

Arcade Vehicle Driver

Settings Reference

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Every setting of every component and asset, with its default value and what it does. This page is generated from the same descriptions the inspectors show (hover a setting, or turn on **Field descriptions** in any inspector). Units: 160 simulation units = 1 m, 4096 = 1.0, angles 4096 = 360 degrees. "Classic" = the reference behaviour, which every default reproduces. See [Manual.md](#) for how the parts fit together.

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The FMOD output (*AVD FMOD Vehicle Audio Output*) is documented in the Manual (Vehicle audio); it only compiles with FMOD installed.

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AVD Physics World

ArcadeVehicleDriver.AVDPhysicsWorld, component

Runs the vehicle simulation: fixed ticks independent of the frame rate, ground and scenery queries, collisions and the events effects and sounds listen to. One per scene (created automatically if missing).

Simulation

The tick rate (game speed: the handling is per tick), the unit scale, rain and pause.

Setting	Default	Description
Tick Rate	30	Simulation ticks per second. The handling constants are per tick, so this sets the game speed: 30 = classic feel (default), 25 = a slower, heavier feel. Higher values make everything happen faster, not smoother (rendering is interpolated between ticks at any frame rate). <i>(Range 10 to 120)</i>
Units Per Meter	160	Simulation units per Unity metre. 160 matches the default vehicle presets (a 4.8 m sedan is 764 units long). Change it only together with every vehicle's dimensions.
Wetness	0	Rain: 0 = dry, 7000 = soaked. Reduces tyre grip for every vehicle. <i>(Range 0 to 7000)</i>
Max Ticks Per Frame	6	Safety cap: at most this many ticks are run per rendered frame (own clock) or per FixedUpdate. After a longer hitch the remaining backlog is dropped instead of freezing the game. <i>(Min 1)</i>
Paused	Off	Freezes the simulation (cars keep their pose). The debug HUD toggles it with P; '.' steps one tick.

Clock

Where the ticks come from: the world's own fixed-tick clock (default) or Unity's FixedUpdate. The results are identical.

Setting	Default	Description
Use Unity Fixed Update	Off	Off (default): the world runs its own fixed-tick clock in Update. On: ticks run from Unity's FixedUpdate (Project Settings > Time) instead. Results are identical; only the time source changes.
Match Fixed Timestep	On	Only with Use Unity Fixed Update. On: sets Time.fixedDeltaTime to 1/Tick Rate while the world is active (restored afterwards) so each FixedUpdate is exactly one tick; this also changes the step of every Unity Rigidbody. Off: keeps the project's fixed step and accumulates ticks inside it. <i>(Editable when Use Unity Fixed Update is On)</i>

World queries

Which layers are ground (driven on) and scenery (obstacles), and how far the ground probes reach.

Setting	Default	Description
Ground Mask	256	Layers the wheels and body contact points drive on (downward raycasts). Default layer: AVDGround.
Scenery Mask	512	Layers treated as obstacles (buildings, walls, poles, props). Their colliders become yaw-only boxes (BoxColliders keep their rotation, other colliders use their bounds). Default layer: AVDScenery.
Probe Up	2.5	Ground rays start this far above each probed point (m). Steps up to this height are climbed; keep it below the height of anything a car should not drive onto.
Probe Down	40	Ground rays look this far below each probed point (m). Beyond it the car is considered airborne.

Surface types

Surface type (road, grass, dirt, water...) of ground colliders by their PhysicsMaterial, without a component on each object. An AVD Surface on the object wins.

Setting	Default	Description
Surfaces By Physics Material (list)	empty	Surface type by the ground collider's PhysicsMaterial: one asset per kind of ground, no component on the objects. An AVD Surface on the object wins over this list; ground matching neither is Road.
Surfaces By Physics Material[] > Physics Material	None	Ground colliders using this PhysicsMaterial...

Setting	Default	Description
Surfaces By Physics Material[] > Surface	Road	...are this surface type.

AVD Vehicle

ArcadeVehicleDriver.AVDVehicle , component

A vehicle driven by the fixed-tick simulation (no Unity Rigidbody), based on the gameplay mechanics of Driver 2. The definition holds how this kind of vehicle drives; here are the parts of this particular car: its visual wheels, engine and horn, steering wheel, damage overrides and camera seats. Move it only with Teleport (the transform is presentation).

Setting	Default	Description
Definition	None	Geometry, grip and tuning of this vehicle. Tuning and handling edits apply live in Play mode.
Control Type	Player	Player: precise integration and wheel locking under hard braking (best handling). AI: the cheaper handling path used for traffic. None: not driven.
Wheels	4 items	Visual wheel transforms in slot order: Front Right, Rear Right, Front Left, Rear Left. Each transform should be centred on its wheel (its pivot is the spin axis). Use Detect Wheels in the inspector to fill them.
Wheel Placement	Physics Contact Points	Physics Contact Points: wheels are drawn at the definition's contact points (classic look; the model's own wheel positions are ignored). Model Position: wheels stay where they are in the model and only move with the suspension; run Fit Physics To Model so the physics matches them.
Wheel Inset	17	Physics Contact Points only: the visual wheel is drawn this many units (160 = 1 m) inside its contact point (classic 17). Fit Physics To Model accounts for it. <i>(Editable when Wheel Placement is Physics Contact Points)</i>
Override Damage	Off	Use the damage settings below instead of the definition's (e.g. a tougher police car sharing a definition).
Damage		This vehicle's own damage settings (only with Override Damage).
Damage > Max Damage	22000	Total damage at which the vehicle is wrecked: fire and black smoke and, with Wrecked Stops Car, it can no longer be driven. Classic 22000 (free ride; missions used their own limits). A hard crash adds ~1000-4000; AI cars take double damage. Higher = survives more hits. <i>(Min 1)</i>
Damage > Damage Taken	1	Multiplies the damage of every hit. 1 = classic, 0.5 = armoured (half damage), 2 = fragile, 0 = indestructible. <i>(Min 0)</i>
Damage > Front Damage	1	Extra multiplier for hits on the front zones (front left / front right). 1 = classic. <i>(Min 0)</i>
Damage > Side Damage	1.5	Extra multiplier for hits on the side zones (middle half of the length). Classic is 1, but side hits are naturally weaker (mostly glancing, and front/rear hits also spread to the paired zone), so 1.5 makes the doors dent and wear more like the ends of the car. <i>(Min 0)</i>
Damage > Rear Damage	1	Extra multiplier for hits on the rear zones (rear left / rear right). 1 = classic. <i>(Min 0)</i>
Damage > Side Hits By Direction	On	Classic: the damaged zone depends only on where the contact point is (side = middle half of the length). The contact point is often a corner of the other car or of the wall, so short cars rarely take side damage. On: a blow coming from the side damages the side zone unless it lands right at a corner.
Damage > Wrecked Stops Car	On	Wrecked vehicles lock up (handbrake, brakes at speed, no steering), classic.
Start Damage	0	Damage the vehicle starts with (0 = undamaged). Clamped to the max damage. <i>(Min 0)</i>
Engine		Engine on/off and ignition: off by default (the engine always runs, classic).
Engine > Use Ignition	Off	Off (classic): the engine is always running. On: the engine can be off, is started with the ignition (player Ignition action, or StartEngine() from scripts) and can fail to start when damaged. While it is off the vehicle can brake and steer but not accelerate, reverse or burn out.
Engine > Start Running	On	The engine is already running when the vehicle appears (Play). Off: it starts switched off.
Engine > Start On Throttle	Off	Pressing accelerate with the engine off turns the key (handy for AI and casual players). Off: only the Ignition action or StartEngine() starts it.
Engine > Crank Seconds	0.7	Seconds the starter turns before the engine catches. Random: a different time between Min and Max on every start.
Engine > Failed Crank Seconds	1.3	Seconds the starter turns on an attempt that fails (then it stops and you try again). Random: a different time between Min and Max on every failed attempt.

Setting	Default	Description
Engine > Start Flare	0.3	When the engine catches the revs flare up to this level (0..1 of full revs: 0.3 is about 2700 RPM on the default 900-7000 RPM range) and settle back to idle. <i>(Range 0 to 1)</i>
Engine > Flare Rise Seconds	0.15	Seconds for the start flare to rise to its peak. <i>(Min 0.01)</i>
Engine > Flare Fall Seconds	1.1	Seconds for the start flare to settle back to idle. <i>(Min 0.01)</i>
Engine > Stall When Wrecked	On	The engine dies when the vehicle is wrecked (damage at its Max Damage).
Engine > Wrecked Cannot Start	On	A wrecked vehicle never starts: the starter turns (you hear the ignition) but the engine does not catch. Repair() makes it startable again.
Engine > Start Failures	Never	Never: always starts at the first attempt. Above Damage: from Fail From Damage on, starting takes 1 to Max Attempts attempts. Damage Levels: a list of damage percentages, each with its own maximum (e.g. 20% = up to 3, 60% = up to 5, 90% = up to 8). The number of attempts is picked at random when the first attempt is made.
Engine > Fail From Damage Percent	30	Above Damage: from this total damage (percent of Max Damage) the engine may need several attempts. <i>(Range 0 to 100; Shown when Start Failures is Above Damage)</i>
Engine > Max Attempts	3	Above Damage: starting takes 1 to this many attempts. <i>(Min 1; Shown when Start Failures is Above Damage)</i>
Engine > Failure Levels (list)	3 items	Damage Levels: the highest level reached by the damage applies. Below the first level the engine always starts at once. <i>(Shown when Start Failures is Damage Levels)</i>
Engine > Failure Levels[] > From Damage Percent	20	From this total damage (percent of the vehicle's Max Damage)... <i>(Range 0 to 100)</i>
Engine > Failure Levels[] > Max Attempts	3	...starting takes 1 to this many attempts (picked at random when the first attempt is made). <i>(Min 1)</i>
Has Horn	On	The vehicle has a horn: the player's Horn action and SetHorn() / Honk() from scripts sound it (heard through AVD Vehicle Audio; HornChanged lets other systems react).
Camera Mounts (list)	empty	This vehicle's own positions for Mounted camera modes (cockpit, hood...), matched by mode name.
Camera Mounts[] > Mode	"Cockpit"	Name of the Mounted camera mode this position is for (as in the camera profile, e.g. "Cockpit").
Camera Mounts[] > Local Position	(-0.35, 1.1, 0)	Camera position relative to the vehicle (m): x right, y up, z forward. Replaces the mode's Auto Bumper / Local Position.
Camera Mounts[] > Override Rotation	Off	Use Local Euler below instead of the mode's rotation.
Camera Mounts[] > Local Euler	(0, 0, 0)	Rotation relative to the vehicle (degrees), e.g. a small downward tilt (8, 0, 0). <i>(Editable when Override Rotation is On)</i>
Camera Mounts[] > Override Field Of View	Off	Use Field Of View below instead of the mode's lens (e.g. a wider view in a small cockpit).
Camera Mounts[] > Field Of View	70	Vertical field of view in degrees. <i>(Range 20 to 120; Editable when Override Field Of View is On)</i>
Steering Wheel		Optional steering wheel inside the model, turned together with the front wheels.
Steering Wheel > Transform	None	The steering wheel object inside the model (optional). Detect Steering Wheel in the inspector finds it by name.
Steering Wheel > Rotation Range	900	Lock-to-lock rotation in degrees: half of it each way at full lock (900 = -450..+450, a real car; classic arcade look ~180-360). 0 = the wheel never turns. <i>(Range 0 to 900)</i>
Steering Wheel > Axis	Z	Local axis of the steering wheel object that points along the steering column.
Steering Wheel > Invert	Off	Turns the other way. Normally not needed: the direction is chosen so a right turn is clockwise as seen from the driver's seat, whichever way the axis points.

Setting	Default	Description
Steering Wheel > Rotate Around	Pivot	Pivot: turn around the object's pivot. Mesh Centre: turn around the centre of its mesh (when the pivot is not on the steering column, e.g. models exported with every pivot at the origin).
Gizmos		Scene view helpers drawn while the vehicle is selected (collision box, contact points, wheels, suspension). The inspector's Edit Body Shape button makes the box and body points draggable.
Gizmos > Enabled	On	Draw the helpers below while the vehicle is selected.
Gizmos > Origin	On	White dot + forward line: the physics origin (centre of rotation, the transform position) and the forward direction.
Gizmos > Collision Box	On	Cyan box: the collision box (definition > Cosmetics > Col Box, placed by Cog). Used for hits against cars and scenery.
Gizmos > Body Contact Points	On	Yellow dots: the 12 body contact points (Cosmetics > C Points) that keep the chassis out of the ground.
Gizmos > Wheel Contacts	On	Green dots: the wheel contact points (Cosmetics > Wheel Disp) where the tyre forces act.
Gizmos > Wheel Circles	On	Green circles: the physics wheel size (Cosmetics > Wheel Size) at rest. Compare with the model's wheels to check a fit.
Gizmos > Suspension Travel	On	Light green lines: how far each wheel centre can travel, from fully extended to Tuning > Max Compression.
Gizmos > Effect Points	On	Orange dot: engine smoke/fire point. Grey dots with a line: exhaust pipes and the puff direction (definition > Effect Points).
Gizmos > Damage Zones	Off	Coloured boxes: the six damage zones on the collision box, split exactly as the simulation decides which zone a hit damages (front / rear = outer quarters of the length measured from the physics origin, side = middle half; left / right of the origin). Dashed lines: with Side Hits By Direction, blows from the side count as side damage up to these lines. In Play mode each zone shows its damage (green to red).
Gizmos > Labels	On	Text labels next to the helpers (editor only).

AVD Vehicle Definition

ArcadeVehicleDriver.AVDVehicleDefinition , asset (Create > Arcade Vehicle Driver)

Everything that makes a kind of vehicle drive the way it does: geometry (wheels, body box, contact points), engine and grip, handling, tuning (speeds, brakes, suspension, steering), damage, and its effects. Shared by every vehicle of that model. Values are in simulation units: 160 = 1 m, 4096 = 1.0.

General

The vehicle's name, as shown by the debug HUD.

Setting	Default	Description
Display Name	"Sedan"	Name shown in the debug HUD.

Geometry, engine and grip

Physical description in simulation units (160 = 1 m, 4096 = 1.0): wheel contact points and size, engine power and traction, the collision box, centre of gravity and body contact points, inertia and mass. Usually written by Fit Physics To Model on the vehicle. Geometry edits need the vehicle's Reload Cosmetics in Play mode; the other values apply live.

Setting	Default	Description
Wheels		
Wheel Disp	4 items	Wheel contact points relative to the vehicle origin, in order 0 front-right, 1 rear-right, 2 front-left, 3 rear-left (units, 160 = 1 m). X = half track (+right), Z = axle position (+front), Y = suspension mount height (classic value -30). Keep left/right symmetric or the car pulls to one side. Green spheres in the Scene view.
Wheel Size	49	Wheel radius in units (160 = 1 m). Classic cars: 49-55 (-0.31-0.34 m). Used for the visual wheel height and wheel spin speed. Green circles in the Scene view.
Engine and grip		
Power Ratio	4096	Engine power, 4096 = 1.0 (forward thrust = Power Ratio x 4915 / 4096). Higher = faster acceleration and a higher drag-limited top speed. Classic range 3000 (van) - 4700 (muscle car).
Traction	4096	Tyre grip, 4096 = 1.0. Higher = less sliding in corners and under braking. Classic range 4096-4400.
Body		
Col Box	(129, 88, 382)	Collision box HALF size in units (x = half width, y = half height, z = half length). Used for car-to-car and car-to-scenery hits and for damage zones. Cyan box in the Scene view.
Cog	(0, -95, 0)	Centre of gravity offset in units: the collision box centre sits at origin - cog (so cog.y = -95 puts the box 95 units above the origin). Moves the box, not the rotation centre (that is always the origin).
C Points	12 items	12 body contact points (units) that stop the chassis sinking into the ground and lift it out of steps: 0-3 bottom corners, 4-5 rear, 6-9 roof, 10-11 front. Generated from the collision box by the fitter. Yellow spheres in the Scene view.
Inertia and mass		
Twist Rate X	224	Not used by the current model (kept for data compatibility).
Twist Rate Y	224	Inverse inertia for yaw and pitch. Higher = the car rotates more easily (snappier turn-in, spins more after hits). Classic 224 (cars), 180 (van).
Twist Rate Z	1120	Inverse inertia for roll. Higher = more body roll / easier to tip over. Classic 1120 (cars), 900 (van).
Mass	4096	Relative mass for car-to-car hits, 4096 = normal car: the lighter car of a pair is pushed more. 32767 = practically immovable.

Handling

Tyre grip and drivetrain: overall friction, braking grip, the steering "auto brake" that makes cars turn in sharply, which wheels the engine drives (rear, front or all, with the split between the axles) and the optional traction limit (driven wheels spin when the weight on them is too low).

Setting	Default	Description
Friction Scale Ratio	32	Overall tyre grip, 32 = 1.0 (normal cars). 45-68 = very grippy (trucks, 4x4s); below 32 = slippery.
Aggressive Braking	On	Braking hard above ~10 km/h gives 25% more grip, so the car stops shorter and turns while braking.
Auto Brake On	On	Steering at speed adds front grip ("auto brake"), making the car turn in more sharply. Off = more understeer.
Drivetrain		
Drivetrain	Rear Wheel Drive	Which wheels the engine drives. The total push is the same for every layout (the engine does not get stronger); what changes is where it goes: Rear Wheel Drive (classic): the rear wheels push; burnouts and power slides. Front Wheel Drive: the steered front wheels pull; steadier, understeers under power. All Wheel Drive: the push is split between both axles (Front Drive Share), so each tyre does less work; with Adaptive Split and Traction Limit it keeps pulling on climbs and loose ground where two-wheel drive spins.
Front Drive Share	0.4	All Wheel Drive: share of the push sent to the front axle (0.4 = 40% front / 60% rear, a typical rear-biased 4x4; 0.5 = locked centre differential). <i>(Range 0 to 1; Shown when Drivetrain is All Wheel Drive)</i>
Adaptive Split	On	All Wheel Drive: move the push towards the axle with more grip, like a centre differential: the loaded axle on a climb or under acceleration, the axle on asphalt when the other is on grass, sand or water. <i>(Shown when Drivetrain is All Wheel Drive)</i>
Traction Limit	Off	Off (classic): the driven wheels always push fully, whatever their load. On: each driven wheel can only push as hard as the weight on it allows (Traction Grip): on steep climbs, over crests or under hard acceleration the unloaded axle loses push and spins. Loose ground (grass, sand) already halves the grip. All-wheel drive spreads the push and keeps pulling.
Traction Grip	1	Traction Limit: how much push a wheel with its normal (resting) load can take, 1 = a little more than the classic full throttle of a normal car. Lower = spins earlier (slippery tyres), higher = rarely. <i>(Range 0.3 to 3; Shown when Traction Limit is On)</i>

Tuning

Speed limits, acceleration and brakes, reverse, handbrake, suspension, steering and gravity on top of the handling. Every default reproduces the classic behaviour; 0 disables a limiter. Applies live in Play mode.

Setting	Default	Description
Engine		
Acceleration Scale	1	Multiplies the forward thrust. 1 = classic. Raises acceleration and the drag-limited top speed.
Max Speed Kmh	0	Top speed limiter in km/h. 0 = off (classic: the speed is limited only by drag, ~130 km/h for a normal car). <i>(Min 0)</i>
Cruise Speed Kmh	60	Speed held by the cruise control (C / d-pad up). <i>(Min 0)</i>
Gear Change Thrust Cut	On	Gear changes briefly cut the thrust, giving the classic stepped acceleration.
Brakes and reverse		
Brake Scale	1	Multiplies the braking force. 1 = classic (118 km/h to stop in ~2.5 s).
Reverse Thrust	5000	Reverse thrust (classic 5000, multiplied by the engine Power Ratio). Holding brake when stopped reverses.
Max Reverse Speed Kmh	0	Reverse speed limiter in km/h. 0 = off. <i>(Min 0)</i>
Handbrake		
Handbrake Front Grip	656	Extra front grip while the handbrake is pulled and the car moves (classic 656). Higher = sharper handbrake turns.
Handbrake Stopped Grip	375	Front grip removed while the handbrake is pulled and the car is stopped (classic 375).
Suspension		
Spring Rate	230	Spring stiffness: force per unit of compression (classic 230). Higher = stiffer, less body movement.
Spring Damping	100	Damping against the previous compression (classic 100). Higher = less bouncing.
Ride Height Offset	14	Added to every wheel's compression (classic 14). Higher = the car sits higher on its springs.
Max Compression	42	Maximum suspension compression in units (classic 42 = 26 cm). Beyond it the body contact points take the hit.

Setting	Default	Description
Steering (4096 = 360 degrees)		
Steer Rate	32	Keyboard/d-pad steering speed per tick (classic 32 = 2.8 degrees per tick).
Max Steer	352	Maximum wheel angle (classic 352 = 31 degrees). Analog sticks are scaled to it.
Fast Steer Rate	64	Steering speed while Fast Steer is held (classic 64).
Fast Max Steer	511	Maximum wheel angle while Fast Steer is held (classic 511 = 45 degrees).
Steer Centre Rate	64	How fast the wheels return to centre when no direction is held (classic 64 per tick).
World		
Gravity	-7456	Gravity per tick in fixed-point (classic -7456). More negative = heavier car, lower and shorter jumps (e.g. -10922 for a heavier feel).

Gearbox

Engine speed: the RPM range the rev counter and the engine sound use (Idle Rpm .. Max Rpm) and the rev limiter, for every transmission. Gears: how many and where the automatic changes up. Defaults = the classic four gears with no extra limit. Classic gears only shape the engine revs; in manual the selected gear also caps the speed and pulls weakly when too high. Automatic, Manual or Manual With Clutch is chosen on the AVD Vehicle Manager. Applies live in Play mode.

Setting	Default	Description
Engine speed		
Idle Rpm	900	RPM at idle (the simulation's revs at 0). Shown by the rev counter and used by the engine sound. <i>(Min 0)</i>
Max Rpm	7000	RPM at the simulation's full revs: the top of the rev counter and of the engine sound. The classic gears change up at about 79% of it (5550 RPM with the default 900-7000). Changing it rescales the RPM readout and sound, not the driving. <i>(Min 1000)</i>
Limiter Rpm	7000	Rev limiter, for every transmission: the engine never revs past it. Equal to Max Rpm = no extra limit (classic). Lower: the automatic changes up before it and, in top gear, it caps the top speed; in manual it caps the speed of each gear. Also the revs reached when revving in neutral or with the handbrake. <i>(Min 1000)</i>
Gears		
Custom Gear Count	Off	Off: the classic four gears. On: Gear Count gears, spaced between the classic first and top gear.
Gear Count	4	Number of forward gears (1-8). <i>(Range 1 to 8; Shown when Custom Gear Count is On)</i>
Custom Shift Rpm	Off	Off: the classic shift points (about 5550 RPM on the default range). On: the RPM at which the automatic changes up from each gear (kept below the limiter).
Shift Rpm	3 items	Automatic: the RPM at which each gear changes up. The debug HUD shows the RPM live. <i>(Shown when Custom Shift Rpm is On)</i>

Launch and burnout

Optional (off = classic). Accelerating against the brakes from a standstill (manual: first gear + handbrake; automatic: accelerate + brake) spins the driven wheels in place while the brakes hold the others; letting the brakes go with the throttle held launches the car like the Burnout button, release the throttle first to pull away calmly. Weak vehicles (below Min Power) and 4x4s just rev.

Setting	Default	Description
Brake Stand Burnout	Off	Off (classic): the handbrake locks the rear wheels and brake beats accelerate. On: accelerate against the brakes from a standstill (manual: first gear + handbrake; automatic: accelerate + brake) spins the driven wheels in place while the brakes hold the others; releasing the brakes with the throttle held launches the car with a burnout (release the throttle first to pull away calmly). All-wheel-drive and weak vehicles just rev.
Min Power	3500	Engine power (Power Ratio x Acceleration Scale, 4096 = a normal car) needed to spin the driven wheels against the brakes. Below it the engine just labours and the tyres grip (vans, trucks). Classic powers: van 3000, sedan 4096, muscle 4700. <i>(Min 0; Shown when Brake Stand Burnout is On)</i>
Creep	0.3	How much the brakes fail to hold a powerful car: 0 = it never moves, 0.3 = a car well above Min Power creeps forward while it smokes the tyres. Scaled by how much the power exceeds Min Power. <i>(Range 0 to 1; Shown when Brake Stand Burnout is On)</i>

Setting	Default	Description
Build Up Seconds	1.2	Seconds for the brake stand to build up: the revs climb from idle like a normal acceleration, the driven wheels start turning, break loose (smoke, squeal) about a third of the way in and reach full burnout revs at the end. <i>(Range 0.1 to 4; Shown when Brake Stand Burnout is On)</i>
Max Start Kmh	8	The brake stand starts only below this speed (km/h); faster, the brakes and handbrake work as usual. <i>(Min 0; Shown when Brake Stand Burnout is On)</i>

Damage

How much damage this vehicle takes per hit and per region (front, side, rear), and when it is wrecked. A vehicle can override these (AVD Vehicle > Damage).

Setting	Default	Description
Max Damage	22000	Total damage at which the vehicle is wrecked: fire and black smoke and, with Wrecked Stops Car, it can no longer be driven. Classic 22000 (free ride; missions used their own limits). A hard crash adds ~1000-4000; AI cars take double damage. Higher = survives more hits. <i>(Min 1)</i>
Damage Taken	1	Multiplies the damage of every hit. 1 = classic, 0.5 = armoured (half damage), 2 = fragile, 0 = indestructible. <i>(Min 0)</i>
Front Damage	1	Extra multiplier for hits on the front zones (front left / front right). 1 = classic. <i>(Min 0)</i>
Side Damage	1.5	Extra multiplier for hits on the side zones (middle half of the length). Classic is 1, but side hits are naturally weaker (mostly glancing, and front/rear hits also spread to the paired zone), so 1.5 makes the doors dent and wear more like the ends of the car. <i>(Min 0)</i>
Rear Damage	1	Extra multiplier for hits on the rear zones (rear left / rear right). 1 = classic. <i>(Min 0)</i>
Side Hits By Direction	On	Classic: the damaged zone depends only on where the contact point is (side = middle half of the length). The contact point is often a corner of the other car or of the wall, so short cars rarely take side damage. On: a blow coming from the side damages the side zone unless it lands right at a corner.
Wrecked Stops Car	On	Wrecked vehicles lock up (handbrake, brakes at speed, no steering), classic.

Effects

Particles and sounds of this vehicle: its impact material for car-to-car hits, its effects profile (smoke, fire, exhaust, debris, skid threshold) and where the engine smoke and exhaust puffs come from.

Setting	Default	Description
Impact Material	None	Particles/sound when this vehicle hits another vehicle. Empty = the Impact Effects default.
Effects	None	Engine smoke, fire, exhaust, hit debris and skid settings for this vehicle. Empty = the AVD Vehicle Effects default profile.
Effect Points		Where the engine smoke/fire and the exhaust puffs come from.
Effect Points > Custom	Off	Off: placed from the collision box (engine smoke over the front, one exhaust low at the rear right). On: the positions below. Dragging a point with Edit Body Shape In Scene turns this on.
Effect Points > Engine	(0, 0, 0)	Engine smoke and fire (metres, vehicle space). <i>(Editable when Custom is On)</i>
Effect Points > Exhausts	empty	Exhaust pipe ends (metres, vehicle space). Puffs leave backwards. <i>(Editable when Custom is On)</i>

AVD Player Input

ArcadeVehicleDriver.AVDPlayerInput , component

Drives the vehicle from Input System actions (keyboard, gamepad): steering, throttle, brakes, handbrake, burnout, horn, ignition, cruise, reset, and the manual gearbox (gear up / down, clutch, direct gears) when the AVD Vehicle Manager selects it. Each vehicle works on its own copy of the bindings.

Setting	Default	Description
Actions	None	Bindings asset with a 'Vehicle' action map (see Defaults/AVDVehicleControls). Empty = built-in defaults.
Stick Deadzone	0.12	Stick deflection ignored around the centre (0..0.5). Raise it if the car drifts with the stick released. <i>(Range 0 to 0.5)</i>
Analog Throttle	On	On: trigger pressure controls the throttle (half trigger = half thrust). Off: any press is full throttle (classic digital accelerate). Keyboard is always full throttle.
Rumble	On	Gamepad vibration on hits and hard landings.

AVD Vehicle Manager

`ArcadeVehicleDriver.AVDVehicleManager`, component

Player-side vehicle settings for the scene: the vehicles the player can drive (Tab / d-pad down hands control and the camera to the next one; the others are parked with the handbrake on) and the player's transmission: automatic (classic), manual, or manual with clutch. One per scene.

Player vehicles

The vehicles the player can drive and the camera that follows the active one. Only the active vehicle's AVD Player Input stays enabled; the Next Car action (Tab / d-pad down) moves to the next.

Setting	Default	Description
Chase Camera	None	Camera retargeted on every switch.
Vehicles	empty	Vehicles to cycle through. Each needs an AVD Player Input component.
Current	0	Index of the vehicle controlled at start.

Transmission

How the player changes gear, for every vehicle in the list (AI always uses the automatic). Automatic: classic, the gear follows the speed. Manual: Gear Up (X) / Gear Down (Z) through R, N, 1, 2...; the brake only brakes, reverse is the R gear, and each gear tops out at the rev limiter. Manual With Clutch: the Clutch (left Ctrl) must be held to change gear and disconnects the engine while held. Direct actions for R, N and each gear exist unbound in the bindings asset. Applies live.

Setting	Default	Description
Transmission	Automatic	Automatic: classic (the gear follows the speed; brake when stopped reverses). Manual: Gear Up / Gear Down (R, N, 1, 2...); brake only brakes; reverse is the R gear; neutral and the handbrake just rev the engine. Manual With Clutch: as Manual, but gear changes need the Clutch held, which also disconnects the engine.
Start Gear	1	Gear selected when a vehicle switches to a manual transmission while stopped (manual vehicles that are already moving keep their current gear). 0 = neutral, 1 = first. <i>(Range 0 to 1; Shown when Transmission is Manual / Manual With Clutch)</i>

AVD Scripted Driver

`ArcadeVehicleDriver.AVDScriptedDriver`, component

Plays a timed list of pad inputs (in simulation ticks): repeatable handling tests, and the simplest example of a controller that is not the player (`IAVDVehicleController`).

Setting	Default	Description
Steps (list)	empty	Played in order from the moment the component is enabled.
Steps[] > Ticks	0	How long this step lasts, in simulation ticks (30 ticks = 1 s at the default tick rate).
Steps[] > Pad	None	Buttons held during the step (accelerate, brake, handbrake, left/right...).
Steps[] > Analog Steer	0	Analog steering -128 (full left) .. 127 (full right). Only with Use Analogue. <i>(Range -128 to 127)</i>
Steps[] > Use Analogue	Off	Steer with Analog Steer instead of the Left/Right buttons.
Steps[] > Clutch	Off	Clutch held during the step (manual gearbox with clutch).
Steps[] > Select Gear	Off	Manual gearbox: put the lever in Gear when the step starts.
Steps[] > Gear	0	Gear selected when the step starts: -1 = R, 0 = N, 1.. = forward gears.
Loop	Off	Start again after the last step. Off = hold the handbrake when finished.
Take Control	On	Take control from other controllers on this car while enabled.

AVD Vehicle Damage

ArcadeVehicleDriver.AVDVehicleDamage , component

Visual damage driven by the vehicle's damage (zones and total): dents in the body meshes, a damaged-paint overlay, parts that come off and breaking glass. Each one can be switched off. Physics and handling are not affected (they follow the simulation's damage). Repair restores everything.

Dents

Pushes the body mesh vertices in where the car is hit. Zone mode dents each of the 6 damage zones as a whole; Impact Point dents around each contact (direction from the hit); Hybrid mixes both. Dent Per Damage and Impact Radius set how deep and wide a hit dents; Max Dent caps it.

Setting	Default	Description
Dents	On	Deform the body meshes when the vehicle takes damage.
Mode	Hybrid	Zones: each damage zone crushes its part of the car as its damage grows. Impact Point: each hit dents the body where it struck, in the direction of the blow. Hybrid: impact dents plus a lighter zone crush. <i>(Editable when Dents is On)</i>
Max Dent	0.3	No vertex moves more than this (m), however many hits. <i>(Min 0.01; Editable when Dents is On)</i>
Zone Depth	0.25	Zones / Hybrid: how far a zone's outer edge is crushed at full zone damage (m). <i>(Min 0; Editable when Dents is On)</i>
Hybrid Zone Share	0.4	Hybrid: share of Zone Depth used (the rest of the look comes from the impact dents). <i>(Range 0 to 1; Editable when Dents is On)</i>
Dent Per Damage	0	Impact Point / Hybrid: dent depth per point of damage taken (m). $0.0001 = 0.2$ m for a 2000-damage crash. <i>(Min 0; Editable when Dents is On)</i>
Impact Radius	0.6	Impact Point / Hybrid: radius of a dent (m); harder hits make wider dents (up to 1.4x). <i>(Min 0.05; Editable when Dents is On)</i>
Scenery Hit Height	-0.3	Impact Point / Hybrid: height of dents from walls and buildings, from the bottom (-1) to the top (1) of the collision box. Scenery hits are worked out from above (2D), so they carry no height; -0.3 = bumper and door level. Car-to-car hits use their real 3D contact point. <i>(Range -1 to 1; Editable when Dents is On)</i>
Crumple	0.6	Random variation of the dents (crumpled metal instead of a smooth push). <i>(Range 0 to 1; Editable when Dents is On)</i>
Recalculate Normals	On	Recompute normals after denting, so the dents catch the light (costs a little per hit). <i>(Editable when Dents is On)</i>
Body Meshes	empty	Meshes that dent. Empty = every mesh of the vehicle except the wheels and the steering wheel. Meshes must be readable (Read/Write enabled).

Damaged material

A grunge / scratched-paint overlay that fades in on the body as the total damage grows.

Setting	Default	Description
Damaged Material	On	Scratches and dirt appear over the damaged parts of the body (an overlay drawn with the vertex damage).
Damage Overlay	None	Overlay material (alpha-blended, uses vertex colour alpha as the damage amount). Default: Defaults/Damage/AVDDamageOverlay. <i>(Editable when Damaged Material is On)</i>

Detachable parts

Bumpers, doors, hood... that fall off when the damage of their zone passes a limit. Found by name (Part Names) or listed one by one (Parts) with their own zone and limit.

Setting	Default	Description
Detach Parts	On	Parts come off when their zone is damaged enough.

Setting	Default	Description
Parts (list)	empty	The parts. Empty = found by name (Part Names) when the vehicle starts. (<i>Editable when Detach Parts is On</i>)
Parts[] > Part	None	The part's object (hood, bumper, door, spoiler, mirror...). It is hidden and a copy flies off with Unity physics.
Parts[] > Zone	Auto	Damage zone that knocks it off. Auto = any zone the part sits in (a hood across the front: both front zones).
Parts[] > Detach Damage	3000	Zone damage (0- 4095) at which it comes off. Zones reach ~1000-2000 after one hard crash, 4095 at most. (<i>Range 0 to 4095</i>)
Part Names	"hood bonnet cap[oô] bumper para.? choque door porta trunk boot tailgate spoiler aerof[oô] lio wing mirror retrovisor espelho hubcap calota fender paralama grill grade"	Object names that are detachable parts when the list above is empty (regular expression, case- insensitive). (<i>Editable when Detach Parts is On</i>)

Setting	Default	Description
Auto Detach Damage	3000	Zone damage at which automatically found parts come off. (Range 0 to 4095; Editable when Detach Parts is On)
Part Lifetime	15	Seconds before a fallen part disappears (0 = never). (Min 0; Editable when Detach Parts is On)
Detach Speed	3	Speed (m/s) a part is thrown off with, on top of the vehicle's speed. (Min 0; Editable when Detach Parts is On)

Glass

Windows crack and then shatter (shards) when their zone takes enough damage or the hit is fast enough. Glass is found by object or material name (Glass Names).

Setting	Default	Description
Break Glass	On	Windows crack and then break.
Glass Names	"glass>window windshield windscreen vidro janela cristal vetro"	Objects or materials whose name matches are glass (regular expression, case-insensitive). A glass material inside the body mesh is handled as its own pane. (Editable when Break Glass is On)
Glass Crack Damage	1200	Damage around a pane (0-4095) at which it cracks. (Range 0 to 4095; Editable when Break Glass is On)
Glass Break Damage	2600	Damage around a pane (0-4095) at which it breaks. (Range 0 to 4095; Editable when Break Glass is On)
Glass Break Speed Kmh	45	A hit at least this fast (km/h) within 1.2 m of a pane breaks it at once. (Min 0; Editable when Break Glass is On)
Cracked Glass	None	Cracks drawn over a cracked pane. Default: Defaults/Damage/AVDCrackedGlass. (Editable when Break Glass is On)
Glass Shards		Shards when a pane breaks.
Glass Shards > Enabled	On	Off = this effect is not emitted.

Setting	Default	Description
Glass Shards > Prefab	None	Your own effect. Every ParticleSystem in the prefab is emitted in place with its own colours, sizes and materials. The prefab's +Z is turned to the emission direction (up for smoke and fire, backwards for exhausts). The root emits Count particles; each child emits Count x (its Emission Rate / the root's Emission Rate). Empty = the generated particles below.
Glass Shards > Count	30	Particles per emission. Emissions happen every few simulation ticks, as in the classic model (smoke and exhaust: every 4th tick, fire: every 2nd tick, skids: every 4th tick per wheel). <i>(Min 1)</i>
Generated (used without a prefab)		
Glass Shards > Start Color	#CCE6FFE6	Colour (and opacity) when the particle is born. <i>(Shown when Prefab is Off)</i>
Glass Shards > End Color	#CCE6FF80	Colour (and opacity) when the particle dies. Use alpha 0 to fade out. <i>(Shown when Prefab is Off)</i>
Glass Shards > Start Size	0.04	Diameter in metres when born. <i>(Min 0.001; Shown when Prefab is Off)</i>
Glass Shards > End Size	0.03	Diameter in metres when it dies (smoke grows: classic engine smoke 0.6 -> 3 m). <i>(Min 0.001; Shown when Prefab is Off)</i>
Glass Shards > Lifetime	1.2	Lifetime in seconds (classic smoke ~1.3 s, fire ~0.7 s). <i>(Min 0.01; Shown when Prefab is Off)</i>
Glass Shards > Random Speed	2.5	Random speed in m/s in any direction (spread). <i>(Min 0; Shown when Prefab is Off)</i>
Glass Shards > Rise	1.2	Upward speed in m/s (smoke rises). Negative = sinks. <i>(Shown when Prefab is Off)</i>
Glass Shards > Gravity	1.2	Gravity multiplier: 0 for smoke, ~1 for debris and dirt that falls back down. <i>(Shown when Prefab is Off)</i>
Glass Shards > Inherit Velocity	0.4	How much of the vehicle's velocity the particle inherits (0 = stays where it was born). <i>(Range 0 to 1; Shown when Prefab is Off)</i>
Glass Shards > Additive	Off	Additive blending: glows, for fire and sparks. Off = normal transparency, for smoke and dust. <i>(Shown when Prefab is Off)</i>
Glass Shards > Material	None	Particle material. Empty = a soft round particle (URP Particles/Unlit) with the blending above. <i>(Shown when Prefab is Off)</i>

AVD Vehicle Audio

ArcadeVehicleDriver.AVDVehicleAudio , component

Plays the vehicle's sounds (engine, ignition, tyres, gear shifts, bumps, horn, wind, damaged engine) from a Sound Profile. Everything is worked out per simulation tick, like the engine revs, and interpolated between ticks. Ground sounds come from each ground's Surface Effects; crash sounds from Impact Effects.

Sounds

Which sound profile this vehicle uses and how loud it is overall.

Setting	Default	Description
Profile	None	The sounds of this kind of vehicle. Vehicles of the same model share one profile.
Volume	1	Volume of every sound of this vehicle. <i>(Range 0 to 2)</i>

AVD Vehicle Sound Profile

ArcadeVehicleDriver.AVDVehicleSoundProfile , asset (Create > Arcade Vehicle Driver)

The sounds of one kind of vehicle, shared by every vehicle using it (AVD Vehicle Audio > Profile). All levels and smoothing are worked out per simulation tick and interpolated between ticks. Ground sounds (skid, rolling) come from each ground's Surface Effects; crash sounds from the Impact Effects.

Setting	Default	Description
Notes	None	Free notes about this profile (not used by the game).

Engine

How the engine is heard. Classic: two loops (idle and revs). Layered: any number of loops recorded at fixed RPMs, cross-faded by the RPM like modern racing games.

Setting	Default	Description
Engine Mode	Classic	Classic: two loops (idle and revs), pitched by the revs and cross-faded by the throttle. Layered: N loops recorded at fixed RPMs, each pitched by RPM / its RPM and cross-faded with its neighbours; optional off-throttle loops.
Engine Volume	1	Overall engine volume. <i>(Range 0 to 2)</i>
Engine Off When Parked	On	Only for vehicles without the ignition (AVD Vehicle > Engine > Use Ignition off): parked vehicles (not driven by a player or script) are silent. With the ignition, the engine is heard while it runs.
Engine Fade Ticks	10	Ticks for the engine to fade in when it starts and out when it stops. <i>(Min 1)</i>

Classic loops

The classic engine: an idle loop heard off the throttle at low revs, and a revs loop heard on the throttle. Both pitches follow the revs; volumes step every tick.

Setting	Default	Description
Idle Clip	None	The idle loop, heard when off the throttle at low revs. <i>(Shown when Engine Mode is Classic)</i>
Revs Clip	None	The revs loop, heard on the throttle and at higher revs. <i>(Shown when Engine Mode is Classic)</i>
Idle Pitch	(1, 2.88)	Idle loop pitch at 0 revs and at full revs (classic 1.0 and 2.875: revs/4 + 4096). <i>(Shown when Engine Mode is Classic)</i>
Revs Pitch	(0.37, 2.24)	Revs loop pitch at 0 revs and at full revs (classic 0.366 and 2.24: revs/4 + 1500, slightly lowered while the revs loop fades in). <i>(Shown when Engine Mode is Classic)</i>

Layered loops

Each layer is a loop recorded at a fixed RPM (plus an optional off-throttle loop). The two layers around the current RPM cross-fade (equal power), each pitched to RPM / its RPM; the load (throttle) cross-fades the on and off loops.

Setting	Default	Description
Layers (list)	empty	The loops, any number, any order (sorted by RPM at runtime). <i>(Shown when Engine Mode is Layered)</i>
Layers[] > Rpm	3000	RPM the loops were recorded at. The loop plays at pitch = current RPM / this RPM. <i>(Min 1)</i>
Layers[] > On Load	None	Loop under load (accelerating).
Layers[] > Off Load	None	Optional loop off load (coasting, braking). Empty = the on-load loop, quieter (Off Load Volume).
Layers[] > Volume	1	Volume of this layer. <i>(Range 0 to 2)</i>
Load Step Per Tick	(0.25, 0.15)	How far (0..1 per tick) the load moves towards 1 on the throttle and towards 0 off it. Lower = softer transitions between the on and off loops. <i>(Shown when Engine Mode is Layered)</i>

Setting	Default	Description
Off Load Volume	0.55	Volume of a layer off the throttle when it has no off-load loop. <i>(Range 0 to 1; Shown when Engine Mode is Layered)</i>
Pitch Limits	(0.5, 2)	Pitch limits, so a loop is never stretched too far (add layers to cover the range instead). <i>(Shown when Engine Mode is Layered)</i>

Ignition

Sounds of the engine being started and switched off. The ignition itself (engine on/off, failed starts) is set on the vehicle: AVD Vehicle > Engine.

Setting	Default	Description
Ignition Clip	None	Loop while the starter turns (each start attempt, also the failed ones of a damaged or wrecked vehicle).
Ignition Volume	0.8	<i>(Range 0 to 2)</i>
Engine Start Clip	None	Plays when the engine catches (with the ignition), or when the vehicle starts being driven (without it; classic: getting into a car).
Engine Start Volume	0.8	<i>(Range 0 to 2)</i>
Engine Stop Clip	None	Plays when the engine is switched off or stalls (ignition only).
Engine Stop Volume	0.7	<i>(Range 0 to 2)</i>

Tyres

Tyre squeal and rolling noise. Their clips normally come from the ground's Surface Effects (Skid Sound, Roll Sound), so each ground sounds different; the clip here is the fallback.

Setting	Default	Description
Skid Clip	None	Skid loop used where the ground has no Surface Effects (or none could be found), on road-type surfaces only. Ground with Surface Effects uses its own Skid Sound.
Skid Volume	1	Volume of the skid (squeal) loop. <i>(Range 0 to 2)</i>
Roll Volume	1	Volume of the rolling loop of the ground (Surface Effects > Roll Sound), which grows with speed. <i>(Range 0 to 2)</i>

Skid sensitivity

When the squeal starts and how it grows. A tyre slides sideways by some amount (the simulation's axle slip: $\text{State.hd.front_vel} / \text{rear_vel}$). Below Start Slip the tyres are silent; at Start Slip they squeal softly (Start Volume) and the squeal grows to full at Full Slip. Wheelspin is always full. Classic values: rear wheels only, Start 17765, Full 37100, Start Volume 0.

Setting	Default	Description
Skid From Tyre Marks	On	On: the squeal starts exactly where the tyres start leaving marks (Vehicle Effects profile > Skid Slip, including the front wheels when that profile marks them), so every visible mark is heard. Off: use Start Slip and Front Wheels below.
Skid Start Slip	12000	Slip at which the squeal starts (soft). Lower = more sensitive (light slides already squeal). Classic tyre marks start at 15000. <i>(Min 0; Shown when Skid From Tyre Marks is Off)</i>
Skid Front Wheels	On	Sliding front wheels squeal too (understeer), not only the rear ones (classic: rear only). <i>(Shown when Skid From Tyre Marks is Off)</i>
Skid Full Slip	37000	Slip at which the squeal is full (classic 37100). Must be above the start. <i>(Min 1)</i>
Skid Start Volume	0.2	Squeal volume (0..1 of full) right at the start, so light slides are heard softly. 0 = fades in from silence (classic). <i>(Range 0 to 1)</i>
Skid Pitch	(0.75, 1)	Squeal pitch at the start and at full slip (classic 0.75 to 1).

Other sounds

Gear shifts, suspension knocks, horn, wind and the rattle of a damaged engine.

Setting	Default	Description
Gear Shift Clips	empty	One of these plays at each gear change (empty = none, classic: only the revs drop).
Gear Shift Volume	0.7	<i>(Range 0 to 2)</i>
Bump Clips	empty	One of these plays when a wheel hits a bump hard (classic: suspension knocks, player cars).
Bump Volume	0.8	<i>(Range 0 to 2)</i>
Horn Clip	None	Loop while the horn sounds (player Horn action, or SetHorn / Honk from scripts).
Horn Volume	0.8	<i>(Range 0 to 2)</i>
Wind Clip	None	Wind loop, rising with speed between the two speeds (km/h).
Wind Volume	0.6	<i>(Range 0 to 2)</i>
Wind Speed Kmh	(40, 180)	Speeds (km/h) where the wind starts and where it is full.
Damaged Engine Clip	None	Loop of a damaged engine (rattle), rising with the front damage from the white smoke level (2000) to the maximum, full when wrecked.
Damaged Engine Volume	0.6	<i>(Range 0 to 2)</i>

Output (Unity audio)

How the built-in output plays the sounds: mixer groups, 3D distance, doppler, priority. Ignored by middleware outputs (FMOD...).

Setting	Default	Description
Engine Group	None	Mixer group for the engine loops (empty = straight to the listener).
Tyres Group	None	Mixer group for tyres, wind and bumps.
Effects Group	None	Mixer group for the horn, ignition, gear shifts, damaged engine and engine start / stop.
Spatial Blend	1	0 = 2D (same volume everywhere), 1 = 3D (positioned at the vehicle). <i>(Range 0 to 1)</i>
Distance	(4, 150)	Full volume closer than Min, inaudible beyond Max (metres, logarithmic roll-off).
Doppler Level	0.5	Doppler effect (0 = none). <i>(Range 0 to 5)</i>
Priority	64	Lower = more important when Unity runs out of voices (0 = highest). <i>(Range 0 to 256)</i>

AVD Vehicle Effects

ArcadeVehicleDriver.AVDVehicleEffects , component

Vehicle effects for every vehicle in the world, paced by the simulation ticks: engine smoke and fire by damage, exhaust puffs, debris when hit, and tyre marks, smoke and dust chosen by the ground under each wheel. One per scene.

Defaults

The effects used when nothing more specific applies: the vehicle effects profile for vehicles whose definition has none, and the surface effects for ground that no mapping below matches.

Setting	Default	Description
Default Profile	None	Vehicle effects for vehicles whose definition has no Effects profile.
Default Surface	None	Ground effects when nothing below matches (usually the road).

Ground mappings

Which Surface Effects (marks, dust, skid sound) a ground gets, checked in this order: an AVD Surface on the object, then render material, terrain layer, PhysicsMaterial and finally surface type. The first match wins.

Setting	Default	Description
By Material (list)	empty	By the ground's render material: the most direct way to give each texture its own marks and dust.
By Material[] > Material	None	Ground rendered with this material (the sub-mesh under the wheel for MeshColliders)...
By Material[] > Effects	None	
By Terrain Layer (list)	empty	By the most painted terrain layer under the wheel (Unity Terrain).
By Terrain Layer[] > Layer	None	Terrain areas where this layer is the most painted one...
By Terrain Layer[] > Effects	None	
By Physics Material (list)	empty	By the ground collider's PhysicsMaterial.
By Physics Material[] > Physics Material	None	Ground colliders using this PhysicsMaterial...
By Physics Material[] > Effects	None	
By Surface Type (list)	empty	By the AVD Surface type (ground without AVD Surface is Road).
By Surface Type[] > Surface	Road	
By Surface Type[] > Effects	None	

Tyre marks

Skid marks laid by sliding tyres: one segment per wheel per tick, drawn in batches per material. Older segments are reused when the budget is full.

Setting	Default	Description
Tyre Marks	On	
Tyre Mark Material	None	Default mark material (alpha-blended, vertex colours). Empty = generated.
Max Segments	4096	Mark segments kept per material; the oldest are reused (classic: 64 per wheel). One segment is laid per tick per wheel. <i>(Min 16)</i>
Mark Lifetime	0	Seconds before a mark disappears (0 = only when its segment is reused). <i>(Min 0)</i>
Mark Fade	3	Seconds of fading at the end of Mark Lifetime. <i>(Min 0)</i>
Mark Height	0.02	Height of the marks above the ground (m), to avoid flickering. <i>(Min 0)</i>

Output

Global switches for the particles and which vehicles produce effects.

Setting	Default	Description
Particles	On	
Ai Vehicles	On	AI vehicles also skid, smoke and leave marks (classic: only the player and the lead car).
Wind	(0, 0, 0)	Wind (m/s) that carries the smoke.

AVD Vehicle Effects Profile

ArcadeVehicleDriver.AVDVehicleEffectsProfile , asset (Create > Arcade Vehicle Driver)

A vehicle's own effects: engine smoke by damage (white, black, then fire when wrecked), exhaust, debris when hit, and when the tyres start leaving marks. Set it on a vehicle definition (Effects), or as AVD Vehicle Effects' default.

Setting	Default	Description
Notes	None	

Smoke levels

The engine smokes from the front damage zones: white smoke from Light Damage, black smoke from Heavy Damage, fire when the vehicle is wrecked (classic 2000 / 3000 of 4095).

Setting	Default	Description
Light Damage	2000	Light damage: white engine smoke once the front damage zones (State.damage[0] / [1], 0-4095 each) pass this value. Classic 2000. <i>(Min 0)</i>
Heavy Damage	3000	Heavy damage: black engine smoke once a front damage zone passes this value. Classic 3000. Fire and black smoke also start when the vehicle is wrecked (its Max Damage, set in the definition or on the vehicle). The debug HUD (F1) shows the values live. <i>(Min 0)</i>

Engine smoke and fire

Particles at the definition's Engine point for each damage level, and the speeds above which they stop (the wind blows them out).

Setting	Default	Description
Light Smoke		Light damage smoke. Classic: white, 0.6 -> 2.5 m, every 4th tick.
Light Smoke > Enabled	On	Off = this effect is not emitted.
Light Smoke > Prefab	None	Your own effect. Every ParticleSystem in the prefab is emitted in place with its own colours, sizes and materials. The prefab's +Z is turned to the emission direction (up for smoke and fire, backwards for exhausts). The root emits Count particles; each child emits Count x (its Emission Rate / the root's Emission Rate). Empty = the generated particles below.
Light Smoke > Count	1	Particles per emission. Emissions happen every few simulation ticks, as in the classic model (smoke and exhaust: every 4th tick, fire: every 2nd tick, skids: every 4th tick per wheel). <i>(Min 1)</i>
Generated (used without a prefab)		
Light Smoke > Start Color	#E6E6E68C	Colour (and opacity) when the particle is born. <i>(Shown when Prefab is Off)</i>
Light Smoke > End Color	#E6E6E600	Colour (and opacity) when the particle dies. Use alpha 0 to fade out. <i>(Shown when Prefab is Off)</i>
Light Smoke > Start Size	0.6	Diameter in metres when born. <i>(Min 0.001; Shown when Prefab is Off)</i>
Light Smoke > End Size	2.5	Diameter in metres when it dies (smoke grows: classic engine smoke 0.6 -> 3 m). <i>(Min 0.001; Shown when Prefab is Off)</i>
Light Smoke > Lifetime	1.3	Lifetime in seconds (classic smoke ~1.3 s, fire ~0.7 s). <i>(Min 0.01; Shown when Prefab is Off)</i>
Light Smoke > Random Speed	0.3	Random speed in m/s in any direction (spread). <i>(Min 0; Shown when Prefab is Off)</i>
Light Smoke > Rise	0.9	Upward speed in m/s (smoke rises). Negative = sinks. <i>(Shown when Prefab is Off)</i>
Light Smoke > Gravity	0	Gravity multiplier: 0 for smoke, ~1 for debris and dirt that falls back down. <i>(Shown when Prefab is Off)</i>

Setting	Default	Description
Light Smoke > Inherit Velocity	0	How much of the vehicle's velocity the particle inherits (0 = stays where it was born). <i>(Range 0 to 1; Shown when Prefab is Off)</i>
Light Smoke > Additive	Off	Additive blending: glows, for fire and sparks. Off = normal transparency, for smoke and dust. <i>(Shown when Prefab is Off)</i>
Light Smoke > Material	None	Particle material. Empty = a soft round particle (URP Particles/Unlit) with the blending above. <i>(Shown when Prefab is Off)</i>
Heavy Smoke		Heavy damage and wrecked smoke. Classic: black, 0.6 -> 3.1 m, every 4th tick.
Heavy Smoke > Enabled	On	Off = this effect is not emitted.
Heavy Smoke > Prefab	None	Your own effect. Every ParticleSystem in the prefab is emitted in place with its own colours, sizes and materials. The prefab's +Z is turned to the emission direction (up for smoke and fire, backwards for exhausts). The root emits Count particles; each child emits Count x (its Emission Rate / the root's Emission Rate). Empty = the generated particles below.
Heavy Smoke > Count	1	Particles per emission. Emissions happen every few simulation ticks, as in the classic model (smoke and exhaust: every 4th tick, fire: every 2nd tick, skids: every 4th tick per wheel). <i>(Min 1)</i>
Generated (used without a prefab)		
Heavy Smoke > Start Color	#1F1F1FB2	Colour (and opacity) when the particle is born. <i>(Shown when Prefab is Off)</i>
Heavy Smoke > End Color	#1F1F1F00	Colour (and opacity) when the particle dies. Use alpha 0 to fade out. <i>(Shown when Prefab is Off)</i>
Heavy Smoke > Start Size	0.6	Diameter in metres when born. <i>(Min 0.001; Shown when Prefab is Off)</i>
Heavy Smoke > End Size	3.1	Diameter in metres when it dies (smoke grows: classic engine smoke 0.6 -> 3 m). <i>(Min 0.001; Shown when Prefab is Off)</i>
Heavy Smoke > Lifetime	1.3	Lifetime in seconds (classic smoke ~1.3 s, fire ~0.7 s). <i>(Min 0.01; Shown when Prefab is Off)</i>
Heavy Smoke > Random Speed	0.3	Random speed in m/s in any direction (spread). <i>(Min 0; Shown when Prefab is Off)</i>
Heavy Smoke > Rise	1.1	Upward speed in m/s (smoke rises). Negative = sinks. <i>(Shown when Prefab is Off)</i>
Heavy Smoke > Gravity	0	Gravity multiplier: 0 for smoke, ~1 for debris and dirt that falls back down. <i>(Shown when Prefab is Off)</i>
Heavy Smoke > Inherit Velocity	0	How much of the vehicle's velocity the particle inherits (0 = stays where it was born). <i>(Range 0 to 1; Shown when Prefab is Off)</i>
Heavy Smoke > Additive	Off	Additive blending: glows, for fire and sparks. Off = normal transparency, for smoke and dust. <i>(Shown when Prefab is Off)</i>
Heavy Smoke > Material	None	Particle material. Empty = a soft round particle (URP Particles/Unlit) with the blending above. <i>(Shown when Prefab is Off)</i>
Fire		Wrecked: flames, every 2nd tick. Classic: 0.3 -> 0.6 m, ~0.7 s.
Fire > Enabled	On	Off = this effect is not emitted.
Fire > Prefab	None	Your own effect. Every ParticleSystem in the prefab is emitted in place with its own colours, sizes and materials. The prefab's +Z is turned to the emission direction (up for smoke and fire, backwards for exhausts). The root emits Count particles; each child emits Count x (its Emission Rate / the root's Emission Rate). Empty = the generated particles below.
Fire > Count	2	Particles per emission. Emissions happen every few simulation ticks, as in the classic model (smoke and exhaust: every 4th tick, fire: every 2nd tick, skids: every 4th tick per wheel). <i>(Min 1)</i>
Generated (used without a prefab)		
Fire > Start Color	#FFD94CFF	Colour (and opacity) when the particle is born. <i>(Shown when Prefab is Off)</i>
Fire > End Color	#E6330D00	Colour (and opacity) when the particle dies. Use alpha 0 to fade out. <i>(Shown when Prefab is Off)</i>

Setting	Default	Description
Fire > Start Size	0.35	Diameter in metres when born. <i>(Min 0.001; Shown when Prefab is Off)</i>
Fire > End Size	0.7	Diameter in metres when it dies (smoke grows: classic engine smoke 0.6 -> 3 m). <i>(Min 0.001; Shown when Prefab is Off)</i>
Fire > Lifetime	0.6	Lifetime in seconds (classic smoke ~1.3 s, fire ~0.7 s). <i>(Min 0.01; Shown when Prefab is Off)</i>
Fire > Random Speed	0.3	Random speed in m/s in any direction (spread). <i>(Min 0; Shown when Prefab is Off)</i>
Fire > Rise	1.6	Upward speed in m/s (smoke rises). Negative = sinks. <i>(Shown when Prefab is Off)</i>
Fire > Gravity	0	Gravity multiplier: 0 for smoke, ~1 for debris and dirt that falls back down. <i>(Shown when Prefab is Off)</i>
Fire > Inherit Velocity	0	How much of the vehicle's velocity the particle inherits (0 = stays where it was born). <i>(Range 0 to 1; Shown when Prefab is Off)</i>
Fire > Additive	On	Additive blending: glows, for fire and sparks. Off = normal transparency, for smoke and dust. <i>(Shown when Prefab is Off)</i>
Fire > Material	None	Particle material. Empty = a soft round particle (URP Particles/Unlit) with the blending above. <i>(Shown when Prefab is Off)</i>
Smoke Max Speed Kmh	33	Engine smoke stops above this speed (classic ~33 km/h: the smoke is left behind). <i>(Min 0)</i>
Smoke Fade Speed Kmh	16	Engine smoke starts fading above this speed and is half as opaque at Smoke Max Speed (classic ~16 km/h). <i>(Min 0)</i>
Fire Max Speed Kmh	5	Flames only show below this speed (classic ~5 km/h). <i>(Min 0)</i>

Exhaust

Puffs from the definition's Exhaust points while the engine idles or pulls away slowly; darker when the engine is damaged.

Setting	Default	Description
Exhaust		Puffs from the exhaust, every 4th tick.
Exhaust > Enabled	On	Off = this effect is not emitted.
Exhaust > Prefab	None	Your own effect. Every ParticleSystem in the prefab is emitted in place with its own colours, sizes and materials. The prefab's +Z is turned to the emission direction (up for smoke and fire, backwards for exhausts). The root emits Count particles; each child emits Count x (its Emission Rate / the root's Emission Rate). Empty = the generated particles below.
Exhaust > Count	1	Particles per emission. Emissions happen every few simulation ticks, as in the classic model (smoke and exhaust: every 4th tick, fire: every 2nd tick, skids: every 4th tick per wheel). <i>(Min 1)</i>
Generated (used without a prefab)		
Exhaust > Start Color	#D9D9D959	Colour (and opacity) when the particle is born. <i>(Shown when Prefab is Off)</i>
Exhaust > End Color	#D9D9D900	Colour (and opacity) when the particle dies. Use alpha 0 to fade out. <i>(Shown when Prefab is Off)</i>
Exhaust > Start Size	0.06	Diameter in metres when born. <i>(Min 0.001; Shown when Prefab is Off)</i>
Exhaust > End Size	0.3	Diameter in metres when it dies (smoke grows: classic engine smoke 0.6 -> 3 m). <i>(Min 0.001; Shown when Prefab is Off)</i>
Exhaust > Lifetime	1.2	Lifetime in seconds (classic smoke ~1.3 s, fire ~0.7 s). <i>(Min 0.01; Shown when Prefab is Off)</i>
Exhaust > Random Speed	0.3	Random speed in m/s in any direction (spread). <i>(Min 0; Shown when Prefab is Off)</i>
Exhaust > Rise	0.15	Upward speed in m/s (smoke rises). Negative = sinks. <i>(Shown when Prefab is Off)</i>
Exhaust > Gravity	0	Gravity multiplier: 0 for smoke, ~1 for debris and dirt that falls back down. <i>(Shown when Prefab is Off)</i>
Exhaust > Inherit Velocity	0	How much of the vehicle's velocity the particle inherits (0 = stays where it was born). <i>(Range 0 to 1; Shown when Prefab is Off)</i>
Exhaust > Additive	Off	Additive blending: glows, for fire and sparks. Off = normal transparency, for smoke and dust. <i>(Shown when Prefab is Off)</i>

Setting	Default	Description
Exhaust > Material	None	Particle material. Empty = a soft round particle (URP Particles/Unlit) with the blending above. <i>(Shown when Prefab is Off)</i>
Damaged Exhaust		Exhaust when heavily damaged or wrecked. Empty/disabled = the normal exhaust.
Damaged Exhaust > Enabled	On	Off = this effect is not emitted.
Damaged Exhaust > Prefab	None	Your own effect. Every ParticleSystem in the prefab is emitted in place with its own colours, sizes and materials. The prefab's +Z is turned to the emission direction (up for smoke and fire, backwards for exhausts). The root emits Count particles; each child emits Count x (its Emission Rate / the root's Emission Rate). Empty = the generated particles below.
Damaged Exhaust > Count	1	Particles per emission. Emissions happen every few simulation ticks, as in the classic model (smoke and exhaust: every 4th tick, fire: every 2nd tick, skids: every 4th tick per wheel). <i>(Min 1)</i>
Generated (used without a prefab)		
Damaged Exhaust > Start Color	#1A1A1A80	Colour (and opacity) when the particle is born. <i>(Shown when Prefab is Off)</i>
Damaged Exhaust > End Color	#1A1A1A00	Colour (and opacity) when the particle dies. Use alpha 0 to fade out. <i>(Shown when Prefab is Off)</i>
Damaged Exhaust > Start Size	0.06	Diameter in metres when born. <i>(Min 0.001; Shown when Prefab is Off)</i>
Damaged Exhaust > End Size	0.3	Diameter in metres when it dies (smoke grows: classic engine smoke 0.6 -> 3 m). <i>(Min 0.001; Shown when Prefab is Off)</i>
Damaged Exhaust > Lifetime	1.2	Lifetime in seconds (classic smoke ~1.3 s, fire ~0.7 s). <i>(Min 0.01; Shown when Prefab is Off)</i>
Damaged Exhaust > Random Speed	0.3	Random speed in m/s in any direction (spread). <i>(Min 0; Shown when Prefab is Off)</i>
Damaged Exhaust > Rise	0.15	Upward speed in m/s (smoke rises). Negative = sinks. <i>(Shown when Prefab is Off)</i>
Damaged Exhaust > Gravity	0	Gravity multiplier: 0 for smoke, ~1 for debris and dirt that falls back down. <i>(Shown when Prefab is Off)</i>
Damaged Exhaust > Inherit Velocity	0	How much of the vehicle's velocity the particle inherits (0 = stays where it was born). <i>(Range 0 to 1; Shown when Prefab is Off)</i>
Damaged Exhaust > Additive	Off	Additive blending: glows, for fire and sparks. Off = normal transparency, for smoke and dust. <i>(Shown when Prefab is Off)</i>
Damaged Exhaust > Material	None	Particle material. Empty = a soft round particle (URP Particles/Unlit) with the blending above. <i>(Shown when Prefab is Off)</i>
Exhaust Max Speed Kmh	3	Exhaust puffs only while slower than this (classic ~3 km/h: idling and pulling away). Raise it for exhaust smoke while driving. <i>(Min 0)</i>
Exhaust Speed	0.6	Speed (m/s) the puffs leave the pipe, backwards. <i>(Min 0)</i>
No Exhaust When Parked	On	Parked / unpowered vehicles (no controller driving them) don't smoke, like parked classic traffic. Vehicles using the ignition (AVD Vehicle > Engine and horn) ignore this: their exhaust and engine smoke follow the engine (off = no smoke; a wreck's fire keeps burning).

Damage debris

Bits thrown off when this vehicle is hit, more at higher impact speeds.

Setting	Default	Description
Hit Debris		Pieces knocked off the car by car and scenery hits (classic: car-coloured debris and glass). Emitted at the hit point; the count grows with the impact speed.
Hit Debris > Enabled	On	Off = this effect is not emitted.

Setting	Default	Description
Hit Debris > Prefab	None	Your own effect. Every ParticleSystem in the prefab is emitted in place with its own colours, sizes and materials. The prefab's +Z is turned to the emission direction (up for smoke and fire, backwards for exhausts). The root emits Count particles; each child emits Count x (its Emission Rate / the root's Emission Rate). Empty = the generated particles below.
Hit Debris > Count	1	Particles per emission. Emissions happen every few simulation ticks, as in the classic model (smoke and exhaust: every 4th tick, fire: every 2nd tick, skids: every 4th tick per wheel). (Min 1)
Generated (used without a prefab)		
Hit Debris > Start Color	#8C8C99FF	Colour (and opacity) when the particle is born. (Shown when Prefab is Off)
Hit Debris > End Color	#8C8C99FF	Colour (and opacity) when the particle dies. Use alpha 0 to fade out. (Shown when Prefab is Off)
Hit Debris > Start Size	0.07	Diameter in metres when born. (Min 0.001; Shown when Prefab is Off)
Hit Debris > End Size	0.07	Diameter in metres when it dies (smoke grows: classic engine smoke 0.6 -> 3 m). (Min 0.001; Shown when Prefab is Off)
Hit Debris > Lifetime	1	Lifetime in seconds (classic smoke ~1.3 s, fire ~0.7 s). (Min 0.01; Shown when Prefab is Off)
Hit Debris > Random Speed	3.5	Random speed in m/s in any direction (spread). (Min 0; Shown when Prefab is Off)
Hit Debris > Rise	2.1	Upward speed in m/s (smoke rises). Negative = sinks. (Shown when Prefab is Off)
Hit Debris > Gravity	1	Gravity multiplier: 0 for smoke, ~1 for debris and dirt that falls back down. (Shown when Prefab is Off)
Hit Debris > Inherit Velocity	0.3	How much of the vehicle's velocity the particle inherits (0 = stays where it was born). (Range 0 to 1; Shown when Prefab is Off)
Hit Debris > Additive	Off	Additive blending: glows, for fire and sparks. Off = normal transparency, for smoke and dust. (Shown when Prefab is Off)
Hit Debris > Material	None	Particle material. Empty = a soft round particle (URP Particles/Unlit) with the blending above. (Shown when Prefab is Off)
Hit Debris 2		Optional second kind (e.g. glass). Same rules as Hit Debris.
Hit Debris 2 > Enabled	Off	Off = this effect is not emitted.
Hit Debris 2 > Prefab	None	Your own effect. Every ParticleSystem in the prefab is emitted in place with its own colours, sizes and materials. The prefab's +Z is turned to the emission direction (up for smoke and fire, backwards for exhausts). The root emits Count particles; each child emits Count x (its Emission Rate / the root's Emission Rate). Empty = the generated particles below.
Hit Debris 2 > Count	1	Particles per emission. Emissions happen every few simulation ticks, as in the classic model (smoke and exhaust: every 4th tick, fire: every 2nd tick, skids: every 4th tick per wheel). (Min 1)
Generated (used without a prefab)		
Hit Debris 2 > Start Color	#E6E6E699	Colour (and opacity) when the particle is born. (Shown when Prefab is Off)
Hit Debris 2 > End Color	#E6E6E600	Colour (and opacity) when the particle dies. Use alpha 0 to fade out. (Shown when Prefab is Off)
Hit Debris 2 > Start Size	0.6	Diameter in metres when born. (Min 0.001; Shown when Prefab is Off)
Hit Debris 2 > End Size	3	Diameter in metres when it dies (smoke grows: classic engine smoke 0.6 -> 3 m). (Min 0.001; Shown when Prefab is Off)
Hit Debris 2 > Lifetime	1.3	Lifetime in seconds (classic smoke ~1.3 s, fire ~0.7 s). (Min 0.01; Shown when Prefab is Off)
Hit Debris 2 > Random Speed	0.4	Random speed in m/s in any direction (spread). (Min 0; Shown when Prefab is Off)

Setting	Default	Description
Hit Debris 2 > Rise	0.8	Upward speed in m/s (smoke rises). Negative = sinks. <i>(Shown when Prefab is Off)</i>
Hit Debris 2 > Gravity	0	Gravity multiplier: 0 for smoke, ~1 for debris and dirt that falls back down. <i>(Shown when Prefab is Off)</i>
Hit Debris 2 > Inherit Velocity	0	How much of the vehicle's velocity the particle inherits (0 = stays where it was born). <i>(Range 0 to 1; Shown when Prefab is Off)</i>
Hit Debris 2 > Additive	Off	Additive blending: glows, for fire and sparks. Off = normal transparency, for smoke and dust. <i>(Shown when Prefab is Off)</i>
Hit Debris 2 > Material	None	Particle material. Empty = a soft round particle (URP Particles/Unlit) with the blending above. <i>(Shown when Prefab is Off)</i>
Debris Min Speed Kmh	8	Hits slower than this (km/h along the contact normal) knock nothing off. <i>(Min 0)</i>
Debris Full Speed Kmh	60	Impact speed (km/h) at which the debris count reaches its maximum. <i>(Min 0.1)</i>
Debris Count	(3, 12)	Debris count at Min Speed / at Full Speed (per kind).

Tyres

When the tyres count as skidding (marks, smoke, dust). The sound profile's Skid Sensitivity can follow this threshold so every mark is heard.

Setting	Default	Description
Skid Slip	15000	Sideways slip of an axle (State.hd.front_vel / rear_vel) above which its wheels skid: marks, smoke and dust. Classic 15000. Lower = marks appear in gentler corners. Wheelspin always counts for the rear. <i>(Min 0)</i>
Front Wheel Marks	On	Front wheels also leave marks when they slide (off = rear wheels only).

AVD Surface Effects

ArcadeVehicleDriver.AVDSurfaceEffects , asset (Create > Arcade Vehicle Driver)

What one kind of ground does under sliding or spinning tyres: marks, smoke or dust, debris, and the skid and rolling sounds. Assign it with an AVD Surface, or map it in AVD Vehicle Effects (material, terrain layer, PhysicsMaterial, type).

Setting	Default	Description
Notes	None	

Tyre marks

The marks sliding tyres leave on this ground.

Setting	Default	Description
Tyre Marks	On	Sliding / spinning tyres leave marks on this ground.
Mark Color	#0D0D0DBF	Mark colour and opacity (classic road: dark grey; grass: dark brown, lighter). <i>(Shown when Tyre Marks is On)</i>
Mark Width	0.3	Mark width in metres (classic 0.44 m). <i>(Min 0.02; Shown when Tyre Marks is On)</i>
Mark Material	None	Optional material for this ground's marks (e.g. a textured skid strip; UVs run along the mark). Empty = the Vehicle Effects tyre mark material, tinted with Mark Color. <i>(Shown when Tyre Marks is On)</i>

Particles

Smoke or dust from each sliding wheel, and bits thrown up with it.

Setting	Default	Description
Skid Smoke		Smoke or dust from each sliding wheel, every 4th tick (classic: white smoke on road, brown dust on grass).
Skid Smoke > Enabled	On	Off = this effect is not emitted.
Skid Smoke > Prefab	None	Your own effect. Every ParticleSystem in the prefab is emitted in place with its own colours, sizes and materials. The prefab's +Z is turned to the emission direction (up for smoke and fire, backwards for exhausts). The root emits Count particles; each child emits Count x (its Emission Rate / the root's Emission Rate). Empty = the generated particles below.
Skid Smoke > Count	1	Particles per emission. Emissions happen every few simulation ticks, as in the classic model (smoke and exhaust: every 4th tick, fire: every 2nd tick, skids: every 4th tick per wheel). <i>(Min 1)</i>
Generated (used without a prefab)		
Skid Smoke > Start Color	#EBEBEB73	Colour (and opacity) when the particle is born. <i>(Shown when Prefab is Off)</i>
Skid Smoke > End Color	#EBEBEB00	Colour (and opacity) when the particle dies. Use alpha 0 to fade out. <i>(Shown when Prefab is Off)</i>
Skid Smoke > Start Size	0.3	Diameter in metres when born. <i>(Min 0.001; Shown when Prefab is Off)</i>
Skid Smoke > End Size	3	Diameter in metres when it dies (smoke grows: classic engine smoke 0.6 -> 3 m). <i>(Min 0.001; Shown when Prefab is Off)</i>
Skid Smoke > Lifetime	1.3	Lifetime in seconds (classic smoke ~1.3 s, fire ~0.7 s). <i>(Min 0.01; Shown when Prefab is Off)</i>
Skid Smoke > Random Speed	0.3	Random speed in m/s in any direction (spread). <i>(Min 0; Shown when Prefab is Off)</i>
Skid Smoke > Rise	0.5	Upward speed in m/s (smoke rises). Negative = sinks. <i>(Shown when Prefab is Off)</i>
Skid Smoke > Gravity	0	Gravity multiplier: 0 for smoke, ~1 for debris and dirt that falls back down. <i>(Shown when Prefab is Off)</i>

Setting	Default	Description
Skid Smoke > Inherit Velocity	0	How much of the vehicle's velocity the particle inherits (0 = stays where it was born). <i>(Range 0 to 1; Shown when Prefab is Off)</i>
Skid Smoke > Additive	Off	Additive blending: glows, for fire and sparks. Off = normal transparency, for smoke and dust. <i>(Shown when Prefab is Off)</i>
Skid Smoke > Material	None	Particle material. Empty = a soft round particle (URP Particles/Unlit) with the blending above. <i>(Shown when Prefab is Off)</i>
No Smoke When Wet	On	No skid smoke while the world is wet (AVD Physics World > Wetness above 0), like the classic road.
Skid Debris		Bits thrown up with the smoke (classic: grass on grass). Usually off on roads.
Skid Debris > Enabled	Off	Off = this effect is not emitted.
Skid Debris > Prefab	None	Your own effect. Every ParticleSystem in the prefab is emitted in place with its own colours, sizes and materials. The prefab's +Z is turned to the emission direction (up for smoke and fire, backwards for exhausts). The root emits Count particles; each child emits Count x (its Emission Rate / the root's Emission Rate). Empty = the generated particles below.
Skid Debris > Count	1	Particles per emission. Emissions happen every few simulation ticks, as in the classic model (smoke and exhaust: every 4th tick, fire: every 2nd tick, skids: every 4th tick per wheel). <i>(Min 1)</i>
Generated (used without a prefab)		
Skid Debris > Start Color	#E6E6E699	Colour (and opacity) when the particle is born. <i>(Shown when Prefab is Off)</i>
Skid Debris > End Color	#E6E6E600	Colour (and opacity) when the particle dies. Use alpha 0 to fade out. <i>(Shown when Prefab is Off)</i>
Skid Debris > Start Size	0.6	Diameter in metres when born. <i>(Min 0.001; Shown when Prefab is Off)</i>
Skid Debris > End Size	3	Diameter in metres when it dies (smoke grows: classic engine smoke 0.6 -> 3 m). <i>(Min 0.001; Shown when Prefab is Off)</i>
Skid Debris > Lifetime	1.3	Lifetime in seconds (classic smoke ~1.3 s, fire ~0.7 s). <i>(Min 0.01; Shown when Prefab is Off)</i>
Skid Debris > Random Speed	0.4	Random speed in m/s in any direction (spread). <i>(Min 0; Shown when Prefab is Off)</i>
Skid Debris > Rise	0.8	Upward speed in m/s (smoke rises). Negative = sinks. <i>(Shown when Prefab is Off)</i>
Skid Debris > Gravity	0	Gravity multiplier: 0 for smoke, ~1 for debris and dirt that falls back down. <i>(Shown when Prefab is Off)</i>
Skid Debris > Inherit Velocity	0	How much of the vehicle's velocity the particle inherits (0 = stays where it was born). <i>(Range 0 to 1; Shown when Prefab is Off)</i>
Skid Debris > Additive	Off	Additive blending: glows, for fire and sparks. Off = normal transparency, for smoke and dust. <i>(Shown when Prefab is Off)</i>
Skid Debris > Material	None	Particle material. Empty = a soft round particle (URP Particles/Unlit) with the blending above. <i>(Shown when Prefab is Off)</i>

Sound

Skid and rolling loops on this ground, played by AVD Vehicle Audio. When the squeal starts is set by the sound profile's Skid Sensitivity.

Setting	Default	Description
Skid Sound	None	Loop played while the tyres slide or spin on this ground (classic: tyre squeal on asphalt only). Empty = silent here. Where no surface effects are found, the sound profile's Skid Clip is used on roads.
No Skid Sound When Wet	On	No skid sound while the world is wet (classic: no squeal in the rain).
Roll Sound	None	Loop of the tyres rolling over this ground, louder and higher with speed (classic: gravel / grass noise, none on asphalt).

Setting	Default	Description
Sound Volume	1	Volume of this ground's skid and roll sounds. (<i>Range 0 to 2</i>)

AVD Impact Effects

ArcadeVehicleDriver.AVDImpactEffects , component

Particles and sounds for every collision (car hits, scenery hits, hard landings, smashed props). Each impact picks an Impact Material: the object's own, else a mapping, else the default for its kind. Thresholds live in each material.

Defaults per impact kind

The material used for each kind of impact when the object involved has no material of its own.

Setting	Default	Description
Vehicle Hit	None	Car-to-car hits, unless the vehicle definition sets its own impact material.
Scenery Hit	None	Hits against buildings, walls and poles without their own impact material.
Landing	None	Hard landings / bottoming out, when neither the ground nor the surface mapping sets one.
Smash	None	Smashable props knocked away, without their own impact material.

Mappings

Materials chosen from the ground's surface type (landings) or the collider's PhysicsMaterial, for objects without their own material.

Setting	Default	Description
Landing By Surface (list)	empty	Landing material per surface type (e.g. Grass -> dirt, Water -> splash). Checked before the PhysicsMaterial mapping.
Landing By Surface[] > Surface	Road	
Landing By Surface[] > Material	None	
By Physics Material (list)	empty	Impact material per PhysicsMaterial, for colliders without an AVD Scenery Object / AVD Surface material.
By Physics Material[] > Physics Material	None	Colliders using this PhysicsMaterial...
By Physics Material[] > Material	None	...use this impact material (unless the object sets its own).

Output

Global switches and limits for the impact particles and sounds.

Setting	Default	Description
Particles	On	
Sounds	On	
Master Volume	1	(Range 0 to 1)
Max Instances Per Prefab	6	Maximum simultaneous copies of a 'played' particle prefab (prefabs with several systems or sub-emitters). (Min 1)

AVD Impact Material

`ArcadeVehicleDriver.AVDImpactMaterial` , asset (Create > Arcade Vehicle Driver)

How a material reacts when hit: particles (your prefab or a generated burst) and sounds, scaled by the impact speed between Min Speed and Full Speed. Assign it to scenery objects, surfaces, vehicle definitions or Impact Effects.

Setting	Default	Description
Notes	None	

Strength

The impact speed range (along the contact normal) this material reacts to: nothing below Min Speed, the maximum at Full Speed.

Setting	Default	Description
Min Speed Kmh	4	Impacts slower than this (km/h along the contact normal) produce nothing. Typical: 3-5 km/h for sparks on metal, 10+ km/h for heavy debris. <i>(Min 0)</i>
Full Speed Kmh	60	Impact speed (km/h) at which particles and volume reach their maximum. Between Min Speed and this value they scale linearly. <i>(Min 0.1)</i>

Particles

Your own particle prefab, or a simple generated burst when none is set.

Setting	Default	Description
Particle Prefab	None	Your own effect. A single ParticleSystem is emitted in place (pooled); a prefab with several systems or sub-emitters is spawned and played (pooled). Empty = use Generated Particles.
Particle Count	(6, 35)	Particle count at Min Speed / at Full Speed. With a prefab in Emit mode this is the emitted count; in Play mode it is ignored (the prefab's own bursts are used).
Generated		Used when no prefab is set: a simple burst generated at runtime. <i>(Shown when Particle Prefab is Off)</i>
Generated > Color	#FFCC4CFF	
Generated > Size	0.05	Particle size in metres (random between half and this).
Generated > Speed	9	Initial speed in m/s (random between 30% and this).
Generated > Lifetime	0.35	Lifetime in seconds (random between half and this).
Generated > Gravity	1.5	Gravity multiplier (1 = normal gravity, 0 = floats).
Generated > Material	None	Material for the particles. Empty = URP Particles/Unlit tinted with Color.

Sound

Impact sounds: one clip at random per impact, louder with speed.

Setting	Default	Description
Sounds	None	One clip is picked at random per impact. Empty = silent.
Volume	0.8	<i>(Range 0 to 1)</i>
Pitch	(0.9, 1.1)	Random pitch range.

AVD Surface

`ArcadeVehicleDriver.AVDSurface` , component

Gives this ground collider (and its children) a surface type and, optionally, its own impact material and surface effects. For whole kinds of ground prefer a `PhysicsMaterial` mapped in AVD Physics World (no component needed); use this for exceptions. Ground without either is Road.

Setting	Default	Description
Surface Type	Road	Road: full grip. Grass: bumpy (the ground height undulates) and half the tyre grip. Water / Deep Water: strong drag that slows the car; no landing sparks. Sand / Alley: same handling as Road; the type is reported to effects (e.g. landing dust).
Impact Material	None	Particles/sound for hard landings on this ground. Empty = the Impact Effects mapping for the surface type.
Surface Effects	None	Tyre marks, skid smoke and dust on this ground. Empty = the AVD Vehicle Effects mappings (render material, terrain layer, <code>PhysicsMaterial</code> , then surface type).

AVD Scenery Object

`ArcadeVehicleDriver.AVDSceneryObject` , component

Optional behaviour of a scenery collider (layer AVDScenery): smashable props, its impact material... Scenery without this component is a solid block (a building): cars bounce off it and take damage.

Setting	Default	Description
Barrier	Off	For long thin walls, fences and guard rails: the car is pushed off sideways along the wall instead of bouncing back, so it can scrape along it.
Smashable	Off	Hydrants, bins, boxes...: the car drives through without slowing and the object is knocked away (it becomes a loose Rigidbody, then respawns).
Respawn Seconds	20	Seconds until a smashed object is put back. 0 = never. <i>(Editable when Smashable is On)</i>
Debris Mass	30	Mass (kg) of the knocked-away object. Only affects how it tumbles after being hit. <i>(Editable when Smashable is On)</i>
Fling Scale	1.2	How hard the object is flung: its initial velocity is the car velocity times this, plus an upward kick. <i>(Editable when Smashable is On)</i>
Impact Material	None	Particles/sound when a car hits or smashes this object. Empty = the Impact Effects default (or the mapping for the collider's PhysicsMaterial).

AVD Chase Camera

`ArcadeVehicleDriver.AVDChaseCamera` , component

Follows the target vehicle with the modes of a Camera Profile (chase, bumper, cockpit...). V / Start changes mode. With the game stopped it can preview the selected mode on the target car.

Setting	Default	Description
Target	None	The vehicle to follow. The AVD Vehicle Manager changes it when you switch cars (Tab).
Actions	None	Bindings asset with a 'Camera' action map (look, change mode). Empty = built-in defaults (mouse + right mouse button, right stick, V / Start).
Profile	None	Camera modes and blend settings. Edits made in Play mode are kept, since they live in this asset.
Current Mode	0	Index of the active mode in the profile (0 = first). Changing it in Play mode blends to the new mode.
Edit Preview		
Edit Preview > Enabled	On	Place the camera on the target car while the game is stopped.
Edit Preview > Speed Kmh	0	Simulated speed (km/h) for the speed FOV / distance settings.
Edit Preview > Steer	0	Simulated steering, -1 (full left) to 1 (full right). (<i>Range -1 to 1</i>)
Edit Preview > Yaw Rate	0	Simulated turn rate (degrees/second, + = turning right) for the cornering settings. (<i>Range -180 to 180</i>)
Edit Preview > Orbit	(0, 0)	Simulated manual orbit (yaw, pitch in degrees).
Edit Preview > Look Back	Off	

AVD Camera Profile

ArcadeVehicleDriver.AVDCameraProfile, asset (Create > Arcade Vehicle Driver)

The camera modes (chase, bumper, cockpit, orbit...) and the blends between them, shared by cameras. Edits made in Play mode are kept, since they live in this asset.

Setting	Default	Description
Modes (list)	2 items	
Modes[] > Name	"Chase"	Shown in the debug HUD and the camera inspector.
Modes[] > Type	Chase	Chase: follows behind the car. Mounted: fixed to the car (bumper, hood, cockpit). Tripod: TV camera beside the road ahead of the car. The inspector shows only the settings of the selected type.
Modes[] > Enabled	On	Included when cycling modes with V / Start. Disabled modes can still be selected from the inspector or by script.
Modes[] > Lens		Field of view and speed effects (all types).
Modes[] > Lens > Field Of View	60	Vertical field of view in degrees. Tripod: the widest zoom (the camera zooms in from here to frame the car). <i>(Range 20 to 120)</i>
Modes[] > Lens > Fov At Speed	0	Extra field of view (degrees) added at Reference Speed, scaled linearly from standstill. 0 = off. Not used by Tripod. <i>(Range 0 to 40)</i>
Modes[] > Lens > Reference Speed Kmh	130	Speed (km/h) at which every speed effect is at full strength: FOV At Speed, Chase > Distance At Speed and Shake > Speed Rumble. <i>(Min 1)</i>
Modes[] > Lens > Fov Smooth Time	0.4	Seconds to settle on a new field of view (speed changes). 0 = instant. <i>(Range 0 to 2)</i>
Modes[] > Chase		Distance, height, aim and lag of the follow camera. <i>(Shown when Type is Chase)</i>
Modes[] > Chase > Classic Framing	On	On: distance and height come from the car's collision box (classic: ~7 m behind, ~1.2 m up for a sedan), so bigger vehicles get a farther camera automatically. Off: use Distance and Height below.
Modes[] > Chase > Distance	6	Distance behind the car (m). Only when Classic Framing is off. <i>(Editable when Classic Framing is Off)</i>
Modes[] > Chase > Height	1.6	Camera height above the car origin (m). Only when Classic Framing is off. <i>(Editable when Classic Framing is Off)</i>
Modes[] > Chase > Distance Scale	1	Multiplies the distance (either mode). 1 = unchanged.
Modes[] > Chase > Extra Height	0	Metres added to the height (either mode).
Modes[] > Chase > Distance At Speed	0	Extra distance (m) at Lens > Reference Speed, scaled linearly from standstill. 0 = off.
Modes[] > Chase > Aim	Fixed Pitch	Fixed Pitch: classic, the camera looks along the road with a fixed downward tilt (Pitch). Look At Car: the camera always aims at a point above the car (Look At Height).
Modes[] > Chase > Pitch	25	Downward tilt in angle units, 4096 = 360 degrees (classic 25 = 2.2 degrees). Only with Aim = Fixed Pitch. <i>(Editable when Aim is Fixed Pitch)</i>
Modes[] > Chase > Look At Height	0.8	Height of the aim point above the car origin (m). Only with Aim = Look At Car. <i>(Editable when Aim is Look At Car)</i>
Modes[] > Chase > Angle Lag Per Tick	0.125	How quickly the camera swings behind the car when it turns: fraction of the angle error removed per simulation tick (classic 1/8 = 0.125). 1 = rigidly behind the car. <i>(Range 0.01 to 1)</i>
Modes[] > Chase > Distance Growth Per Tick	(10, 20)	How fast the camera backs off to its distance after being pulled in, in units per tick (160 = 1 m): x when (nearly) stopped, y when moving (classic 10 / 20).
Modes[] > Chase > Follow Velocity	0	0 = trail the direction the car points (classic). 1 = trail the direction it travels, which keeps the view down the road in drifts. Ignored when reversing or almost stopped. <i>(Range 0 to 1)</i>
Modes[] > Cornering		Extra camera motion in turns (all off by default = classic). <i>(Shown when Type is Chase)</i>

Setting	Default	Description
Modes[] > Cornering > Steer Look Ahead	0	Camera turns towards the steering by this many degrees at full lock (negative = away). 0 = off. <i>(Range -45 to 45)</i>
Modes[] > Cornering > Yaw Rate Swing	0	Camera swings sideways in turns: degrees of yaw per degree/second of the car's turn rate (negative = lags outwards, showing the car's side). 0 = off. <i>(Range -0.5 to 0.5)</i>
Modes[] > Cornering > Max Swing	25	Limit for Yaw Rate Swing, in degrees. <i>(Range 0 to 60)</i>
Modes[] > Cornering > Lateral Shift	0	Camera slides sideways towards the outside of the turn: metres per 100 degrees/second of turn rate. 0 = off. <i>(Range -3 to 3)</i>
Modes[] > Cornering > Roll	0	Camera banks into turns: degrees per 100 degrees/second of turn rate. 0 = off. <i>(Range -10 to 10)</i>
Modes[] > Cornering > Smooth Time	0.35	Seconds to settle the cornering offsets above. <i>(Range 0.01 to 2)</i>
Modes[] > Mounted		Where the camera is attached to the car and how rigidly it follows the body. <i>(Shown when Type is Mounted)</i>
Modes[] > Mounted > Auto Bumper	On	On: classic bumper position computed from the collision box. Off: use Local Position. A vehicle can set its own position for this mode (AVD Vehicle > Camera Positions), which wins over both.
Modes[] > Mounted > Local Position	(0, 1.1, 0.4)	Camera position in the car's space (m): x right, y up, z forward. Only when Auto Bumper is off. <i>(Editable when Auto Bumper is Off)</i>
Modes[] > Mounted > Local Euler	(0, 0, 0)	Extra rotation relative to the car (degrees), e.g. (0, 180, 0) for a rear-facing camera.
Modes[] > Mounted > Follow Pitch	1	How much of the car's nose-up/down pitch the camera follows (1 = rigid, 0 = stays level). <i>(Range 0 to 1)</i>
Modes[] > Mounted > Follow Roll	1	How much of the car's body roll the camera follows (1 = rigid, 0 = stays level). <i>(Range 0 to 1)</i>
Modes[] > Mounted > Rotation Smooth Time	0	Seconds of rotation smoothing (0 = rigid mount; small values soften bumps). <i>(Range 0 to 1)</i>
Modes[] > Tripod		Placement and zoom of the roadside camera. <i>(Shown when Type is Tripod)</i>
Modes[] > Tripod > Place Ahead	30	How far ahead of the car (along its direction of travel) the camera is placed (m).
Modes[] > Tripod > Side Offset	6	Sideways distance from the car's path (m). Alternates left/right on each relocation; falls back to the other side or the road centre when scenery is in the way.
Modes[] > Tripod > Height	1.5	Camera height above the ground (m).
Modes[] > Tripod > Max Distance	45	Relocate ahead again when the car is farther than this (m), or when scenery blocks the view.
Modes[] > Tripod > Frame Size	9	Zoom so the car fills about this many metres of the view. 0 = no zoom (fixed Lens > Field Of View).
Modes[] > Tripod > Min Fov	12	Tightest zoom (degrees) for Frame Size. <i>(Range 5 to 90)</i>
Modes[] > Tripod > Look At Height	0.6	Height of the aim point above the car origin (m).
Modes[] > Orbit		Rotating the camera by hand with the mouse or right stick. <i>(Shown when Type is Chase / Mounted)</i>
Modes[] > Orbit > Enabled	On	Allow rotating the camera around the car (Chase) or looking around (Mounted) by hand.
Modes[] > Orbit > Mouse	On	Mouse look. Only when Enabled is on. <i>(Editable when Enabled is On)</i>
Modes[] > Orbit > Mouse Requires Button	On	Mouse look only while the right mouse button is held, which keeps the cursor free otherwise. <i>(Editable when Mouse is On)</i>
Modes[] > Orbit > Mouse Sensitivity	0.15	Degrees per mouse pixel. <i>(Editable when Mouse is On)</i>
Modes[] > Orbit > Stick	On	Right-stick look. Only when Enabled is on. <i>(Editable when Enabled is On)</i>
Modes[] > Orbit > Stick Speed	180	Degrees per second at full right-stick deflection. <i>(Editable when Stick is On)</i>

Setting	Default	Description
Modes[] > Orbit > Stick Deadzone	0.15	Stick deflection ignored around the centre (0..0.5). <i>(Range 0 to 0.5; Editable when Stick is On)</i>
Modes[] > Orbit > Invert Y	Off	Invert vertical look for both mouse and stick. <i>(Editable when Enabled is On)</i>
Modes[] > Orbit > Pitch Limits	(-10, 60)	Vertical limits in degrees (x = lowest, y = highest). Chase: camera height around the car (+ = above). Mounted: look angle (+ = down). <i>(Editable when Enabled is On)</i>
Modes[] > Orbit > Yaw Limit	180	Horizontal limit in degrees to each side. 180 = full circle. <i>(Range 0 to 180; Editable when Enabled is On)</i>
Modes[] > Orbit > Recentre Delay	1.5	Seconds without look input before the camera returns behind the car. Negative = never returns. <i>(Editable when Enabled is On)</i>
Modes[] > Orbit > Recentre Speed	120	Return speed in degrees per second. <i>(Editable when Enabled is On)</i>
Modes[] > Collision		Keeping the chase camera out of walls and the ground. <i>(Shown when Type is Chase)</i>
Modes[] > Collision > Avoid Obstacles	On	Pull the camera towards the car when scenery or ground is between them.
Modes[] > Collision > Radius	0.3	Radius (m) of the sphere swept from the car to the camera. Larger = keeps further from walls. <i>(Editable when Avoid Obstacles is On)</i>
Modes[] > Collision > Min Distance	1.5	Never pull in closer than this (m). <i>(Editable when Avoid Obstacles is On)</i>
Modes[] > Collision > Recover Time	0.4	Seconds to move back out after the obstacle clears (pulling in is always instant). <i>(Range 0 to 2; Editable when Avoid Obstacles is On)</i>
Modes[] > Collision > Ground Clearance	0.4	Minimum camera height above the ground (m). Always applied.
Modes[] > Shake		Camera shake on hits, landings and at speed (off by default).
Modes[] > Shake > Enabled	Off	Shake the camera on impacts, landings and at speed.
Modes[] > Shake > Impacts	0.6	Shake added by a car or scenery hit at Impact Full Speed (weaker hits add proportionally less). 0 = none. <i>(Range 0 to 2; Editable when Enabled is On)</i>
Modes[] > Shake > Impact Full Speed Kmh	60	Impact speed (km/h along the contact normal) that gives the full Impacts amount. <i>(Min 1; Editable when Enabled is On)</i>
Modes[] > Shake > Landings	0.4	Shake added by a hard landing at Landing Full Speed. 0 = none. <i>(Range 0 to 2; Editable when Enabled is On)</i>
Modes[] > Shake > Landing Full Speed Kmh	25	Vertical landing speed (km/h) that gives the full Landings amount. <i>(Min 1; Editable when Enabled is On)</i>
Modes[] > Shake > Speed Rumble	0	Constant shake at Lens > Reference Speed (scaled from standstill). 0 = none. <i>(Range 0 to 0.5; Editable when Enabled is On)</i>
Modes[] > Shake > Max Angle	3	Rotation amplitude (degrees) at full shake. <i>(Editable when Enabled is On)</i>
Modes[] > Shake > Max Offset	0.15	Position amplitude (m) at full shake. <i>(Editable when Enabled is On)</i>
Modes[] > Shake > Frequency	18	Shake speed (noise frequency). <i>(Editable when Enabled is On)</i>
Modes[] > Shake > Decay	1.6	Shake removed per second (higher = shorter shakes). <i>(Editable when Enabled is On)</i>
Modes[] > Allow Look Back	On	Look back (Q / R3) is allowed in this mode. <i>(Shown when Type is Chase / Mounted)</i>
Mode Blend Time	0.35	Seconds to blend between modes (0 = cut). <i>(Range 0 to 2)</i>
Snap Distance	15	Cut instead of following when the car moves farther than this in one frame (reset, teleport).

AVD Debug HUD

ArcadeVehicleDriver.AVDDebugHud , component

Telemetry overlay for tuning: speed, gear and revs, engine state, steering, tyres, damage per zone, tick counter and camera mode. F1 shows / hides it, F2 the controls help, P pauses the simulation, '.' steps one tick.

Setting	Default	Description
Chase Camera	None	The HUD shows the vehicle this camera follows.
Hud Style	Modern	Modern: UI Toolkit panels (damage per zone, tyre states, gauges). Classic: a simple text overlay (ImGui). Also in the menu Tools > Arcade Vehicle Driver > Debug HUD. Can be switched in Play mode.
Show	On	Telemetry panel (F1).
Show Help	On	Controls help panel (F2).

Modern style

Optional overrides for the UI Toolkit HUD: panel settings (scale, sort order) and the layout (UXML + USS).

Setting	Default	Description
Panel Settings	None	Panel settings (scaling, sort order). Empty = Resources/AVDHud/AVDHudPanelSettings.
Layout	None	Layout. Empty = Resources/AVDHud/AVDHud (UXML + USS, edit them or the UI Builder to restyle).