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

MADE IN GERMANY

**C250Gold**

**Audit**

**Security Assessment  
01. July, 2022**

**For**



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

## **Network**

Binance Smart Chain (BEP20)

## **Website**

<https://club250cent.com/>

## **Telegram**

<https://t.me/joinchat/TpWdcfaoz685ZDJk>

## **Facebook**

<https://www.facebook.com/groups/1868326013345361>

## Description

CLUB250CENT is a crowdfunding cum digital cryptocurrency investment platform designed to make network marketing a real life career. It sub-divided into the classic and the premium plans.

## Project Engagement

During the 26th of June 2022, **C250Gold 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

### v1.0

- Github
  - <https://github.com/ademuanthony/c250gold/blob/main/contracts/C250Gold.sol>
  - Commit: 1199bc0f5e44773dacc9a1f6dadcc1d52a232901

# 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 they 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:

Dependency / Import Path	Count
@openzeppelin/contracts/access/Ownable.sol	1
@openzeppelin/contracts/math/SafeMath.sol	1
@openzeppelin/contracts/token/ERC20/ERC20.sol	1
@openzeppelin/contracts/token/ERC20/IERC20.sol	1
@openzeppelin/contracts/utils/ReentrancyGuard.sol	1
@uniswap/v3-core/contracts/interfaces/IUniswapV3Factory.sol	1
@uniswap/v3-core/contracts/interfaces/IUniswapV3Pool.sol	2
@uniswap/v3-periphery/contracts/libraries/OracleLibrary.sol	1

## Tested Contract Files

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

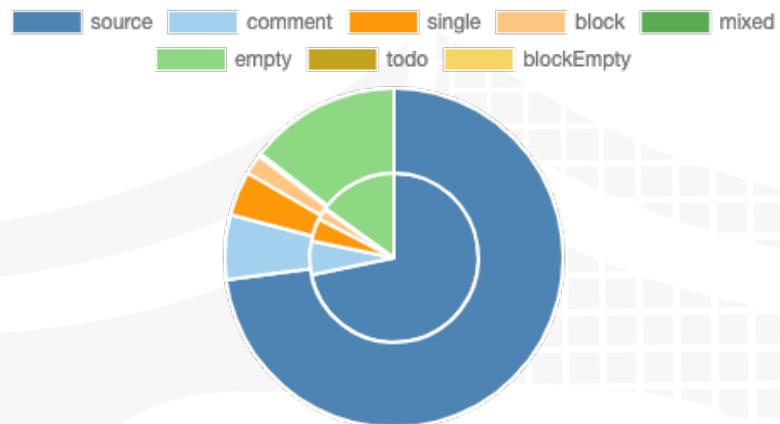
*A file with a different Hash has been modified, intentionally or otherwise, after the security review. A different Hash could be (but not necessarily) an indication of a changed condition or potential vulnerability that was not within the scope of this review.*

**v1.0**

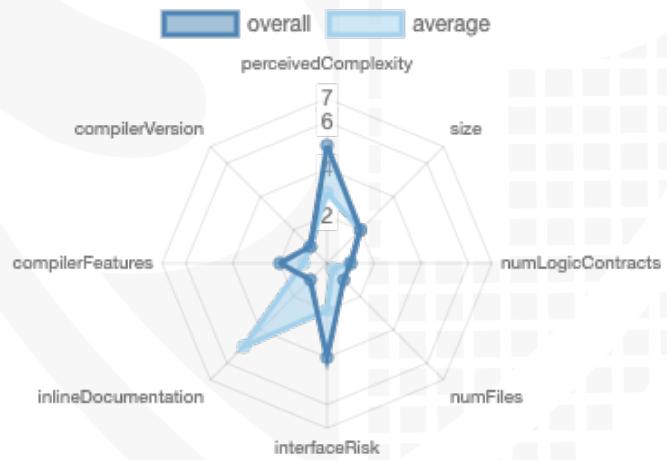
File Name	SHA-1 Hash
contracts/TimeProvider.sol	01b521b353d699b11c6780b4778c2ad4881d0d9d
contracts/C250PriceOracle.sol	f966c6a4ea7f6d1d61b6f94687b30bde34c11a54
contracts/c250gold.sol	3f6c57f3f16f0cdb8c0623ce261c6f195b661594

# Metrics

## Source Lines v1.0



## Risk Level v1.0



# Capabilities

## Components

Version	Contracts	Libraries	Interfaces	Abstract
1.0	3	0	0	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
1.0	42	0

Version	External	Internal	Private	Pure	View
1.0	31	38	10	3	22

## State Variables

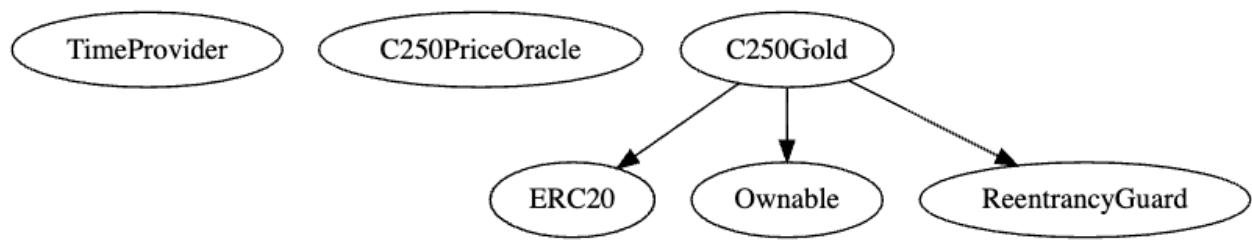
Version	Total	Public
1.0	29	20

## Capabilities

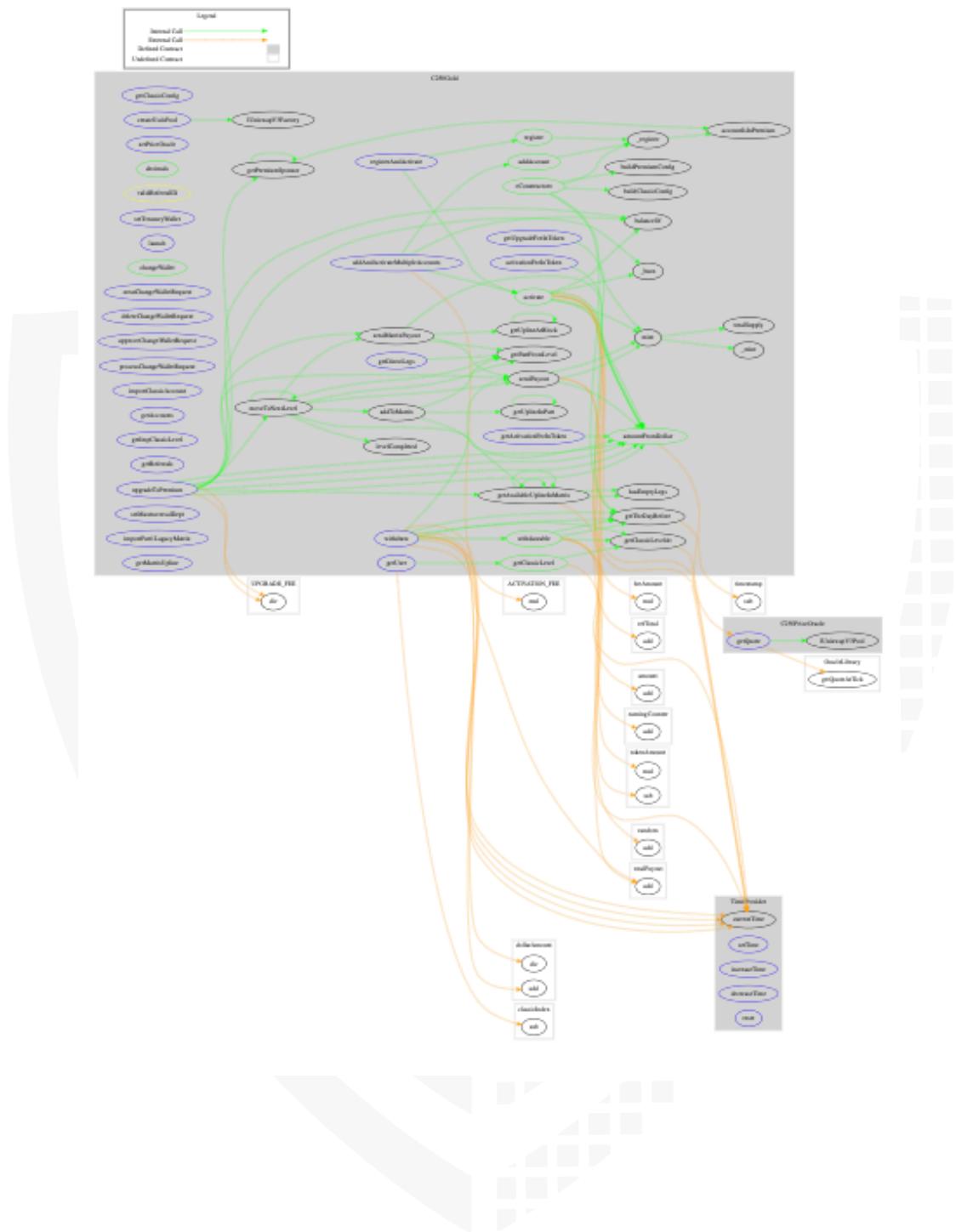
Version	Solidity Versions observed	Experimental Features	Can Receive Funds	Uses Assembly	Has Destroyable Contracts
1.0	0.7.6				

# 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

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 contract v1.0

```
createUsdcPool
setPriceOracle
setTreasuryWallet
launch
changeWallet
creatChangeWalletRequest
deleteChangeWalletRequest
approveChangeWalletRequest
processChangeWalletRequest
register
addAccount
activate
registerAndActivate
addAndActivateMultipleAccounts
importClassicAccount
withdraw
upgradeToPremium
setMaxtraversalDept
importPart1LagacyMatrix
renounceOwnership
transferOwnership
transfer
approve
transferFrom
increaseAllowance
decreaseAllowance
```

## Deployer cannot mint any new tokens

Name	Exist	Tested	Status
Deployer cannot mint	✓	✓	✓
Max / Total Supply	250000		

Comments:

**v1.0**

- Tokens will be minted in
  - upgradeToPremium function
  - sendPayout function
  - activate function

## Deployer cannot burn or lock user funds

Name	Exist	Tested	Status
Deployer cannot lock	✓	✓	✓
Deployer cannot burn	✓	✓	✓

Comments:

**v1.0**

- Tokens
  - will be burned while
    - activate function
    - upgradeToPremium function

## Deployer cannot pause the contract

Name	Exist	Tested	Status
Deployer cannot pause	-	-	-

## 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

createUsdcPool
④ onlyOwner
setPriceOracle
④ onlyOwner
setTreasuryWallet
④ onlyOwner
launch
④ onlyOwner
④ changeWallet
④ creatChangeWalletRequest
④ deleteChangeWalletRequest
④ approveChangeWalletRequest
processChangeWalletRequest
④ onlyOwner
register
④ validReferralID
addAccount
④ validReferralID
activate
④ nonReentrant
④ registerAndActivate
④ addAndActivateMultipleAccounts
importClassicAccount
④ onlyOwner
④ withdraw
④ upgradeToPremium
setMaxtraversalDept
④ onlyOwner
importPart1LagacyMatrix
④ ownerOnly

renounceOwnership
④ onlyOwner
transferOwnership
④ onlyOwner

transfer
approve
transferFrom
increaseAllowance
decreaseAllowance

## Comments

- Deployer can set following state variables without any limitations
  - traversalDept
    - If it is set to 0 every function which is calling the "getAvailableUplineMatrix" will be reverted because of underflow in L707.
- Deployer can enable/disable following state variables
  - live
    - Only once to true

- Deployer can set following addresses
  - usdc
  - treasury
- Existing Modifiers
  - validReferralID
- userAddresses itself can set new wallet address

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

# Source Units in Scope

## v1.0

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
	contracts/TimeProvider.sol	1	———	37	37	28	3	15	———
	contracts/C250PriceOracle.sol	1	———	58	52	26	18	19	———
	contracts/c250gold.sol	1	———	918	879	693	46	434	———
	<b>Totals</b>	<b>3</b>	———	<b>1013</b>	<b>968</b>	<b>747</b>	<b>67</b>	<b>468</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

**No medium issues**

### Low issues

Issue	File	Type	Line	Description
#1	C250Gold	Missing Zero Address Validation (missing-zero-check)	99 157 187	Check that the address is not zero
#2	C250Gold	State variable visibility is not set	45, 47, 48, 78	It is best practice to set the visibility of state variables explicitly
#3	C250Gold	Missing Events Arithmetic	394 812	Emit an event for critical parameter changes
#4	C250Gold	Wrong order of struct	827	Wrong struct order. "Struct" keyword should be the first and after it the struct name
#5	C250Gold	Wrong condition	884	Check the condition. There is a incomplete condition

#6	C250Gold	Passing parameter is not used	168	Contract is passing “oracle” address to C250PriceOracle but the contract has no constructor which is handling the passed parameter
#7	C250Gold	Identifier not found and wrong modifier	840	Did you mean ImportPart1MatrixOption?  Change ownerOnly to onlyOwner
#8	C250Gold	Feature not enabled	841	Use “pragma abicoder v2;” to enable the feature

## Informational issues

Issue	File	Type	Line	Description
#1	C250Gold	Misspelling	See description	<p>Change following words:</p> <ul style="list-style-type: none"> <li>- approvef L253</li> <li>- creatChangeWalletReques t L254</li> <li>- qaulified L482</li> </ul> <p>Make sure to change it everywhere else as well.</p>
#2	All	NatSpec documentation missing	-	If you started to comment your code, also comment all other functions, variables etc.

## Commented Code exist

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

File	Line	Comment
C250Gold	108-110	// classicConfigurations[1] = ClassicConfig(1, 0, 10, 25 * 1e16, 10); // classicConfigurations[2] = ClassicConfig(3, 12, 20, 25 * 1e16, 20); // classicConfigurations[3] = ClassicConfig(3, 12, 30, 28 * 1e16, 20);
C250PriceOracle	18	// (int24 tick, ) = OracleLibrary.consult(pool, secondsAgo);

## 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.

### 01. July 2022:

- Read whole report and modifiers section for more information

## SWC Attacks

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

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

<a href="#"><u>SW C-11 6</u></a>	Timestamp Dependence	<a href="#"><u>CWE-829: Inclusion of Functionality from Untrusted Control Sphere</u></a>	<b>PASSED</b>
<a href="#"><u>SW C-11 5</u></a>	Authorization through tx.origin	<a href="#"><u>CWE-477: Use of Obsolete Function</u></a>	<b>PASSED</b>
<a href="#"><u>SW C-11 4</u></a>	Transaction Order Dependence	<a href="#"><u>CWE-362: Concurrent Execution using Shared Resource with Improper Synchronization ('Race Condition')</u></a>	<b>PASSED</b>
<a href="#"><u>SW C-11 3</u></a>	DoS with Failed Call	<a href="#"><u>CWE-703: Improper Check or Handling of Exceptional Conditions</u></a>	<b>PASSED</b>
<a href="#"><u>SW C-11 2</u></a>	Delegatecall to Untrusted Callee	<a href="#"><u>CWE-829: Inclusion of Functionality from Untrusted Control Sphere</u></a>	<b>PASSED</b>
<a href="#"><u>SW C-11 1</u></a>	Use of Deprecated Solidity Functions	<a href="#"><u>CWE-477: Use of Obsolete Function</u></a>	<b>PASSED</b>
<a href="#"><u>SW C-11 0</u></a>	Assert Violation	<a href="#"><u>CWE-670: Always-Incorrect Control Flow Implementation</u></a>	<b>PASSED</b>
<a href="#"><u>SW C-1 09</u></a>	Uninitialized Storage Pointer	<a href="#"><u>CWE-824: Access of Uninitialized Pointer</u></a>	<b>PASSED</b>
<a href="#"><u>SW C-1 08</u></a>	State Variable Default Visibility	<a href="#"><u>CWE-710: Improper Adherence to Coding Standards</u></a>	<b>NOT PASSED</b>
<a href="#"><u>SW C-1 07</u></a>	Reentrancy	<a href="#"><u>CWE-841: Improper Enforcement of Behavioral Workflow</u></a>	<b>PASSED</b>
<a href="#"><u>SW C-1 06</u></a>	Unprotected SELFDESTRUCT Instruction	<a href="#"><u>CWE-284: Improper Access Control</u></a>	<b>PASSED</b>

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

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