



Rattus

VELOCITAS

INSTRUCTION MANUAL



HEDGEHOG ARTS

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Please note: visual appearance in-game may vary from this manual's screenshots.

GETTING STARTED

Welcome to Rattus Velocitas; you have joined the rat race!

Below are the basic controls as laid out on a generic gamepad; equivalent buttons on Xbox™ and PlayStation® 4/5 controllers will work exactly the same way. For unsupported controllers it is recommended to enable Steam Input and configure your controller accordingly.



Ready to be onboarded into the rat race? Read on!



MODES

There is ultimately a single race mode; a 6 player free-for-all race in a procedurally generated race course where you utilise items to either boost your speed or eliminate the competition. The objective is to get 1st place. More on items later.

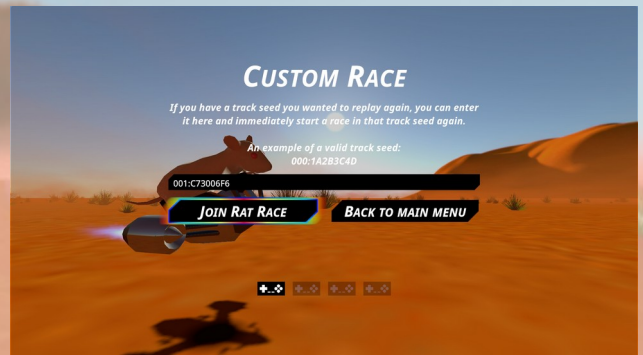


All offline races (and some online) require you to select a Thruster Class, which changes your speed and handling a little bit. Alpha thrusters are for beginners and for a more relaxing experience, Gamma thrusters are for the absolute fastest races imaginable while Beta thrusters provide the best of both worlds!



There are three ways you can enter any rat race after selecting a Thruster class. Additional modes unlock after a certain number of races; if the game is still onboarding you, a notification will appear next to Quick Race to show how many races are remaining.

- ***Quick Race: Picks a random CPU player difficulty and race environment. If “Performance Based CPU difficulty” is turned on in the Player Profile menu, CPU difficulty will instead be based on your win-rate.***
- ***Advanced Race: Select your favourite race environment and preferred CPU difficulty before starting a race.***
- ***Custom Race: If you have written down a “track seed” (more on that later) and want to play on that seed’s race course, you can enter it here then choose your preferred CPU difficulty to start a race on that course.***



RACING

Objectives and heads-up display (HUD):

In the top-left is your race position, current race time and estimated time to finish. In the top right, you'll be able to see your currently held item if you have one. In the bottom left is your speedometer and power bar, which also displays your Thruster class's emblem. (Either α , β or γ depending on Thruster grade)



After a 5-second countdown, the race will start.

Your objective is to place 1st, obviously. Placing 1st will increase your win-rate which may influence how hard your CPU opponents are to beat in subsequent races.

A secondary objective is to try to beat your estimated race time. As you play in more races, your estimated race time on a given race course and environment will change to reflect your individual performance on a basic level. After playing enough races, additional CPU racer difficulty options, Rat colour options and Hats will be unlocked.

Curious about how well you're doing? Visit your Player Profile in the main menu to view your performance ratio. (For more details, see "Options and Player Profile" in this manual) The more boost percentage you have, the better. This value will display CALIBRATING if you've only recently become a Rat Racer Apprentice but it won't be hidden for long!

On every race course, Dash Rings will appear. These giant archways will boost your speed by a small amount when you drive through it.



Multiple Dash Ring boosts can be stacked for a more potent boost, up to the maximum power level on your Power bar. Any boost level above standard top speed will decay to standard top speed after 2.5 seconds, with some exceptions.

In any kind of boost state, (draughting being the exception, see techniques for details) your Rat and their vehicle will gain armour against any weapon or track hazard that applies a slow effect. (Cheese being a notable exception) This makes you harder to knock down with stacked slows.



If you or an opponent has been slowed by a Missile Explosion or a track hazard and attempts to pass through a Dash Ring, said Dash Ring will sputter and fail to boost your vehicle.

Starting a splitscreen race:

To play with more than one player on a single PC via splitscreen multiplayer, you will need the following:

- ***An Xbox™ controller, DualShock® 4 controller, DualSense® controller or any other controller setup to use Steam Input per player that will participate. (up to 4)***
- ***A PC that meets the recommended requirements to play Rattus Velocitas. PCs meeting the minimum requirements may work but the framerate may not be optimal:***
 - ***An AMD Ryzen 1xxx CPU or Intel equivalent Core i3/i5/i7 CPU***
 - ***4GB of RAM***
 - ***A GPU matching the capabilities of either the NVIDIA GeForce GTX 760 or the Radeon R9 290 with 2GB of video memory. A GPU compatible with Vulkan® 1.0 with the game started in Vulkan® mode is highly recommended for optimal performance. Please note that this game starts with DirectX 11 by default on Windows.***
 - ***A monitor large enough for everyone to see their player viewport comfortably.***

To start a Splitscreen Race, have each player in turn press their controller's equivalent to the Start Button (OPTIONS on PlayStation® Controllers) to "join" a player to the game session.

Objectives for Splitscreen races are the same as before, however only Player 1's race time will count towards adjustment of the estimated race time. In addition, only Player 1 will be able to unlock Steam Achievements.

Any player can pause a race but only the player who paused will be able to continue or quit the race.

In most menus, small controller icons will appear towards the bottom of the screen; this shows how many players have joined. Player 1's icon will only show up if Player 1 is using a controller; disconnecting all controllers will make the game fallback to Keyboard input.

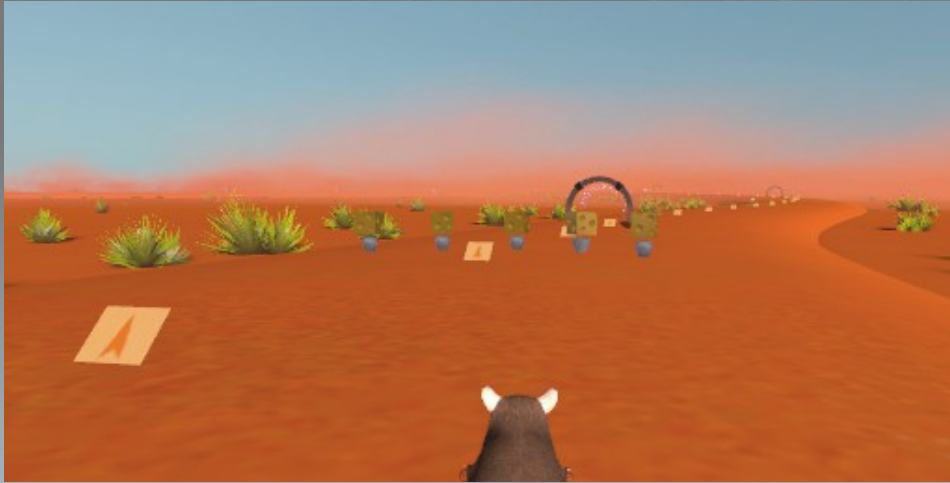
With any player count, once you've selected a race mode and set the options for it, the screen below will appear. Here you (and other players!) can easily change your Rat's fur colour with the indicated button input. This is also the last place where you can join up additional players, up to 4.



Note: if the button input displays "Button North," this is the top-most face button on your controller. This is a known issue with the Linux™ version of the game and may also show up with generic gamepads. On Xbox Controllers, this is the X button, on PlayStation® Controllers, it's the Triangle button. Please see your controller's documentation for details. If you are using Steam Input, refer to the equivalent Steam Input Binding for the X button.

ITEMS

On all race courses, Cheese Rockets are available. To get an item, simply drive through a Cheese Rocket's payload to break it open.



After picking up an item, if you don't want said item, you can throw it away, packing it in it's own standalone Cheese Rocket payload in the process. Beware; other players can pick this up and use thrown away items against you!

When knocked or eating, items cannot be used. Slows (except the slow from being baited by Cheese) can be cancelled by eating consumable items.

Sometimes you may get more than one item; the number of a specific item that you're holding will appear in the top left of your item's icon. (Shown at right)



There are 7 items in the game; information on each item can be found on the next few pages.

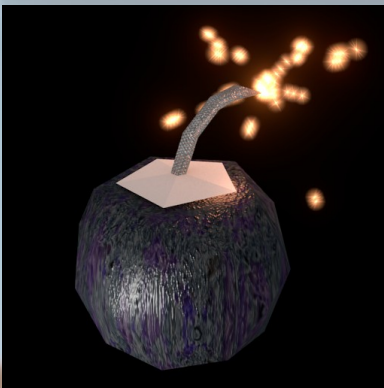
- **Missile:**



This item when thrown targets a single opponent in front of you and explodes, slowing them down a little. If an opponent is already slowed, they can be slowed further with consecutive missile hits and eventually knocked if slowed down

below 33% of their top speed. It is possible to get up to 3 missiles from a single item container. If one or more Missiles have locked onto you, an "INCOMING" indicator will appear.

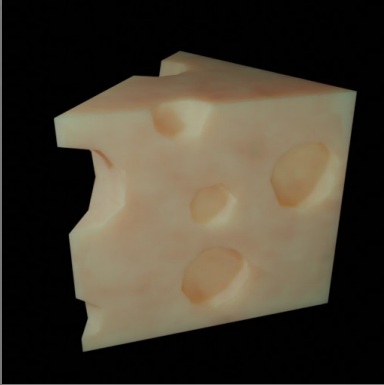
- **Bomb:**



This item can be either thrown or dropped behind you; use the Left Stick's up and down directions (or Keyboard up and down arrow keys) to direct where you want to throw it. Your steering direction and current speed also influences a

Bomb's throwing direction and initial velocity. A Bomb will explode either after 3 seconds or if it gets too close to another racer, knocking all racers aside within it's blast radius. Bombs when thrown or dropped bounce along the ground and off obstacles; use this to your advantage!

- **Cheese:**



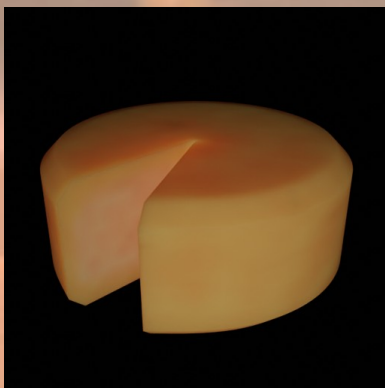
This item can be either eaten or dropped behind you. Cheese takes 2 seconds to eat, during this time you will be unable to use any other items and will drop your Cheese upon being knocked/slowed by another item

or track hazard. If your cheese gets knocked to a place where it's still accessible, you can pick it up and immediately attempt to eat it again.

When consumed, you will get a persistent speed boost for 2 seconds, which will stack with Dash Ring boosts. When stacking Dash Ring boosts with the Cheese Boost, your boost decay is temporarily delayed by a small amount, even after the Cheese boost ends.

When dropped, the Cheese becomes bait; if another player picks up your dropped Cheese, they'll also consume it, greatly slowing them down and rendering them a lot more vulnerable to track hazards and items.

- **Cheese Supreme:**



This larger variant of the Cheese has a more potent, albeit shorter, boost than the normal Cheese but takes longer to eat. Incidentally, due to it's size, it's also a more potent bait...

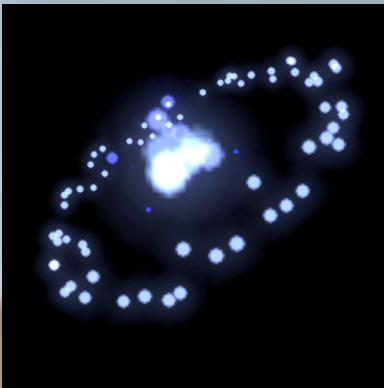
- **Shield**



This item when deployed surrounds you with an energy bubble that can block a single hit from a Bomb Explosion, Missile Explosion and certain Track Hazards. The Shield disappears after 3 seconds if it doesn't take

any hits. If you pick up a second Shield while one is deployed, using the second Shield will replenish the first and extend it's duration. Some damage sources cannot be blocked with Shields; when said damage sources are encountered, the Shield will shatter anyway.

- **Portable Dash Ring**



This item can be thrown forward to create an unstable energy ring that acts as a Dash Ring when driven through.

The Portable Dash Ring deteriorates after 3 seconds.

This Portable Dash Ring can be used not only by the user but by other racers; keep this in mind when placing one. The initial projectile can be vectored by steering or strafing to influence where it will be projected.

If any racer attempts to pass through a Portable Dash Ring while slowed by Missiles or certain Track Hazards, it will be vaporised instantly. Up to 2 Portable Dash Rings can be obtained from a single item container.

- ???



*How is there 0 of them?
What does it do?*

*It does look like a missile at
least... Or is it?*

*Rumours from veteran racers say
that it is made of pure Shield energy. Another rumour
suggests attempting to launch multiple at once ends
badly...*

ENVIRONMENTS

Every race course is procedurally generated and has a different layout and potentially a different time of day and even weather each time. There are 5 different race environments these race courses can appear in. Each environment may have different types of track hazards to avoid and/or take advantage of to gain an edge over the competition.

DESERT:

A sandstorm-ravaged plain located somewhere in the Australian Outback near Ayer's Rock, the race courses here are generally fairly easy to navigate; just follow the sand markers in the middle of the road if you're not sure. Prickly Pears may block your path however and running into one will knock you away, sometimes really far. At night, Feral Hovercats hiding in the Tussock Shrubs will attack anyone attempting to eat any consumable item; don't get caught snacking!

FOREST:

A dense rainforest trail that seems to have near-permanent torrential rainfall. Watch for the jagged rocks at the sides as they're not trivial to dodge if you end up forced along the edges of the race course by other racers. Sometimes lightning storms may appear; random lightning strikes from these storms will slow you down.

SPACE STATION:

A somewhat rollercoaster-like race course built out of a small space station in orbit around Earth. Careful of the edges of the track; get knocked off too far and you'll begin to hurtle towards Earth in freefall and lose time. For this reason, Bombs here are rather effective weapons for difficult to beat opponents.

VOLCANIC REGION:

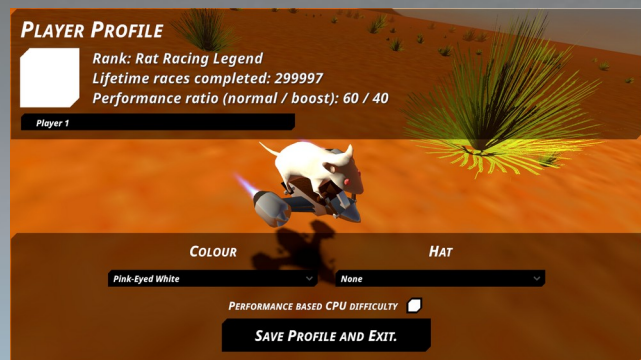
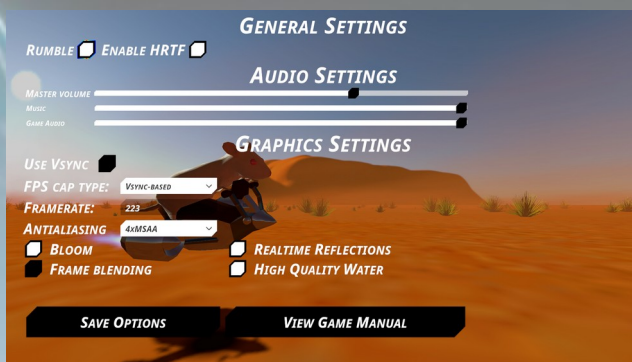
Another dangerous race course taking place in a highly active volcanic region. Small volcanoes can be found at the sides of the race course that occasionally spew molten rocks that explode on impact. Also be careful not to fall into the lava!

BEACH:

This smallish island in the middle of nowhere is host to a coastline-based race course, rich with trees for use as either an agility test or as a bounce surface for specific items. Sometimes some trees grow Coconuts; these fall and explode after a short time or if a racer comes too close!

OPTIONS AND PLAYER PROFILE

The options menu is for the game's settings while the player profile (accessed from the main menu in the top left corner) allows you to change your Rat's fur colour, view your stats and enable performance-based CPU difficulty. Note that the latter setting only affects Quick Race mode!



When first starting the game, there are 7 different Fancy Rat fur colours to choose from, with the default being Pink-Eyed White. In addition, 3 more can be unlocked by advancing your Rat Racing Rank. Advancing your Rat Racing rank and certain times of year will unlock Hats your Rat can wear too!

Note: you can change your Rat fur colour from the "Ready to Race?" screen too; see "How to start a Splitscreen Race" for details. Currently, splitscreen players cannot wear Hats unlocked by Player 1.

In the settings, you can adjust the following:

- ***Rumble: Turns controller rumble on or off.****
- ***Enable HRTF: Enables better binaural audio spatialisation. Stereo Headphones are required to fully take advantage of this feature.***
- ***Master/Music/Game volume: Adjusts volumes. The Master Volume control controls the total volume of the other two sliders in addition to their own settings.***
- ***Use Vsync: Turns on vertical synchronisation to eliminate “tearing” where a previous game frame’s contents are visible on half of the screen. Increases input latency on some systems.***

NOTE: Having certain overlay programs active may increase input latency with this setting on.

- ***FPS Cap type: This dropdown changes the way the game limits frame rate.***
 - ***Vsync-based: throttles frame rate at display refresh. Designed to be used in conjunction with vsync.***
 - ***Custom: throttles framerate to a user supplied value.***
 - ***Unrestricted: All framerate restrictions (except vsync) are disabled.***

NOTE: Not recommended for use on Laptops, with some exceptions (See the troubleshooting section)

WARNING: Your computer could overheat with this setting enabled, please check your cooling system is adequate before using it!

- ***Antialiasing: This removes “jaggies” on the edges of in-game objects. 4 settings are available. Increases GPU load.***
- ***Bloom: Enables a post processing effect that adds glare to bright objects. Slightly increases GPU load.***
- ***Realtime Reflections: Improves the appearance of some shiny materials and Water Reflections on Beach at the cost of system performance. Increases CPU and GPU load.***

- **Frame Blending:** *An experimental setting that sets your game's framerate to 300 frames per second and downsamples it to 60, creating a pseudo-motion blur effect.*

NOTE: Requires a powerful system meeting the recommended requirements to look smooth. Not recommended for use on Laptops due to cooling limitations. The Vulkan Backend may perform better with this setting than the DirectX 11/OpenGL backend.

- **High Quality Water:** *Enables higher quality water in Beach. Increases CPU and GPU load.*

REPLAYS

When a race finishes, the game will provide the ability to view and/or save a replay after 15 seconds or once all racers cross the finish line. (In online races, it is 30 seconds) To watch a replay you've saved, select "Watch Replay" from the main menu and select the Replay you want to view.



In the replay viewer, the Left/Right shoulder buttons (or the left and right arrow keys on a Keyboard) switches the replay camera target between the race participants that were present when the Replay was recorded.

Replay playback at any time can be paused like a normal race. When viewing a Replay of a splitscreen game, an additional Replay POV called "ORIGINAL GAMEPLAY" showing the original splitscreen layout will be available.

NOTE: Replay files are stored in %userprofile%/AppData/LocalLow/Hedgehog Arts/Rattus Velocitas/replays on Microsoft® Windows®. The Linux® version of this game stores replays in \$XDG_CONFIG_HOME/unity3d/Hedgehog Arts/Rattus Velocitas/replays. Game updates may render these files unusable depending on gameplay mechanics changes.

TECHNIQUES

- *When turning, strafing in the same direction as you turn enables making a sharper turn than would normally be possible with normal turning. Pressing the opposite strafe direction does a controlled air slide instead which can also be useful and increases your standard top speed slightly.*
- *You gain an armour effect at any speed substantially above standard top speed. (125kph on Alpha Class, 138kph on Beta, 150kph on Gamma) When this happens, item combinations that would normally knock you take more hits. (Example: Missiles usually knock after 3 consecutive hits but require 5-6 against an armoured target) You can tell if you have armour by looking for white (or yellow if Cheese Boosting) vapour effects around your Rat and vehicle.*
- *It is possible to deploy a Shield right before a Missile or Bomb hits you or before hitting a track hazard and get the full shielding effects; this is called perfect parrying.*
- *When throwing away items, there is no limit to where you can place them; try hiding undesirable to throw away items slightly off-track so your opponents can't find them!*
- *On some race courses, it is possible to cut the track a small amount in sharp turns without being respawned. Use this to your advantage but careful of any off-track hazards. It is highly recommended to carry Cheese for these types of shortcuts in lower Thruster classes.*
- *Passing through a Dash Ring right before a Cheese Boost ends will extend the boost duration by a small amount.*
- *Bumping into an opponent that is just behind you will boost your speed a tiny amount; you can use this as a form of defense when defending your race position.*

- ***Can't quite catch up to an opponent? Drive within their jetstream and you'll gain a slight increase in top speed that also stacks with boosts, but beware; trailing an opponent also leaves you vulnerable to any items they may drop behind them! This technique is called "draughting" and can prove highly effective when attempting to gain race positions. The vapor effects that appear when draughting don't grant armour in this case.***
- ***While not entirely recommended, there are ways to use Dash Rings as offensive weapons, provided the driver in front of you isn't ready for it... It may even require a physical edge present... Who knows.***
- ***Strafing sideways through Dash Rings may increase the amount of boost a slight amount.***

ONLINE MODE

Want to race with friends but can't physically get them in the same room? Online mode is the place to be. Here, you can easily race against random online opponents or setup your own private lobby to invite friends to!

MATCHMAKING

This mode pits you against random opponents. Select "Enter Matchmaking" to begin.

The race format for online races in this mode are as follows:

- *Quick Race.*
- *No CPU racers.*
- *Alpha class thrusters only.*
- *When the first place player finishes, other players have 30 seconds to finish before being marked Did Not Finish (DNF)*
- *During the 30-second DNF window, players that have crossed the finish line can spectate other player's POVs if they wish. NOTE: This also applies to private lobby races!*

After the race ends, the game will automatically return to the lobby screen after a few seconds. In that small window, it is possible to save a replay file of the race. Please note replays recorded from online races won't always be accurate to the original race.

PRIVATE LOBBIES

In addition to random matchmaking, it is possible to start your own private lobby to invite friends to. To get started, select “Create Private Rat Race” from the Online Race Menu.

Other players can join your Private Lobby from the Online Race Menu by selecting “Join Private Rat Race” and entering the 4 letter lobby code visible in the Private Lobby’s settings pane.

In Private lobbies, the lobby host can select the race environment and Thruster class themselves or enter a custom seed obtained from an earlier race. To begin the race, select “Start Race” at the bottom. Note that if a player is currently still attempting a direct connection to players in the lobby or is still loading back into the lobby UI from a concluded race, Start Race will fail to highlight until this process finishes.

NOTE: Currently private lobbies have the 30-second DNF rule applied during private lobby races, this may be changed to be configurable in a future game update. Unlike random matchmaking, it is also possible to race alone entirely in a private lobby.

HOSTING YOUR OWN MATCHMAKING SERVER.

In addition to “Go Online,” it is possible to host your own matchmaking server!

To get started:

- ***If this is a server you want to host for friends outside of your local area network, it is necessary to open port 19777 on your router and server firewalls. Please consult your router and/or server OS firewall documentation for details.***
- ***You’ll need to install the Rattus Velocitas Matchmaking Server into your Steam installation. This should be selectable via the Tools section in Steam.***
- ***If you plan to host on a Windows® or Linux® server with SteamCMD, you’ll want the GUI-less dedicated server build. Below is an example command for a Linux® server; substitute the Windows® version of SteamCMD instead of steamcmd.sh for a Windows Server:***

```
./steamcmd.sh +force_install_dir ~/rv-srv-yoghurt +login anonymous +app_update 3753390 -beta dedicated_server validate +quit
```
- ***To connect to your server, you’ll need the public IPv4 address of the machine the server is running on. For a Virtual Private Server, usually your VPS provider will provide this for you. For self-hosting, you’ll want your internet connection’s public IPv4 address. Your ISP and/or your Router can provide this information for you; see your Router’s operating instructions for details. If your internet connection is behind a CGNAT, you may need to contact your ISP to obtain a Static IPv4 address for use with the Matchmaking server software.***

If you're self-hosting your server on your LAN and/or your own PC, you may see "(!) NO DIRECT CONNECTION – HIGH LATENCY" on all of your friend's nameplates when they're in a lobby with you. In this specific case, this message is harmless as your self-hosted matchmaking server effectively operates as a Proxy for your copy of the game.



TROUBLESHOOTING

If the game doesn't run as expected, this section may help.

- ***"My game crashes on startup"***

If you've selected the Vulkan® Launch configuration in Steam, some computers may crash on game startup for the first launch after first starting the computer. Either relaunch the game or use the default launch configuration.

- ***"The game runs poorly with Rumble enabled"***

Disable Rumble; some gamepad drivers cause the game to lock up briefly when a rumble command is sent to the gamepad device.

- ***"The game freezes if I enable unrestricted framerate when using Vulkan."***

If you are on an NVIDIA Graphics Card, navigate to NVIDIA Control Panel (or the NVIDIA App), make a profile for Rattus Velocitas and set OpenGL/Vulkan present method to Native to fix this issue.

NOTE: This may increase input latency if vsync is turned on.

- ***"Screenshots multiplayer isn't running well"***

Please make sure your system meets the recommended requirements. Please see the system requirements section in https://store.steampowered.com/app/3689710/Rattus_Velocitas/ for details. Also try turning off Reduce Buffering if it's enabled.

- ***“My game is blurry.”***

Try turning off fancier graphics settings and make sure no other GPU intensive applications are running on your system; this game uses dynamic resolution scaling to control GPU load and frame pacing which can result in worse picture quality if the GPU is loaded too much.

NOTE: If vsync is turned on, some Monitors' reported refresh rates can be off 60FPS by a small amount, causing the game to incorrectly reduce the resolution when GPU load is actually fine. Turn off vsync if this happens to you.

- ***“I can't control the pause menu in splitscreen”***

Only the player who pressed pause during a splitscreen race will be able to control the pause menu.

NOTE: If the game was paused by opening the Steam Overlay, it will behave as if Player 1 pressed their pause button.

- ***“My keyboard isn't working in-race.”***

If you started the race with a gamepad joined to Player 1's slot, this is intentional. Quit the race then disconnect the controller before starting another race.

- ***“When I join matchmaking via 'Go Online,' I disconnect after successfully connecting”***

There's a possibility the server may be at capacity; try again later.

- ***“When I join lobbies, I always see NO DIRECT CONNECTION – HIGH LATENCY on my opponents names.”***

Your Internet Service Provider may be using a network configuration that's incompatible with peer-to-peer connections; the game will continue to work but latency to other players may be severely compromised. The only way to really fix this is to ask if your ISP can give you a static IP address and/or hope your ISP cares enough to fix the issue for all games that utilise peer-to-peer.

NOTE: If you're hosting your own matchmaking server and are connected to it over LAN, this is normal; see the online mode section of this manual for details.

- ***“I sometimes see a connection error mid-race and can’t continue the race, upon returning to the lobby screen I’m disconnected entirely.”***

This is a known issue with internet connections that change their public IP address every 30 minutes to an hour. Please note that mobile networks are not officially supported and may cause problems with this game, especially if the mobile network device providing internet is physically moving.

This will also happen if your internet connection fails to work during a race; in that case follow your ISP’s recommended troubleshooting steps to get back online.

- ***“Sometimes my items act strange in online mode”***

Please test your internet connection can consistently manage an upload speed of 2mbps or better then test for upstream packet loss and high amounts of network jitter before attempting to play online races. Also check if you can make direct connections to your opponents as this will greatly increase network stability!

- ***“My replay file isn’t quite playing back correctly”***

If the original race the replay file came from was played online, some issues still remain with the Replay system’s ability to correctly playback a race that commenced in online modes with high latency opponents. If this is an offline race however, please report a bug on the Steam Community forums!

- ***“My game suddenly closed”***

If you are playing on Linux® with the NVIDIA® proprietary drivers, this is sadly a known issue with the default graphics backend; use the OpenGL launch configuration to run without crashes. This may be resolved in a future game or NVIDIA® driver update.

CREDITS

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Thank you for joining the Rat Race!