Mobile Application Asset ($MAA): Decentralized Token for Cross-Game Rewards

Cole Thomas
https://maa-token.com/
https://x.com/SkiTimeSupport

Abstract. The Mobile Application Asset ($MAA) is a Solana-based fungible token that redefines mobile gaming by enabling persistent, transferable rewards across multiple games, starting with SkiTime, expanding to future mobile game Bog Bounty, and additional titles. Leveraging Solana's high-throughput Proof-of-Stake (PoS) and Proof-of-History (PoH) consensus [2], $MAA offers a decentralized, scalable, and eco-friendly solution with low-cost transactions [3, 5]. Players earn $MAA through gameplay, spend it on in-game purchases, transfer it across games, or trade it on external Solana-based DEXes, fostering a unified ecosystem that addresses the limitations of non-transferable rewards in traditional mobile gaming. The ecosystem ensures economic balance and scalability, governed by multisig or a future DAO [7, 8]. $MAA prioritizes player privacy with no personal data collection and is strictly a utility token, with no in-app trading or fiat conversion, ensuring compliance with game distribution platforms such as the Apple App Store [4].

1. Introduction

Mobile games often lock player rewards within a single game, diminishing long-term value and engagement. Centralized reward systems limit interoperability and trust, while in-app purchases lack persistence across ecosystems. $MAA solves this by introducing a decentralized, Solana-based token earned through gameplay and usable across multiple games developed by our studio. This white paper outlines $MAA's technical design, tokenomics, and integration with SkiTime, with a roadmap for future games.

2. Transactions

$MAA transactions occur on the Solana blockchain using the SPL Token-2022 program [1]. Key processes include:

- **Earning**: Players earn $MAA in SkiTime at 1 $MAA per 100 points (Survival Time (seconds) + Coins Collected). The game's backend verifies scores server-side and calls a Solana program to mint tokens directly to player-controlled wallets (e.g., Phantom, Solflare).

- **Spending**: Players spend $MAA in SkiTime for skins, shields, or consumables via in-app transactions, burning tokens to reduce supply. Future games will use shared Solana programs for similar mechanics.

- **Transferring**: $MAA supports secure, low-cost transfers (~0.000005 SOL, approximately $0.0009 at $187/SOL as of July 2025) to player wallets, enabling seamless movement across the ecosystem [3,5].

To support tradability as a core feature, players can trade $MAA on external Solana-based decentralized exchanges (e.g., Raydium, Orca, Jupiter [6]), as detailed in the Liquidity section. All transactions are executed on-chain, ensuring transparency and security, with no in-app trading to comply with various platform's guidelines[4].

3. Timestamp Server

Solana's Proof-of-History (PoH) generates a verifiable sequence of transactions, ensuring immutability and preventing fraud in $MAA reward distribution. Each mint or transfer is timestamped on-chain, with Solana's average block time of around 500ms enabling near-instant confirmation for game rewards[2].

4. Consensus

MAA relies on Solana's PoS and PoH consensus, chosen for its high throughput (theoretical peak of 65,000 TPS, with current real-time averages around 1,000-4,000 TPS), low latency, and energy efficiency compared to Proof-of-Work (PoW)[2]. Additionally, Solana's validators secure

the network, eliminating the need for energy-intensive mining, which suits mobile gaming's need for fast, eco-friendly micro-rewards where applicable.

5. Network

The Solana network facilitates $MAA distribution, with validators processing minting and transfers. Players interact via lightweight mobile wallets (e.g., Phantom, Solflare) integrated into SkiTime through deep links. Transaction fees (~0.000005 SOL base, plus potential prioritization fees) incentivize validators, ensuring network reliability[3, 5]. A custom Solana program, managed by a Program-Derived Address (PDA), controls minting, allowing scalability for future games[1].

6. Incentive

Players are incentivized to earn $MAA through high scores in SkiTime, with rewards minted dynamically at 1 $MAA per 100 points (e.g., a 500-point run yields 5 $MAA), subject to a maximum of 1,000 $MAA per run to prevent abuse. Rewards are calculated based on gameplay scores and minted directly to player-controlled Solana wallets via server-side verification. Developers benefit from minimal transaction fees (~0.000005 SOL, approximately $0.0009 at $187/SOL as of July 2025) when $MAA is spent in-game, supporting future game development[3, 5]. Anti-abuse measures, including server-side score verification and rate limits, ensure fair reward distribution across SkiTime and future games in the $MAA ecosystem.

Players are incentivized to earn $MAA through high scores in SkiTime, with rewards minted dynamically at 1 $MAA per 100 points (e.g., a 500-point run yields 5 $MAA), subject to a maximum of 1,000 $MAA per run to prevent abuse. Rewards are calculated based on gameplay scores and minted directly to player-controlled Solana wallets via server-side verification. Developers benefit from minimal transaction fees (~0.000005 SOL, approximately $0.0009 at $187/SOL as of July 2025) when $MAA is spent in-game, supporting future game development [3, 5]. Anti-abuse measures, including server-side score verification and rate limits (e.g., max 1,000 $MAA per run, with potential daily or per-player caps adjustable via governance), ensure fair reward distribution across SkiTime and future games in the $MAA ecosystem. While the overall player rewards supply is uncapped to allow flexibility as the ecosystem grows, these per-run and potential broader rate limits maintain balance without restricting total minting potential.

7. Storage

$MAA leverages Solana's compressed accounts to optimize on-chain storage, minimizing transaction costs (~0.000005 SOL, approximately $0.0009 at $187/SOL as of July 2025)[3, 5]. Only token-related data (minting, transfers, burns) is recorded on-chain, ensuring scalability for high-frequency micro-rewards across SkiTime and future games[1]. Game-specific data (e.g., survival time, coins collected) is stored off-chain on SkiTime's centralized servers, while player

stats and high scores are stored locally on the player's device to enhance performance and minimize server dependency.

To enable seamless player ownership, $MAA tokens are minted directly to player-controlled Solana wallets (e.g., Phantom, Solflare) integrated into SkiTime via deep links or the Solana Mobile SDK. In-game actions, such as achieving high scores, trigger server-verified calls to a Solana program, minting $MAA without manual transfers. Players maintain full control over their wallets, ensuring true ownership and compliance with decentralized principles. SkiTime does not manage or custody wallets, reinforcing security and trust.

SkiTime prioritizes player privacy by collecting no personal data. Only gameplay stats and high scores are gathered, stored locally on the player's device. For competitive features, select high-score data is optionally shared with Apple's Game Center for leaderboard functionality, adhering to platform guidelines. This hybrid approach—local storage for stats, Game Center for leaderboards, and on-chain token transactions—optimizes scalability, reduces costs, and ensures a smooth, privacy-conscious user experience.

8. Combining and Splitting Value

MAA's 9-decimal precision allows micro-rewards (e.g., 0.0001 $MAA per point) for small actions and aggregation for larger purchases (e.g., 10 $MAA for a skin). Solana's SPL token standard supports seamless splitting and combining, enabling flexible in-game economies [1].

9. Privacy

MAA transactions use Solana's pseudonymous wallet addresses, ensuring player privacy without requiring personal data. Optional zero-knowledge proofs (zk-proofs) are planned for future updates to enhance privacy for in-game actions, balancing transparency and anonymity [1].

10. Calculations

Reward Formula

For SkiTime, the player's score is calculated as: Score = Survival Time (seconds) + Coins Collected. Players are rewarded with 1 $MAA for every 100 points scored, with the reward minted directly to their connected Solana wallet (e.g., Phantom, Solflare) upon server-side verification of the score. For example, a 60-second run with 50 coins yields a score of 110 points, resulting in 1.1 $MAA (110 ÷ 100 = 1.1). The minting multiplier (0.01 $MAA per point) is adjustable via the Solana program's governance (e.g., multisig [7] or future DAO) to balance economic dynamics based on player activity and token supply [8].

The $MAA token is designed to extend beyond SkiTime, serving as a shared reward system for multiple mobile games. This enables players to earn and transfer $MAA across games and platforms, fostering a unified ecosystem where rewards persist and accumulate regardless of the specific game. The Development Team will actively pursue integrations with additional games, introducing customized reward formulas and minting mechanisms tailored to each game's mechanics (e.g., based on levels completed, achievements unlocked, or multiplayer interactions). Future reward systems will be balanced to ensure rewards across games align with the token's goals of equitable value creation, preventing any one game's rewards from outshining others and maintaining overall ecosystem harmony. These formulas will be documented in updates to this white paper or via community governance, ensuring scalability and adaptability as the ecosystem grows.

Supply Dynamics

Initial Supply: 250 million $MAA (250,000,000 × 10^9 units) pre-minted for the Development Team, held in a multisig[7] wallet (e.g., Squads.so). All other $MAA tokens are created dynamically through gameplay in SkiTime and future games.

Allocation:

- **Development Team (250M, 100% of pre-minted supply)**: Used for team expenses, development, marketing, community incentives (e.g., airdrops), and potential liquidity provision if community-funded pools are insufficient. Periodic transparency reports (e.g., quarterly updates on X or a community dashboard) will detail usage. With 10,000 daily active players averaging 15 $MAA/day (300 points × 5 plays ÷ 100), ~54.75M $MAA is minted yearly, making the 250M treasury equivalent to ~4.6 years of minting. This ensures relevance even at scale (e.g., 100,000 players mint ~547.5M $MAA/year, where the treasury remains ~45% of annual mint). The 250M aligns with 10-20% benchmarks for uncapped projects, funding multi-game expansion without over-reliance on new mints [3].

- **Player Rewards (Uncapped)**: Minted dynamically based on gameplay in SkiTime (1 $MAA per 100 points: Survival Time (seconds) + Coins Collected). No upper limit exists, allowing flexibility as the player base grows. Future games will mint $MAA via the same Solana program with game-specific formulas [1].

Minting: Controlled by a custom Solana program using a Program-Derived Address (PDA) as the mint authority. The program verifies gameplay scores server-side (e.g., via SkiTime's backend) and mints $MAA to player wallets (e.g., Phantom, Solflare). Minting rates (e.g., 0.01 $MAA per point for SkiTime) are adjustable via governance (e.g., multisig [7] or future DAO) to balance supply [8].

Burning: When players spend $MAA in-game (e.g., for skins, consumables like shields or lives), 95% of the spent tokens are burned, permanently removing them from the circulating supply to counteract inflation. The remaining 5% are transferred as a burn fee to the Development Team's treasury wallet, supporting ecosystem growth (e.g., funding *Bog Bounty* development,

marketing). Burns and fees are executed on-chain via Solana's SPL Token-2022 program, ensuring transparency [1]. The treasury fee mechanism sustains long-term relevance of the 250 million $MAA treasury, with usage detailed in periodic transparency reports (e.g., quarterly updates on X or a community dashboard) [8].

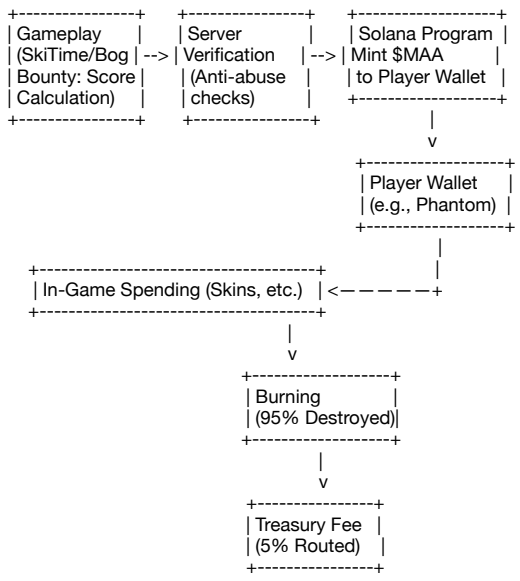
Economic Balance: Dynamic minting supports growth with player activity, while burns counteract inflation. Anti-abuse measures include server-side score verification and rate limits (e.g., max 1,000 $MAA per game run). Governance may adjust multipliers or introduce a cap if needed [8]. For example, if 10,000 daily active players average 500 points per run at 0.01 $MAA/point (5 $MAA/run × 5 runs = 25 $MAA/day), 250,000 $MAA is minted daily; if 20% is burned (50,000 $MAA, with 2,500 $MAA to treasury), net growth is 200,000 $MAA/day, requiring robust burn mechanics to avoid dilution.

Inflation Modeling: Provide a table simulating supply growth at different player counts (e.g., 10K vs. 100K DAU) with burn assumptions. TBD

Liquidity: To enable tradability as a core feature, liquidity pools (e.g., $MAA/SOL pairs) will be established on Solana-based DEXes like Raydium [6], Orca, or Jupiter, funded independently by players using minted tokens. The Development Team will facilitate listings with guides and tools but will not directly fund pools to maintain decentralization. Listings on Solana DEXes are permissionless and free, with minimal transaction costs (~0.000005 SOL) [3, 5]. The team may use a portion of their 250M allocation to seed liquidity if needed, subject to multisig [7] approval and transparency reports [8]. Centralized exchange (CEX) listings will be explored post-launch via governance, ensuring regulatory compliance [4]. $MAA remains a utility token, with tradability enhancing player ownership, not investment.

Attack Probability: Solana's PoS/PoH ensures negligible double-spending risk (<0.0001% with 33% validator collusion) [2].

Diagram: Supply flow (Gameplay → Minting → Player Wallet → In-Game Spending → Burning).



11. Security and Risk

Solana Network Risks and Mitigations: Solana has a history of network outages, with seven major incidents since 2020, primarily due to spam-induced congestion or client bugs, the last significant one in February 2024 lasting nearly 5 hours [web:0, web:2, web:3, web:6, web:7]. Validator centralization poses another risk, as Solana's pursuit of speed has led to potential collusion among a small number of validators, though the actual double-spend probability remains negligible (<0.0001% with 33% validator collusion) [web:4, web:8]. A 51% attack would require controlling a majority of staked SOL, which is deterred by the network's high staking requirements and economic penalties .

Mitigations include Solana's PoS staking model, where validators are incentivized to act honestly through slashing mechanisms, and ongoing upgrades (e.g., improved client software since 2024) that have reduced outage frequency [web:1, web:2]. The $MAA program uses compressed accounts and efficient on-chain storage to minimize reliance on network peaks [5]. In case of outages, minting and transfers may pause temporarily, but rewards are queued server-side for later on-chain processing, ensuring no loss for players.

Wallet Security and Platform Compliance: $MAA integrates with Solana wallets (e.g., Phantom, Solflare) via deep links and the Solana Mobile SDK, handling iOS and Android differences to ensure seamless, compliant experiences. On iOS, Universal Links are used to comply with App Store guidelines, avoiding direct crypto trading features and routing users to external wallets without in-app fiat conversion [4]. Android uses Intents for similar functionality, with both platforms supporting non-custodial wallets where players retain full control. This external approach prevents phishing risks by leveraging wallet providers' security (e.g., biometric authentication), and SkiTime does not store private keys.

For App Store compliance, wallet login is opt-in and limited to reward minting, with no in-app trading or speculative features [4]. Users are advised to use secure wallets and enable two-factor authentication to mitigate common risks like phishing or seed phrase exposure.

Legal and Regulatory Considerations: $MAA is a utility token for in-game rewards, not an investment vehicle, but regulatory landscapes, such as the U.S. SEC’s evolving views on utility tokens, pose risks [4]. The SEC may classify tokens as securities if marketed with profit expectations, though $MAA’s focus on gameplay utility (e.g., no fiat conversion, no speculative promotion) minimizes this risk. Potential regulatory changes, such as stricter token classifications by 2026, could impact tradability on centralized exchanges (CEXes). The Development Team will monitor developments and adjust via governance (e.g., multisig or DAO) to ensure compliance, such as implementing KYC for CEX listings if required [8].

For global privacy compliance, SkiTime adheres to GDPR (EU) and CCPA (California) by collecting no personal data, as outlined in its Privacy Policy [9]. Gameplay stats and high scores are stored locally on the player’s device, with optional Game Center sharing requiring explicit consent [4].

Disclaimer: $MAA is strictly a utility token for in-game rewards, not an investment. No in-app trading or fiat conversion is supported. Users assume all risks associated with blockchain technology, including network outages, wallet security, and regulatory changes. The Development Team is not liable for losses due to external factors.

12. Roadmap

The $MAA ecosystem aims to redefine mobile gaming rewards by creating a unified, decentralized token system across multiple games, starting with SkiTime. The following milestones outline the development, integration, and expansion of $MAA, ensuring scalability, player engagement, and economic balance.

Q4 2025: Token Launch and SkiTime Integration

- Deploy the $MAA token on Solana Mainnet (~0.6 SOL, ~$112) using the SPL Token-2022 program, pre-minting 250 million $MAA to a multisig wallet with 24-month vesting [3, 7, 5, 8].
- Integrate $MAA with SkiTime, enabling players to earn tokens (1 $MAA per 100 points: Survival Time + Coins Collected) via server-verified minting to Solana wallets (e.g., Phantom, Solflare).
- Develop in-game spending features, including cosmetics (e.g., skins) and consumables (e.g., shields, lives), with burns to reduce supply and 5% routed to the treasury wallet [1, 8].
- Facilitate community-funded $MAA/SOL liquidity pools on Solana DEXes (e.g., Raydium, Orca, Jupiter [6]) using no-code tools, with team-provided guides to support tradability.

2026: Bog Bounty Development and Initial Integration

- Advance development of Bog Bounty, a new mobile game in the $MAA ecosystem, designed to leverage the token for rewards and in-game purchases.
- Test $MAA integration with Bog Bounty on Solana Devnet, implementing a game-specific reward formula (e.g., based on levels completed or enemies defeated) balanced to align with SkiTime's 1 $MAA per 100 points to maintain ecosystem equity.
- Publish transparency reports on X or a community dashboard detailing the Development Team's 250M $MAA usage (e.g., for Bog Bounty development, marketing).

2026: Bog Bounty Launch and Ecosystem Expansion

- Launch Bog Bounty with full $MAA integration, enabling cross-game token transfers and shared rewards between SkiTime and Bog Bounty.
- Refine cross-game mechanics (e.g., wallet-based token portability) using the Solana Mobile SDK, ensuring seamless player experiences across platforms.

- Establish governance (e.g., multisig or DAO) to manage minting rates, reward formulas, and potential centralized exchange (CEX) listings, based on community demand and regulatory compliance [4, 7, 8].

2026 and Beyond: Partnerships and Scalability

- Seek partnerships with additional mobile game developers to adopt $MAA, expanding the ecosystem to 2-3 more games by Q4 2026. Each game will introduce tailored reward formulas, balanced via governance to prevent any game from dominating rewards.

- Monitor supply dynamics (minting vs. burns) via Solana Explorer, adjusting multipliers quarterly to maintain economic stability (e.g., targeting 20%+ burn rates for minted tokens).

- Explore CEX listings (e.g., Binance, Coinbase) if player demand grows, ensuring compliance with App Store guidelines as $MAA is a utility token for in-game rewards, not investment [4].

13. Conclusion

The Mobile Application Asset ($MAA) redefines mobile gaming by introducing a decentralized, transferable token that transcends individual games, fostering a unified ecosystem of persistent rewards. Built on Solana's high-throughput, low-cost infrastructure (~0.000005 SOL per transaction), $MAA empowers players with true ownership through secure, player-controlled wallets (e.g., Phantom, Solflare) and enables seamless cross-game utility, starting with SkiTime and expanding to *Bog Bounty* and future titles. Players earn $MAA through gameplay (e.g., 1 $MAA per 100 points in SkiTime), spend it on in-game cosmetics and consumables, and trade it on external Solana-based DEXes (e.g., Raydium, Orca, Jupiter), enhancing engagement and flexibility.

The $MAA ecosystem is designed for scalability and sustainability, with a 250 million $MAA treasury to fund development, marketing, and partnerships, while dynamic minting and burns (5% routed to the treasury) maintain economic balance. Governance via multisig [7] or a future DAO ensures equitable reward formulas across games, preventing any single title from dominating the ecosystem. SkiTime's privacy-first approach—no personal data collection, local stat storage, and optional Game Center integration—prioritizes user trust and complies with platform guidelines [4].

$MAA is strictly a utility token for in-game rewards, not an investment vehicle. No in-app trading or fiat conversion is supported, ensuring full compliance with App Store and other platform guidelines. By fostering innovation, player empowerment, and a vibrant cross-game economy, $MAA sets a new standard for mobile gaming rewards, with a clear roadmap to expand through *Bog Bounty* and beyond.

14. References

1. Solana Foundation, "Solana Documentation: Tokens," Solana, https://solana.com/docs/core/tokens, 2025.

2. Chainspect, "Solana Network Performance," Chainspect, https://chainspect.app, 2025.

3. CoinGecko, "Solana (SOL) Price Data," CoinGecko, https://www.coingecko.com/en/coins/solana, July 2025.

4. Apple Inc., "App Store Review Guidelines," Apple, https://developer.apple.com/app-store/review/guidelines/, 2025.

5. Solana Foundation, "Solana Compressed Accounts," Solana Blog, https://solana.com/news/compressed-accounts, 2024.

6. Raydium, "Raydium Protocol: Liquidity Pools," Raydium, https://raydium.io/docs, 2025.

7. Squads Protocol, "Multisig Wallet Setup for Solana," Squads, https://squads.so/docs, 2025.

8. Solana Mobile, "Solana Mobile SDK Documentation," Solana Mobile, https://solana-mobile.com/docs, 2025.

9. Cole Thomas, "SkiTime Privacy Policy," X (formerly Twitter), https://x.com/SkiTimeSupport/status/1771662080682144127, March 2024.