

A dynamic space racing scene with several futuristic spacecraft in a dark, star-filled environment. A large yellow beam of light cuts across the scene from the top left. Various spacecraft are visible, some with glowing trails and others with red warning indicators. The overall atmosphere is high-tech and action-oriented.

Quantum Runners

Flight Control Manual

QER Series Racers

This manual covers all aspects of operating the following Quantum Engine equipped Racing series spaceships as well as the Racing Environment found at the "Sauron 5" system.

Voodoo 501

Thresher 302

Skimmer 130R

Sphinx 7

Avenger FB11

Hammerhead H

Razorback RB

Intruder 5

Assassin J

Goblin 5G

Marauder FAB

Wasp CAS-17

If you haven't obtained a personal copy of this manual, you can obtain one by downloading it, free of charge, at:

<https://www.RigidBody.Tech/QRManual.php/>

To purchase a copy of Quantum Runners, please navigate to:

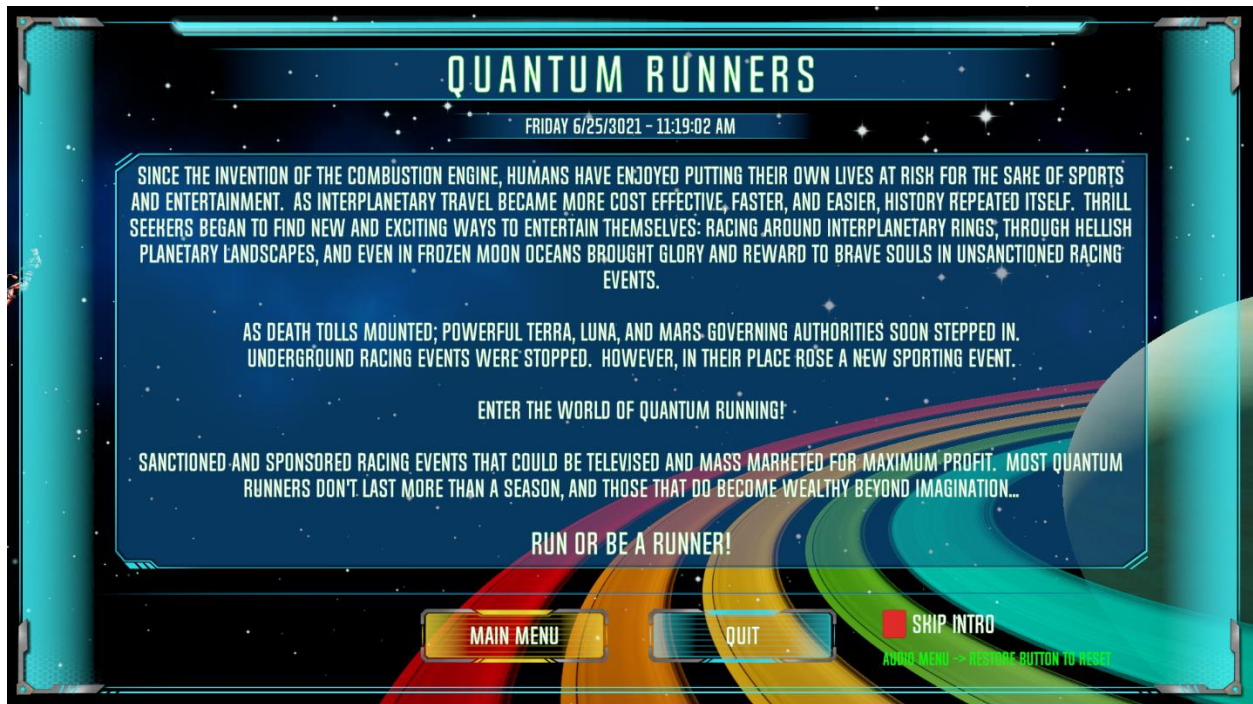
https://store.steampowered.com/app/1183160/Quantum_Runners/

Please note, Quantum Runners supports flight operations with both Keyboard and Mouse, and Controller of your choice with full remap capabilities. Please see Recommended System Specifications as Quantum Runners is specifically designed for higher end gaming rigs.

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Introduction



Quantum Runners Introduction Screen, in English.

The Intro screen gives the backstory scenario for Quantum Runners with the Ships AI Audio. The background image is Sauron 5, a ringed gas giant with human engineered ring and torus sets specifically developed for high-speed ring racing following the outlawing of unsanctioned off world racing, all set one thousand years in the future.

Main Menu: Navigate to the Main menu.

Quit: Immediate quit, no confirm.

Skip Intro Toggle: Toggle this on to skip this Intro screen next time. Reset this from the Audio menu's Restore button.

Quick Start

Once the game is installed, new Pilots can “get to racing” immediately with just a few clicks.

From the Intro Screen above:

Click Main Menu,

From the Main Menu, click Play,

From the Ship Preview and Selection Showroom, click Play.

See Keyboard & Controller Section for flight control inputs available.

Important! See Flight Control Menu to change to Fly by Controller, if desired.

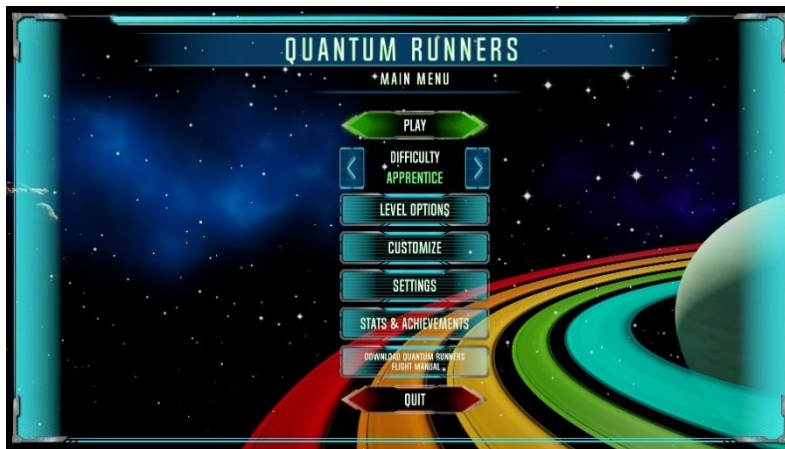
Assuming you have not made any changes, the race will start as:

- 2 laps
- Race right
- A-ring only
- Apprentice level
- Flying a Voodoo 501 in its default configuration at the Ship 1 poll position
- Fly By Mouse mode

Good luck!

See Racing Section for Hazard identification and avoidance, scoring and the subsequent effect on flight operations, among other important topics that, if heeded, will generally limit your exposure to the cold hard vacuum of space ...mostly.

Main Menu



Quantum Runners Main Menu with default background scene.

Play Button: Navigates to the Ship Preview and Selection Showroom.

Difficulty: Use the Left and Right Arrow buttons to select from 5 difficulty levels as follows:

- Apprentice**
- Journeyman**
- Master**
- Champion**
- Runner**

This selection will survive until changed by the Pilot, or is overridden in the Level Control menu for rated races. Various game mechanics will change as the difficulty level increases. Each level has Stats & Achievements and Leaderboard support.

Level Options: Navigates to the Level Options menu.

Customize: Navigates to the Customization menu panel.

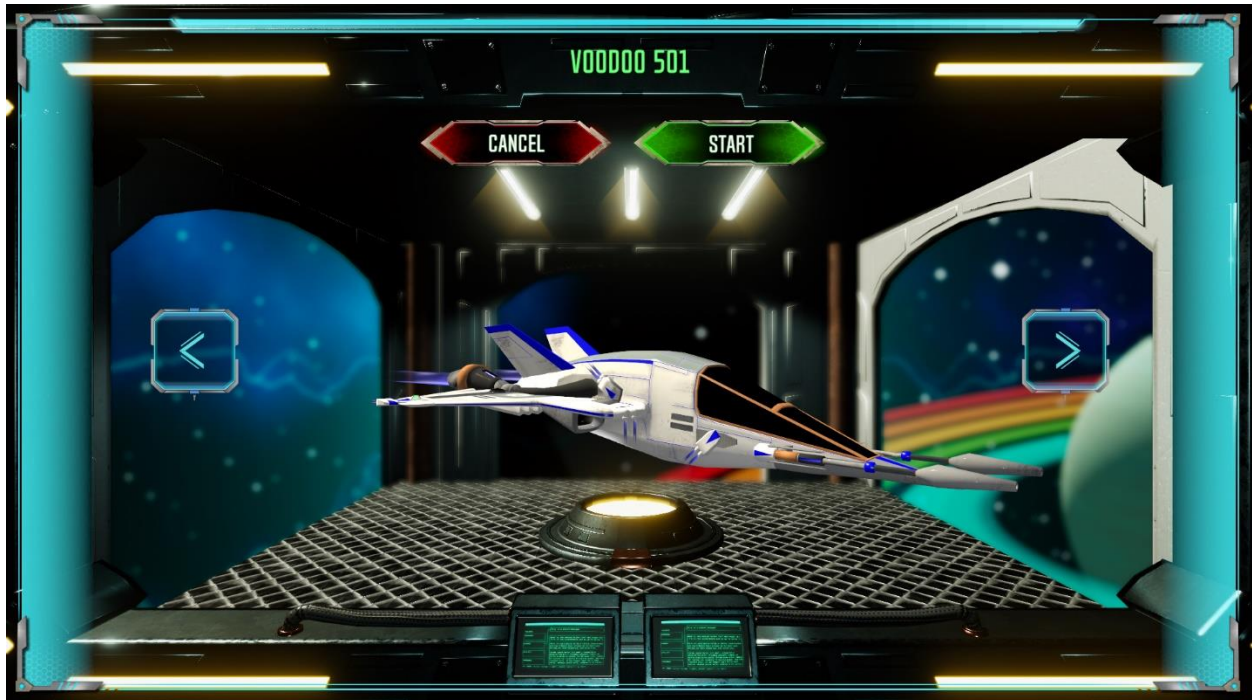
Settings: Navigates to the Settings menu panel.

Stats & Achievements: Navigates to the Stats and Achievements Menu – access all leaderboards from this menu as well.

Download Quantum Runners Flight Manual: Download this manual from the RBT website.

Quit: Navigate to the Quit menu panel.

Ship Preview and Selection Showroom



The Showroom rotated into view with a Voodoo 501 in its default configuration, rotating at full throttle, for the Pilot's preflight inspection.

Cancel: Return to the Main Menu.

Start: Enter the race. Go on, do it! It's perfectly safe! Note slight delay before this button is enabled as the showroom completes its rotation into view.

Left Arrow Button: Selects next ship in reverse starting poll position order and brings that ship into view.

Right Arrow Button: Select next ship in normal starting poll position order and brings that ship into view.

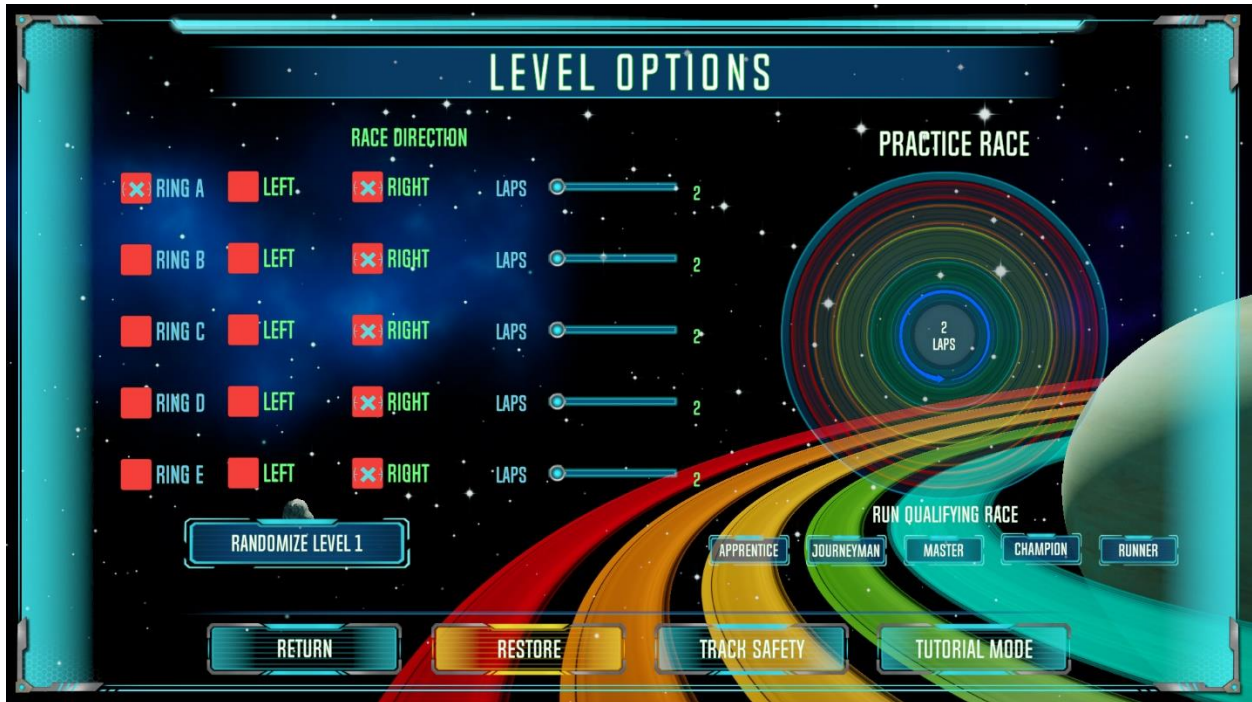
Notice

The make and model of the ship will be displayed at the top.

All configuration changes made in the Player's Customization menu (not AI) will be rendered as selected there.

Ship's Quantum Engines will throttle up to 100% of the Audio Menu selection.

Level Options



The default Level Options Menu.

The Level Options menu controls the Pilot's chosen track layout, the choice of running a Rated race, a Practice race, or in Tutorial mode. There is also a Track Safety button that allows access to the track's safety indicators, which are fully controllable.

Pilots can race on any ring, A, B, C, D, and/or E, left or right, from 1 lap to 20 laps per ring, with the caveat that A-ring must be raced a minimum of 1 lap.

In the Race Direction section, select which rings you wish to fly, and which direction you wish to fly on each ring. The race configuration image (under "Practice Race" above) will update as you make your selections. Note that changing directions will necessitate a high speed 180° turn when entering the current ring's Jump Gate.

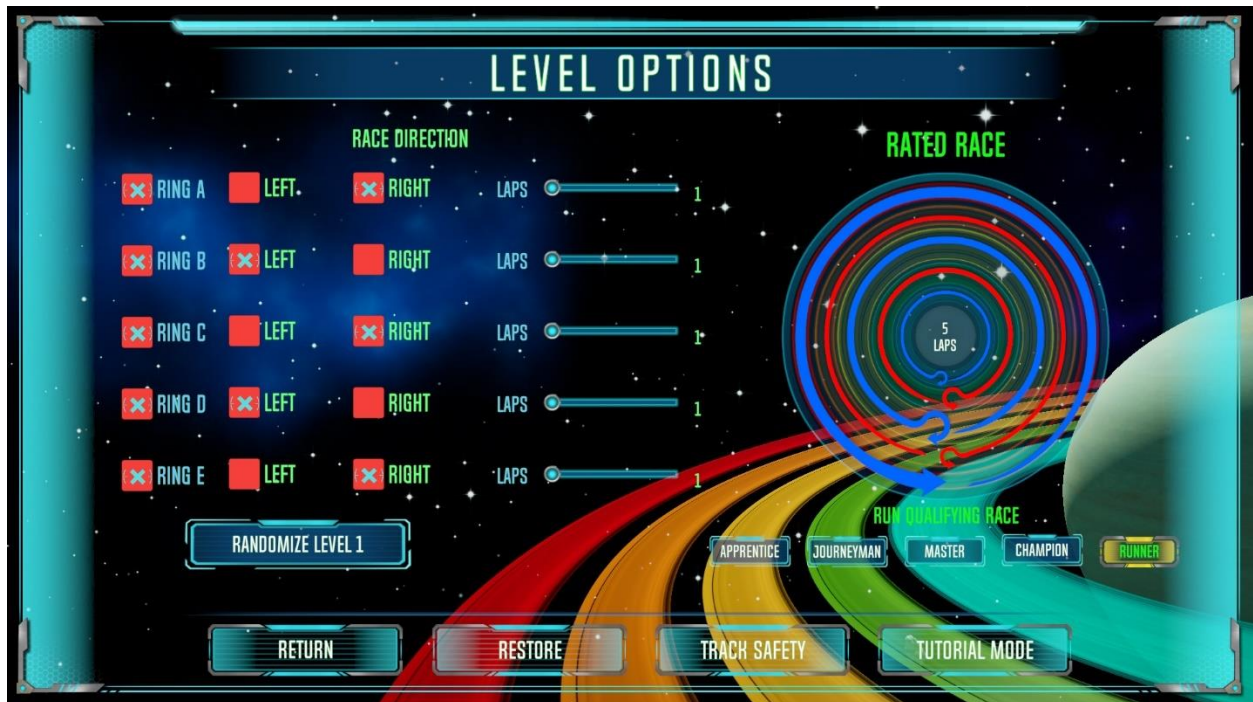
Randomize Level Button: Will randomly select a track layout, but will not select the number of laps, which must be done manually.

Restore Button: Will return the selected layout to A-ring, fly right, 2 laps, Practice Race and take the game out of Tutorial Mode, if previously selected.

Track Safety Button: Will navigate to the Track Safety menu. See Track Safety section.

Tutorial Mode Button: Will put the game into a minimal hazard configuration and provide verbose messaging as you fly the race. Press Restore to take the game out of Tutorial Mode.

Rated Racing



The Level Options Menu with Rated Race set for Runner Level.

Continuing with Level Options is Rated Racing. Above, note that the Runner Rated Race has been selected. It consists of all 5 rings, 1 lap each, at Runner difficulty level, and alternates racing left and right thus necessitating no fewer than 4 high speed 180° turns. As you face towards the planet from any ring, the Blue circular arrows indicate Race Right, Red circular arrows indicate Race Left.

Only Rated Races contribute to Stats & Achievements and Leaderboard scoring, as reflected in the in-game Stats & Achievements and Leaderboards sections.

To select a rated race and then only practice it, thus eliminating the publicity of a poor showing, simply select the desired Rated Race, change any ring, direction, or lap count property, then change it back. The Rated Race text above the configuration image will change to Practice Race. You can also put the game into Tutorial Mode with the Rated Race configuration by clicking the Tutorial Mode button once you have the track set to your liking.

See Stats & Achievements section for additional insight.

Track Safety



The Track Safety Menu.

Quantum Runners comes equipped with multiple safety features that while giving you a good indication of danger ahead, do nothing to save you from the cold hard vacuum of space should you crash your ship...

Please cycle through each toggle and note the effect on the image and what will be reflected on the Racing Level. The following are the toggle descriptions and the relative wisdom of disabling them during a race:

Race Start Arrows: Relatively benign, these simply indicate which direction you should start out in. These disappear immediately at race start.

Race Left Right Arrows: Located on the inner side of each Torus opposite of the ring's jump gates. These are extremely useful when exiting a jump gate at high speed and you've forgotten which direction you should be traveling on the new ring.

Jump This Gate Indication Arrows: Since gates can only be jumped when you have completed the prescribed number of laps you selected in Level Options menu, the Jump

This Gate Arrows are extremely useful as an additional indicator for the Jump Gate Green condition. See Racing Section.

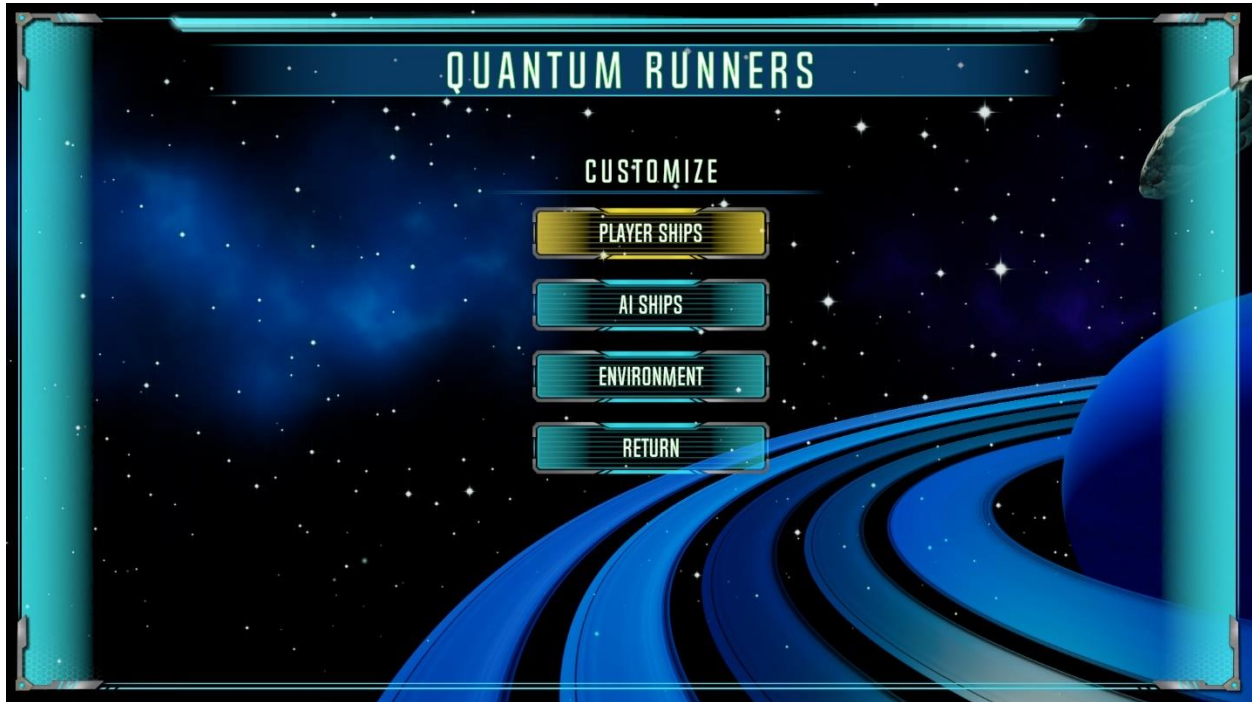
Jump Gate Green Entry Arrows: A useful indicator to prevent you from attempting entry into a Jump Gate from the wrong side and incurring immediate death.

Jump Gate Red Exit Arrows: Another useful indicator to prevent you from attempting entry into a Jump Gate from the wrong side and incurring immediate death. Pay attention to the "Next Gate 180°" Red warning message. See Racing Section.

Jump Gate Yellow Entry Directional Arrow: These arrow sets guide your high-speed travel into the Jump Gate and are set either for a straight through jump or a 180° turn required jump as the case may be. These are your friends, disable at your peril.

Customization Menu Panel

From the Main Menu, select Customize, and you will enter the Customize Menu Panel.

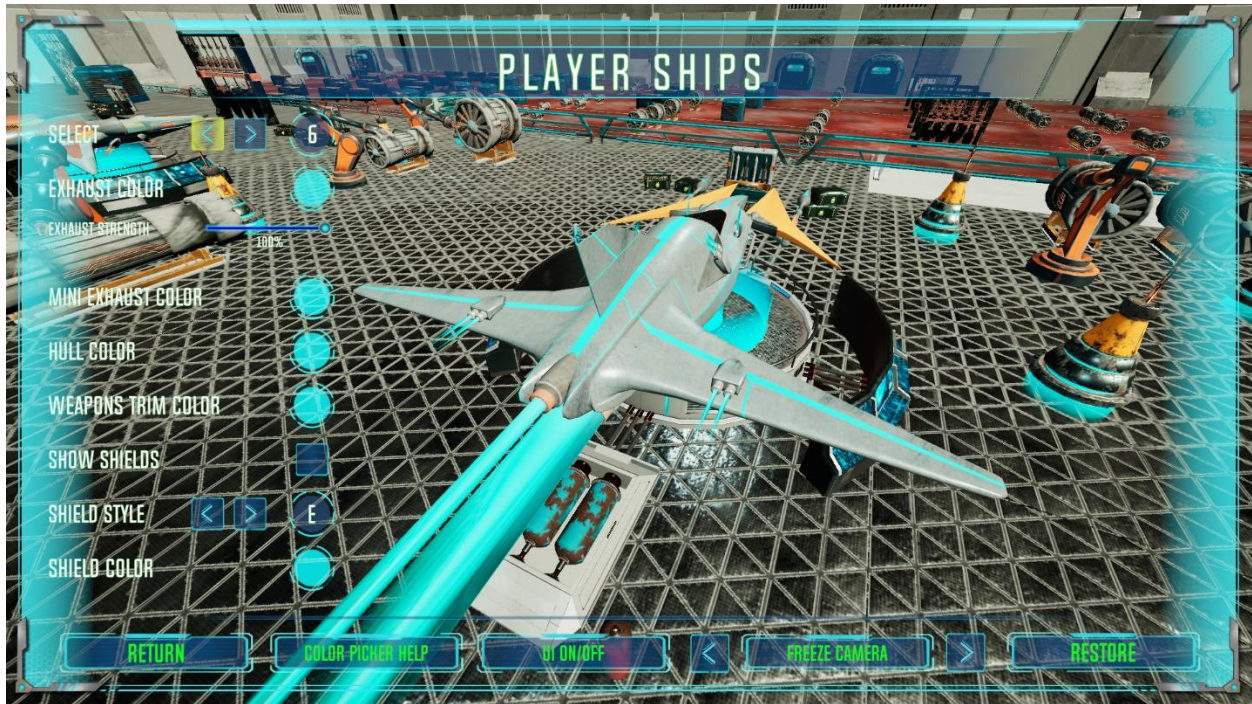


Quantum Runners Customize Menu Panel.

Note there are two buttons for customizing ships, one for the set of 12 Player piloted Ships, and a corresponding button for AI piloted Ships. This means you can customize Player piloted ships independently from the AI piloted ships.

The background environment scheme is Preset 3 in the Environment Customization screen – see below.

Customize Player Ships / AI Ships



Player Ships Customization Menu with Ship 6, Hammerhead H in default settings.

Above, we have entered the Player Ships Customization Hanger Bay, and Ship 6, a Hammerhead H series racer is selected, showing its default customization scheme.

Select Left and Right arrow buttons: Use these to traverse and bring into view the 12 Player Ships available.

Exhaust Color: Select and an HSV style color picker will present, which can then be utilized to change the Main Engine exhaust color, which will immediately render on the selected ship.

Exhaust Strength: Use the slider to control the power applied to the main engines to simulate what your selection will look like on the racing level.

Mini Exhaust Color: Select and an HSV style color picker will present, which can then be utilized to change all of the Maneuvering Thruster's exhaust colors, which will immediately render on the selected ship.

Hull Color: Select and an HSV style color picker will present, which can then be utilized to change the selected ship's Hull color, which will immediately render on the selected ship.

Weapons Trim Color: Select and an HSV style color picker will present, which can then be utilized to change the selected ship's Weapon's Trim color, which will immediately render on the selected ship. Note that some ships only have very limited weapons trim coloring.

Show Shields: Toggle to see the shield style and color currently set on the selected ship.

Shield Style: Use the Left and Right arrow buttons to traverse the 5 shield styles available.

Shield Color: Select and an HSV style color picker will present, which can then be utilized to change the selected ship's shield color, which will immediately render on the selected ship. Experiment with this one as many interesting effects can be had.

Color Picker Help: While intuitive enough, toggle to see text help on how the color pickers are actuated. Color Pickers support both mouse and controller actuation.

UI On/Off: Fades the User Interface off for better viewing.

Freeze Camara: Stop, change direction, manually control the rotation of the UI camera.

Restore: Resets all customization properties to default values. Use with care!



The same ship depicted previously above, but with various customization changes made, as an example. See below.

Still with Ship 6 (Hammerhead H) selected, note the changes made as follows:

Main Engine Exhaust color has been set to light green and the Exhaust Strength is set to 80%, shortening the main engine exhaust plume.

Mini Exhaust color has been set to blue.

Hull Color has been set to light magenta.

Weapons Trim color has been set to a dangerous red, as would be appropriate!

Show Shields is toggled on, Shield Style B has been selected, and a gold color has been selected to match the gold hammerhead configuration – these are antenna, as the Hammerhead H is, when not racing, typically used for satellite communications surveillance and interdiction.

Finally, the HSV style Color Picker is displayed at the Shield Color position.

AI Ships

The AI Ships Customization screen works in identical fashion to the Player's Ships Customization Menu. The difference is that changes made in the AI Ships Customization Menu will only be reflected on the 11 ships that you are racing against. More succinctly, you have two versions of each ship to customize, the Player's ship, and the AI Ship version that presents in-race only when you are flying a different ship.

Customize Environment



Environment Customization screen with C-ring presented for inspection and modification.

Here we have the Environment Customization screen with C-ring presented for inspection and modification. Depicted above is the Environment default color/style theme. There are a number of ways to interact with this screen as follows:

Select: Use the Left and Right arrow buttons to select and rotate into view Ring and Torus sets A through E. A is closest to the planet, in Cyan, and E is furthest away, in Red. Selecting E-ring will position you inside the ring!

Torus Style: Use the Left and Right arrow buttons to traverse the 5 Torus styles available.

Torus Color: Select and an HSV style color picker will present, which can then be utilized to change the selected Torus color, which will immediately render on the selected torus. Experiment with this one as many interesting effects can be had. Additionally, you can make the Torus invisible. Good luck flying that!

Ring Color: Select and an HSV style color picker will present, which can then be utilized to change the selected Ring color, which will immediately render on the selected Ring. You cannot make the ring completely invisible on the Racing Level, but close!

Planet Color: Select and an HSV style color picker will present, which can then be utilized to change the Planet color, which will immediately render on the Planet.

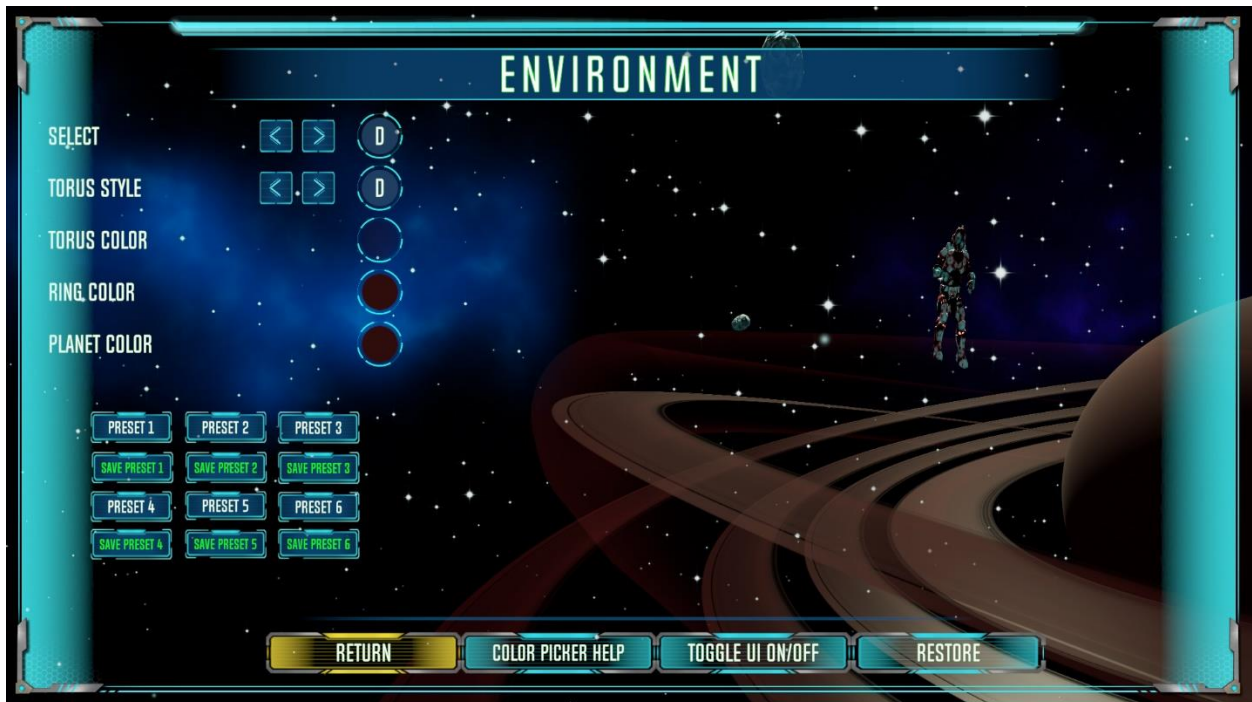
Preset Buttons: Click any of these to see the generic color schemes set as defaults.

Save Preset Buttons: Set up your environment as above, and then click the corresponding Save Preset button to save it for future use.

Color Picker Help: While intuitive enough, toggle to see text help on how the color pickers are actuated. Color Pickers support both mouse and controller actuation.

Toggle UI On/Off: Fades the User Interface off for better viewing.

Restore: Resets all Environment customization properties to default values, including ALL saved presets. Use with care!

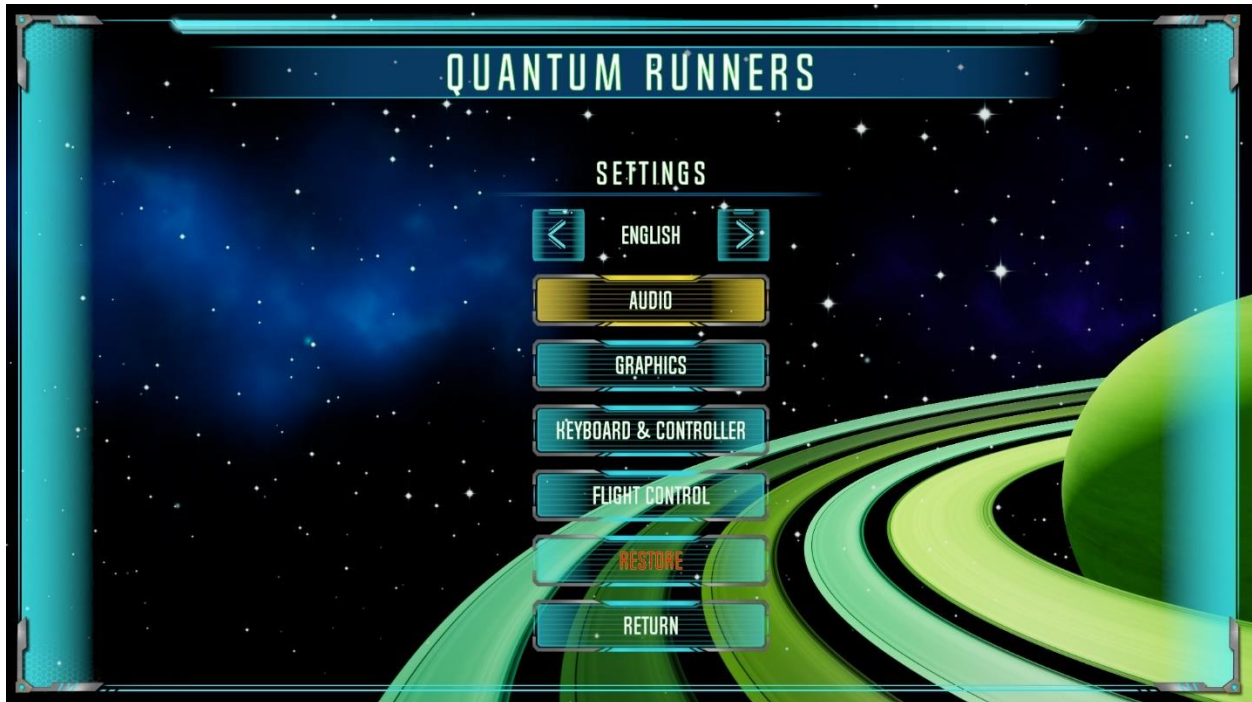


Environment Customization screen with D-ring presented for inspection and modification.

Above, we have Preset 5's eerie default scheme selected with D-ring selected for editing. This is a difficult configuration to race, but we feel this one yields a superior racing experience.

Note that any changes to the Environment are immediately reflected in the game's background scenery as you traverse the menu system.

Settings Overview and Language Selection



Quantum Runners Settings Menu Panel.

Here we have the Settings Menu panel displayed with Environment default preset 3 selected previously.

Language Selection: Quantum Runners supports English, Spanish, French, German, Portuguese, and Italian. Press the Left or Right arrow buttons to immediately set your desired language.

Audio: Brings up the Audio Menu – see below.

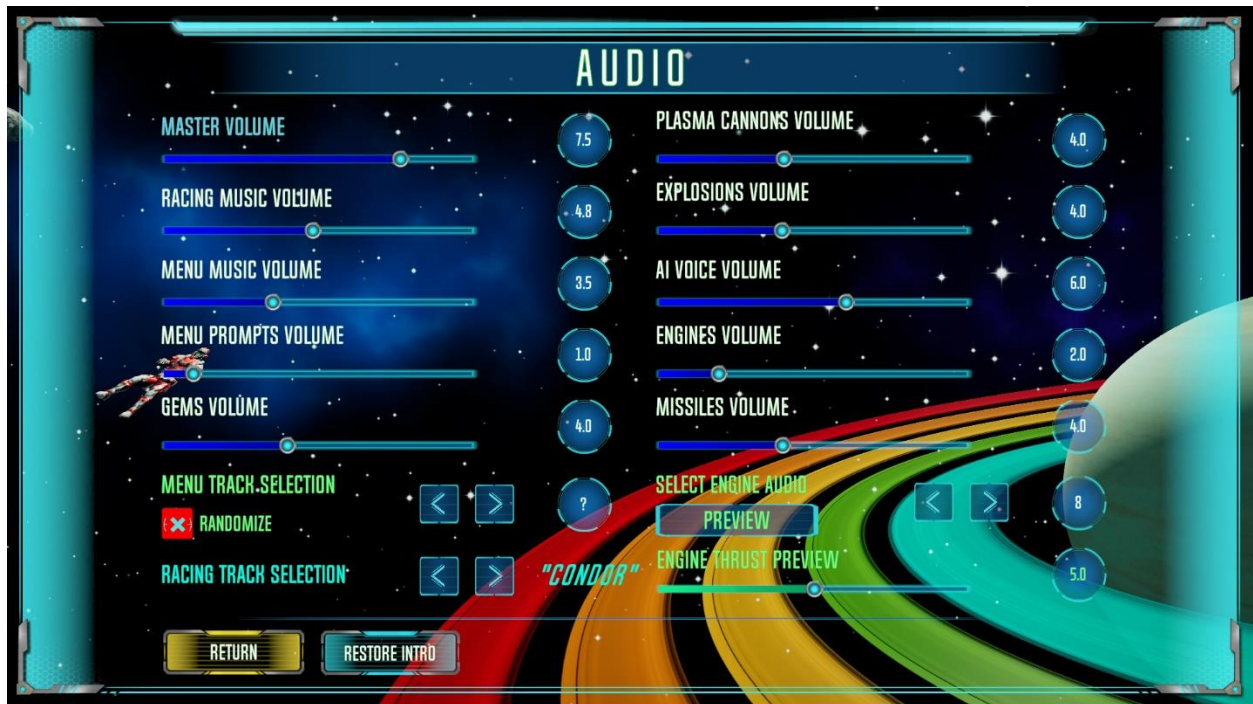
Graphics: Brings up the Graphics menu – see below.

Keyboard & Controller: Brings up the Remap menu. You can also find the recommended Keyboard, Mouse, and Controller settings buttons, located there for your convenience. The full description of each input is covered in the Racing Section.

Flight Control: Brings up the Player's Ship Flight Control settings menu. This is a comprehensive menu that allows you to configure and save all ship flight characteristics and properties as the Pilot sees fit!

Restore: Restores Quantum Runners to its default settings unless individual restore capabilities are provided elsewhere (Environment and Player/AI Ship Customization Menus). Controller, Keyboard and Mouse mappings will reset! Use with care.

Audio



Quantum Runners Audio Menu.

Quantum Runners comes implemented with a 9 channel Mixer and single Master for full Audio control as follows:

Master Volume: Controls the entire game's audio volume.

Racing Music Volume: Controls the audio volume for the Racing Level's racing music.

Menu Music Volume: Controls the audio volume on the User Interface Level's menu music.

Menu Prompts Volume: Controls the audio volume of the User Interface level's menu prompts.

Gems Volume: Controls the audio volume notification of acquired gems during a race.

Menu Track Selection: Select your preferred Menu Level music from 10 different selections available and loop them, or you may toggle Randomize and all 10 will randomly play with fade in/out.

Racing Track Selection: Select one of three Racing Level music tracks.

Plasma Cannon Volume: Controls the audio volume of the Player's ship Plasma Cannons.

Explosions Volume: Controls the audio volume of explosion / detonations during a race.

AI Voice Volume: Controls the audio volume of the AI dialog during the game's introduction.

Engines Volume: Controls the audio volume of the Player's Quantum Engines both during ship selection preview and in race.

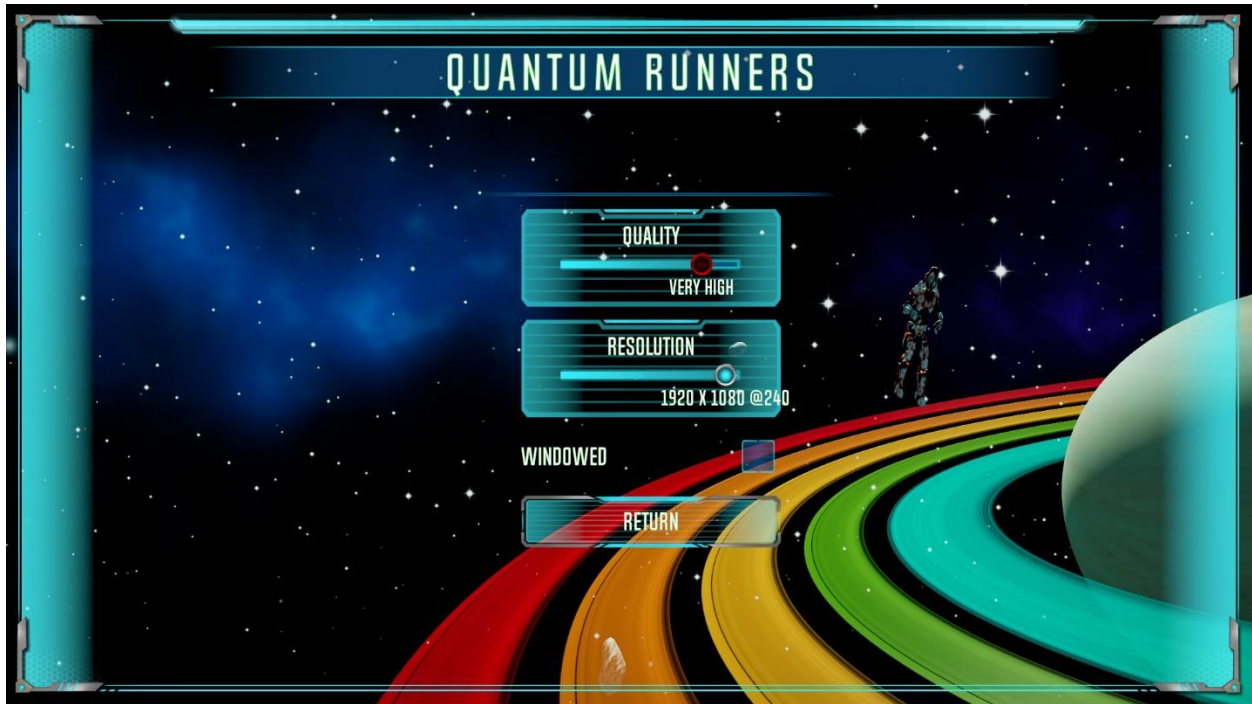
Missiles Volume: Controls the audio volume on Rings B, C, D, and E for self-guided missile launch, travel, and detonation.

Select Engine Audio: Select the Quantum Engine audio from 8 different options by clicking the left and right arrow buttons. Use the Preview button to toggle the local audio on and off.

Engine Thrust Preview Section: Test your chosen favorite engine sound before the race. The slider will simulate the variable pitch audio effect based on 0 to 2,000 Kilometers Per Second.

Restore Intro Button: Click this button to restore the game's Introduction audio sequence.

Graphics



Quantum Runners Graphics Menu.

Quality: Select between 6 different quality settings as follows:

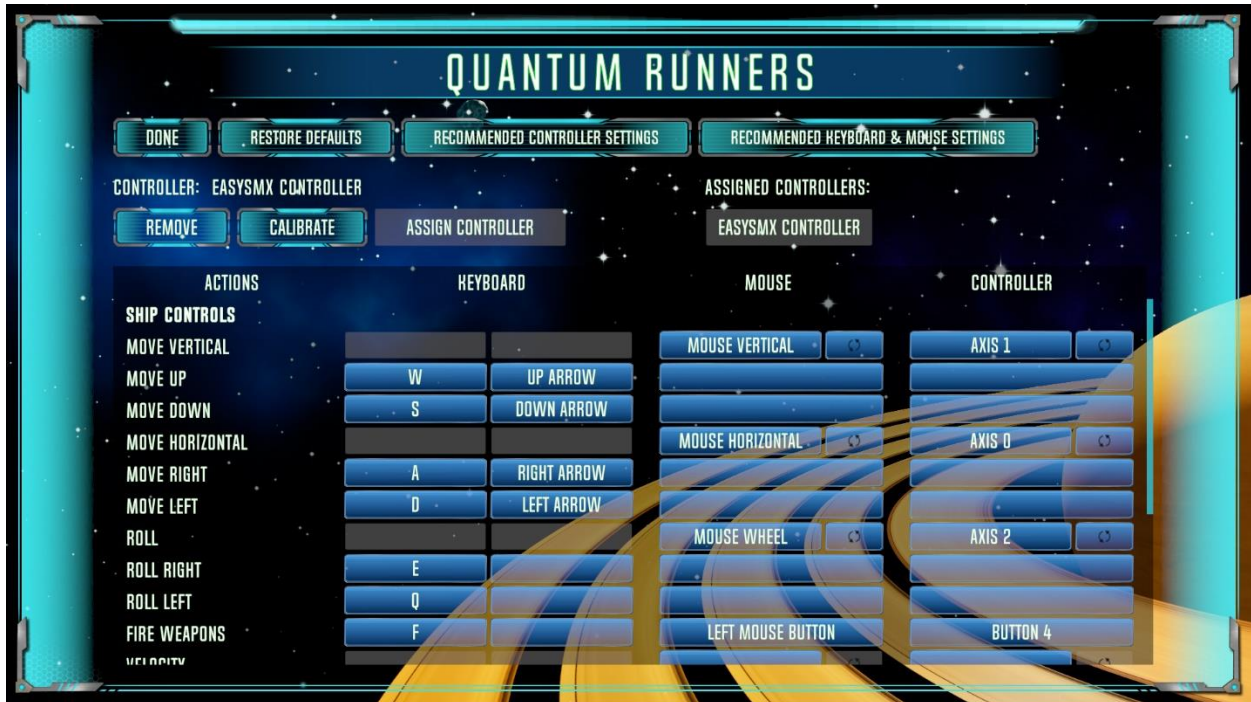
- Very Low
- Low
- Medium
- High
- Very High
- Ultra

We recommend Very High or even Ultra if your system can support it.

Resolution: Select the resolution and refresh frequency rate to display the game on. The exact resolutions and frequencies available will depend on your monitor's capabilities. We recommend the highest level your system will accommodate but still provides the ability to fully enjoy the game's high poly models and photo realistic materials.

Windowed: Choose between full screen or windowed game mode. Windowed mode will support window resizing and attempt to present the best viewable aspect ratio.

Keyboard, Mouse & Controller Remap



Quantum Runners Remap Menu.

The Keyboard, Mouse and Controller Menu deals with remapping Quantum Runners input scheme to better suit advanced Pilots. The various buttons and their effect are described below. The individual Actions section is covered in detail in the Racing Section. Here, click any blue tinted button and follow the on-screen directions to remap.

Done: Return to Settings Menu.

Restore Defaults: Start configuring again with a clean slate!

Recommended Controller Settings: Trust the recommendations from our team of developers for Controller players. See Racing Section for Input details.

Recommended Keyboard & Mouse Settings: Trust the recommendations from our team of developers for Keyboard and Mouse players.

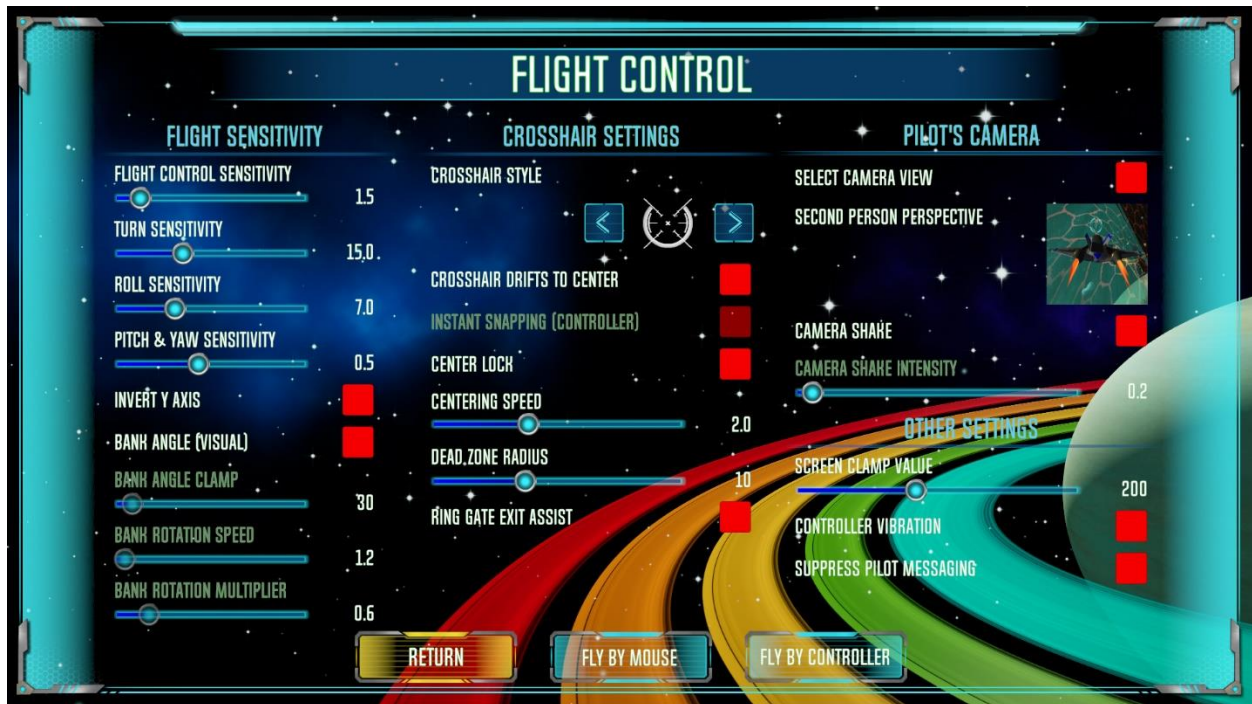
Controller: Details the currently connected controller.

Remove: Removes the most recently connected controller and enables the Assign Controller button.

Calibrate: Press and set up your controller for precision performance!

Assign Controller: Select controller of your preference - must be connected.

Flight Control



Quantum Runners Flight Control Menu in Fly by Mouse mode.

Depicted above is the Flight Control menu that can be used to set up the Player's ship in almost any configuration desired. The image above is the default setup for "Fly by Mouse" and reflects the Developer's desires, but not necessarily yours! Please take some time to experiment with these settings to ensure you race at your competitive best.

Flight Sensitivity

Flight Control Sensitivity: Increasing the slider value amplifies all Flight Control inputs made by the Pilot.

Turn Sensitivity: Adjusts the sensitivity of both Roll and Yaw axis turns when made together in-race.

Roll Sensitivity: Adjusts the sensitivity of Rolls made in-race.

Pitch and Yaw Sensitivity: Adjust the sensitivity of both Pitch and Yaw axis inputs in-race.

The 4 sliders above work together. Experiment!

Invert Y Axis: Select this option so when you push up on the stick, the ship moves downwards and vice versa.

Bank Angle (visual only): Banking is the technique a pilot uses during a turn. The ship will roll to a "banked" position in that its wings are angled towards the desired direction of the turn. Select this feature to enable auto banking as follows:

Bank Angle Clamp: Clamps the maximum banking angle, per your slider setting selection, from between 1° to 360°. Enables interesting flight control input effects.

Bank Rotation Speed: Controls the speed of execution of the banking maneuver.

Bank Rotation Multiplier: Really ramp up the speed of rotation.

Crosshair Settings

Crosshair Style: Select one of 6 crosshair reticles plus one "no reticle". No Reticle is useful for taking in-game video and screenshots.

Crosshair Drifts to Center: Affects controller piloted racing only. Selecting enables crosshair smooth recentering to "center of screen" and enables Instant Snapping.

Instant Snapping (Controller): Use with controller piloted racing only. Overrides crosshair Centering Speed to Instant.

Center Lock: Select this feature to lock your crosshair to the center of the screen.

Centering Speed: Select the velocity of crosshair drifting to the center of the screen when Instant Snapping or Center Lock is not desired.

Dead Zone Radius: Controls the amount of space, measured in pixels, at the center of the screen where the pointer can move the crosshair for targeting the Plasma Cannons without affecting the ship's movement.

Ring Gate Exit Assist: Select this feature to activate Ring Gate Exit Assist mode, which is highly recommended for new Pilots. Safely places the ship away from the Ring Gate on exit. This is useful when flying at high speed.

Pilot's Camera

Select Camera View: Toggle to select First person view or Second person over-the-shoulder view.

First or Second Person View: Visual confirmation of Pilot's camera view setting.

Camera Shake: Enables camera shake initiated by numerous in race events.

Camera Shake Intensity: Select the desired amount of Camera Shake visual effect when enabled above.

Other Settings

Screen Clamp Value: Sets a square, centered at screen center, the length and width of which is the Screen Clamp Value. During flight, crosshair placement outside of the “square” will be treated as input at the maximum value of input in that direction vector.

Controller Vibration: Enables controller vibration initiated by numerous in-race events.

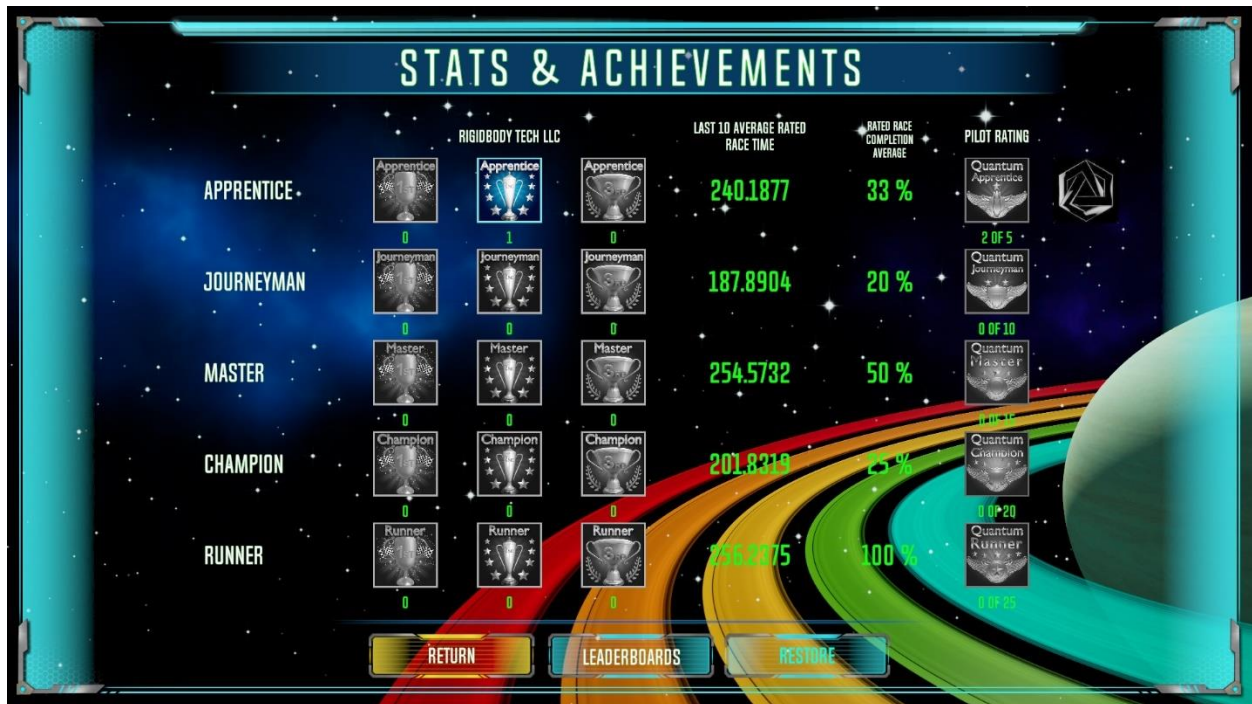
Suppress Pilot Messaging: Enable this option to suppress verbose messaging in-race. This setting is overridden when flying in Tutorial Mode.

Fly By Mouse: Press to restore all settings to default for flying by mouse and keyboard.

Fly By Controller: Press to restore all setting to default for flying with a controller.

NOTICE: Attempting to fly with the mouse when in Fly by Controller mode or attempting to fly with the controller when in Fly by Mouse mode will result in frustration and a quick death...

Stats & Achievements



Stats & Achievements Screen.

Only Rated Races have an effect on Stats & Achievements. Practice Races and Tutorial Races have no effect.

Achievement badges are awarded for finishing a Rated Race in first, second or third place in the selected difficulty category. Note the number of finishes in each category is reflected directly below each Achievement badge. These finishes contribute points towards Pilot Rating Badges as follows:

- First: 3 points
- Second: 2 points
- Third: 1 point

Pilot Rating badges are awarded by accumulating points as follows:

- Apprentice: 5 points
- Journeyman: 10 points
- Master: 15 points
- Champion: 20 points
- Runner: 25 points

Note that the five racing difficulty levels each correspond to a set of achievements.

In the above Stats & Achievements screen shot, note that a single second place Apprentice race finish has been recorded, and the 2 points, of 5 required to earn the Apprentice Pilot Rating, are reflected under the Apprentice Pilot Rating badge.

Badges remain greyed out until earned.

Last 10 Average Rated Race Time: Reflects the average of the last 10 completed race times in the difficulty level selected. Incomplete Rated Races are disregarded in this calculation. This is not resettable.

Rated Race Completion Average: Reflects Rated Races Completed ÷ Total Rated Races Attempted. This is not resettable.

Restore: This will reset the badges you have been awarded, but will not change the Last 10 Average Rated Race Times or the Rated Race Completion Average.

Note: We are well aware of Steam's calculation bias that encourages Pilot's to continue racing by inflating their statistics. We have overridden this behavior. There is no second chance in space. Not everyone gets a trophy. Errant flying will lead to your exposure to the cold hard vacuum of space, and it's recorded here, permanently, for posterities sake...

Leaderboards: Takes you to the Leaderboards screen. See below.

Leaderboards

PILOT	NAME	POSITION	BEST RACE TIME
PILOT	RIGIDBODY TECH LLC	1	239.431
PILOT	NIGELNI77	2	240.053
PILOT	SLUDEGRR	3	242.047
PILOT	LASRGRUNT	4	245.884
PILOT	JAVOMUNOZOROZCO	5	246.783
PILOT	BRANT084	6	248.330
PILOT	BESTRUNNER	7	249.833
PILOT	BLOKEYBLOKE4	8	250.589
PILOT	H8DTROVER	9	250.786
PILOT	ERGO379	10	250.934
PILOT	UZR96FOX	11	251.941
PILOT	AGENT48ING	12	255.228

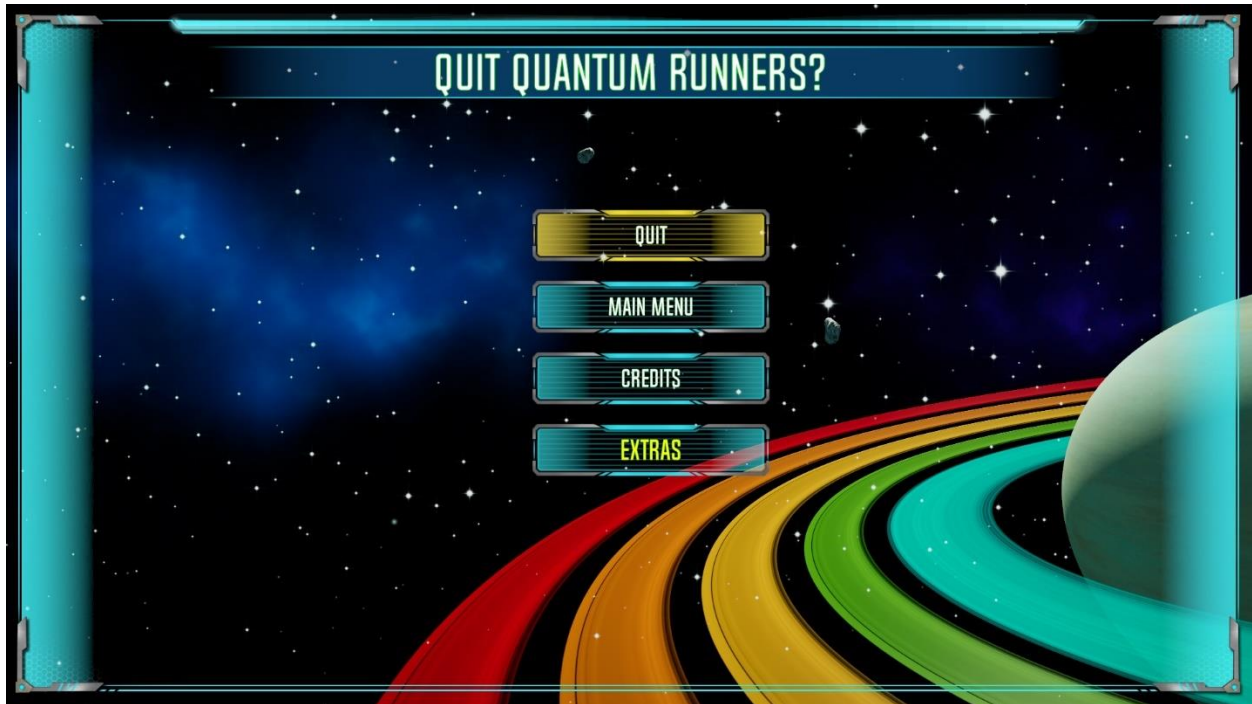
The Apprentice Leaderboard display, indicating the top 12 Best Race Times of all Pilots.

When this screen is first brought up, there is a slight delay as the simulation polls the Steam database for all participating Pilot's data as of the current date and time. Once retrieved, you will see all five **Difficulty Level Buttons** flash briefly, thus signifying a current listing of the top 12 pilot race times in each of the corresponding difficulty level Leaderboards. Select each button for an immediate presentation of the leaders in the respective Leaderboard category.

Reload Data: Will re-poll the Steam database, with the aforementioned slight delay, and retrieve the most current set of results for all completed races as of that time.

Button intractability will be limited during the brief database polling period.

Quit



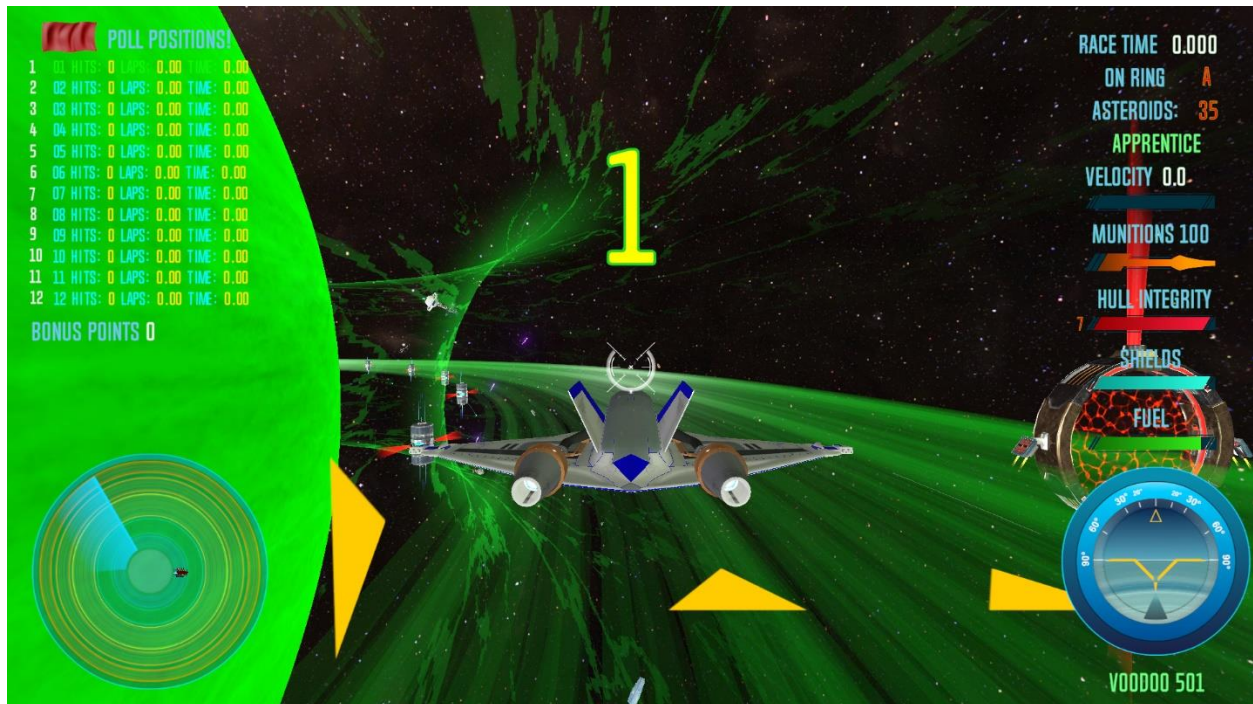
Quantum Runners Quit Menu.

While intuitive enough, please note:

Credits: Who created the Quantum Runners simulation and legal stuff.

Extras: An unabashed attempt to induce you to buy the music album or other games produced by... the maker, RigidBody Tech LLC.

Racing



Here we have a race start condition with start countdown at 1 with full HUD displayed.

Once the Pilot presses Play, a short loading overlay will be presented, and then a version of the above simulation image, depending on what you have selected in the various menu options, will render. The countdown will decrease from 4 to 0, the Player's Ship position and rotation locks will come off at 2, and the message "Race" will appear at 0. The AI ships will immediately accelerate to their maximum velocity as determined by the difficulty level, and you will need to catch up.

The Racing Section is divided up into the following categories and a detailed description of what Pilot's should expect during the race can be found within each.

- Input
- HUD
- Scoring
- Fixed and Dynamic Hazards
- Jump Gates
- Refuelers

Keyboard

ESC	Return to Main Menu
R	Reduce velocity
V	Increase velocity
F	Fire Plasma Cannons
W	Pitch up (dependent on Invert Y-Axis setting)
A	Yaw left
S	Pitch down (dependent on Invert Y-Axis setting)
D	Yaw right
Q	Roll left
E	Roll right
X	Shields
H	Toggle Heads Up Display (8 different settings)
K	Toggle First Person or Over-the-Shoulder Pilot's camera view
O	Toggle Refueler on for 3.0 seconds, repeatable.
↑	Pitch up (dependent on Invert Y-Axis setting)
←	Yaw left
↓	Pitch down (dependent on Invert Y-Axis setting)
→	Yaw right

Mouse

Left Button	Fire Plasma Cannons
Right Button	Shields
Center Scroll	Roll ship left or right (X-axis)
Mouse Move	Steers the ship via Pitch (Y-axis) and Yaw (Z-axis)

Controller

Use “Change Symbols” buttons to change to your controller’s displayed standard symbol set. **X-Box**, **Generic**, and **PlayStation** are available. Most common controllers are also supported.

A , 3 , X	Shields in-race, Submit when on UI level
B , 2 , O	Return to Main Menu
X , 4 , □	Toggle HUD
Y , 1 , △	Toggle First Person and Over-the-Shoulder Pilot’s camera view
D-pad	Navigate Menu on UI level
Left Stick	Pitch up/down (dependent on Invert Y-axis setting) & Yaw left/right
Right Stick	Pitch up/down (dependent on Invert Y-axis setting) & Roll left/right
Right Stick Button	Press to toggle Refueler on for 3.0 seconds, repeatable.
Center Buttons	Pause
Left Trigger	Increase velocity
Right Trigger	Decrease velocity
Left Shoulder	Fire Plasma Cannons or Increment sliders on UI Level
Right Shoulder	Fire Plasma Cannons or Decrement sliders on UI Level

Note: The vast majority of Quantum Runners Inputs are fully remappable. See Keyboard, Mouse & Controller Remap section.

HUD



Here we have the HUD in All ON mode (full display), 1.017 seconds after race start.

Quantum Runners comes equipped with an 8 position Heads Up Display (HUD) that can be turned on and off completely or independently. Use the H key or a connected controller's X, 4, or □ button to change. The settings are:

- All ON
- Left side OFF, Right side ON
- Right side ON, Left side OFF
- All OFF
- Ship's Attitude Indicator ON only
- Ship's Radar ON only
- Ship's Attitude Indicator and Radar ON only
- Right side On, Left side OFF except for Ship's Radar

From top left, moving counterclockwise, we have the following displayed.

Leaderboard: This individual race's leaderboard. A green racing flag, as opposed to red or checkered, is displayed along with the current race's standings for each pilot. The standings will update as each ring marker is crossed. There are 4 invisible markers

on each ring. Exiting the torus to get ahead will result in a skipped marker and warning messages to return to the last marker. If you choose to continue, the warning messages will persist and a full lap completed deduction will result. Additionally, you will not be able to jump the rings until this condition is resolved.

The continuously sorted scoring table consists of the following:

- Race position in white, 1-12.
- The ship number in race leader order.
- The number of hits achieved on each ship by you. (See Scoring section below)
- Lap count and total elapsed time when each ship crossed the last marker.

Bonus Points: Accumulated in the current race (See Scoring section below).

Ship's Radar: Each ship will register on the Radar based upon its hull color and top-down silhouette for that ship. As such, it behooves you to set the AI ship's Hull Color properties differently in the Customize AI Ships menu.

All Systems Nominal message: This and other informative messages will render here. Many of these can be turned off in the Flight Control menu with the Suppress Pilot Messaging toggle.

The Ship's make and model.

Ship's Attitude Indicator: Useful when you find yourself suddenly flying upside down.

Fuel: Remaining Fuel as a percentage of total capacity. See Refuel section below.

Shields: Time to Off for replenishment.

Hull Integrity: The number of dynamic hazard collisions allowed before ...the end.

Munitions: Rounds remaining. Note not all ships have 2 Plasma Cannons.

Velocity: In Kilometers Per Second.

Race Difficulty Level: Apprentice in this example.

Asteroid Count: A running count of asteroids, a dangerous hazard, on the current ring.

Currently On Ring: A in this example. This will automatically change as you jump.

Race Time: The total elapsed time since the race started.

Regardless of your HUD setting, the HUD will full display at race end as soon as the last ship crosses the finish line.

Scoring & Gems

Fire your Plasma Cannons and assuming you hit something, you will score. If you do, here is the points scoring table.

AI Ships	5 points per Projectile
Asteroids	2 points
Asteroid Grinder	2 points
Ball of Death	2 points
High Density Debris (red/green blinking lights)	2 points.
Low Density Debris (magenta/yellow blinking lights)	2 points.
Mines (all varieties)	2 points
Obelisks	2 points
Orbiting Moons	4 points per Projectile
Ship Wreck (High Density Debris source)	Variable
Spider Oscillator	2 points
Turret Guns (orbiting or floaters)	2 points
Wrecked Tunnel Sphere *	Variable

High Value Targets: AI Ships, Ship Wreck, Tunnel Wreck, Orbiting Moons.

* The Wrecked Tunnel Sphere can be also be scored by flying through the tunnel.

Bonus Points and Gems

Bonus points are accumulated in-race per the above table. Based on the cumulative score indicated, Gems are awarded and displayed on the HUD. Each gem and its properties are detailed below. If the HUD right side is off, a brief swirl will still render.

Accumulating points by stopping at say, a mine, and firing the Plasma Cannons at it is discouraged with an annoying string of gem award audio clips playing... The idea is to require Pilot's to be able to manage the ship's controls in order to consistently win.

Velocity Gem



<i>Race Difficulty</i>	<i>Points Required</i>	<i>Max Velocity (KPS)</i>	<i>Duration (Secs)</i>
Apprentice	20	2080	30.0
Journeyman	25	2160	42.5
Master	30	2240	55.0
Champion	35	2320	67.5
Runner	40	2400	80.0

A yellow Velocity Gem is awarded each time a Pilot reaches a Points Required multiple. That is, for an Apprentice Pilot, an award would be made at 20 points, 40 points, 60 points, etc.

Velocity Gems are queued, that is, if the aforementioned Apprentice Pilot quickly scored 60 points, then the Pilot would have two Velocity Gems in the queue and one in effect. A small integer next to the Yellow Velocity Gem indicates the number of velocity gems in the queue.

Immediately upon award of a Velocity Gem, the Pilot's Maximum Velocity is the new value indicated in the table above. A noticeable Quantum Engine audio pitch change will occur, and a brief yellow "swirl" will render, even if the HUD is switched off.

Velocity Gems last for the time indicated in the above table and are automatically dequeued and used, regardless of whether or not the Pilot accelerates to the new maximum velocity. Continuous press of the either of the two velocity inputs is discouraged. This is reinforced with a brief penalty - when velocity gems dequeue, if the Pilot has either Velocity Input pressed, the velocity will return to 2000 KPS and then accelerate, vs. only a minor loss of velocity if no Velocity Input is being made on dequeue.

Munitions Gem



<u>Race Difficulty</u>	<u>Number of Different AI Ships Hit</u>
Apprentice	1
Journeyman	2
Master	3
Champion	4
Runner	5

An orange Munitions Gem is awarded by hitting AI Ships with the Plasma Cannons. Each time an AI Ship is hit, the HUD scoring table will update that AI Ship “Hits” value to reflect the scoring hit.

In the table above, as an example, in a Journeyman difficulty level race, a munitions gem would be awarded as soon as 2 different AI Ships have been hit at least once. Then, when 2 additional different AI Ships are hit, a new Munitions Gem is awarded. This continues until all AI Ships have been hit at least once, then any AI Ship hit will result in a new Munitions Gem award. Master level racing is every 3 different AI Ships hit until all are hit at least once, and so on per the table.

The effect of possessing a Munitions Gem is the enabling of Fast Reload when the Pilot stops firing a salvo. The Plasma Cannon Magazines have a capacity of 100 projectiles per cannon. Fast Reload from 0 to 100 will take 1 second. Normal reload from 0 to 100 is 25 seconds.

Munitions gems are not cumulative or queued. The idea is to encourage shooting at your competitors and the various hazards but not continually firing the Plasma Cannons as you race.

Hull Integrity Gem



<i>Race Difficulty</i>	<i>Dynamic Hazard Contacts *</i>	<i>Points Required</i>
Apprentice	7	25
Journeyman	6	35
Master	5	45
Champion	4	55
Runner	3	75

* This is the Hull Integrity value at race start.

Hull Integrity is a fancy way of saying how many lives a Pilot has before ...the end. The table above indicates how many are available at race start by difficulty level and are indicated by both the Hull Integrity Bar and the red integer to the left of the bar.

A red Hull Integrity Gem is awarded each time a Pilot reaches a Points Required multiple. That is, for an Apprentice Pilot, an award would be made at 25 points, 50 points, 75 points, etc.

Hull Integrity Gems are used when contact is made between the Pilot's ship and a dynamic hazard and the Pilot's Ship Shields are down. Dynamic Hazards are:

- AI Ships
- Asteroids
- Low Density Debris
- High Density Debris (Shipwreck)

Other hazard contact results in instant death, regardless of the current Hull Integrity Value or Gems acquired! See Fixed & Dynamic Hazards section.

Shields Gem



<u>Race Difficulty</u>	<u>Number of Dynamic Hazard Hits</u>
Apprentice	1
Journeyman	2
Master	3
Champion	4
Runner	5

Shield Gems are awarded by hitting any combination of the following dynamic hazards with a Plasma Cannon salvo the prescribed number of times in the table above.

- Asteroids
- Light Weight Debris (yellow/magenta lights)
- Shipwreck Debris (red/green lights)
- Orbiting Ball of Death
- Orbiting Rail Gun Turret
- Tumbling Rail Gun, Spyder Turret, & Asteroid Grinder
- Inside Torus Orbiting Twin & Quad Turrets
- Obelisks
- All Mines

The effect of possessing a Shield Gem is to slow the rate of Shield power usage to 25 seconds from the normal 10 seconds, thus prolonging the time for “shielded racing”. Shields fully replenish in 10 seconds from 0.

Shield Gem loss will only occur if the Pilot allows the Ship’s shields to deplete to zero.

Shields will begin to replenish immediately upon turning them off and as mentioned, no loss of Shield Gem will occur if the Shields are turned off prior to reaching full depletion, thus it behooves you to pay attention!

Fuel Gem



Fuel gems are awarded automatically upon reaching 35% remaining fuel level.

Once a fuel gem is awarded, the Refueler on the current ring will change to Green and allow a refueling pass. See Refuelers section below.

On a Refueler pass through, the Refuel Gem will be “used” and disappear. It will reappear again at 35% remaining fuel level. Unfortunately, if this occurs you will likely be finishing in last place, by a lot...

Once the Refuel Gem is awarded, various messages will present encouraging you to refuel at your earliest convenience.

Don't forget to manage your fuel consumption. Remember to use the keyboard “O” or the controller Right Stick Button to enable the Refueling Portal.

The Fuel Gem will disappear or become ineffective upon race completion.

Fixed and Dynamic Hazards

All fixed and dynamic hazards are listed in the table below to include whether or not shooting the hazard will result in scoring and what happens if you collide with it. Note Hull Integrity deductions can be avoided if the Ship's Shields are up.

<i>Hazard</i>	<i>Fixed</i>	<i>Scorable</i>	<i>Contact Resolution</i>
AI Ships	No	Yes	Hull Integrity -
Antenna	Yes	No	Loss of Ship & Pilot
Asteroids	No	Yes	Hull Integrity -
Asteroid Generators	Yes	No	Loss of Ship & Pilot
Asteroid Grinder	No	Yes	Loss of Ship & Pilot
Death Tunnel	Yes	No	Loss of Ship & Pilot
Inside Torus Orbiting Quad Turrets	No	Yes	Loss of Ship & Pilot
Inside Torus Orbiting Twin Turrets	No	Yes	Loss of Ship & Pilot
Jump Gates Superstructure (or Red)	Yes	No	Loss of Ship & Pilot
Light Weight Debris	No	Yes	Hull Integrity -
Mines	Yes	Yes	Loss of Ship & Pilot
Missile Launchers	Yes	No	Loss of Ship & Pilot
Nav Lights	Yes	No	Loss of Ship & Pilot
Obelisks	No	Yes	Loss of Ship & Pilot
Orbiting Ball of Death	No	Yes	Loss of Ship & Pilot
Orbiting Rail Gun Turret	No	Yes	Loss of Ship & Pilot
Oscillating Spyder Turret	No	Yes	Loss of Ship & Pilot
Refueler Superstructure (or Red)	Yes	No	Loss of Ship & Pilot
Shipwreck Debris	No	Yes	Hull Integrity -
Torus Generator Superstructure	Yes	No	Loss of Ship & Pilot
Tumbling Rail Guns	No	Yes	Loss of Ship & Pilot
Wreck Tunnel (not sphere)	Yes	No	Loss of Ship & Pilot

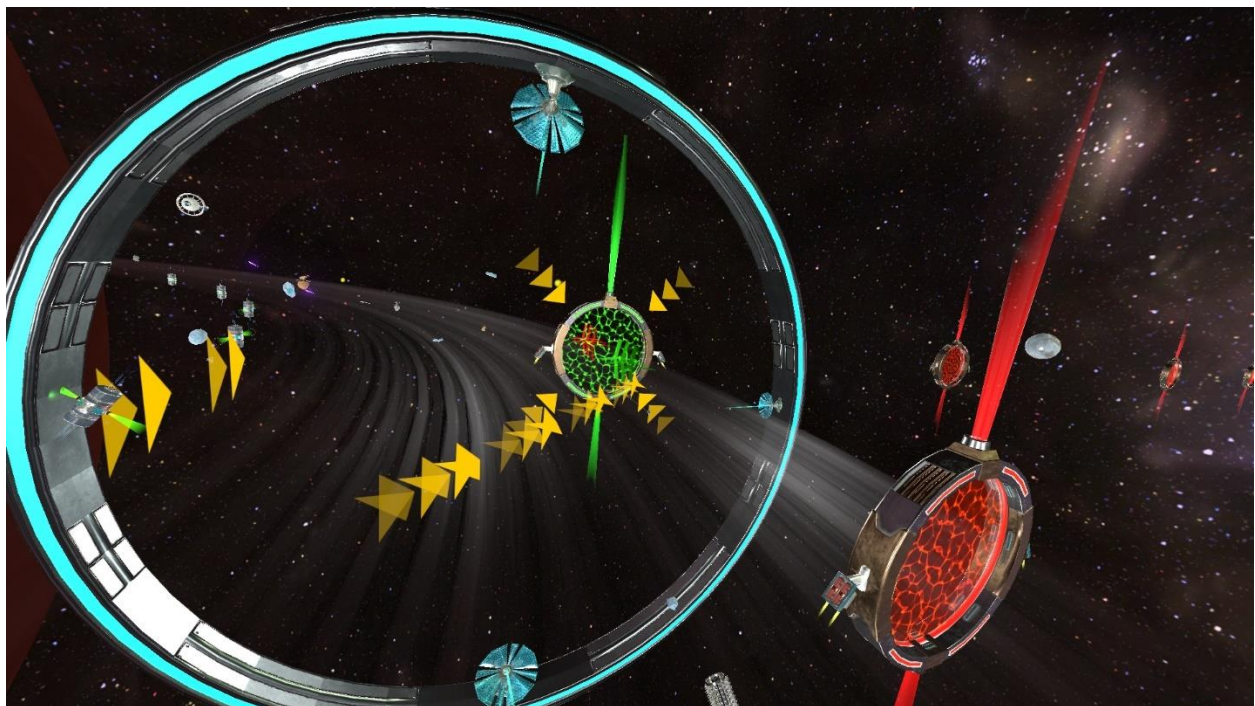
Jump Gates

Mastering Jump Gate transit is an essential skill if you are to be a successful Runner!

Each Ring is equipped with two Jump Gates, one for flying left, and one for flying right.

You will always exit a Jump Gate onto a new ring from the inside of the respective Jump Gate. This task can be made relatively straight forward if you enable the “Ring Gate Exit Assist” toggle in the Flight Control Menu.

Entering the Jump Gates, however, is much more challenging.

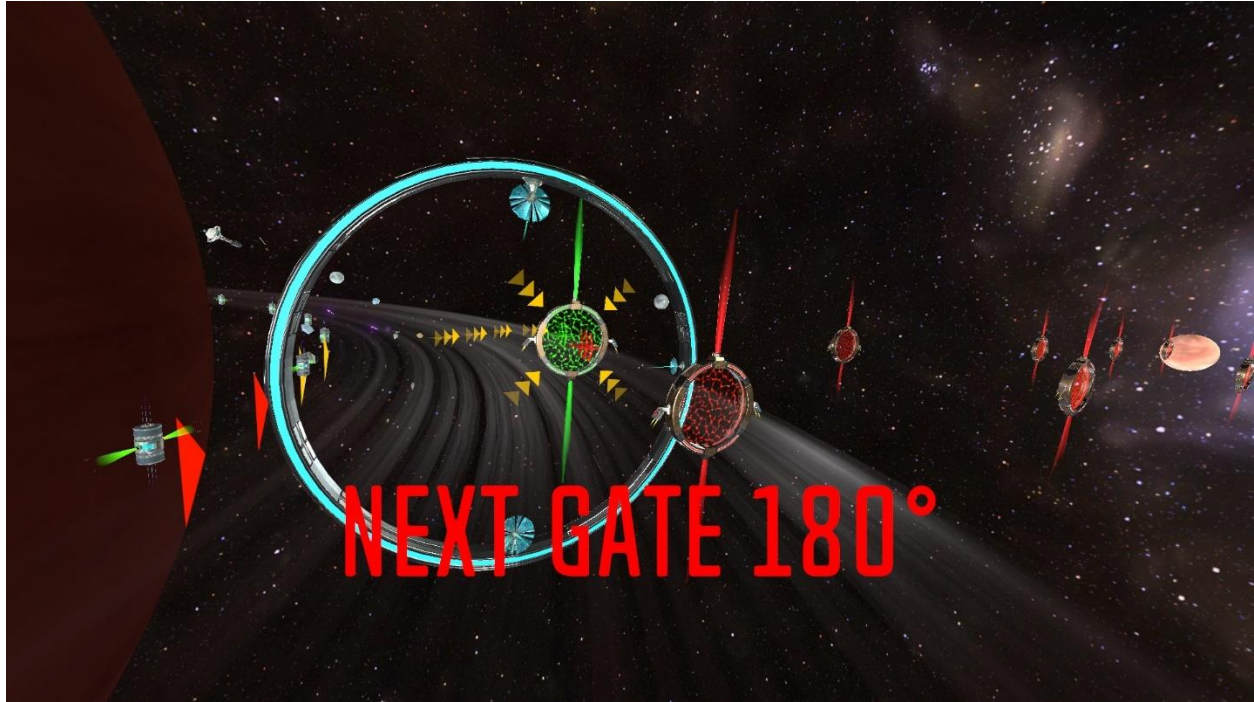


A-ring Jump Gate, flying Right, jumping to a new ring, where you will also be flying Right.

Note the following:

1. The Jump Gate is clearly identified for you because you've wisely chosen to keep the Track Safety protocols engaged.
2. The Jump Gate is Green, thus “Good to Go”. The other ring Jump gates are Red, thus “Red You're Dead”.
3. The preceding yellow arrows are “leading you in”.
4. Enable shields when flying in close quarters, as the AI Ships will closely converge together to make the jump and Pilots may potentially incur one or more Hull Integrity deductions.

5. The green 3-headed arrow is on the side we are approaching, the red 3-headed arrow is on the opposite side. Attempting entry into a Jump Gate from the opposite side will result in loss of Pilot and Ship.



A-ring Jump Gate, flying Right, jumping to a new ring, where you will be flying Left.

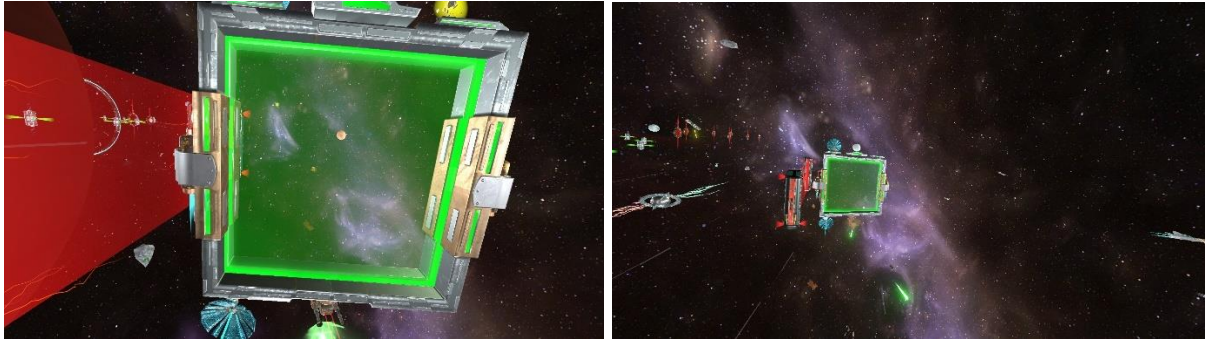
Note the following:

1. The Jump Gate is clearly identified for you because you've wisely chosen to keep the Track Safety protocols engaged.
2. The Jump Gate is Green, thus "Good to Go". The other ring Jump gates are Red, thus "Red you're Dead".
3. This image was captured at the precise time the reminder warning is flashed.
4. The preceding yellow arrows are "leading you in" but this time, a full 180° turn is required. This is because the next Ring requires racing in the opposite direction.
5. Enable shields when flying in close quarters, as the AI Ships will converge closely together to make the jump and potentially incur a Hull Integrity deduction.
6. The green 3-headed arrow is on the opposite side we are approaching, the red 3-headed arrow is on the approach side. Attempting entry into a 180° Jump Gate from the normal approach side will result in loss of Pilot and Ship.

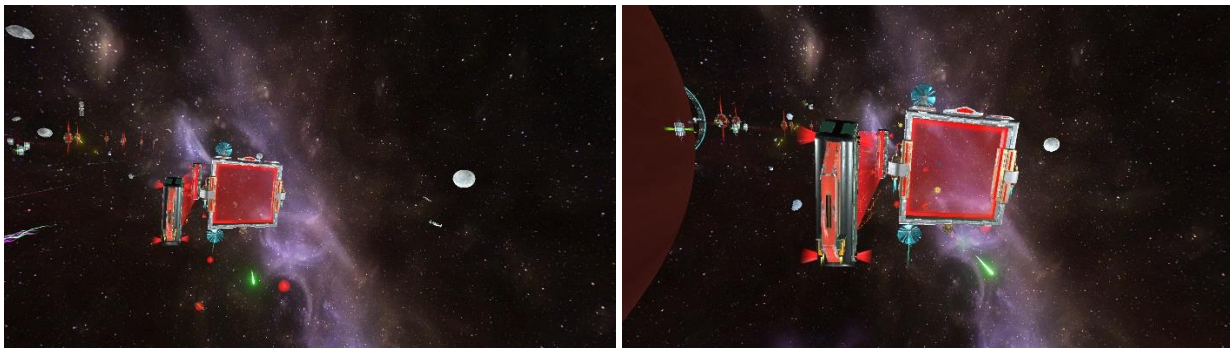
Jump Gates size will scale down in diameter with increasing Difficulty Level.

Refuelers

Below are in-game image captures of the two states of the Refueler Portals.



Refueling Portal in Green (Good to Go) mode.



Refueling Portal in Red (Red You're Dead) mode.

When required, simply fly through the portal to replenish the Ship's fuel tanks. Make sure the Portal is Green, otherwise, loss of both the Pilot and the Ship will occur.

The Refueling Portal will be green when any of the following conditions exist.

1. The ship is at or below 35% of the Ship's fuel tank capacity.
2. The Pilot presses keyboard "O" or controller Right Stick Button. Limited to 3.0 seconds.
3. You closely follow an AI Ship through the Refueling Portal while still Good to Go.

Various messages will be displayed to the Pilot via the ship's HUD when low on fuel.

Failure to refuel in a timely manner will result in loss of both the Pilot and the Ship.

Simulation Specifications and Requirements

Below, please find the minimum and Recommended System Specifications to successfully run Quantum Runners. Every effort has been made to optimize the game, however, because we've insisted on the extensive use of high poly models and a large number of objects in play at any given time, the game will not satisfactorily run on less than the minimum.

Minimum

- Requires a 64-bit processor and operating system
- OS: Windows 10
- Processor: 64-bit
- Memory: 16 GB RAM
- Graphics: NVIDIA GeForce GTX 760 2GB - AMD Radeon R7 370X 2GB
- DirectX: Version 12
- Storage: 1.4 GB available space
- Sound Card: Any Native
- Close any and all non-essential applications running on your system.

Recommended

- Requires a 64-bit processor and operating system
- OS: Windows 10
- Processor: 64-bit multi core
- Memory: 32 GB RAM
- Graphics: NVIDIA GeForce GTX 1060 6GB - AMD Radeon RX 480 8GB
- DirectX: Version 12
- Storage: 1.4 GB available space
- Sound Card: Any Native
- Close any and all non-essential applications running on your system.

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