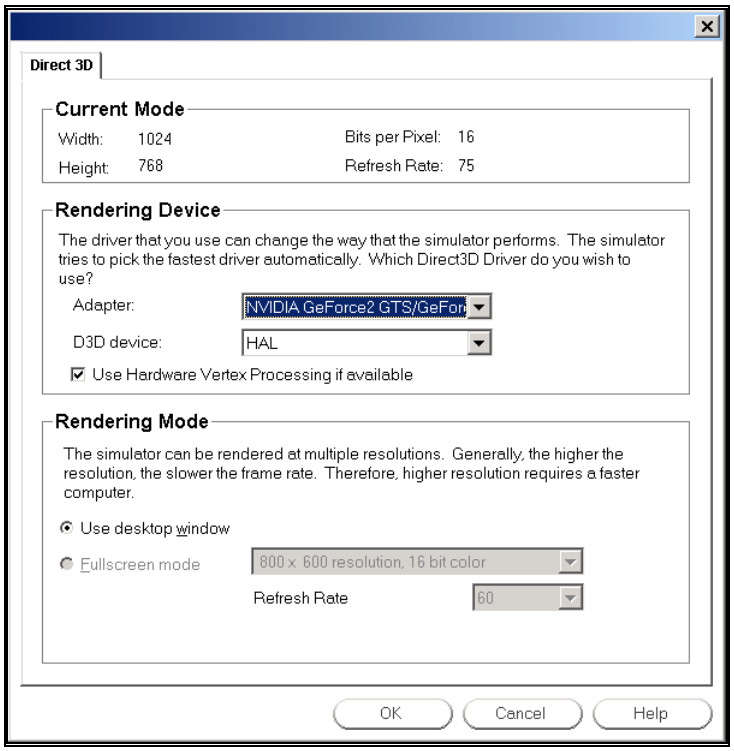
The **Options** menu controls several RealFlight program features. Items in this menu include:



- Direct 3D…
- Graphics Optimizations…
- Run in Window
- Virtual Flight Instructor…
- Music/Sound…

DIRECT3D

Select this item to control settings for your 3D video card.



CURRENT MODE

This displays the current screen width, the height and the bits per pixel. Additionally, if your monitor's current refresh rate is known, it will also be displayed.

ADAPTER

If you have more than one Direct3D compatible video card, they will both be listed here. Please choose the card you wish to use for the simulation.

RENDERING DEVICE

Each card may offer different devices, although most cards will only offer the HAL interface.

USE HARDWARE VERTEX PROCESSING IF AVAILABLE

Check this box if you wish to use the hardware vertex processing. Most of the time you want this option enabled. If you experience difficulties with the graphics, try disabling this option. If disabling this option fixes your problem, then contact your video card manufacture and notify them of this difficulty.

You can look in the **Graphics Optimizations** dialog (*See "Graphics Optimizations" on page 25 to see if your card supports Hardware Vertex Processing*).

RENDERING MODE

The RealFlight NexSTAR Edition may operate in either Window mode, or in Full Screen Mode.

WINDOW MODE

The Window mode screen size is dictated by the settings that you have selected in the Display Properties for your monitor. If the simulation is run in the Window Mode, the RealFlight menus will always appear at the top of the screen for easy access. It is possible to change the resolution of the desktop at any time by going to **Start**, **Settings**, **Control Panel (appearance and themes), Display**.

Please note: if you are using a 32 Bit Color display mode for your desktop, it will not render as quickly as choosing a 16 Bit Color display mode.

FULL SCREEN MODE

Selecting this option will allow RealFlight to use the entire monitor screen. If you are running in Full Screen Mode, the RealFlight menus will not appear on the screen. To access the menu, press either the ESCape key or the ALT key on the keyboard.

RESOLUTION

In full screen mode only, you can use this control to adjust the screen resolution and color depth. If your frame rate is unacceptably low, you can improve it by reducing the resolution or color depth. This will reduce some of the rendering required of your video card.

Resolution determines both the sharpness of the picture and how many colors will be used to render the picture. To illustrate resolution, here is the same image of a plane at two different resolutions.

640 x 400 Resolution

1600 x 1200 Resolution

Notice how much clearer the higher resolution picture is. On some computers, higher resolutions cause the program to run much slower. Selecting the ideal resolution for your computer requires a delicate balance between quality and speed.

REFRESH RATE

This feature adjusts the refresh rate of your monitor (Full Screen Mode only).

This controls only the *refresh* rate, not the *frame* rate.

Refresh rate is the number of times per second that your monitor retraces its video display. Your video hardware (monitor and graphics card) dictates what refresh rates you can use.

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 are activated.

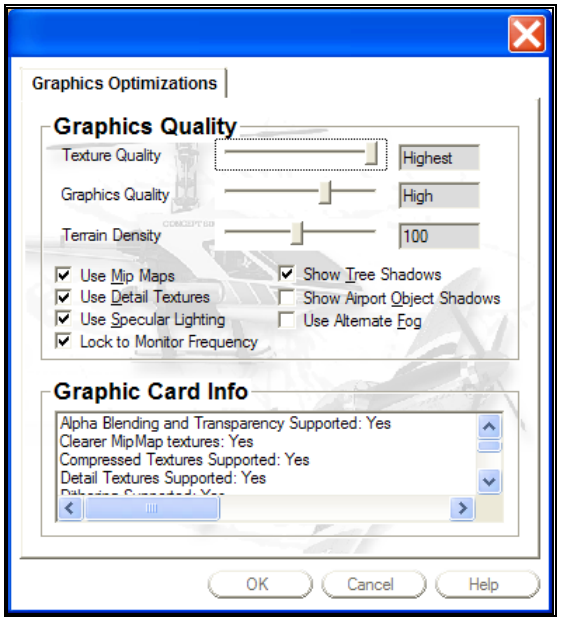
Use this control to set the refresh rate for Full Screen Mode. If RealFlight is unable to determine what refresh rates your card supports, this control will display "0." Higher refresh rates have less "flicker" and usually cause less eye strain.

For suggestions on increasing RealFlight's frame rate, see "Improving RealFlight Performance" on page 57.

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

GRAPHICS OPTIMIZATIONS

Select this item to access the Graphics Optimizations dialog:



This dialog controls a wide variety of the graphics performance options in the simulator.

While RealFlight NexSTAR Edition attempts to optimize your system's performance, these controls will enable you to further fine-tune the simulation to suit your personal taste.

TEXTURE QUALITY SLIDER

As the name suggests, this slider controls the texture quality of the simulator. Moving the slider to the right will increase the texture resolution. Higher resolutions will improve the realistic appearance, but may also slow down the frame rate.

GRAPHICS QUALITY SLIDER

This slider controls several graphics aspects of the RealFlight simulation (for example, shadow quality), allowing you to tweak the simulation for optimum performance. Higher graphics quality will improve the realism, but may also slow down the frame rate.

TERRAIN DENSITY SLIDER

Increasing the values of the Terrain Density will increase the resolution of the terrain thereby giving it a more life-like appearance. Higher resolution will improve the realism, but may also slow down the frame rate.

USE MIPMAPS

Click this check box to activate the MipMaps feature. Turning this feature "off" may cause unwanted "sparkling" on distant objects, or on object surfaces that are viewed at large angles. Using MipMaps improves realism, but may slow down the frame rate.

USE DETAIL TEXTURES

Click this check box to use detailed textures at your flying site. This increases the detail and sharpness on surfaces (the ground in particular). Using the detailed textures feature improves realism, but may slow down the frame rate.

USE SPECULAR HIGHLIGHTING

Click this check box to use the Specular Highlighting feature. This feature makes smooth objects appear shiny in reflected light. Using the Specular Highlighting feature improves realism, but may slow down the frame rate.

SHOW AIRPORT OBJECTS SHADOWS

Click this check box to show the shadows that are cast by the airport objects such as buildings, walls, etc. Using the feature improves realism, but may slow down the frame rate.

SHOW TREE SHADOWS

Click this check box to show the shadows that are cast by the trees. Using the feature improves realism, but may slow down the frame rate.

GRAPHICS CARD INFO

This panel displays information pertaining to your graphics card. This is an easy way to determine whether or not your current graphics card will support a certain feature or function.

RUN IN WINDOW

Select this item to determine whether the RealFlight NexSTAR Edition will run in the Window Mode or in Full Screen Mode. If checked, RealFlight will run in the Window Mode. If unchecked, the program will run in Full Screen Mode.

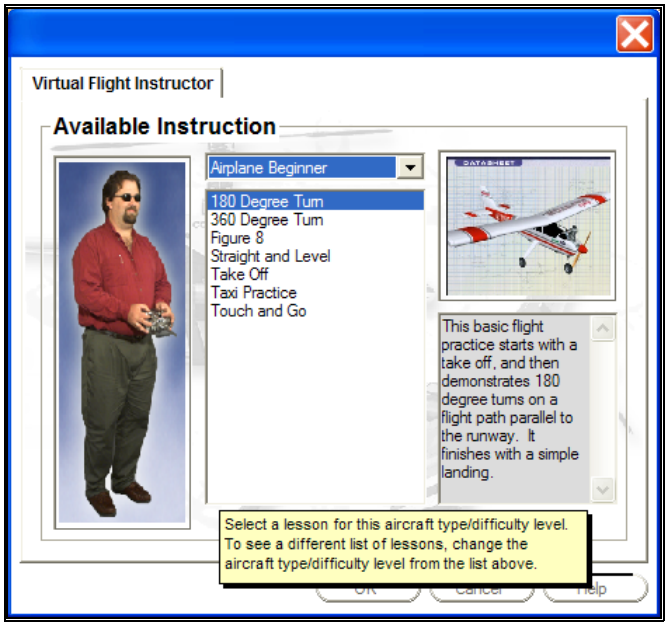
Please note, not all video cards support Full Screen or Windows Modes. You may only use modes that your video card is capable of supporting.

VIRTUAL FLIGHT INSTRUCTOR

Would you like to learn how to do a maneuver? With RealFlight NexSTAR Edition's **Virtual Flight Instructor** feature, you'll receive a personal flying lesson from a pro.

Mike Cross, an airplane designer and two-time IMAC freestyle champion, will take you through the fixed wing maneuvers.

When you select this item, the following dialog will appear:



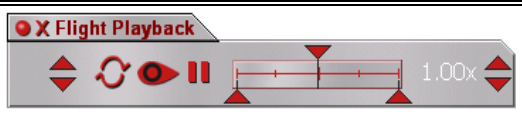
Select the maneuver that you wish to learn, and then click **OK**. RealFlight will show you a recording of the NexSTAR, piloted by Mr. Cross, performing the maneuver. During the maneuver you'll hear the instructor's voice instructing you how to do the maneuver. You can simultaneously watch the instructor's stick movements on the onscreen radio gadget.

When you are done, you can end the instruction by closing the Playback Gadget.

VIRTUAL FLIGHT INSTRUCTOR GADGETS

To close the gadget, click on the red "X" on the gadget's title tab. To move any gadget, drag by its title tab. To resize the radio gadget drag the edge of the gadget.

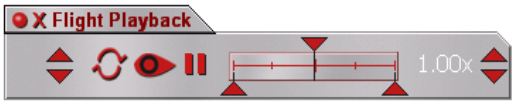
The list of gadget items is as follows:

Gadget	Preview
Flight Playback Gadget lets you control the playback of a Virtual Flight Instruction.	

Radio Gadget lets you view the stick movements of the instructor's transmitter.	

FLIGHT PLAYBACK GADGET

The Flight Playback gadget lets you easily control the playback of the VFI lessons using simple mouse clicks. It features VCR-like controls that start or pause playback, speed up or slow down playback speed, etc.



SELECT RECORDING

Although not applicable to the NexSTAR Edition software, if you were running more than one recording, select the recording you wish to control by clicking on the gadget's up or down arrows. The number on the gadget will increase or decrease; this number indicates the list number of the recording the gadget is currently controlling.

Once you have selected the recording you want to control, click on the gadget's buttons to control the recording.

Again, this option is not active on the RealFlight NexSTAR Edition software.

LOOP PLAY

The arrows that form a circle are used to loop the recording (i.e., continuous play).

LOOK AT RECORDING

Click on the "eye" to start the playback. Clicking on the "eye" will cause it to illuminate. As long as the eye is illuminated, you will continue to view the current recording. If you have multiple recordings playing simultaneously, and wish to look at a different recording, click the up/down arrow while this "eye" is illuminated.

PAUSE

The "II" button pauses playback if the recording is playing. After you have paused, click this button once again to play the recording. This button will be illuminated when the pause feature has been activated.

POSITION OF RECORDING

Use the slider control to choose the portion of the recording you wish to view. In other words, you can have the recording playback start in mid-recording, or end in mid-recording. Drag the lower arrow to set the playback start point, and the right

arrow to set the playback end point. As you play the recording, the top arrow tracks to show you what playback time segment you are currently viewing. You can set to a different playback segment by dragging the top arrow.

PLAYBACK SPEED 

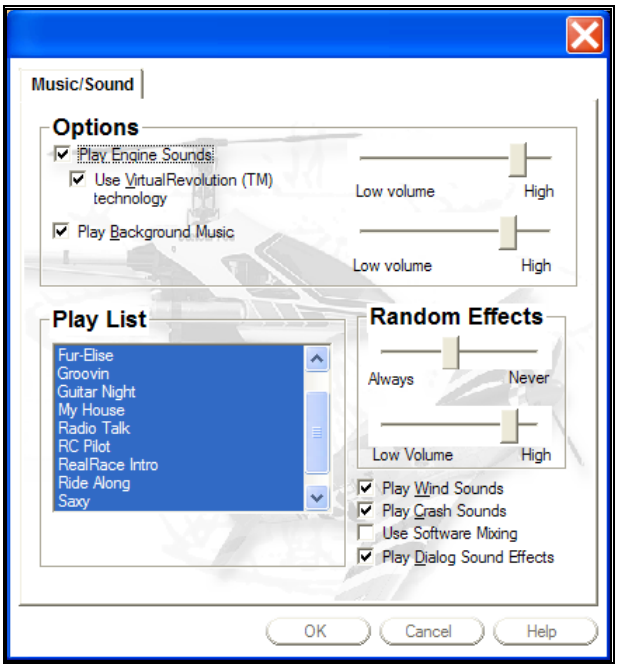
The number on the far right side is the speed at which the playback will occur. You can adjust the playback speed by clicking on the up/down arrows next to the number. To increase playback speed, click on the up arrow. To reduce playback speed, click on the down arrow. You can use this when you're learning a maneuver from a recording—adjust the playback speed to watch the maneuver in slow motion.

RADIO GADGET

If this selection is checked, the onscreen transmitter will appear. This transmitter offers a digital recreation of the transmitter onscreen. This digital transmitter mimics the stick input in real-time. The radio gadget always shows the stick inputs. This serves as a visual aid in the training process and an onscreen reminder for the proper stick inputs.

MUSIC/SOUND

Music and sound effects add another dimension to your simulation experience. You can choose to fly to background music or you can listen to the ambient sounds of a local flying field. If you want some random "jeering," then turn on the random effects. If you have a slow sound card or a slow machine, you may not be able to turn "on" all of the sound effect options.



PLAY ENGINE SOUNDS

Select whether or not to play the engine sounds. Engine sounds are an important part of the simulation; providing you with an audible indication of the NexSTAR's speed and distance.

You will appreciate the Doppler- correct engine sounds as your NexSTAR goes screaming by you!

ENGINE SOUNDS VOLUME SLIDER

Use this slider to adjust the sound level of the engine.

USE VIRTUALREVOLUTION TECHNOLOGY

VirtualRevolution engine technology makes the engine sound correct at both idle and full power and everywhere in between. This sounds the best, but requires more computer memory and will slow down the frame rate on slower computers.

PLAY BACKGROUND MUSIC

Select whether or not to play the CD-quality background music. This can slow down the rendering speed. Use this option only if you have a fast computer.

MUSIC VOLUME SLIDER

This slider is used to adjust the sound levels of the background music in the simulation.

PLAY LIST

Select which songs and ambient background tracks to play. Highlight songs on the play list to turn them "on."

RANDOM EFFECTS SLIDER

This slider displays the frequency of the "random" sound effects. Adjust the slider to make them occur as in/frequently as you would like.

RANDOM EFFECTS VOLUME SLIDER

This slider displays the volume of the Random Effects.

PLAY CRASH SOUNDS

Select whether or not to play the crash sounds when the NexSTAR crashes.

PLAY DIALOG SOUND EFFECTS

Select whether or not to play the sound effects while navigating the dialogs.

PLAY WIND SOUNDS

Select whether or not to play the wind sounds when wind is enabled.

USE SOFTWARE MIXING

This box indicates whether to use the CPU or the Sound Card to mix the audio. By turning on Software Mixing, you force the CPU to do the mixing; this may be a little slower, but may sound better.

CHAPTER 9. THE VIEW MENU

VIEW MENU OVERVIEW

The **View** menu controls all options and settings for *views*. The term **Views** describes *what you are looking at*, and how you are looking at it.

When you open the pull-down **View** menu, you will see the following items:

- Binocular View
- Zoom Reset
- Zoom In
- Zoom Out
- Look at My Aircraft
- Look at Wind Sock
- Look at Ground

BINOCULAR VIEW

The binocular view is used to maintain a constant zoom level. This view is particularly useful for observing an aircraft's orientation when it is far away.

ZOOM RESET

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

You can also reset the zoom level by pressing the "F1" key.

ZOOM IN

This selection will zoom in on the NexSTAR. Alternatively, the "F2" key has the same effect. RealFlight will incrementally zoom in on the NexSTAR each time the function key: "F2" is pressed or Zoom In is selected.

ZOOM OUT

This selection will zoom out from the NexSTAR incrementally. Alternatively, each time the "F3" key is pressed the program will zoom out, incrementally, from the NexSTAR, thus giving a larger perspective of the area surrounding your airplane.

LOOK AT MY AIRCRAFT

Select this option to look at the NexSTAR that you are piloting. Alternatively, you may press the "F9" key.

LOOK AT WIND SOCK

Select this option to look at the wind sock instead of your airplane. To stop looking at the wind sock and return to viewing your airplane, select Look at My Aircraft (described above).

Pressing the Left Arrow key on your keyboard will briefly change the view to look at the wind sock and then move back to viewing the NexSTAR.

LOOK AT GROUND

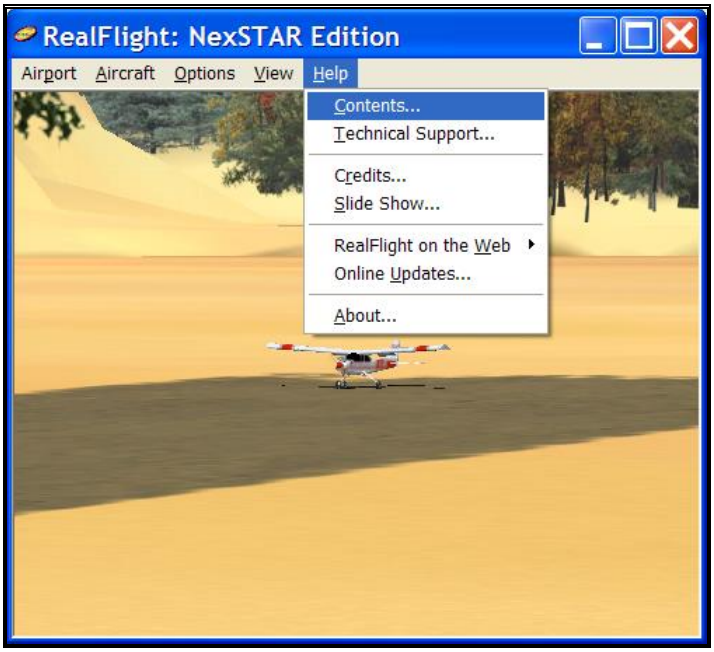
Select this option to look at the ground beneath the viewpoint option. This selection will always retain the ground in the vantage point. This is helpful in altitude orientation. To turn off this option, select Look at My Aircraft (described above).

For a temporary look at the ground, press the Down Arrow key on your keyboard. This will briefly change the view to include the ground before switching back to the default view of your airplane.

CHAPTER 10. THE HELP MENU

HELP MENU OVERVIEW

Should you experience any difficulties (or just want to find out more about RealFlight NexSTAR Edition and its features), the **Help** menu has several resources to assist you. When you open the pull-down menu, you will see several options:



- Contents…
- Technical Support…
- Credits…
- Slide Show…
- RealFlight on the Web
- Online Updates…
- About…

CONTENTS

This opens up RealFlight's help files. The help files contain information similar to this manual.

TECHNICAL SUPPORT

If you should have any difficulties running RealFlight, consult this item. You can access online troubleshooting information, or contact our technical support staff.

CREDITS

Select this item to see the names of some of the people who contributed to the RealFlight NexSTAR Edition.

SLIDE SHOW

The slide show is designed to provide you with a brief overview of the full RealFlight G2 software. The complete version of the software offers many, many exciting options, features and functions that are not found in the NexSTAR Edition.

REALFLIGHT ON THE WEB

REALFLIGHT WEB SITE

This is the main web site for all RealFlight software.

See it now: http://www.realflight.com

GREAT PLANES WEB SITE

This is the web site for Great Planes, the publishers of RealFlight.

See it now: http://www.greatplanes.com

KNIFE EDGE SOFTWARE WEB SITE

This is the web site for Knife Edge Software, the developers of RealFlight.

See it now: http://www.knifeedge.com

GP SOFTWARE SITE

Visit this site for information about our software products, including RealFlight NexSTAR Edition and RealFlight G2. The site includes our online product Knowledge Base. This is the same problem-solving database our product support staff uses to help RealFlight owners resolve difficulties.

See it now: http://www.gpsoftware.com

ONLINE UPDATES

This menu launches the RealFlight Control Panel. See "Appendix B. *RealFlight* Control Panel" on page 42.

CHAPTER 11. USING THE KEYBOARD TO ACCESS REALFLIGHT COMMANDS

KEYBOARD MAPPING (HOT KEYS)

RealFlight allows you to access menu and other commands from your computer's keyboard. A key that invokes a command is called a **quick key** or **hot key**. These keys provide a quicker way of accessing functions or features.

For example, pressing the "F2" key incrementally zooms your view towards the aircraft. This is exactly the same result that arises if you select **Zoom In** from the RealFlight **View** menu. Consequently, we say that "F2" is a hot key for the Zoom In command.

Please note when a particular menu has a hot key, it will appear to the right of the menu selection.

KEYBOARD MAP

The table below contains a list of every key that is assigned to a RealFlight command. Alongside, you can find the default mapping for this key.

Assignable Keys	Default Mappings	Where to find information on this command
Down Arrow	Look at Windsock	"Look at Wind Sock" on page 33
Left Arrow	Look at Ground	"Look at Ground" on page 33
K	Aircraft: Kill Engine	“Kill Engine” on page 21
T	Show Trees	"Show Trees" on page 18
V	Virtual Flight Instructor	“Virtual Flight Instructor” on page 27
W	Weather Conditions	
F1	View: Zoom Reset	“Zoom Reset” on page 33
F2	View: Zoom In	“Zoom In” on page 33
F3	View: Zoom Out	“Zoom Out” on page 33
F9	View: Look at my Plane	“Look at My Aircraft” on page 33
Space bar	Aircraft: Reset Position	“Reset Position” on page 21
Tab	Run in Window	"Run in Window" on page 26

APPENDIX A. FLYING THE AIRCRAFT

AIRPLANE BASICS

CENTERING

Trim tabs are the small slider controls on the controller (two per controller stick). They are used to "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 trim. You can do this by sliding the elevator trim, a click or two at a time, towards the bottom of the controller.

CRASHING

While takeoffs are optional, landings are mandatory. Successful landings are a crucial skill to master.

The key to a perfect landing is undivided concentration. Pay close attention to the altitude of the aircraft as well as its orientation to the runway. Use each crash as a learning experience to perfect your approach and the landing itself.

RealFlight includes several tools to help you during the approach and landing. See "Landings" below for ideas.

AIRPLANE FLIGHT

RealFlight recreates the flight characteristics of the NexSTAR, allowing you to practice your R/C flying without worrying about expensive crashes. Additionally, RealFlight is ideal for practicing new maneuvers and experimenting. 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 doesn't 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. Rather, it will help you enhance your experience with the simulator.

TAKEOFFS

When you are taking off, start with the throttle in low position and slowly increase the 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, you can climb off the runway by gradually pulling back on the elevator. If the plane is tracking well, apply the rest of the power more quickly, climbing out and gaining altitude.

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

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), the wing can break, resulting in lengthy down time.

Start by aligning your plane with the runway. Fly the approach normally, using your throttle to control the rate of descent. Try to land at the slowest speed possible. As you touch down it is important to keep the NexSTAR's nose up!

RealFlight has several tools to help you practice landings.

- Before you try to land yourself, you may want to review the process with the Virtual Flight Instructor. In the **Options** menu, select "Virtual Flight Instructor"; when a dialog appears, select the "Touch and Go" lesson.
- You can also activate the Look At Ground feature. In the **View** menu, select "Look at Ground." This option will cause the simulator to always keep the ground in perspective, regardless of aircraft location.

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.

RUDDER MANAGEMENT

Planes can, more or less, effectively be flown with just the elevator and ailerons. But, good pilots will tell you that rudder is just as important. 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.

TAKE CRASHES SERIOUSLY

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
- 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 can learn. Take the crashes seriously. Learn from each one and you will be a better pilot out at the field.

APPENDIX B. REALFLIGHT CONTROL PANEL

REALFLIGHT CONTROL PANEL

The RealFlight Control Panel is a separate application, designed to work in conjunction with RealFlight NexSTAR Edition.

RUNNING THE CONTROL PANEL

There are three ways to run the RealFlight Control Panel.

- Insert the CD into the drive. If Auto-Play is active, then the RealFlight Control Panel will start on its own.
- If RealFlight is already installed, click the **Start** button in the Windows Task Bar. In the **Start** menu, select **Programs/RealFlight/RealFlight Control Panel**.
- If RealFlight is already running, choose "Online Updates…" from the **Help** menu.

RUNNING REALFLIGHT

To start running RealFlight, press the **Run RealFlight** button on the Control Panel. (Note: if RealFlight is already running, the Control Panel will not let you start up a second RealFlight window.)

UNINSTALLING REALFLIGHT

To Uninstall RealFlight, press the **Uninstall RealFlight** Button. The following dialog will appear:

If you choose to uninstall using the "Add/Remove Programs" feature in Windows, it will start the RealFlight Control Panel. Just press the **Uninstall RealFlight** button as mentioned above. Uninstalling via the RealFlight Control Panel will ensure that all necessary RealFlight files are removed.

UNINSTALL PROGRAM

Choose this option to uninstall only the RealFlight program itself.

REMOVE SERIAL NUMBERS

Choose this option to remove all RealFlight serial numbers from your system.

REMOVE CACHED FILES

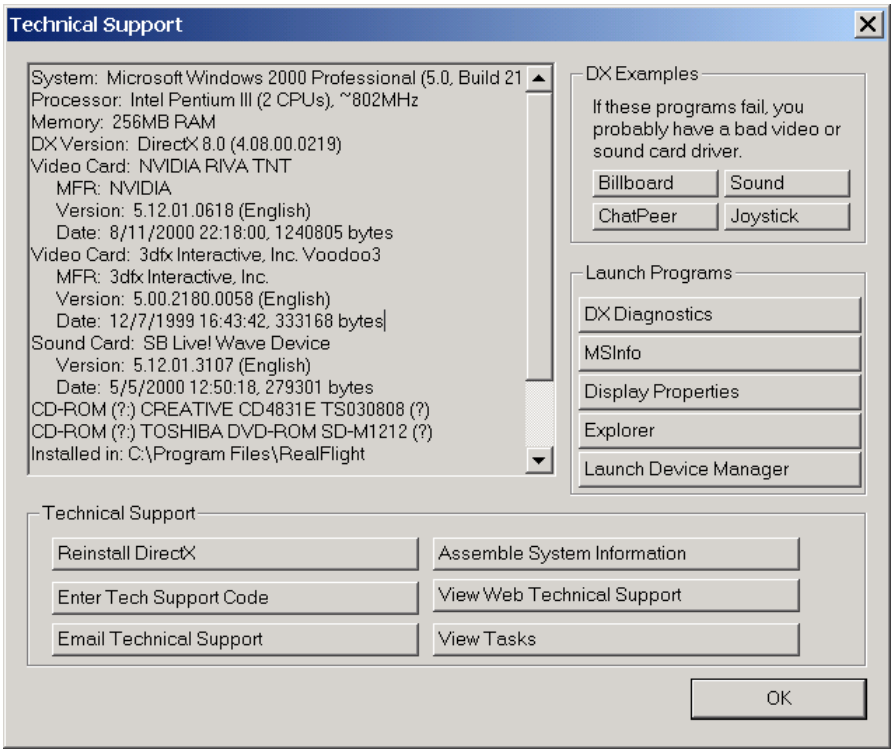
Choose this to option to remove all cached download files from your system. If you uninstall these files, future downloads may take a little longer.

READ HELP FILE

Press the **Read Help File** button to bring up the help file for RealFlight.

TECHNICAL SUPPORT

Press the **Technical Support** button to bring up technical support information about your system. If you encounter any problems with RealFlight, this information can help you to resolve it on your own, or can help Great Planes' Support Staff to rapidly 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 be of great assistance to them in diagnosing the difficulty.

DX EXAMPLES

Press these buttons to run sample DirectX programs written by Microsoft. They are very basic programs that test your DirectX installation and hardware. If these samples don't run correctly, then your problem lies either with your DirectX installation, or with your hardware drivers (usually video or sound).

To resolve these problems you should first contact your video/sound card manufacture for updated drivers. ***This is very important***. Card manufacturers frequently update their drivers to fix problems that arise. Even if you have just

purchased a new computer system there may be a more recent driver available for download.

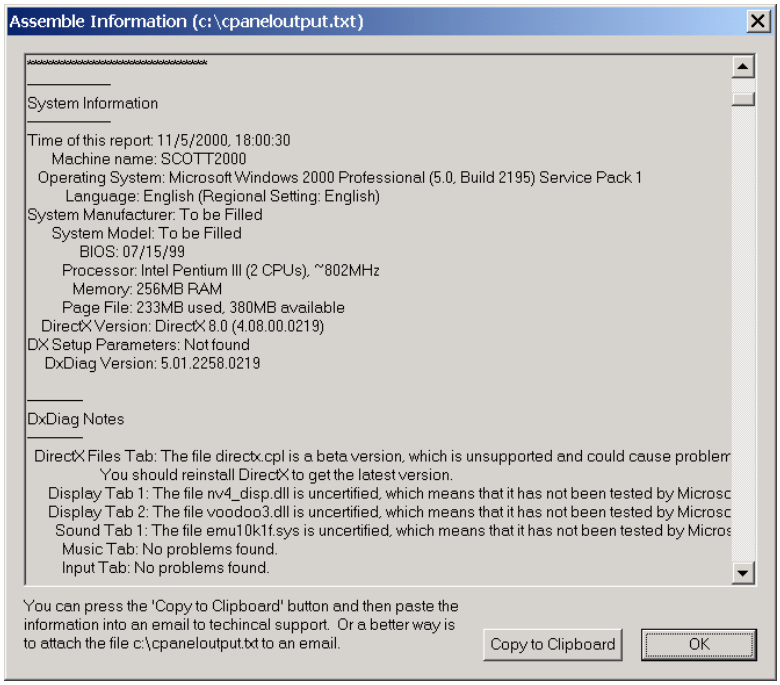
If you are sure you have the latest drivers, you may need to reinstall DirectX, or update your version.

REINSTALL DIRECTX

This option reinstalls Microsoft's DirectX. Occasionally this will fix corrupted installations.

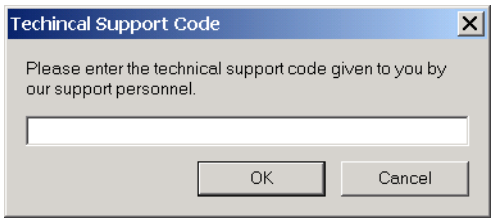
ASSEMBLE SYSTEM INFORMATION

This option collects 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 Technical Support. When you use the online registration to register RealFlight, this is the hardware information that is sent to Great Planes.



ENTER TECHNICAL SUPPORT CODE

Choose this option to enter a technical support code. If you encounter difficulties running RealFlight, our Technical Support team may supply you with a support code to input. Entering this code will assist them in diagnosing or resolving your difficulty.



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 NexSTAR Edition.

EMAIL TECHNICAL SUPPORT

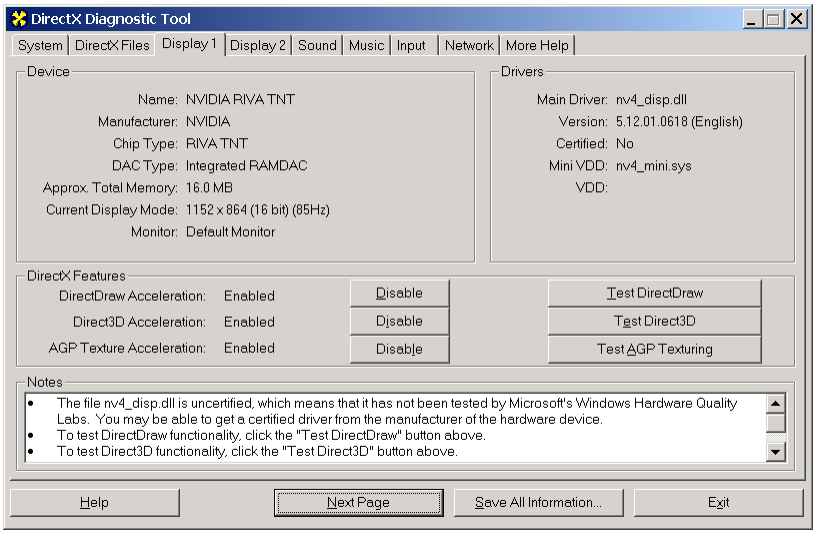
This provides you with the address (rfnexstar@greatplanes.com) to which you can email your difficulties. If you do email us, please be sure to include the **Assemble System Information** output in your email.

VIEW TASKS

This displays a list of all tasks running on your PC. Some tasks can interfere with RealFlight and may need to be closed. Our Technical Support team will be glad to help you close problem tasks.

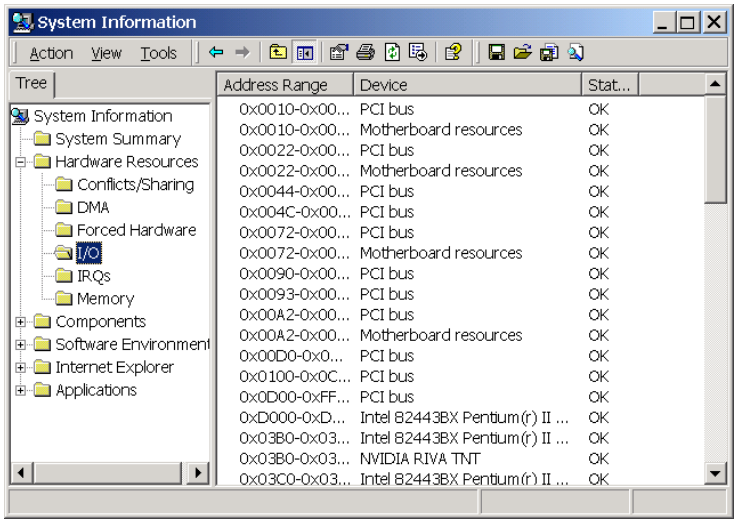
DX DIAGNOSTICS

This brings up Microsoft's DirectX Diagnostic Tool. Using this utility can further help diagnose your system. (Important: if you send us information about your system to help us diagnose a difficulty, please ***do not*** use DXDIAG to generate that information. Instead, please use the "Assemble System Information" feature [see above]. The "Assemble System Information" output file contains more information than the DXDIAG output.



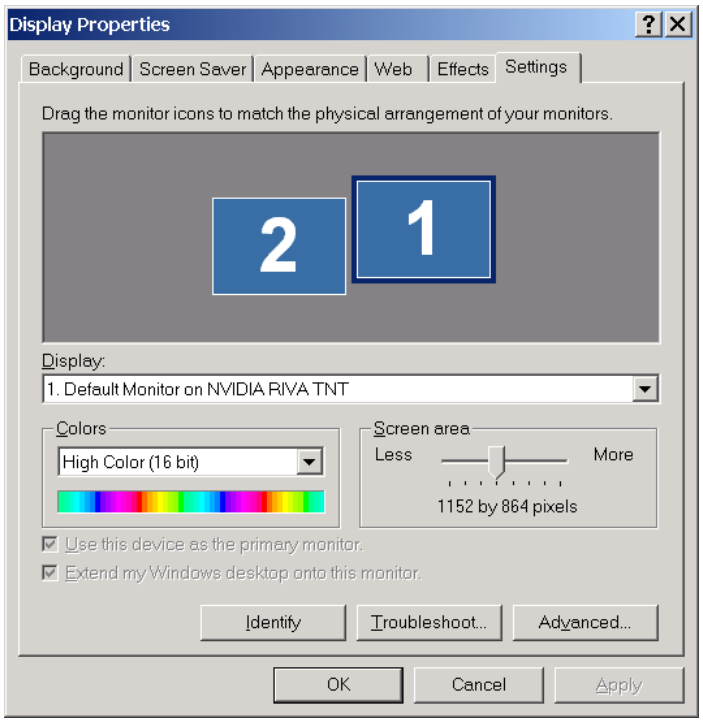
MSINFO

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



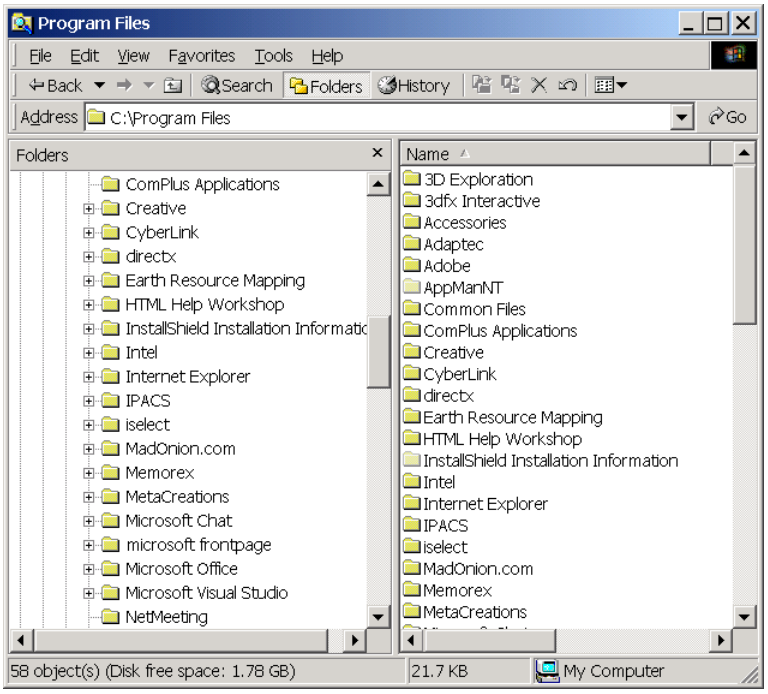
DISPLAY PROPERTIES

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



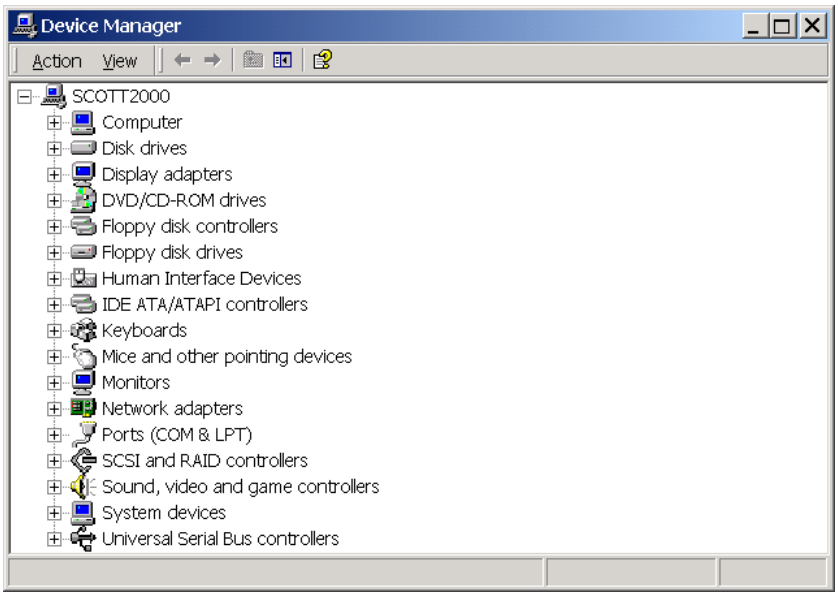
EXPLORER

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.

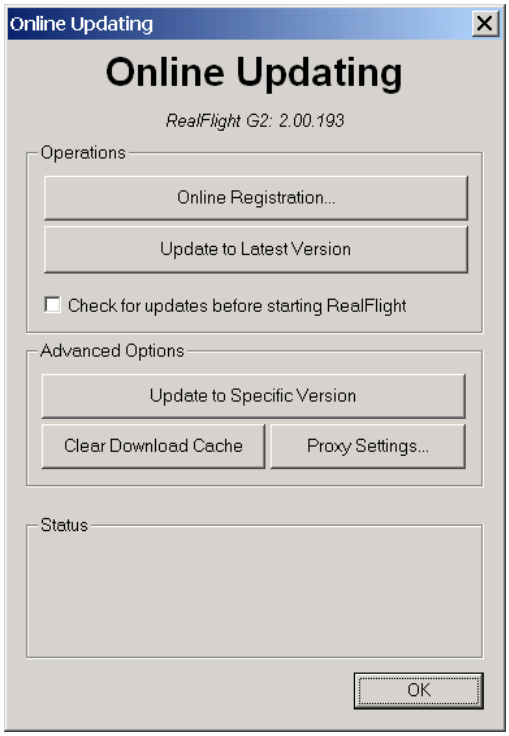


VIEWING DOCUMENTS

This lets you view important documents that come with RealFlight.

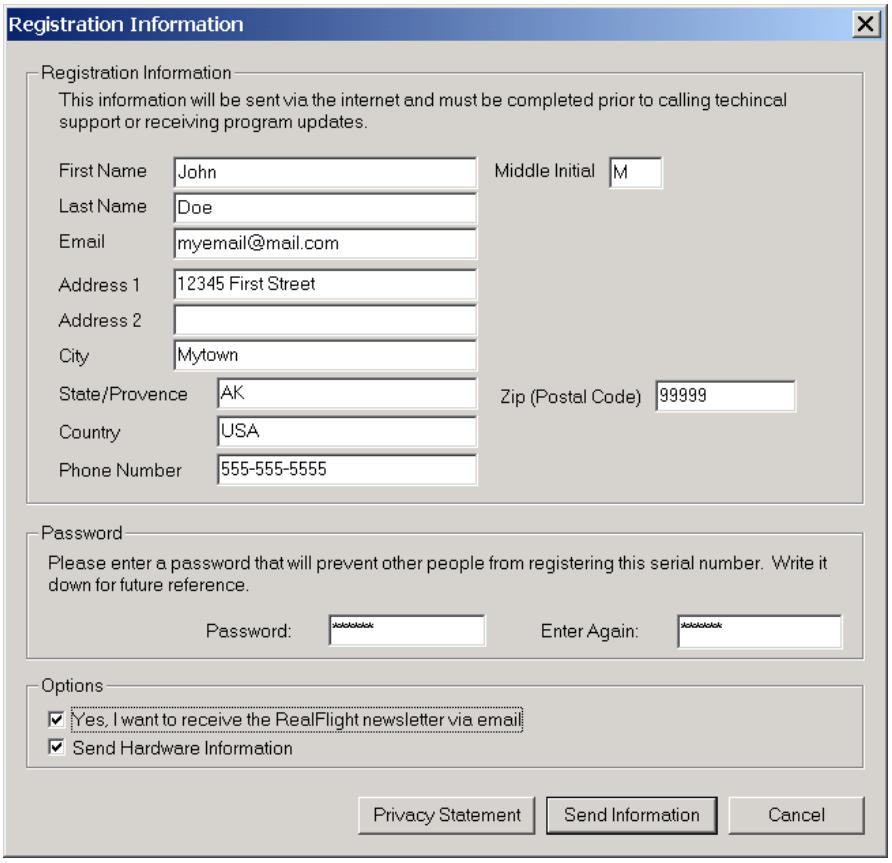
ONLINE UPDATES

We are proud to bring you a cutting edge way of updating RealFlight NexSTAR Edition. You can download and install the latest version with a single button click.



REGISTRATION

By registering the program you are eligible for Free online updates and technical support.



Please enter the necessary information. If you forget your password, contact Great Planes Support. To do so, email them at rfnexstar@greatplanes.com or telephone them at 217-398-8970 (option #1). They will confirm your identity, and issue you a new password.

HARDWARE INFORMATION

If you leave the "Send Hardware Information" box checked when you register RealFlight automatically transmits information pertaining to your system hardware and settings.

This information will assist us in rapidly diagnosing any difficulties you may encounter, should you need to contact Technical Support. As such, we suggest that you leave this box checked when registering.

This is entirely optional. If you uncheck the box, the registration RealFlight will not send any information about your system. Additionally, you can view the information RealFlight will send us before you decide. To view this information, click the **Technical Support** button on the RealFlight Control Panel. When the **Technical Support** page appears, click **Assemble System Information**.

UPDATING TO THE LATEST VERSION

After registering (you only need to register once), you can update to the latest version. This will download all necessary files and automatically install the update.

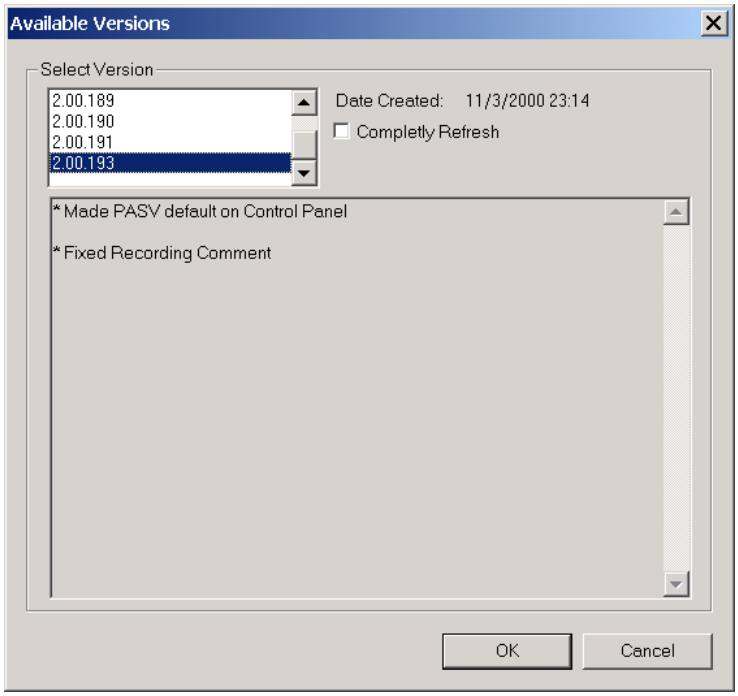
CHECK FOR LATEST UPDATES BEFORE RUNNING REALFLIGHT

If you check this box, then every time you run the RealFlight Control Panel, the system will check to see if there is a more recent version of RealFlight available. If so, the Control Panel will then ask you if you want to download and install it. Note: In order to do so, your PC must be connected to the Internet.

ADVANCED OPTIONS

UPDATE TO SPECIFIC VERSION

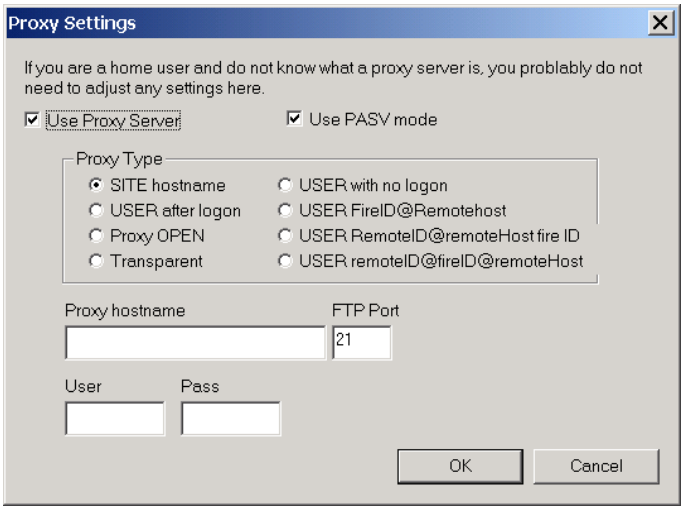
If you experience difficulties with any version, you can actually *go backwards* and retrieve a previous version. If the previous version fixes your problem, please contact our technical support team at **rfnexstar@greatplanes.com** and let them know about the problem encountered.



CLEAR DOWNLOAD CACHE

Occasionally files will become corrupted on download. If you are experiencing difficulties with the Online Updates, try removing all cached files using this option. Next, choose **Update to Specific Version** and select the **Completely Refresh** option.

PROXY SETTINGS



If you are behind a firewall that restricts FTP access, you may need to change the proxy settings in order for **RealFlight** to get the latest updates. ***Most home users will keep the Proxy Server OFF.***

If you do need to use the proxy server, contact your network administrator to determine the appropriate settings.

PROBLEMS UPDATING?

Here are some possible problems that might occur when updating.

BAD INTERNET CONNECTION

You either don't have access to the Internet, or the FTP server is unavailable. Attempt to connect directly to the Internet using your browser. If you are behind a proxy server, then adjust the proxy settings.

SERVER UNAVAILABLE

The server may be down or may be overloaded. Please try again later. If this problem persists, contact technical support for further information.

APPENDIX C. IF YOU EXPERIENCE DIFFICULTIES WITH REALFLIGHT …

IN GENERAL

This simulator is on the cutting edge of technology, and runs using advanced hardware. Consequently, there is always the possibility you may experience some difficulties. Should the need arise, we provide extensive resources to help.

In addition to 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, operating systems, etc. are always changing, we work hard to keep our support up to date on the latest issues and difficulties RealFlight users might encounter.

This section starts with a summary of the various sources of RealFlight information, support, and problem solving assistance. Then, we'll show you some **simple but powerful steps** that can resolve or prevent most RealFlight difficulties. Finally, if these steps don't solve your problem, we'll show you the most effective ways to acquire additional assistance.

HOW TO GET HELP AND INFORMATION

As a RealFlight NexSTAR Edition user, you have access to an incredible amount of information about this product. Much of this information will help you resolve problems, or correctly access and use program features. Here's where you can find it:

- **The manual**. You can solve most common RealFlight problems by following the instructions in later sections of this chapter. Additionally, other manual chapters explain RealFlight NexSTAR Edition's features in greater detail.
- **Online Help**. You can access all of this manual's material directly from RealFlight's Help menu. This help file is indexed and searchable.
- Visit our product **Knowledge Base** at http://www.gpsoftware.com. This great resource is an indexed, searchable collection of articles that described solutions to almost every known problem with RealFlight, RealRace, and all our other software products. This is the very same

information database that our product support technicians refer to when assisting customers.

- Visit the home page of Knife Edge Software, the makers of RealFlight, RealRace and other R/C simulation products or access the **Message Boards** through http://www.knifeedge.com. 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.
- Contact our **Product Support** department by email at: rfnexstar@greatplanes.com or by phone or postal mail at:

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

  They are specially trained, and have a lot of resources, to help you resolve problems with RealFlight.

BEFORE YOU DO ANYTHING ELSE…

Should you experience any difficulties with RealFlight, try the steps below prior to contacting Software Support. These steps really do cure most problems our users experience. Even if you aren't having a problem, these same steps often help make RealFlight, and your computer, work better.

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.
- If the problem persists, run the DirectX test programs.
- If these steps don't work, read on 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 problems 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 these video and sound card drivers to function properly.

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

If you don't know how to update drivers, you can find instructions in our Knowledge Base article ***Q01-1038, How to Update Drivers***, at

http://www.gpsoftware.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

As we regularly release program updates, the difficulty that you are seeing may already be fixed in an update.

To update, use the RealFlight control panel (see "Appendix B. RealFlight Control Panel" on page 42.

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 (**Billboard**, **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 8.1 compliant driver.

You can run the samples using the RealFlight Control Panel. Open the Control Panel, click "Technical Support," and then look for the "DX Examples" box. Click a button to run a sample program.

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

If your RealFlight problem also occurs in **Billboard**, the problem lies with your video driver and not RealFlight. 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 some 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 These Steps Don't Work…

If the steps above don't work, please read on to the next section.

IF YOU NEED ADDITIONAL ASSISTANCE…

You've updated drivers, updated RealFlight, and your system successfully runs the DirectX sample programs, and you are still having problems. What next?

First, check our knowledge base at http://www.gpsoftware.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 assisting customers. We are constantly updating the knowledge base to address new difficulties 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 Discussion Boards at http://www.knifeedge.com. 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 difficulty that you are experiencing.

You can also contact Product Support at Great Planes via email at: rfnexstar@greatplanes.com

IMPORTANT. If you do contact Product Support, it is of great assistance if you provide 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 get your system information, use the RealFlight Control Panel. In the control panel, click the **Technical Support** button, followed by the **Assemble System Information** button. This will create a file called "c:\cpaneloutput.txt", which contains your system information. Attach this file to our email. Alternatively, you may paste this information within the body of the email.

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 problems and solutions in a program manual. RealFlight--and the computers, cards and drivers it uses--are constantly evolving. As such, we maintain a detailed Knowledge Base at http://www.gpsoftware.com. By keeping our Knowledge Base online, we can provide you with the latest information about resolving problems that RealFlight users are currently experiencing. 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, AND I NEED TO REBOOT TO REGAIN CONTROL.

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 (also called "special purpose", "alternate", or "beta" driver). If RealFlight "freezes" with the "recommended" driver, try using an alternate driver instead.

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

IMPROVING REALFLIGHT PERFORMANCE

During installation, RealFlight analyzes your computer's hardware specifications. RealFlight 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'd expect, you can adjust some of RealFlight'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. Use CTRL-ALT-DELETE to ensure that nothing else is running in the background.
- Run the simulation in **Full Screen** Mode (in the **Options** menu, uncheck the **Run in Window** option). Alternatively, if you are running in Window Mode (**Run in Window** option is checked), alter the screen resolution from 32-bit to 16-bit color. Also, decrease the size of the RealFlight window.
- Reduce the texture quality. This can have a profound effect on cards that do not have a high texture memory. You can adjust texture quality on the Graphics Optimization page *(See "Graphics Optimizations" on page 25.)*
- Eliminate the **Airport Objects Shadow** using the **Graphics Optimizations** page (*See "Graphics Optimizations" on page 25)*
- Eliminate the **Detail Textures** using the **Graphics Optimizations** page (*See "Graphics Optimizations" on page 25)*
- Reduce the number of open Gadgets. Click the "X" on each Gadget that you wish to close.
- Disable the trees. In the **Airport** menu, uncheck the **Show Trees** option (this will make all trees and foliage disappear from your flying field). *(See "Show Trees" on page 18)*

OTHER COMMON PROBLEMS

Here are some other things you may want to keep an eye out 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 30MB 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 a 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.

- Ensure that all other programs are closed prior to starting RealFlight. 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 continuous use. A simple reboot may clear up any difficulties.
- Ensure that your computer is running in at least 16-bit color resolution. You can verify this by right clicking on the Windows desktop and selecting "Properties". Then, click on the "Settings" tab and check the color palette box.

GLOSSARY OF TERMS

3D Acceleration

3D operations require huge amounts of calculations. Modern video cards offload many of these calculations to the 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.

AFS

This is the Pilot Assist Link Auto-Pilot System, the device that is used to assist entry-level pilots in achieving R/C success. Optical sensors read the difference between light (sky) and dark (horizon), then automatically adjust pitch and roll to stabilize the plane.

Aileron

Hinged control surfaces located on the trailing edge of the wing, one on each side, which 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 is moved upward and the left hand *aileron* downward, and vice versa for a left roll or turn.

Airfoil

This is the cross-section shape of a surface (e.g., wing) that produces lift. *Airfoils* usually have some sort of a "tear drop" shape.

Auto-Play

Automatically detects when a CD-ROM is inserted and runs the specific program on the CD-ROM.

Bilinear Textures

Smoothes textured pixels together. This can cause a blurry appearance but can also improve the overall appearance.

CG

CG is the abbreviation for the phrase *Center Of Gravity*. This is the point at which the airplane balances fore to aft, and side-to-side. The location of this point is crucial to how the airplane reacts in the air. A tail-heavy plane will be very snappy, but generally unstable and susceptible to more frequent stalls. Conversely, a nose-heavy airplane 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.

Collision Detection

The collision detection feature senses when the aircraft “bumps” into an object, and causes a crash.

Control Panel

The RealFlight *Control Panel* is useful for many aspects of the simulation. For details on the purpose and functionality of the *Control Panel*, *See "Appendix B. RealFlight Control Panel" on page 42.*

Control Surface

Generally defined as the portion of the wing that moves. This is usually the ailerons, elevator, rudder, flaps or spoilers.

Controller

A device used to control the NexSTAR airplane in the simulation. This is also referred to as the transmitter.

Dihedral

The V-shaped bend in the wing. Typically, more *Dihedral* causes more aerodynamic stability in an airplane, and causes the rudder to control both the roll and yaw axis. This is why some trainers and sailplanes require only 3 channels of radio control (i.e., have no ailerons).

Direct3D Technology

Used to render the 3D image when you have an accelerated graphics card. It works best on faster computers.

DirectX

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

Dithering

Blends the pixels together to produce a smoother image. This can also simulate colors that may not be available to you.

Down Thrust

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

A software program that controls a card (e.g., video or sound card) in your computer. The card's manufacturer usually provides its *Driver* as well. Manufacturers frequently update their *Drivers* to fix bugs, or 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 web site of the card's manufacturer, and following links to "Drivers," "Support," "Downloads", or "Upgrades."

Elevator

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, and vice versa to dive.

Flap

For Airplanes: Hinged control surface located at the trailing edge of the wing inboard of the ailerons. The *Flap*s 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.

Flight Playback Gadget

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

Frame Rate

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.

Fuselage

This is the main part of the airplane that holds the wings and engine. 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

Maker of quality R/C products.

Gadget

An onscreen display that shows you continuously updated information about your aircraft, or lets you control RealFlight features using mouse clicks.

Gyro

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

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.

Hot Pluggable/Hot Swappable

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.

PhotoField

A technology that creates a flying field by using a panoramic photograph as a background for a flat terrain. RealFlight offers you a choice of two display styles for airports: *Photofield* or 3D Terrains. 3D Terrains are more realistic, but *Photofield* may render more quickly if you have an older, slower computer or graphics card.

Pitch Axis

The airplane axis 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.

Propeller

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

RAM

RAM is short for, Random Access Memory. This is generally thought of as the computer's main memory.

RAMP

A software-only rendering technology that is usually faster than RGB. Please note: although it renders faster, it does so at the expense of quality.

RealPhysics

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

Refresh Rate

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

Resolution

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

Roll Axis

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.

Rudder

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

The electromechanical device that moves the control surfaces or throttle of the airplane according to commands from the receiver. This device does the physical work inside the aircraft.

Sound Card

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

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

Stall

This is what happens when an airplane's angle of attack is too great to generate lift, regardless of airspeed. During a S*tall*, the plane will dive and rapidly lose altitude. Every airfoil has an angle of attack at which it generates maximum lift. The airfoil will *Stall* beyond this angle.

ToolTip

A yellow popup window that appears when you hold the mouse cursor over a RealFlight dialog item. The text in the *ToolTip* window describes the item's function.

USB

USB, or *Universal Serial Bus*, is a connection protocol for computer peripheral devices. This includes the RealFlight NexSTAR Edition's USB Transmitter Interface Adapter. *USB* technology allows you to connect multiple devices to your computer, and supports high data transfer rates and hot swappable. *USB* devices have a special connector that only fits into a *USB* port. Most modern personal computers have *USB* ports, which are clearly labeled.

Video Card

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.

Virtual Flight Instructor

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

VirtualRevolution

This is the exclusive, Doppler-correct, sound technology used by RealFlight.

Washout

An intentional twist in the wing, causing 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 prevent tip stalls.

Wing Loading

This is 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: If you know the square inches of the wing, 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 numbers must fly faster to stay in the air. These are generally "performance" airplanes. Conversely, planes with lower numbers do not need as much air flowing around the wing to keep it flying. Gliders and trainer airplanes fall into this category because slow, efficient flight is desirable.

Yaw Axis

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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