

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

MADE IN GERMANY

# Revolt 2 Earn

# Audit

Security Assessment 28. June, 2022

For







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#### **Disclaimer**

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Version	Date	Description
1.0	10. June 2022	<ul><li>Layout project</li><li>Automated-/Manual-Security Testing</li><li>Summary</li></ul>
1.1	14. June 2022	· Reaudit
1.2	15. June 2022	· Reaudit
1.3	22. June 2022	· Reaudit
1.4	28. June 2022	· Reaudit + merged audit reports

#### **Network**

Polygon Matic

#### Website

https://revolt.cultdao.io/

## **Telegram**

https://t.me/revolt2earn

#### **Twitter**

https://twitter.com/wearecultdao

#### Medium

https://wearecultdao.medium.com/

#### **Discord**

https://discord.com/invite/hHDBvNnXqe

#### Reddit

http://reddit.com/r/cultdao/

## **Description**

Revolt (RVLT) is CULT DAOs first ecosystem token, and has been built on the Polygon network as a Polygon POS token with 0.4% taxation. Whereas CULT works to fund protocols furthering decentralization, RVLT seeks to support The Many individuals who are working towards the same goal.

Each 15 days 490 stakers (+10 consistent NFT owners) are picked randomly (through Chainlink VRF) from all RVLT stakers (uRVLT owners).

These 500 (known as the CULTmanders) have the job of approving or disapproving submissions by the users of the actions they have taken to help the CULT ecosystem, whether this be stickering, leafleting, shilling or anything else, they are effectively being paid to further the cause of decentralization and the ecosystem.

## **Project Engagement**

During the 9th of June 2022, **Revolt2Earn 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 Link**

#### **v1.2**

- Github
  - https://github.com/cultdao-developer/revolt2earn
  - Commit: 8986c15078592e74ee876c5898c798286ec50976

- · Github
  - https://github.com/cultdao-developer/revolt2earn
  - Commit: 2111bf941f805596b8ddb4543e343ea0b54c1d60

- Github
  - https://github.com/cultdao-developer/revolt2earn
  - · Commit: bde7a6714bc63ab3449a74fa6dc8898ab95e571d



# **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
@chainlink/contracts/src/v0.8/interfaces/VRFCoordinatorV2Interface.sol	1
@openzeppelin/contracts-upgradeable/access/OwnableUpgradeable.sol	4
@openzeppelin/contracts-upgradeable/proxy/utils/Initializable.sol	6
@openzeppelin/contracts-upgradeable/proxy/utils/UUPSUpgradeable.sol	6
@openzeppelin/contracts-upgradeable/security/PausableUpgradeable.sol	3
@openzeppelin/contracts-upgradeable/security/ReentrancyGuardUpgradeable.sol	3
@openzeppelin/contracts-upgradeable/token/ERC20/ERC20Upgradeable.sol	2
@openzeppelin/contracts-upgradeable/token/ERC20/IERC20Upgradeable.sol	1
@openzeppelin/contracts-upgradeable/token/ERC20/extensions/ERC20VotesCompUpgradeable.sol	1
@openzeppelin/contracts-upgradeable/token/ERC20/extensions/ERC20VotesUpgradeable.sol	2
@openzeppelin/contracts-upgradeable/token/ERC20/extensions/draft-ERC20PermitUpgradeable.sol	2
@openzeppelin/contracts-upgradeable/token/ERC20/utils/SafeERC20Upgradeable.sol	1
@openzeppelin/contracts-upgradeable/token/ERC721/IERC721Upgradeable.sol	1
@openzeppelin/contracts-upgradeable/utils/CountersUpgradeable.sol	1
@openzeppelin/contracts-upgradeable/utils/math/SafeMathUpgradeable.sol	5

Dependency / Import Path	Count
@openzeppelin/contracts/access/Ownable.sol	1
@openzeppelin/contracts/token/ERC20/IERC20.sol	1

## **Tested Contract Files**

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

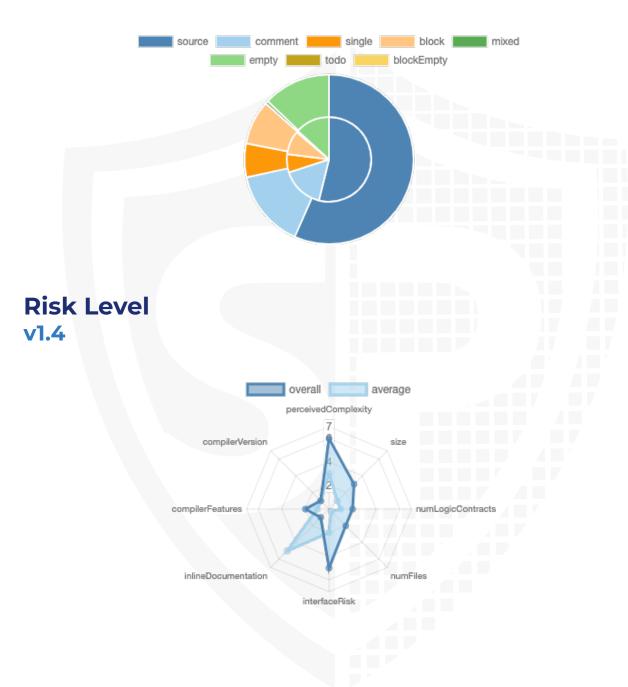
A file with a different Hash has been modified, intentionally or otherwise, after the security review. A different Hash could be (but not necessarily) an indication of a changed condition or potential vulnerability that was not within the scope of this review.

File Name	SHA-1 Hash
contracts/treasury.sol	cc9de1fe66a54dc55f83f9d6434cf8da40bdc14f
contracts/GovernorBravoInterfaces.sol	2cf173cc8a8a80183497da32081b0af990733a24
contracts/rvlt.sol	c18c733db504c0e9dc12cded483dcfcbd21f5125
contracts/timelock.sol	29ecb767a459651586a3308aebfddde1abcdb073
contracts/governance.sol	29cc8ed73ce52c1ec973f5e29ae125302695d1df
contracts/uRevolt.sol	9eb9a533e1eb268fee43ec98010561aa53cc0614
contracts/RandomNumberGenerator.sol	fe938f5ef6a2a5472d404721426e4e00ec2d8abe

File Name	SHA-1 Hash	
contracts/Airdrop.sol	11c1fc66eafd667f60cf81c66f0c33a0ae03dc69	

# **Metrics**

# Source Lines v1.4



# **Capabilities**

## Components

Version	Contracts	Libraries	Interfaces	Abstract
1.4	12	0	9	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	
1.4		96	5	

Version	External	Internal	Private	Pure	View
1.4	68	117	0	8	27

## **State Variables**

Version	Total	Public	
1.4	90	94	

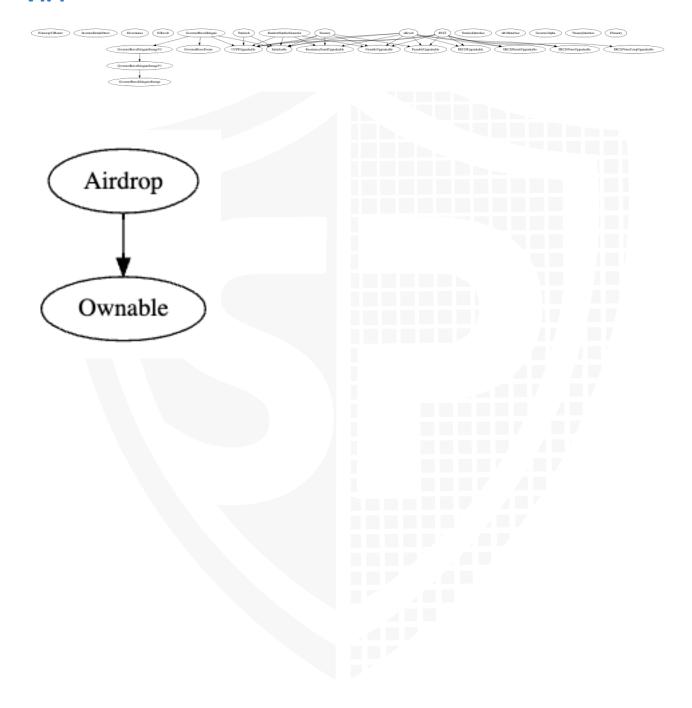
# **Capabilities**

Version	Solidity Versions observed	Experim ental Features	Can Receive Funds	Uses Assembl Y	Has Destroya ble Contract s
1.4	0.8.2	ABIEnc oderV2	yes	yes (1 asm blocks)	

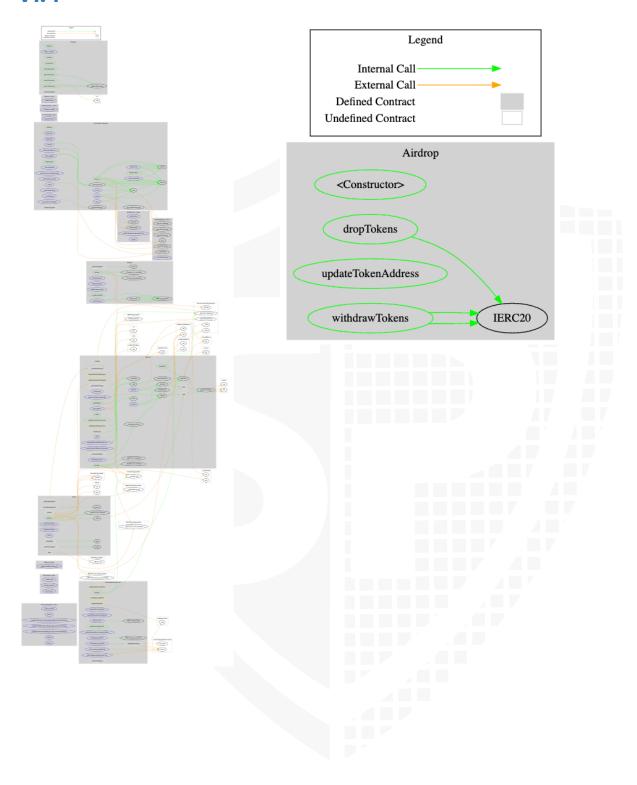
version	Transfer s ETH	Low- Level Calls	Deleg ateCa II	Uses Hash Function s	EC Rec ove r	New/ Create/ Create2	
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1.4	woo		77.0.C	770 G	
	yes		yes	yes	

# **Inheritance Graph**



# **CallGraph**



# **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).

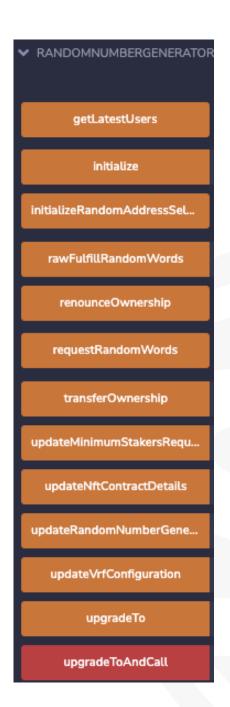
We will verify the following claims:

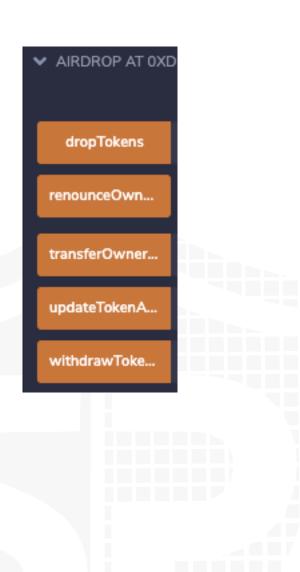
1. Overall checkup (Smart Contract Security)



# Write functions of contract v1.4







## **Overall checkup (Smart Contract Security)**



#### Legend

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

# Modifiers and public functions **V1.4**

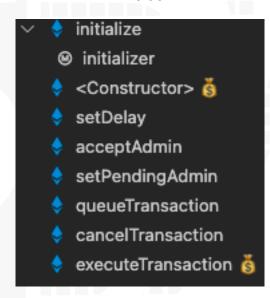
#### uRevolt

#### initialize add ❷ onlyOwner massUpdatePools randomGenerationCompleted updatePool deposit randomGenerationCompleted 🗸 🌷 withdraw ❷ randomGenerationCompleted ⊗ nonReentrant claimRVLT @ randomGenerationCompleted admin setRandomNumberGenerator ⊗ onlyOwner 🗸 🌷 updateCultMandatorsReward ⊗ onlyTreasury updateNumberOfRandomGeneration ⊗ onlyOwner initializeRandomAddressSelection ⊗ onlyRandomNumGenerator randomSelectUsers ❷ randomGenerationInProgress

#### Treasury



#### Timelock



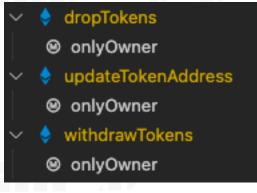
#### Governance Revolt

- initialize initializer propose queue execute 👸 cancel castVote castVoteWithReason castVoteBySig \_setInvesteeDetails \_fundInvestee \_setVotingPeriod \_setWhitelistAccountExpiration \_setWhitelistGuardian \_initiate \_setPendingAdmin \_acceptAdmin \_AcceptTimelockAdmin
- ✓ Initialize
   ⊘ initializer
   ♦ 
   ♦ setDelay
   ♦ acceptAdmin
   ♦ setPendingAdmin
   ♦ queueTransaction
   ♦ cancelTransaction
   ♦ executeTransaction

#### RandomNumberGenerator

## initialize updateNftContractDetails ⊗ onlyOwner updateMinimumStakersRequired ⊗ onlyOwner getLatestUsers updateVrfConfiguration ⊗ onlyOwner updateRandomNumberGenerationTime ⊗ onlyOwner initializeRandomAddressSelection eligibleForEnableInitialize requestRandomWords ⊗ nonReentrant eligibleForRequest ⊗ verifyMinimumHolder rawFulfillRandomWords

# Airdrop



Note: Not listed functions/modifiers was imported from external libraries

#### **Comments**

- Deployer can set following state variables without any limitations
  - Governance
    - votingPeriod
    - · investee.\_investee
    - · investee.\_fundAmount
    - whitelistAccountExpirations
  - · uRevolt
    - randomThreshold
  - Revolt
    - tax
  - RandomNumberGenerator
    - tokenIds
    - minimumStakersRequired
    - callbackGasLimit
      - Max 2<sup>32</sup> 1
    - requestConfirmations
      - Max 2<sup>1</sup>6 1
    - \_numWords
      - Max 2<sup>32</sup> 1
    - \_subscriptionId
      - Max 2^64 1
- Deployer can enable/disable following state variables
  - Revolt
    - whitelistedAddress
- Deployer can set following addresses
  - Governance
    - whitelistGuardian
    - pendingAdmin
  - uRevolt
    - adminAddress
    - numberGenerator
  - Treasury
    - · dao
    - uRvlt
    - multSignWallet
  - Timelock
    - admin
    - pendingAdmin
  - Revolt
    - treasury

- RandomNumberGenerator
  - nftAddress
  - vrfCoordinator
  - keyHash
- Airdrop
  - tokenAddr

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- Existing Modifiers
  - · eligibleForEnableInitialize
  - eligibleForRequest
  - verifyMinimumHolder
  - onlyTreasury
  - onlyRandomNumGenerator
  - randomGenerationInProgress
  - randomGenerationCompleted
  - onlyOwner
- uRevolt
  - Owner can add new poolinfo
  - Treasury can update totalRewardMandators/ totalRVLTRewardMandators without limitations
- Airdrop
  - Owner can withdraw a specific amount of token address

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

# **Source Units in Scope**

## v1.4

Туре	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
Q	contracts/treasury.sol	2	3	152	96	84	1	132	. <b>Š</b> . <del>Č</del>
Q	contracts/GovernorBravoInterfaces.sol	4	4	207	189	75	62	52	<i>∠</i> §
Q	contracts/rvlt.sol	1	1	113	90	74	1	67	
2	contracts/timelock.sol	1		126	126	92	3	87	. <u>Š</u> .
7	contracts/governance.sol	1		453	453	253	134	227	<u></u>
9	contracts/uRevolt.sol	1		469	446	358	45	281	ATT
Q	contracts/RandomNumberGenerator.sol	1	1	292	247	137	76	101	
Q	Totals	11	9	1812	1647	1073	322	947	<b>■</b> / § <b>÷</b>

Туре	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
2	contracts/Airdrop.sol	1		57	57	29	20	35	<u>*</u>
2	Totals	1		57	57	29	20	35	<b>.</b>

# Legend

9	
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

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 <a href="https://docs.soliditylang.org/en/v0.5.10/natspec-format.html">https://docs.soliditylang.org/en/v0.5.10/natspec-format.html</a>) 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.

#### 28. June 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> C-1 24	Write to Arbitrary Storage Location	CWE-123: Write-what-where Condition	PASSED
SW C-1 23	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
<u>SW</u> <u>C-1</u> <u>21</u>	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> C-11 7	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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