HackSafe

Smart Contract Security Audit Report

Metis

June 2022

Security Status

★ ★ ★ ★ ★

www.hacksafe.io

Audit Details

Audited project
Metis

Deployer address
0x7532C59C69828D4e756832BaE27b79FB28145C44

Client contacts
Metis team

Blockchain
Ethereum

Website
https://www.metis.io/

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 Metis to perform an audit of smart contracts:

- https://etherscan.io/address/0x9E32b13ce7f2E80A01932B42553652E053D6ed8e#code

The purpose of the audit was to achieve the

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

The information in this report should be 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 16.06.2022

Token Type	: ERC20
Contract name	: MToken
Contract address	: 0x9E32b13ce7f2E80A01932B42553652E053D6ed8e
Compiler version	: v0.5.16+commit.9c3226ce
Total supply	: 5,410,000.51
Token Ticker	: Metis
Decimals	: 18
Token Holders	: 12,757
Top 100 token holder's dominance	: 90.97%
Transactions count	: 200,383
Contract deployer address	: 0x7532C59C69828D4e756832BaE27b79FB28145C44
Owner address	: 0x0000000000000000000000000000000000000000

Social profiles

Twitter Profile	: https://twitter.com/MetisDAO
Github Profile	: https://github.com/MetisProtocol/metis
Telegram Profile	: https://t.me/MetisDAO
Medium Profile	: https://metisdao.medium.com/
Coinmarketcap profile	: https://coinmarketcap.com/currencies/metisdao/

Claimed Smart Contract Features

Claimed Feature Detail	Our Observation
Tokenomics : • **Name** : Metis Token • **Symbol** : Metis • **Decimals** : 18 • **Protocol** : ERC20 • **Max Total supply** : 5,410,000	Yes, This is valid.

Audit Summary

According to the standard audit assessment, Customer`s solidity smart contracts are “Well 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 Audit overview section. General overview is presented in AS-IS section and all identified issues can be found in the Audit overview section.

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

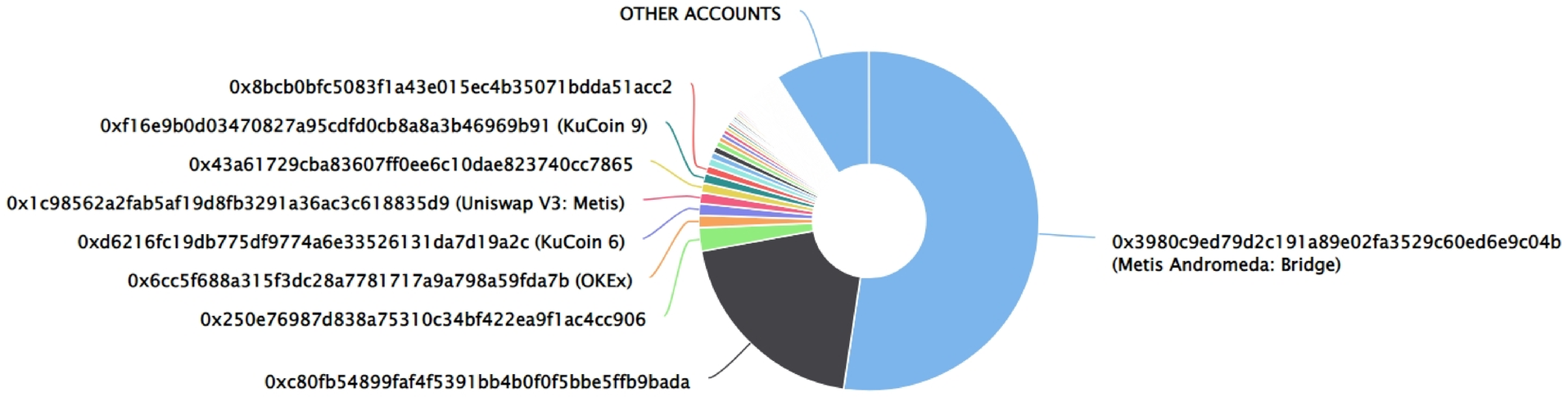
Metis Distribution

The top 100 holders collectively own 90.97% (4,921,328.91 Tokens) of Metis Token

Token Total Supply: 5,410,000.51 Token | Total Token Holders: 12,759

Metis Token Top 100 Token Holders

Source: Etherscan.io



Metis Distribution

Metis Top 20 Token Holders

(A total of 4,921,328.91 tokens held by the top 100 accounts from the total supply of 5,410,000.51 token)

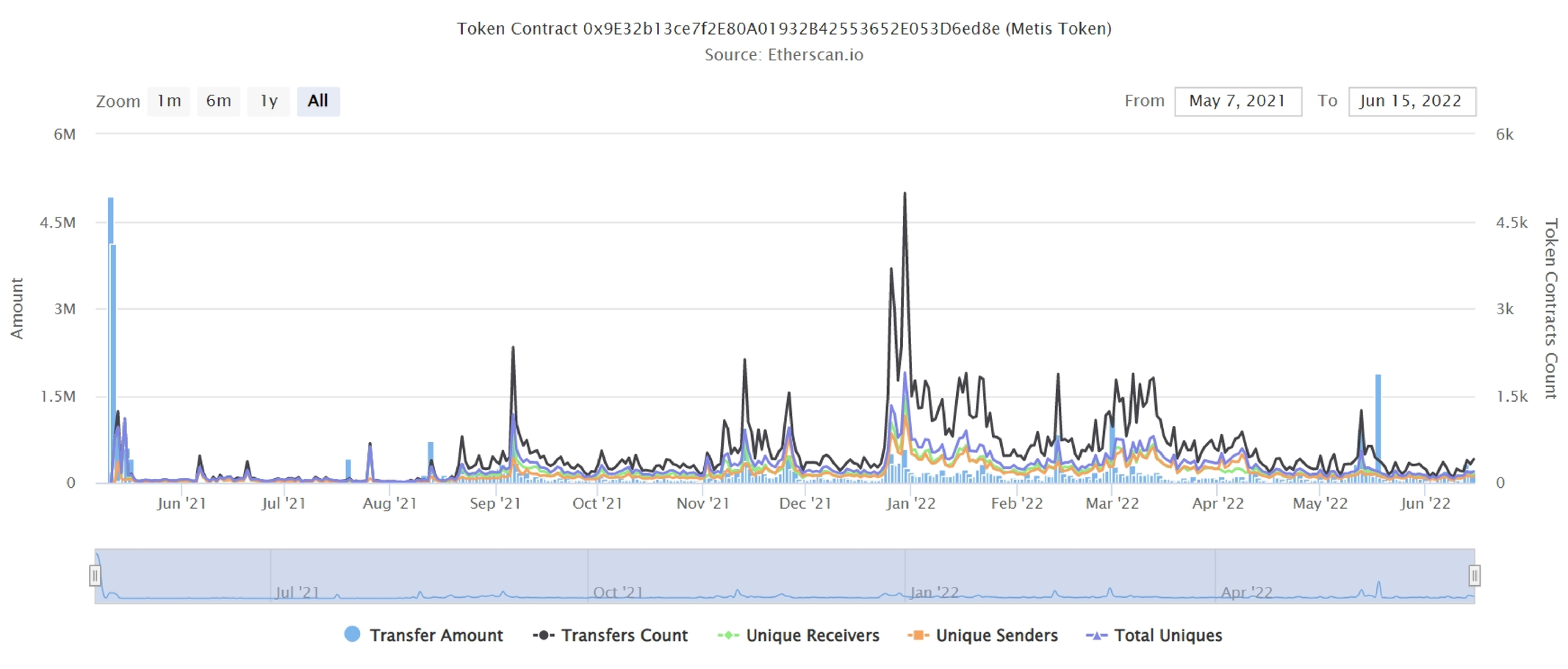
Rank	Address	Quantity (Token)	Percentage
1	Metis Andromeda: Bridge	2,834,799.395050843041490753	52.3992%
2	0xc80fb54899faf4f5391bb4b0f0f5bbe5ffb9bada	1,068,835.39	19.7567%
3	0x250e76987d838a75310c34bf422ea9f1ac4cc906	119,940.204871398233335463	2.2170%
4	OKEx	62,931.22182468927738011	1.1632%
5	KuCoin 6	60,000	1.1091%
6	Uniswap V3: Metis	57,283.143717801937817132	1.0588%
7	0x43a61729cba83607ff0ee6c10dae823740cc7865	48,750	0.9011%
8	KuCoin 9	48,656.832154639036775288	0.8994%
9	0x8bcb0bfc5083f1a43e015ec4b35071bdda51acc2	41,743.768000000148732282	0.7716%
10	0x739e2c99f019cc1de501460db50cb54b9f7835a1	39,429.63085948489158153	0.7288%
11	Gate.io	33,144.036308118745019757	0.6126%
12	0x5e8304b5600cccba6d6292c6687ac9ead0ec6288	32,378.158	0.5985%
13	0x21a435bf21771bcf4a45a0ac99df8f51b891bd29	30,081.88431208	0.5560%
14	0x738cf6903e6c4e699d1c2dd9ab8b67fcdb3121ea	24,081.263102169603346392	0.4451%
15	0x736ebf6f005dfef1dac65410b15d8c603a8e95ec	22,225.000000000000000217	0.4108%
16	0xf966f552fbd53d86d1d5c79f4b2a7f858ef39f3b	21,984.409996	0.4064%
17	0xf14c9dbdb31b0a18af44fcf97ed12b0abfe1b92e	16,875	0.3119%
18	0x8d484c91f791d281dbf767ecb87f4028f7911e7a	14,819.232577266679071801	0.2739%
19	Uniswap V2: Metis 2	13,376.924159654231989381	0.2473%
20	Gemini 4	12,787.207006036270034841	0.2364%

Metis Distribution

Metis Contract Overview

Time Series: Token Contract Overview

Tue 11, May 2021 - Wed 15, Jun 2022



Contract functions details

MToken.sol
+ MToken (ERC20, ERC20Detailed, Ownable)
    -[Pub] <constructor> #
    -[Ext] mint #
    -[Ext] burn #
    -[Ext] addMinter #
      -modifiers: onlyOwner
    -[Ext] removeMinter #
      -modifiers: onlyOwner

Context.sol
+ Context
    -[Int] _msgSender
    -[Int] _msgData

ERC20.sol
+ ERC20 (Context, IERC20)
    -[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] _burnFrom#

ERC20Detailed.sol
+ ERC20Detailed
    -[Pub] <constructor>
    -[Pub] name
    -[Pub] symbol
    -[Pub] decimals

Contract functions details

IERC20.sol
+ [Int] IERC20
    -[Ext] totalSupply
    -[Ext] balanceOf
    -[Ext] transfer
    -[Ext] allowance
    -[Ext] approve
    -[Ext] transferFrom

Ownable.sol
+ Ownable (Context)
    -[Int] <constructor>
    -[Pub] owner
    -[Pub] isOwner
    -[Pub] renounceOwnership #
      -modifiers: onlyOwner
    -[Pub] transferOwnership #
      -modifiers: onlyOwner
    -[Int] _transferOwnership #

Roles.sol
+[Lib] Roles
    -[Int] add
    -[Int] remove
    -[Int] has

SafeMath.sol
+[Lib] SafeMath
    - [Int] add
    - [Int] sub
    - [Int] mul
    - [Int] div
    - [Int] div
    - [Int] mod
    - [Int] mod

($) = 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

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 v0.5.0 the contract should contain the following line:

  pragma solidity 0.5.0;

Centralization

Owner Privileges (in the period when the owner is not renounced) :

- Metis Contract:
    - Owner can add and remove minter.
    - Owner can renounce ownership.
    - Owner can transfer ownership.

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. Following are Admin functions:

- **Addminter** : Owner can add new minter.
- **Removeminter** : owner can remove minter.
- **Transferownership** : owner can transfer ownership.
- **Renounceownership** : owner can renounce ownership.

Conclusion

Smart contract contains one 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.