



**SOLID**Proof  
*Bring trust into your projects*

**Blockchain Security | Smart Contract Audits | KYC**

MADE IN GERMANY

**RatsDAO**

**Audit**

**Security Assessment**

16.July,2022

**For**



[SolidProof.io](https://solidproof.io)



[@solidproof\\_io](https://t.me/solidproof_io)

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Version	Date	Description
1.0	15.July,2022	<ul style="list-style-type: none"><li>• Layout project</li><li>• Automated- /Manual-Security Testing</li><li>• Summary</li></ul>

Network

Binance (BEP-20)

Website

<https://www.ratscoin.io/>

Telegram

<https://t.me/ratscoinx1000>

Twitter

<https://twitter.com/ratscoinx1000>

Discord

<https://discord.com/invite/ratscoin>

## Description

Effective solutions ensuring proper governance for blockchain projects of all sizes. RATSDAO is the world's largest Decentralized Meme Investment Organization. The official RATSDAO protocol incorporates different strategies to incentivize Meme token staking to fund the battle against centralization.

## Project Engagement

During the 15<sup>th</sup> of July 2022, RatsDAO Team engaged Solidproof.io to audit smart contracts that they created. The engagement was technical in nature and focused on identifying 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://bscscan.com/address/0xE447dad7b3C384f0ca6f5FcC1b5A859617dC21C#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)
<b>Critical</b>	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.
<b>High</b>	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.
<b>Medium</b>	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.
<b>Low</b>	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.
<b>Informational</b>	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 analysing 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:

 ./ERC20.sol  
 ./Ownable.sol





## 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/Context.sol	fd8541be05b4aaea0543baa3757aba7f3b9f9016
contracts/IERC20Metadata.sol	593ef9e402b5c350cb80b99c3d515708ee4bd7a2
contracts/Ownable.sol	f263de8d15eff9a325abfb765607c0124a8d5cae
contracts/ERC20.sol	14480a228e92d41ecb86588066efad8a786d962e
contracts/Token.sol	59f0f3ade69b2607fd4bcf2fdd4c4728389d547f
contracts/IERC20.sol	648e84326e886d67accc3412aeca45c6c11f9f17

# Metrics

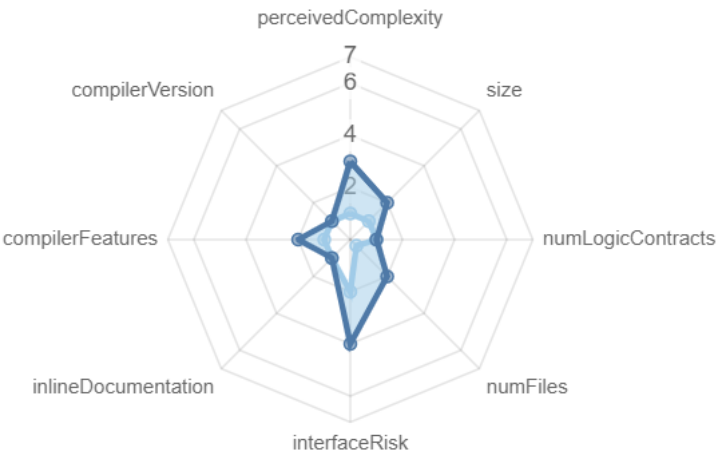
## Source Lines

v1.0



## Risk Level

v1.0



## Capabilities

### Components

Version	Contracts	Libraries	Interfaces	Abstract
1.0	2	0	2	2

### Exposed Functions

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

Version	Public	Payable
1.0	32	0

Version	External	Internal	Private	Pure	View
1.0	17	42	0	1	16

### State Variables

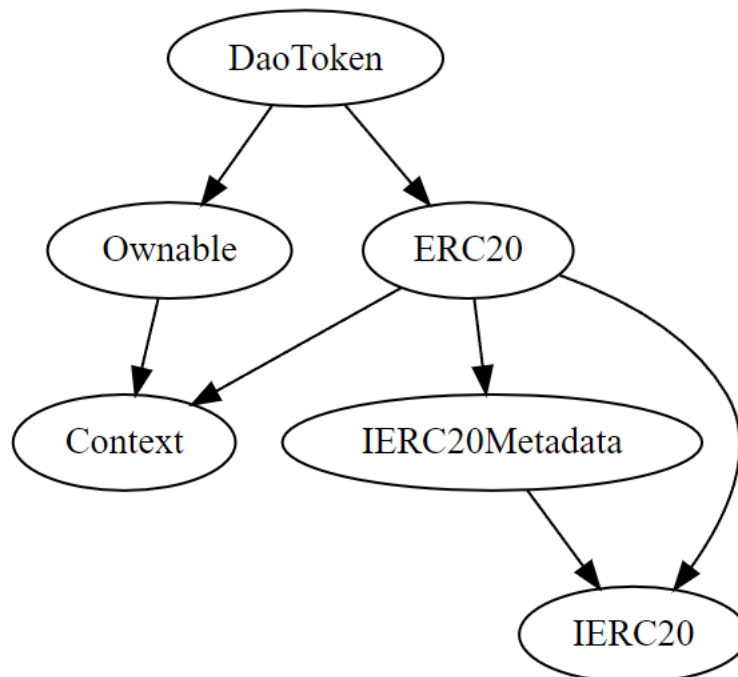
Version	Total	Public
1.0	16	1

### Capabilities

Version	Solidity Versions observed	Experimental Features	Can Receive Funds	Uses Assembly	Has Destroyable Contracts
1.0	<code>^0.8.0</code>				

Version	Transfers ETH	Low-Level Calls	DelegateCall	Uses Hash Functions	EC Recover	New/Creates/Create2
1.0	Yes					

## Inheritance Graph v1.0



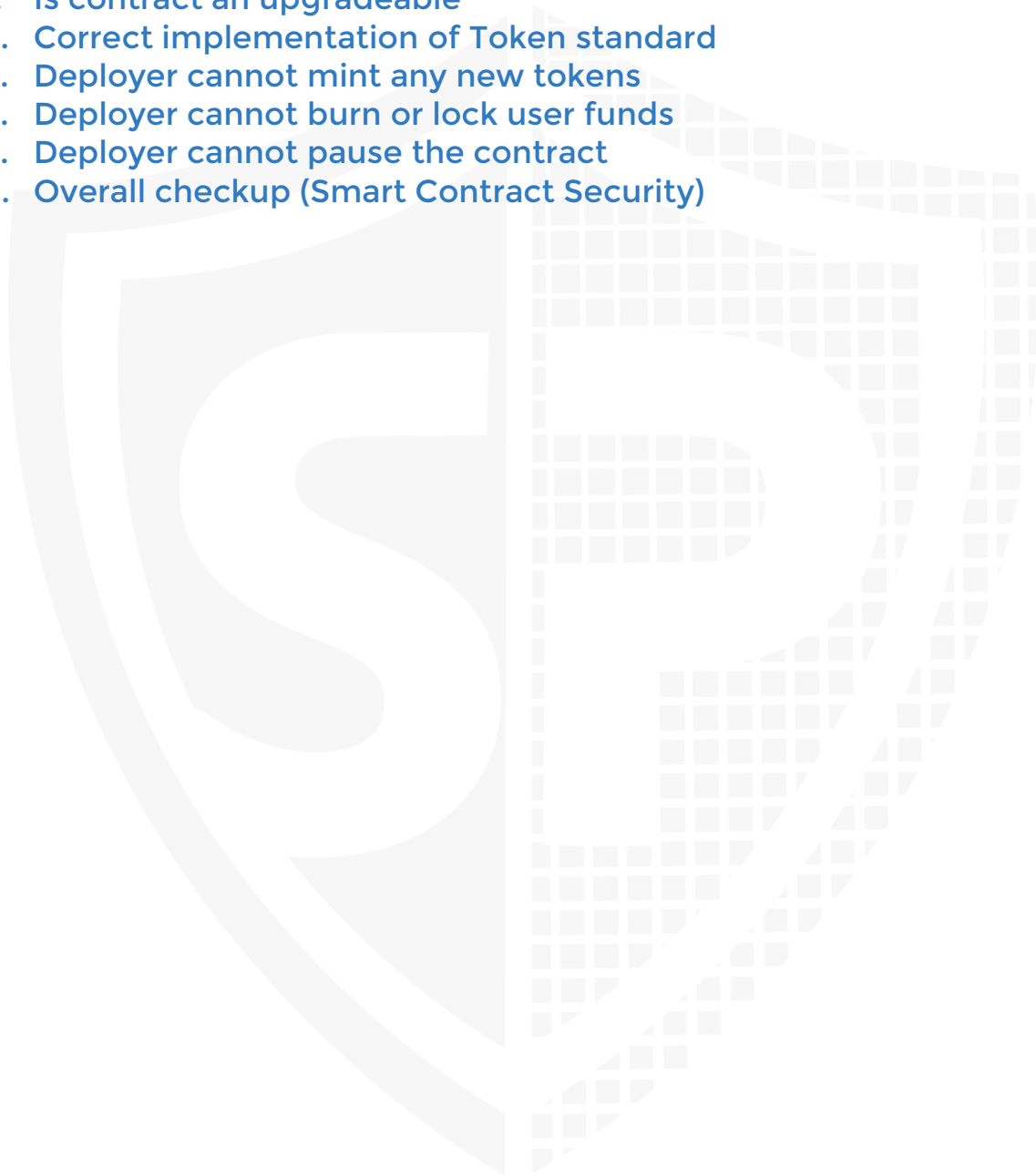


## Scope of Work/Verify Claims

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. 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. approve

2. decreaseAllowance

3. increaseAllowance

4. renounceOwnership

5. setCooldownForTrades

6. setIsTxLimitExempt

7. setLiquidityPoolStatus

8. setMarketingPool

9. setTaxes

10. setTxLimit

11. setWhitelist

## Deployer cannot mint any new tokens

Name	Exist	Tested	Status
Deployer cannot mint			
Max / Total Supply	100.000.000		



## Deployer cannot burn or lock user funds

Name	Exist	Tested	Status
Deployer cannot lock			
Deployer cannot burn			

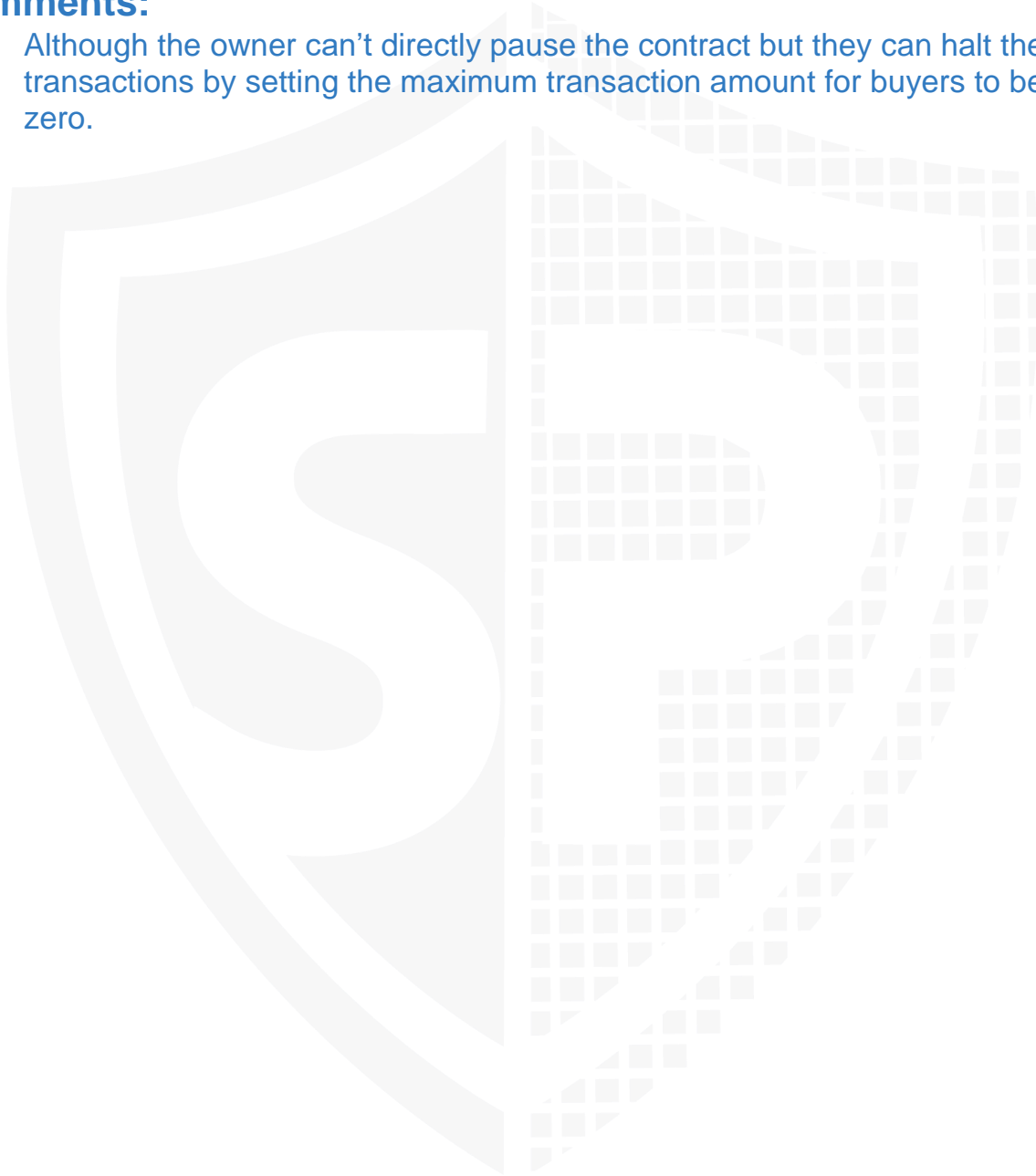


## Deployer cannot pause the contract

Name	Exist	Tested	Status
Deployer cannot pause			

### Comments:

- Although the owner can't directly pause the contract but they can halt the transactions by setting the maximum transaction amount for buyers to be zero.



## 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

◆	setTaxes
Ⓜ	onlyOwner
◆	setCooldownForTrades
Ⓜ	onlyOwner
◆	setLiquidityPoolStatus
Ⓜ	onlyOwner
◆	setWhitelist
Ⓜ	onlyOwner
◆	setMarketingPool
Ⓜ	onlyOwner
◆	setIsTxLimitExempt
Ⓜ	onlyOwner
◆	setTxLimit
Ⓜ	onlyOwner
◆	sweep
Ⓜ	onlyOwner

### Comments:

The owner can set the transaction limit to zero and halt all the transactions via liquidity pool. Hence, buy transactions won't be possible in that scenario.

## Source Units in Scope

v1.0

Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
contracts/Context.sol	1	—	24	24	9	12	1
contracts/IERC20Metadata.sol	—	1	28	17	4	16	9
contracts/Ownable.sol	1	—	76	76	28	38	23
contracts/ERC20.sol	1	—	356	336	103	194	80
contracts/Token.sol	1	—	122	122	95	3	71
contracts/IERC20.sol	—	1	82	27	17	58	13
<b>Totals</b>	<b>4</b>	<b>2</b>	<b>688</b>	<b>602</b>	<b>256</b>	<b>321</b>	<b>197</b>

## 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

Issue	File	Type	Line	Description
#1	Main	Maximum transaction limit can be zero	83	The owner can set the maximum transaction limit to zero and halt all the "buy" transactions from the liquidity pool because there is no checks about the "minimum" transaction limit.

### Low issues

Issue	File	Type	Line	Description
#1	Main	A floating pragma is set	7	The current pragma Solidity directive is „^0.8.7“.
#2	Main	Missing Events	79, 83	Emit an event for critical parameter changes. In this case, minting, burning of tokens, etc.
#3	Main	Missing zero check	70	Check that the address is not zero
#4	Main	Contract doesn't import npm packages from source (like OpenZeppelin etc.)	-	We recommend to import all packages from npm directly without flatten the contract. Functions could be modified or can be susceptible to vulnerabilities



## Informational issues

Issue	File	Type	Line	Description
#1	Main	NatSpec documentation missing	—	If you started to comment your code, also comment all other functions, variables etc.

## 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.

16.July,2022:

- Owner can whitelist/blacklist any wallet from fee. Thus, owner will decide the number of users who'll pay the fees.
- Owner can set the maximum transaction amount to zero which will result in halting of the buy functionality by the liquidity pool.
- Read the whole report and modifiers section for more information.

## SWC Attacks

ID	Title	Relationships	Status
<a href="#">SWC-1136</a>	Unencrypted Private Data On-Chain	<a href="#">CWE-767: Access to Critical Private Variable via Public Method</a>	PASSED
<a href="#">SWC-1135</a>	Code With No Effects	<a href="#">CWE-1164: Irrelevant Code</a>	PASSED
<a href="#">SWC-1134</a>	Message call with hardcoded gas amount	<a href="#">CWE-655: Improper Initialization</a>	PASSED
<a href="#">SWC-1133</a>	Hash Collisions With Multiple Variable Length Arguments	<a href="#">CWE-294: Authentication Bypass by Capture-replay</a>	PASSED
<a href="#">SWC-1132</a>	Unexpected Ether balance	<a href="#">CWE-667: Improper Locking</a>	PASSED
<a href="#">SWC-1131</a>	Presence of unused variables	<a href="#">CWE-1164: Irrelevant Code</a>	NOT PASSED

131			
SWC-130	Right-To-Left-Override control character (U+202E)	<a href="#">CWE-451: User Interface (UI) Misrepresentation of Critical Information</a>	PASSED
SWC-129	Typographical Error	<a href="#">CWE-480: Use of Incorrect Operator</a>	PASSED
SWC-128	DoS With Block Gas Limit	<a href="#">CWE-400: Uncontrolled Resource Consumption</a>	PASSED
SWC-127	Arbitrary Jump with Function Type Variable	<a href="#">CWE-695: Use of Low-Level Functionality</a>	PASSED
SWC-125	Incorrect Inheritance Order	<a href="#">CWE-696: Incorrect Behavior Order</a>	PASSED
SWC-121	Write to Arbitrary	<a href="#">CWE-123: Write-what-where Condition</a>	PASSED

<u>1</u> <u>2</u> <u>4</u>	Storage Location		
<u>S</u> <u>W</u> <u>C</u> : <u>1</u> <u>2</u> <u>3</u>	Requirement Violation	<a href="#">CWE-573: Improper Following of Specification by Caller</a>	PASSED
<u>S</u> <u>W</u> <u>C</u> : <u>1</u> <u>2</u> <u>2</u>	Lack of Proper Signature Verification	<a href="#">CWE-345: Insufficient Verification of Data Authenticity</a>	PASSED
<u>S</u> <u>W</u> <u>C</u> : <u>1</u> <u>2</u> <u>1</u>	Missing Protection against Signature Replay Attacks	<a href="#">CWE-347: Improper Verification of Cryptographic Signature</a>	PASSED
<u>S</u> <u>W</u> <u>C</u> : <u>1</u> <u>2</u> <u>0</u>	Weak Sources of Randomness from Chain Attributes	<a href="#">CWE-330: Use of Insufficiently Random Values</a>	PASSED
<u>S</u> <u>W</u> <u>C</u> : <u>1</u> <u>1</u> <u>1</u> <u>9</u>	Shadowing State Variables	<a href="#">CWE-710: Improper Adherence to Coding Standards</a>	PASSED

<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : <a href="#">1</a> <a href="#">1</a> <a href="#">8</a>	Incorrect Constructor Name	<a href="#">CWE-665: Improper Initialization</a>	PASSED
<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : <a href="#">1</a> <a href="#">1</a> <a href="#">7</a>	Signature Malleability	<a href="#">CWE-347: Improper Verification of Cryptographic Signature</a>	PASSED
<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : <a href="#">1</a> <a href="#">1</a> <a href="#">6</a>	Timestamp Dependence	<a href="#">CWE-829: Inclusion of Functionality from Untrusted Control Sphere</a>	PASSED
<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : <a href="#">1</a> <a href="#">1</a> <a href="#">5</a>	Authorization through tx.origin	<a href="#">CWE-477: Use of Obsolete Function</a>	PASSED
<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : <a href="#">1</a> <a href="#">1</a> <a href="#">4</a>	Transaction Order Dependence	<a href="#">CWE-362: Concurrent Execution using Shared Resource with Improper Synchronization ('Race Condition')</a>	PASSED
<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : <a href="#">1</a> <a href="#">1</a> <a href="#">3</a>	DoS with Failed Call	<a href="#">CWE-703: Improper Check or Handling of Exceptional Conditions</a>	PASSED

<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : 1 1 2	Delegatecall to Untrusted Callee	<a href="#">CWE-829: Inclusion of Functionality from Untrusted Control Sphere</a>	PASSED
<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : 1 1 1	Use of Deprecated Solidity Functions	<a href="#">CWE-477: Use of Obsolete Function</a>	PASSED
<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : 1 1 0	Assert Violation	<a href="#">CWE-670: Always-Incorrect Control Flow Implementation</a>	PASSED
<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : 1 0 9	Uninitialized Storage Pointer	<a href="#">CWE-824: Access of Uninitialized Pointer</a>	PASSED
<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : 1 0 8	State Variable Default Visibility	<a href="#">CWE-710: Improper Adherence to Coding Standards</a>	PASSED
<a href="#">S</a> <a href="#">W</a> <a href="#">C</a> : 1 0 7	Reentrancy	<a href="#">CWE-841: Improper Enforcement of Behavioral Workflow</a>	PASSED



<div> <div>S</div> <div>W</div> <div>C</div> <div>.</div> <div>1</div> <div>1</div> <div>0</div> <div>0</div> <div>0</div> <div>1</div> </div>	<div>Function</div> <div>Default</div> <div>Visibility</div>	<div> <div>CWE-710: Improper Adherence</div> <div>to Coding Standards</div> </div>	<div>PASSED</div>
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