NaturalPoint®

TrackIR™

TrackIR Software Version 3.10 Manual

Forward

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Contents

1.   How To Use This Manual

1.1.   Quick Start

We strongly recommend reading this manual before using your TrackIR gaming controller. Of course, we know that many of you want to jump in and start experimenting as soon as possible. If that describes you, then you can get going by doing the following:

- Read the **Installation** section thoroughly and follow the instructions described there. Otherwise your TrackIR may not work.

- Once the software is installed, make sure the TrackIR is attached to the USB port of your computer

- Place a reflective dot (26 are included with your TrackIR) on your head, glasses, microphone or a hat.

- Launch the TrackIR software. There should be a shortcut to it on your desktop.

- Start playing!

1.2.   Further Reading

It will quickly become evident that the TrackIR software is a powerful gaming tool with a number of options designed to help you get the most out of your TrackIR device. It is recommended that you read the *Getting to Know the TrackIR* section, the *Overview* section, and the *Using the TrackIR software with Games (Basic)* sections. If you decide to learn more about customizing game presets, we also recommend the *Customizing Game Profiles* section.

2.   Installation

2.1.   What's Included

- 1 TrackIR
- 26 Dots
- CD-ROM with TrackIR Software & Manual

2.2.   Preparing For Installation

NOTE: YOU **MUST** INSTALL THE TRACKIR SOFTWARE BEFORE ATTACHING THE TRACKIR GAME CONTROLLER TO YOUR COMPUTER. OTHERWISE, THE TRACKIR WILL NOT WORK PROPERLY.

NOTE: IF USING A USB HUB WITH THE TRACKIR, MAKE SURE THAT IT IS EXTERNALLY POWERED (PLUGS INTO THE WALL). FOR BEST PERFORMANCE AVOID USING A USB HUB.

2.2.1.   Minimum System Requirements

Your computer must meet the following criteria to use the TrackIR:

- Windows 98SE, Windows ME, Windows 2000, or Windows XP
- Pentium 166
- Five (5) megabytes of free hard disk space
- 24 megabytes of RAM
- 1 Available USB port

2.2.2.   Before Installation

If you have not yet done so, we suggest that you check the support section of the TrackIR website at http://www.trackir.com/ for the latest version of the TrackIR software before installing. NaturalPoint often adds support for new games and features, and the most recent version of the software may not be included with your TrackIR device.

If you plan on using the TrackIR with Microsoft Flight Simulator 2002 or 2004, we recommend installing the sim before installing your TrackIR.

HINT for XP users:

It is recommended that before installing any new hardware or software program that you set a system restore point. XP provides this feature to allow you to reset your system to a previous state very easily. After the software is installed and everything is working fine, set another restore point. Users that get into the habit of using this feature find they have fewer problems on their computers. The System Restore program can be found by clicking *Start/Programs/Accessories/System Tools/System Restore.*

2.2.3.   If You Currently Have TrackIR or SmartNAV Software Installed

It is recommended that you uninstall any previous versions of the TrackIR or SmartNAV software before installing the latest software version.

Note: Although they are similar in appearance, the SmartNAV and TrackIR are very different devices, each with their own features and capabilities. TrackIR and SmartNAV software cannot be installed at the same time and the new TrackIR software will automatically uninstall previously installed versions of TrackIR or SmartNAV software.

2.2.4.   Registry Changes for Windows 2000 & XP Users.

If this is a first time install, you will get a request to reboot but it is not required.

If you have previous versions of SmartNAV or TrackIR software, installed, then this software will automatically uninstall those versions as a standard part of the installation. You will also be given the option remove any previous or old device drivers and registry settings. We recommend that you let TrackIR remove these files to eliminate compatibility and driver conflicts. A reboot will then be required before plugging in the TrackIR.

Note for X-Keys Users:

The presence of X-Keys has been known to cause problems when trying to install the TrackIR.

If you have X-Keys installed, it is highly recommended that you uninstall X-Keys before starting the install of the TrackIR as some of files needed by X-Keys may be deleted or changed. After TrackIR is installed, reinstall X-Keys and everything should work fine.

2.3.   Software and Hardware Installation

NOTE: Windows 2000 and XP users must be logged in as an administrator. If you only have one user set up on your computer, you most likely already have administrator privileges.

1. Insert the included TrackIR software CD into your computer's CD-ROM drive. Wait for the install program to start. If the install program does not start within a few minutes, double click on the CD-ROM drive icon, and then double click on the 'Setup' file (from your computer's My Computer menu).

2. Follow the software installation instructions.

3. A new TrackIR icon will appear on your desktop.

4. Connect the TrackIR device to the USB port of your computer and place the unit on top of your monitor with the front facing the same direction as the monitor screen.

Special Notes for XP Users

5. The Windows XP Found New hardware Wizard should appear once you plug in your TrackIR .The Wizard will indicate that is has found the NaturalPoint TrackIR, and ask if you would like Windows to install drivers for the hardware automatically, or choose from a list of drivers in a specific location.

6. Select "Install Automatically".

7. A Hardware Install Warning message will appear after you have selected "Install Automatically". Click on the button marked "Continue Anyway" and "Finish".

8. Windows XP will now display a message indicating that it has finished installing the NaturalPoint TrackIR

9. It is recommended that you restart your computer after installation.

If you encounter further problems with this procedure, please consult the trouble-shooting guide at the end of this manual.

NOTE: IF YOU ACCIDENTALLY PLUGGED THE TRACKIR UNIT INTO YOUR COMPUTER BEFORE LOADING THE NATURALPOINT SOFTWARE, UNPLUG THE TRACKIR UNIT AND GO THROUGH THE INSTALL PROCEDURE AS INSTRUCTED. AFTER COMPLETING ALL 9 STEPS, GO TO THE WINDOWS XP DEVICE MANAGER, CLICK ON USB DEVICES AND LOOK FOR A LISTING MARKED "UNKNOWN USB DEVICE." IF THIS LISTING APPEARS, RIGHT CLICK ON UNKNOWN USB DEVICE AND DELETE IT. IF UNKNOWN USB DEVICE DOES NOT APPEAR, YOU MAY CLOSE THE DEVICE MANAGER AND BEGIN USING THE TRACKIR.

3.   Getting to know the TrackIR

The TrackIR is a unique gaming controller that lets you use your head as a gaming input device. It uses infra-red technology to bounce an invisible beam of light off of reflective material mounted on or near the users head, and translates this information to viewing and motion commands on screen. With the TrackIR properly installed and calibrated for your individual gaming preferences, you will experience head motion as a very natural way to look around and view anything in a game environment, adding to the realism, excitement, and your skill level within a variety of games. It is easy to use and quick to learn, and many users can get up and running without ever opening the manual. However, the information provided below can insure that you get the most out of your investment in the TrackIR.

3.1.   Getting Started

Before using your TrackIR gaming controller you should follow these instructions:

- Mount the TrackIR In front of your head, as close to level with it as you can get it. This is usually best accomplished by placing the unit on top of your computer monitor. If using a laptop, the TrackIR can be clipped to the top of your screen.

- Plug the TrackIR gaming controller into your computer

- Place a reflective dot on your head, or put on a hat, headset or glasses with the reflective material on it (such as the NaturalPoint TrackHAT)

- Launch the TrackIR software.

3.2.   Modes of Operation

3.2.1.   Mouse Emulation (relative)

Mouse Emulation is the TrackIR's default mode of operation. Just as it sounds, in this mode the TrackIR acts as a cursor control device, allowing you to use it in any situation where you can currently use a mouse.

This is also known as **relative** mode, because it understands the cursor's position only in *relative* terms (this is the same way a mouse works). For instance, move the cursor to the far left edge of the screen using the TrackIR and then continue to move your head left. You will notice that the moment you begin moving your head back to the right, the cursor will move from the edge and it will reach the center of the screen long before your head is re-centered. This situation can be easily remedied by hitting the re-center button (F12 by default) once your head has returned to a comfortable center position.

3.2.2.   TrackIR Enhanced (absolute)

TrackIR Enhanced mode brings a far more powerful set of controls to the user, turning the TrackIR into a game controller that works separately from the mouse. Indeed in many games the TrackIR can be used at the same time as the mouse for a separate function. For example, in a tactical first person shooter, the TrackIR can change your view while the mouse moves the sight of your gun within the screen. However, for these types of features to function, a game must specifically enable TrackIR Enhanced mode.

Please check the TrackIR web site at www.trackir.com for a complete list of current and upcoming games that are TrackIR Enhanced.

This mode is also called **absolute** mode, because while in it, a game can track head movement anywhere within the TrackIR's field of view, even if it has moved beyond the edge of the screen. For instance, while looking around in the Microsoft Flight Simulator virtual cockpit, get up from your chair and sit down again. As long as you are sitting in a position similar to the one you were before the TrackIR will be able to find the center of the cockpit again without hitting the re-center key (F12 by default).

4. Using the TrackIR software

The TrackIR software is the interface between the TrackIR, the computer, and you, the user. It *must* be running to use your TrackIR. It is recommended that you run it minimized while playing games, as it takes up the fewest system resources in this mode (less than 3% on most PCs).

4.1. Overview

The TrackIR software is separated into 5 screens: **Main**, **HotKeys**, **Motion**, **Tracking**, and **Profiles**. In addition, there is a **Status Bar** always visible at the bottom of the program.

4.1.1. Main Screen
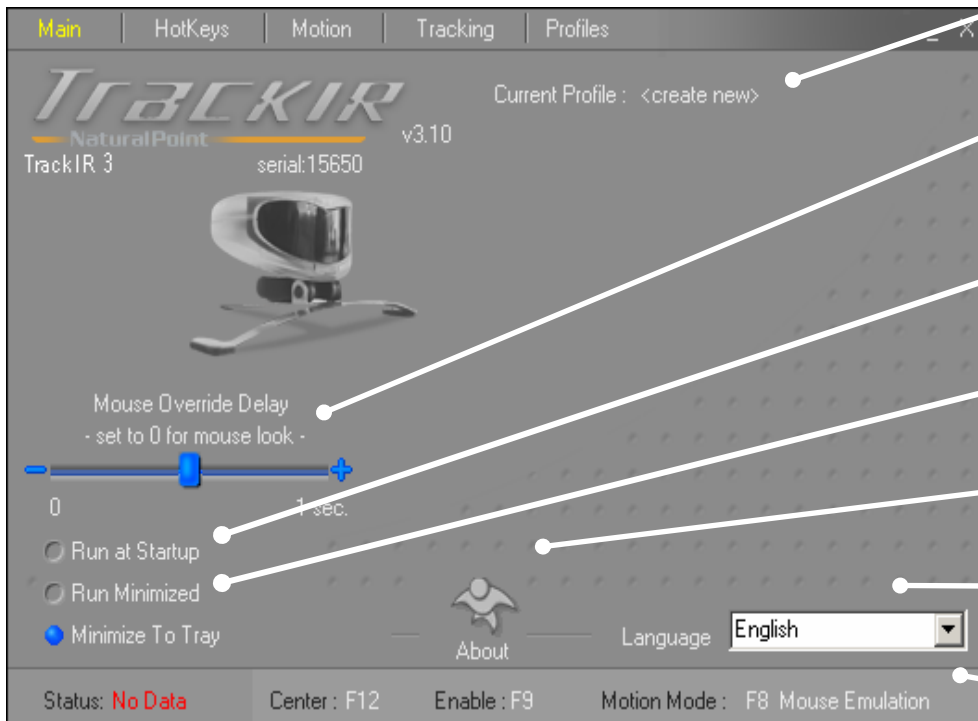
a. Current Profile display

b. Mouse Override Delay slider

c. Startup Settings switches

d. Minimize To Tray switch

e. About Button

e. Language selection
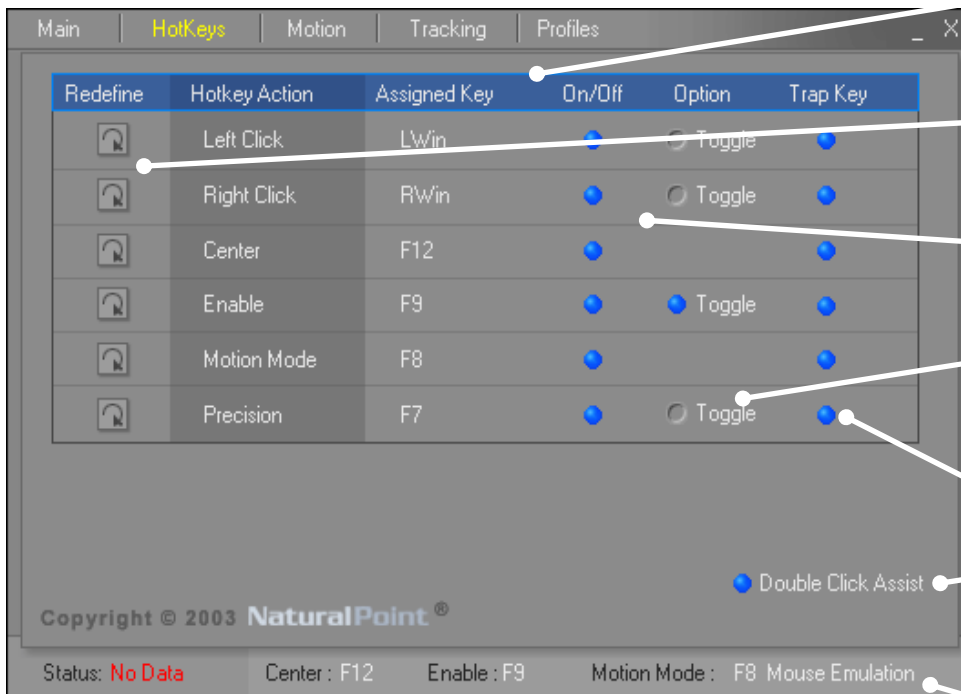
f. Status Bar

Main Screen controls

The Main screen greets the user when they launch the TrackIR software. It provides information on the currently loaded profile and lets you make a few basic interface adjustments.

a. **Current Profile Display**: This displays the name of the currently loaded profile. If none is loaded, it will display **<create new>.**

b. **Mouse Override Delay slider**: This slider controls how long the TrackIR should release cursor control when it senses alternate cursor input (such as a mouse). If the slider is set all the way to the right (1 sec), the TrackIR will wait for one second before it resumes moving the cursor. If the slider is set all the way to the left (0), then the TrackIR will continue to move the cursor even if it senses alternate input, this

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may be required for some games when using the TrackIR in Mouse Emulation mode.

c. **Startup Settings switches**: These options affect the TrackIR software's startup behavior. There are two switches:

- **Run at Startup**: When active (blue) the TrackIR software will automatically load whenever Windows starts. When inactive (grey) the TrackIR software will only load when manually run.

- **Run Minimized**: When active (blue), the TrackIR will start up in its minimized state whenever run. When inactive (grey) the TrackIR software will start in its normal state when run.

d. **Minimize to tray switch**: When selected, this option places the TrackIR software into the system tray when the application is minimized.

e. **About Button**: This button opens an about this program window, which presents information about the program such as version number. Note that the version number can also be found just to the right of the TrackIR logo on the main screen.

f. **Language selection**. This drop down list lets users chose what language they would like the TrackIR software to display in. In most regions, it will default to English.

g. **Status Bar:** See section 4.1.6.

4.1.2. Hotkeys Screen

		a.	Hotkey display
		b.	Redefine Hotkey buttons
		c.	Hotkey on/off switches
		d.	Hotkey Toggle switches
		e.	Trap Key switches
		f.	Double Click Assist switch
		g.	Status Bar

Hotkeys Screen controls

This screen lets user's change hotkey settings and displays information about current settings.

a. **Hotkey display**: This chart displays all of the re-definable keys the TrackIR software allows. It lists the *Hotkey Action* name, the currently *Assigned Key*, and whether or not each individual key is active (*On/Off*). There are 6 assignable Hotkeys:

- **Left Click**: Emulates a left button mouse click.

- **Right Click**: Emulates a right button mouse click.

- **Center**: This button re-centers the TrackIR. When depressed, wherever your head is becomes the new center position.

- **Enable**: This turns the TrackIR on and off. When off the TrackIR will not work as a game controller in either Mouse Emulation or TrackIR Enhanced mode.

- **Motion Mode**: This button switches between the TrackIR's 2 motion modes: *Mouse Emulation (relative)* and *TrackIR Enhanced (absolute).*

- **Precision**: This button switches between the current motion preset and a 'precision' mode that makes it easier for the user to make subtle, precise movements.

b. **Redefine Hotkey buttons**: Clicking this button brings up a dialog box that allows the user to change the key assigned to the function listed just to the right of the button.

Note that you can only assign keyboard keys to functions (you cannot directly assign joystick buttons to a hotkey function)
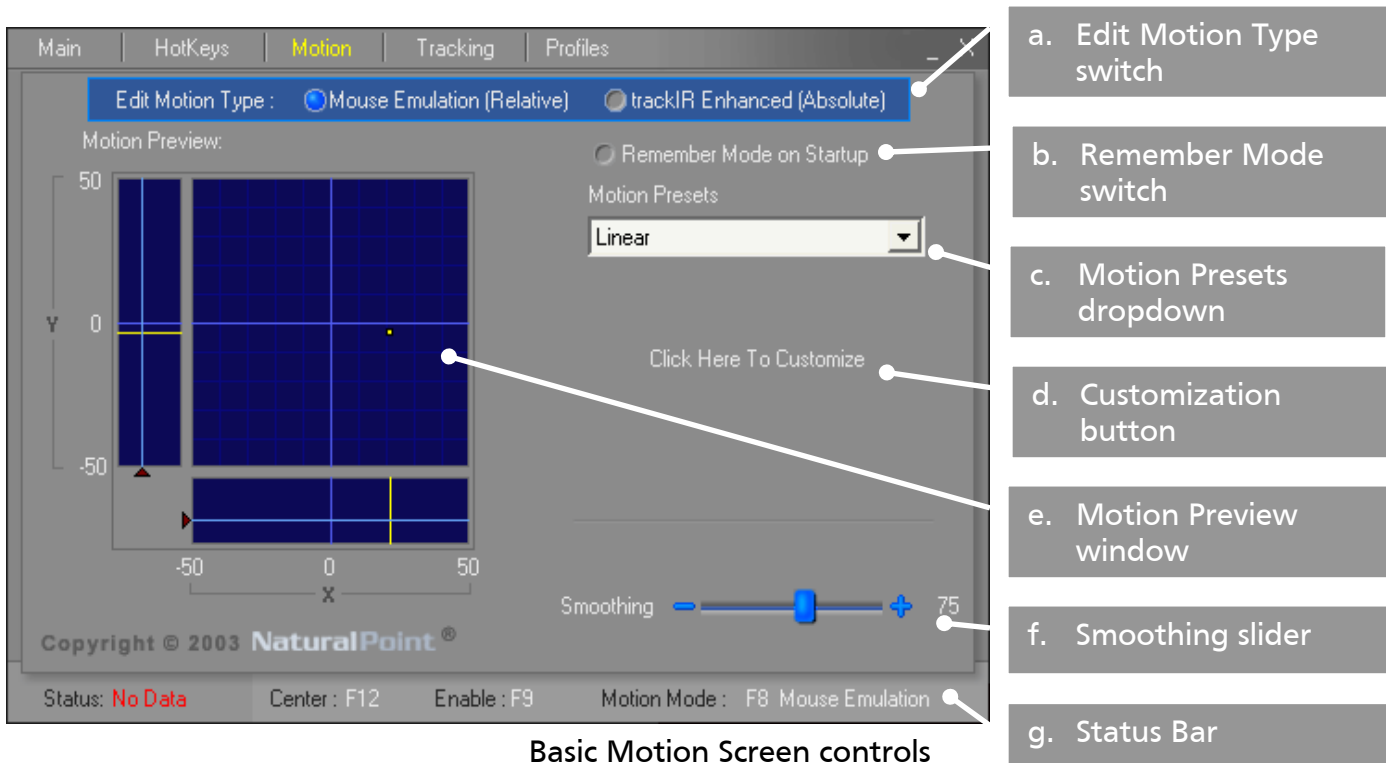
c. **Hotkey On/Off switches**: When this switch is active (blue) for a hotkey, the selected Action is available. When the switch is inactive (grey), it is inactive.

d. **Hotkey Toggle switches:** When this switch is active (blue) for a hotkey, the selected function will stay active until the Hotkey is pressed again, at which point it will become inactive until the hotkey is pressed once again. When the switch is inactive (grey), the selected action will only stay active as long as the hotkey is depressed. As soon as the user lets go of the hotkey, the function will become inactive.

e. **Trap Key switches**: Under Windows XP & 2000, when this switch is active (blue) for a hotkey, the TrackIR will 'trap' a key press, and keep it from being sent to any programs other than the TrackIR software. When the switch is inactive (grey) the TrackIR software will pass the selected key presses though to other software. On other versions of Windows, the TrackIR software will only trap keys, not pass them.

f. **Double Click Assist switches**: When this switch is active (blue) for a hotkey, the TrackIR will make it easier for the user to double-click on an area, but there will be a slight pause after single clicks. When the switch is inactive (grey) it may be more difficult for the user to issue double-clicks.

g. **Status Bar:** See section 4.1.6.

4.1.3. Motion Screen

The Motion screen contains most of the functions for customizing the TrackIR's motion settings. It allows you to easily choose from one of a number of pre-defined motion settings, alter its settings, or create your own motion setting from scratch.

Motion settings enable different levels of sensitivity (speed) in different parts of the screen as appropriate for individual preferences and the type of game being played. Please see section 4.3 for a tutorial on customizing motion setting and saving them in a custom profile.

4.1.3.1. Basic Motion Screen controls

a. Edit Motion Type switch

b. Remember Mode switch

c. Motion Presets dropdown

d. Customization button

e. Motion Preview window

f. Smoothing slider

g. Status Bar

Basic Motion Screen controls

When the motion tab is first clicked or when a motion preset is chosen from the Motion Presets dropdown, the basic motion screen controls are presented.

a. **Edit Motion Type switch**: This switch lets the user choose between editing the motion in **Mouse Emulation** or **TrackIR Enhanced** mode. It will also automatically make the selected Motion Type active.

Choosing TrackIR Enhanced mode will cause a (blue) LED on the bottom of the unit to light up.

b. **Remember Mode Switch:** When selected (blue) the TrackIR software will remember the currently active motion mode between sessions. When not selected (grey), the TrackIR defaults to Mouse Emulation with default settings between sessions.

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c. **Motion Presets dropdown:** From here, you can choose from the pre-defined motion profiles for the TrackIR Enhanced mode.

d. **Customization button**: Clicking on this button opens up the options listed in the *Advanced Motion Screen*.

e. **Motion Preview window**: This window shows the current position of the TrackIR cursor relative to the center and edges of the computer desktop.

f. **Smoothing Slider**: This slider lets the user choose between smoothness of motion and accuracy. When the slider is set all the way to the right, motion will be extremely smooth and without jitter, however the accuracy of individual head motions will be lessened. Conversely, when the slider is moved to the far left, motion will be translated directly to cursor or game control, creating more responsive but less fluid movement on the screen.

g. **Status Bar:** See section 4.1.6.

4.1.3.2. Advanced Motion Screen controls

When the customization button is clicked (see 4.1.3.1 above), the Advanced Motion Screen Controls become available to the user. This allows the user to make a number of changes to both motion modes.

Advanced Motion Screen controls

a. **Edit Point/ Cursor X/Y Position**: These 2 position windows will show the current motion profile and current position information visually for each axis. In addition, it will show:

- **Current edit position**, as small yellow lines between the Position windows and the Motion Preview window.

- **Current Speed level,** as small red arrows on the left of the X axis Preview window and on the bottom of the Y Preview window.

b. **Motion Axis switch and lock:** These 3 buttons control how the X and Y axes are edited. The two outside buttons control whether the **Speed**, **Edit Point** and **Group Edit Points** controls are currently affecting the X or the Y axis. The middle button (in the shape of a small link of chain) locks together the X and Y axes. When the link button is active (blue) the X and Y axis are locked together and the Speed and Edit Point sliders affect the X and Y axis simultaneously. When the link button is inactive (grey) the Speed and Edit Point sliders affect only the selected axis.

c. **Speed Slider**: The speed slider affects how fast the TrackIR's motion is within the motion area defined by the chosen Edit Point (see d. below).

d. **Edit Point slider**: The edit point slider lets the user choose which control point of the motion area will be affected by the speed slider. NOTE: This slider is only available in TrackIR enhanced mode.

e. **Group Edit Points switch**: When this switch is active (blue) the Speed slider affects all control points equally, raising and lowering them together. When the Group Edit Points switch is inactive (grey), the speed slider only affects the edit point currently selected with the edit point slider. NOTE: This switch is only available in TrackIR enhanced mode.

f. **Status Bar:** See section 4.1.6.

4.1.4.   Tracking Screen

	Main	HotKeys	Motion	**Tracking**	Profiles	_ X

Camera View:

Camera Rotation (degrees)
● 0   ○ 90   ○180   ○270

Dot Tracking Filters

Preferred Object Size (pixels)
— ▭————— ✛ 100

Tracking Presets
◆ Dot
○ TrackHat

○ Modify Camera Threshold :

◆ Illumination LEDs On

○ Invert X   ○ Invert Y

Copyright © 2003 **NaturalPoint** ®   Current Dot: Area (pixels) = 97

Status: Tracking   Center : F12   Enable : F9   Motion Mode :   F8 Mouse Emulation

a. Camera View window

b. Camera Rotation switch

d. Preferred Track object Size Slider

d. Tracking Presets Switch

e. LED switch

f. Invert X & Y switches

g. Status Bar

h. Camera Threshold

Tracking Screen controls

The TrackIR is designed to work in a wide variety of conditions. There are, however, a number of things that you can do to optimize the TrackIR's performance:

a. **Camera View window**: This window shows what the TrackIR camera is currently seeing. Images appear as green, grey to white gradient and red on a black background.

- Green images are active and being tracked.

- Grey to White gradient images are based on priority of the next best trackable object with white being the highest priority and grey being the lowest.

- Red images have been filtered out and will not be tracked.

- The more images in the camera view, the harder it will be to get smooth and accurate motion. Check section 4.1 for ways to clear up the contents of the camera view.

b. **Camera Rotation switches**: This switch controls what the current angle of the TrackIR is. If the TrackIR is upright (sitting on its stand) then the rotation should be

set to 0. If the TrackIR is sitting on its left or right side or is upside down, then the Camera Rotation should be set to 90, 270 or 180 degrees respectively,

c. **Preferred Track Object Size Slider:** This slider determines what size the trackable object will be within the software's internal aspect ratio filter. The larger your dot, the greater the setting needs to be set to.

d. **Tracking Presets:** There are two filter buttons, designed to make tracking your reflective material easier: Dot & TrackHat.

- **DOT:** The TrackIR looks for a reflective area that is approximately the same height and width. The Object Size slider is set to 100 by default and is designed to track objects that have a rounded or dot like appearance

- **TrackHat:** When using the NaturalPoint TrackHAT or other narrow strips of reflective material, the Object Size slider is set to 200 and tells the software to look for objects that are long and narrow.

e. **LED switch:** This button turns the IR illumination LED's On and Off. If the LED's are turned off, the TrackIR may not be able to see the users' reflective dot.

f. **Invert X & Y switches:** These allow you to invert X and Y axis movement. When the button is active (blue) the chosen axis is inverted. When the button is inactive (grey) the chosen axis' movement is normal.

g. **Status Bar:** See section 4.1.6.

Camera Threshold: This setting is used to control the IR filtering. The higher the setting the more light filtered. For instance, if used outside, the slider will need to be set to a higher value to filter sunlight.

4.1.5 Profiles Screen

a.	Active Profile
b.	Profile List
c.	Autoload Profiles list
d.	Auto-Load Profile dropdown
e.	Auto-Unload profile button
f.	Profile Notes
g.	Profile Management buttons
h.	Status Bar

Profiles Screen controls

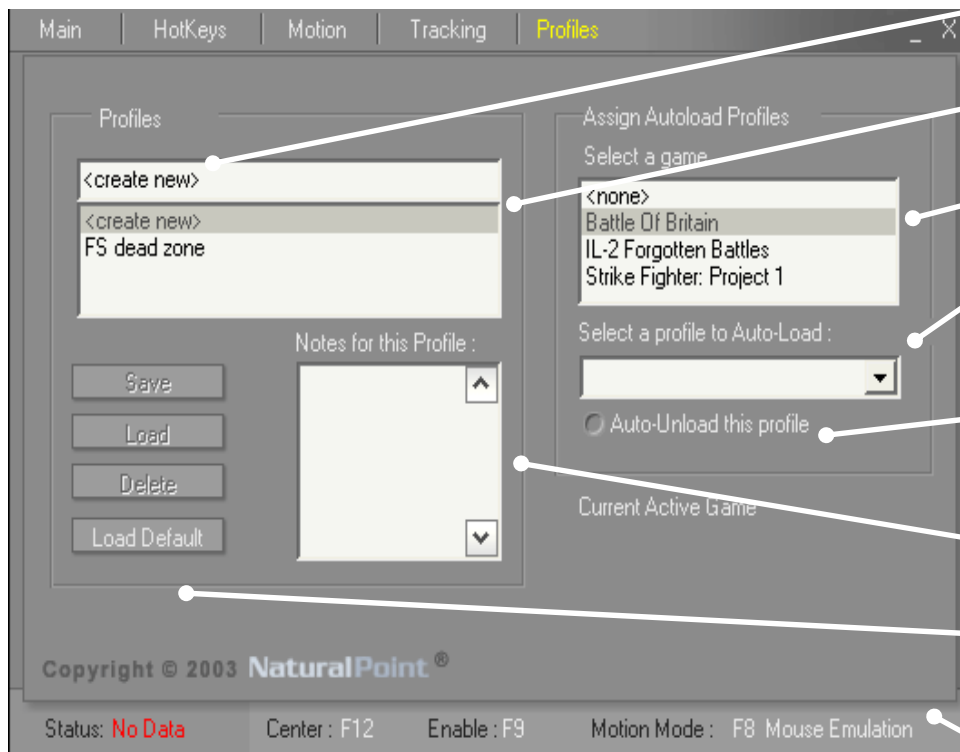The TrackIR is designed to work in a wide variety of conditions. There are, however, a number of things that you can do to optimize the TrackIR's performance: Profiles are a collection of settings (motion, hot keys, etc) that optimize play for different game conditions and user preferences)

a. **Active Profile:** This text area shows the name of the currently loaded profile. The user can also type in a new name into the active profile area and use the profile management buttons (see section g. below) to save it.

b. **Profile List:** the Profile List shows all currently saved profiles. To load one of these profiles, the user clicks on it and clicks the load button in the profile management screen. The currently selected game will be highlighted in blue.

c. **Autoload Profiles list:** this area lists all of the TrackIR Enhanced titles that currently can autoload user profiles. Be sure to check www.trackir.com regularly for updates. The currently selected game will be highlighted in blue. When a game with TrackIR Enhanced autoload support starts, the TrackIR software will automatically recognize the game and there is no need to select it from the list to enable it.

d. **Auto-Load Profile dropdown:** This dropdown list lets users choose from profiles listed in the Profile List to be loaded automatically when the selected game loads.

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e. **Auto-Unload Profile button:** The Auto-Unload Profile button lets users choose to have the profile that is loaded when a TrackIR enhanced game launches, unload automatically when the TrackIR enhanced game quits. When the button is active (blue) TrackIR Enhanced profiles will automatically be unloaded. When the button is inactive (grey) TrackIR Enhanced profiles will stay active when the TrackIR Enhanced game has closed.

f. **Profile Notes:** This is a text box for you to make notes about a specific profile.

g. **Profile Management buttons:** There are four buttons that are used to manage profiles:

- *Save*: The save button saves the profile currently listed in the Active Profile text box.

- *Load*: The Load button loads the profile currently selected in the Profile list.

- *Delete*: This button deletes the profile currently selected in the profile list.

- *Load Default*: This button loads the default profile settings.

h. **Status Bar:** See section 4.1.6.

4.1.6   Status Bar

The Status bar is always visible at the bottom of the TrackIR Software screen. It displays the following information:

a. **Status:** This displays what the TrackIR is currently doing. *Tracking* means that it is actively tracking reflective material. *No Data* means it cannot find reflective material to track. *Disabled* means that the TrackIR Software is currently set to disabled.

b. **Critical HotKeys:** This area displays the currently mapped key commands for the *center* and *enable* functions

c. **Motion Mode:** The currently active motion mode (Mouse Emulation or TrackIR Enhanced) is displayed here.

4.2.   Using the TrackIR Software with games (Basic Operation)

4.2.1.   Mouse Emulation

As mentioned in section 3.2.1, Mouse Emulation is the default mode of operation for the TrackIR, and is the necessary mode of operation for games without TrackIR enhanced support. It also allows users to map keyboard commands to TrackIR access through 3rd party applications.

To use the TrackIR in this mode, you merely have to make sure that the currently active motion mode is Mouse Emulation. This is done by clicking the Motion Mode Hotkey (F8 by default) until the status bar displays the current motion mode as Mouse Emulation.

In the TrackIR software's Motion screen, you can choose between linear and auto panning presets. You can increase or decrease the sensitivity of the motion by clicking the 'Click Here to Customize' button and move the speed slider up and down to set your desired sensitivity. See section 4.3.1 for more information on these settings and the autopanning setting.

It is recommended that you have the Enable and Center Hotkeys (F9 and F12 by default respectively) easily accessible as in many gaming situations it may be necessary to pause tracking and/or re-center the view from time to time. In flight and driving simulators, most users will have these keys mapped to buttons on their primary gaming controller (Joystick or steering wheel).

4.2.2.   TrackIR Enhanced

TrackIR Enhanced mode is more accurate in many games and allows the user more configurable motion profiles. To begin using your TrackIR in TrackIR Enhanced mode, you must first have a game title that supports this mode. At the time of this writing, TrackIR Enhanced mode supported games are *Microsoft's Flight Simulator 2002 & 2004, IL-2 Sturmovik: Forgotten Battles, Lock On: Modern Air Combat, WarBirds2004, Battle of Britain, and Enemy Engaged: RAH-66 Comanche vs. KS-52 Hokum*. Please check the latest version of the TrackIR Software for a more complete list.

In the TrackIR Motion screen, you can choose various motion presets such as Smooth or Dead Zone, and experiment with them in-game. Additionally, you can increase or decrease the sensitivity of the motion by clicking the 'Click Here to Customize' button, check the 'Group Edit Points' switch, and move the speed slider up and down to set your desired sensitivity. See section 4.3.2 for more information on using the advanced motion controls.

Once inside the TrackIR Enhanced game environment (the virtual environment, not the game's menus), hit the Motion Mode Hotkey (F8 by default) to enter TrackIR Enhanced mode. Often, the view will switch randomly to behind you or some other non-centered position as soon as you enable TrackIR enhanced mode. Hit the Center Hotkey (F12 by default) and you will be calibrated for the remainder of your gaming session.

4.2.3.   Special instructions for Flight Simulator 2002 & 2004:

To use the TrackIR in MSFS2002 and 2004, follow the instructions described above. And add the following:

Once inside the MSFS2002 or 2004 cockpit, you will have to switch to the *Virtual Cockpit* mode. This can be done by right clicking with the mouse inside the cockpit and choosing 'Virtual Cockpit' from the now available pull down menu. Now, clicking the Motion Mode Hotkey (F8 by default) should enable view movement within the cockpit. As above, you will often have to hit the Center Hotkey (F12 by default) to calibrate the view.

Please note that Flight Simulator 2002 and 2004 do not support the Auto-Load Profile feature of the TrackIR. Profiles will have to be loaded and unloaded manually.

4.3. *Customizing Game Profiles (Advanced Operation)*

The TrackIR software allows you to create and manage sets of custom settings. These groups of settings are called profiles, and are managed in the Profiles screen (see section 4.1.4). Any changes made in any of the TrackIR software's screens will be saved when you save a new or current profile

4.3.1. Mouse Emulation

In mouse emulation mode, the TrackIR software allows you to alter X & Y sensitivity settings and add Autopanning zones. Autopanning allows you to set a desired point at which motion will continue, even after you stop moving your head. For instance, within a First Person Shooter, once your head moves to the autopanning point you have set, your view will continue to spin at whatever velocity you entered the autopanning area with. To set an autopanning point, you can choose the autopanning motion preset or click the Enable Autopanning switch in the motion screen. Now you simple move the Autopanning slider to set the point at which autopanning becomes active.

4.3.1.1. *Example: Creating a Profile for a First Person Shooter*

In this example, we will create a profile for a FPS game. Most FPS games will use autopanning, and require a low vertical (Y axis) sensitivity and a higher horizontal (X axis) sensitivity. Additionally, smoothness should be set fairly low, as it affects accuracy, and mouse override should be set to 0. Finally, the Center, Enable and Precision keys should be set to hotkeys that are easy to hit from the standard WASD keyboard position.

1) **Choosing the correct X&Y Speed settings**:

    a. Go to the Motion Page and make sure the Edit Motion Type option is set to Mouse Emulation mode.

    b. Click the 'Click here to Customize' button

    c. Make sure the Motion Axis Lock is disabled (grey), and the X axis is selected (Blue)

    d. Use the Speed slider to move the X axis edit point to 15.

    e. Select the Y axis, and move the Speed slider to 10

    f. Click the Enable Autopanning button

    g. Move the Autopanning slider to 48

2) **Other settings**

a. In the Motion Page, move the Smoothing slider to 20

b. In the main page, move the Mouse Override slider to 0

c. In the Hotkeys page, click on the Redefine button for the Enable hotkey action and hit the 'F' key

d. click on the Redefine button for the Center hotkey action and hit the 'R' key

e. click on the Redefine button for the Precision hotkey action and hit the 'Q' key

3) Creating a new profile

a. In the Profiles Page, Click <create new> in the Profiles list.

b. Write 'FPS Profile' in the Active Profile text area

c. Put any relevant information in the notes area

d. Click the Save button

4) Using the profile

a. In the Profiles Page, Click FPS Profile in the Profiles list.

b. Click the Load button

c. The profile is ready for use

4.3.2. TrackIR Enhanced Mode

Working with profiles in TrackIR Enhanced mode is very similar to working with them in mouse emulation mode. However, the additional features in TrackIR Enhanced profiles require some changes in the way that profiles are created and managed.

4.3.2.1. Example: Creating a Profile for a TrackIR Enhanced Flight Simulator

In this example we will create a profile for a TrackIR Enhanced combat flight simulator. We'll create a customized deadzone, set the profile to auto load every time we run our sim, and unload when the sim closes.

5) Modifying a dead zone motion preset

a. Go to the Motion Page and make sure the Edit Motion Type option is set to TrackIR Enhanced mode.

b. Select the 'Dead Zone' motion preset from the Motion Presets pulldown menu.

c. Click the 'Click here to Customize' button

d. Make sure the Motion Axis Lock is disabled (grey), and the X axis is selected (Blue)

e. Make sure that Group Edit Points is disabled (grey).

      f.   Use the Edit Point slider to move the X axis edit point to the inside edge of the dead zone (position 5).

      g.   Move the Speed slider to 0.

      h.   Use the Edit Point slider to move the X axis edit point to the middle of the dead zone (position 10).

      i.   Move the Speed slider to 10.

      j.   Make the Group Edit Points button active (Blue)

      k.   Bring the speed slider to 5.

6) Other settings

      a.   In the Motion Page, move the Smoothing slider to 80

      b.   In the Main page, move the Mouse Override slider to 0

7) Creating a new profile

      a.   In the Profiles Page, Click <create new> in the Profiles list.

      b.   Write 'Combat Sim dead zone' in the Active Profile text area

      c.   Put any relevant information in the notes area

      d.   Click the Save button

      e.   Select the relevant game from the TrackIR Enhanced Games list

      f.   Select Combat Sim Dead Zone from the Auto Load pulldown

      g.   Make Auto Unload the profile active (blue)

8) Using the profile

      a.   This profile will auto load every time you run the relevant game.

5.   Tips and Tricks

5.1.1.   Gaming Environment

The TrackIR is designed to work in a wide variety of conditions. There are, however, a number of things that you can do to optimize the TrackIR's performance:

- Reflections and lights near the TrackIR's camera make it easier for the TrackIR to find the reflective material you want it to track (such as a dot on your forehead or the material on the brim of a NaturalPoint TrackHAT) the better it will perform for you. We recommend turning off or dimming any lights and removing any highly reflective materials that are directly in the view of the TrackIR's camera. You can easily check what the TrackIR's camera is seeing by going to the **Tracking** tab in the TrackIR software (See section 4, below).

- Distance between the TrackIR and the user: The optimum distance between the user and the TrackIR is 18-24 inches. Within this range, the more accurate and sensitive the TrackIR will be. We recommend having no more than 4 feet between the reflective material and the front of the TrackIR.

5.1.2.   Reflective (tracking) Material

The TrackIR ships with 26 reflective dots which are designed to be placed on a hat, a headset, a pair of glasses, or directly on your head. There are a number of alternatives to these dots as well, including NaturalPoint's TrackHAT and a number of 'active' solutions. Here are a few tips from the pros:

- Use one of the larger square dots

- Place the dots on the brim of a baseball-style cap: The greater the distance between the reflective material and the center of rotation (in most cases the center of your head) the more accurate and sensitive the TrackIR will be.

- Place the dot on a rounded surface like a small wooden ball and mount this to your hat or visor.

- Dots can be re-ordered in sets of 52 (2 sheets of 26 dots) from our web site at: www.naturalpoint.com/trackir

6.   Troubleshooting

If you are still experiencing difficulty after trying the suggestions in this trouble shooting guide, call 1-541-753-6645 or visit http://forums.naturalpoint.com/ for advanced customer support.

Problem:

Software loads and runs, but LED indicator light on unit does not come on; OR you receive a message saying: "The system cannot find the file specified" or "The software could not connect with the TrackIR device"

Possible Causes

- Improper software/ hardware installation.

- Improper unit alignment.

Solutions

- If you connected the TrackIR unit before installing the software, do this: Disconnect the TrackIR unit. Right click on My Computer. Go to Properties. Click on Device Manager. Double click on USB devices. If you see a device listed as "unknown" or "?" remove that device and reconnect the TrackIR unit. If you see a device listed as "NaturalPoint TrackIR" then this is not the problem.

- Shut down the software and wait 30 seconds. Unplug the TrackIR unit from your USB port. Then plug the TrackIR back in to your USB port, wait another 30 seconds and restart the software.

- Click the **Tracking** tab on your TrackIR software screen. Place a dot on your forehead or aim the unit at the object you wish to track. Continue adjusting the unit until a yellow dot appears near the center of the Data window

Problem:

Erratic tracking, cursor "jumps" around the screen.

Possible Causes

- Interference from another light source.

- TrackIR Enhanced mode not turned on while playing a game.

- Not logged on with Administrator Privileges (Windows 2000/XP)

Solutions

- Click the **Tracking** button in your TrackIR software screen. You should see a green dot in the Data Window. If you see more than one object in this window, or the green dot changes color from green to grey or white, check for mislaid dots in the TrackIR's 30 degree field of view. If there are no other dots in the field of view and the problem persists,

check for highly reflective items or direct light sources in the background. Move these objects, or reposition your computer.

- Make sure TrackIR Enhanced mode is active by clicking the **Motion Mode** button (F8 by default).

- Logon as Administrator or give your user administrator privileges.

Problem:

Software loads and runs, and green indicator light blinks, but the cursor does not move, or cursor moves erratically.

Possible Cause

- LEDs are turned off.

- VIA chipset and/or SoundBlaster Live! Compatibility issues

- Not logged on with Administrator Privileges (Windows 2000/XP)

Solution

- Go to the Tracking page of the TrackIR Software. Make sure the LED switch is active (blue)

- Check to see if you have a SoundBlaster Live! Audio card and/or a VIA chipset on your motherboard

  o Update the SoundBlaster Live! And VIA chipset to their latest versions. SoundBlaster Live! Drivers can be found at www.soundblaster.com under the **support** tab, and VIA Hyperion 4-in-1 Chipset drivers can be found at www.viaarena.com

  o If this does not solve the issue, plug the TrackIR is into a **powered** USB hub instead of directly to the computer.

  o If the problem persists, add a PCI USB card to your computer and plug the TrackIR in to it.

- TrackIR is a high powered USB device, and may sometimes need to be plugged directly into the computer (not into a USB hub) to function properly.

- Log on as Administrator or give your user administrator privileges.

Problem:

All or some of my Hot Keys will not work.

- Conflict between selected key function and other system properties, or key already selected as a different Hot Key.

Solutions

- Select a different key for this function.

Problem:

- The unit stops tracking me when I move the cursor to the edges of the screen.

Possible Cause

- Incorrect speed setting.

- Improper unit placement.

- Too much distance between the user and TrackIR unit.

Solution

- Select the next highest speed setting.

- Click the **Tracking** tab in the TrackIR software. You should see one green dot in the Data Window. Move your head so the cursor travels from one side of the screen to the other. If the green dot in the data window stops moving at any point, reposition the TrackIR unit and repeat the previous step.

- Try sitting closer to your computer, or move the TrackIR unit closer to you.

Problem:

- Cursor movement feels "mushy."

Possible Cause

- Incorrect Smoothing setting.

Solution

- In the Motion tab in the TrackIR software, move the Smoothing slider bar to the right.

Problem:

I am running a game with TrackIR Enhanced support, but the view is not changing when I move my head.

Possible Causes

- The TrackIR software is not in TrackIR Enhanced mode.

- The TrackIR support for Flight Simulator 2002 and/or 2004 is not properly installed.

Solutions

- Press the Motion Mode Hotkey (F8 by default) to switch modes. The status bar at the bottom of the TrackIR software will indicate what the current mode is.

- Re-run the TrackIR software installation, choosing **Add or Remove components**. On the next page, check MSFS 2002 and MSFS 2004 as appropriate- make sure that **Program Files** is *not checked*! If it asks you for the location of your **MODULES** directory, make sure that it points to the modules directory **within** your installation folder for MSFS 2002 and/or 2004. Make sure that you are not pointing to the **MODELS** directory by accident. TrackIR Enhanced support should now be available.

Problem:

I cannot get Profiles to auto-load with Microsoft Flight Simulator 2002 or 2004.

Cause:

- Microsoft Flight Simulator 2002 and 2004 do not support the Auto-Load feature of the TrackIR.

Problem:

My Microsoft Flight Simulator 2002/2004 function keys do not seem to work when the TrackIR software is loaded.

Cause:

- This is a known issue with the current TrackIR software on certain systems, and will be addressed in a future release

Problem:

My Hotkeys appear to be 'sticking' up or down

Possible Causes:

- Make sure that the Toggle button is inactive for your Hotkey in the HotKeys screen

- This is a known issue with the current TrackIR software on certain systems, and will be addressed in a future release

Problem:

The Print Screen key does not work while the TrackIR software is loaded.

Cause:

- This is a known issue with the current TrackIR software on certain systems, and will be addressed in a future release

Problem:

The names of my profiles are being truncated.

Cause:

- This is a known issue with the current TrackIR software on certain systems, and will be addressed in a future release

7. Version History

3.10 :

 - added : display camera model and serial number

 - fixed : when using "Remember Motion Mode" with TrackIR Enhanced mode, did not send enhanced data until mode was toggled

 - added : hide "modify camera threshold" when a TrackIR-1 is plugged in (the hardware is not capable of it)

Beta 3 :

 - fixed : installation registry permission granting

 - added : installation registry modification log

 - added : installation registry warnings for failed operations

 - added : "camera threshhold" control (TrackIR-2 and TrackIR-3 only) - not bound to profiles

Beta 2 :

 - fixed : minor bug with tracking presets

 - fixed : firmware update fixes issue which may have caused "motion lag" for some trackir-1 users

 - added : new usb driver + inf

 - added : support for TrackIR 3 hardware

 - added : install option to clean NaturalPoint USB registry settings

 - added : support for new enhanced mode games :

    (in the TrackIR software, support in game may not yet be released)

     X Plane

     KAF Keymapper

     Warbirds III

 - changed : reduced camera display window size by 50%

 - added : new motion smoothing algorithm :

    registry key name : "SmoothingMode"

    registry key values : "1" for new smoothing(default) , "2" for old smoothing

3.03 :

 - fixes for display window bugs

 - fixed autopanning w/ invertX bug

 - added plus / minus buttons for preferred object size scrollbar

 - changed object display information to show Area (correspond w/ new tracking parameters in advanced panel)

 - default FS2002 profiles

 - fixed bug for ","'s in the profile notes

3.02 :

 - fixes for runtime error (particularly under multi-processor / hyperthreading environments)

3.01 :

 - fixed camera resolution / precision bug (smoothing bug)

- added invert case LED registry setting "CaseLEDInvert". "0" = false, "1" = true
- new icon

3.00 :

Changes :
- added support for more trackIR Enhanced games
- added hot-plug USB support
- added support for trackIR2 hardware
- improved display window performance
- improved tracking engine

2.12 :

Changes :
- added Enhanced Mode support for Lock On:Modern Air Combat
Fixes :
- installation disk space bug

2.11 Final:

Changes :
- added FS2004 dll registration during installation to remove warning
- maximum mouse override delay registry setting : MDelayRange : default 60 frames
Fixes:
- remembers link X/Y setting now

2.11 Beta:

Changes :
- new installation procedure
- french language translation
- added support for MSFS 2004
- simplified MSFS 2002 / 2004 installation procedure
- view limiting option (registry: "ViewLimiting" 1=normal, 2=open)
Fixes :
- fixed cropping for most alternate language labels
- fixed large font window clipping / resizing problem

2.10 Beta:

Changes :
- new hotkey driver (2k / xp only)
  - should solve sticky keys, joystick mapper issues
  - no more 2k/xp reboots during installation (except first uninstall of pre 2.10)
  - trap or pass hotkeys (2k / xp feature only)

- more responsive movement smoothing

- motion mode edit type bound to motion mode

- remember motion mode on startup option

Fixes :

- MSFS2002 DLL location bug should be fixed (subject to in-field testing)

- profile filename truncation on some systems

- hotkey issues for w2k / xp systems

- now removes registry entries created by application during un-install

2.01:

Changes :

- updated trackIR manual and included it in the install

- shortcut to manual from start menu

- shortcut to readme from start menu

- increase scaling range to match 2x range in 1.4

- run minimized option

- run at startup option

- new language files

- fixed language support bugs

Known Issues :

- on some systems hotkeys sometimes "stick" even after the NaturalPoint software is closed

- when hotkeys are mapped to the keypad, screencaptures may not work with the "printscreen" key

- on some systems the profile file names may appear partially truncated

2.00:

Changes :

- new software interface

- trackIR Enhanced mode

- auto profile loading for games with trackIR Enhanced support

- nonlinear motion scaling for trackIR Enhanced mode

- precision mode

- simplification of pause/enabled hotkey system

- minimize to tray

- height / width filter editing

1.40

- Upgraded enhanced support for custom integration into games

- Fixed Windows Handle leak

1.30

- Added enhanced support for custom integration into games

1.22

- Final fix for installation trouble of MS Flight Sim 2002 Interface

- Fixed keymapping so that settings are properly saved with profiles

1.21

- More fixes for installation trouble of MS Flight Sim 2002 Interface

1.20

- Fix for installation trouble of MS Flight Sim 2002 Interface

1.10

- Enhanced support for MS Flight Sim 2002

8.   *Limited Warranty*

Eye Control Technologies warrants to the original consumer or other end user that this product, the NaturalPoint TrackIR, is free from defects in materials and workmanship for a period of one year from the date of purchase. During the limited warranty period, and upon proof of purchase (in the form of product registration) this product will be repaired or replaced at our option, without charge.

This warranty shall be voided if the product is modified, tapered with, misused, or subjected to abnormal working conditions. This warranty does not cover physical damage to the surface of this product. This warranty does not apply when the malfunction results from the use of this product in conjunction with accessories, other products, or peripheral equipment.

Repair or replacement as provided under this warranty is the exclusive remedy of the purchaser. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF FITNESS OR SUITABILITY FOR A PARTICUALR USE OR PURPOSE, AND EYE CONTROL TECHNOLOGIES SHALL IN NO EVENT BE LIABLE TO PURCHASER FOR INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND OR CHARACTER. Some states do not allow the exclusion or limitation or incidental or consequential damages or allow limitations on how long an implied warranty lasts, so the above limitations and exclusions may not apply to you.