

Smart Contract Security Audit Report

Metano

April 2023

Security Status



www.hacksafe.io

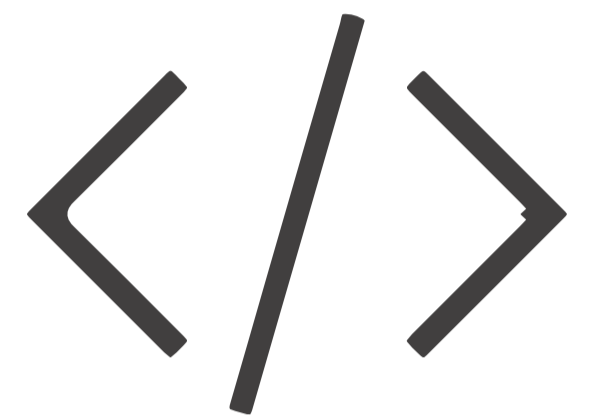


Audit Details



Audited project

Metano



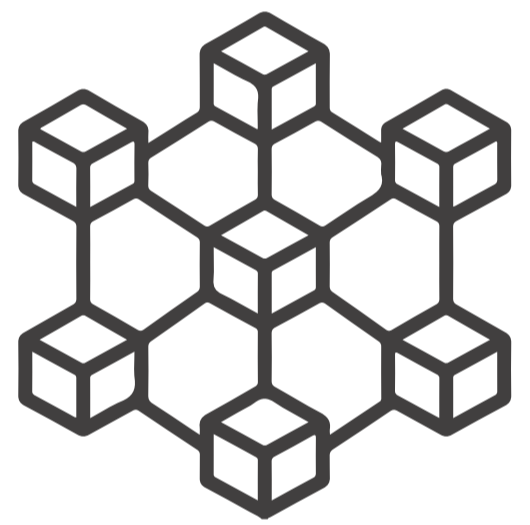
Deployer address

0xbaed1a9492b6d3ca8afdfcd48551d23956eebdb6



Client contacts

Metano tram



Blockchain

Ethereum



Website

<https://metano.org/>

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 Metano to perform an audit of smart contracts:

- <https://etherscan.io/address/0x9D9e399e5385e2b9A58d4F775A1E16441b571afb#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 01.04.2023

Type	: NFT
Contract name	: Metano
Contract address	: 0x9D9e399e5385e2b9A58d4F775A1E16441b571afb
Total supply	: 10,000,000,000
Token Ticker	: METANO
Decimals	: 18
Token Holders	: 595
Top 100 token holder's dominance	: 91.36%
Transactions count	: 5,754
Compiler version	: v0.8.7+commit.e28d00a7
Contract deployer address	: 0xbaed1a9492b6d3ca8afdfcd48551d23956eebdb6
Owner address	: 0xbaed1a9492b6d3ca8afdfcd48551d23956eebdb6

Social profiles

Twitter Profile : <https://twitter.com/Metanotoken>

Whitepaper link : <https://metano.org/whitepaper.pdf>

Telegram Profile : <https://t.me/metanogroup>

Coinmarketcap Profile : <https://coinmarketcap.com/currencies/metano-foundations-token/>

Coingecko Profile : <https://www.coingecko.com/en/coins/metano>

Claimed Smart Contract Features

Claimed Feature Detail	Our Observation
<p>Tokenomics :</p> <ul style="list-style-type: none">• Name : Metano• Symbol : METANO• Decimals : 18• Protocol : ERC20• Total supply : 10,000,000,000• Contract address : 0x9D9e399e5385e2b9A58d4F775A1E16441b571afb	YES, this is valid.

Audit Summary

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

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 1 critical, 0 high, 0 medium and 0 low and some very low-level issues. These issues are not critical ones.

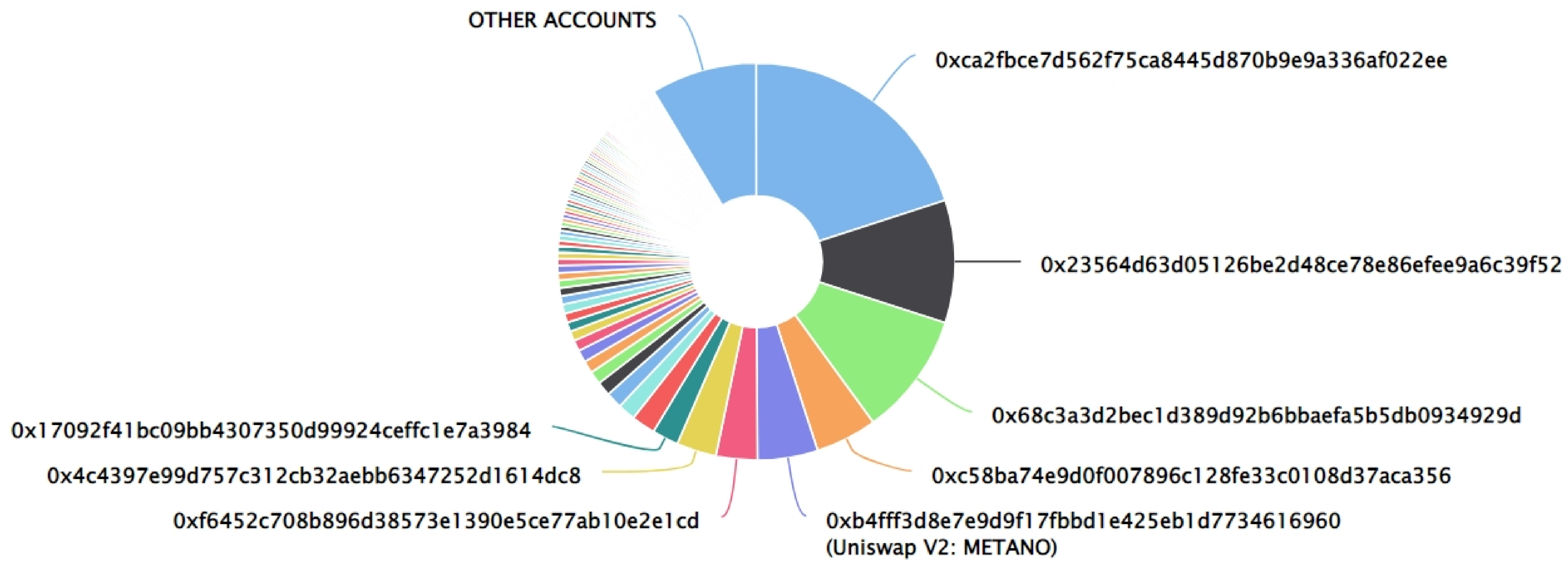
Metano Token Token Distribution

The top 100 holders collectively own 91.36% (9,136,230,391.62 Tokens) of METANO

Token Total Supply: 10,000,000,000.00 Token | Total Token Holders: 595

METANO Top 100 Token Holders

Source: Etherscan.io



Metano Token Token Top 20 Token Holders

(A total of 9,136,230,391.62 tokens held by the top 100 accounts from the total supply of 10,000,000,000.00 token)

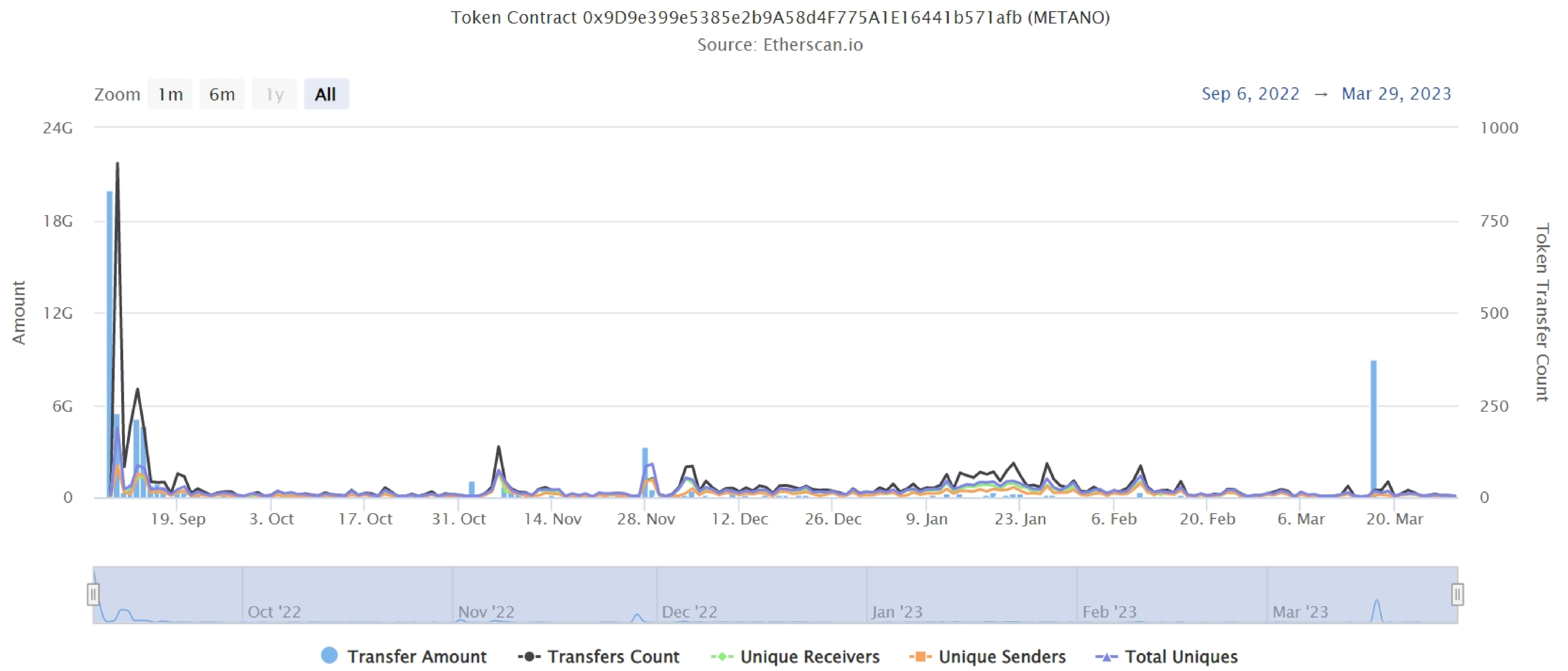
Rank	Address	Quantity (Token)	Percentage
1	0xcA2fbc...6Af022eE	2,000,000,000	20.0000%
2	0x23564D...A6c39f52	1,000,000,000	10.0000%
3	0x68C3a3...0934929d	1,000,000,000	10.0000%
4	0xc58bA7...37acA356	500,038,394.807814383335696264	5.0004%
5	Uniswap V2: METANO	490,885,332.670850847680712653	4.9089%
6	0xf6452c...10e2e1cD	337,150,229.24256150930460616	3.3715%
7	0x4c4397...D1614Dc8	324,254,867.240433845390556382	3.2425%
8	0x17092F...1e7A3984	215,636,156.020921955970252674	2.1564%
9	0x7d8C6C...33D0Ac31	193,478,315.110163702624946005	1.9348%
10	0xa1F550...34b67A4C	143,580,008.423437029388053884	1.4358%
11	0xb2Bd00...483E93c8	132,976,746.643086656536279169	1.3298%
12	0xF71AfE...3A9413d5	116,124,015.924736550060471842	1.1612%
13	0x7501E3...6d19eB00	106,471,445.048641336738949921	1.0647%
14	0x348284...09EC8f27	100,373,156.319065959177952054	1.0037%
15	0x02EebB...777CeD5b	100,132,608.459855042917554419	1.0013%
16	0x25Fdf7...9FC2942f	89,136,900.234441112731758809	0.8914%
17	0xa5b3F1...f277a851	77,928,246.306145548874515278	0.7793%
18	BitMart 3	75,362,031.884140079906961002	0.7536%
19	0xc7636b...2b452493	75,310,769.786815323347419261	0.7531%
20	0x310E10...FB228daD	74,168,347.60358764853535263	0.7417%

Metano Token Token Distribution

Metano Token Contract Overview

Time Series: Token Contract Overview

Fri 9, Sept 2022 - Wed 29, Mar 2023



Contract functions details

+**[Lib]** Counters

- [Int]** current
- [Int]** increment #
- [Int]** decrement #
- [Int]** reset #

+**[Lib]** Math

- [Int]** max
- [Int]** min
- [Int]** average
- [Int]** ceilDiv
- [Int]** mulDiv
- [Int]** mulDiv
- [Int]** sqrt
- [Int]** sqrt

+**[Lib]** Arrays

- [Int]** findUpperBound

+**[Int]** IERC20

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

+Context

- [Int]** _msgSender
- [Int]** _msgData

+Ownable (Context)

- [Pub]** <Constructor> #
- [Pub]** owner
- [Pub]** renounceOwnership #
 - modifiers: onlyOwner
- [Pub]** transferOwnership #
 - modifiers: onlyOwner
- [Int]** _transferOwnership #

Contract functions details

+ERC20 (Context, IERC20)

- [Pub] <Constructor> #
- [Pub] name
- [Pub] symbol
- [Pub] decimals
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] allowance
- [Pub] approve #
- [Pub] transfer #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Int] _transfer #
- [Int] _mint #
- [Int] _burn #
- [Int] _approve #
- [Int] _beforeTokenTransfer #

+ERC20Snapshot (ERC20)

- [Int] _snapshot #
- [Int] _getCurrentSnapshotId
- [Pub] balanceOfAt
- [Pub] totalSupplyAt
- [Int] _beforeTokenTransfer #
- [Pvt] _valueAt
- [Pvt] _updateAccountSnapshot #
- [Pvt] _updateTotalSupplySnapshot #
- [Pvt] _updateSnapshot #
- [Pvt] _lastSnapshotId

+Metano (ERC20Snapshot, Ownable)

- [Pub] <Constructor> #
 - modifiers: ERC20
- [Pub] transfer #
- [Ext] updateOperator #
- [Ext] mint #
- [Pub] totalSupply
- [Ext] burn #

Contract functions details

-[Ext] enableFairLaunch #

- modifiers: onlyOwner

-[Pub] endFairLaunchEvent #

(\$) = payable function

= non-constant function

Issues Checking Status

No.	Title	Status
1.	Compiler error	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.	Passed
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.	Critical Issue
18.	Safe Open Zeppelin contracts implementation and usage.	Passed
19.	Incorrect Naming State Variable	Passed
20.	Too old version	Passed

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

1 critical severity issue found.

1. Abuse of authority

Issue:

Operator can call burn function and burn users' tokens without any allowance.

Recommendation

Do not allow anybody to interact with users' balances.

✔ High Severity Issues

No high severity issue found.

✔ Medium Severity Issues

No Medium severity issues found.

✔ Low Severity Issues

No low severity issue found.

Centralization

Owner privileges (In the period when the owner is not renounced) :

- Metano Contract:
 - Owner can enable fair launch.
 - Operator can change operator.
 - Operator can mint token amounts according to max supply

Conclusion

Smart contract contains one critical issue! Liquidity pair contract's security is not checked due to out of scope. The further transfers and operations with the funds raise 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.