

Reaction Racing: A Decentralized Skill-Based Racing Game with a Closed-Loop Digital Economy

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Important Notice

This white paper describes the intended design of the Reaction Racing ecosystem, including gameplay systems, token mechanics, governance framework, and related technical architecture. It is provided for informational purposes only.

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Reaction Racing, RRX, and RRGV are described in this white paper solely in relation to intended gameplay, progression, governance, and related ecosystem functions. RRX is intended primarily as a gameplay and ecosystem utility token and not as equity, debt, profit participation, or any claim on assets, revenues, treasury funds, or distributions.

For purposes of this white paper, the phrase “closed-loop digital economy” refers to the intended internal recirculation of RRX through gameplay rewards, entry fees, upgrade expenditures, staking, treasury retention, and other authorized ecosystem uses. It does not mean that RRX is non-transferable or permanently confined to the Reaction Racing ecosystem where external transfer or use is technically enabled and legally permitted.

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Abstract. Reaction Racing proposes a decentralized, skill-based racing game with a closed-loop digital economy. Players compete in reaction-time races, advance through ranked classes, and use RRX (Reaction Racing Token) as the primary in-game utility asset for upgrades, season entry, staking, and other gameplay functions. Unlike earlier token-reward game systems, which often distributed rewards faster than they were reused, Reaction Racing combines emissions with recurring sinks and distinguishes between FREE and VESTED balances so that progression can continue without making immediate liquidity the primary objective of participation. Governance is separated from gameplay utility through a non-transferable governance token, RRGV, intended to reflect participation and stewardship rather than economic ownership. The system is designed to support competitive play, long-term retention, and a more durable game economy in a decentralized setting.

1. Introduction

Games that attach transferable digital assets to player activity have generally faced a common problem. Rewards can be issued quickly, but the mechanisms for re-use inside the game are often weak. When players are rewarded faster than the economy gives them reason to spend, stake, upgrade, or re-enter competition, the system becomes dominated by extraction rather than participation. Under those conditions, game balance deteriorates and long-term retention becomes difficult.

Reaction Racing is designed as a response to this problem. It is a multiplayer racing game based on reaction-time skill, car progression, rank advancement, and season-based competition. The token layer is not treated as a separate speculative feature added around the game, but as part of the game loop itself. Players use RRX (Reaction Racing Token) to improve vehicles, enter competitions, align through staking, and progress through increasingly demanding racing classes.

A key part of the design is the distinction between FREE and VESTED balances. FREE balances are transferable where enabled. VESTED balances remain usable for gameplay functions, but are not immediately available for open transfer. This allows rewards to support progression and continued play while reducing the amount of newly issued value that can exit the system at the moment it is earned.

The governance layer is also separated from the utility layer. RRX serves gameplay and progression. Governance is administered through RRGV (Reaction Racing Governance), a non-transferable token earned through participation and ecosystem contribution. This separation is intended to keep the core economy focused on play while allowing governance influence to broaden over time.

The paper describes the structure of the game economy, the reward and sink model, the balance architecture, the staking system, the token allocation, and the phased governance framework.

2. Game Overview

Reaction Racing is a competitive multi-player play-to-earn racing game built around reaction-time gameplay, car progression, rank advancement, and season-based competition against other players. Players begin in the lowest racing category (R4.7) and progress toward the highest racing category (R1.0) by earning points, improving their car and winning championships. Competitive progression depends on both player skill and continued use of in-game resources. The token design is intended to support utility, progression, and long-term player retention.

3. Token Utility and Balance Architecture

RRX (Reaction Racing Token) powers the core game loop. It is used for car upgrades, season entry fees, staking, and other approved ecosystem utilities. Reaction Racing uses two functional token states: FREE and VESTED. FREE balances are immediately transferable and withdrawable where enabled. VESTED balances are usable in-game but remain locked from open transfer for a rolling period of 3 years, applied per reward tranche from its individual reward date. This balance architecture is intended to support player progression while managing liquid float.

3.1 Closed-Loop Recirculation Design

Reaction Racing uses a closed-loop digital economy in which RRX circulates continuously between player balances, gameplay sinks, and protocol-controlled balances. RRX is distributed through race rewards, season rewards, onboarding incentives, referral rewards, promotion rewards, and other approved emissions. Distributed balances are then used for upgrades, Cup entry fees, staking, and other approved ecosystem utilities. A portion of RRX spent through gameplay is redistributed to players under the published reward rules, while the remainder is retained by the DAO through protocol fees, rake, treasury receipts, and other approved sinks. Treasury-held RRX remains available for redeployment to approved ecosystem uses under the applicable protocol rules.

In this white paper, the term “closed-loop digital economy” denotes the internal recirculation of RRX through gameplay activity, treasury retention, and subsequent ecosystem distribution. FREE balances remain transferable and withdrawable where enabled. VESTED balances remain usable in-game but restricted from open transfer until the applicable vesting period expires. External holding or transfer of FREE balances does not alter the internal recirculation design of the game economy.

The FREE/VESTED balance architecture supports this recirculation model by separating transferable balances from gameplay balances subject to vesting. Most gameplay-issued RRX is credited as VESTED unless otherwise specified in the published rules. FREE balances form the principal transferable reward layer. VESTED balances remain available for upgrades, entry fees, staking, and other approved ecosystem utilities, and therefore reinforce continued reinvestment into progression and competitive participation. This structure is intended to support player progression, manage liquid float, and preserve the functional role of recurring sinks and treasury recirculation over time.

3.2 Vehicle Tokens, Upgrade State, and Delegated Use

Each player car is represented by a unique vehicle token maintained by the Car smart contract. The vehicle token records ownership, rank class, component levels, accumulated performance points, derived performance bonus, eligibility status, and other state variables required by the game rules.

RRX used for car upgrades is converted into persistent vehicle state. When upgrade components are purchased, the corresponding component levels are written to the vehicle token in accordance with the applicable upgrade logic. The RRX used for those upgrades is received by the protocol under the applicable sink rules. The resulting upgraded state remains attached to the vehicle token.

Performance points are credited to the vehicle token through race completions and championship standings. The derived performance bonus is calculated from the current performance-point balance under the published progression formula, subject to the applicable cap. Crash events reduce the current performance-point balance by 5%, after which the derived bonus is recalculated.

When a player promotes to a higher rank, a new vehicle token is used for that rank. The prior-rank vehicle token remains recorded with its existing component levels, performance points, and derived bonus. Subject to the applicable rules, prior-rank vehicle tokens may be retained, transferred, listed on the marketplace, or assigned through the Race Team system.

The Race Team system permits the owner of an eligible vehicle token to authorize another player to compete with that vehicle token under the published reward-allocation rules. Marketplace transfers and Race Team activity are subject to the applicable protocol fees, eligibility requirements, and operational rules.

Certain championships, events, and gameplay formats may require minimum component levels, performance bonuses, or other vehicle-state thresholds. Vehicle development therefore affects gameplay capability, event eligibility, and authorized third-party use within the ecosystem. Ownership of a vehicle token does not create any claim on protocol revenues, treasury balances, or profit distributions.

4. Emissions, Sinks, and Progression Logic

The primary sources of RRX emissions are race rewards and season rewards, with additional onboarding support through welcome bonuses and referral rewards. Racing category promotion rewards and special event rewards also contribute to ecosystem issuance under the published game rules. These reward flows are paired with meaningful in-game sinks, principally upgrades, season entry fees, cup rake, and staking lock-up. The design objective is to allow committed players to continue progressing while limiting the immediate conversion of most game-issued tokens into liquid market supply. Welcome bonuses, referral rewards, and a substantial share of non-race distributions are structured to support gameplay progression rather than immediate liquidity.

4.1 Token States and Reward Distribution

Reaction Racing uses two functional token states: **FREE** and **VESTED**. **FREE** balances are transferable and withdraw-able where enabled. **VESTED** balances remain usable in-game for upgrades, entry fees, staking, and approved ecosystem utilities, but remain restricted from open transfer until the applicable vesting period expires.

Cup championship standing rewards determine the **FREE** portion of the economy. At R4 and R3, 100% of cup standings are free. At R2, 80% is free and 20% vested. At R1, 65% is free and 35% vested. All race rewards, single-season rewards, season standings, promotion rewards, welcome bonuses, referral rewards, and other approved game emissions are vested unless otherwise specified in the applicable rules.

4.2 Rewards and Rewards Token Types Determined by Rank and Season Type

Rewards increase with each racing category. As players advance from **R4** to **R1**, race rewards, season rewards, Cup prize pools, entry fees, and promotion rewards all increase to reflect larger grids, longer seasons, and higher competitive difficulty.

The tables below summarize the core reward structure of the game economy, including race rewards, bonus rewards, single-season standings, Cup championship distributions, and promotion rewards. Single-season standings are credited as **VESTED** balances. Cup championship standings form the principal **FREE** reward layer, subject to the published rank-based **FREE**/**VESTED** split.

This structure is intended to align higher rewards with higher commitment, stronger performance, and continued progression through the competitive ladder.

Race completion does not award **RRX**. Completion of a race is recognized through non-economic governance issuance (**RRGV**) under Section 7.5 and is forfeited where the player does not complete the race, including on a crash. Race scoring rewards are paid only to scoring positions, namely P1 through P9 at R4 and P1 through P10 at R3, R2, and R1; positions below the lowest scoring position or players that crash receive no **RRX** race rewards. Players that crashed more than three times in a season, forfeit their **RRX** season reward if applicable.

The full rewards table is provided in Appendix A: Rewards Table.

4.3 Onboarding Support

Onboarding incentives are intended to reduce early progression friction and improve initial retention without making immediate liquidity the primary purpose of onboarding. New-user support may be delivered through sponsored gameplay benefits, including sponsored car upgrades, sponsored entry fees, and other approved gameplay expenditures or benefits, and may also include **VESTED** **RRX** only after completion of the applicable qualifying season or other published participation threshold. Referral rewards are not earned on wallet connection or account creation alone and are settled only after the referred player satisfies the applicable qualifying conditions.

Before any onboarding, referral, promotional, or similar reward is settled, the protocol may apply account-resolution, eligibility, and anti-abuse checks and may refuse settlement where the applicable conditions are not satisfied or where the activity is determined to be linked, coordinated, or otherwise abusive. All onboarding and referral incentives are subject to the protocol’s account-resolution, eligibility, and anti-abuse rules in effect at the time of settlement.

Phase	New User Bonus	Referral Reward	Context
Founding Players (first 2,500 players)	Valued 1,000 RRX	200 RRX	Maximum incentive to seed the initial community
Growth Players (following 25,000 players)	Valued 500 RRX	150 RRX	Strong incentive while building critical mass
Standard (from 27,500 players onwards)	Valued 100 RRX – 200 RRX	100 RRX	Sustainable long-term acquisition cost

In addition to welcome bonuses and referral rewards, Reaction Racing may use a temporary **Reward Doubler** or similar onboarding accelerator. Such mechanisms are intended to increase eligible gameplay rewards for a limited period and to support learning, retention, and early competitive engagement. The applicable duration, scope, and eligibility conditions may vary by onboarding phase under the published rules.

The duration of the Reward Doubler is highest for founding participants, lower during the initial growth phase, and lowest in the mature phase. This phased structure allows Reaction Racing to use stronger early acquisition support when network effects are most important, while moving toward a more sustainable long-term onboarding cost profile as the player base expands.

Reward Doubler	Reward Doubler Duration
Founding Players	30 seasons
Growth Players	10 seasons
Standard	3 seasons

4.4 Principal Sink Categories

Reaction Racing relies on recurring in-game sinks to offset reward emissions and support the protocol’s recirculating gameplay economy. The principal sinks are Cup entry fees, DAO rake, dynamic car upgrade costs, and staking lock-up. These mechanisms require continued reinvestment by active players and are intended to support long-term balance between token issuance, gameplay progression, and retained in-game utility.

Entry Fees. Cup participation requires an entry fee that increases with rank. As players move from **R4** to **R1**, grid sizes, total entry-fee pools, prize pools, and DAO rake all increase. A portion of entry fees is returned to players through Cup rewards, while the remainder is retained by the protocol as DAO rake. This structure makes higher ranks more economically demanding and strengthens sink pressure at the upper end of the competitive ladder.

Rank	Drivers	Entry Fee (in RRX)	Total Pool (in RRX)	Prize Pool (in RRX)	DAO Rake (in RRX)
R4	10	10	100	85	15 (15%)
R3	14	20	280	234	46 (16%)
R2	18	40	720	552	168 (23%)
R1	20	80	1,600	1,200	400 (25%)

Car Upgrades. Car progression is supported by a dynamic pricing model for upgrade components. Upgrade costs are substantially lower at earlier component levels and rise steeply as components approach their maximum level. This makes initial progression more accessible while requiring materially greater in-game expenditure for advanced optimization.

The price for car upgrade components uses a dynamic formula to calculate the upgrade pricing:

$$\text{Upgrade Cost} = \text{Base_Cost} * (0.6667 + 2.3333 * ((\text{Component_Level} - 16) / 34) ^ 2.5)$$

Upgrade Component	Base Cost (in RRX)	Price at Starting Level 16	Price at Max Level 50
Engine	100	66.67	300
Fast Corners	50	33.335	150
Medium Corners	50	33.335	150
Slow Corners	50	33.335	150

Booster and Turbo consumables are separate one-time capacity purchases per rank class and are not subject to dynamic pricing.

Car Upgrade Consumable	Upgrade Cost (in RRX)
Booster	100
Turbo	250

4.5 Emission Decay

Emissions from race rewards and single-season standings are subject to a decay multiplier that reduces issuance from the Racing & Cup Rewards reserve as that reserve is drawn down. The binding trigger for each decay step is the on-chain balance of the Racing & Cup Rewards reserve, not a user count. Because upgrade expenditures and Cup rake are returned to the reserve under Section 7.16, the reserve balance moves at the net rate of depletion, so decay engages only on genuine drawdown rather than on gross emission. The schedule executes automatically as the reserve balance crosses each threshold and does not require a governance vote to apply a step.

The decay schedule is as follows.

Racing & Cup Rewards reserve balance	Emission multiplier
At or above 35,000,000,000 RRX (up to 12.5% of the reserve drawn)	1.00x
30,000,000,000 to 35,000,000,000 RRX	0.92x
25,000,000,000 to 30,000,000,000 RRX	0.85x
20,000,000,000 to 25,000,000,000 RRX	0.78x
15,000,000,000 to 20,000,000,000 RRX	0.72x
10,000,000,000 to 15,000,000,000 RRX	0.66x
Below 10,000,000,000 RRX	0.60x (floor)

The decay floor is 0.60x. A reduction of the floor below 0.60x is itself a Protected Proposal under Section 7.9. The schedule is structured so that the first taper, from 1.00x to 0.92x, engages only after the reserve has emitted approximately 5,000,000,000 RRX on a net basis. At the projected net depletion rate of approximately 117 RRX per registered user per year, the first taper is therefore expected at an ecosystem on the order of 10,000,000 registered users, reached in approximately the sixth year of operation at that scale; under faster adoption toward 20,000,000 registered users it advances to approximately the third to fourth year, and at a smaller sustained scale of 5,000,000 registered users it is deferred to approximately the tenth year. This projection is informational and is distinct from the verified-user metric used for the governance phase schedule in Section 7.4; the binding trigger remains the reserve balance.

5. Staking System

Staking in Reaction Racing is a gameplay-alignment mechanism, not a passive-yield mechanism. By staking **RRX**, players may obtain modest increases in car performance and in race and season rewards. These benefits apply only through active racing and are intended to support progression, retention, and long-term participation in the game economy. Staking does not create guaranteed returns or any fixed entitlement to profit.

The staking tiers are intentionally limited in scale. Their purpose is to reward commitment without overwhelming the importance of player skill, race execution, or car quality. At higher staking levels, players may also receive a governance-weight bonus, as described in Section 7.

Unstaking returns balances subject to the applicable account logic and vesting rules.

Staking Tiers

Level	RRX Staked	Performance Bonus	Reward Bonus
SL0	0	0%	0%
SL1	100	1%	1%
SL2	500	2%	2%
SL3	2,000	3%	3%
SL4	5,000	4%	4%

6. Token Allocation

The total supply of **RRX** is fixed at **50,000,000,000**. Of this amount, **95%** is allocated to the **Community & Ecosystem** and **5%** is allocated to the **Core Team / Operations / Founder**. This allocation is intended to place the substantial majority of supply within gameplay, player growth, ecosystem support, and community use, while reserving a limited portion for development, security, legal, operational, and founder-related functions.

Total allocation

Allocation	Share	RRX
Community & Ecosystem	95%	47,500,000,000
Core Team / Operations / Founder	5%	2,500,000,000

Community & Ecosystem sub-allocation

Bucket	Share of Total Supply	RRX
Racing & Cup Rewards	80%	40,000,000,000
Player Growth & Onboarding	6%	3,000,000,000
Staking / Gameplay Utility Incentives	4%	2,000,000,000
Ecosystem / Liquidity / Exchange Support	3%	1,500,000,000
Community Governance & Events	2%	1,000,000,000

Core Team / Operations sub-allocation

Bucket	Share of Total Supply	RRX
Core Team & Development	1.5%	750,000,000
Founder	1.0%	500,000,000
Marketing / Growth / Partnerships	0.8%	400,000,000
Legal / Compliance / Corporate	0.7%	350,000,000
Security / Audits / Infrastructure	0.5%	250,000,000
Treasury Reserve / Strategic Operations	0.5%	250,000,000

No Token Sales

Reaction Racing has no private token sale, no venture capital token allocation, and no external investor token round. The project is founder-funded. No token supply is reserved for outside investor classes with preferential pricing, early liquidity, or special distribution rights.

This allocation structure is intended to support a community-first ecosystem with broad player participation and without concentrated external token overhang.

7. Governance

Reaction Racing uses a phased DAO governance structure. Governance is separate from the core game economy. **RRX** is the utility token for gameplay, upgrades, entry fees, and staking.

Governance is administered through a separate non-transferable token, RRGV, intended to reflect participation and ecosystem alignment rather than economic ownership. In the early stages, governance is founder-led. Over time, governance broadens as the community earns RRGV through participation. The framework consists of community-earned RRGV, Founder Base Governance Weight, and temporary founder protection rights exercised through a Founder Protection Multisig during the first seven years following TGE. The design described in this Section reflects the intended launch structure and may be adjusted for technical, legal, or security reasons at deployment.

7.1 Governance Token: RRGV

Name	Reaction Racing Governance Token
Ticker	RRGV
Transferability	Non-transferable
Monetary value	None. RRGV cannot be bought, sold, exchanged or used as collateral.
Purpose	Governance participation, voting weight, governance-linked in-game utility

RRGV does not confer any ownership interest, entitlement to protocol surplus, dividend, redemption claim, or economic right of any kind. It exists solely as a governance participation metric earned through gameplay and ecosystem contribution.

7.2 Governance Power Structure

Governance power in Reaction Racing arises from two sources. The first is **Community Governance Power**, earned through the issuance of non-transferable **RRGV** through gameplay, progression, and participation. The second is **Founder Governance Power**, consisting of **Founder Base Governance Weight (FBGW)** assigned at genesis, together with any **RRGV** separately earned by the founder through ordinary gameplay. **FBGW** is non-transferable, non-economic, and exists solely for governance purposes. The founder's governance weight is highest at launch and declines over time under the phase-reduction framework, while community governance expands through continued **RRGV** issuance.

7.3 Founder Base Governance Weight

At genesis, the founder is assigned **1,500,000,000** units of **Founder Base Governance Weight**. This allocation is separate from the **RRX** token economy and confers no economic right. It exists solely to support founder-led governance during the bootstrap phase. The founder's effective voting weight is determined by applying the declining **Founder Phase Multiplier** to **FBGW**, and then adding any **RRGV** earned by the founder through ordinary gameplay.

$$\text{Founder Voting Weight} = (\text{FBGW} \times \text{Founder Phase Multiplier}) + \text{Founder Earned RRGV}$$

7.4 Founder Phase Reduction Schedule

The **Founder Phase Multiplier** declines by reference to ecosystem growth, measured in verified users. The purpose of the schedule is to provide a visible path from founder-led governance toward broader community governance while preserving founder majority during bootstrap and early scale.

Phase	Trigger	Founder Phase Multiplier	Effective Founder Base Weight	Est. Founder Share
Ph. 0	Pre-launch / closed alpha	1.00x	1,500,000,000	—
Ph. 1	Public launch	0.95x	1,425,000,000	~100%
Ph. 2	1,500 verified users	0.90x	1,350,000,000	~99%
Ph. 3	10,000 verified users	0.82x	1,230,000,000	~99%
Ph. 4	50,000 verified users	0.72x	1,080,000,000	~97%
Ph. 5	100,000 verified users	0.64x	960,000,000	~90%
Ph. 6	250,000 verified users	0.56x	840,000,000	~74%
Ph. 7	500,000 verified users	0.50x	750,000,000	~48%

A **verified user** is a player who has completed at least **10 seasons**, whether single or Cup, and has a positive **RRX** transaction history consisting of at least one earn event and at least one spend event. This definition is intended to reduce sybil inflation of the user count and to ensure that governance phase transitions are triggered by genuine ecosystem growth.

Before the protocol reaches **500,000 verified users**, the founder's governance weight is not reduced below the level required to maintain ordinary-governance majority. The founder first ceases to hold ordinary majority only after the protocol has reached meaningful scale.

7.5 Community RRGV Earning Mechanics

RRGV is earned through gameplay and participation in the ecosystem. It is not sold and is not issued according to a discretionary DAO emissions schedule. Instead, it is earned at fixed rates tied to racing activity, seasonal performance, and governance participation. In this way, governance power is intended to arise from sustained involvement in the protocol rather than from transfer or purchase.

Source	RRGV Earned	Notes
Race participation (per race)	R4: 1.0, R3: 1.5, R2: 2.0, R1: 3.0	Base reward for race completion, increasing by rank; awarded only on completion of the race and forfeited where the player does not complete the race, including on a crash
Race placement	R4: 2.0 / race_placement R3: 3.0 / race_placement R2: 4.0 / race_placement R1: 5.0 / race_placement	Additional RRGV based on finishing position
Cup Season standing	R4: 30 / season_standing R3: 60 / season_standing	Additional RRGV based on final season position

	R2: 90 / season_standing R1: 120 / season_standing	
Governance participation	30 RRGV per valid vote cast	Rewards active governance engagement

Under the race-placement rule, a player receives additional RRGV equal to the applicable rank value divided by finishing position. Thus, an R3 driver finishing P2 receives $3.0 / 2 = 1.5$ RRGV. Under the Cup Season standing rule, an R2 driver finishing a Cup season in P4 receives $90 / 4 = 22.5$ RRGV.

7.6 Voting Weight Formula

Voting weight in DAO governance is determined by three components: a user's total earned **RRGV**, the multiplier associated with the user's staking tier, and an additive wealth bonus. The purpose of the formula is to make earned participation the principal source of governance power, while giving limited additional weight to sustained staking and recognized in-game wealth.

The Voting Weight formula = (Earned RRGV x Staking Multiplier) + Wealth Bonus

Component	Mechanism	Range
Earned RRGV	Accumulated through racing and ecosystem participation	Uncapped (primary driver of voting weight)
Staking Multiplier	Based on RRX staking tier: SL0 = 1.00x, SL1 = 1.02x, SL2 = 1.04x, SL3 = 1.07x, SL4 = 1.10x	1.00x – 1.10x
Wealth Bonus	10 voting weight per 100 RRX of recognized wealth capped at 10,000 RRX	0 – 1000 (additive)

Recognized wealth includes the measured value of eligible wallet assets and the user's cars, as defined by the protocol rules. The wealth bonus is capped and remains secondary to earned **RRGV**.

7.7 Founder Protection Multisig

For the first **7 years** following **TGE**, certain limited constitutional and emergency powers are exercised through the **Founder Protection Multisig**. The purpose of this mechanism is to protect the protocol during the early growth period while preventing unilateral founder control.

Property	Value
Composition	1 founder + 8 trusted long-term signers (9 total)
Approval threshold	Founder + any 2 trusted signers (3-of-9, founder required)

Duration	7 years from TGE — automatically expires
Scope	Veto on Protected Proposals + emergency actions only

The founder alone cannot act. The founder plus one signer cannot act. The trusted signers cannot act without the founder. The mechanism is therefore collaborative in form, while preserving the founder’s limited constitutional role during the protection period.

7.8 Scope of Founder Protection Rights

The **Founder Protection Multisig** may veto **Protected Proposals**. These include token-contract amendments, emissions-framework changes, treasury-policy rewrites, governance-rule rewrites, changes to vesting architecture, changes to founder protection rights, liquidation, transfer, or repurposing of strategic reserves, transfer of core intellectual property, protocol ownership, or treasury control, and high-risk integrations materially affecting security. Ordinary proposals are not subject to founder veto.

The **Founder Protection Multisig** may also take emergency action where reasonably necessary to protect users, treasury assets, protocol integrity, service continuity, legal position, or smart-contract security. Such action may include pausing vulnerable functionality, temporarily suspending withdrawals, disabling integrations, halting emission flows, or activating emergency migration procedures. Any emergency action must be limited in scope, documented, publicly disclosed, and subject to later governance review.

7.9 Proposal Classes

Proposal types are divided into **Ordinary** and **Protected** classes. Ordinary proposals govern routine matters. Protected proposals govern constitutional, economic, treasury, and security-sensitive matters. Thresholds are measured against the participating voting weight, meaning only the voting weight actually cast in a proposal is counted. Non-voting participants are excluded.

Type	Threshold	Founder Veto	Examples
Ordinary	Majority + 1 of participating voting weight	No	Events, race format, seasonal balancing, routine budget use
Protected	66% supermajority of participating voting weight	Yes (during 7-year protection period)	Token contracts, emissions, treasury policy, governance rules, vesting, reserves

Routine use of the approved **4% operating allocation** within already defined budget categories is treated as an **Ordinary Proposal**. Material reallocations between categories, however, are treated as **Protected Proposals**. This includes reallocations above **10% of a category** or any single release above **0.25% of total supply**.

7.10 Trusted Signer Alignment

To align the long-term interests of the **8 trusted signers** with the protocol, each signer receives a vested alignment allocation of **2,000,000 RRX**, for a total of **16,000,000 RRX**, sourced from the **4% operating allocation**. This allocation is intended to support continuity, long-term responsibility, and active stewardship during the **Founder Protection Period**.

The vesting schedule is **0% immediate unlock; 5% unlock after 12 months; and the remaining 95% vesting in quarterly releases from month 13 through month 84**. There is no extension beyond year 7. Any unvested allocation is forfeited upon resignation, removal for cause, or prolonged inactivity. Tokens distributed under this alignment allocation are credited as **VESTED** balances and do not enter immediate circulation as liquid supply.

7.11 Signer Management

A trusted signer may be removed by the founder together with at least **2 additional trusted signers** in the event of resignation, incapacity, legal disqualification, prolonged inactivity, conflict of interest, security negligence, or misconduct. For this purpose, prolonged inactivity means non-responsiveness for **60 days or more**. Replacement signers are selected on the basis of trustworthiness, strategic alignment, availability, independence, and security competence. Any replacement must be publicly disclosed.

7.12 Continuity & Emergency Depletion

If the number of active trusted signers temporarily falls below **8**, the **Founder Protection Multisig** continues to operate, provided that at least **2 active trusted signers** remain. If fewer than **2** remain, ordinary veto power is suspended until the signer group is restored. During such period, the founder may take only temporary emergency actions strictly necessary to preserve protocol security and continuity. Any such action must be narrowly tailored, publicly disclosed, and must expire automatically unless ratified after restoration of the signer group.

7.13 Founder Succession

If the founder dies, becomes incapacitated, or is otherwise legally unable to serve, the founder's role within the **Founder Protection Multisig** passes to a pre-designated **Founder Successor** or **Founder Successor Vehicle**. Activation of such succession requires confirmation by at least **3 active trusted signers**. The purpose of this mechanism is to prevent constitutional paralysis during the **Founder Protection Period**.

7.14 End of Founder Protection Period

At the end of the **7-year Founder Protection Period**, the founder's veto rights terminate automatically, emergency override powers terminate automatically, the **Founder Protection Multisig** dissolves, trusted signer mandates end, and signer vesting concludes without extension. Thereafter, the founder participates in governance only through the remaining effective governance weight, consisting of **FBGW at 0.50x = 750,000,000 units**, together with

any separately earned **RRGV**. At that stage, the founder remains a significant governance participant, estimated at approximately **27–29%** at full maturity, but no longer acts as a constitutional gatekeeper.

7.15 Governance-Linked Utility Benefits

Tier	Valid Votes in 12 Months	Entry Fee Reduction	Performance Bonus
Active Voter	3+	2%	+0.2%
Engaged Voter	6+	4%	+0.4%
Steward	9+	7%	+0.7%
Core Steward	12+	10%	+1.0%

Governance-linked performance benefits are capped at **+1.0%** in aggregate. Entry-fee reductions are capped at **10%**. The thresholds above are measured by the number of valid votes cast by a user during the preceding **12 months**. These benefits lapse automatically if the user no longer meets the applicable valid-vote threshold during the preceding 12-month period.

7.16 Treasury Management

The **DAO treasury** receives the principal token inflows generated by the protocol, including car upgrade payments, Cup championship rake, and entry-fee related inflows. The treasury is the sole source from which gameplay reward emissions are made.

7.17 Anti-Abuse Measures

The protocol may apply anti-abuse, anti-sybil, and account-resolution measures across gameplay, rewards, and governance. A player account may be associated with multiple player-controlled wallets, but onboarding, referral, promotional, and similar rewards are intended to be limited to one player account per natural person unless otherwise specified in the published rules. Self-referrals, duplicate accounts, linked-account reward farming, coordinated account activity, and other abusive conduct are prohibited. Activity determined by the protocol to be abusive may be disregarded for reward, progression, governance, leaderboard, or similar purposes, and the relevant player account may be restricted, suspended, or disqualified from further gameplay participation, including races. The protocol may refine the applicable detection methods, thresholds, and enforcement procedures over time.

7.18 Tokenomics Parameter Bounds and Change Classification

Certain tokenomics parameters are adjustable through governance for live-balancing purposes under Section 10. These parameters are classified by the direction of their effect on liquid supply. A change that tightens supply, by reducing emission, increasing a sink, increasing rake, or reducing the FREE share of a reward, is an Ordinary Proposal under Section 7.9. A change that loosens supply, by increasing emission, reducing a sink, reducing rake, or increasing the

FREE share of a reward, is a Protected Proposal under Section 7.9 and is subject to founder veto during the protection period. Each parameter is additionally constrained by a hard bound enforced by the relevant contract, so that no proposal can set a value outside the permitted range. The genesis values, contract bounds, and change classification are set out below.

Parameter	Genesis value	Contract bound	Change classification
Build-curve lower coefficient (Level 16 multiplier)	0.6667	0.50 to 0.80	Raise: Ordinary; lower: Protected
Build-curve upper coefficient (Level 50 multiplier)	3.00	2.0 to 6.0	Raise: Ordinary; lower: Protected
Build-curve convexity exponent	2.5	2.0 to 3.5	Ordinary
Component base costs (Engine 100; Corners 50 each; Booster 100; Turbo 250)	As published	Plus or minus 50% of genesis	Raise: Ordinary; lower: Protected
Race scoring total per rank (R4 22; R3 32; R2 44; R1 54)	As published	At or below 120% of genesis	Lower: Ordinary; raise: Protected
Race scoring distribution within the per-rank total	As published	Non-increasing by position	Ordinary
Fastest-lap bonus	1 RRX	0 to 2 RRX	Ordinary
FREE share of Cup standings per rank (R4 100; R3 100; R2 80; R1 65, percent)	As published	At or below genesis	Reduce FREE: Ordinary; raise FREE: Protected
Cup rake	15% to 25% by rank	10% to 30%	Raise: Ordinary; lower: Protected
Emission decay schedule (bands, steps, floor)	Section 4.5	Floor at or above 0.60x	Protected

RRGV issuance rates under Section 7.5, including the race-completion reward that replaces the former race-completion RRX bonus, are not tokenomics supply parameters and are classified as Protected, since a change to RRGV issuance alters governance weight. The genesis RRGV rates remain as set out in Section 7.5.

8. Technical Implementation

Reaction Racing is designed as a single-root contract system. The canonical smart-contract and settlement layer is intended to be Avalanche C-Chain. The core contracts for RRX, RRGV, vehicle assets, vesting, staking, treasury accounting, incentives, governance, and the official contract registry are intended to be deployed on Avalanche C-Chain. The authoritative record of protocol state is therefore intended to reside on Avalanche C-Chain during the initial on-chain phase. Base and BNB Chain may be used as player-acquisition, wallet-onboarding, referral, campaign, and community-growth channels. They are not intended to maintain an independent source of issuance, settlement, treasury state, vehicle state, or governance authority. If product traction, transaction volume, security readiness, and governance approval justify it, selected gameplay execution may later be migrated to a dedicated Reaction Racing L1 within the Avalanche ecosystem, while canonical RRX liquidity and exchange integration remain on Avalanche C-Chain.

8.1 Canonical State

The protocol is intended to maintain a single canonical state for token supply, vesting, staking, treasury balances, vehicle state, and governance weight. In the initial on-chain deployment, that state is intended to be defined exclusively by the Avalanche C-Chain contract set. No Base, BNB Chain, or other acquisition-layer deployment is intended to maintain an independent native source of truth for RRX, RRGV, governance authority, treasury balances, vesting status, staking state, or vehicle state. If a dedicated RR L1 is later deployed, the official contract registry is intended to identify which settlement-relevant functions remain on Avalanche C-Chain and which gameplay execution functions are delegated to RR L1.

8.2 Contract Scope

The intended Avalanche C-Chain contract set consists of: the RRX utility-token contract; the RRGV governance-token contract; the car asset contract or car registry; the vesting controller; the staking controller; the treasury contract; the reward distributor; the incentives controller; the campaign claim registry; the official contract registry; the migration controller; the governance executor; and such other protocol modules as may be required by the final deployment architecture. No general administrative function is intended to permit unilateral modification, confiscation, freezing, reversal, or reassignment of player-held balances or player-held vehicle tokens.

The car asset contract or car registry is intended to represent each player-held car as a unique wallet-held asset or registry entry on Avalanche C-Chain. The contract is intended to record, or authoritatively resolve, rank class, component levels, accumulated performance points, derived performance bonus, eligibility status, and such delegation permissions as may be required by the Race Team system. Upgrade expenditures, crash-related performance-point adjustments, and other settlement-relevant changes affecting vehicle state are intended to occur through authorized protocol interactions involving the applicable RRX expenditure or other authorized sponsored-settlement path under the applicable rules.

The incentives controller and campaign claim registry are intended to administer onboarding, referral, promotional, retention, and other approved incentive allocations under the applicable protocol rules. Such allocations may include sponsored upgrades, sponsored entry fees, and other sponsored gameplay expenditures or benefits approved by the protocol. Base and BNB campaign activity may be used as eligibility evidence, but final reward eligibility, claim status, and accounting are intended to be written to Avalanche C-Chain under the applicable implementation.

The treasury contract is intended to receive protocol-owned token inflows, including upgrade payments, cup rake, and other entry-fee related inflows, and to serve as the controlled source of governance-authorized reward emissions, treasury transfers, sponsored incentive budgets, liquidity-support budgets, migration-related budgets, and other disbursements under the applicable protocol rules.

Reaction Racing Technical Architecture

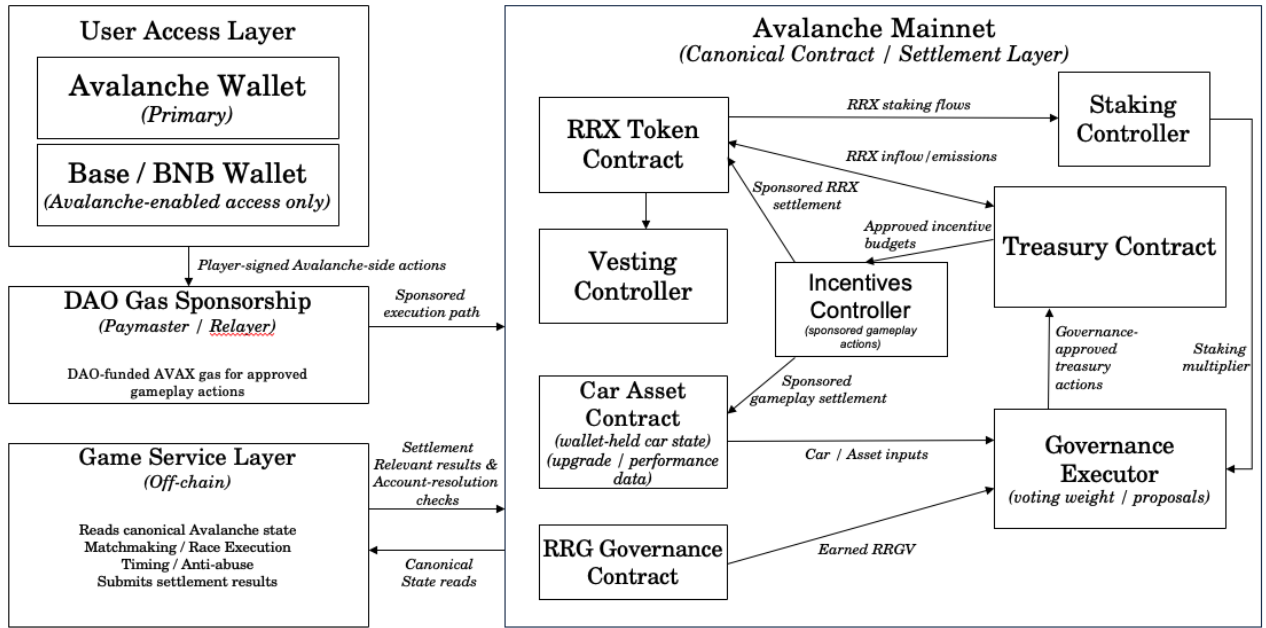


Diagram 1: Technical Architecture of Reaction Racing

These contracts are intended to be implemented and deployed using standard EVM development workflows. The official contract registry is intended to record the active Avalanche C-Chain contract addresses, active acquisition-channel adapters, deprecated contracts, and any future RR L1 migration status under the applicable governance and security procedures.

8.3 Separation of Gameplay and Settlement

Real-time gameplay is not intended to be executed onchain on a per-input basis. Reaction-time measurement, matchmaking, race-state progression, anti-abuse checks, and session management are intended to operate in the application layer. The contract layer is reserved for settlement-relevant actions, including reward settlement, entry-fee accounting, upgrade expenditures, staking changes, vesting updates, treasury flows, vehicle-state updates, and governance actions. This separation is intended to avoid placing real-time gameplay requirements on transaction confirmation and block production.

8.4 Player Access and Acquisition Layers

In addition to Avalanche-native wallet access, the protocol may support player access through Base and BNB Chain wallet environments. In this architecture, Base and BNB Chain are intended to function as player-acquisition, campaign, referral, and wallet-onboarding layers only. They are not intended to function as independent sources of issuance, governance, treasury state, vehicle state, staking state, or canonical protocol accounting. The authoritative record of RRX, RRGV, vesting, staking, treasury balances, vehicle state, and governance weight remains on Avalanche C-Chain during the initial on-chain phase.

8.5 Wallet Control and Account Resolution

Under the intended implementation, the player's settlement address is a player-controlled EVM wallet address. Because Avalanche C-Chain, Base, and BNB Chain are EVM-compatible networks, a player may use the same externally owned account address across those networks where the same wallet key is used. The protocol is not intended to create or custody a separate Avalanche wallet for the user in the ordinary self-custody path. Transaction approval and wallet control remain with the user.

Gameplay settlement resolves against the player's Avalanche-side balances, vehicle tokens or vehicle records, and Avalanche-side contract state during the initial on-chain phase. A player may sign a login, account-linking, or campaign message from Base, BNB Chain, or Avalanche, but such signature changes the access or account-resolution layer only. It does not change the location of canonical token balances, vesting state, staking state, treasury accounting, vehicle state, or governance authority.

For application-layer purposes, the protocol may resolve one or more player-controlled wallet addresses to a single player account under the applicable account rules. Wallet control determines transaction authorization, but reward eligibility, referral eligibility, promotional eligibility, and similar application-layer rights may be determined at the player-account level rather than at the individual wallet-address level. Signed messages used for account linking or campaign participation are not intended to authorize token transfers unless the applicable transaction is separately and expressly approved by the user.

8.6 External Representations and Sponsored Execution

All settlement-relevant gameplay actions are intended to occur on Avalanche C-Chain during the initial on-chain phase. This includes, without limitation, cup entry-fee payments, car upgrade expenditures, staking changes, reward settlement, vesting updates, vehicle-state updates, and other tokenized gameplay actions recorded by the contract system. A player entering through Base or BNB Chain therefore continues to interact with the Avalanche-settled protocol, rather than with a separate Base-native or BNB-native settlement system.

For supported gameplay actions, the player is intended to bear the underlying RRX cost of the action, but not necessarily the associated Avalanche network fee. The Reaction Racing DAO is intended to fund and operate the gas-sponsorship layer required for approved protocol interactions so that ordinary gameplay use does not require the player to maintain a separate AVAX balance. Such sponsorship may be provided through a protocol-managed relay, smart-account architecture, or equivalent supported architecture. Base and BNB Chain gas sponsorship may be used separately for approved campaign interactions on those acquisition channels.

Gas sponsorship is intended to apply only to approved protocol interactions. It is not intended to extend to arbitrary wallet transfers, unsupported contract calls, or third-party transactions outside the Reaction Racing protocol flow. The DAO is intended to maintain the Avalanche-side infrastructure and fee reserves required for such sponsored execution, subject to the final technical, security, and budgetary design adopted at deployment.

8.7 RR L1 Migration Path

RR L1 is not intended to be part of the initial canonical deployment. It may be developed and launched only if product traction, transaction volume, technical maturity, security readiness, operational readiness, and governance approval justify a dedicated gameplay execution chain. The intended long-term architecture is to keep canonical RRX liquidity, treasury controls, official registry functions, and exchange-facing token integration on Avalanche C-Chain, while RR L1 may host high-frequency gameplay execution, race settlement, car upgrades, season state, gameplay-linked staking effects, gasless game actions, and RRX as a game or gas token under the applicable migration rules. Any RR L1 migration, token transfer, car mapping, bridge, or activation mechanism is intended to be subject to technical review, legal review, security review, user communication, and the applicable governance approval process.

8.8 Governance Locality and Design Objective

Governance authority is intended to remain on Avalanche C-Chain during the initial on-chain phase. The authoritative RRGV record, voting-weight calculation, proposal execution, treasury controls, founder-protection logic, and official contract registry are intended to remain Avalanche C-Chain-native unless modified through the applicable governance and migration process. Base and BNB Chain may provide acquisition-channel proofs or interface convenience, but are not intended to host canonical governance state. The objective of this architecture is to maintain a single canonical contract system on Avalanche C-Chain while permitting player acquisition through Base and BNB Chain and preserving a later migration path toward a dedicated Reaction Racing L1. Avalanche C-Chain functions as the authoritative economic and settlement layer during the initial on-chain phase. Base and BNB Chain function as acquisition, campaign, referral, and wallet-onboarding layers. RR L1, if launched after product traction, security readiness, and governance approval, is intended to become the dedicated gameplay execution layer while canonical RRX liquidity and exchange integration remain on Avalanche C-Chain unless modified under an approved migration framework.

9. Risk Factors and Live-Balancing Statement

Game economies are dynamic. Actual outcomes depend on player behavior, retention, reward cadence, balancing decisions, and broader market conditions. Reward parameters, staking parameters, event structures, and governance-linked utility may be modified over time where necessary to protect gameplay quality and economic stability. The protocol may restrict, delay, modify, or discontinue features in response to legal, technical, security, or operational concerns. Nothing in this document is to be interpreted as a promise of token value, future liquidity, profit, or economic return.

10. Conclusion

Reaction Racing is designed as a skill-based game economy with recurring utility sinks, managed liquid float, community-weighted token allocation, an Avalanche C-Chain canonical

settlement architecture, and a phased path toward broader community governance and, if justified by traction, dedicated RR L1 gameplay execution. The RRX and RRGV systems are intended to support competition, progression, retention, and long-term stewardship. The protocol is designed to remain game-first in structure and to avoid embedding unnecessary financial-product features into the core system.

Appendix A: Rewards Table

Metric	R4	R3	R2	R1
Grid size	12 drivers	14 drivers	18 drivers	20 drivers
Races per Single season	6	7	8	9
Races per Cup/Championship Season	6	7	8	9
RACE REWARDS (per race) – in RRX				
P1 (the race winner)	5	7	9	10
P2	4	6	7	9
P3	3	4	6	8
P4	3	4	5	6
P5	2	3	4	5
P6	2	3	4	4
P7	1	2	3	4
P8	1	1	3	3
P9	1	1	2	3
P10	0	1	1	2
P11 and lower	0	0	0	0
Fastest lap bonus	1	1	1	1
Total per race (all positions)	23	33	45	55
Reward Percentage as FREE	0%	0%	0%	0%
Reward Percentage as VESTED	100%	100%	100%	100%
SINGLE SEASON REWARDS – in RRX				
P1 (the champion)	15	30	45	60
P2	8	15	25	40
P3	5	10	18	25
P4	4	8	15	20
P5	2	5	12	15
P6	1	4	8	10
P7	0	1	6	8
P8	0	0	4	6
P9	0	0	1	6
P10	0	0	0	1
P11 and lower	-	0	0	0
Total per season (all positions)	35	73	134	191
Reward Percentage as FREE	0%	0%	0%	0%
Reward Percentage as VESTED	100%	100%	100%	100%
CUP/CHAMPIONSHIP REWARDS – in RRX				
P1 (the Cup Champion)	50	100	200	400
P2	15	50	105	215
P3	8	30	70	145

P4	4	15	40	90
P5	3	10	30	60
P6	2	7	25	50
P7	2	5	20	40
P8	1	4	15	35
P9	0	3	12	30
P10	0	3	10	25
P11	-	2	7	20
P12	-	2	5	18
P13	-	2	3	16
P14	-	1	2	14
P15	-	-	2	12
P16	-	-	2	10
P17	-	-	2	8
P18	-	-	2	6
P19	-	-	-	4
P20	-	-	-	2
Total prize pool	85	234	552	1,200
Driver Cup entry fee	10	20	40	80
Entry fees collected	100	280	720	1,600
DAO rake (in RRX)	15 (15%)	46 (16%)	168 (23%)	400 (25%)
Reward Percentage as FREE	100%	100%	80%	65%
Reward Percentage as VESTED	0%	0%	20%	35%
PROMOTION REWARDS – in RRX				
Main Rank Classification	R4	R3	R2	R1
Step 7 > 6 (e.g. R4.7 to R4.6)	10	50	100	150
Step 6 > 5	15	55	105	200
Step 5 > 4	20	60	110	250
Step 4 > 3	25	65	115	300
Step 3 > 2	30	70	120	350
Step 2 > 1	35	75	125	400
Step 1 > 0	40	80	130	500
Main Rank (e.g. R4.0 > R3.7)	200	400	800	-