



Lotto Chain Witepapper v 0.1 update 18 may 2025

Abstract

Lotto Chain is a decentralized lottery and social web3 platform built on EVM multi blockchain, utilizing (smart contract) technology to ensure transparency, security, and fairness throughout the lottery and other betting game processes. The platform allows users to place bets, interact socially, track player statistics, and participate in a ranking-based reward system. This document outlines the architecture, functionality, and economic model of Lotto Chain smart contracts, highlighting an innovative approach to the world of decentralized betting games.

1. Introduction

Conventional lotteries often face various problems such as lack of transparency, centralized control, and late payment of prizes. Lotto Chain is here as a solution to these problems by implementing blockchain technology to form a lottery system that does not require third party trust (trustless) and is completely decentralized.

Objective

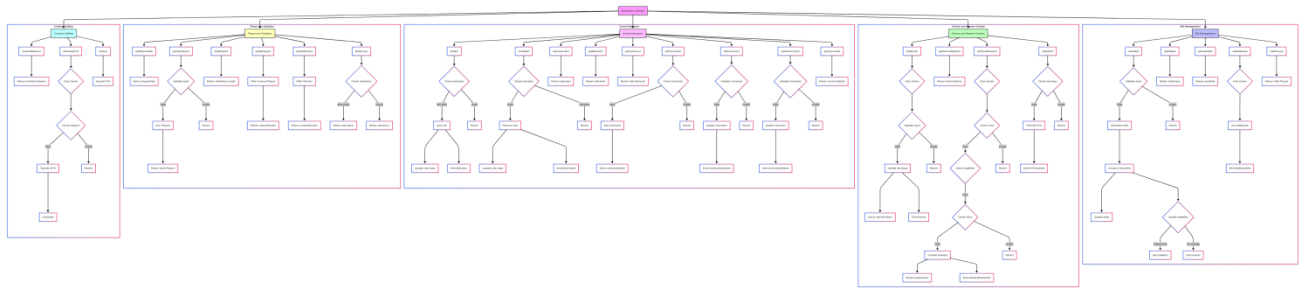
- * Provides a transparent and fair gamebet lottery system.
- * Enables social interaction on the platform.
- * Rewards active participants through a ranking system.
- * Ensures secure and verifiable prize payouts through multi blockchain EVM.

2. System Architecture

Lotto Chain smart contracts are written in **Solidity (version ^0.8.25)** and are **MIT licensed**. They are designed to handle the betting process, social interactions, winner selection, and prize distribution.

2.1 Main Components

Below is an integrated chart diagram that covers all the functions in the contract.



Explanation of Chart Structure

Integration of All Functions:

- The main chart starts from the Contract node which branches into five categories: Bet Management, Winner and Reward System, Social Interaction, Player and Statistics, and Contract Utilities.
- Each category is a subgraph containing all related functions, covering more than 20 functions in the contract.

State Variables

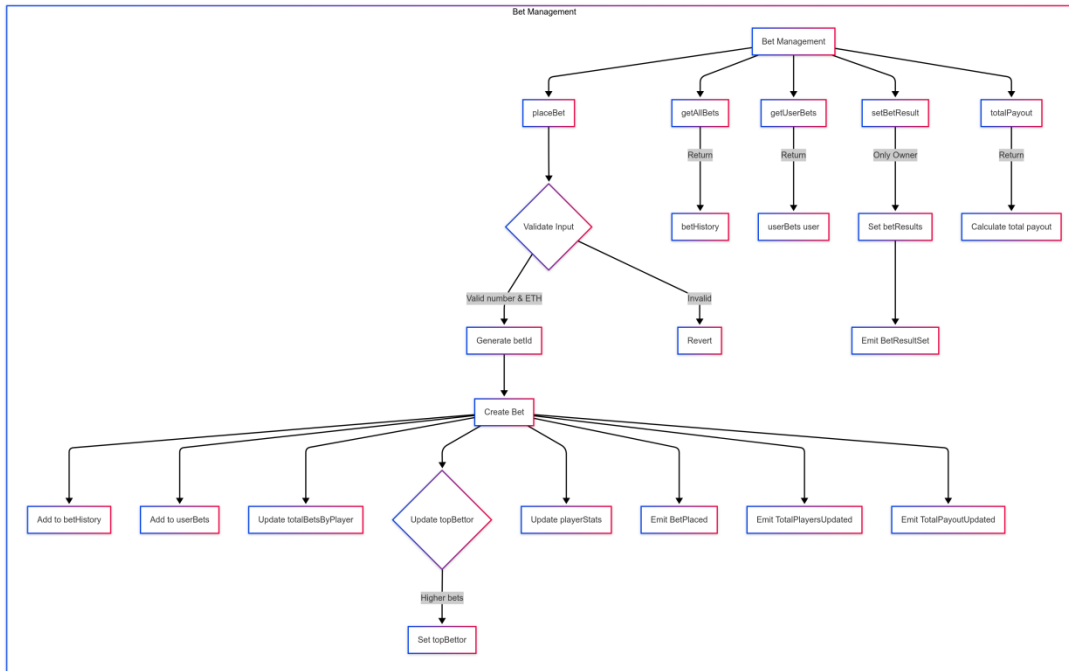
- **Owner:** The party who deploys the contract, responsible for administrative functions such as determining winners and distributing rewards.
- **Players:** An array that records all unique participants.

Betting Parameters

- **minBet:** Minimum bet value (1).
- **maxBet:** Maximum bet value (99).
- **betPrice:** This fixed fee per bet (dynamic) depends on the blockchain used.

A. Bet Management

- **Related functions:** placeBet, getAllBets, getUserBets, setBetResult, totalPayout



Explanation:

- `placeBet` includes input validation, bet creation, statistics updates, and leaderboard checking.
- `getAllBets` and `getUserBets` is a view function to access betting history.
- `setBetResult` can only be carried out by the owner to determine the betting results.
- `totalPayout` calculate total payout based on bets.

Mapping

- `userBets`: Linking a player's address to his betting history.
- `betResults`: Linking the draw ID with the results.
- `winnings`: Tracks the number of prizes a player can claim.

Event

- `BetPlaced`: When the bet is made.
- `WinnerAnnounced`, `WinnerSet`: When the winner is determined.
- `RewardDistributed`: When the leaderboard prizes are distributed.
- `ETHClaimed`: When a player claims a prize

2.1 Core Functionality

Bet

- `placeBet(string _number, uint256 _times, bool _isETH, uint256 _payoutAmount)` Allows players to bet on specific numbers (2–4 digits) with a bet multiplier. (`_times`). Total cost: `_times × betPrice`.

Condition:

- Number must be 2–4 digits.
- The cost sent must be appropriate ($_msg.value == times \times betPrice$).

Effect:

- A unique betting ID is created with `keccak256`.
- Betting history, statistics and *leaderboard* updated.
- *Related events are published*.

Winner Determination

- `setWinner(address _winner, uint256 _amount, uint256 _betId, uint256 _number)`
Can only be done by the contract owner. Adding winning data and updating the player's prize balance.

Prize Distribution

- `distributeReward()`
On the same day, in a 1x12 hour process.

Prize Withdrawal

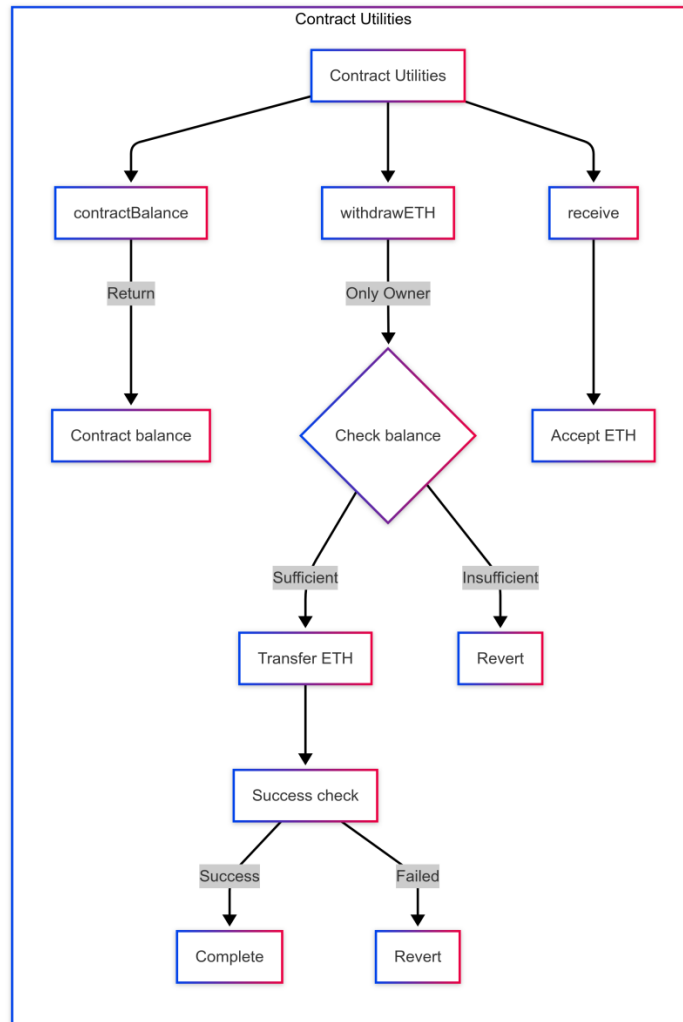
- `claimETH()`
Players can withdraw their winning balance through the claim function listed in the contract.

Administrative Functions

- `setBetResult(uint256 _drawId, uint256 _winningNumber)`
- `withdrawETH(uint256 _amount)`
- **Additional display function:**
`getPlayerStats`, `getTopPlayers`, `getWinnerByBetId`, `getAllBets`, `getUserBets`, and etc.

B. Contract Utilities

- **Related functions:** `contractBalance`, `withdrawETH`, `receive`



Explanation:

- `contractBalance` return the contract balance.
- `withdrawETH` allows owners to withdraw ETH by checking the balance.
- `receive` is a fallback function to receive ETH.

3. Economic Models

3.1 Income

- **Betting Fees:** Each bet is charged a dynamic fee depending on the Blockchain chain used. Players can increase the bet amount through the multiplier parameter.
- **Contract Balance:** All coins from betting go to the contract balance, used to pay prizes and other distributions.

3.2 Payment

- **Victory:** Determined by the contract owner via `setWinner`, and claimed by the player via `claimETH`.
- **Leaderboard Prizes:** Each week, the highest betting player receives 5% of their total bets.

3.3 Incentive

- **Social Engagement:** The like and comment feature encourages interaction between users.
- **Leaderboard:** Encourage active competition between players.

4. Security Considerations

- **Access Control:** Critical functions can only be accessed by the contract owner (`onlyOwner`).
 - **Input Validation:** Bet amount, coin amount, and comments are validated to prevent unauthorized input.
 - **Reentry Protection:** Coin transfers are done with a `call` method and are equipped with a success check.
 - **Transparency:** All activity is recorded on-chain and can be audited via blockchain explorers.
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5. Use Cases

- **Players:** Can bet, interact socially, and compete in the rankings.
- **Community:** Can interact with each other, increasing social engagement in the game.
- **Administrators:** Manage the draw, determine winners, and distribute prizes.

6. Future Development Plans

- **Random Number Generator:** Integration of decentralized oracles (e.g. Chainlink VRF) for fairness of winner selection.
 - **Decentralized Governance:** Replacing owner decisions with DAOs or automated mechanisms.
 - **Advanced Social Features:** Adding comment replies and social incentives.
 - **Multi-Chain Expansion:** Expanding to other EVM networks for gas cost efficiency, and offering more choices.
 - **User Interface:** Creating a user-friendly UI for easier interaction.
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Lotto Chain Brand, Logo, and Source Code Protection Policy.

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7. Intellectual Property Policy

Lotto Chain is a decentralized smart contract platform built on blockchain technology, designed to support digital lotteries, gamification incentives, and decentralized financial services. The brand, logo, and source code of **Lotto Chain** are core assets representing the platform's identity, trust, and technological innovation. This policy governs the global protection, usage, and enforcement of these assets, independent of governmental jurisdictions, to ensure integrity, consistency, and economic value within the decentralized ecosystem.

Objective

1. Protect the brand, logo, and source code as intellectual property worldwide.
2. Regulate usage by the community, developers, and partners to maintain platform reputation and functionality.
3. Provide a fair, transparent, and decentralized dispute resolution mechanism.
4. Promote innovation and adoption through a strong brand identity and protected code.

A. Definitions

In this Policy, the following terms are defined:

1. **Lotto Chain Brand:** A graphical mark, including the name "Lotto Chain," logo, color scheme (blue #007bff, blue #00b7ff), slogans (**Decentralized Betting Web3 Social**), or other visual elements distinguishing the platform's services in the blockchain ecosystem.
2. **Lotto Chain Logo:** The official graphic design of the platform, combining text, imagery, and colors, serving as the primary visual identity.
3. **Lotto Chain Source Code:** All software code, including smart contracts, decentralized applications (dApps), user interfaces, and technical documentation, developed for the platform, protected as a copyrighted work.
4. **Asset Owner:** The decentralized entity (Lotto Chain DAO) holding exclusive rights to the brand, logo, and source code, as determined by community governance.
5. **User:** Any individual, entity, or developer interacting with the platform, including those using smart contracts, dApps, or related services.
6. **Asset License:** Permission granted via smart contract or written agreement by the Asset Owner to use the brand, logo, or source code within a specified scope.
7. **Asset Violation:** Unauthorized use of the brand, logo, or source code, including copying, modification, or distribution harmful to the platform.
8. **Copyright:** Exclusive rights over the logo (as artwork) and source code (as literary/technical work), recognized automatically under the Berne Convention 1886.
9. **Lotto Chain DAO:** The decentralized autonomous organization managing platform governance, including asset-related decisions.

10. **License Smart Contract:** A blockchain-based smart contract governing the issuance, management, and termination of asset licenses.
11. **Decentralized Arbitration:** A dispute resolution mechanism via platforms like Kleros or Aragon Court for handling asset violations.

B. Scope & Principles

b.1 Scope

This Policy applies to:

- Use of the **Lotto Chain** brand, logo, and source code in digital platforms, blockchains, and NFT markets.
- Protection of assets in the global ecosystem, including decentralized finance and digital lotteries.
- Management of licenses via smart contracts or written agreements.
- Enforcement of sanctions and dispute resolution through decentralized mechanisms.
- Protection of the logo and source code as copyrighted works under international law.

b.2 Principles of Protection

- **Decentralization:** Assets are managed via DAO and smart contracts, independent of centralized authorities.
- **Transparency:** Decisions, licenses, and sanctions are recorded on the blockchain for public audit.
- **Integrity:** Assets must be used in alignment with **Lotto Chain**'s mission (innovation, trust, gamification).
- **Absolute Rights:** The Asset Owner holds exclusive rights, with the source code protected as absolute copyright.
- **Global Compatibility:** Aligned with the Paris Convention, TRIPS Agreement, Madrid Protocol, and Berne Convention.

C. Asset Protection

c.1 Protection Status

1. **Lotto Chain Brand:**
 - Protected as a distinguishing mark under **first-to-use** (evidenced on blockchain).
 - Includes the name "Lotto Chain," typographic variations, and related visual elements.
2. **Lotto Chain Logo:**
 - Protected as part of the brand and as artwork under the Berne Convention.
 - Includes 2D/3D designs, colors (blue #007bff, blue #00b7ff)
3. **Lotto Chain Source Code:**
 - Protected as a literary/technical work under the Berne Convention, with absolute copyright owned by the Asset Owner.

- Includes smart contracts (Solidity), dApps (JavaScript, React), backend, and technical documentation.
- Prohibited from copying, modification, or distribution without explicit license.
- 4. Ownership proof is recorded on the blockchain (e.g., code hash on IPFS, smart contract deployment timestamp).

c.2 Brand Registration

1. The Asset Owner may register the brand via the **Madrid Protocol** through WIPO for protection in over 130 countries.
2. Registration is optional, as **first-to-use** protection is recognized in blockchain ecosystems.
3. Registration costs are covered by the DAO, funded by the **Lotto Chain** token treasury.
4. Source code is not registered but protected automatically as copyright upon creation.

c.3 Rights of the Asset Owner

1. Use the brand, logo, and source code for platform operations.
2. Grant licenses via smart contracts or written agreements.
3. Prohibit unauthorized use through DAO governance.
4. Initiate disputes via decentralized arbitration.
5. Receive royalties from licenses, managed via smart contracts.

D. Asset Usage

d.1 Permitted Usage

1. **Brand and Logo:**
 - Used by the Asset Owner or authorized licensees.
 - Examples: Logo on dApps, “Lotto Chain” in whitepapers, branding in NFTs.
 - Must include ™ (unregistered) or ® (registered) symbols.
2. **Source Code:**
 - Restricted to the Asset Owner or explicit licensees.
 - Limited to platform operations or licensed projects.
 - Examples: Official smart contract deployment, dApp integration by partners.
3. Non-commercial community use (e.g., tutorials) is allowed with attribution: “© Lotto Chain, all rights reserved.”

d.2 Asset Licensing

1. **License Types:**
 - **Brand and Logo:** For branding (e.g., partner dApps).

- **Source Code:** Limited licenses for code use or modification (e.g., forks for licensed projects).
- 2. **License Mechanisms:**
- **License Smart Contract:** Automates rights, duration, and royalties.
Example smart contract function for granting a license.

```
function grantLicense(address user, uint256 duration, bytes32 assetType) public onlyDAO {
    licenses[user] = License(user, assetType, block.timestamp, duration);
    emit LicenseGranted(user, assetType, duration); }
```

- 3.
- **Written Agreement:** For strategic partners, digitally signed and hashed on the blockchain.
- 4. **License Terms:**
- Scope: Virtual regions, service types (e.g., lotteries, DeFi).
- Duration: E.g., 1 year, renewable via DAO.
- Royalties: 5-10% of revenue, paid in **Lotto Chain** tokens or stablecoins.
- Prohibitions: Modifying logo/code without approval, use for illegal purposes.
- 5. **License Revocation:** Automatic via smart contract for:
- Failure to pay royalties.
- Violation of guidelines (e.g., altering logo colors).
- Harm to platform reputation.

d.3 Usage Guidelines

- 1. **Brand and Logo:**
- Colors: blue #007bff, blue #00b7ff.
- Resolution: 300 dpi (digital), 1200 dpi (print).
- Prohibited: Altering design, adding elements, use in fraudulent contexts.
- 2. **Source Code:**
- Must follow official documentation (e.g., smart contract ABI).
- Modifications only for licensees, with DAO approval.
- Attribution required: "Source code © Lotto Chain".
- 3. Full guidelines are accessible via IPFS or the official **Lotto Chain** website.

d.4 Non-Commercial Use

- 1. Community may use brand/logo for education (e.g., blogs, videos) with attribution.
- 2. Source code is not permitted for non-commercial use unless open-sourced under a specific license (e.g., MIT, approved by DAO).
- 3. Harmful non-commercial use (e.g., FUD, phishing) is considered a violation.

E. Violations & Sanctions

e.1 Types of Violations

1. **Brand:**
 - Unauthorized use of “Lotto Chain” name.
 - Use of similar marks (e.g., “LottoChainX”).
2. **Logo:**
 - Copying or modifying logo for other projects.
 - Distributing logo in NFTs without permission.
3. **Source Code:**
 - Copying smart contracts/dApps without a license.
 - Modifying code for fraudulent purposes (e.g., scam contracts).
 - Distributing code without attribution.
4. **Reputation:** Using assets for fraud, phishing, or illegal activities.

e.2 Enforcement Mechanisms

1. **Warning:** DAO issues a warning via blockchain, email, or Discord, with a 7-day period to cease violations.
2. **Smart Contract Sanctions:**
 - Block violator’s access to dApps/smart contracts.
 - Seize related tokens (e.g., staking rewards).
 - Disable license via `revokeLicense(address user)`.Example smart contract function for revoking a license.

```
function revokeLicense(address user) public onlyDAO {  
    delete licenses[user];  
    emit LicenseRevoked(user);  
}
```

3. **Decentralized Arbitration:** Disputes are handled by Kleros or Aragon Court, with on-chain rulings.
4. **Violator Registry:** Offenders are listed on a public blockchain registry, impacting their on-chain reputation.

e.3 Contractual Sanctions

1. **Fines:**
 - Brand/Logo: 5,000-25,000 USDT.
 - Source Code: 25,000-100,000, USDT based on damage.
2. **License Revocation:** Automatic via smart contract.
3. **Blacklist:** Ban from the **Lotto Chain** ecosystem.
4. **Damages:** Compensation for material (e.g., lost revenue) and immaterial (e.g., reputational) losses.

e.4 Copyright Sanctions (Logo and Source Code)

1. Logo copying: Fine up to USD 50,000 USDT
2. Source code copying: Fine up to 250,000, USDT plus cessation of distribution.

3. Offenders must destroy digital copies (e.g., NFTs, code repositories).

F. Dispute Resolution

f.1 Mechanisms

1. **Community Mediation:** Conducted via DAO forums with a neutral facilitator.
2. **Decentralized Arbitration:** Handled by Kleros or Aragon Court, with binding on-chain rulings.
3. **Conventional Courts (Optional):** If arbitration is infeasible, parties may use a neutral jurisdiction (e.g., Singapore), with DAO approval.

f.2 Costs

1. Arbitration costs are borne by the losing party, paid in USDT.
2. Estimated: 1,000-5,000 USDT per case, depending on complexity.

f.3 On-Chain Evidence

1. Evidence (e.g., code hashes, screenshots, transactions) is stored on IPFS or blockchain.
2. DAO verification tools validate evidence authenticity.

G. Policy Revision and Evaluation

- This policy can be revised through a DAO community vote.
- Any revisions must be recorded on the blockchain.
- Evaluations are conducted at least every 12 months or as needed by the community.

H. Document Metadata

- **Document Number:** LC-POL/ASSET/2025-01
 - **Effective Date:** May 18, 2025
 - **Authorized By:** Lotto Chain Decentralized Betting Web3 Social
 - **Version:** 0.1
 - **Status:** Valid
 - **Official Contact:** <mailto:buz@lottochain.xyz> | X / Twitter: [@LottoChainXYZ](https://twitter.com/LottoChainXYZ)
 - **Legal Basis:** Berne Convention, Madrid Protocol, TRIPS Agreement, Paris Convention
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8. Closing

Lotto Chain presents a decentralized lottery system with integrated social interaction, combining betting transparency, community engagement, and a competitive reward system. While currently the winner selection is still controlled by the owner, future iterations are planned to be closer to decentralization

and fairness. With a solid architecture and attractive incentives, the platform has strong potential as a blockchain-based gaming solution.

9. Reference

- Web Site: <https://lottochain.xyz>
 - E-mail: <mailto:service@lottochain.xyz>
 - X: <https://x.com/LottoChainXYZ>
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Disclaimer: This document is prepared for informational purposes only. Users are advised to interact with the Lotto Chain contract wisely and understand the official Lotto Chain regulatory laws in accordance with applicable laws, and realize that blockchain-based applications are transparent and permanent.

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