



Smart Contract Security Audit Report

KazooCoin

November 2022

Security Status



www.hacksafe.io



Audit Details



Audited project

KazooCoin



Deployer address

0xc791f7349327bc263e6a01f494127a7ad67533a8



Client contacts

KazooCoin Team



Blockchain

Binance smart chain



Website

Not provided

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

Procedure

Step 1 - In-Depth Manual Review

Manual line-by-line code reviews to ensure the logic behind each function is sound and safe from various attack vectors. This is the most important and lengthy portion of the audit process (as automated tools often cannot find the nuances that lead to exploits such as flash loan attacks).

Step 2 - Automated Testing

Simulation of a variety of interactions with your Smart Contract on a test blockchain leveraging a combination of automated test tools and manual testing to determine if any security vulnerabilities exist.

Step 3 – Leadership Review

The engineers assigned to the audit will schedule meetings with our leadership team to review the contracts, any comments or findings, and ask questions to further apply adversarial thinking to discuss less common attack vectors.

Step 4 - Resolution of Issues

Consulting with the team to provide our recommendations to ensure the code's security and optimize its gas efficiency, if possible. We assist project team's in resolving any outstanding issues or implementing our recommendations.

Step 5 - Published Audit Report

Boiling down results and findings into an easy-to-read report tailored to the project. Our audit reports highlight resolved issues and any risks that exist to the project or its users, along with any remaining suggested remediation measures. Diagrams are included at the end of each report to help users understand the interactions which occur within the project.

Background

HackSafe was commissioned by KazooCoin to perform an audit of smart contracts:

- <https://bscscan.com/token/0xe13Ea90ce173e1118042A8f6A21D0D0A14aA6b1B#code>

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be understood to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

Contract Details

Token contract details for 28.11.2022

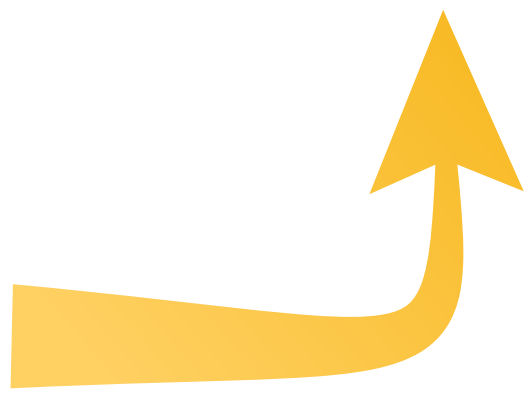
| | |
|---------------------------|--|
| Token Type | : UTILITY |
| Contract name | : KazooCoin |
| Contract address | : 0xe13Ea90ce173e1118042A8f6A21D0D0A14aA6b1B |
| Total supply | : 1,000,000,000,000,000 |
| Token ticker | : KAZOO |
| Decimals | : 9 |
| Token Holders | : 2,573 |
| Transactions count | : 13,063 |
| Compiler version | : v0.6.12+commit.27d51765 |
| Contract deployer address | : 0xc791f7349327bc263e6a01f494127a7ad67533a8 |
| Owner address | : 0x00 |

Audit Summary

According to the standard audit assessment, Customer`s solidity smart contracts are **“Secure”**. This token contract does not contain owner control, which do make it fully decentralized as owner does not have control over smart contract as contract ownership has been renounced.

| Insecure | Poor secured | Secure | Well-secured |
|----------|--------------|--------|--------------|
|----------|--------------|--------|--------------|

You are here



We used various tools like Slither, Mythril and Remix IDE. At the same time this finding is based on critical analysis of the manual audit. All issues found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the issues checking status.

We found 0 critical, 0 high, 1 medium and 1 low.

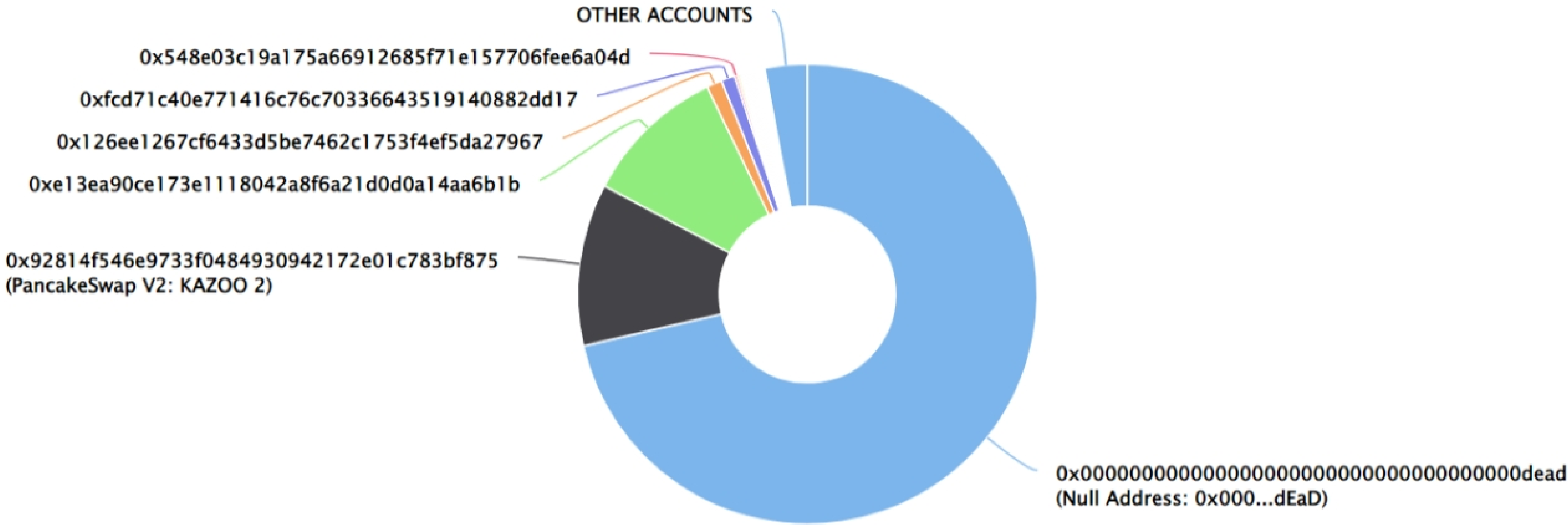
KazooCoin Distribution

💡 The top 100 holders collectively own 97.04% (970,401,409,335,036.00 Tokens) of KazooCoin

💡 Token Total Supply: 1,000,000,000,000,000.00 Token | Total Token Holders: 2,573





KazooCoin Top 100 Token Holders

Source: BscScan.com



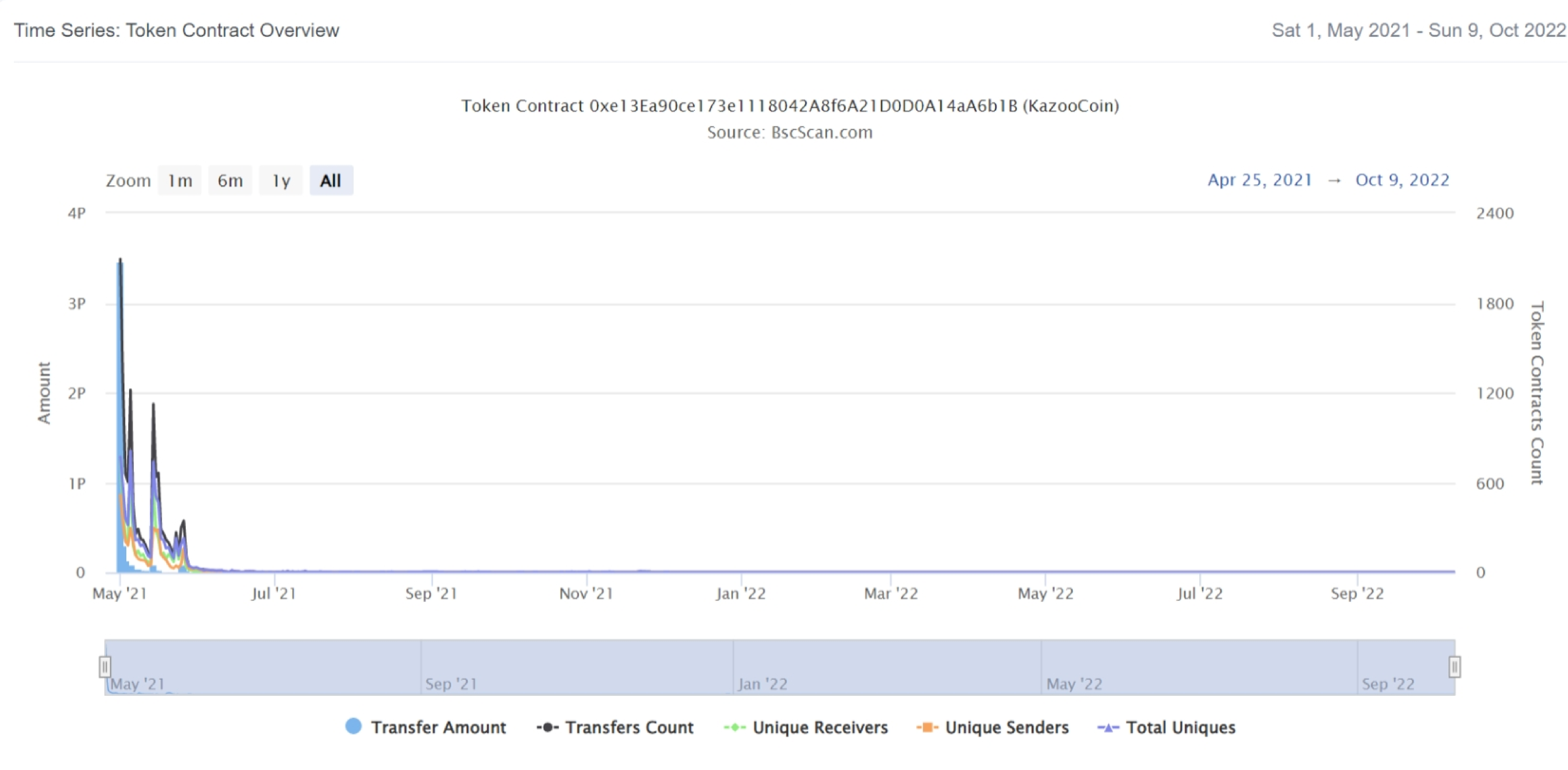
KazooCoin Top 20 Token Holders

(A total of 970,401,409,335,036.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000,000.00 token)

| Rank | Address | Quantity (Token) | Percentage |
|------|--|-------------------------------|------------|
| 1 | Null Address: 0x000...dEaD | 713,893,205,158,017.600972196 | 71.3893% |
| 2 |  PancakeSwap V2: KAZOO 2 | 114,089,257,607,352.877314686 | 11.4089% |
| 3 |  0xe13ea90ce173e1118042a8f6a21d0d0a14aa6b1b | 100,394,648,826,028.374847911 | 10.0395% |
| 4 | 0x126ee1267cf6433d5be7462c1753f4ef5da27967 | 10,756,471,447,257.326096647 | 1.0756% |
| 5 | 0xfcd71c40e771416c76c70336643519140882dd17 | 9,520,065,132,950.922551971 | 0.9520% |
| 6 | 0x548e03c19a175a66912685f71e157706fee6a04d | 2,000,235,785,689.108897322 | 0.2000% |
| 7 | 0xfe949671173fae0e891afcb0e8e126469790732a | 1,678,421,759,648.962883688 | 0.1678% |
| 8 |  0x2d045410f002a95efcee67759a92518fa3fce677 | 1,489,555,654,636.244084307 | 0.1490% |
| 9 |  0xc105a855e622767669cab49e5bb07571382c0024 | 1,081,049,552,385.38836272 | 0.1081% |
| 10 | 0x1a0d884d19e4d4d26ba78556a9d1f162860c6c2a | 810,036,451,640.323814572 | 0.0810% |
| 11 | 0x2c4eab78d3081d54e75f4f82c0ea1ff627618e8e | 657,219,841,232.532277739 | 0.0657% |
| 12 | 0xc6ffea6baaaec3783637c60176e9ee050bf5c097 | 651,707,697,148.54419355 | 0.0652% |
| 13 | 0xc9316cfa73cd4890182e379df847f0bded06ed8 | 638,743,665,499.5984205 | 0.0639% |
| 14 | 0xffff5ad9d95b8098947140109dcc5ea042d537eab | 627,918,324,320.863549156 | 0.0628% |
| 15 | 0x787b78dd1485b24d9714bd635cc915bcfd7e2673 | 508,920,174,819.208582523 | 0.0509% |
| 16 | 0xd2fa9a850843e5b9a6081fad72ef016c8eaf9d4a | 485,447,450,365.741123934 | 0.0485% |
| 17 | 0x79639b8c55c01079af4a13d91787e1903ed5792f | 412,890,713,503.436349498 | 0.0413% |
| 18 | 0x026fd650145445cc21c8d9bae33524074eb1d37e | 404,727,073,528.811938132 | 0.0405% |
| 19 | 0xb811d17a220468463337d4e803ce8c333fa4a1a7 | 398,684,999,718.307315029 | 0.0399% |
| 20 | 0x1626c0b878a57a02cc524fd8d9d6588f1c0be2dc | 349,881,398,750.103257873 | 0.0350% |

KazooCoin Distribution

KazooCoin Contract Overview



Contract functions details

+ [Int] IERC20

- [Ext] totalSupply
- [Ext] balanceOf
- [Ext] transfer
- [Ext] allowance
- [Ext] approve
- [Ext] transferFrom

+ [Lib] SafeMath

- [Int] add
- [Int] sub
- [Int] sub
- [Int] mul
- [Int] div
- [Int] div
- [Int] mod
- [Int] mod

+ Context

- [Int] _msgSender
- [Int] _msgData

+ [Lib] Address

- [Int] isContract
- [Int] sendValue
- [Int] functionCall
- [Int] functionCall
- [Int] functionCallWithValue
- [Int] functionCallWithValue

+ Ownable (Context)

- [Int] <constructor>
- [Pub] owner
- [Pub] renounceOwnership #
 - modifiers: onlyOwner
- [Pub] transferOwnership #
 - modifiers: onlyOwner
- [Pub] geUnlockTime
- [Pub] lock #
 - modifiers: onlyOwner

Contract functions details

- [Pub] unlock
- +[Int] IUniswapV2Factory
 - [Ext] feeTo
 - [Ext] feeToSetter
 - [Ext] getPair
 - [Ext] allPairs
 - [Ext] allPairsLength
 - [Ext] createPair
 - [Ext] setFeeTo
 - [Ext] setFeeToSetter
- +[Int] IUniswapV2Pair
 - [Ext] name
 - [Ext] symbol
 - [Ext] decimals
 - [Ext] totalSupply
 - [Ext] balanceOf
 - [Ext] allowance
 - [Ext] approve #
 - [Ext] transfer #
 - [Ext] transferFrom #
 - [Ext] DOMAIN_SEPARATOR
 - [Ext] PERMIT_TYPEHASH
 - [Ext] nonces
 - [Ext] permit
 - [Ext] MINIMUM_LIQUIDITY
 - [Ext] factory
 - [Ext] token0
 - [Ext] token1
 - [Ext] getReserves
 - [Ext] price0CumulativeLast
 - [Ext] price1CumulativeLast
 - [Ext] kLast
 - [Ext] mint #
 - [Ext] burn #
 - [Ext] swap #
 - [Ext] skim #
 - [Ext] sync #

Contract functions details

-[Ext] initialize #

+ [Int] IUniswapV2Router01

-[Ext] factory

-[Ext] WETH

-[Ext] addLiquidity #

-[Ext] addLiquidityETH (\$)

-[Ext] removeLiquidity #

-[Ext] removeLiquidityETH #

-[Ext] removeLiquidityWithPermit #

-[Ext] removeLiquidityETHWithPermit #

-[Ext] swapExactTokensForTokens #

-[Ext] swapTokensForExactTokens #

-[Ext] swapExactETHForTokens (\$)

-[Ext] swapTokensForExactETH #

-[Ext] swapExactTokensForETH #

-[Ext] swapETHForExactTokens (\$)

-[Ext] quote

-[Ext] getAmountOut

-[Ext] getAmountIn

-[Ext] getAmountsOut

-[Ext] getAmountsIn

+ [Int] IUniswapV2Router02 (IUniswapV2Router01)

-[Ext] removeLiquidityETHSupportingFeeOnTransferTokens #

-[Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens #

-[Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens #

-[Ext] swapExactETHForTokensSupportingFeeOnTransferTokens (\$)

-[Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #

+KazooCoin (Context, IERC20, Ownable)

-[Pub] <constructor> #

-[Pub] name

-[Pub] symbol

-[Pub] decimals

-[Pub] totalSupply

-[Pub] balanceOf

-[Pub] transfer #

-[Pub] allowance

Contract functions details

- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Pub] isExcludedFromReward
- [Pub] totalFees
- [Pub] deliver #
- [Pub] reflectionFromToken
- [Pub] tokenFromReflection
- [Pub] excludeFromReward #
 - modifiers: onlyOwner
- [Ext] includeInReward #
 - modifiers: onlyOwner
- [Pvt] _transferBothExcluded #
- [Pub] excludeFromFee #
 - modifiers: onlyOwner
- [Pub] includeInFee #
 - modifiers: onlyOwner
- [Ext] setTaxFeePercent #
 - modifiers: onlyOwner
- [Ext] setLiquidityFeePercent #
 - modifiers: onlyOwner
- [Ext] setMaxTxPercent #
 - modifiers: onlyOwner
- [Pub] setSwapAndLiquifyEnabled #
 - modifiers: onlyOwner
- [Ext] <Fallback> (\$)
- [Pvt] _reflectFee #
- [Pvt] _getValues
- [Pvt] _getTValues
- [Pvt] _getRValues
- [Pvt] _getRate
- [Pvt] _getCurrentSupply
- [Pvt] _takeLiquidity #
- [Pvt] calculateTaxFee
- [Pvt] calculateLiquidityFee
- [Pvt] removeAllFee #
- [Pvt] restoreAllFee #

Contract functions details

- [Pub] isExcludedFromFee
- [Pvt] _approve #
- [Pvt] _transfer #
- [Pvt] swapAndLiquify #
 - modifiers: lockTheSwap
- [Pvt] swapTokensForEth #
- [Pvt] addLiquidity #
- [Pvt] _tokenTransfer #
- [Pvt] _transferStandard #
- [Pvt] _transferToExcluded #
- [Pvt] _transferToExcluded #

(\$) = payable function

= non-constant function

Issues Checking Status

| No. | Title | Status |
|-----|---|--------------|
| 1. | Unlocked Compiler Version | Passed |
| 2. | Missing Input Validation | Passed |
| 3. | Race conditions and Reentrancy. Cross-function race conditions. | Passed |
| 4. | Possible delays in data delivery | Passed |
| 5. | Oracle calls. | Passed |
| 6. | Timestamp dependence. | Passed |
| 7. | Integer Overflow and Underflow | Passed |
| 8. | DoS with Revert. | Passed |
| 9. | DoS with block gas limit. | Medium issue |
| 10. | Methods execution permissions. | Passed |
| 11. | Economy model of the contract. | Passed |
| 12. | Private use data leaks. | Passed |
| 13. | Malicious Event log. | Passed |
| 14. | Scoping and Declarations. | Passed |
| 15. | Uninitialized storage pointers. | Passed |
| 16. | Arithmetic accuracy. | Passed |
| 17. | Design Logic. | Passed |
| 18. | Safe Open Zeppelin contracts implementation and usage. | Passed |
| 19. | Incorrect Naming State Variable | Passed |
| 20. | Too old version | Low issue |

Severity Definitions

| Risk Level | Description |
|------------|---|
| Critical | Critical vulnerabilities are usually straightforward to exploit and can lead to assets loss or data manipulations. |
| High | High-level vulnerabilities are difficult to exploit; however, they also have a significant impact on smart contract execution, e.g., public access to crucial functions |
| Medium | Medium-level vulnerabilities are important to fix; however, they can't lead to assets loss or data manipulations. |
| Low | Low-level vulnerabilities are mostly related to outdated, unused, etc. code snippets that can't have a significant impact on execution. |

Security Issues

✔ Critical Severity Issues

No critical severity issue found.

✔ High Severity Issues

No high severity issue found.

✔ Medium Severity Issues

One medium severity issue found.

1. Out of gas limit

• Description

The function `includeInReward()` uses the loop to find and remove addresses from the `_excluded` list. Function will be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.

The function `_getCurrentSupply` also uses the loop for evaluating total supply. It also could be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.

• Recommendation

Use `EnumerableSet` instead of array or do not use long arrays.

✔ Low Severity Issues

One low severity issue found.

1. Old compiler version

• Description

Contract has been deployed using too old solidity version.

• Recommendation

It is advisable to deploy contract using any of the latest version of solidity

Centralization

Owner Privileges :

- KazooCoin Contract:
 - Owner can renounce and transfer ownership.
 - Owner can exclude and include account from reward.
 - Owner can exclude and include account from fee.
 - Owner can set tax fee percentage.
 - Owner can set liquidity fee percentage.
 - Owner can lock

This smart contract has some functions which can be executed by the admin (Owner) only. If the admin wallet private key would be compromised, then it would create trouble as smart contract ownership has not been renounced. Following are Admin functions:

- `excludeFromReward`
- `includeInReward`
- `excludeFromFee`
- `includeInFee`
- `setTaxFeePercent`
- `setLiquidityFeePercent`
- `setMaxTxPercent`
- `setSwapAndLiquifyEnabled`
- `lock`

Conclusion

Smart contract contains low and medium severity issues! The further transfer and operations with the fund raised are not related to this particular contract.

HackSafe note: Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.