



Cyberscope

Audit Report

Cuphead

May 2024

Network SOL

Type SPL-Token

Address 7x4Hw9UQQD3NxjMVtVxZBZm3NukoMuB7GZ32gRMDYeu6

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Analysis

● Critical ● Medium ● Minor / Informative ● Pass

| Severity | Code | Description | Status |
|----------|------|---|--------|
| ● | ST | Stops Transactions | Passed |
| ● | OTUT | Transfers User's Tokens | Passed |
| ● | ELFM | Exceeds Fees Limit (Transfer Fee Authority) | Passed |
| ● | MT | Mints Tokens (Mint Authority) | Passed |
| ● | BT | Burns Tokens | Passed |
| ● | BC | Blacklists Addresses (Freeze Authority) | Passed |

Diagnostics

● Critical ● Medium ● Minor / Informative

| Severity | Code | Description | Status |
|----------|------|--------------------------|------------|
| ● | UA | Update Authority | Unresolved |
| ● | ITA | Initial Token Allocation | Unresolved |

Table of Contents

| | |
|--|-----------|
| Analysis | 1 |
| Diagnostics | 2 |
| Table of Contents | 2 |
| Review | 4 |
| Audit Updates | 4 |
| Overview | 5 |
| Metadata | 6 |
| Findings Breakdown | 9 |
| UA - Update Authority | 10 |
| Description | 10 |
| Recommendation | 10 |
| ITA - Initial Token Allocation | 11 |
| Description | 11 |
| Recommendation | 11 |
| MT - Mint Tokens (Mint Authority) | 12 |
| Description | 12 |
| BC - Blacklists Addresses (Freeze Authority) | 13 |
| Description | 13 |
| Summary | 14 |
| Disclaimer | 15 |
| About Cyberscope | 16 |

Review

| | |
|--------------------|---|
| Network | SOL |
| Explorer | https://solscan.io/token/7x4Hw9UQQD3NxjMVtVxZBZm3NukaMuB7GZ32gRMDYeu6 |
| Fixed Supply | 200,000,000.00 |
| Token Address | 7x4Hw9UQQD3NxjMVtVxZBZm3NukaMuB7GZ32gRMDYeu6 |
| Token name | Cuphead (SCUP) |
| Owner Program | Token Program |
| Decimals | 9 |
| Metadata File Type | JSON |
| Badge Eligibility | Yes |

Audit Updates

| | |
|---------------|-------------|
| Initial Audit | 10 May 2024 |
|---------------|-------------|

Overview

The `Cuphead` token symbolized as `SCUP`, is a distinguished SPL (Solana Program Library) token initialized using the `TokenkegQfeZyiNwAJbNbGKPFXCWuBvf9Ss623VQ5DA` Token Program on the Solana blockchain, with a supply of `200,000,000` tokens. The token uses the URL

<https://ipfs.io/ipfs/bafkreicimycfeym7alc5t4qzblcrscy5ajuzdfu4pdvnbddgyxcnmp46jm>,

which points to a decentralized storage service, while the image

<https://ipfs.io/ipfs/bafybeifssjrpz4ivoi67eadawvej6edcinglzelizmdwj4xf5j6vtppvgm> is used for visual identification of the token across platforms and marketplaces. Overall, the solana token is a distinct entity within the Solana network, identifiable by its unique characteristics as outlined in its metadata.

Metadata

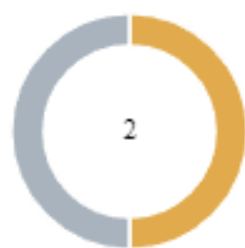
The Metaplex Metadata provides details of the characteristics of the `Cuphead` token, a distinctive digital asset on the Solana blockchain tailored for utilizing the Metaplex Metadata. This metadata includes crucial information necessary for the asset's seamless integration and operation within the Solana ecosystem. Specifically, the metadata was initiated by declaring the `Entjq9J88ZxcpSkyWw4jKowDWFpwxrqH1fTF6ZfWrhsr` as the update authority attribute, which points to the account authorized to modify the metadata. The mint attribute specified the account `7x4Hw9UQQD3NxjMVtVxZBZm3NukaMuB7GZ32gRMDYeu6` authorized for the initial token mint. The asset imposes `sellerFeeBasisPoints` of 0 basis points, indicating no transaction fee for trading is set. The metadata indicates that the asset has not yet undergone its primary sale as indicated by the `primarySaleHappened` value set to 0, and is marked as mutable since `isMutable` is 1, allowing for future changes to the metadata. The `editionNonce` of 253 signifies a unique edition, while the `tokenStandard` of 2, aligns with a specified token standard within the Solana blockchain, ensuring its compatibility and standardization across the network. This detailed metadata structure offers a comprehensive overview of the token's key features and its operational framework within the Metaplex ecosystem on Solana.

```
{
  "key": 4,
  "updateAuthority": "Entjq9J88ZxcpSkyWw4jKowDWFpwxrqH1fTF6ZfWrhsr",
  "mint": "7x4Hw9UQQD3NxjMVtVxZBZm3NukaMuB7GZ32gRMDYeu6",
  "data": {
    "name": "Cuphead",
    "symbol": "SCUP",
    "uri":
      "https://ipfs.io/ipfs/bafkreicimycfeym7alc5t4qzblcrscy5ajuzdfu4pdvnbddgyxcnmp46jm",
    "sellerFeeBasisPoints": 0
  },
  "primarySaleHappened": 0,
  "isMutable": 1,
  "editionNonce": 253,
  "tokenStandard": 2
}
```

| Field | Value | Description |
|----------------------|---|---|
| key | 4 | Account discriminator that identifies the type of metadata account |
| updateAuthority | Entjq9J88ZxcpSkyWw4jKow DWFpwxrqH1fTF6ZfWrhsr | The public key that is allowed to update this account |
| mint | 7x4Hw9UQQD3NxjMVtVxZB Zm3NukaMuB7GZ32gRMDY eu6 | The public key of the Mint Account it derives from |
| name | Cuphead | The on-chain name of the token |
| symbol | SCUP | The on-chain symbol of the token |
| uri | https://ipfs.io/ipfs/bafkreicimycfeym7alc5t4qzblcrscy5ajuzdfu4pdvnbddgyxcnmp46jm | The URI to the external metadata. This URI points to an off-chain JSON file that contains additional data following a certain standard |
| sellerFeeBasisPoints | 0 | The royalties shared by the creators in basis points — This field is used by most NFT marketplaces, it is not enforced by the Token Metadata program itself |
| primarySaleHappened | 0 | A boolean indicating if the token has already been sold at least once. Once flipped to True, it cannot ever be False again. This field can affect the way royalties are distributed |
| isMutable | 1 | A boolean indicating if the metadata account can be updated. Once |

| | | |
|---------------|-----|--|
| | | flipped to False, it cannot ever be True again |
| editionNonce | 253 | Unique identifier for this edition |
| tokenStandard | 2 | The standard of the token |

Findings Breakdown



| | |
|-----------------------|---|
| ● Critical | 0 |
| ● Medium | 1 |
| ● Minor / Informative | 1 |

| Severity | Unresolved | Acknowledged | Resolved | Other |
|-----------------------|------------|--------------|----------|-------|
| ● Critical | 0 | 0 | 0 | 0 |
| ● Medium | 1 | 0 | 0 | 0 |
| ● Minor / Informative | 1 | 0 | 0 | 0 |

UA - Update Authority

| | |
|--------------------|------------|
| Criticality | Medium |
| Status | Unresolved |

Description

The contract is currently configured in a manner that allows the update authority, identified by the address `Entjq9J88ZxcpSkyWw4jKowDWFpwxrqH1fTF6ZfWrhsr`, to retain privileges that enable the modification of crucial metadata fields. The failure to revoke the update authority leaves the token vulnerable to potential risks, as the designated address retains the capability to make changes to the metadata. This oversight could lead to unauthorized or malicious modifications that might compromise the integrity and intended functionality of the token.

Recommendation

It is recommended to revoke the update authority privileges. This action would ensure a consistent security posture across the contract's operational aspects, eliminating the discrepancy that currently allows for undue modification privileges. Implementing this recommendation would align the contract's security measures, providing a more robust defense against unauthorized changes and enhancing the overall security of the contract's operational environment.

ITA - Initial Token Allocation

| | |
|--------------------|---------------------|
| Criticality | Minor / Informative |
| Status | Unresolved |

Description

The token account `HUCxJPGAgTj1fWW36LGNgHC38keWXdkrtkEaWXwrwqVT` holds a large portion of the total supply. Consequently, at the time of the report, this address owns 100.00% of the entire token supply, amounting to 200,000,000 `SCUP`. This concentration of the entire token supply in some addresses raises significant concerns about centralization within the token's ecosystem. Such a scenario creates a risk of market manipulation and could lead to other adverse effects, potentially undermining the token's decentralized nature and the overall health of its ecosystem.

| Token Account | Quantity | Percentage |
|--|-------------|------------|
| HUCxJPGAgTj1fWW36LGNgHC38keWXdkrtkEaWXwrwqVT | 200,000,000 | 100.00% |

Recommendation

It is recommended to distribute the tokens more broadly to achieve a more decentralized token holding structure. This can mitigate the risks associated with centralization and ensure a more stable and secure ecosystem for all participants. If the new addresses consist of a team's wallet address, then the team should carefully manage the private keys of that account. We strongly recommend implementing a robust security mechanism to prevent a single user from accessing the contract admin functions, such as a multi-sign wallet so that many addresses will confirm the action.

MT - Mint Tokens (Mint Authority)

| | |
|--------------------|----------|
| Criticality | Passed |
| Status | Resolved |

Description

The token has a fixed supply of tokens, as the mint authority has been revoked, ensuring a stable and unchangeable total supply. This key characteristic enhances its value proposition within the ecosystem by eliminating the possibility of future inflation of the token value through additional minting. This creates a predictable environment for investors and users, contributing to a perception of increased trustworthiness and security. This decision aligns with the best practices aiming to preserve the token's integrity and value, fostering a more sustainable and confident market presence.

The information regarding the revoke transaction of the mint authority can be accessed through the following link:

<https://solscan.io/tx/2YYnJJotGMTCJQ8vNL7GsvyHMEvNoHr47G7Y4yXpo9S9phoKq6QNZ9jZ9Srvnoksci8M7mdkPTiF8LYLmaCK5Sf7>

BC - Blacklists Addresses (Freeze Authority)

| | |
|-------------|----------|
| Criticality | Passed |
| Status | Resolved |

Description

The freeze authority of the token has been revoked, permanently disabling the ability to freeze and thaw accounts. This action signals a definitive stance on account management within the token's ecosystem, emphasizing the permanence of account statuses. Removing the possibility of altering account states, establishes a more secure environment for token holders, reinforcing the network's commitment to stability and reliability. This decision reflects adherence to best security practices, aiming to solidify investor confidence and enhance the token's value by ensuring consistent operational integrity.

The information regarding the revoke transaction of the freeze authority can be accessed through the following link:

<https://solscan.io/tx/57Co2268K5JjGNfAVxyhzNx8agnGQQiwn31vNLQJt9D4jb28xMxZ9ASBB4efNcyEtySDktwYcvZR1XbYhv8bm5kZ>

Summary

The Cuphead token, built on the Solana network, leverages a solid architecture initiated via the Token program. This audit rigorously evaluates its performance, security, and compliance with best practices. The investigation aims to identify and address any operational vulnerabilities, performance bottlenecks, and areas for optimization, ensuring the token's robustness and reliability in the Solana ecosystem.

The token program analysis reported that the update authority privileges have not yet been revoked. This means that the token's metadata, including essential attributes like the token's name, symbol, description, and image, remains vulnerable to modification.

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About Cyberscope

Cyberscope is a blockchain cybersecurity company that was founded with the vision to make web3.0 a safer place for investors and developers. Since its launch, it has worked with thousands of projects and is estimated to have secured tens of millions of investors' funds.

Cyberscope is one of the leading smart contract audit firms in the crypto space and has built a high-profile network of clients and partners.



The Cyberscope team

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