

Blockchain Security | Smart Contract Audits | KYC



Ubuntu Tribe

Audit

Security Assessment 26. February, 2022

For



Ubuntu Tribe

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Version	Date	Description
1.0	25. February 2022	Layout projectAutomated-/Manual-Security TestingSummary
1.1	26. February 2022	Reaudit

Network

Ethereum (ERC20)

Website

https://www.utribe.one/

Twitter

https://twitter.com/utribeone

Facebook

https://www.utribe.one/

Instagram

https://instagram.com/ubuntu.coin

LinkedIn

https://linkedin.com/company/utribeone

Youtube

https://www.youtube.com/channel/UCZplv9UrM_wqDirC_9bjLbA

Description

With Ubuntu Tribe, people can reclaim control over their wealth and multiply it, contributing to the wellbeing of all

Project Engagement

During the 21st of February 2022, **Ubuntu Tribe 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.



Contract Link

v1.0

- Gitlab
 - https://gitlab.com/fluidefil/utribe/-/tree/gift-erc20-token/contracts/gift-erc20-token
 - Commit: 1ca3325e065a3230f3697d4f1af38ee496f259f9

v1.1

- Gitlab
 - https://gitlab.com/fluidefi1/utribe/-/tree/gift-erc20-token/contracts/gift-erc20-token
 - Commit: b7560815c7c8915674a1637caded5c2266c4835f

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 po		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:

Arrays.sol

Context.sol

Counters.sol

ERC20.sol

ERC20Pausable.sol

ERC20Snapshot.sol

IERC20.sol

IERC20Metadata.sol

Math.sol

Ownable.sol

Pausable.sol

SafeMath.sol

Tested Contract Files

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

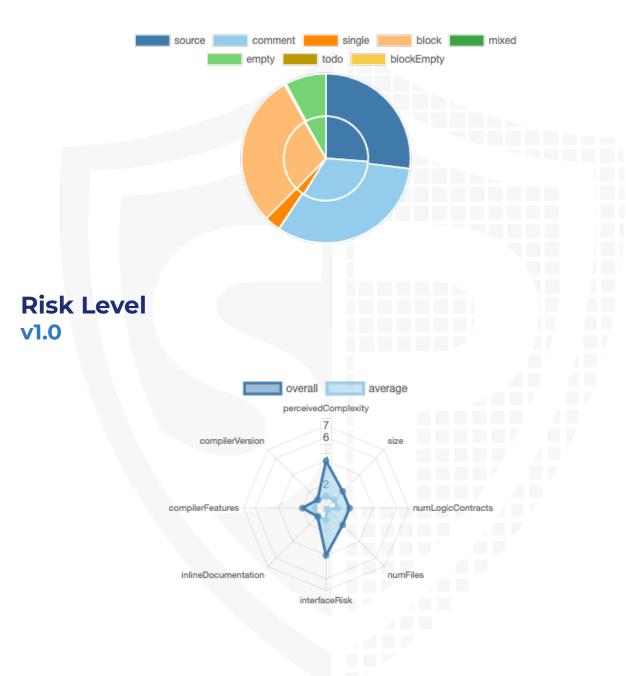
A file with a different Hash has been modified, intentionally or otherwise, after the security review. A different Hash could be (but not necessarily) an indication of a changed condition or potential vulnerability that was not within the scope of this review.

v1.0

File Name	SHA-1 Hash
contracts/ERC20Snapshot.sol	695371769e0213ae48c1eb35ca5ed34e6d689092
contracts/Math.sol	883142f8542c55a0ae5ded5ab19a6c0fea91472c
contracts/Context.sol	2da7a4b124d7080a2a0182aecee63aa9bd0d1fb6
contracts/IERC20Metadata.sol	67cec1b0ea0da837602e1a674f6cb8a5d689bee5
contracts/GIFT.sol	c36a1212ba69130cfabb21eed266585cddcb041e
contracts/ERC20Pausable.sol	c5a5ad7bdfcd76517cd3fa0b3b9060b342eb0ea1
contracts/Arrays.sol	7f4d5417e8eeb2e323b4b18d0b85a65c7f08fab4
contracts/SafeMath.sol	d6d2bea2b925e4f6ac46bc16dde479979ce1f773
contracts/Ownable.sol	322915f34f844670c2b4065df9988374468a2c29
contracts/Counters.sol	cc91ca5dd4105db3ae0641855a31fd934e9c9f4a
contracts/Pausable.sol	f40f561c0eb026c588a0c4fcb8cbe2437a6be295
contracts/ERC20.sol	9e1f17c88615d137418409653b0c638ee6d4bc91
contracts/IERC20.sol	c6244bea30e3053e1a4bcdb40198dc5b3e15cd29

Metrics

Source Lines v1.0



Capabilities

Components

Version	Contracts	Libraries	Interfaces	Abstract
1.0	2	4	2	5

Exposed Functions

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

Ve	rsion	Public	Payable
1.0		40	0

Version	External	Internal	Private	Pure	View
1.0	9	86	5	17	24

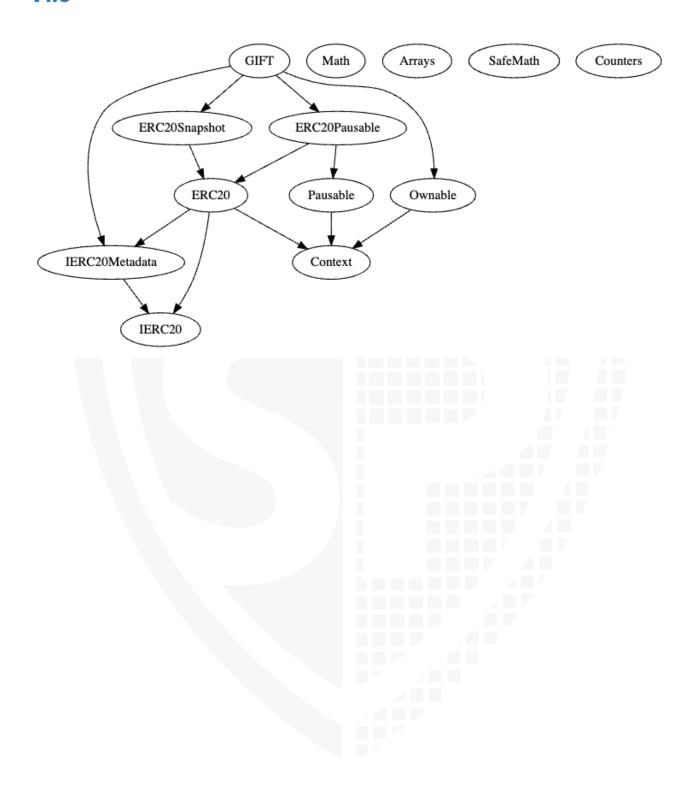
State Variables

Version	Total	Public
1.0	23	13

Capabilities

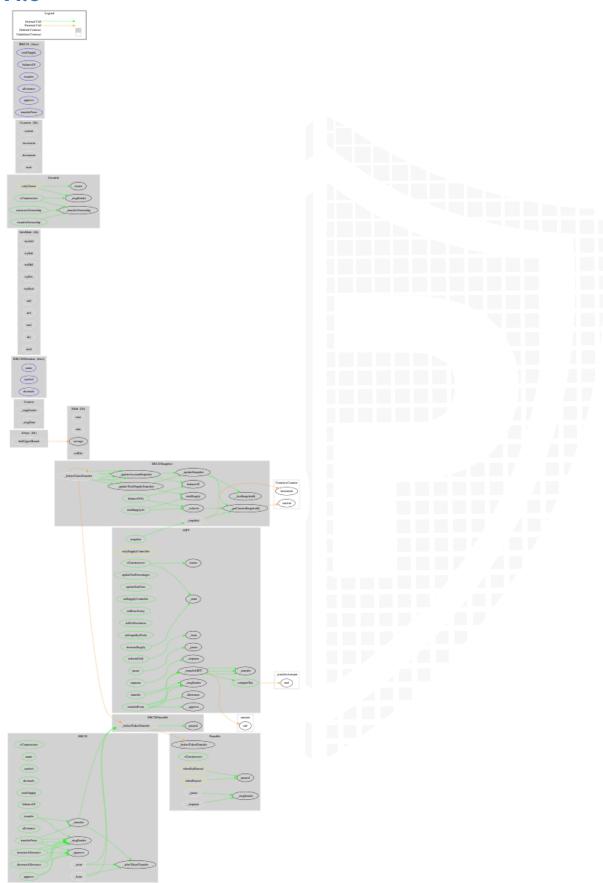
Version	Solidity Versions observed	Experim ental Features	Can Receive Funds	Uses Assembl Y	Has Destroya ble Contract s
1.0	^0.8.4				

Inheritance Graph v1.0



CallGraph

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. Correct implementation of Token standard
- 2. Deployer cannot mint any new tokens
- 3. Deployer cannot burn or lock user funds
- 4. Deployer cannot pause the contract
- 5. Overall checkup (Smart Contract Security)

Correct implementation of Token standard

Function	Description	Exist	Tested	Verified
TotalSupply	provides information about the total token supply	\checkmark	\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	√	√	√
Allowance	returns a set number of tokens from a spender to the owner	√	√	√

Write functions of contract v1.0

snapshot
updateTaxPercentages
updateTaxTiers
setSupplyController
setBeneficiary
setFeeExclusion
setLiquidityPools
increaseSupply
redeemGold
pause
unpause
transfer
transferFrom

renounceOwnership transferOwnership

transfer
approve
transferFrom
increaseAllowance
decreaseAllowance

Deployer cannot mint any new tokens

Name	Exist	Tested	Status
Deployer cannot mint	\checkmark	√	X
Max / Total Supply		500.0	000.000

Comments:

v1.0

 Only supply controller can mint tokens itself with increaseSupply function L160 GIFT.sol

Deployer cannot burn or lock user funds

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

Comments:

v1.0

- Only supply controller can burn tokens for a certain address without permission with redeemGold function L168 GIFT.sol
- · Deployer can lock user funds by pausing the contract

Deployer cannot pause the contract

Name	Exist	Tested	Status
Deployer cannot pause	\checkmark	√	X

Comments:

v1.0

· Only owner can enable/disable pause



Overall checkup (Smart Contract Security)

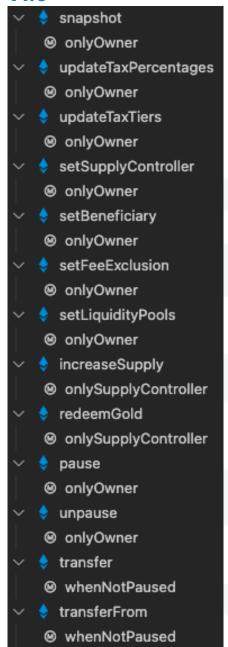


Legend

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

Modifiers and public functions

v1.0



- ✓ \$ renounceOwnership
 ❷ onlyOwner
 ✓ \$ transferOwnership
 ❷ onlyOwner
- transfer
 approve
 transferFrom
 increaseAllowance
 decreaseAllowance

Comments

- Deployer can set following state variables without any limitations
 - tierOneTaxPercentage
 - tierTwoTaxPercentage
 - tierThreeTaxPercentage
 - tierFourTaxPercentage
 - tierFiveTaxPercentage
 - tierOneMax
 - tierTwoMax
 - tierThreeMax
 - tierFourMax
- Deployer can enable/disable following state variables
 - _isExcludedFromFees
 - _isLiquidityPool[_liquidityPool]
 - _paused
- · Deployer can set following addresses
 - supplyController
 - beneficiary

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
@	contracts/ERC20Snapshot.sol	1		195	191	76	89	46	
\equiv 	contracts/Math.sol	1		43	43	15	23	4	
%	contracts/Context.sol	1		24	24	9	12	1	
Q	contracts/IERC20Metadata.sol		1	28	17	4	16	9	*
<i>3</i>	contracts/GIFT.sol	1		254	230	132	68	97	Σ
%	contracts/ERC20Pausable.sol	1		33	29	9	16	8	*
\equiv 	contracts/Arrays.sol	1		48	48	24	17	6	*
align*	contracts/SafeMath.sol	1		227	215	69	131	10	
%	contracts/Ownable.sol	1		76	76	28	38	23	
\(\rightarrow\)	contracts/Counters.sol	1		43	43	24	14	2	∴Σ Σ
%	contracts/Pausable.sol	1		91	91	29	51	16	
)	contracts/ERC20.sol	1		356	336	103	194	80	Σ
Q	contracts/IERC20.sol		1	82	27	17	58	13	*
∌≧ Q	Totals	11	2	1500	1370	539	727	315	₩Σ

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	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

No infromational issues

Commented Code exist

There are some instances of code being commented out in the following files that should be removed:

File	Line	Comment
Math	29	// (a + b) / 2 can overflow.
	40	# (a + b - 1) $#$ b can overflow on addition, so we distribute.

Recommendation

Remove the commented code, or address them properly.

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.

25. February 2022:

- OpenZeppelin Contracts Version used 4.4.1. This branch is 9 commits ahead, 121 commits behind master.
- Read whole report for more information

Unit Testing

Contract: GIFT

- ✓ checking if totalSupply returns total token supply
- ✓ updateTaxPercentages: checking that non owner cannot call onlyOwner modified function (666ms)
 - ✓ updateTaxPercentages: checking that tax percentages get updated (92ms)
 - ✓ updateTaxTiers: checking that non owner cannot call onlyOwner modified function (77ms)
 - ✓ updateTaxTiers: checking that tax tiers get updated (90ms)
- ✓ setSupplyController: checking that non owner cannot call onlyOwner modified function (41ms)
 - ✓ setSupplyController: checking that supplyController cannot be set to zero address (101ms)
- ✓ setSupplyController: checking that supplyController state variable gets set to expected address (62ms)
 - ✓ setBeneficiary: checking that non owner cannot call onlyOwner modified function (78ms)
 - \checkmark setBeneficiary: checking that beneficiary cannot be set to zero address
 - ✓ setBeneficiary: checking that beneficiary state variable gets set to expected address (102ms)
 - ✓ setFeeExclusion: checking that non owner cannot call onlyOwner modified function (45ms)
 - ✓ setFeeExclusion: checking if address gets set to be excluded from fee (137ms)
- ✓ setLiquidityPools: checking that non owner cannot call onlyOwner modified function (38ms)
 - ✓ setLiquidityPools: checking if address gets set as a liquidity pool (82ms)
- ✓ increaseSupply: checking that non supplyController cannot call onlySupplyController modified function (92ms)
 - ✓ increaseSupply: checking that it emits a Transfer event from zero address on successful call
- ✓ redeemGold: checking that non supplyController cannot call onlySupplyController modified function (129ms)
 - ✓ redeemGold: checking that it emits a Transfer event to zero address on successful call
 - ✓ pause: checking that non owner cannot call onlyOwner modified function (40ms)
- ✓ pause: checking that you cannot call pause function when contract is already paused (173ms)
 - ✓ pause: checking that it emits a Paused event on successful call (48ms)
 - ✓ unpause: checking that non owner cannot call onlyOwner modified function (57ms)
- ✓ unpause: checking that you cannot call unpause function when contract is already unpaused (213ms)
 - ✓ unpause: checking that it emits a Unpaused event on successful call (126ms)
 - ✓ snapshot: checking that non owner cannot call onlyOwner modified function (74ms)
 - ✓ snapshot: checking that values are recorded when snapshot function is called (508ms)
 - √ transfer: checking that you cannot call transfer when contract is paused (70ms)
 - ✓ transfer: checking that you cannot call transfer to zero address (99ms)
 - ✓ transfer: checking that you cannot transfer more than available balance (159ms)
 - ✓ transfer: checking that it emits Transfer event on successful call (77ms)
- ✓ transfer: checking that it emits additional Transfer event to beneficiary on successful call (271ms)

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

Unprotected Ether Withdrawal	CWE-284: Improper Access Control	PASSED
Unchecked Call Return Value	CWE-252: Unchecked Return Value	PASSED
Floating Pragma	CWE-664: Improper Control of a Resource Through its Lifetime	NOT PASSED
Outdated Compiler Version	CWE-937: Using Components with Known Vulnerabilities	PASSED
Integer Overflow and Underflow	CWE-682: Incorrect Calculation	PASSED
Function Default Visibility	CWE-710: Improper Adherence to Coding Standards	PASSED
	Ether Withdrawal Unchecked Call Return Value Floating Pragma Outdated Compiler Version Integer Overflow and Underflow Function Default	Ether Withdrawal Unchecked Call Return Value Floating Pragma Outdated Compiler Version Integer Overflow and Underflow Function Default Visibility CWE-252: Unchecked Return Value CWE-664: Improper Control of a Resource Through its Lifetime CWE-937: Using Components with Known Vulnerabilities CWE-682: Incorrect Calculation CWE-710: Improper Adherence to Coding Standards



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