



Smart Contract Security Audit Report

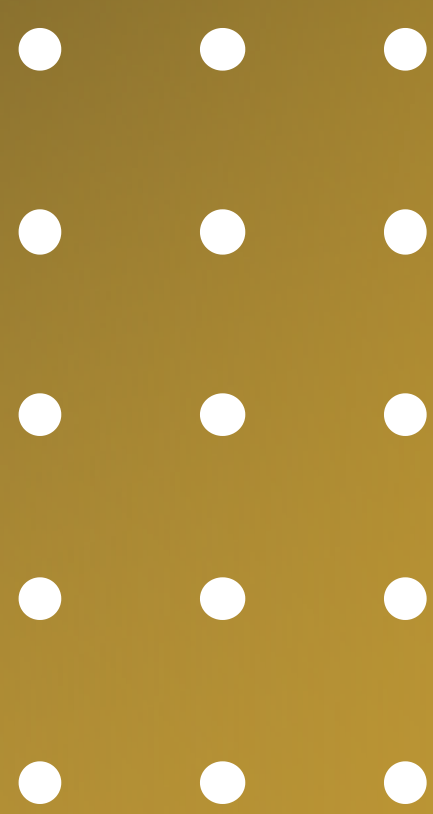
Multichain

August 2022

Security Status



www.hacksafe.io



Audit Details



Audited project

Multichain



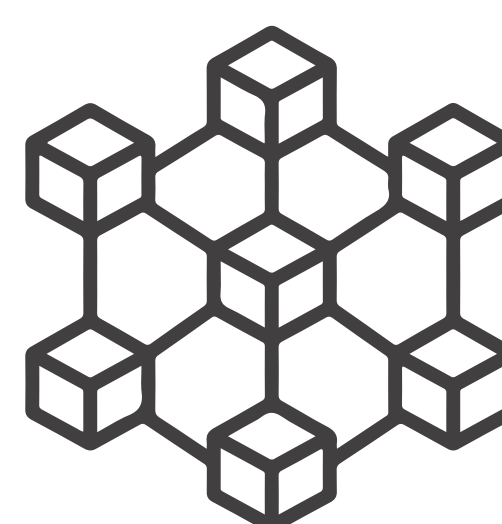
Deployer address

0xa80F73b93526ef992B52E3998bb103a0a8f2359d



Client contacts

Multichain



Blockchain

Ethereum



Website

<https://multichain.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 Multichain to perform an audit of smart contract:

- <https://etherscan.io/token/0x65ef703f5594d2573eb71aaf55bc0cb548492df4#code>

The purpose of the audit was to achieve the

- 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 01.08.2022

Token Type	: ERC20
Contract name	: MultichainToken
Contract address	: 0x65Ef703f5594D2573eb71Aaf55BC0CB548492df4
Compiler version	: v0.8.10+commit.fc410830
Total supply	: 100,000,000
Token Ticker	: MULTI
Decimals	: 18
Token Holders	: 664
Top 100 token holder's dominance	: 99.93%
Transactions count	: 21,624
Contract deployer address	: 0xa80F73b93526ef992B52E3998bb103a0a8f2359d
Owner address	: No Owner

Social profiles

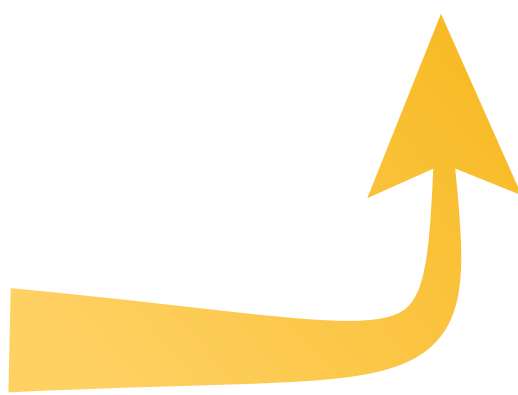
Twitter Profile	: https://twitter.com/multichainorg
Coinmarketcap profile	: https://coinmarketcap.com/currencies/multichain/
Coingecko profile	: https://www.coingecko.com/en/coins/multichain/

Audit Summary

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

Insecure	Poor secured	Secure	Well-secured
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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, 0 medium and 1 low and some very low-level issues. These issues are not critical ones.

Multichain Token Distribution

 The top 100 holders collectively own 99.93% (99,926,597.78 Tokens) of Multichain

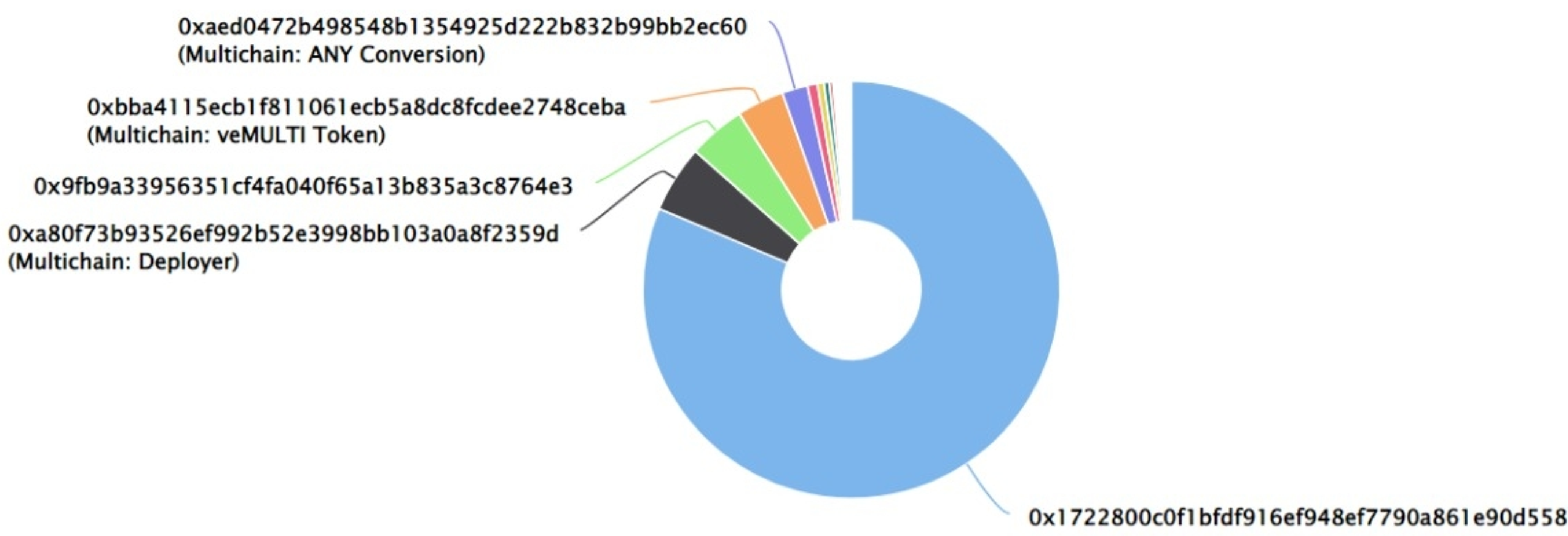
 Token Total Supply: 100,000,000.00 Token

|

Total Token Holders: 664









Multichain Top 100 Token Holders

Source: Etherscan.io



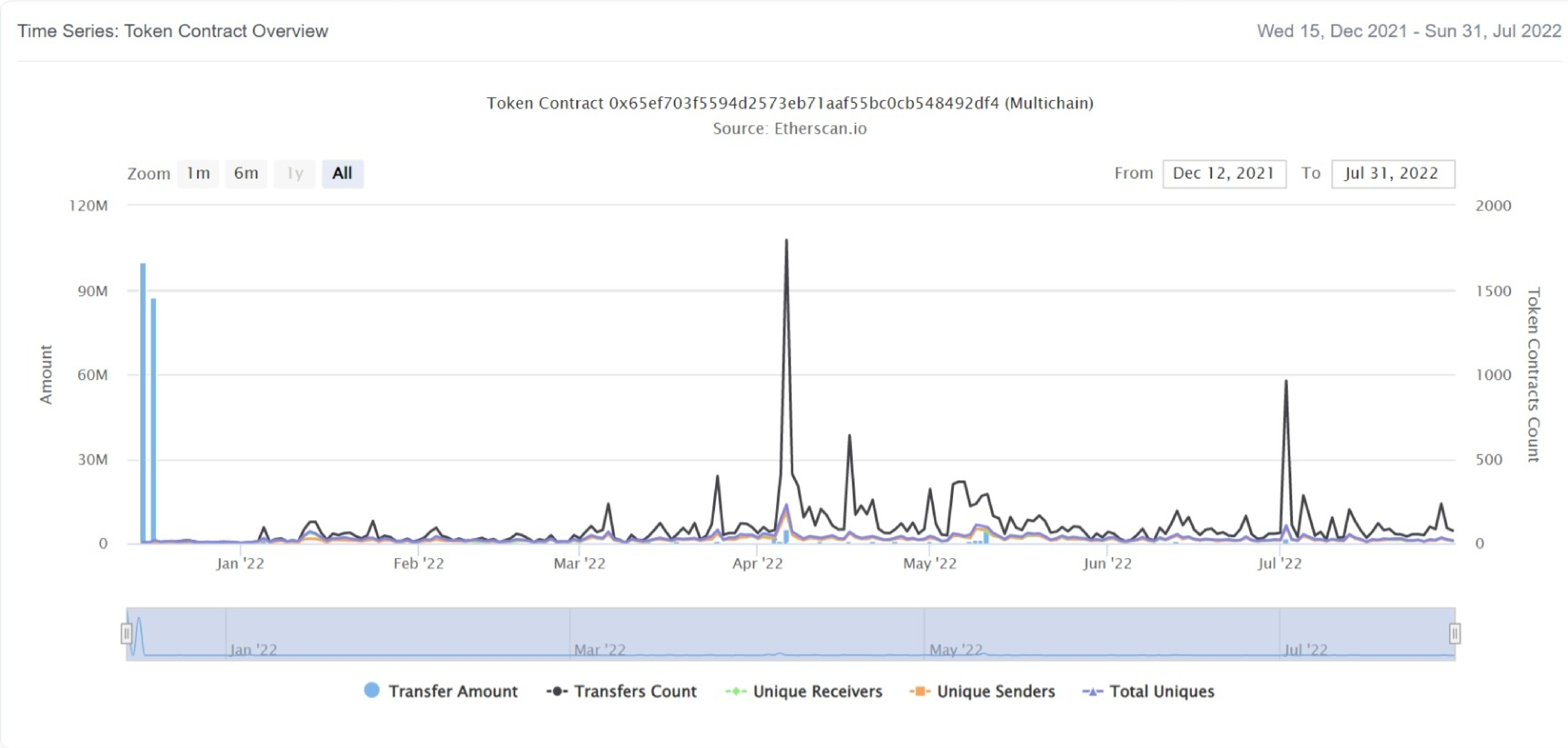
MultiChain Token Top 20 Token Holders

(A total of 99,926,597.78 tokens held by the top 100 accounts from the total supply of 100,000,000.00 token)

Rank	Address	Quantity (Token)	Percentage
1	 0x1722800c0f1bfd916ef948ef7790a861e90d558	81,360,680	81.3607%
2	Multichain: Deployer	5,199,791.6	5.1998%
3	 0x9fb9a33956351cf4fa040f65a13b835a3c8764e3	4,406,267.153735702193283296	4.4063%
4	 Multichain: veMULTI Token	3,665,738.772360640495954149	3.6657%
5	 Multichain: ANY Conversion	1,994,353.229482420474142656	1.9944%
6	 SushiSwap: MULTI-USDC	776,976.952900183596884906	0.7770%
7	 SushiSwap: MULTI	510,926.40501149364478194	0.5109%
8	 0xf23021ce0dc81e4e402d04c84564a74fa3a21343	385,021.799774045806651362	0.3850%
9	Null Address: 0x00...dEaD	276,027.4	0.2760%
10	0xb4df33e8c5b1c98cf827d313b8eee64412fbbb58	164,733.8333	0.1647%
11	 0x00000000ae347930bd1e7b0f35588b92280f9e75	133,753.40966346316533327	0.1338%
12	0x6d4f494e8bc84e855f703796de384158d765c1e8	100,082.051992236393053035	0.1001%
13	0x5bedd2cc4c0b8ced5cb31f05832621e41eadbf40	62,500	0.0625%
14	0x68fd0a0518b3120d844c5fb8a6f6defa4cad42c5	53,533.587929990313681513	0.0535%
15	0x8e5b47e19a01d78d06d149b6189edfb42f5f4772	50,500.5693345645	0.0505%
16	0x6c92e0e6a9984c0f44677f678e8fc10bebe3de64	48,715.653138040055143726	0.0487%
17	0x511e3d32a4fc0e6cf736b6e92c2a546a86964709	43,859.5	0.0439%
18	0x0d3283ac30ee8b96a177f3fc13662d5de4465fa2	43,859.5	0.0439%
19	0x30741289523c2e4d2a62c7d6722686d14e723851	37,488.143866768	0.0375%
20	MEXC: Mexc.com	32,989.77302115357952797	0.0330%

MultiChain Token Distribution

MultiChain Token Contract Overview



Contract functions details

+ [Int] IERC20

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

+ [Int] IERC20Metadata (IERC20)

- [Ext] name
- [Ext] symbol
- [Ext] decimals

+ Context

- [Int] _msgSender
- [Int] _msgData

+ ERC20 (Context, IERC20)

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

+ MultichainToken (ERC20)

- <constructor>

Contract functions details

(\$) = payable function

= non-constant function

Issues Checking Status

No.	Title	Status
1.	Unlocked Compiler Version	Low issue
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.	Passed
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

No critical severity issue found.

✔ High Severity Issues

No high severity issue found.

✔ Medium Severity Issues

No medium severity issues found.

✔ Low Severity Issues

One low severity issue found.

1. Unlocked Compiler Version.

- **Description**

The contract utilizes an unlocked compiler version. An unlocked compiler version in the contract's source code permits the user to compile it at or above a particular version. This, in turn, leads to differences in the generated bytecode between compilations due to differing compiler version numbers. This can lead to ambiguity when debugging as compiler-specific bugs may occur in the codebase that would be difficult to identify over a span of multiple compiler versions rather than a specific one.

- **Recommendation**

It is advisable that the compiler version is alternatively locked at the lowest version possible so that the contract can be compiled. For example, for version 0.8.0 the contract should contain the following line:

```
pragma solidity 0.8.10;
```

Conclusion

Smart contract contains Low 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.