QuillAudits

Audit Report
October, 2023

For

metria

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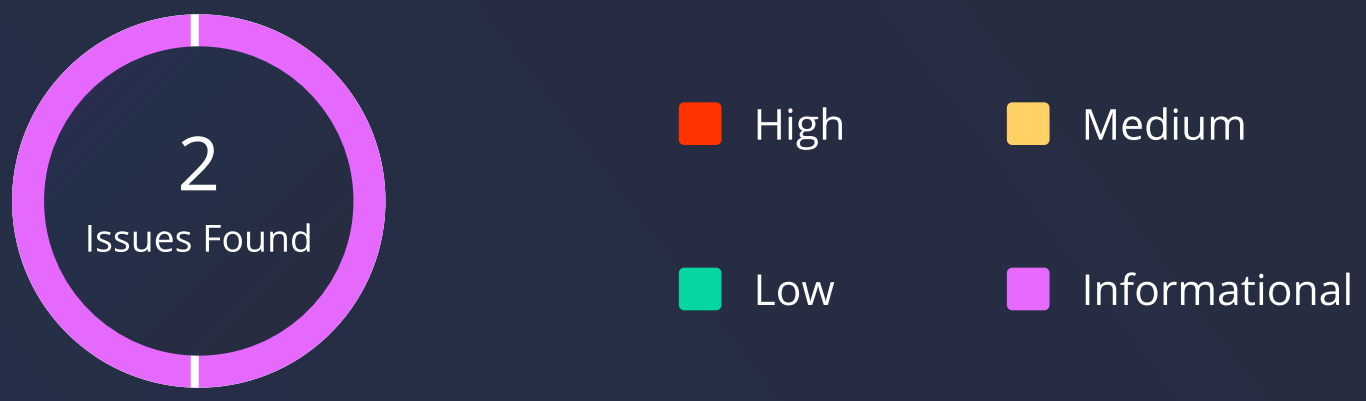
Executive Summary

Project Name	Metria
Project URL	*https://metrianetwork.io/*
Overview	Metria Network is a project that has embarked on a mission to create a multichain ecosystem that enables seamless transfer of value and assets across multiple block- chains.
Audit Scope	*https://docs.google.com/document/d/1pkP2nT14q65Y2YilB_upRSOfDd2N21f7IWnAUMNTTYg/edit*
Contracts in Scope	TokenLock.sol
Commit Hash	NA
Language	Solidity
Blockchain	Ethereum
Method	Manual Analysis, Functional Testing and Automated Tests.
Review 1	18th September 2023 - 2nd October 2023
Updated Code Received	5th October 2023
Review 2	6th October 2023
Fixed In	*https://etherscan.io/address/0x957623f948f096810bbe54b3ae007d6b91d5ad19#code*

Number of Security Issues per Severity



	High	Medium	Low	Informational
Open Issues	0	0	0	0
Acknowledged Issues	0	0	0	0
Partially Resolved Issues	0	0	0	0
Resolved Issues	0	0	0	2

Checked Vulnerabilities

- Access Management
- Arbitrary write to storage for
- Centralization of control
- Ether theft
- Improper or missing events
- Logical issues and flaws
- Arithmetic Correctness
- Race conditions/front running
- SWC Registry
- Re-entrancy
- Timestamp Dependence
- Gas Limit and Loops
- Exception Disorder
- Gasless Send
- Use of tx.origin
- Malicious libraries
- Compiler version not fixed
- Address hardcoded
- Divide before multiply
- Integer overflow/underflow
- ERC's conformance
- Dangerous strict equalities
- Tautology or contradiction
- Return values of low-level calls
- Missing Zero Address Validation
- Private modifier
- Revert/require functions
- Multiple Sends
- Using suicide
- Using delegatecall
- Upgradeable safety
- Using throw

Checked Vulnerabilities

- Using inline assembly
- Style guide violation
- Unsafe type inference
- Implicit visibility level

Techniques and Methods

Throughout the audit of smart contracts, care was taken to ensure:

- The overall quality of code.
- Use of best practices.
- Code documentation and comments, match logic and expected behaviour.
- Token distribution and calculations are as per the intended behaviour mentioned in the whitepaper.
- Implementation of ERC standards.
- Efficient use of gas.
- Code is safe from re-entrancy and other vulnerabilities.

The following techniques, methods, and tools were used to review all the smart contracts.

Structural Analysis

In this step, we have analysed the design patterns and structure of smart contracts. A thorough check was done to ensure the smart contract is structured in a way that will not result in future problems.

Static Analysis

A static Analysis of Smart Contracts was done to identify contract vulnerabilities. In this step, a series of automated tools are used to test the security of smart contracts.

Code Review / Manual Analysis

Manual Analysis or review of code was done to identify new vulnerabilities or verify the vulnerabilities found during the static analysis. Contracts were completely manually analyzed, their logic was checked and compared with the one described in the whitepaper. Besides, the results of the automated analysis were manually verified.

Gas Consumption

In this step, we have checked the behavior of smart contracts in production. Checks were done to know how much gas gets consumed and the possibilities of optimization of code to reduce gas consumption.

Tools and Platforms used for Audit

Remix IDE, Truffle, Solhint, Mythril, Slither, Solidity Statistic Analysis.

Types of Severity

Every issue in this report has been assigned to a severity level. There are four levels of severity, and each of them has been explained below.

High Severity Issues

A high severity issue or vulnerability means that your smart contract can be exploited. Issues on this level are critical to the smart contract's performance or functionality, and we recommend these issues be fixed before moving to a live environment.

Medium Severity Issues

The issues marked as medium severity usually arise because of errors and deficiencies in the smart contract code. Issues on this level could potentially bring problems, and they should still be fixed.

Low Severity Issues

Low-level severity issues can cause minor impact and are just warnings that can remain unfixed for now. It would be better to fix these issues at some point in the future.

Informational

These are four severity issues that indicate an improvement request, a general question, a cosmetic or documentation error, or a request for information. There is low-to-no impact.

Types of Issues

Open

Security vulnerabilities identified that must be resolved and are currently unresolved.

Resolved

These are the issues identified in the initial audit and have been successfully fixed.

Acknowledged

Vulnerabilities which have been acknowledged but are yet to be resolved.

Partially Resolved

Considerable efforts have been invested to reduce the risk/impact of the security issue, but are not completely resolved.

Note: It is assumed that the tokens to be locked will be sent only once to the TokenLock contract.

A. Contract - TokenLock

High Severity Issues

No issues were found.

Medium Severity Issues

No issues were found.

Low Severity Issues

No issues were found.

Informational Issues

A.1 No beneficiary address changing functionality

Description

Beneficiary address might get hacked or inaccessible which will lead to permanent asset loss.

Recommendation

To avoid this beneficiary changing functionality is recommended.

Status

Resolved

A.2 Use safeTransfer instead of transfer

Line

23

Function - claim

```
function claim(address _tokenAddr, uint _amount) public onlyOwner {
    require(isUnlocked(), "Cannot transfer tokens while locked.");
    IERC20(_tokenAddr).transfer(beneficiary, _amount);
}
```

Description

Using safeTransfer instead of transfer for transferring ERC-20 tokens in the context of Ethereum smart contracts is a safety precaution to prevent potential issues with token transfers.

Recommendation

Use SafeERC20 to transfer tokens to beneficiary.

Status

Resolved

Functional Tests

Some of the tests performed are mentioned below:

- Cannot transfer tokens before lock time
- Successful transfer after lock time is over
- Only owner can transfer tokens

Automated Tests

No issues were found.

Closing Summary

In this report, we have considered the security of the Metria. We performed our audit according to the procedure described above.

Some Informational issues were found. Some suggestions and best practices are also provided in order to improve the code quality and security posture.

Disclaimer

QuillAudits Smart contract security audit provides services to help identify and mitigate potential security risks in Metria smart contracts. However, it is important to understand that no security audit can guarantee complete protection against all possible security threats. QuillAudits audit reports are based on the information provided to us at the time of the audit, and we cannot guarantee the accuracy or completeness of this information. Additionally, the security landscape is constantly evolving, and new security threats may emerge after the audit has been completed.

Therefore, it is recommended that multiple audits and bug bounty programs be conducted to ensure the ongoing security of Metria smart contracts. One audit is not enough to guarantee complete protection against all possible security threats. It is important to implement proper risk management strategies and stay vigilant in monitoring your smart contracts for potential security risks.

QuillAudits cannot be held liable for any security breaches or losses that may occur subsequent to and despite using our audit services.. It is the responsibility of the Metria to implement the recommendations provided in our audit reports and to take appropriate steps to mitigate potential security risks.

About QuillAudits

QuillAudits is a secure smart contracts audit platform designed by QuillHash Technologies. We are a team of dedicated blockchain security experts and smart contract auditors determined to ensure that Smart Contract-based Web3 projects can avail the latest and best security solutions to operate in a trustworthy and risk-free ecosystem.

850+
Audits Completed

$30B
Secured

$30B
Lines of Code Audited

Follow Our Journey

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QuillAudits

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