

Blockchain Security | Smart Contract Audits | KYC Development | Marketing



UNIQO

Audit

Security Assessment 18. November, 2022







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Disclaimer

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Version	Date	Description
1.0	20. September 2022	Layout projectAutomated-/Manual-Security TestingSummary
1.1	20. September 2022	· Reaudit
1.2	07. October 2022	· Reaudit
2.0	10. November 2022	· Audit new contract with changes
3.0	18. November 2022	· Audit new contract with changes

Network

Binance Smart Chain (BEP20)

Website

https://uniqo.finance/

Twitter

https://twitter.com/UniqoFinance

Discord

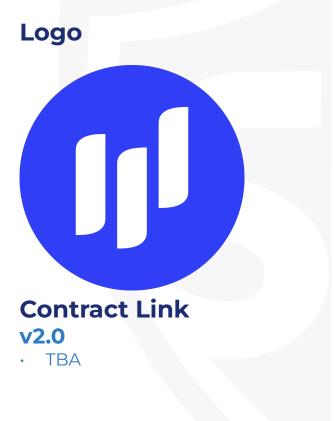
https://discord.gg/uniqo

Description

Uniqo is a new and innovative DeFi product that facilitates stable and secure investment. Powered by a unique protocol that strategically manages inflation and deflation, Uniqo helps to protect investors from traditional risks while providing a way to earn passive income.

Project Engagement

During the 17th of September 2022, **UNIQO 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.



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 aspossible.
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-byline 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:

Dependency / Import Path	Count
@openzeppelin/contracts-upgradeable/access/OwnableUpgradeable.sol	1
@openzeppelin/contracts-upgradeable/proxy/utils/Initializable.sol	1
@openzeppelin/contracts-upgradeable/proxy/utils/UUPSUpgradeable.sol	1
@openzeppelin/contracts-upgradeable/security/PausableUpgradeable.sol	1
@openzeppelin/contracts-upgradeable/token/ERC20/IERC20Upgradeable.sol	1
@openzeppelin/contracts-upgradeable/token/ERC20/utils/SafeERC20Upgradeable.sol	1
@openzeppelin/contracts/token/ERC20/IERC20.sol	1
@openzeppelin/contracts/utils/math/SafeMath.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/interfaces/IDEXRouter.sol	8b9759ee87d1de52a9bcfa7776cb2679c3bfd2bb
contracts/interfaces/IDEXPair.sol	94cc8bc4830bdf66c45cbd6f70fb942d5d11ab27
contracts/interfaces/IDEXFactory.sol	10c578bfce2404cd27be712e03a5564e8178c310
contracts/UNIQO.sol	ef2a47b930c3ac9015c0cba31aa028c1912b7a1c

v2.0

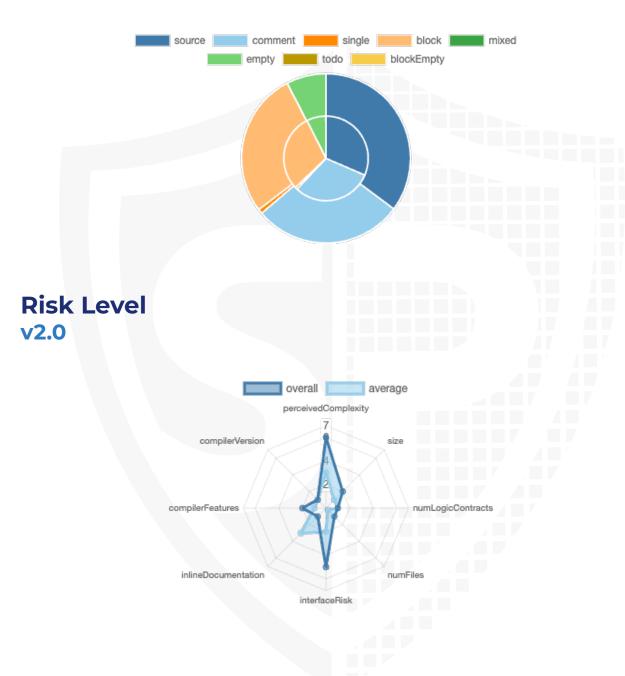
File Name	SHA-1 Hash
contracts/interfaces/IDEXRouter.sol	8b9759ee87d1de52a9bcfa7776cb2679c3bfd2bb
contracts/interfaces/IDEXPair.sol	94cc8bc4830bdf66c45cbd6f70fb942d5d11ab27
contracts/interfaces/IDEXFactory.sol	10c578bfce2404cd27be712e03a5564e8178c310
contracts/UNIQO.sol	8eee3fb6e84d30f911c951b65741464b78ec22a1

V3.0

File Name	SHA-1 Hash
contracts/interfaces/IDEXRouter.sol	8b9759ee87d1de52a9bcfa7776cb2679c3bfd2bb
contracts/interfaces/IDEXPair.sol	94cc8bc4830bdf66c45cbd6f70fb942d5d11ab27
contracts/interfaces/IDEXFactory.sol	10c578bfce2404cd27be712e03a5564e8178c310
contracts/UNIQO.sol	4e38f5bb2664fe2ef751092edd855715bf0be453

Metrics

Source Lines v3.0



Capabilities

Components

Version	Contracts	Libraries	Interfaces	Abstract
3.0	1	0	3	0

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	
3.0		68	2	

Version	External	Internal	Private	Pure	View
3.0	50	55	14	6	28

State Variables

Version	Total	Public	
3.0	58	43	

Capabilities

Version	Solidity Versions observed	Experim ental Features	Can Receive Funds	Uses Assembl Y	Has Destroya ble Contract s
3.0	^0.8.1 3 0.8.13		yes		

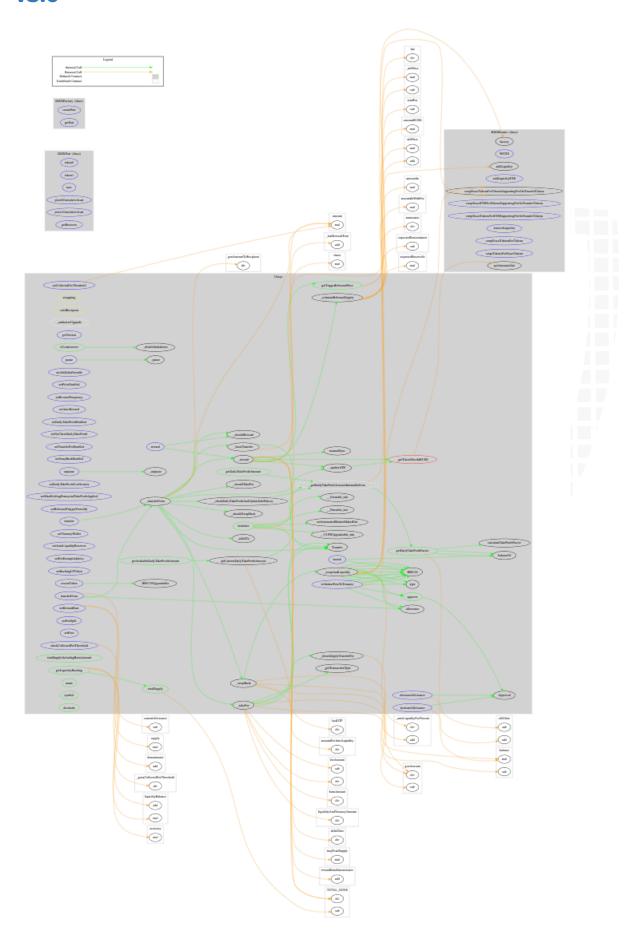
Version	Transfer s ETH	Low- Level Calls	Deleg ateCa II	Uses Hash Function s	EC Rec ove r	New/ Create/ Create2	
3.0	yes						

Inheritance Graph

v1.0



CallGraph v3.0



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 cannot set fees
- 7. Deployer cannot blacklist/antisnipe addresses
- 8. Overall checkup (Smart Contract Security)

Is contract an upgradeable

Name Is contract an upgradeable? Yes

Comments:

v1.0

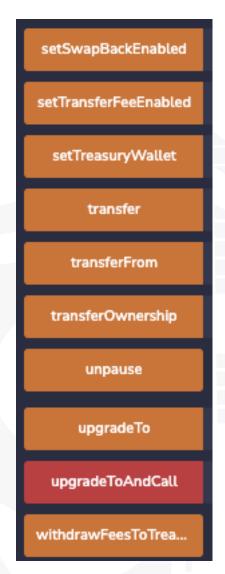
- Owner can deploy a new version of the contract which can change any limit and give owner new privileges
 - Be aware of this and do your own research for the contract which is the contract pointing to

Correct implementation of Token standard

	ERC20				
Function	Function Description				
TotalSupply	Provides information about the total token supply	\checkmark	√	\checkmark	
BalanceOf	Provides account balance of the owner's account	\checkmark	√	\checkmark	
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	1	√	√	
Allowance	Returns a set number of tokens from a spender to the owner	√	1	✓	

Write functions of contract v1.0



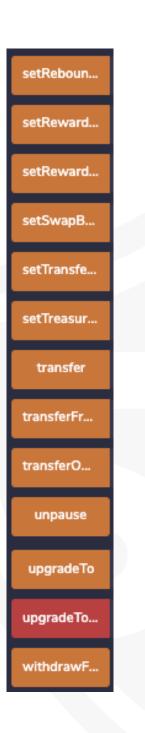


v2.0

setCollect... approve setDailyTa... decreaseA... setDailyTa... setFeeExe... increaseAl... setFees initialize setFeeSplit setMaxHol... launch setNoChec.. manualSync setPriceEn... setReboun... pause setReward... renounce... setReward... setSwapB... rescueToken setTransfe... reward setTreasur... transfer setAthDelt... transferFr... setAutoLiq... transferO... setAutom... unpause upgradeTo setAutoRe... upgradeTo... setBacking... withdrawF..

V3.0

approve decreaseA... increaseAL... initialize launch manualSync pause renounce... rescueToken reward setAthDelt... setAutoLig... setAutom... setAutoRe... setBacking... setCollect... setDailyTa... setDailyTa... setFeeExe... setFees setFeeSplit setMaxHol... setNoChec... setPriceEn...



Deployer cannot mint any new tokens

Name	Exist	Tested	Status
Deployer cannot mint	-	_	-
Max / Total Supply		1.000.0	000.000

Comments:

v1.0

- No mint function found in the contract but the owner can deploy a new version of the contract which could give the owner new privileges to mint new tokens
 - Be aware of this and do your own research for the contract which is the contract pointing to

Deployer cannot burn or lock user funds

Name	Exist	Tested	Status
Deployer cannot lock	\checkmark	√	X
Deployer cannot burn	√	√	\checkmark

Comments:

v1.0

- · Owner can lock user funds by
 - Setting "takeProfitDenominator" to 0
 - Setting "rewardFrequency" to 0
 - Pausing the contract
- Tokens
 - · will be burned while taking fee

v1.1

 Team has fixed takeProfitDenominator and rewardFrequency but team can still lock by pausing

V2.0

· Reward cannot be called when the contract is paused

Deployer cannot pause the contract

Name	Exist	Tested	Status
Deployer cannot pause	\checkmark	√	X

Comments:

v1.0

· Owner can pause contract

Deployer cannot set fees

Name	Exist	Tested	Status
Deployer cannot set fees over 25%	\checkmark	√	X
Deployer cannot set fees to nearly 100% or to 100%	√	√	√

Comments:

v1.0

- FeeDenominator can be set without any limitations
- transferFee can be set to 50%

V1.1

• Fees can be set to 51%

v1.2

· FeeDenominator is set to 100 and cannot be changed

Deployer can blacklist/antisnipe addresses

Name	Exist	Tested	Status
Deployer cannot blacklist/antisnipe addresses	\checkmark	√	\checkmark



Overall checkup (Smart Contract Security)

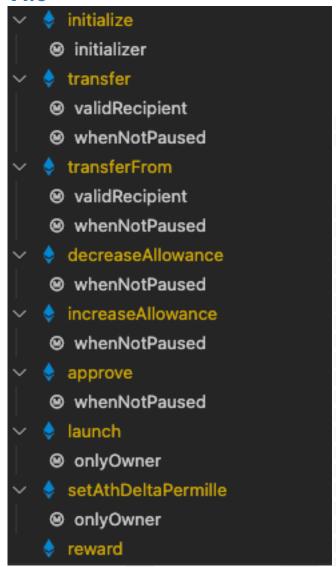


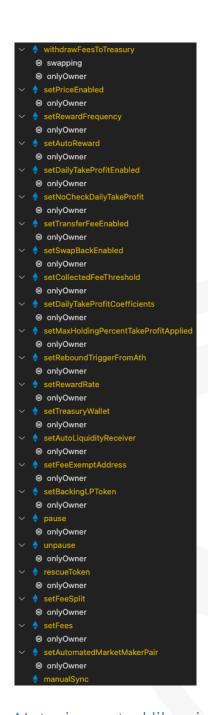
Legend

Attribute	Symbol
Verified / Checked	\checkmark
Partly Verified	P
Unverified / Not checked	X
Not available	-

Modifiers and public functions

v1.0





Note: imported libraries was not listed down below

Comments

- Deployer can set following state variables without any limitations
 - autoLiquidityFeePercent
 - Can be set to 100 if "treasuryFeePercent" and "burnFeePercent" is set to 0
 - treasuryFeePercent
 - Can be set to 100 if "autoLiquidityFeePercent" and "burnFeePercent" is set to 0
 - burnFeePercent
 - Can be set to 100 if "autoLiquidityFeePercent" and "treasuryFeePercent" is set to 0
 - rewardRate

- rewardRateDenominator
- negativeFromAthPercentDenominator
- negativeFromAthPercent
- maxHoldingPercentTakeProfitApplied
- coefficientA
- · coefficientB
- takeProfitDenominator
- _gonsCollectedFeeThreshold

• Deployer can enable/disable following state variables

- automatedMarketMakerPairs
- _paused
- isFeeExempt
- swapBackEnabled
- transferFeeEnabled
- _noCheckDailySellLimit
- dailyTakeProfitEnabled
- autoReward
- priceEnabled

Deployer can set following addresses

- pair
- · autoLiquidityReceiver
- treasury

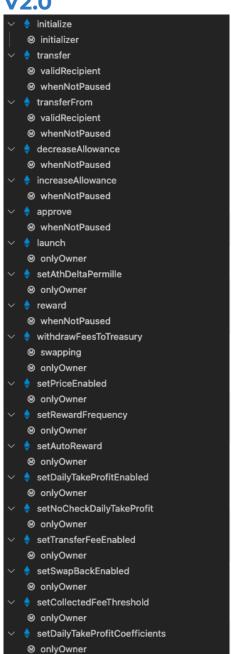
Existing Modifiers

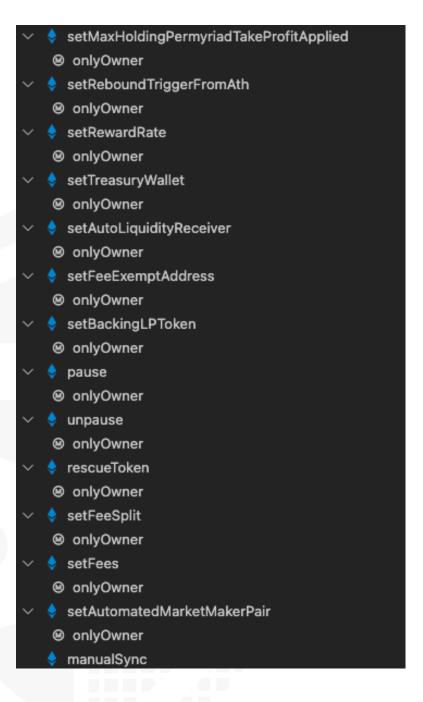
- Swapping
- onlyOwner
- validRecipient
- Anybody can call the initialize function. We recommend you to add a modifier that only the owner is able to call this function.
- Owner can pass own contract address to the "rescueToken" function with withdraw native tokens
- Liquidity goes to the "autoLiquidityReceiver" which is a private key wallet. Be aware of this because this wallet is able to drain the liquidity

V1.1

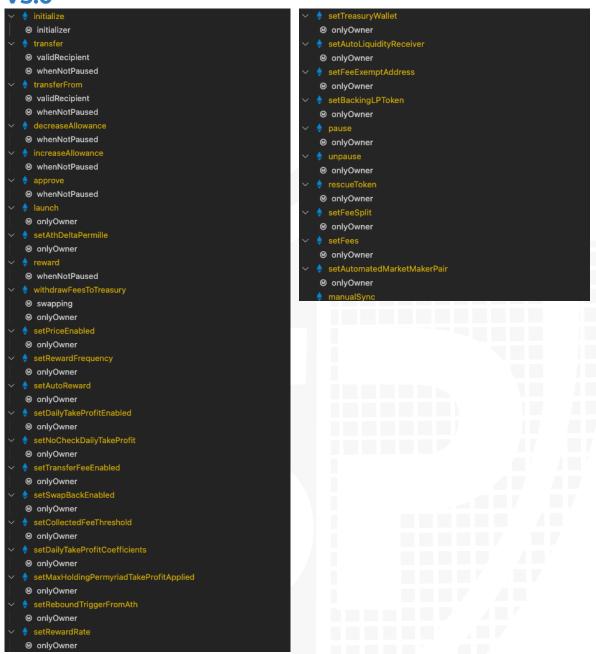
• The team fixed the "initialize" call from anybody

V2.0





V3.0



Please check if an OnlyOwner or similar restrictive modifier has been forgotten.

Source Units in Scope

v1.0

Туре	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
Q	contracts/interfaces/IDEXRouter.sol		1	92	5	3	1	29	. <u>Š</u> .
Q	contracts/interfaces/IDEXPair.sol		1	23	5	3	1	13	
Q	contracts/interfaces/IDEXFactory.sol		1	8	5	3	1	5	
9	contracts/UNIQO.sol	1		1462	1418	623	647	542	<u></u>
Q	Totals	1	3	1585	1433	632	650	589	. <u>Š</u> . 📤

v2.0

Туре	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
Q	contracts/interfaces/IDEXRouter.sol		1	92	5	3	1	29	. <u>Š</u> .
Q	contracts/interfaces/IDEXPair.sol		1	23	5	3	1	13	
Q	contracts/interfaces/IDEXFactory.sol		1	8	5	3	1	5	
2	contracts/UNIQO.sol	1		1481	1439	643	647	551	.
Q	Totals	1	3	1604	1454	652	650	598	. <u>Š</u> .

v3.0

Туре	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
Q	contracts/interfaces/IDEXRouter.sol		1	92	5	3	1	29	. <u>Š</u> .
Q	contracts/interfaces/IDEXPair.sol		1	23	5	3	1	13	
Q	contracts/interfaces/IDEXFactory.sol		1	8	5	3	1	5	
2	contracts/UNIQO.sol	1		1513	1471	666	653	569	.
Q	Totals	1	3	1636	1486	675	656	616	<u>.Š.</u>

Legend

Attribute	Description
Lines	total lines of the source unit
nLines	normalised lines of the source unit (e.g. normalises functions spanning multiple lines)
nSLOC	normalised source lines of code (only source-code lines; no comments, no blank lines)
Comment Lines	lines containing single or block comments

	a custom complexity score derived from code statements that
Complexity Score	are known to introduce code complexity (branches, loops, calls,
	external interfaces,)



Audit Results

Critical issues

No critical issues

High issues

No high issues

Medium issues

No medium issues

Low issues

No low issues

Informational issues

No informational issues

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.

18. November 2022:

- Owner can deploy a new version of the contract which can change any limit and give owner new privileges
- · Read whole report and modifiers section for more information

SWC Attacks

ID	Title	Relationships	Status
<u>SW</u> <u>C-1</u> <u>36</u>	Unencrypted Private Data On-Chain	CWE-767: Access to Critical Private Variable via Public Method	PASSED
<u>SW</u> <u>C-1</u> <u>35</u>	Code With No Effects	CWE-1164: Irrelevant Code	PASSED
<u>SW</u> <u>C-1</u> <u>34</u>	Message call with hardcoded gas amount	CWE-655: Improper Initialization	PASSED
<u>SW</u> <u>C-1</u> <u>33</u>	Hash Collisions With Multiple Variable Length Arguments	CWE-294: Authentication Bypass by Capture-replay	PASSED
<u>SW</u> <u>C-1</u> <u>32</u>	Unexpected Ether balance	CWE-667: Improper Locking	PASSED
<u>SW</u> <u>C-1</u> <u>31</u>	Presence of unused variables	CWE-1164: Irrelevant Code	PASSED
<u>SW</u> <u>C-1</u> <u>30</u>	Right-To-Left- Override control character (U+202E)	CWE-451: User Interface (UI) Misrepresentation of Critical Information	PASSED
<u>SW</u> <u>C-1</u> <u>29</u>	Typographical Error	CWE-480: Use of Incorrect Operator	PASSED
<u>SW</u> <u>C-1</u> <u>28</u>	DoS With Block Gas Limit	CWE-400: Uncontrolled Resource Consumption	PASSED

<u>SW</u> <u>C-1</u> <u>27</u>	Arbitrary Jump with Function Type Variable	CWE-695: Use of Low-Level Functionality	PASSED
SW C-1 25	Incorrect Inheritance Order	CWE-696: Incorrect Behavior Order	PASSED
<u>SW</u> <u>C-1</u> <u>24</u>	Write to Arbitrary Storage Location	CWE-123: Write-what-where Condition	PASSED
<u>SW</u> <u>C-1</u> <u>23</u>	Requirement Violation	CWE-573: Improper Following of Specification by Caller	PASSED
<u>SW</u> <u>C-1</u> <u>22</u>	Lack of Proper Signature Verification	CWE-345: Insufficient Verification of Data Authenticity	PASSED
SW C-1 21	Missing Protection against Signature Replay Attacks	CWE-347: Improper Verification of Cryptographic Signature	PASSED
SW C-1 20	Weak Sources of Randomness from Chain Attributes	CWE-330: Use of Insufficiently Random Values	PASSED
<u>SW</u> <u>C-11</u> <u>9</u>	Shadowing State Variables	CWE-710: Improper Adherence to Coding Standards	PASSED
<u>SW</u> <u>C-11</u> <u>8</u>	Incorrect Constructor Name	CWE-665: Improper Initialization	PASSED
<u>SW</u> <u>C-11</u> <u>7</u>	Signature Malleability	CWE-347: Improper Verification of Cryptographic Signature	PASSED

<u>SW</u> <u>C-11</u> <u>6</u>	Timestamp Dependence	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	PASSED
<u>SW</u> <u>C-11</u> <u>5</u>	Authorization through tx.origin	CWE-477: Use of Obsolete Function	PASSED
<u>SW</u> <u>C-11</u> <u>4</u>	Transaction Order Dependence	CWE-362: Concurrent Execution using Shared Resource with Improper Synchronization ('Race Condition')	PASSED
<u>SW</u> <u>C-11</u> <u>3</u>	DoS with Failed Call	CWE-703: Improper Check or Handling of Exceptional Conditions	PASSED
<u>SW</u> <u>C-11</u> <u>2</u>	Delegatecall to Untrusted Callee	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	PASSED
<u>SW</u> <u>C-11</u> <u>1</u>	Use of Deprecated Solidity Functions	CWE-477: Use of Obsolete Function	PASSED
<u>SW</u> <u>C-11</u> <u>O</u>	Assert Violation	CWE-670: Always-Incorrect Control Flow Implementation	PASSED
SW C-1 09	Uninitialized Storage Pointer	CWE-824: Access of Uninitialized Pointer	PASSED
<u>SW</u> <u>C-1</u> <u>08</u>	State Variable Default Visibility	CWE-710: Improper Adherence to Coding Standards	PASSED
SW C-1 07	Reentrancy	CWE-841: Improper Enforcement of Behavioral Workflow	PASSED
<u>SW</u> <u>C-1</u> <u>06</u>	Unprotected SELFDESTRUC T Instruction	CWE-284: Improper Access Control	PASSED

<u>SW</u> <u>C-1</u> <u>05</u>	Unprotected Ether Withdrawal	CWE-284: Improper Access Control	PASSED
<u>SW</u> <u>C-1</u> <u>04</u>	Unchecked Call Return Value	CWE-252: Unchecked Return Value	PASSED
<u>SW</u> <u>C-1</u> <u>03</u>	Floating Pragma	CWE-664: Improper Control of a Resource Through its Lifetime	PASSED
<u>SW</u> <u>C-1</u> <u>02</u>	Outdated Compiler Version	CWE-937: Using Components with Known Vulnerabilities	PASSED
<u>SW</u> <u>C-1</u> <u>01</u>	Integer Overflow and Underflow	CWE-682: Incorrect Calculation	PASSED
<u>SW</u> <u>C-1</u> <u>00</u>	Function Default Visibility	CWE-710: Improper Adherence to Coding Standards	PASSED







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