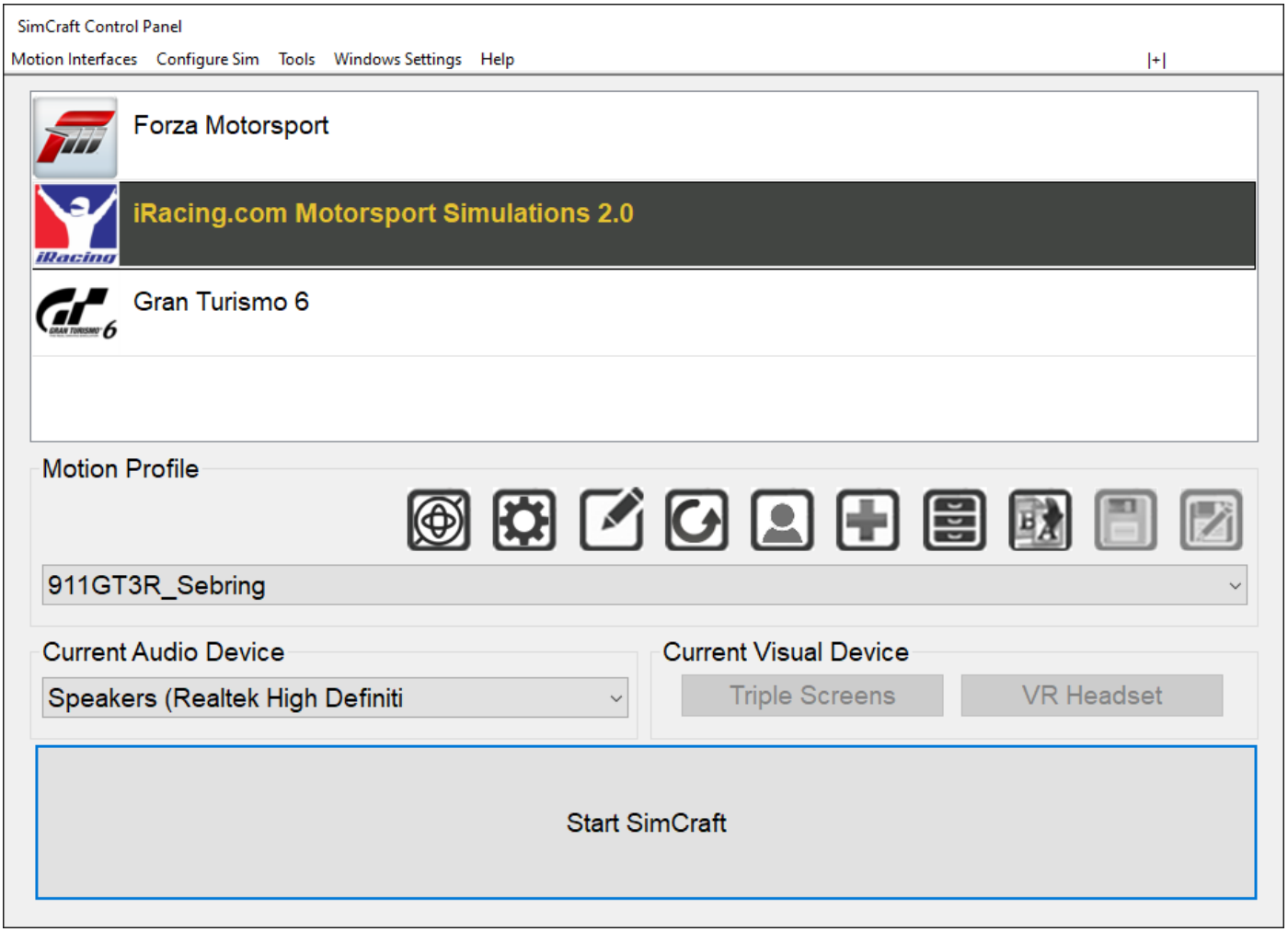
SimCraft Control Panel “CraftCon” Usage Manual

Published Date October 2, 2007
Revision Date October 8th, 2013
Revision Date February 1st, 2014
Revision Date May 8th, 2017
Revision Date July 9th, 2018
Revision Date January 24th, 2019
Revision Date April 23rd, 2019
Revision Date June 14th, 2021
Revision Date December 28th, 2021
Revision Date September 21st, 2022



The SimCraft Control Panel, “CraftCon”, allows you to access the SimCraft motion integrations that control the interaction between your SimCraft motion system and the game/computer simulation you are using. An integration is represented as a list item in the CraftCon window containing the game/simulator name and the game/simulator icon. Within CraftCon, each game/simulation has a corresponding motion simulation interface, and the interfaces are all independently enabled and managed. CraftCon allows you to control interface activity and the configuration of the motion system with interface specific settings for each game/simulation.

Make sure you read through each of the chapters carefully as they outline specific parts of CraftCon and its effects on the motion system. Do not change any of the default settings of CraftCon before consulting this manual. In addition, make sure to follow proper safety precautions when using a SimCraft motion system by consulting the motion system safety document included with your installation of the SimCraft Control Panel. Failure to do so may result in serious injury or death.

For a list of the games/simulations that currently work with SimCraft Motion, please visit the SimCraft website at https://www.simcraft.com

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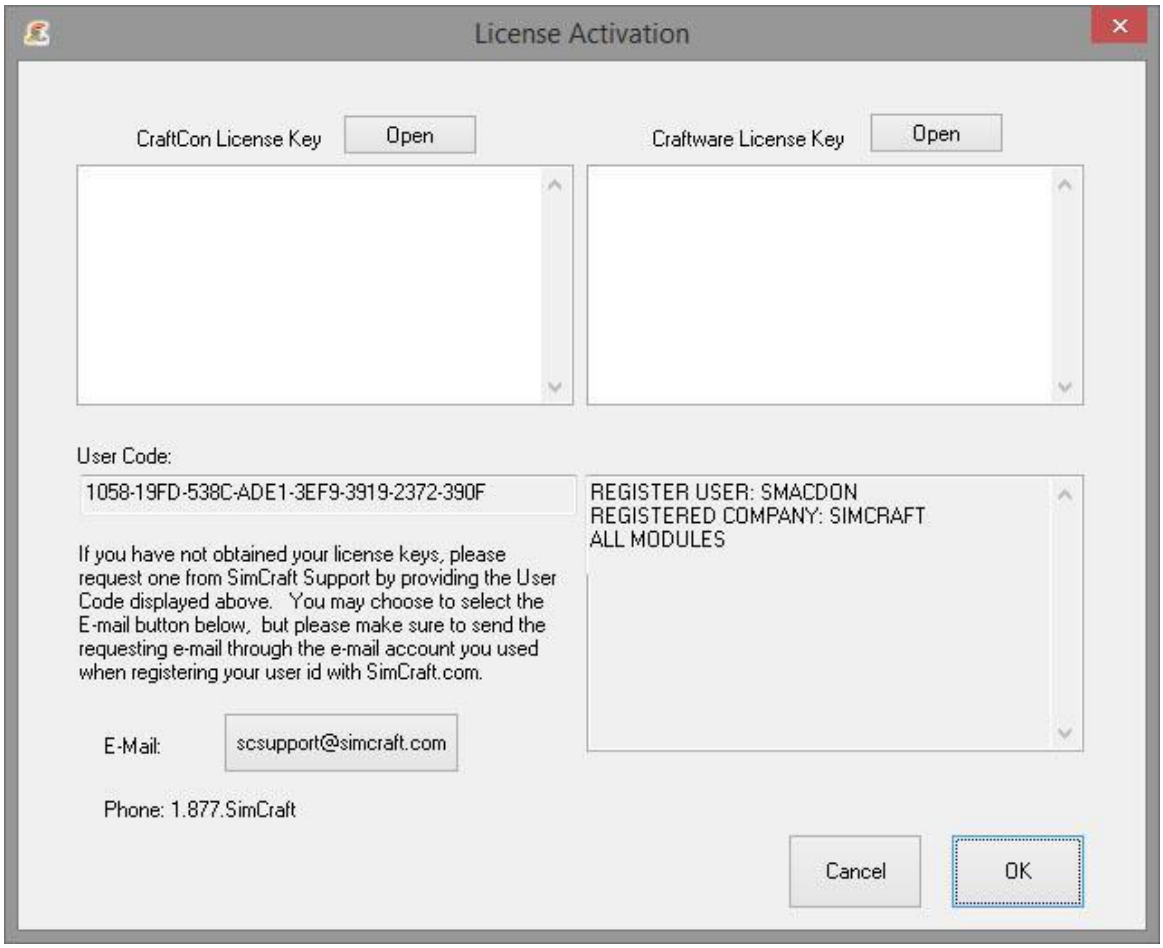
Activation

Upon installation, and after launching CraftCon, you will be prompted to enter in your License Keys. You only need to activate CraftCon once per PC but additional activations may be required after major hardware changes.



To obtain your keys, you must e-mail SimCraft Support with the "User Code" provided in the User Code field. You can automatically generate an e-mail message with your user code by pressing the scsupport@simcraft.com button. Requests for keys via e-mail will be returned within 24 hours in most cases.

If you have already obtained your keys from SimCraft Support, you can also select the "Set License Key" menu item from the "Help" menu, and enter your keys in the field provided. You will be notified of a successful activation and will be need to re-start CraftCon after acceptance. Follow the same procedures as above.

If you need to reinstall CraftCon on the **same** computer, you can with the **same** license keys. Installing CraftCon on a **different** computer will require **different** license keys.

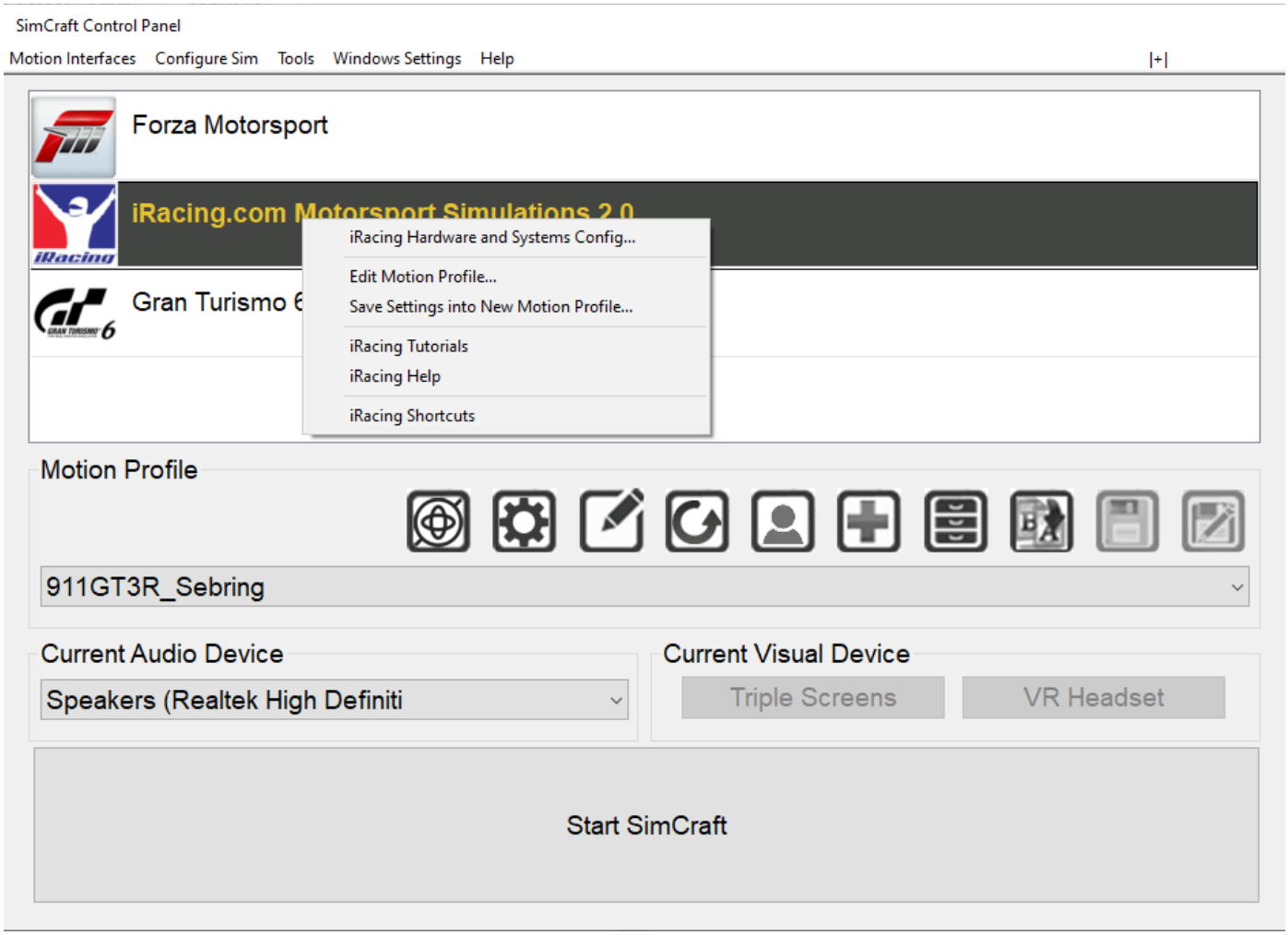
General CraftCon Rules & Operations

- You cannot have multiple Motion Interfaces running at the same time.
- You must stop the currently running motion interface to begin another.
- You cannot launch a motion interface outside of CraftCon

Main Screen

The CraftCon main screen displays all enabled motion interfaces as well as the current state of the selected motion interface (active or inactive). All of your installed motion interfaces are listed in the main window of CraftCon.

The basic operation from this main screen is to select an interface motion interface, select a motion profile, and click “Start SimCraft”. The corresponding game or simulation can be configured to launch simultaneously. To change these launch settings, you must modify the “motion interface Settings” by right-clicking (or double-clicking) the integration motion interface in the main window motion interface listing.



If you choose not to launch the game/simulator with the motion interface, you must launch the SimCraft motion interface software first in most cases. If you have already started the game/simulator you wish to play, you may need to close the game, stop the motion interface, and then restart the motion interface and then the game/simulator title after that. After taking these steps, you should be able to run the game/simulator and have it interact with the motion simulator correctly. If the problem persists, you may need to re-launch CraftCon, and then the motion interface, and then the game. Contact SimCraft support with any issues.

motion interface Listing (Main listbox)

This field is a listing of all enabled motion interfaces on your system.

Motion Profile (dropdown listbox)

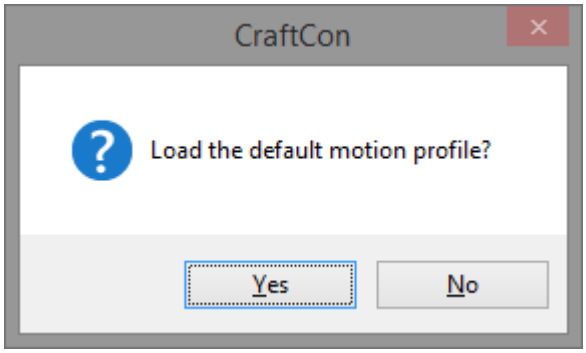
This list is populated with motion profiles XML files contained in the "motionProfiles" subdirectory. You may select a motion profile from this list prior to starting the sim. If you do not select one, the last loaded settings will be used.

Primary Click to edit the primary motion profile parameters of amplitude and intensity for each axis

Advanced Click to edit the advanced motion profile parameters for each axis

Edit Click to edit the current motion profile. Access to both primary and advanced screens, as well as launch parameters.

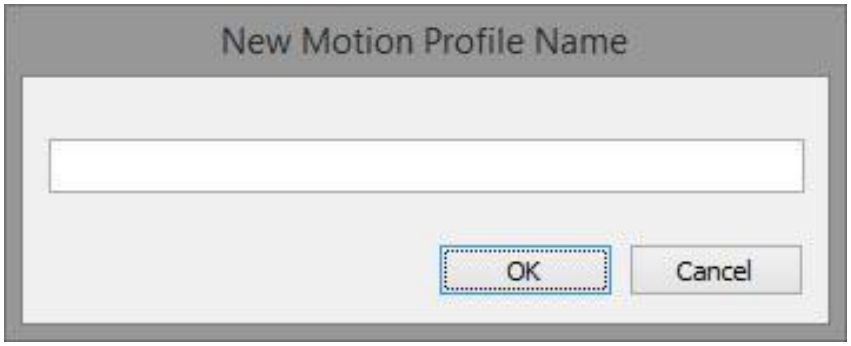
Restore Restore the default motion profile for the selected motion interface



Set Default use this button to set the current motion profile displayed in the motion profiles drop down menu (911GT3R_Sebring as shown above) as the default profile. Performing this

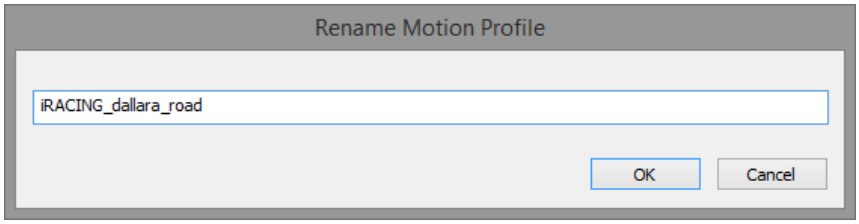
action will reset the default profile and therefor, when using the “Restore Default” function, this newly set default will be restored.

New use this button to create a new motion profile. The starting point for the new profile will be from the last loaded profile. You will prompted for a name for the new profile and it will load automatically once you accepted the new name.



Archive this function will move the currently selected motion profile into an “archive” subfolder, removing it from the list

Rename rename the current loaded motion profile



Save this button is disabled by default. You will only see it enabled after realtime adjustments have been made. Clicking “Save” when it is enabled (and orange in color) will write and persist the current motion profile changes into the currently selected motion profile.

Save As this button is disabled by default. You will only see it enabled after realtime adjustments have been made. Clicking “Save As” will allow you to create a new motion profile with the current settings, including the realtime adjustments. You will be prompted for a new motion profile name.

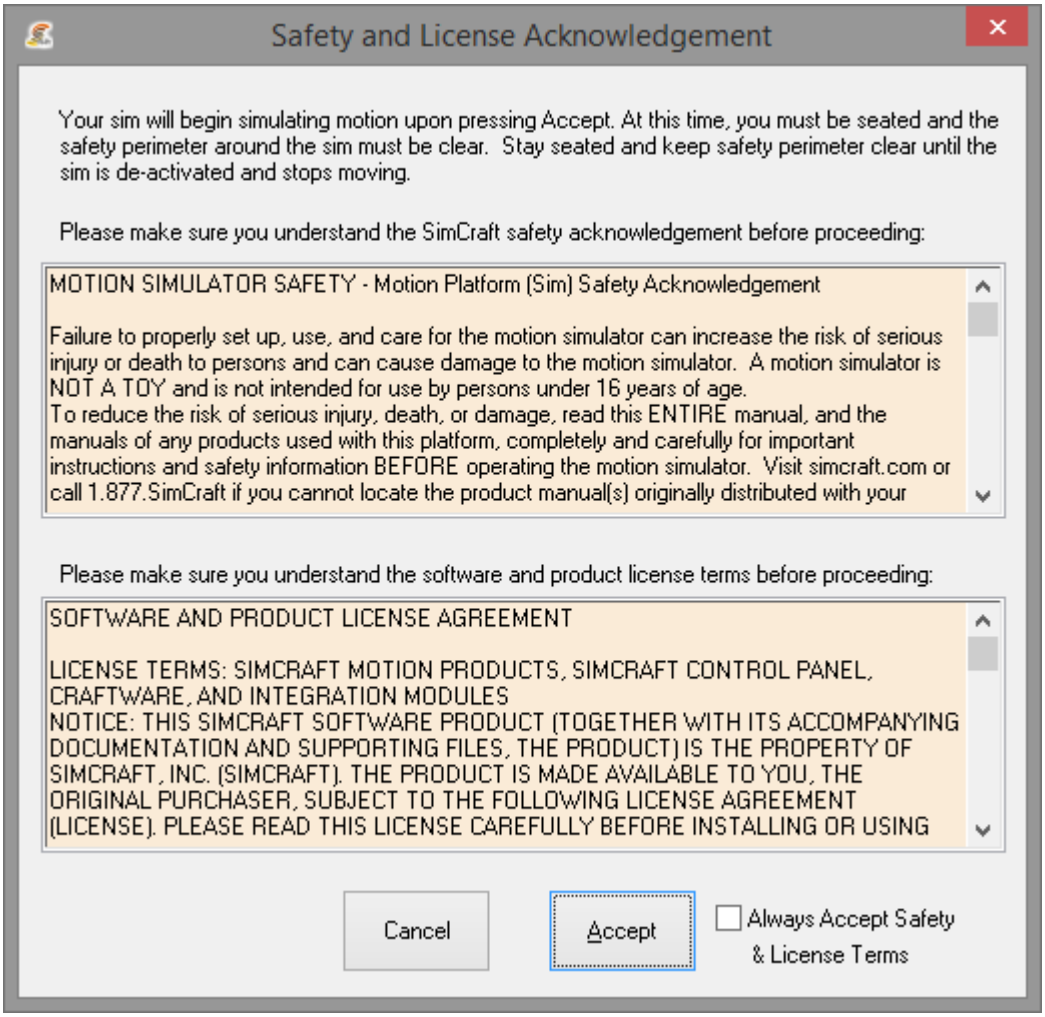
Changes to a motion profile are saved automatically to the XML file that stores all the various motion profile settings in the “motionProfiles” sub-directory WHEN THOSE CHANGES ARE MADE FROM THE GUI (Graphical User Interface). In other words, as long as you are working within CraftCon screens and

windows. Adjusting settings with sliders, and entering numbers, etc will be auto saved when you exit the screen to return to the main CraftCon window.

Motion adjustments made with the realtime adjustment functionality will *not* be auto saved. You must click on the save button to save those changes and you will be prompted to confirm.

Start SimCraft - Starting and Stopping Motion Interfaces

Motion Interfaces are the link between the SimCraft motion system and the game/simulation software. Even though CraftCon allows you to control all the motion interfaces from a central location, each motion interface is its own program capable of storing settings created by you for the most customizable motion experience. To launch a motion interface, select the desired game/simulation from the main screen with a left-click, and then click the "Start" button. This action will launch the motion interface software first, and then the game/simulation itself if this option is selected and the path to the game/simulator executable is correct.



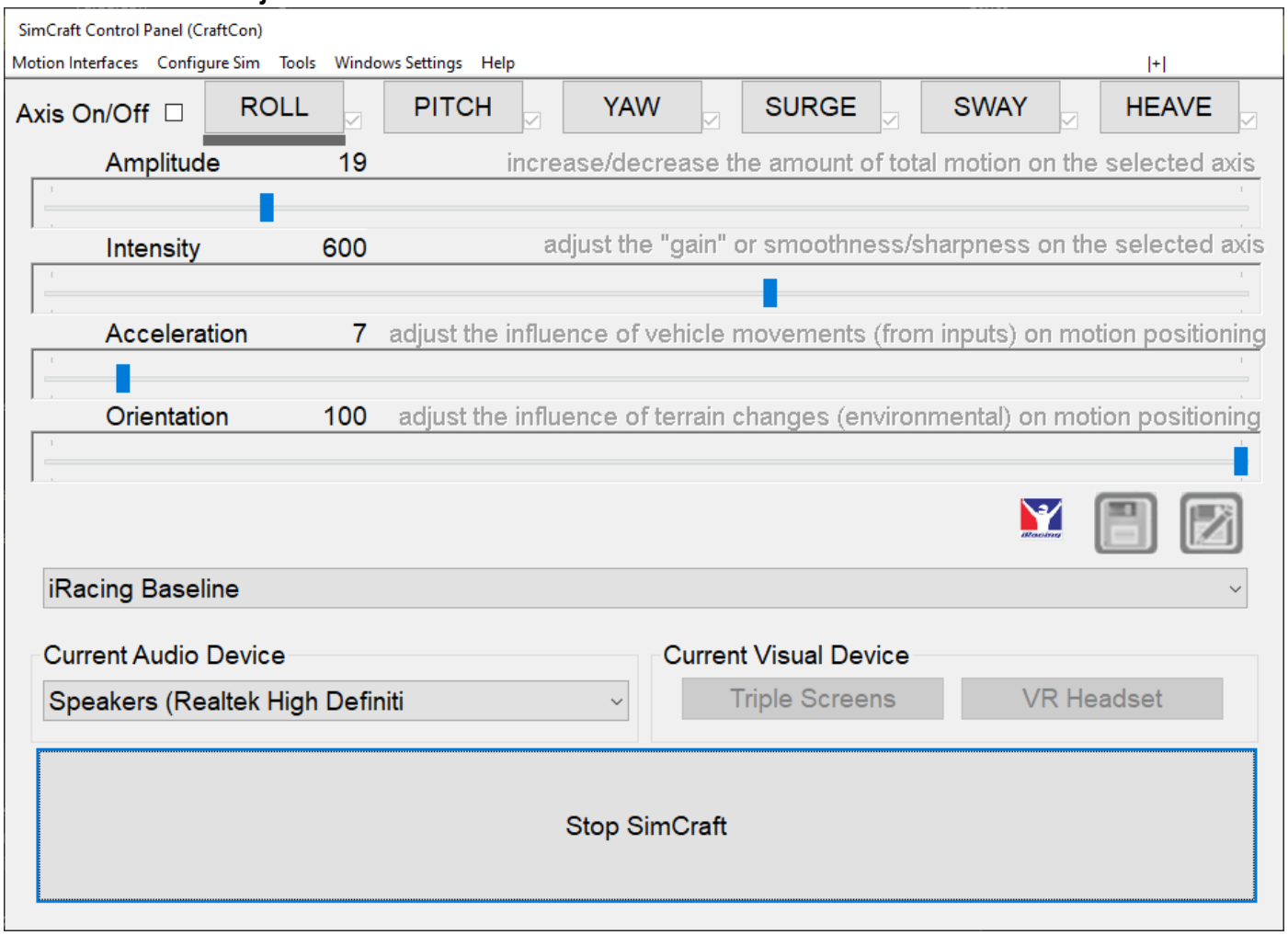
Upon launching the motion interface by selecting the "Start SimCraft" button, you will be prompted with a safety acknowledgement dialog and must accept the acknowledgement before proceeding. Upon pressing accept on this screen, the launch process will continue.

To stop your sim, you click the "Stop SimCraft" button. This action will terminate the game/simulator process only if it was launched from CraftCon when the simulator was "Started". This action will park the motion simulator into a home or parked position in addition to terminating the interface motion interface software process.

Click the “Always Accept Safety & License Terms” checkbox to always automatically accept this important safety warning message.

Alternatively, you may click on the “Motion Interfaces” menu to start and stop interfaces.

Real-time Motion Adjust Screen

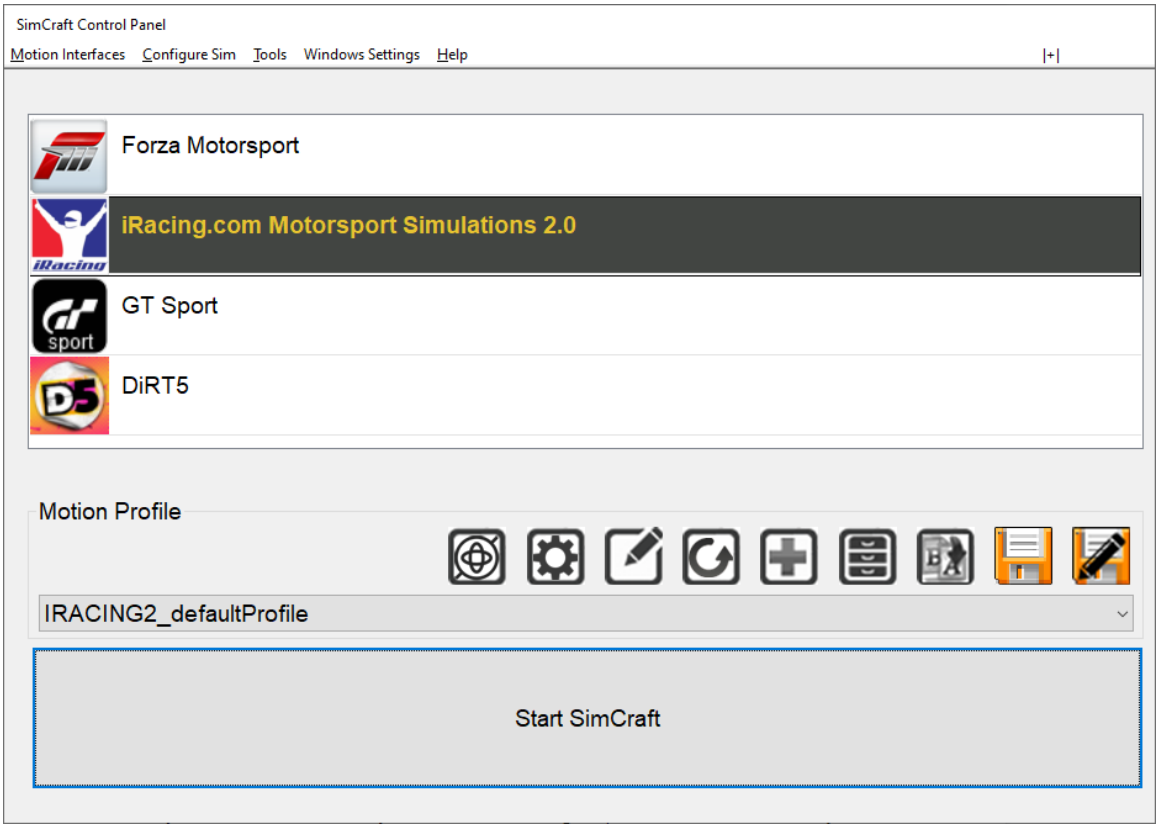


When a motion interface has been launched, the main CraftCon screen will be replaced with a screen of settings and adjustment sliders. You can adjust any of the parameters on this screen in real time as the motion system is active and running.

Simply select the degree of freedom at the top of the screen, and the correlating settings below will update with the current values and can be adjusted by moving the sliders left and right.

You can also select a different motion profile from the motion profile drop down list.

Tick the “Toggle Axis On/Off” box in the lower left corner to turn degrees of freedom on and off by selecting the top corresponding buttons.



Clicking the "Stop SimCraft" button will toggle the main screen back to the familiar CraftCon layout. If you made a real-time motion adjustment during the session, you will notice that the "save" button is highlighted in orange. This is to notify you that the settings to the motion profile, because they were performed in realtime, have not been saved yet. Simply click the orange button and the settings adjusted will be persisted to the motion profile. Please note that any deliberate changes to a motion profile when conducted in any of the available edit screens are auto saved, and any realtime adjustments made on the adjustment screen, through keyboard shortcuts, via the adjust screen, or mapped buttons, will always require a save operation. If you attempt to switch motion profiles, or motion interfaces, or try to close CraftCon when the save button is highlighted in orange, you will be prompted to save the profile before continuing.

Game/Simulator Versions

The versions of the game/simulator supported by the applicable motion interface are sometimes listed beside the title of the motion interface in CraftCon. If you are using a version of the game/simulator that is not listed, the motion interface may fail to initiate and CraftCon should display an error. In some cases you may not see an error displayed, but you will not experience any motion in the SimCraft system.

In order to assure correct operation of the motion interface, CraftCon, and motion simulator, you will need to get the correct motion interface for the version of the game/simulator or simulation you have. To check the list of games and most current motion interfaces please visit SimCraft at https://www.simcraft.com/.

You may also need to install a patch or upgrade to some games/sims. Some of these patches are available on the SimCraft website and others will be found on support websites for that particular game/sim. Some

SimCraft motion interface installers will automatically install required patches. In either case, whether a patch is needed or applied automatically, you will be notified when running the motion interface installer.

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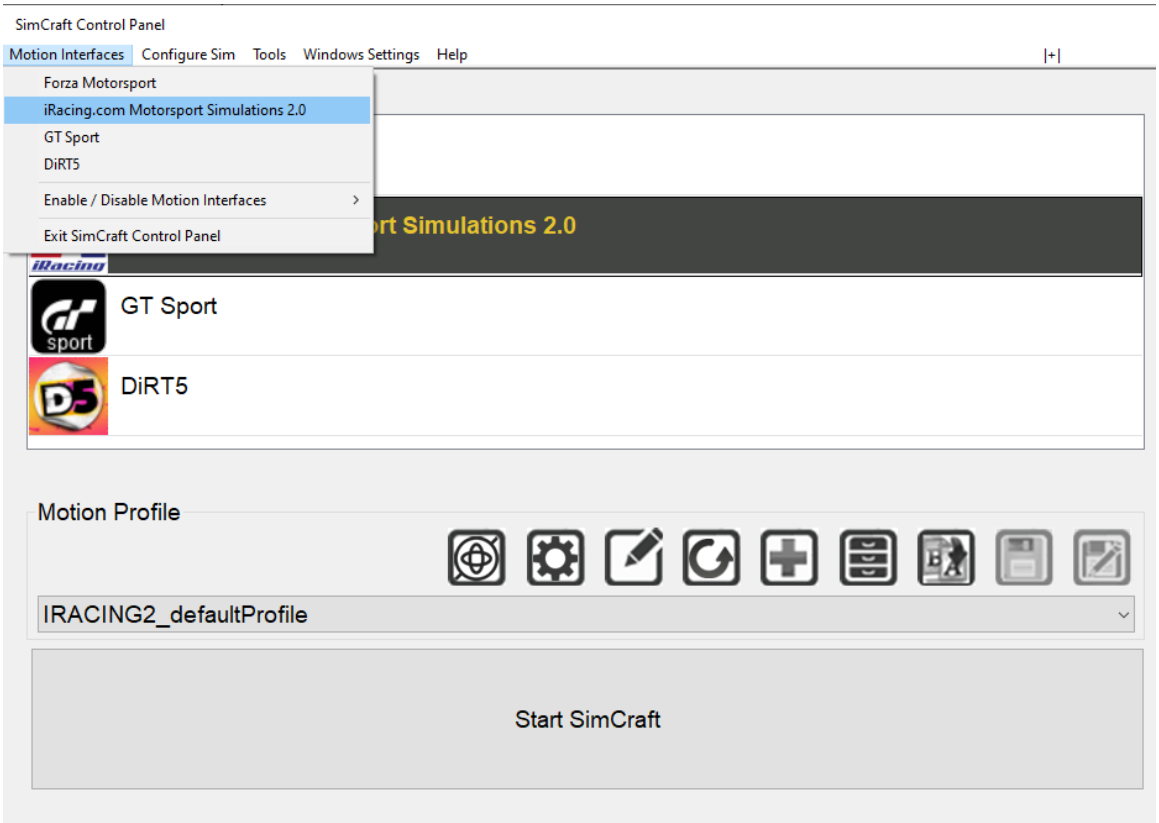
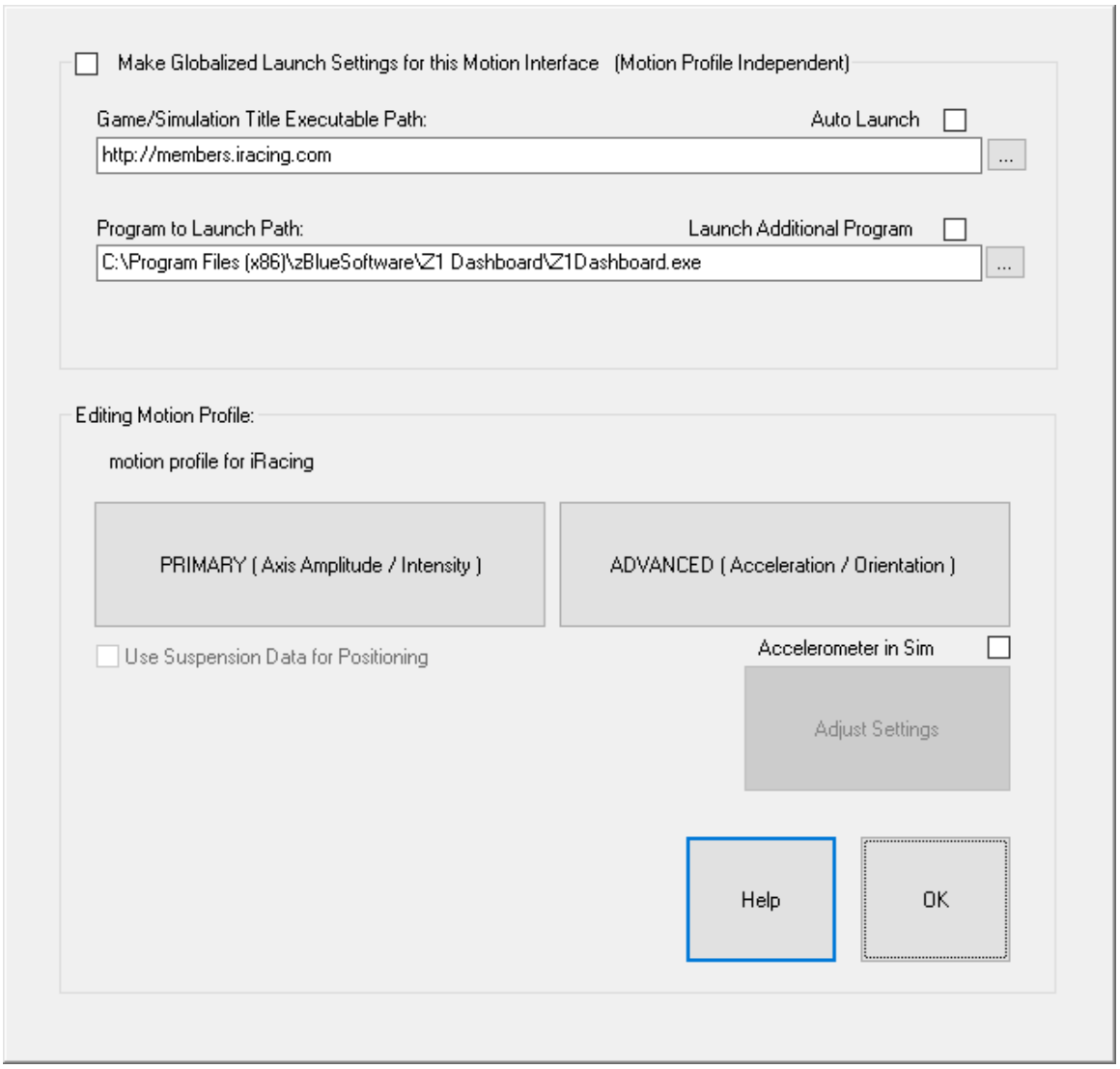


Clicking on any of the listed motion interfaces will automatically start that particular motion interface. If a motion interface is already started, re-selecting the same motion interface within this menu will stop it. Selection of another motion interface other than the active one will result in the termination of the active motion interface and the starting of the one selected. You can alternatively click the stop button from the CraftCon main view, and then choose the new motion interface you wish to start.

SimCraft Motion Interface Settings (Motion Profile)

Right clicking or double clicking on any of the motion interfaces will bring up a window containing the first screen of current settings for that particular motion interface. Within this window, you can change the motion profile settings and various aspects of that motion interface.



Make Globalized Launch Settings for this Interface motion interface Selecting this option will apply all of the settings inside the top box "global" for all motion profiles. Use this setting if you wish to specify the launch setting once and not have to set this each time a new motion profile is created.

Game /Simulation Title Executable Path This field contains the path to the game/simulator executable process that will be launched if the "Auto Launch" checkbox is ticked. The "…" button to the right of this field allows you to change the directory and executable name of where the actual game or simulator software is**.** If you change the location of the actual game/simulator on your computer, you may have to

adjust this path to align it with the current location of the game/simulator process to allow the system to locate the game/simulator again. This path and executable name can be specified when the motion interface is enabled.

Auto Launch - This option allows CraftCon to launch the actual game/simulator process when the motion interface is started. This ensures the proper sequence is followed during the start of a game, and allows the user to be situated and ready for simulator use with a single action. This option is selected by default in most cases.

Program to Launch Path – This field contains the path to a third-party executable process that will be launched if the "Launch 3rd Party Program" checkbox is ticked. The "…" button to the right of this field allows you to change the directory and executable name of where the actual executable software is**.** If you change the location of the executable software on your computer, you will have to adjust this path to align it with the current location.

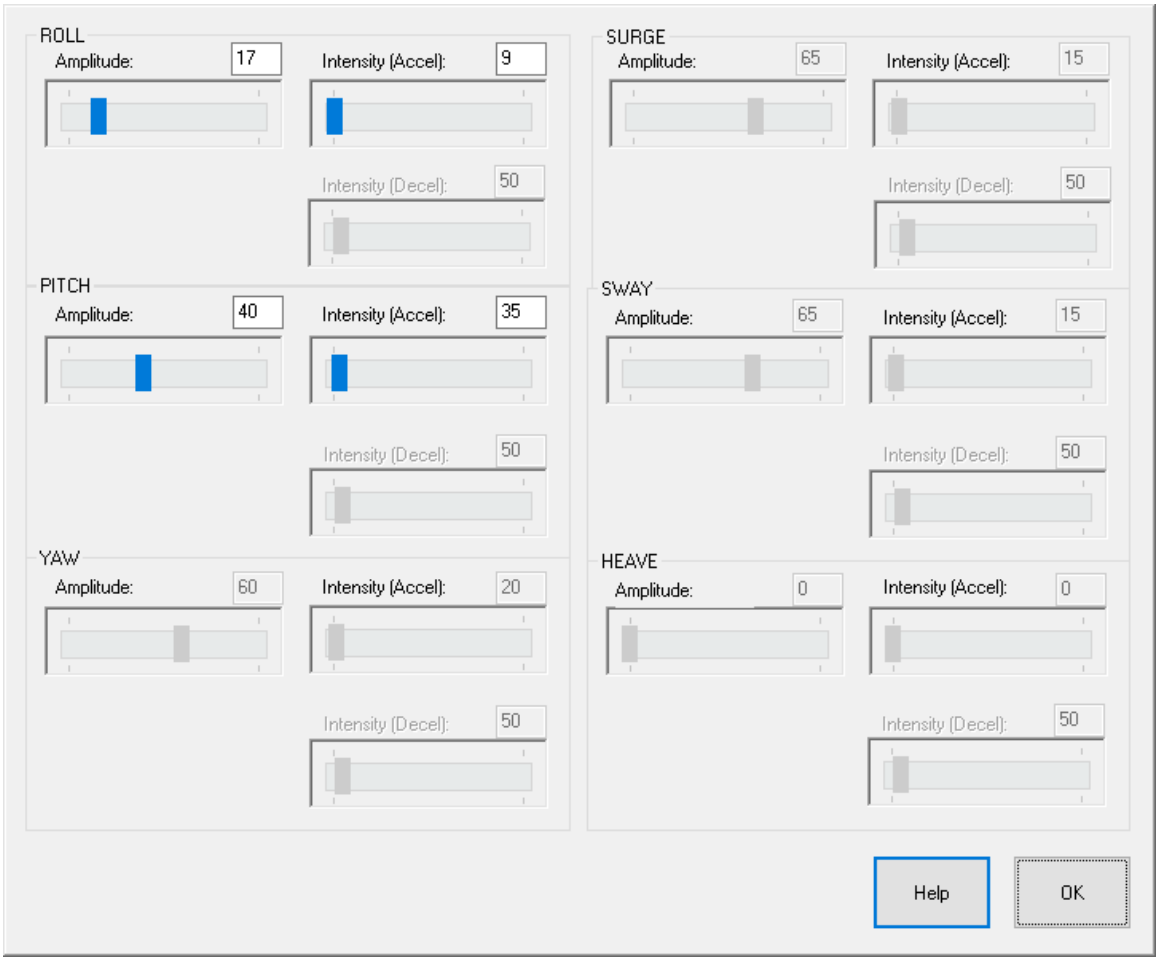
Launch Additional Program- This option allows CraftCon to launch a third-party program process when the motion interface is started. This option allows you to launch supporting software for you simulation, in addition to the game/simulator software.

PRIMARY Axis Amplitude / Intensity – This button allows you to change the first tier of motion settings for the integration selected. The contents of the resulting dialog and the motion settings that can be adjusted are detailed later in this document.

ADVANCED Axis Acceleration / Orientation – This button, when selected, will display the "Advanced Motion Settings" dialog that contains the second tier of motion settings that can be adjusted. The contents of this dialog are detailed below:

Basic Motion Profile Settings

This button on the motion interface settings dialog will display the below dialog. This dialog allows you to enable/disable each of the six axes as well as set the first tier of motion settings, amplitude and intensity for each individual axis.



Roll

Motion Amplitude - This setting allows you to vary the range of motion for the roll axis used by the motion system. Adjust this value to control the amount of movement of the simulator within the roll axis. You can move the range of motion down or up to your desired level. CraftCon will adjust the motion received from the motion interface accordingly, so you will experience varying degrees of roll motion, but at the percentage specified of the actual motion position determined for the motion system.

Motion Amplitude adjusts the amount of roll motion you feel that is translated from the physics of the game. The greater you set the motion amplitude value for roll, the greater the motion of the roll axis. In flight simulation applications, the amplitude should be set somewhere less than 50. The reason for this is that you will have a greater range of motion capability especially for very dynamic aircraft flying in combat style simulations.

Motion Intensity (Accel) – This setting allows you to vary the aggression of motion on the roll axis. Flight Simulations will have a very low value for this setting to create a smooth "air under the wings" motion simulation. Racing simulations such as rally style racing simulators where you want to feel every bump in the terrain will require a higher motion intensity value.

Motion Intensity (Decel) – For FASTECH based motion actuators only.

Pitch

Motion Amplitude - This setting allows you to vary the range of motion for the pitch axis used by the motion system. Adjust this value to control the movement of the simulator within the pitch. You can move the range of motion down or up to your desired level. CraftCon will adjust the motion received from the motion interface accordingly, so you will experience varying degrees of pitch motion, but at the percentage specified of the actual motion position determined for the motion system.

Motion Amplitude adjusts the amount of pitch motion you feel that is translated from the physics of the game. The greater you set the motion amplitude value for pitch, the greater the motion of the pitch axis. In flight simulation applications, the amplitude should be set somewhere less than 50. The reason for this is that you will have a greater range of motion capability especially for very dynamic aircraft flying in combat style simulations.

Motion Intensity (Accel) – This setting allows you to vary the aggression of motion on the pitch axis. Flight Simulations will have a very low value for this setting to create a smooth "air under the wings" motion simulation. Racing simulations such as rally style racing games/sims where you want to feel every bump in the terrain will require a high motion intensity value.

Motion Intensity (Decel) – For FASTECH based motion actuators only.

Yaw

Motion Amplitude - This setting allows you to vary the range of motion for the yaw axis used by the motion system. Adjust this value to control the movement of the simulator within the yaw axis. You can move the range of motion down or up to your desired level. CraftCon will adjust the motion received from the motion

interface accordingly, so you will experience varying degrees of yaw motion, but at the percentage specified of the actual motion position determined for the motion system.

Motion Amplitude adjusts the amount of yaw motion you feel that is translated from the physics of the game. The greater you set the motion amplitude value for yaw, the greater the motion of the yaw axis

Motion Intensity (Accel) – This setting allows you to vary the aggression of motion on the yaw axis. You will want to keep this value low at all times as the yaw axis motions for racing, driving, or flight simulation are always smooth and never that intense. Intensity does not apply to the speed of the motion, just the smoothness.

Motion Intensity (Decel) – For FASTECH based motion actuators only.

Surge

Motion Amplitude - This setting allows you to vary the range of motion for surge, longitudinal, motion of the motion system. Adjust this value to control the movement of the simulator within the surge axis. You can move the range of motion down or up to your desired level. CraftCon will adjust the motion received from the motion interface accordingly, so you will experience varying amounts of surge motion, but at the percentage specified of the actual motion position determined for the motion system.

Motion Amplitude adjusts the amount of surge motion you feel that is translated from the physics of the game. The greater you set the motion amplitude value for surge, the greater the motion of the surge axis.

Motion Intensity (Accel) – This setting allows you to vary the aggression of motion on the surge axis. Intensity does not apply to the speed of the motion, just the smoothness.

Motion Intensity (Decel) – For FASTECH based motion actuators only.

Sway

Motion Amplitude - This setting allows you to vary the range of motion for sway, lateral, motion of the motion system. Adjust this value to control the movement of the simulator within the sway axis. You can move the range of motion down or up to your desired level. CraftCon will adjust the motion received from the motion interface accordingly, so you will experience varying amounts of sway motion, but at the percentage specified of the actual motion position determined for the motion system.

Motion Amplitude adjusts the amount of sway motion you feel that is translated from the physics of the game. The greater you set the motion amplitude value for sway, the greater the motion of the sway axis.

Motion Intensity (Accel) – This setting allows you to vary the aggression of motion on the sway axis. Intensity does not apply to the speed of the motion, just the smoothness.

Motion Intensity (Decel) – For FASTECH based motion actuators only.

Heave

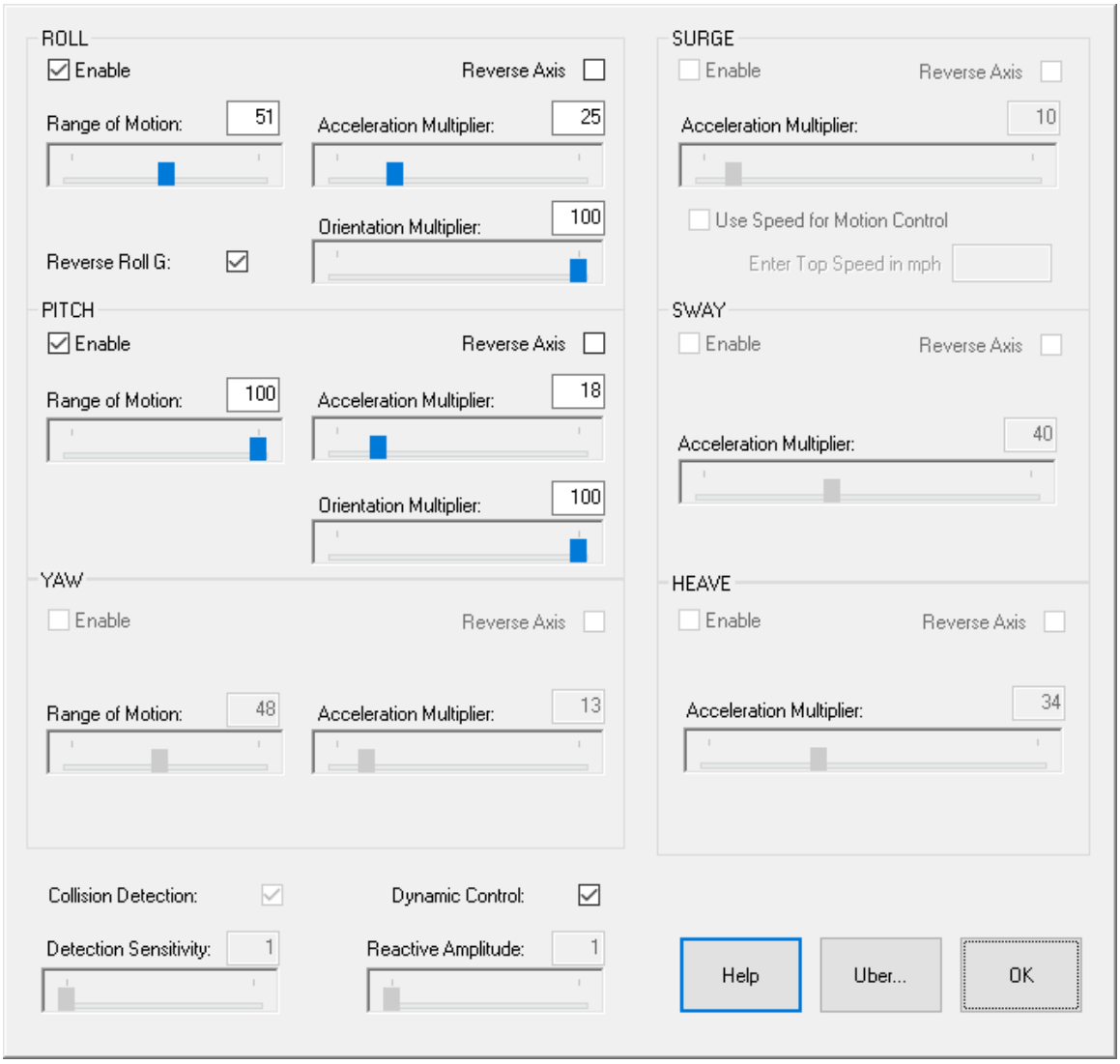
Motion Amplitude - This setting allows you to vary the range of motion for heave, up/down, motion of the motion system. Adjust this value to control the movement of the simulator within the heave axis. You can move the range of motion down or up to your desired level. CraftCon will adjust the motion received from the motion interface accordingly, so you will experience varying amounts of heave motion, but at the percentage specified of the actual motion position determined for the motion system.

Motion Amplitude adjusts the amount of heave motion you feel that is translated from the physics of the game. The greater you set the motion amplitude value for heave, the greater the motion of the heave axis.

Motion Intensity (Accel) – This setting allows you to vary the aggression of motion on the heave axis. Intensity does not apply to the speed of the motion, just the smoothness.

Motion Intensity (Decel) – For FASTECH based motion actuators only.

Advanced Motion Profile Settings



Reverse Roll G – This option, when selected, will reverse the direction of the acceleration forces on the roll axis.

Range of Motion – Specifies the range of use on the three rotational actuators. Typically you would run these values at 100. If you want to limit the range of motion on an axis, decrease this value. What this value does is "block out" positions on the 2 ends of stroke on the actuator.

Acceleration Multiplier – This value represents the multiplier or coefficient for the acceleration value on the applicable axis. A value of 100 is translated to a 1.00 coefficient, a value of 50 is translated to .50, and so on. The "acceleration" value is the representative value for the acceleration force on the specified axis. This multiplier is used as a means to take a portion of that value for positioning the simulator by means of applying this adjustable coefficient.

Orientation Multiplier – This value represents the multiplier or coefficient for the orientation value on the applicable axis. A value of 100 is translated to a 1.00 coefficient, a value of 50 is translated to .50, and so on. The "orientation" value is the representative value for the orientation of the vehicle on the specified axis. This multiplier is used as a means to take a portion of that value for positioning the simulator by means of applying this adjustable coefficient.

Reverse Axis - Reverses the motion on the corresponding actuator. Use this option if the motion is "backwards" or the opposite direction of the expected direction. Variability in SimCraft motion chassis allows for this possibility. This "reverse" only occurs at the motion profile level.

Collision Detection – This option, when turned on, will allow you to specify the collision detection criteria: Sensitivity, and Amplitude. Collision Detection is designed to detect when the vehicle you are driving or piloting has come in contact with something, and provide a representative motion reaction in the sim.

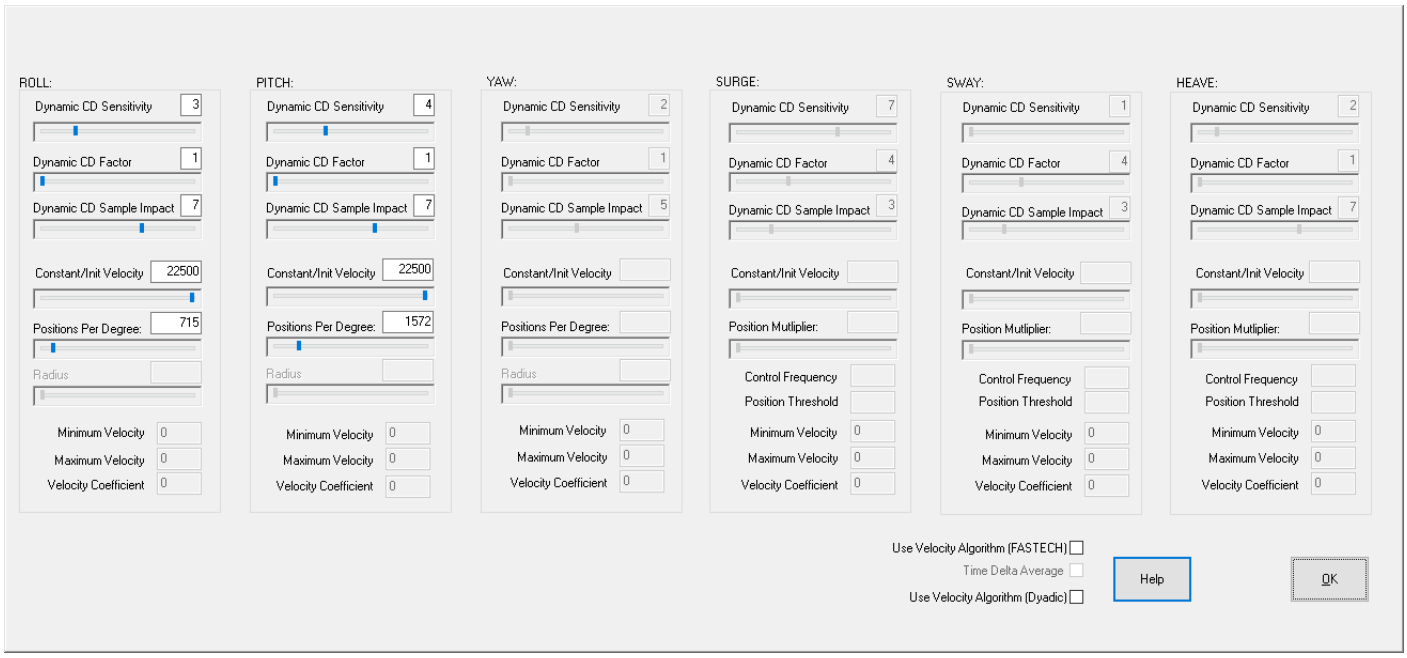
Detection Sensitivity – this value will specify the condition for detecting a collision. A lower value creates more opportunity for collision detection and a higher value will provide less. This value should be adjusted depending on the type of racing or flying that is being performed.

Reactive Amplitude – this value will specify the amount of reactive motion, and the aggression of that reaction, when a collision is detected.

Dynamic control – check this box to utilize the advanced and automatic detection and reactive algorithm which will provide more reactive amplitude for larger collision events, and less amplitude for smaller events. Selecting this value will disable the manual detection sensitivity and reactive amplitude values and controls.

Uber – Select this option to open the Uber Motion Settings dialog.

Uber Motion Settings



Dynamic CD Sensitivity – Adjusts the sensitivity of the dynamic collision detection algorithm on the specified axis.

Dynamic CD Factor – Adjusts the factor of the motion response within the dynamic collision detection algorithm on the specified axis.

Dynamic CD Sample Impact – Adjusts the number of subsequent samples of the physics / telemetry feed that are affected by a collision detection event for the dynamic collision detection algorithm on the specified axis.

Constant/Init Velocity – adjusts the velocity of the actuator. Max value here is 22500 and typically you will want to leave this value at 22500 for roll and pitch. Yaw is generally adjusted downward depending on desired feel.

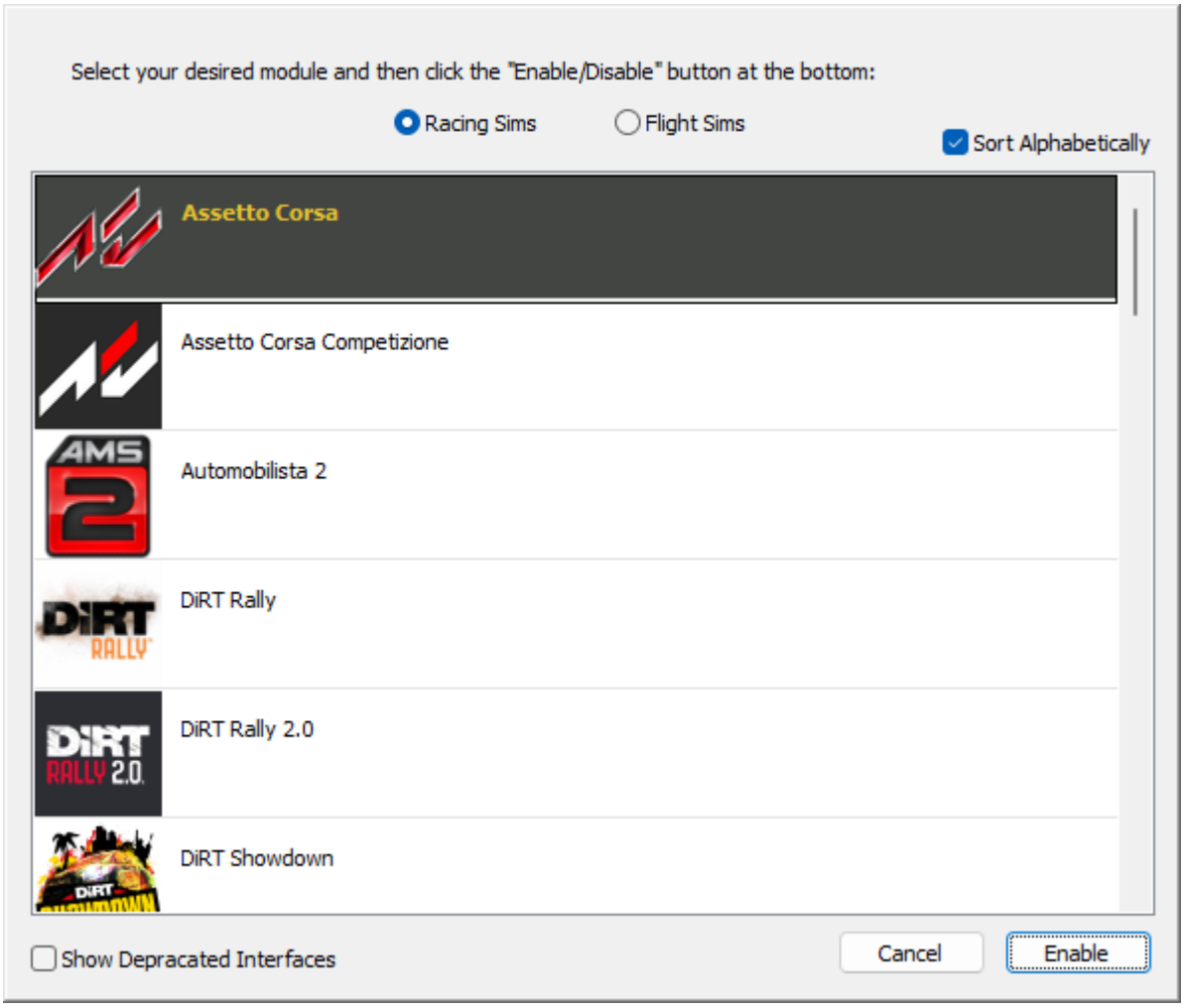
Positions per Degree / Position Multiplier– This option specifies the number of positions on the actuator that comprise a degree of motion. This value is generally determined by the mounting distance between the axis of rotation and the actuator. This value can be increased for exaggerated motion or decreased for suppressed motion.

Use Velocity Algorithm – checking this box enables realtime control of the velocity of the actuator. Performance will vary depending on the actuator manufacturer, and the subsequent enabled parameters minimum, maximum, and velocity coefficient values.

Control Frequency – a setting to limit the number of positions per second to the corresponding axis. Translational movements of surge, sway, and heave are the only axes where limiting the control frequency is possible. Default is 60 Hz.

Position Threshold – an override of the limiting frequency. The value in this field will set a threshold for motion positioning that would otherwise be ignored by the control frequency. This number represents an override, so in cases where the position threshold is met, the motion position is enacted regardless of the control frequency setting.

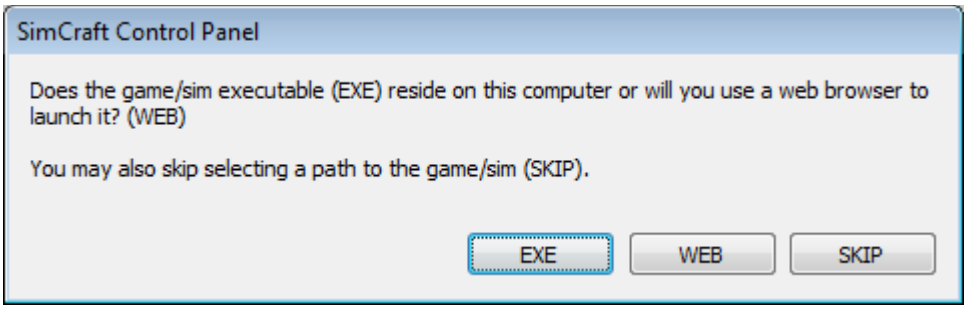
Enable / Disable Motion Interfaces



From this screen you may select interfaces to enable, or interfaces to disable. The currently enabled motion interfaces will appear “Greyed out”. When you select an enabled motion interface in the list, the enable / disable button will show as “Disable”. When you select a motion interface that is currently not enabled, the button will read “Enable”. The lower left hand checkbox entitled “Show

Depracated Interfaces", when checked, will provide additional older games and sim motion interfaces.

When you Enable a motion interface, you will be prompted to enter the path to the game/sim:



Select the EXE button and you will be promoted to navigate to the location of the executable for the applicable game/simulator that you are enabling. You will need to navigate to the path and select the exe to launch automatically when you Start the motion interface for an interactive simulation.

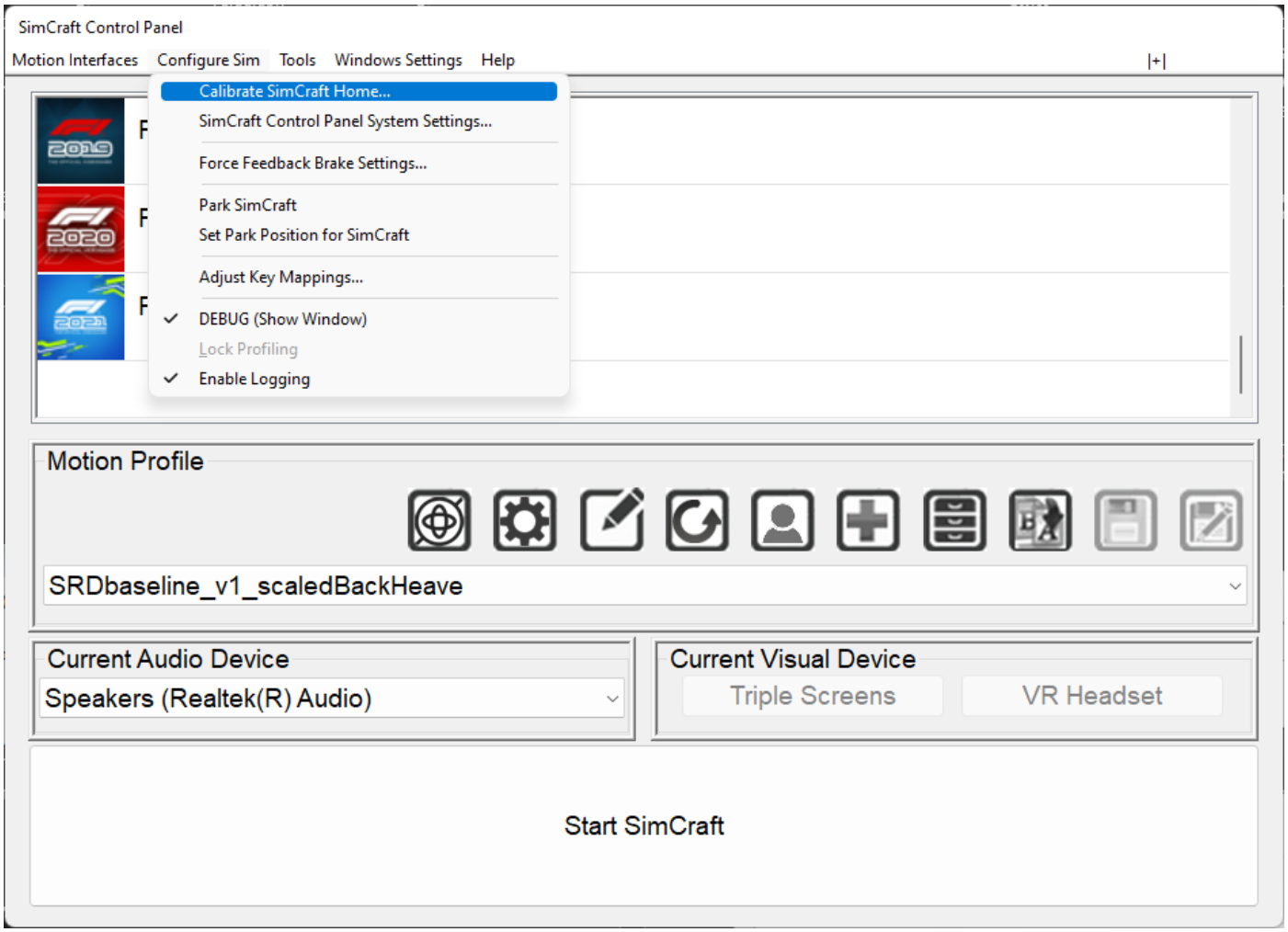
Select the WEB button and you will be promoted to enter a URL to launch for the applicable game/simulator that you are enabling. A web browser with this URL will launch automatically when you Start the motion interface for an interactive simulation.

Select SKIP to proceed to the next step without entering a auto-launch game option. ***Selecting SKIP, however, may prevent CraftCon from completely activating the game / simulator for motion.

After this step, CraftCon will shutdown and auto relaunch. Immediately after the relaunch, CraftCon will begin downloading any updated or required files for the newly activated motion interface. If the motion interface was previously enabled, there may be no files to download.

Configure Menu

This menu contains items that allow you to change both the CraftCon and the motion interface settings. It also contains calibration and error correction methods of the motion system, and allows you to view the process logging output window which contains messages from CraftCon, Craftware, and the motion system and is used in troubleshooting.

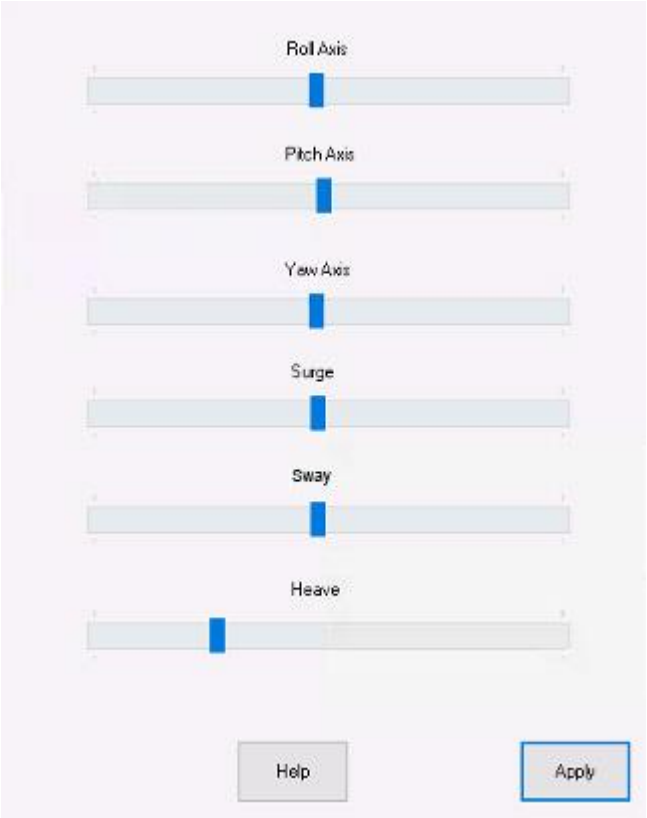


Calibrate SimCraft Home… - This option will allow you to set the motion system back to "home" or perfectly level. This option should be used to calibrate the simulator to an evened "park" position.

In order to successfully calibrate the sim, you will need to stop any running the motion interface. Upon successful stopping of the motion interface, click on "Calibrate the Sim" menu item. The motion system will initially start in a position previously calibrated to what it believes is level.

If you do not return to a level state after calibration or receive an error when attempting to calibrate the system, re-launch CraftCon, and try to calibrate the system again. If you still do not return to a level state, you can try the "Sim Error Correction" menu item under the "Help" menu which is detailed later in this document.

If Error Correction does not return the motion system to its home position, carefully exit the simulator, and contact SimCraft Support.



When the Calibrate Sim dialog launches, the axis controls will be obscured by a field containing a set of instructions. To reveal the controls, simply click on the instructions. Once the controls are revealed, you can adjust a level / home position for each of the installed and enabled axes in your system. Once you click "Apply", the position will be saved and retained as the home / parked position going forward.

Go Home – Selecting this option will return the actuators to the "home", "park" position (or mid-stroked position) that you specify when you "calibrate motion".

Set Park Position for SimCraft – this option/menu item must be enabled in CraftCon System Settings screen, accessible for the same menu. This feature is to specify a "park" position for your SimCraft when not in use. The park position can be set in the same fashion as the "Home" position is configured. This feature is useful for ingress/egress to the simulator when installed in tight spaces.

CraftCon System Settings - These settings are settings for setting up the motion control system, and SimCraft Control Panel.

Type of Motion System – Specifies the type of motion technology that is being used within the CraftCon environment.

Use Individual COM ports per axis – this option allows for the configuration of individual degrees of freedom on dedicated COM ports.

Com Port for motion system - This setting allows you to set the Serial Communication Port on which the motion system will communicate. Although your SimCraft motion system is "Plug 'n Play" and is USB compatible, it may require proper specification of the COM port used in the communication between the PC and the motion system. In almost all cases, you can leave this setting blank as this value will be determined dynamically and automatically by the SimCraft control software. In certain cases however, you may be instructed by a SimCraft Support representative to set this port to a specific port ID, particularly on systems where a setting above COM10 is required.

Baud Rate – for FASTECH systems only – Allows for the configuration of baud rate, this setting must match dipswitch configuration of the FASTECH motion controller.

Launch JoyToKey at StartUp – Select this option to have the JoyToKey application automatically start.

Launch last active motion interface at startup - This option allows CraftCon to immediately load itself and activate the last running motion interface, (and the game/sim title if selected to launch in tandem) as soon as your system boots. The option is NOT checked by default.

Launch CraftCon at StartUp – Select this option to have CraftCon start up when the PC boots.

Start-up Sound Effects – Check this option if you want to hear sound effects from CraftCon when starting motion interfaces.

Adjustment Sound Effects - Check this option if you want to hear sound effects from CraftCon when adjusting settings in realtime.

Demo Mode – this option is used by SimCraft demo locations and locks out certain features of the CraftCon software.

Enable Spacebar as E-STOP – this option can be used to activate the spacebar on the sim keyboard as an E_STOP for the SimCraft motion system.

Enable USB Relay Lighting – this option is only used when a USB relay device is present to activate accessory LED lighting.

Enable Park Position – this option, when enabled, allows for the configuration of a "Parking" position for the simulator.

Reverse Roll – select this option if your roll actuator is mounted on sim right (when sitting in the sim, to the right side).This will reverse the sim motion direction to allow for mounting of the actuator on either side.

Reverse Pitch – select this option if your pitch roll actuator is mounted on the nose of the cockpit (when sitting in the sim, to the front).This will reverse the sim motion direction to allow for mounting of the actuator either the fore or aft of the cockpit.

Reverse Yaw – select this option if your yaw actuator is mounted on sim in the opposite direction of default travel. This will reverse the sim motion direction for yaw to allow for mounting of the actuator on either side and facing either direction.

Reverse Surge – select this option if your yaw actuator is mounted on sim in the opposite direction of default travel. This will reverse the sim motion direction for yaw to allow for mounting of the actuator on either side and facing either direction.

Reverse Sway – select this option if your yaw actuator is mounted on sim in the opposite direction of default travel. This will reverse the sim motion direction for yaw to allow for mounting of the actuator on either side and facing either direction.

Reverse Heave – select this option if your yaw actuator is mounted on sim in the opposite direction of default travel. This will reverse the sim motion direction for yaw to allow for mounting of the actuator on either side and facing either direction.

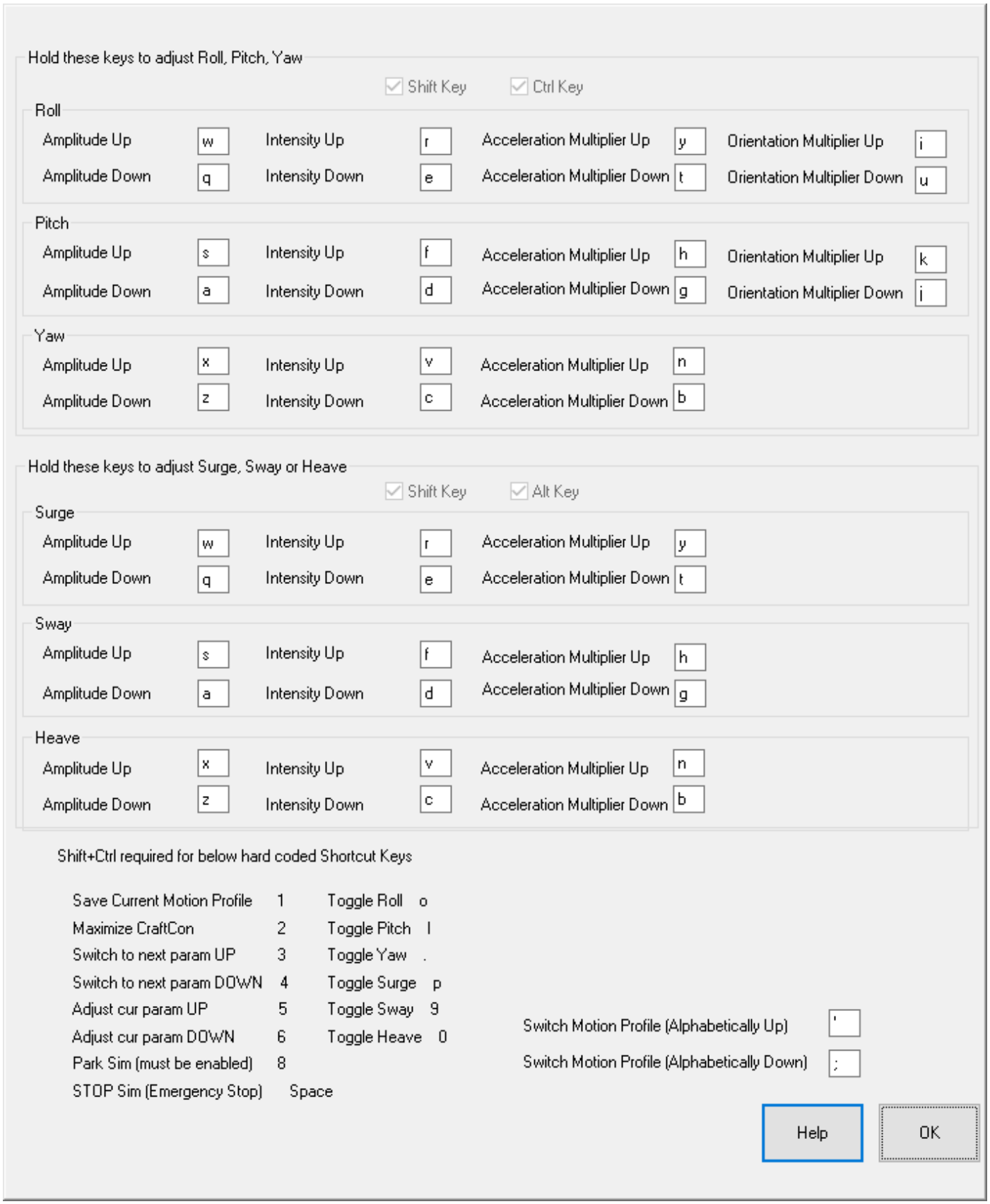
Roll (Pitch, Yaw, Surge, Sway, Heave) Axis Installed – uncheck these boxes to disable an axis across the motion system. This setting is slightly different from the enable option in the SimCraft motion interface Motion Settings dialog in that this disables the axis for ALL motion interfaces.

Initialize Roll (Pitch, Yaw, Surge, Sway, Heave) – in almost all cases you should leave these boxes checked. Only for troubleshooting and it instructed by a SimCraft rep will you need to uncheck these boxes.

Park SimCraft – if Park function is enabled in the system settings, selecting this menu item will "Park" the sim into it's park position, assuming the Park Position has been set.

Set Park Position for SimCraft – this function allows you to configure the parking position for the sim with a GUI similar to the Calibrate SimCraft Home. Move the sliders to the desired park position, and click Apply.

Adjust Key Mappings



The Adjust Key Mappings dialog allows you to map keys to realtime control adjustments. During simulator usage, you may adjust various settings without stopping and restarting the sim, allowing you to dial in settings in REALTIME. These key mappings all require you to select the Shift + Ctrl keys (for Roll, pitch and yaw) or the Shift + Alt keys (for surge, sway, and heave) and then the mapped key for adjustments in increments of 2. For example, in the above default settings, if you are running a racing simulator and want to turn up some more yaw amplitude because you are in an off road rally race – hold the Shift + Ctrl keys, then hit the 'x' key. This will move "Yaw Amplitude"up by 2 from the current value. Each time you hit 'x' will adjust the amplitude up another 2.

Make sure that if you change these key mappings that you do not select the same key for two or more adjustments as this may result in an unknown response.

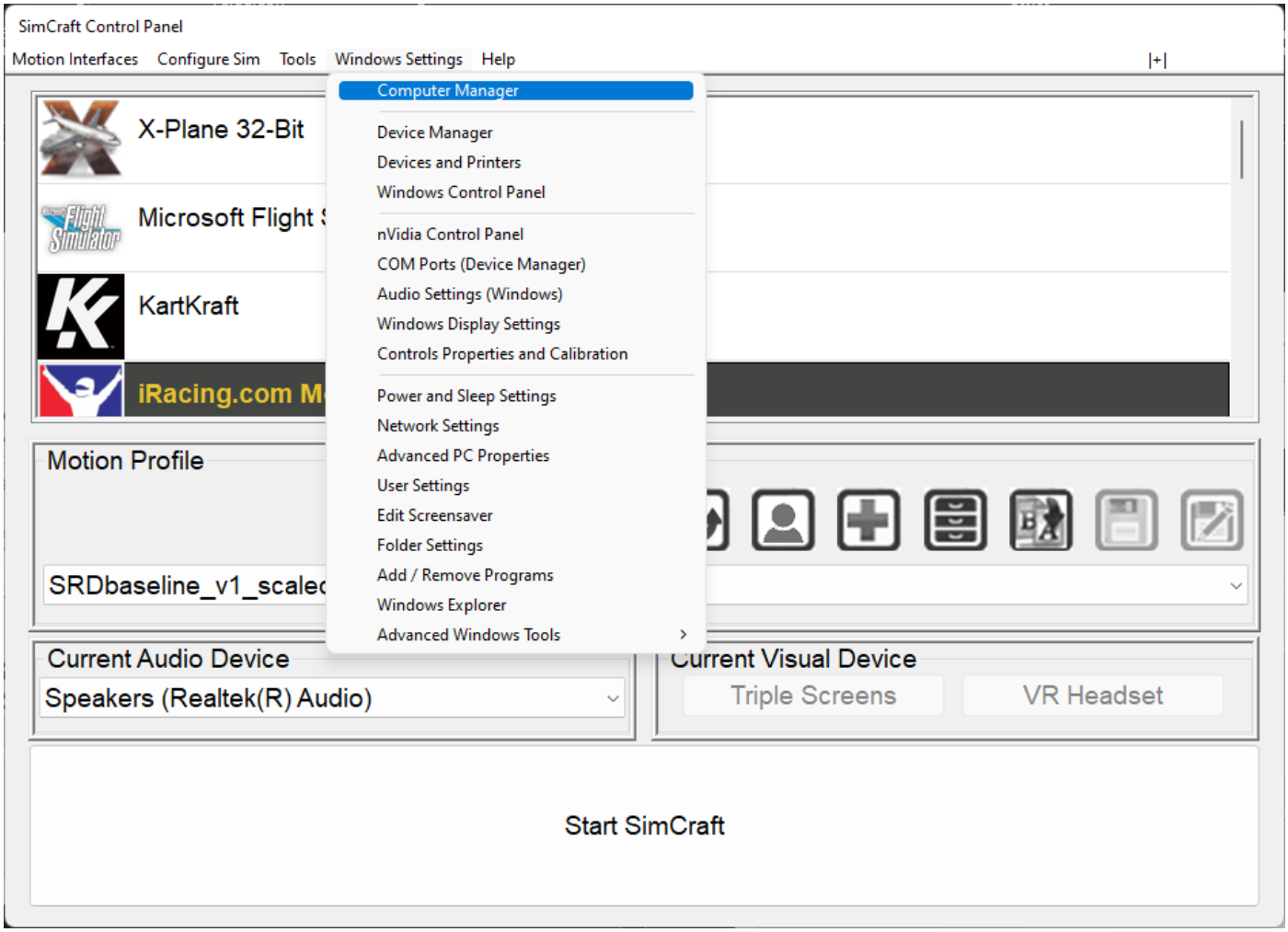
DEBUG (Show Window) – This option when selected will "show" the integration motion interface process window when it is launched. Generally speaking this menu item is enabled only when troubleshooting an issue with this system as the resultant window that is displayed contains status messages that are not present when this option is disabled.

Lock Profiling – an option to lock motion profiling. This option will prevent modification of motion profiles and is used for commercial installations.

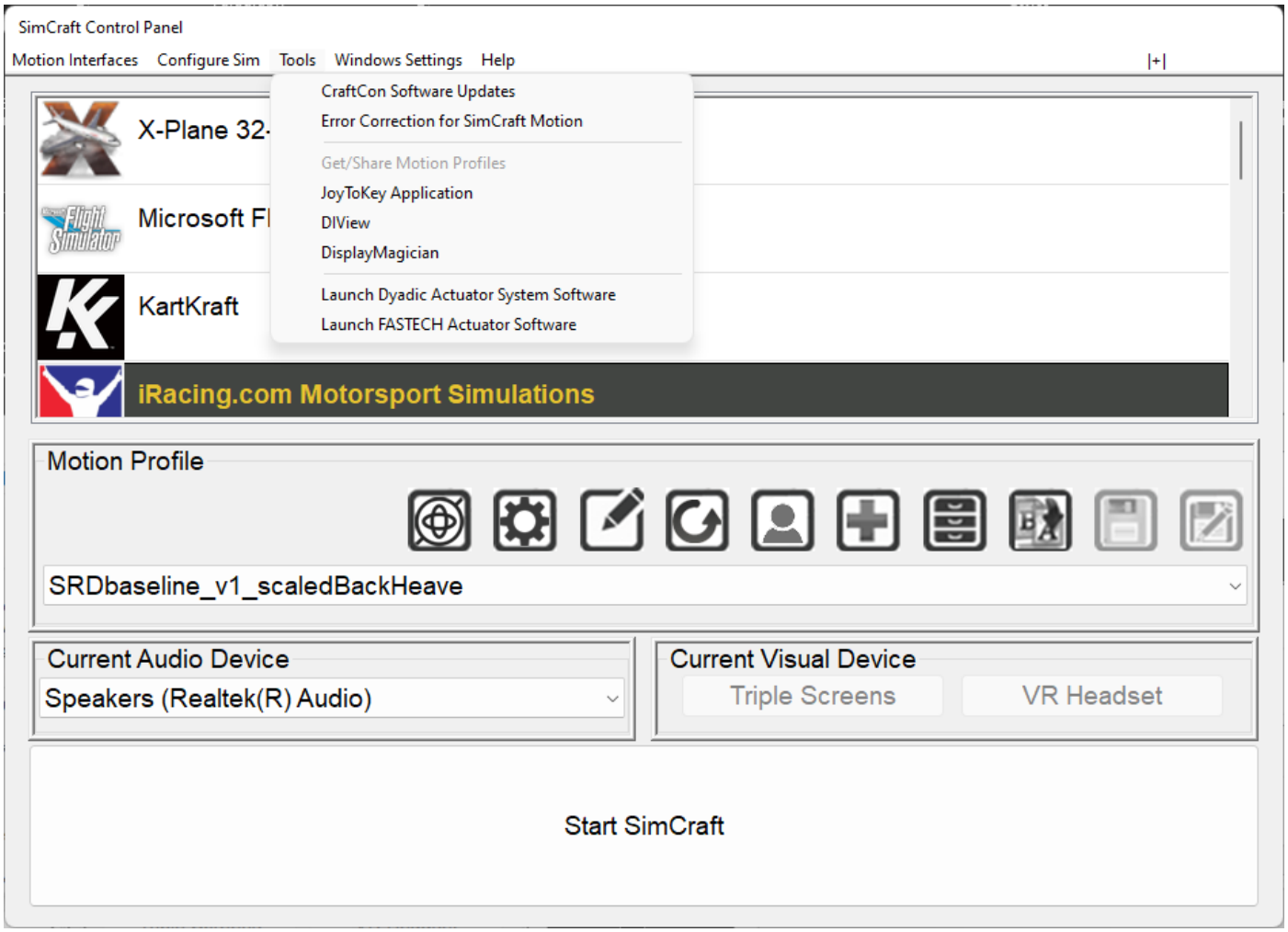
Enable Logging - This option creates a log of the actions performed by the motion interface each time it is launched. Logging is primarily useful in tracking down any errors or difficulties that may occur during gameplay. Logging will be used primarily for assisting the SimCraft Support team in resolving any problems with any part of the SimCraft system. Typically speaking you will not want to run with Logging enabled because it may cause inefficiencies in the system that will inhibit top performance.

Windows Settings Menu

This menu is a handy way of accessing your audio, video, and controls settings for your Windows environment, as well as Device Manager, Task Manager, and the Windows Control Panel.

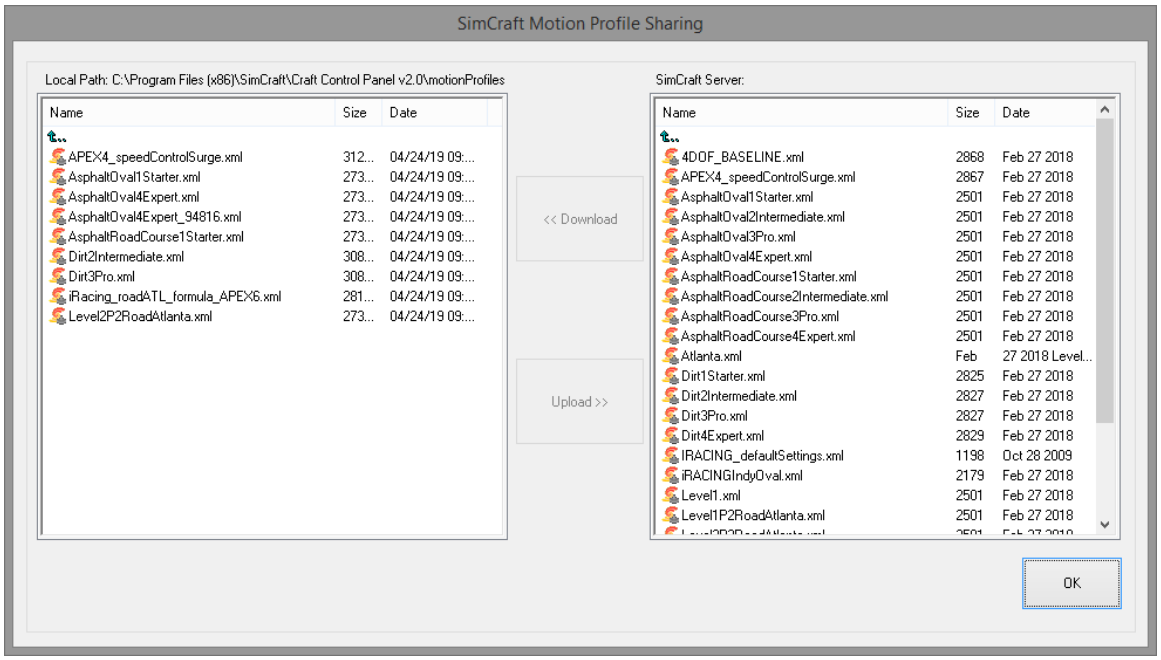


Tools Menu



CraftCon Software Updates – Selection of the software updater will communicate with the SimCraft update server. The process will check your entire CraftCon environment for updates to all files and enabled gaming motion interface integrations. The process will require a restart of CraftCon if one of the primary files to the system requires updating. If this is necessary, you will be notified and CraftCon should restart automatically, and continue with the update process immediately following the restart.

Get/Share Motion Profiles



The SimCraft Motion Profile Sharing client allows for the sharing of motion profiles and the usage of profiles shared by others in the SimCraft community. On the left side of the dialog is a list that displays the contents of your motionProfiles folder inside your SimCraft installation. You may navigate around your simulator PC to upload XML files to the sharing service. Once you select an XML file, the "Upload" button will become enabled.

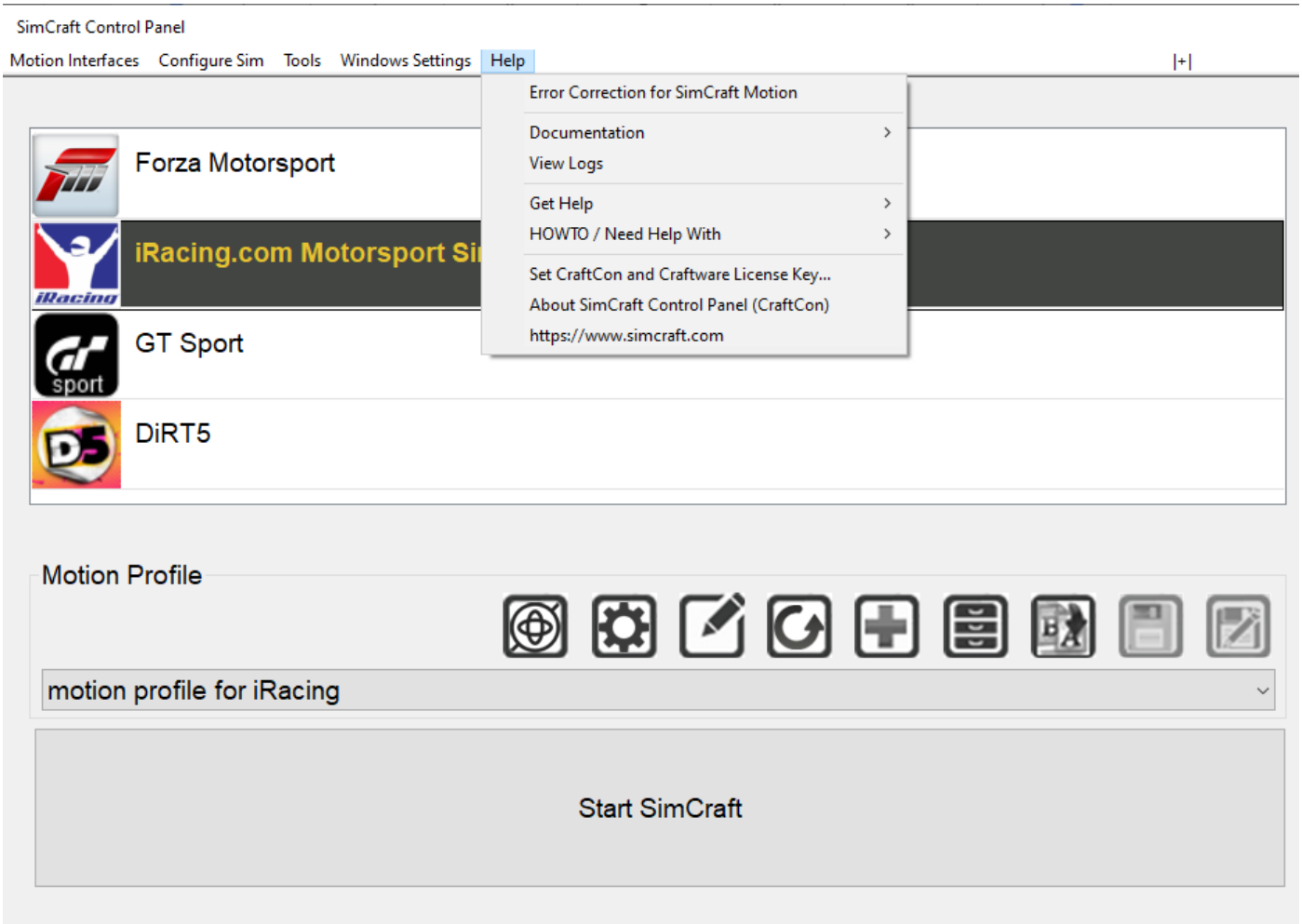
On the right side of the dialog is a listing of folder and motion profile xml files contained on SimCraft.NET. To download a profile to the directory shown on the left side of the dialog, simply click on the desired profile and hit "Download". Downloaded profiles must be imported / loaded as the active profile before the settings from the new downloaded profile are "live".

Please note: The current directory on the left, LOCAL, side is displayed at the top left of the dialog. The starting path is always your "data" directory inside your SimCraft CraftCon installation directory. Only directories and XML files are displayed in both the local and remote file listings

Joy to Key Application – This is a 3rd party application that is distributed with CraftCon. It is useful for mapping buttons and switches to keyboard commands and can be a useful application when used with the realtime adjustment capability of CraftCon.

DIView – The DIView application is a useful utility for setting up simulator controls. Further documentation and usage can be found online.

Help Menu



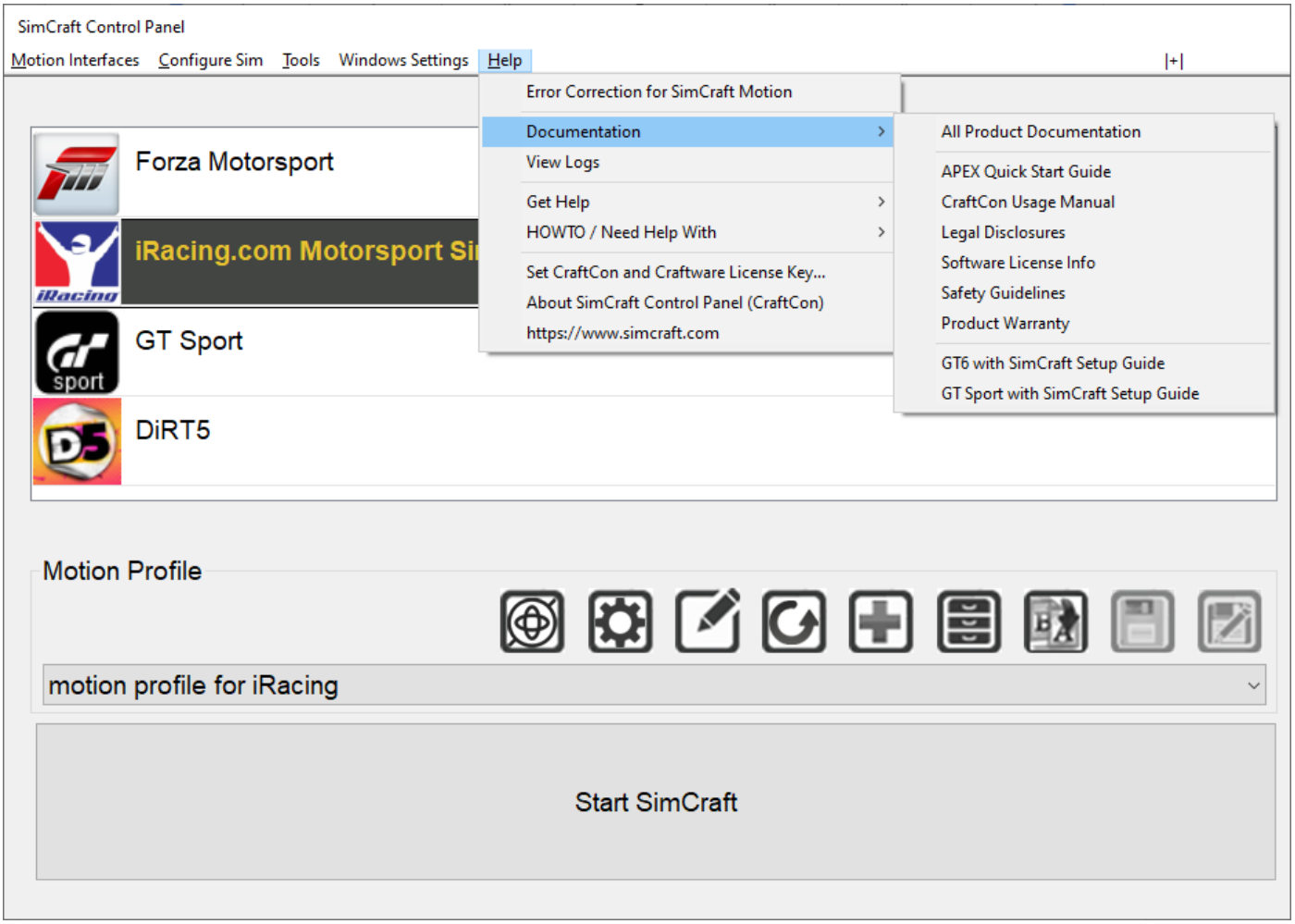
Error Correction for SimCraft Motion - This option will reset the motion control system in the event of error or unexpected power outage. The difference between this method and the calibrate method is that error correction will attempt to fix any internal problems with the motion control system and the calibration function assumes that everything is functioning normally.

The Error Correction method will turn off and reset all actuators in the system. If no errors occur, the actuators will then be turned back on. If the system does not return to home after the system is corrected, try to run a calibrate method immediately following this method.

During the launch process of CraftCon, the motion system will be detected and an attempt will be made to detect the state of the system. If the system is in a good and ready state then you will not see this screen upon the launching of CraftCon. Should an error be detected during this process, the Sim Error Correction dialog will launch automatically.

The Sim Error Correction dialog will attempt to detect the status of each axis and provide a green or a red indicator showing the state of the axis. Green represents that the axis is on and error free, Red means that there is an error on the axis. To reset the axis that is in an error state, click on the applicable Reset button. The system will attempt to reset that axis. If the attempt is successful, a green indicator will replace the red one.

Documentation - This section of contains various links and documentation provided with your CraftCon installation including



1. **All Product Documentation -** access to all SimCraft documentation and third party documentation related to sim builds, sim components, wiring, and troubleshooting.

2. **APEX Quick Start Guide -** a quick start quide for APEX customers that walks through some of the basics.

3. **CraftCon Usage Manual - This manual**.

4. **Legal Disclosures** – copyright, patent and other legal information as it pertains to SimCraft and the intellectual property of other companies.

5. **Software License Info** – the software license that was acknowledged during the installation of CraftCon and the terms of usage for CraftCon.

6. **Safety Guidelines** – a must read document that details warnings and dangers of motion simulation.

7. **Product Warranty -** product warranty details

View Logs – this option will launch the logs folder in a Windows Explorer window.

Setup Unattended Access – this function will install a SimCraft Support utilized utility called FixMe.IT (Techinline) to allow for seamless and easy remote desktop support.

Remote Technical Support Code – will launch an application that assists with remote access to your PC when needed for troubleshooting.

Report Software Defect – an easy link to send an e-mail to SimCraft to report a software defect.

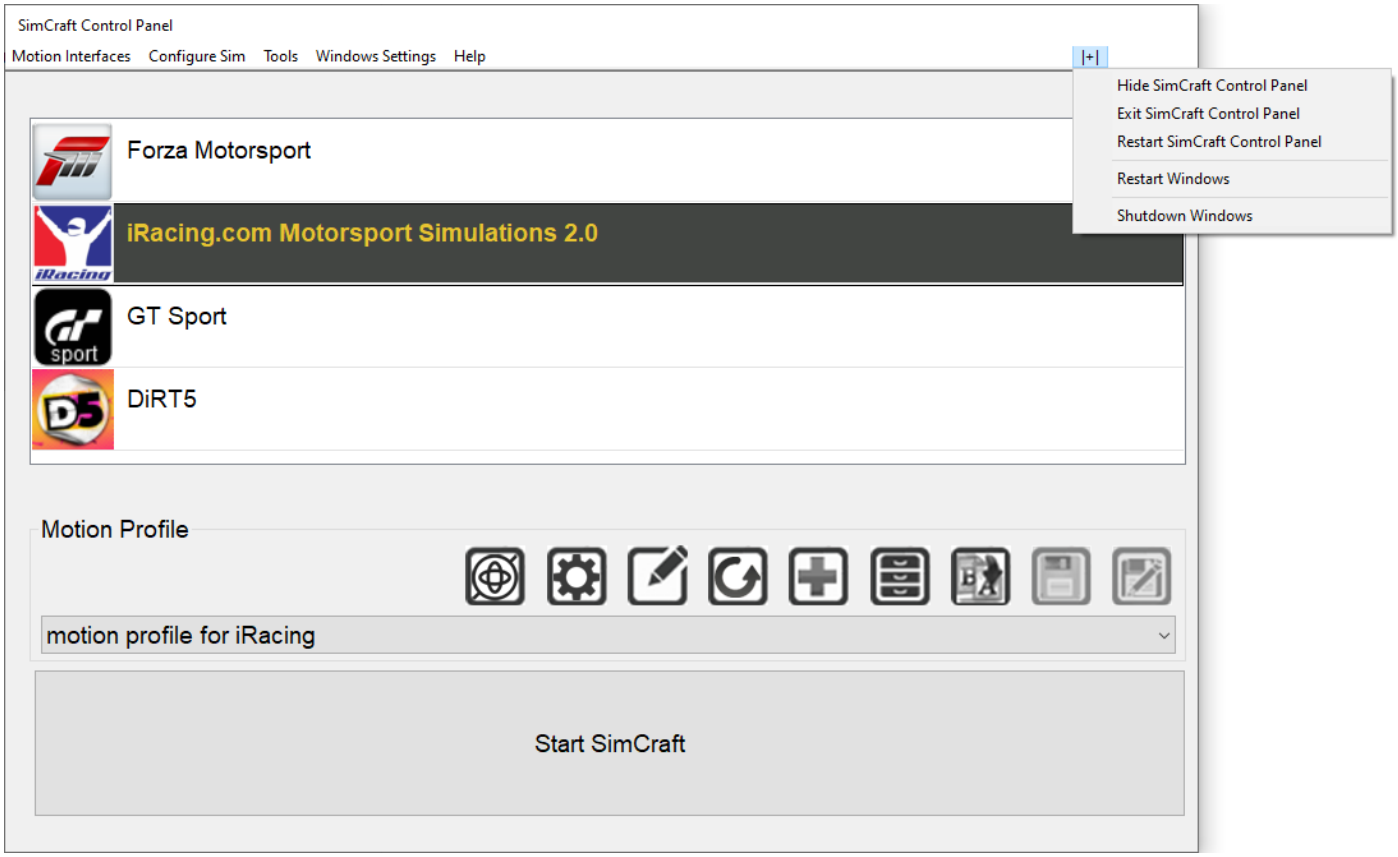
Submit Enhancement Request – an easy link to send an e-mail to SimCraft to suggest a product enhancement.

https://www.simcraft.com - Link to the SimCraft knowledge base and support section. It also includes an electronic copy of the CraftCon User Manual and all other documentation provided with this manual.

Set CraftCon and Craftware License Key - This menu item launches the window where you can register the CraftCon software. For more information on Activating CraftCon and the Set License Key dialog, please see the Activation section above.

About SimCraft Control Panel (CraftCon)- The about screen shows simulator information such as the class, the serial number and the date of manufacturer. It also shows the installed version of CraftCon, who the software license is issued to, and the COM port used in communications.

|+|Menu



Hide SimCraft Control Panel - This menu item will minimize the CraftCon window to the system tray. The main CraftCon window can be restored by single left clicking on the CraftCon logo displayed in the system tray when the window is minimized.

Exit SimCraft Control Panel - Select to shutdown CraftCon.

Restart SimCraft Control Panel - Select to restart CraftCon.

Restart Windows - Select to restart Windows OS.

Shutdown Windows - Select to shutdown the Windows OS.

Appendix A – Glossary of Terms

Simulate or Simulation – to imitate the character or appearance of. Simulation mimics or emulates a "real world" experience and is accomplished with hardware, software, or both in combination. Simulation is an attempted replication of something in a controllable environment.

Simulator or Sim – A simulator is a combination of software and hardware to replicate an experience. A sim is typically used to simulate flight or racing and is most effective when the sim includes full motion. Simulators and their key components can be linked to the human senses and measured against them for effectiveness and realism.

Motion Sim or Motion Simulator- A motion sim can also be called a motion chassis, a motion base, a motion platform, or a motion simulator among other things. The primary function of a motion sim is to provide realistic physical movement for one or more occupants. The movement is synchronous with visual display and is designed to add a tactile, or sense of touch, element to video gaming, simulation, and virtual reality. When motion is applied and synchronized to audio and video signals, the result is a combination of sight, sound, and touch.

Motion Simulation – The simulated motion created by the motion sim intended to replicate the dynamics of an actual craft or vehicle. The motion, derived from realtime physics and telemetry, represents the direction, speed, and forces felt on the craft during operation.

Degree of Freedom – A rotational or translational displacement in three dimensional space. Rotational motion, (roll, pitch, yaw), rotates around an axis in a circular motion, while linear motion, (heave, surge, sway), travels along an axis linearly along a plane. The six degrees of freedom are roll, pitch, yaw, heave, surge, and sway. Motion sims are often characterized by the number of Degrees of Freedom they provide and the range of motion on each axis.

Range of Motion – The amplitude, or amount, of possible movement on a motion axis

Actuator – A device that provides movement either rotationally, or linearly. Linear actuators are used on SimCraft Motion Sims.

Physics or Telemetry – data, either collected or calculated, which characterizes behavior. In motorsports simulation, the physics of a real racecar, (i.e. acceleration, velocity, orientation) are emulated virtually to create a realistic dynamic in the simulation.

SimRacing or Racing Simulation – The virtual recreation of motorsports. The software physics, control, handling, visuals, track mapping, and other factors are all key components of SimRacing. The hardware motion, feel, handling, performance, precision, control, response, detail, and other factors are also components of SimRacing.

FlightSim or Flight Simulation - The virtual recreation of aircraft. The software physics, visuals, flight control, handling, environment, training procedures, and other factors are all key components of FlightSim. The hardware motion, feel, handling, performance, precision, control, response, detail, and other factors are also components of FlightSim.

Craft or Vehicle – that which can be driven, steered, or piloted which also provides a mode of transport.

Cockpit - A compartment, either open or closed, that houses the driver/pilot and all of the accessories of a sim (screen, joystick, pedals).

Craftware - SimCraft proprietary software that translates physics from your sim/game title and drives the SimCraft simulator's motion.

Integration (Gaming/Sim) motion interface – SimCraft software which corresponds to a racing or flight title. A motion interface exists for each title compatible with SimCraft sims.

SimCraft Control Panel (CraftCon) – A modular SimCraft application that allow the user to manage the various Motion interfaces that interact with a SimCraft Motion Sim. From the CraftCon you can manage motion interface settings, Motion Settings, and other features.

Appendix B – Creating a motion profile primer

SimCraft Motion Tuning

Brief Summary of Terms
Amplitude: The amount (volume) of motion, generally speaking.
Intensity: The aggressiveness (gain) of motion.
Acceleration Multiplier: Vehicle motions in the simulation.
Orientation Multiplier: Environmental derived motions in the simulation.

Deeper Explanations
Amplitude: In a motion based vehicle simulation there are 2 factors that influence the motion of the SimCraft. The vehicles motions through the 3d simulated world, and motions from the world itself. The amount of motion experienced is referred to as the amplitude. Both the accelerations and the orientations will be incorporated into the motion amplitude. The amplitude does not distinguish between accelerations or orientations, it is simply the overall *amount* of motion.

Intensity: Sometimes intensity is referred to as "gain". It is the aggressiveness of the motion. The lower the intensity, the smoother and docile the motion. The higher the intensity, the quicker, jerkier the motion is. SimCraft motion technology does adjust the intensity in real time if collision detection is turned on. Intensity should be tuned for normal/nominal driving or flying.

Acceleration multiplier: inputs to the simulation such as gas/brake and steering wheel influence the vehicle's motion in the simulation. It is the acceleration multiplier that tunes how much of the vehicles motions within the 3D simulation influence the motion of the SimCraft. Increasing or decreasing this multiplier will only affect the motions that come from inputs to the vehicle. Too much pitch on braking? Reduce pitch acceleration. Not enough body roll on the steering wheel input? Increase roll acceleration.

Orientation multiplier: This second counterpart to the motion of the SimCraft comes from the environmental conditions in the simulation. Hills, curbs, banking, potholes, etc. affect cars and these elements come through the orientation of the vehicle. Increasing or decreasing this multiplier will only affect how much the environment affects the motion. Too much pitch on hills? Reduce pitch orientation. Not enough roll on banking? Increase roll orientation.

Approaching setting up a motion profile
There are overall amplitude and intensity adjustments on the first screen of editing a motion profile. Set both of these to 75% (unless using larger actuators, then set intensity to 100) and leave alone.

Go into the axis specified amplitude and intensity adjustment screen. These values should be set to 25 for all available axes.

Next go to the advanced screen and set orientation multipliers to 70 and acceleration multipliers to 35.

Drive.

Work on one axis at a time. Roll first.

When driving pay attention first to the roll of the car when using the steering wheel. The car should roll in the opposite direction you are turning the wheel. If it is rolling in the same direction, go to advanced settings and check/uncheck the reverse Roll G checkbox.

If the motion feels "jerky" on wheel input, reduce the roll intensity. If it feels sluggish, increase.

If the roll of the car is too much, reduce the acceleration multiplier, if too little, increase.

Once this feel right, drive on some banking, hills, and curbs. You should feel roll in the direction of the orientation of the banking/hill/curb you are on. If you do not feel enough, increase the orientation multiplier. If you feel too much decrease.

If you get to this point and you have maxed out to 100% on either the orientation or the acceleration multipliers, go to the roll amplitude setting and increase to 50. Then, go back to the acceleration and orientation multipliers and set them to HALF of their current value. This effectively is the same motion setup as when the amplitude was at 25. Increase the multipliers as needed, and repeat this step as necessary.

Next, pitch.

When driving pay attention first to the pitch of the car when using the gas and the brake. The car should pitch down the braking and pitch up slightly when accelerating. Remember, you can decelerate much faster than you can accelerate. You will feel much more pitch on braking than you will on accelerating.

If the motion is too sluggish on braking, increase the pitch intensity, if too "jerky", decrease.

If the sim pitches too much on braking, reduce the acceleration multiplier, if too little, increase.

Getting the intensity and acceleration multiplier just right on braking is half the effort in dialing in pitch.

Once this feel right, drive on some hills, and curbs. Go both uphill and downhill. You should feel pitch in the direction of the orientation of the banking/hill/curb you are on. If you do not feel enough, increase the orientation multiplier. If you feel too much decrease.

If you get to this point and you have maxed out to 100% on either the orientation or the acceleration multipliers, go to the pitch amplitude setting and increase to 50. Then, go back to the acceleration and orientation multipliers and set them to HALF of their current value. This effectively is the same motion setup as when the amplitude was at 25. Increase the multipliers as needed, and repeat this step as necessary.

YAW (If you have it)

There is no orientation adjustment for yaw. You are simply trying to dial in the sensation of over steer and you have 2 adjustments, intensity and acceleration multiplier.