Bring trust into your projects

Blockchain Security | Smart Contract Audits | KYC

MADE IN GERMANY

Medal of Honour

Audit

Security Assessment

23.September,2022

For

SolidProof_io

@solidproof_io

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Version	Date	Description
1.0	19.September,2022	• Layout project • Automated- /Manual-Security Testing • Summary

Network

Ethereum (ETH)

Website

https://www.versaillesheroes.com

Twitter

https://twitter.com/VersHeroes

Telegram

https://t.me/VRHannouncement

Discord

https://discord.gg/bz2jJv4dJ2

Facebook

https://www.facebook.com/VersaillesHeroes

Description

Versailles Heroes will keep moving forward to develop an interesting game. We believe that by developing the fun of the game and combining it with the hottest blockchain, we can produce some sparks for our players. The blockchain will propel Versailles Heroes to a new level, highlighting its decentralized, distributed, secure, transparent, free qualities in one expansive and colourful game. We firmly believe that gaming roadmaps are only part of the picture, and that the future will come from its approach to the Metaverse realm. In the coming decades, Versailles Heroes will be able to prosper in the Metaverse, building parallel worlds of gamers, virtual assets and connected realities.

Project Engagement

During the 19th of September 2022, **Medal of Honour** team engaged Solidproof.io to audit the smart contracts that they created. The engagement was technical in nature and focused on identifying the security flaws in the design and implementation of the contracts. They provided Solidproof.io with access to their code repository and whitepaper.

Logo

Contract Links

v1.0

https://etherscan.io/token/0xa59e341e8047498700ed244814b01b34547fb21b#code

Vulnerability & Risk Level

Risk represents the probability that a certain source-threat will exploit vulnerability, and the impact of that event on the organization or system. Risk Level is computed based on CVSS version 3.0.

Level	Value	Vulnerability	Risk (Required Action)
Critical	9 - 10	A vulnerability that can disrupt the contract functioning in a number of scenarios, or creates a risk that the contract may be broken.	Immediate action to reduce risk level.
High	7 – 8.9	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.	Implementation of corrective actions as soon as possible.
Medium	4 – 6.9	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.	Implementation of corrective actions in a certain period.
Low	2 – 3.9	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.	Implementation of certain corrective actions or accepting the risk.
Informational	0 – 1.9	A vulnerability that have informational character but is not effecting any of the code.	An observation that does not determine a level of risk

Auditing Strategy and Techniques Applied

Throughout the review process, care was taken to evaluate the repository for security-related issues, code quality, and adherence to specification and best practices. To do so, reviewed line-by-line by our team of expert pentesters and smart contract developers, documenting any issues as there were discovered.

Methodology

The auditing process follows a routine series of steps:

1. Code review that includes the following:
   i) Review of the specifications, sources, and instructions provided to SolidProof to make sure we understand the size, scope, and functionality of the smart contract.
   ii) Manual review of code, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
   iii) Comparison to specification, which is the process of checking whether the code does what the specifications, sources, and instructions provided to SolidProof describe.

2. Testing and automated analysis that includes the following:
   i) Test coverage analysis, which is the process of determining whether the test cases are actually covering the code and how much code is exercised when we run those test cases.
   ii) Symbolic execution, which is analyzing a program to determine what inputs causes each part of a program to execute.

3. Best practices review, which is a review of the smart contracts to improve efficiency, effectiveness, clarify, maintainability, security, and control based on the established industry and academic practices, recommendations, and research.

4. Specific, itemized, actionable recommendations to help you take steps to secure your smart contracts.

Used Code from other Frameworks/Smart Contracts (direct imports)

Imported packages:

Dependency / Import Path	Count
Context.sol	1

Tested Contract Files

This audit covered the following files listed below with a SHA-1 Hash.

A file with a different Hash has been modified, intentionally or otherwise, after the security review. A different Hash could be (but not necessarily) an indication of a changed condition or potential vulnerability that was not within the scope of this review.

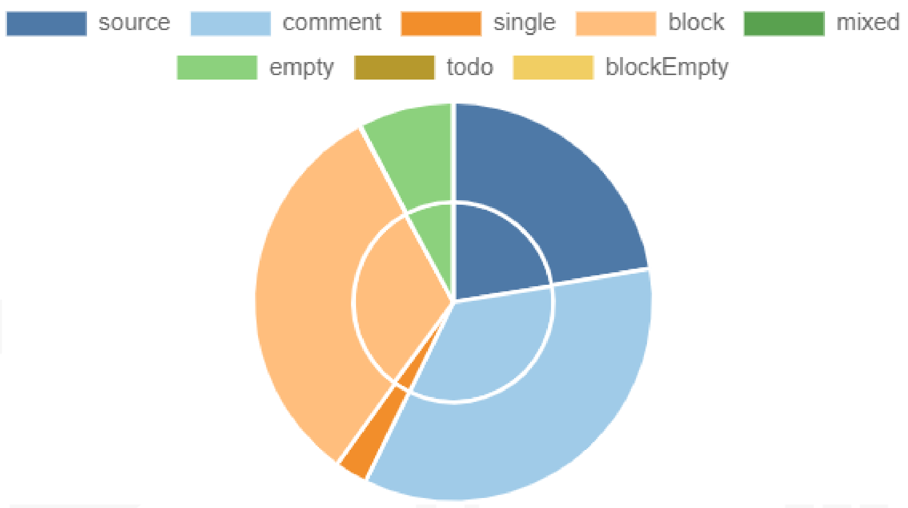
v1.0

File Name	SHA-1 Hash
contracts/EnumerableSet.sol	04a92a1f0fe6b84d8890078c990ab43254659b8b
contracts/Context.sol	6a0b5b8e1b849d1ea73eabcfb1c9cd7e0cdbc91b
contracts/IERC20Metadata.sol	527f21f2724a24e1397572f80aeb688a61269b29
contracts/Ownable.sol	1cc8fa4d8c14c680e3f12bb23e154848b2c75fba
contracts/ERC20Burnable.sol	777140ad332f588f3ab9b768e0d8f9ffac53782e
contracts/ERC20.sol	ffe095d7fa2da7804d4278d2dbfb58d5d52e91fb
contracts/IERC20.sol	3cb114c5eb5052015bdad7a20cd1d5d3559c754c
contracts/MOHToken.sol	d7f52208a98d273618d4290f7b0de35f7fffe978

Metrics

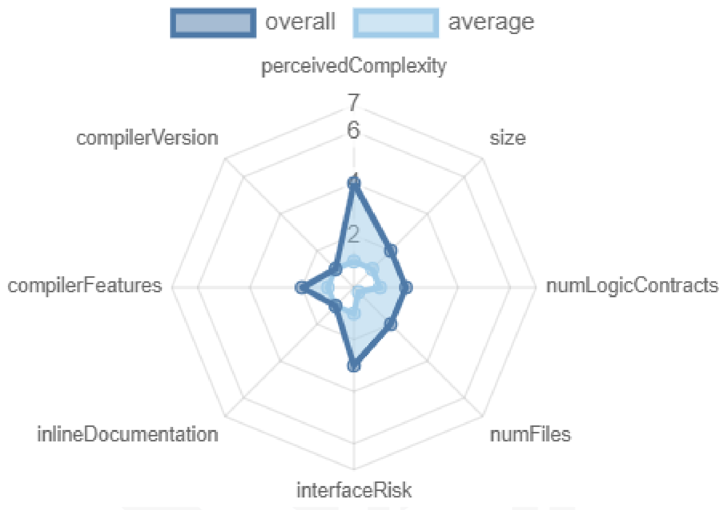
Source Lines

v1.0



Risk Level

v1.0



Capabilities

v1.0

Components

Contracts	Libraries	Interfaces	Abstract
2	1	2	3

Exposed Functions

This section lists functions that are explicitly declared public or payable. Please note that getter methods for public stateVars are not included.

Public	Payable
29	0

External	Internal	Private	Pure	View
12	63	6	0	33

StateVariables

Total	Public
7	0

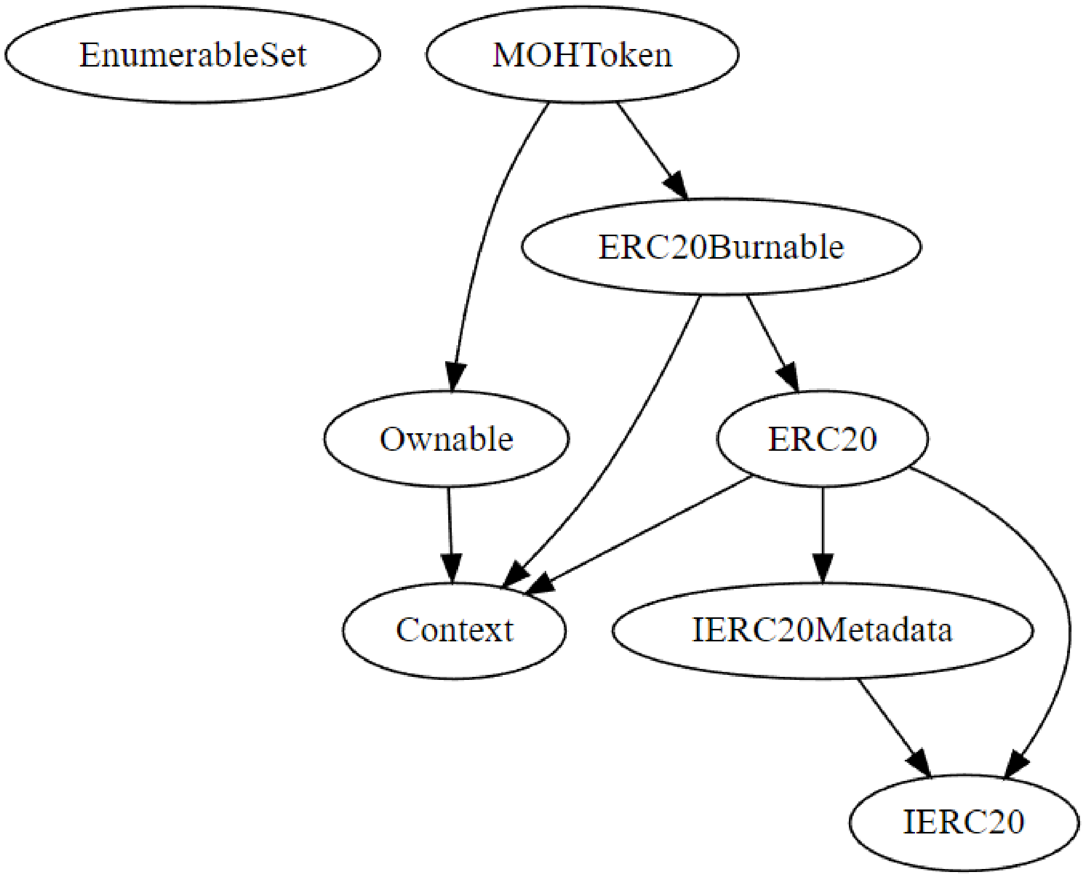
Capabilities

Solidity Versions observed	Experimental Features	Can Receive Funds	Uses Assembly	Has Destroyable Contracts
`^0.8.0`			`yes` (2 asm blocks)	

Transfers ETH	Low-Level Calls	DelegateCall	Uses Hash Functions	ECRecover	New/Create/Create2

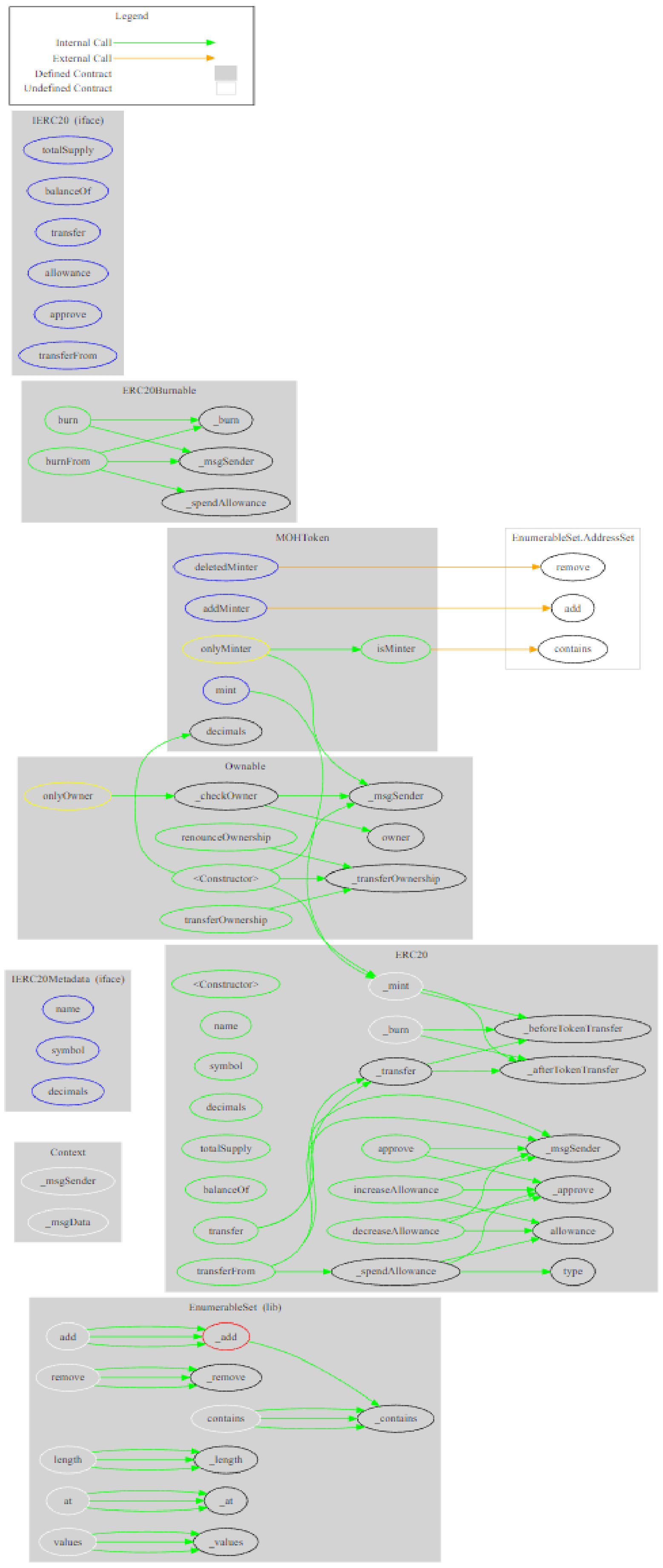
TryCatch	Σ Unchecked
	`yes`

Inheritance Graph
v1.0



Call Graph

v1.0



Scope of Work/Verify Claims

The above token Team provided us with the files that needs to be tested (Github, Bscscan, Etherscan, files, etc.). The scope of the audit is the main contract (usual the same name as team appended with .sol).

We will verify the following claims:

1. Is contract an upgradeable
2. Correct implementation of Token standard
3. Deployer cannot mint any new tokens
4. Deployer cannot burn or lock user funds
5. Deployer cannot pause the contract
6. Deployer can set fees
7. Deployer can blacklist/antisnipe address
8. Overall checkup (Smart Contract Security)

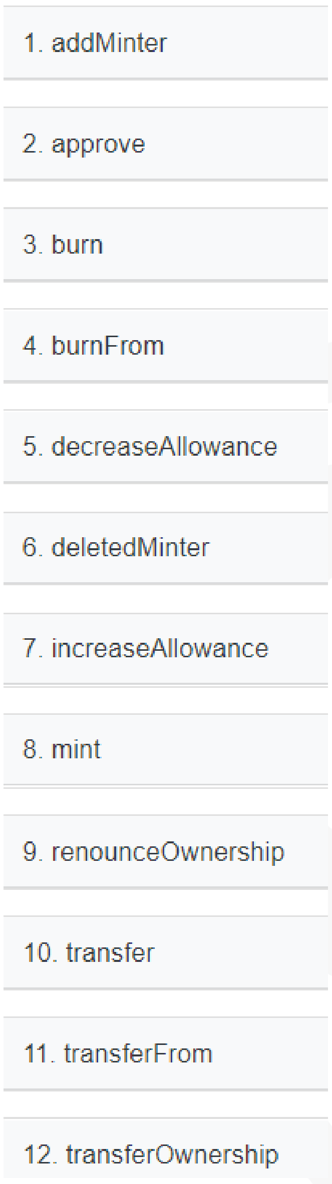
Is contract an upgradeable

Name	
Is contract an upgradeable?	No

Correct implementation of Token standard

ERC20				
Function	**Description**	**Exist**	**Tested**	**Verified**
totalSupply	Provides information about the total token supply	🟩	🟩	🟩
balanceOf	Provides account balance of the owner's account	🟩	🟩	🟩
transfer	Executes transfers of a specified number of tokens to a specified address	🟩	🟩	🟩
transferFrom	Executes transfers of a specified number of tokens from a specified address	🟩	🟩	🟩
approve	Allow a spender to withdraw a set number of tokens from a specified account	🟩	🟩	🟩
allowance	Returns a set number of tokens from a spender to the owner	🟩	🟩	🟩

Write functions of contracts v1.0



1. addMinter
2. approve
3. burn
4. burnFrom
5. decreaseAllowance
6. deletedMinter
7. increaseAllowance
8. mint
9. renounceOwnership
10. transfer
11. transferFrom
12. transferOwnership

Deployer cannot mint any new tokens

Name	Exist	Tested	Status
Deployer cannot mint	🟩	🟩	🟥
Max / Total Supply	10.000.000		

Comments:

- Everyone with minter role granted by the owner can call mint function and mint the tokens.

Deployer cannot burn or lock user funds

Name	Exist	Tested	Status
Deployer cannot lock	🟦	🟦	🟦
Deployer cannot burn	🟩	🟩	🟩

Comments:

- Everyone with burn their own tokens and the tokens that they have approval for.

Deployer cannot pause the contract

Name	Exist	Tested	Status
Deployer cannot pause	🟦	🟦	🟦

Deployer can set fees

Name	Exist	Tested	Status
Deployer can set fees over 25%	🟦	🟦	🟦
Deployer can set fees to nearly 100% or more	🟦	🟦	🟦

Deployer cannot blacklist/antisnipe addresses

Name	Exist	Tested	Status
Deployer can blacklist/antisnipe addresses	🟦	🟦	🟦

Overall checkup (Smart Contract Security)

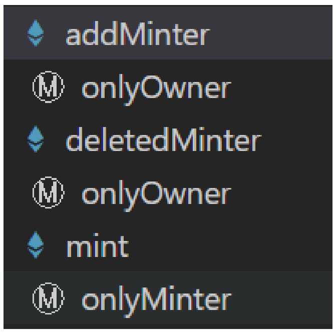
Tested	Verified
🟩	🟩

Legend

Attribute	Symbol
Verified / Checked	🟩
Partly Verified	🟨
Unverified / Not checked	🟥
Not available	🟦

Modifiers and public functions

v1.0



addMinter
onlyOwner
deletedMinter
onlyOwner
mint
onlyMinter

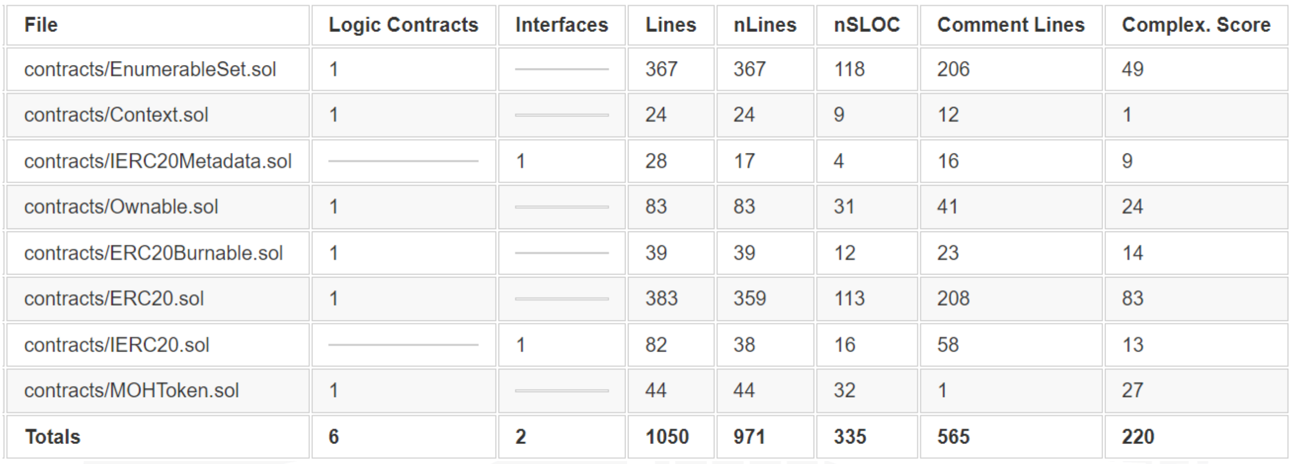
Comments:

The owner can:

- Mint tokens
- Add other minter accounts without any limitation

Source Units in Scope

v1.0



File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score
contracts/EnumerableSet.sol	1	—	367	367	118	206	49
contracts/Context.sol	1	—	24	24	9	12	1
contracts/IERC20Metadata.sol	—	1	28	17	4	16	9
contracts/Ownable.sol	1	—	83	83	31	41	24
contracts/ERC20Burnable.sol	1	—	39	39	12	23	14
contracts/ERC20.sol	1	—	383	359	113	208	83
contracts/IERC20.sol	—	1	82	38	16	58	13
contracts/MOHToken.sol	1	—	44	44	32	1	27
Totals	**6**	**2**	**1050**	**971**	**335**	**565**	**220**

Legend

Attribute	Description
Lines	total lines of the source unit
nLines	normalized lines of the source unit (e.g. normalizes functions spanning multiple lines)
nSLOC	normalized source lines of code (only source-code lines; no comments, no blank lines)
Comment Lines	lines containing single or block comments
Complexity Score	a custom complexity score derived from code statements that are known to introduce code complexity (branches, loops, calls, external interfaces, ...)

Audit Results

AUDIT PASSED

Critical issues

No critical issues

High issues

No high issues

Medium issues

No medium issues

Low issues

Issue	File	Type	Line	Description
#1	MOHToken.sol	Missing Zero Check	23,27	Check that the address is not zero
#2	MOHToken.sol	Missing Events	23,27	Emit events for critical parameter changes
#3	All	Floating Pragma	-	The current pragma Solidity directive is “^0.8.0". Contracts should be deployed with the same compiler version and flag that they have been tested thoroughly. Locking the pragma helps to ensure that contracts do not accidentally get deployed using other versions.

Informational issues

Issue	File	Type	Line	Description
#1	MOHToken.sol	Contract doesn't import npm packages from source (like OpenZeppelin etc.)	-	We recommend importing all packages from npm directly without flattening the contract. Functions could be modified or can be susceptible to vulnerabilities
#2	All	Dead Code	-	Remove the code from the contract that is never being used

Audit Comments

We recommend you to use the special form of comments (NatSpec Format, Follow link for more information https://docs.soliditylang.org/en/v0.5.10/natspec-format.html) for your contracts to provide rich documentation for functions, return variables and more. This helps investors to make clear what that variables, functions etc. do.

23. September, 2022:

- There is still an owner (Owner still has not renounced ownership).
- Read the whole report and modifiers section for more information.

SWC Attacks

ID	Title	Relationships	Status
SWC-136	Unencrypted Private Data On-Chain	CWE-767: Access to Critical Private Variable via Public Method	PASSED
SWC-135	Code With No Effects	CWE-1164: Irrelevant Code	NOT PASSED
SWC-134	Message call with hardcoded gas amount	CWE-655: Improper Initialization	PASSED
SWC-133	Hash Collisions With Multiple Variable Length Arguments	CWE-294: Authentication Bypass by Capture-replay	PASSED
SWC-132	Unexpected Ether balance	CWE-667: Improper Locking	PASSED
SWC-	Presence of unused variables	CWE-1164: Irrelevant Code	PASSED

131			PASSED
SWC-130	Right-To-Left-Override control character (U+202E)	CWE-451: User Interface (UI) Misrepresentation of Critical Information	PASSED
SWC-129	Typographical Error	CWE-480: Use of Incorrect Operator	PASSED
SWC-128	DoS With Block Gas Limit	CWE-400: Uncontrolled Resource Consumption	PASSED
SWC-127	Arbitrary Jump with Function Type Variable	CWE-695: Use of Low-Level Functionality	PASSED
SWC-125	Incorrect Inheritance Order	CWE-696: Incorrect Behavior Order	PASSED
SWC-	Write to Arbitrary	CWE-123: Write-what-where Condition	PASSED

124	Storage Location		
SWC-123	Requirement Violation	CWE-573: Improper Following of Specification by Caller	PASSED
SWC-122	Lack of Proper Signature Verification	CWE-345: Insufficient Verification of Data Authenticity	PASSED
SWC-121	Missing Protection against Signature Replay Attacks	CWE-347: Improper Verification of Cryptographic Signature	PASSED
SWC-120	Weak Sources of Randomness from Chain Attributes	CWE-330: Use of Insufficiently Random Values	PASSED
SWC-119	Shadowing State Variables	CWE-710: Improper Adherence to Coding Standards	PASSED

SWC-118	Incorrect Constructor Name	CWE-665: Improper Initialization	**PASSED**
SWC-117	Signature Malleability	CWE-347: Improper Verification of Cryptographic Signature	**PASSED**
SWC-116	Timestamp Dependence	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	**PASSED**
SWC-115	Authorization through tx.origin	CWE-477: Use of Obsolete Function	**PASSED**
SWC-114	Transaction Order Dependence	CWE-362: Concurrent Execution using Shared Resource with Improper Synchronization ('Race Condition')	**PASSED**
SWC-113	DoS with Failed Call	CWE-703: Improper Check or Handling of Exceptional Conditions	**PASSED**

SWC-112	Delegatecall to Untrusted Callee	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	**PASSED**
SWC-111	Use of Deprecated Solidity Functions	CWE-477: Use of Obsolete Function	**PASSED**
SWC-110	Assert Violation	CWE-670: Always-Incorrect Control Flow Implementation	**PASSED**
SWC-109	Uninitialized Storage Pointer	CWE-824: Access of Uninitialized Pointer	**PASSED**
SWC-108	State Variable Default Visibility	CWE-710: Improper Adherence to Coding Standards	**PASSED**
SWC-107	Reentrancy	CWE-841: Improper Enforcement of Behavioral Workflow	**PASSED**

SWC-106	Unprotected SELFDESTRUCT Instruction	CWE-284: Improper Access Control	PASSED
SWC-105	Unprotected Ether Withdrawal	CWE-284: Improper Access Control	PASSED
SWC-104	Unchecked Call Return Value	CWE-252: Unchecked Return Value	PASSED
SWC-103	Floating Pragma	CWE-664: Improper Control of a Resource Through its Lifetime	NOT PASSED
SWC-102	Outdated Compiler Version	CWE-937: Using Components with Known Vulnerabilities	PASSED
SWC-101	Integer Overflow and Underflow	CWE-682: Incorrect Calculation	PASSED

SWC-100	Function Default Visibility	CWE-710: Improper Adherence to Coding Standards	**PASSED**