

Amazing Curves Racing

v2026.1001

4/27/26

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<https://simracing.brightland.com>

https://store.steampowered.com/app/2953660/Amazing_Curves_Racing

XBox, Playstation, and Steam Deck controllers will autodetect on first run. Wheels, pedals, and other controllers can be quickly configured.

Initial keyboard controls: A = Accelerate, Z = Brake,

Arrow keys = Steer, Space = Reset to track

F1 = Race Setup, Control Setup

F12 = Show Help (this document)

TAB = Toggle Chat during Online Play

[See below for more control information]

Controller Setup

ACR has a high-fidelity physics engine, designed to connect you as closely as possible to the simulated world. We find recent gamepads for Xbox and Playstation work really well with no deadzone, giving very fine control over steering input, and with non-linear steering, you have smooth control and can still provide large steering inputs for sharp turns and/or to avoid other cars. Force-feedback with wheels tells you what's going on with grip, and gamepad haptics do the same in a different way: if you are on the track and feel vibration, tires are slipping or sliding.

For keyboard driving, we recommend a tapping approach. Just a single quick tap is slight steering input, and more rapid tapping is more steering input, up to holding down the key, which is max steering input. The same applies for brakes.

To set up a wheel, pedals, shifter, and e-brake, see the Fanatec example in the Control setup window.

Forced Feedback (FFB) & Direct Drive (DD) Safety

ACR provides high-fidelity feedback designed for DD wheels. To promote safety, FFB only engages during active racing.

If the wheel is released during a race:

1. **PAUSE FFB:** Press **ESC** or the **Menu/Back** button.
2. **GRIP: Secure the physical wheel firmly.**
3. **RESUME FFB:** Press **ESC** or **Menu/Back** again to re-engage FFB.

TUNING & POWER:

- **Adjust:** Fine-tune the *Wheel Hands Free Detect* threshold in **Force Feedback** settings in the **Control Setup** window. When set to **Min**, only wobble detect is enabled. To catch hands free faster, move the slider to the right to lower the velocity threshold to catch sooner. When hands free is detected, FFB is turned off briefly, then ramps back up. The wobble can start back up again, especially with high force settings with light wheels, so use caution before grabbing the wheel. For maximum safety, keep the wheel force as low as possible, and set the *Wheel Hands Free Detect* so it disables FFB quickly. Some FFB wheel manufacturers provide these safety features in their FFB setup tool. Since these systems run on the actual hardware, they can react faster and should be utilized.
- **Grip Feedback:** increases wheel lightness as front grip is lost.
- **Wheel Feel: Direct-** think no power steering with gears, which has the least lag and **Smooth** has a smoother hydraulic power steering feel, which adds some lag.
- **Visualize:** in a Solo game, press **ALT-T** to see the Force Feedback % output graph.
- **Limit:** ACR is optimized for **8Nm or less**. Higher power should be used with care.
- **Note:** High fidelity is maintained even at lower power levels, reducing fatigue without losing useful detail showing what the car is doing. For example, a real C6 Z06 Corvette's steering wheel can be turned with just the index finger of both hands on the wheel. Higher power can be used to simulate no power steering: take extra care when doing so.
- **Age:** FFB features are rated for ages 16+.

SimHub and General Telemetry Support

In the **Steam** app, on the **Amazing Curves Racing** page in *Library*, click the gear icon, right side of page ("**Manage**"), click: **Manage / Browse Local Files**. Go to the directory **SimHub** and see the readme.txt for installation. Full C# **SimHub** plugin source code included, as well as a custom **SimHub** dash:



A C++ header is also included showing struct memory layout and telemetry UDP port. A future version may add shared memory as an additional telemetry option.

Auto Start ACRT SimHub Dashboard

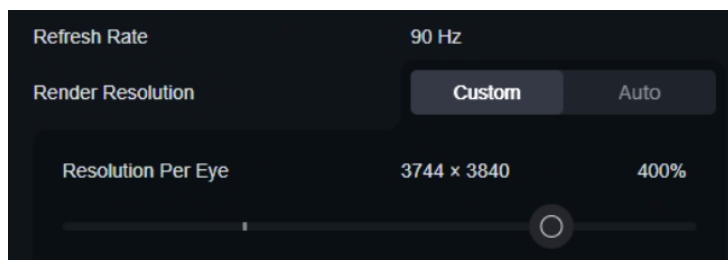
In **SimHub**, click **Home**, then in **My favorite simulators**, click the **Gear icon** on the right. In **Settings** click **Custom games** tab. Click **+ Create new custom game**. In **Game Configuration / General / Configuration / Name** enter: **Amazing Curves Racing**. In Steam, show the game installation files (On ACR Library page, click the **Gear icon** on the right then click **Manage/Browse local files**, and you should see a subdirectory called **SimHub**. Navigate to **<Steam Game Files for ACR>/SimHub/ACRT/ACRT/Resources** and you'll see **ACRLogo256.png**. Copy the full path and paste into the **SimHub** dialog path and hit return. Select **ACRLogo256.png** and press **Ok**. In **Game Configuration / Configuration / Process detection** put: **AmazingCurves**. Enable both checkboxes (**Automatic game switching**, **Automatic game activation**), then press **Ok**.

In **SimHub**, click **Home**, then in **My devices**, click the **+**. Scroll down to **Generic Monitor (HDMI,DP ...)**, click to select it, then press **Ok**. Place mouse over **Generic Monitor (HDMI,DP ...)**, then click the **Gear icon**. In **Main dashboard**, select **ACRT**. In **Startup**, select **At game process start**. In **Startup location**, select **Last coordinates** (or your preference), then press **Ok**. Start Amazing Curves Racing, and start a race. Once in a race, the dashboard should become visible and active, when the view is inside the car. For external views, the dashboard is hidden. You can change this behavior by editing the dashboard in SimHub.

VR Support

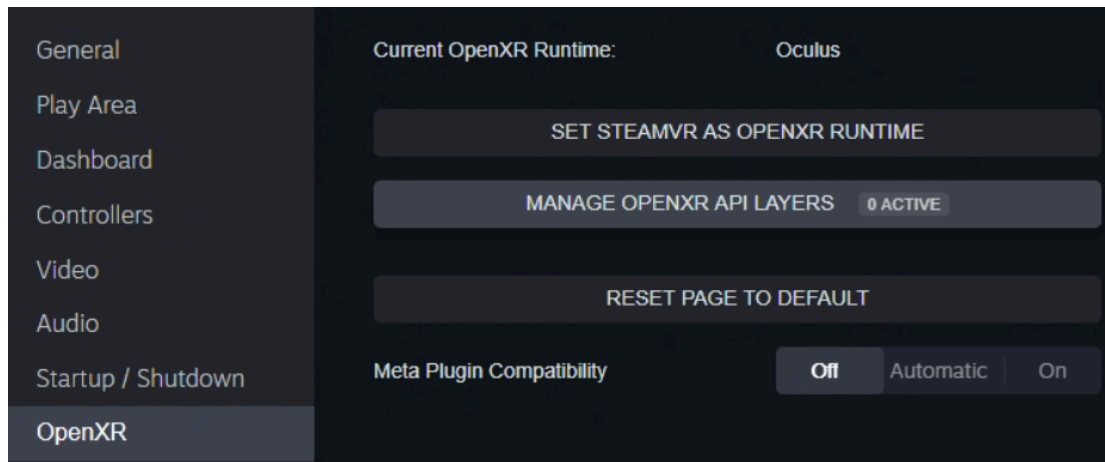
If you're already experienced with SteamVR, you can skip this section

ACR VR currently supports SteamVR and Quest 2 & 3 hardware. Other SteamVR compatible devices may work as well. To maximize detail and reduce aliasing, try the following SteamVR setting under General: 3744x3840 (resolution varies with device) per eye (400%):

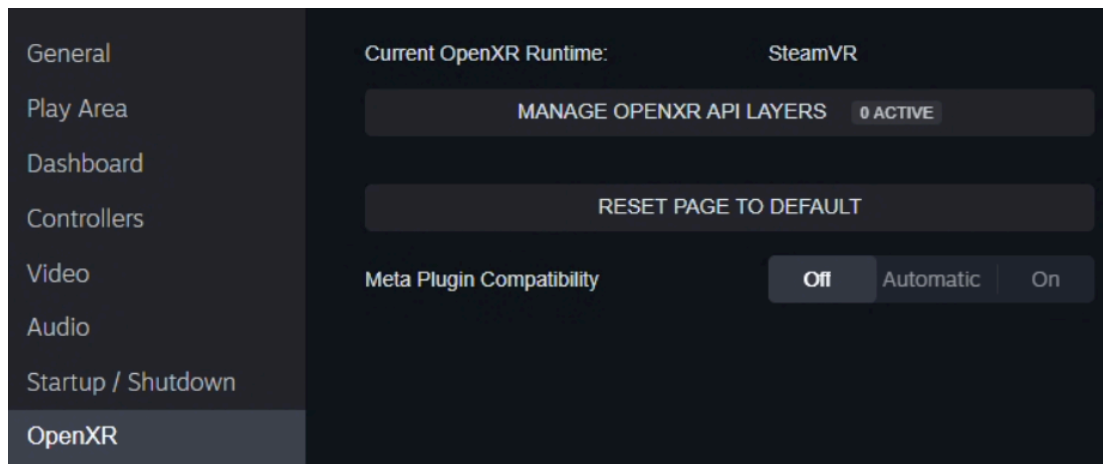


ACR has a simple and fast rendering engine, so even modest graphics hardware can work well with these settings at lower framerates. On an i9-12900K + RTX3090, we get good performance at 90fps on the Quest 2 and 120fps on the Quest 3. While WiFi and recent router hardware can work well, we've found using a fiber-optic-based USB-C cable worked the best.

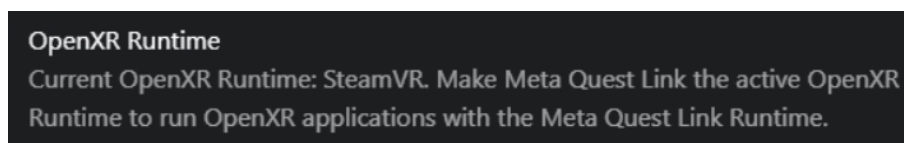
Set OpenXR to SteamVR:



After selecting “SET STEAMVR AS OPENXR RUNTIME”:



In the Meta Quest Link app, you can verify under Settings/General:



In-game Menu (for resetting VR View and FOV+view settings)

You can press keyboard ‘m’ or the right Quest/VR controller joystick button to toggle the in-game menu. Use the right joystick or arrow-keys to navigate and adjust settings, following the on-screen instructions. If a gamepad is recognized as Xbox, Sony/Dualsense, or Steam Deck Controller, the gamepad right joystick and A,B (Xbox) or X,Y (Sony) buttons can be used in the same way as the Quest/VR controllers.

The Default FOV is obtained from the VR hardware and should provide distortion-free head movement. If the FOV is changed from default, distortion will increase as FOV changes, most notably when FOV is widened. For a driving simulator, a slightly wider FOV can help with driving at high speed, especially for “peeking around” corners, while providing minimal distortion. FOV is very personal, you can adjust to your preferences. The VR controllers are rendered transparently so you can find them without removing the headset. The “laser-line” segments represent 1 meter, then 10 meters, then 100 meters, then max depth at the far clipping point. This is a helpful measuring tool when customizing the VR settings.

When Camera Separation is increased, the stereo 3D effect will be increased, and when decreased the opposite happens. When Stereo Depth is increased, the stereo 3D image will be pushed into the screen, and when decreased, the opposite happens. The “laser-lines” can be used to help with adjustments. These are advanced settings for VR enthusiasts (and perhaps hardware manufacturers) and can be left at default values for most users.

The VR settings are per car setup, so you can customize for each car+car-setup. FOV and View Offset adjustments are also available when not using VR.

Again, all these settings are per car setup, and when racing online when in Monoclass (where all cars have the same settings), each chassis type can have custom view settings.

You can disable **Settings / Preferences / Dynamic Reflections In VR** to improve performance on slower hardware. With limited numbers of cars on screen, ideally you'd want to see 90-120fps. We test with 88 cars, but you can use less in VR to improve performance.

Arc Tracks

The Arc tracks provide a new form of racing. Taking advantage of the continuous cubic 3D surfaces, the arc sections loop around the track so that you can drive very fast through corners, keeping a high line, then swoop down back onto the main track to take advantage of drafting to go faster. You can also experiment with top speed runs on these tracks: we've tested to around 1000+MPH. Doing "barrel rolls" and looking around while racing in VR feels like flying. Fun fact: the initial version of ACR included flying cars and airplanes with four wheels, whereby if you chose to fly instead of drive, everything was balanced by making all players drive through checkpoints (which are still in the game).

Racing Line

The Racing Line can be adjusted in the Controller Setup window. The Racing Line system draws markers which show a reasonable path through the track, as well as rotating on another axis to help show banking. The markers are rendered in green when you can speed up, yellow when near the limit, and red when you might need to slow down. Curvature is also rendered in gray, growing downward as curvature increases. This is helpful on tight curvy tracks when it's not possible to fully see the corner. Both the markers and curvature can be adjusted or turned off.

Dynamic Autopilot

When Autopilot is enabled, AI will drive the car. If any inputs are moved significantly, Autopilot will turn off. When inputs are returned to neutral/default, Autopilot will re-engage and AI will start driving again. This can be helpful for learning new tracks, and if you need to take a break during a long race or for any reason, AI will keep you moving. For online games, remote players can tell who is using Autopilot by the rectangle drawn around their name in the race position display. Note that when Autopilot is enabled and it activates, FFB is disabled until you press the throttle or brakes. Take care to grip the wheel firmly with both hands before re-activating FFB.

Dynamic BOP (Balance of Power)

Rules can be set up to enable Dynamic BOP, from 0-100%. When enabled, the car in the lead drives normally, where each car progressively further behind gets less aerodynamic drag, more peak torque, and a lower final drive ratio to increase top speed. This allows for very close racing, making it possible to go from the back of the pack to the front, many times during a race and still have a chance to get a good result. The **DR** shown in the HUD is current aerodynamic drag in terms of G's. When drafting behind other cars, this value will drop, encouraging drivers to follow groups of cars then strategically swoop around them to make final passes, e.g. at the finish line.

Steam Deck

Steam Decks use WINE/Proton to run Windows games on Linux. Gaming Mode has performance and GUI input focus issues with some Win32 windows. When playing ACR on Steam decks, use Desktop Mode to work around these issues. Press the Steam menu button, then select Power, then select Switch to Desktop, then start Steam by clicking on the Steam desktop icon and run ACR (pressing the Steam menu button will launch Steam in Big Picture mode, which appears to work OK). On the Original as well as updated Steam Decks you should see up to 100 fps much of the time (shown in upper right corner in the HUD). For max performance and smooth motion, disable any framerate limiters if you see 60 or 90 instead of 100 (you will see limited framerate in Gaming Mode as of this writing, even though ACR has framerate limiting disabled with OpenGL). You can disable **Settings / Preferences / Dynamic Reflections** to improve performance on slower hardware.

Steam Deck's Xbox 360 or Steam Deck Controller will be auto-selected on first run. For single player, the gamepad controllers can be used to navigate and play in both Gaming Mode and Desktop Mode. For online multiplayer, you'll want to use a configuration which uses a trackpad as a mouse, for both motion and left-click. This is currently necessary for selecting a server to join an online race. A future version of ACR will include a new GUI which will remove the Windows/Win32 windowing elements and use a 100% game-rendered GUI.

Quick Info

Press **F1** while playing the game to adjust car settings and/or remap the controls. You can also press gamepad "back" (B or O) to bring up a menu from which you can navigate with the D-pad and select with the A or X button.

Press **F12** at any time to bring up this document.

Quick Demo to Watch

Click the **Solo Button**, then click the **Race Button**.

After the game loads and starts, press **P** to turn on the AI AutoPilot for your car.

Press the **C,V** keys to switch between camera views.

Press the **[,]** keys to cycle through views of all the cars.

Press the **=** key to follow the leader, press **C,V** to switch to an external camera, then press **ESC** and press the left mouse button and pan the view to watch cars behind the leader. Use the mouse wheel to zoom in/out (changes FOV. Right-mouse-click to reset view). Press the **-** key to return to your car. Press **ESC** again to hide the dialog, then press **ALT-Z** to turn off HUD to watch the action like a movie.

Press **ESC** again to exit or return to the main menu.

Single Player Progression: Race through a series of progressively more challenging cars and tracks

Click the **Solo Button**.

Make sure **Progression/Enabled** is checked.

Click the **Race Button**.

Once the game starts, press **F1**, then select **Controls** and set up steering and braking, or select an existing setup from the **Current Setup** combo-box.

Remember which button/key is assigned to **Reset to Track**: you'll need this function to get back on the track quickly: the Turbo Reset. You can also enable **Auto Reset To Track**. Turbo Resets can be limited or turned off as part of the race setup. When going over 100MPH, you get a 50MPH boost without resetting your car.

Slowly drive around the track, keeping your speed below 100MPH, getting a feel for the controls and car handling.

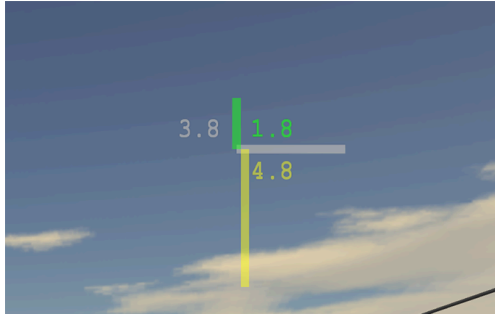
Change views using the **C,V** keys or your assigned button/key.

HUD Driving Map

The driving map shows the track layout as well as other car positions. You can use this to determine position and braking points, as well as to avoid collisions from cars around you. The colored lines on cars that look like wings show you:

- Yellow/Gold: the leader of the race
- Green: the car in front of you to pass next. Helpful when lapping traffic
- Red: the car behind you, challenging your position

3-Axis G-Meter



The G-Meter displays real-time 3-axis g-forces (3D: XYZ). The leftmost number is lateral G's, drawn horizontally in gray, the number to the right when green is forward acceleration, drawn upward in green. When decelerating, this number turns red, as does the line, drawn downward. The bottom-right number is yellow, indicating chassis load minus gravity, drawn downward when there's aerodynamic downforce and/or when the suspension is loaded beyond gravity. When jumping

and airborne with a high-aero car, the yellow line will be drawn upwards indicating lift.

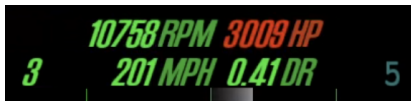
The 3-Axis G-Meter can be helpful in learning tracks with a lot of 3D curvature, as 3D tracks (vs. flat or mostly flat) tracks are much harder due to frequent dynamic suspension loading and unloading, affecting the ability to turn. For example, when landing a small jump and/or any time the suspension is loaded beyond gravity, you'll have more grip, so you can turn sharper and still make the turn. Similarly, on a rise at the top of a hill, the suspension will be unloaded, little or no turns should be attempted as traction will be reduced.

Alpha-numeric Indicator Top of HUD on Right



This indicator shows when the following are active: A for Autopilot, M for Monoclass racing, and L2F when racing from Last to First.

HUD Instruments



The leftmost number is the **current gear**, rightmost number is **Turbo Resets**: if not displayed = unlimited. **MPH** can be changed to **KPH** with '**k**' on keyboard (also changes **HP** to **KW**). **DR** is current aerodynamic drag in G's, including

profile/parasitic drag (area & CD are adjustable in car setup) as well as induced drag from wings. Setting **EFC** (efficiency) in the car setup to 100% means zero induced drag. Driving behind one or more cars reduces drag via drafting, helping you to pass other cars. Note aerodynamic downforce is also reduced when drafting.

Controller Hardware

Gamepads, joysticks, wheels, pedals, shifters, handbrakes, keyboard and mouse are supported and all functions can be remapped. When using the keyboard, rapidly tap the left/right keys to control turn rate, and hold down for maximum turn rate.

Force Feedback

Force feedback can be adjusted for max force, damping, as well as grip feedback which can provide improved awareness of the tires slipping and help improve lap times. As noted earlier, use the FFB safety features in your wheel manufacturer setup tool as well as in ACR.

Internet Connection

Simulated pings as high as 1000ms have been tested as well as vehicle speeds up to 1000 miles per hour. Any broadband connection should work OK; cellular networks have also been tested with good results. The current Brightland server-side ports are **UDP 7051**, **TCP 7052** and the game uses **UDP port 7042** for gameplay when running as a game host (can be changed).

Music

Music was chosen which works for driving, inspired by popular movies and TV shows. You can add your own MP3 music tracks into the “*Amazing Curves Racing/Music*” directory as well as remove any existing tracks which aren’t to your liking.

Keyboard & Mouse Controls

Application

ESC	Bring up Menu when in-game, or quit while in main UI screen
ALT-ENTER	Toggle fullscreen mode
ALT-H	Hide application and mute sound
ALT-N	Goto next level (Solo or Host only)
ALT-S	Toggle Server rendering mode (no 3D rendering)
ALT-Z	Toggle HUD
ALT-W	Toggle rendering steering wheel
CTRL-W	Render as wireframe

In Game

P	Toggle AI AutoPilot
TAB	During an online game, toggle chat
F1	Configure car and controls
F2	Online player info
F3	Decrease master volume
F4	Increase master volume

F5	Decrease effects volume
F6	Increase effects volume
F7	Decrease music volume
F8	Increase music volume
F9	Previous song
F10	Next song
PAUSE/BREAK	Toggle audio mute
F12	Launch <i>Help</i> (show this document)

View Controls

C	Previous camera view
V	Next camera view
[	Previous player
]	Next player
-	Local player's view
=	Toggle camera follows the leader
Mouse wheel	Zoom in/out (change FOV, temporarily)
Right mouse click	Reset temporary FOV change

HUD Controls

BACKSPACE	Toggle player Info
\	Toggle Wide or Centered Instruments (experimental combined tach- and speedometer).
INSERT	Toggle music song info
HOME	Toggle frame rate + game time
ALT-T	Toggle network bandwidth graphs / Shows FFB output in Solo games
ALT-Z	Toggle entire HUD
I	Toggle analog instruments (in-car view only, not available in VR)
M	Toggle in-game menu for adjusting view as well as resetting VR view
G	Toggle G-Meter
K	Toggle MPH/KPH

Turbo Resets

Reset your car with throttle set to 100% to **Turbo-Launch** on reset. In some corner situations, you'll want to use less or no throttle to avoid launching back into a wall. At over 100MPH, this function gives you a 50MPH boost without resetting your car. If you keep throttle less than 50%, you'll get a normal reset, placing you back on track facing the correct direction, and this won't cost you a Turbo Reset.

Network Play

When hosting a race, **Settings/Network/Server Port** defaults to **UDP 7042**: any valid port can be used. If **0** is used, the OS will choose the port (ephemeral).

Settings/Network/Max Kbps sets the (approximate) maximum outbound bitrate, per connection. This is useful for managing bandwidth on servers hosting races. When available, higher bandwidth can result in lower latency. Real world maximum bandwidth depends on network conditions. You can press **ALT-T** to toggle the network bandwidth display.

Gameplay Evolution

ACR was originally designed as a networked physics engine driving & flying simulator, where you can quickly find and join an online session with other people. We also prototyped team-style gameplay with scoring (multiplayer driving & flying & scoring were part of VR Slingshot). Flying and more complex "waypoint" & scoring based designs were removed, with the goal of providing the simplest possible racing experience to the widest audience. Racing against cars on the ground and flying cars is fun, however the controller setup is very complicated, so we're focused on driving for now. Monoclass and Dynamic BOP provides for close racing by players of different skill levels, and Last to First (L2F) provides a fun experience for more skilled players who enjoy starting at the back and passing the entire field to win the race.

Online Racing / Servers

We have game servers running 24/7 and you and your friends can also host your own game servers. We recommend using passwords for private servers or using a server hosted by people or a company you trust. There are no lobbies: once you select a server you will join immediately and start racing without waiting. AI drivers on the server will be replaced by players as they join the race. AI drivers take over for players leaving the race. Races start again with a new track in a few seconds after the current race has ended. The design philosophy is to maximize driving fun while minimizing wasting your time. Get in, have intense races, then get out quickly, back to the real world. You can join and start racing in a few seconds and later exit in just 3 clicks/keystrokes with no forced waiting in a second or so.

Solo Variations

While Progression is good for training, you can turn off Progression and set up Solo races by changing the AI car lineup, as well as choosing your car+car-setup. You can select how far back you start, and we find it's fun to start in last place and see if we can win. You can also set the number of laps and total number of cars, currently up to 88. Single lap sprints can be quite challenging starting from last place.

Last to First mode lets you start from the back along with a track lap limit: if you can cross the finish line in the lead before the lap limit, you win. Once you get experienced, you can race against faster cars than yours, e.g. race against Formula in a Sports Car. Or race the same car as AI and reduce max torque, RPM, add weight/drag, reduce downforce etc. in a custom setup to make the race more challenging, similar to BOP or Balance of Power. You can also experiment with Dynamic BOP.

We also find just doing laps and checking lap times to be an enjoyable, meditation-like experience. Lap times are stored on Steam for your local races as well as for online races on Brightland servers. Lap times can be found in the UI via the Lap Times tab. We find driving on curved surfaces to be a highly engaging experience: the tire & collision models work directly on continuous (road surface) & non-continuous (curb edges) bicubic polynomial 3D curved surfaces instead of discontinuous flat triangles/polygons. Colline Verdi is currently the most curvy track in 3D, with high banking, jumps, tricky sequences, and requires the most skill to drive fast, but once learned, is very exciting to race a full 88 car field!

Scenarios

Where Progression gives you a fixed sequence of pre-defined racing experiences, Scenarios allow you to create custom races and play them again with a single click.

Car Setups & Rules

With a design philosophy focussed on simplicity and overall complexity reduction, we kept the car setup editing as simple as possible. For those looking for less complexity and closer races, using a rule with Monoclass enabled provides fixed setups so everyone can race with the same car & setup where only driver skill will determine who wins.

The current design has a Rules system which determines limits on engine, weight, tires, aerodynamics etc. So if your custom setup has high RPM, high torque, light weight, high grip tires, etc., all those settings will be restricted based on the current Rules (set on the server or by you on your local machine for Solo races).

In the **Car Setup** window, **Engine & Mass, Chassis - Mass Distribution, MDX, MDY, MDZ** adjust the mass distribution around each axis of rotation. **MDX** controls tendency to pitch, **MDY** controls tendency to turn or yaw, **MDZ** controls tendency to roll. Higher values increase “rotational mass”, lower values reduce it. If a car is over-reactive in turning, increase **MDY**. If a car is sluggish in turning, lower **MDY**. **MDX** and **MDZ** can be adjusted to simulate different types of overall handling.

Physics Engine & Tire Model

We observed many commercial physics engine’s motion didn’t look quite right, so we created a custom physics engine from scratch, starting with a simple “Energy Accurate” bounce test: https://www.youtube.com/watch?v=kN6sa_ybMmM. For this test energy is conserved, and the bounces and spinning motion look accurate, where a spinning top has realistic wobble and precession. After that we worked on object stacking, then networked object stacking and collisions, always being careful to manage energy, with the goal of fun, realistic, and predictable driving and gameplay. We also created an updated generalized floating-point fluid dynamics model from VR Slingshot which used 32/64-bit integer: <https://www.youtube.com/watch?v=l13yIZhYiqI>. You’ll see realistic aero-motion on the formula cars providing lift when the car pitches up when jumping off the hill due to higher rear downforce, then gliding realistically to the ground, back to full downforce when the car is level with the ground.

The new Arc tracks allow driving upside down with a very high downforce setup, or briefly with lower downforce cars doing a “barrel roll”.

The tire model has been tuned for predictable dynamics, so you can make quick movements and still be able to control the car when it starts sliding. This is also why it’s recommended to use a controller with no deadzone: you’ll feel very connected to the car and track. The tracks have a style which encourages exploring the physics to see what will happen, e.g. is it faster to cut corners and take jumps off curbs, or is wall riding effective, etc. The highly curved, elevation-changing track Colline Verdi requires understanding car suspension & tire dynamics to master, especially for the faster cars with low downforce. It’s tricky, but really fun once learned. For example, after the car leaves the ground, when it lands you’ll briefly have a lot more grip as the suspension and tires are compressed, and thus you can make sharp turns otherwise not possible. Similarly, as the suspension and tires are unloaded, traction is reduced: important to have the car pointed in the right direction when this happens.

On- and lift- throttle oversteer as well as braking while cornering under/over-steer are emergent behaviors, as is getting ‘scratch’ (tire chirps) when shifting at high RPM. The engine-transmission-rear-end-tire chain is modeled such that characteristic engine sounds and tach wobble are not simulated: it’s emergent behavior. We find generalized emergent behaviors tend to be more fun vs. specifically coded, special case and/or canned effects.

Real world racing has penalties for cutting the track: while we might add that as an option in the future, we prefer to have design physics dictate what is possible. Car to car collisions use the same energy-accurate model, and getting rammed won't necessarily cause you to crash. You might skid and slide, but if the driving aids are enabled, you'll have a good chance to keep going. You can also reduce collision effects in the rules: turn on **Collision Force Reduction**. While you'll still feel the impact, you'll be less likely to crash when this is on. Even if you do have an off, you can jump right back into the race by using one of your **Turbo Resets**, which can instantly get you back on track up to 100MPH. **Turbo Resets** can be used strategically, and the number of **Turbo Resets** is set for each game, from 0, to -1 (unlimited), to a fixed number. This is another design philosophy: do everything possible to make online racing fun, preventing bad experiences and/or providing solutions when annoying things happen online. You have an unlimited number of normal resets (reset back on track at 0 MPH).

AI Model

The AI in ACR is currently simple, where the AI knows a decent line, how to go around a slower car, and how to avoid hitting cars in front. The AI will never intentionally hit or block you. The current tuning has the AI pushing the limits, and the AI can overcook corners and go off the track, then enter again, sometimes getting airborne off the curb, jumping right into traffic. This increases racing drama, and feels like racing with a random mix of people online. A future update will include more disciplined AI, allowing for a mix of driving styles to better simulate driving online with people of different experience levels.

Graphics

The graphics engine is based on R4D, which was originally designed as a general purpose real-time rendering engine to play complex animations directly exported from 3DStudio Max in a single, compact binary file (geometry, animations, cameras, textures: everything). It was licensed to Raycer Graphics as a corporate animation tool to promote their novel advanced rendering hardware (Raycer was later acquired by Apple). Long before WebGL, R4D could play back sophisticated interactive 3D animations in browsers via OpenGL back when plugins were allowed. Thus the .r4d files are small binary files which in 2026 help with quick content downloads as well as very fast load times (around 3 seconds to load a race and start). We're keeping the initial release graphics simplified, where future releases will include updated rendering as well as more detailed car models and tracks. The curved surfaces are dynamically tessellated with the CPU, which may also be updated in a future release to run on the GPU. In any case, care will be taken to prevent any runtime delays due to slow shader compilation.

Support / Discussions / Feature Requests

Discord: <https://discord.gg/wXQBewzeTr>