



SOLIDProof
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Blockchain Security | Smart Contract Audits | KYC

MADE IN GERMANY

Audit

Security Assessment
19. January, 2022

For



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

Network

Binance Smart Chain (BEP20)

Website

<https://www.spongebobsquare.com/>

Telegram

<https://t.me/Spongsquare>

Twitter

<https://twitter.com/Spongssquare>



Description

SpongeBob Square is created, in fact, to be the very opposite: it is indeed a token by its nature deflationary based on the BSC, as each transaction is subject to commission of 10% so divided: 5% redistributed to all holders (in proportion to the amount of tokens in the wallet). 2.5% is sold in BB and is combined with the remaining 2.5% of SpongeBob Square and deposited in PancakeSwap as liquidity pool. Obviously this

Project Engagement

During the 13th of January 2022, **SpongeBob Square 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

- <https://bscscan.com/address/0x471f883BBd2c705F418Ba3d6667ef05342C4ee05#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)
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 as possible.
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-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:

```
Context
Ownable
IERC20
IERC20Metadata
DividendPayingTokenOptionalInterface
DividendPayingTokenInterface
SafeMathInt
SafeMathUint
SafeMath
ERC20
DividendPayingToken
IUniswapV2Router01
IUniswapV2Router02
IUniswapV2Factory
IUniswapV2Pair
SPONGS
IterableMapping
```


Tested Contract Files

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

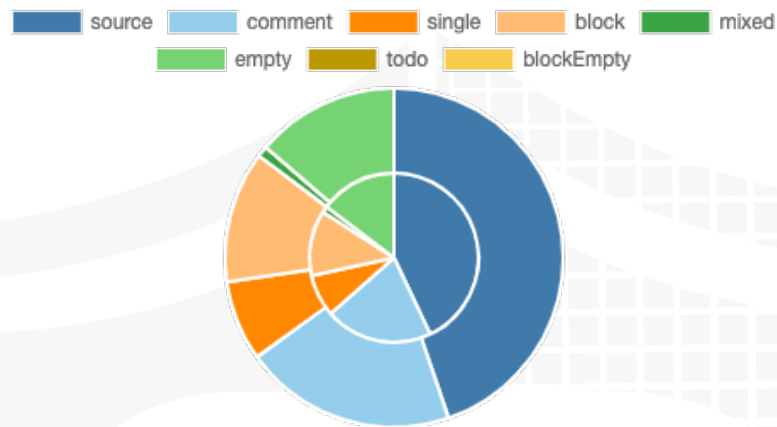
A file with a different Hash has been modified, intentionally or otherwise, after the security review. A different Hash could be (but not necessarily) an indication of a changed condition or potential vulnerability that was not within the scope of this review.

v1.0

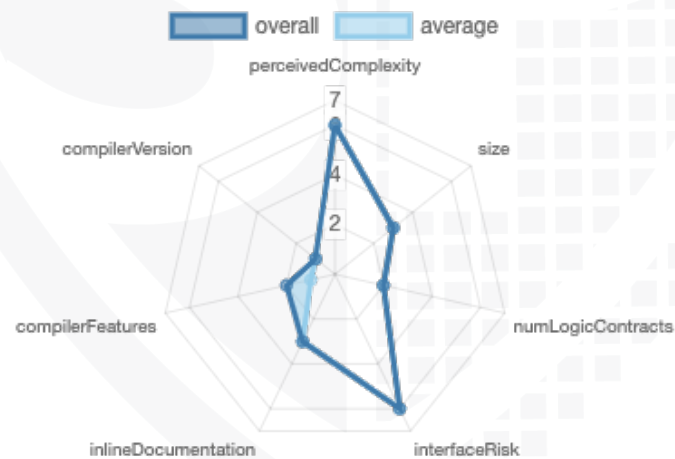
File Name	SHA-1 Hash
contracts/spongeboxsquare.sol	f2d696f4b5d725184b6490175deda92751cde226

Metrics

Source Lines v1.0



Risk Level v1.0



Capabilities

Components

Version	Contracts	Libraries	Interfaces	Abstract
1.0	5	4	8	1

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	171	9

Version	External	Internal	Private	Pure	View
1.0	120	136	8	27	72

State Variables

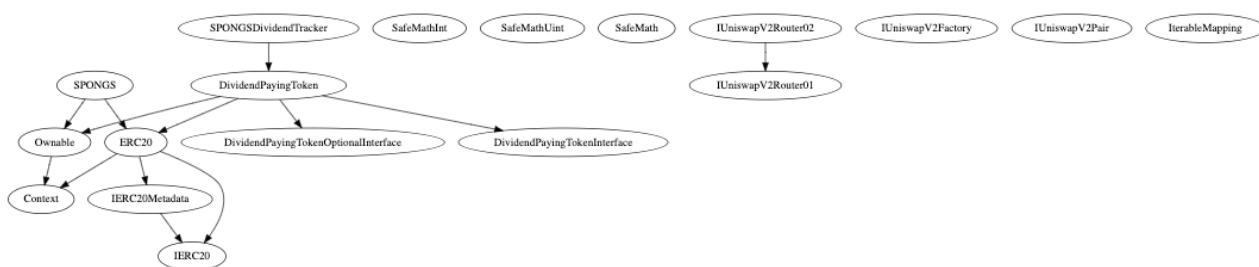
Version	Total	Public
1.0	57	36

Capabilities

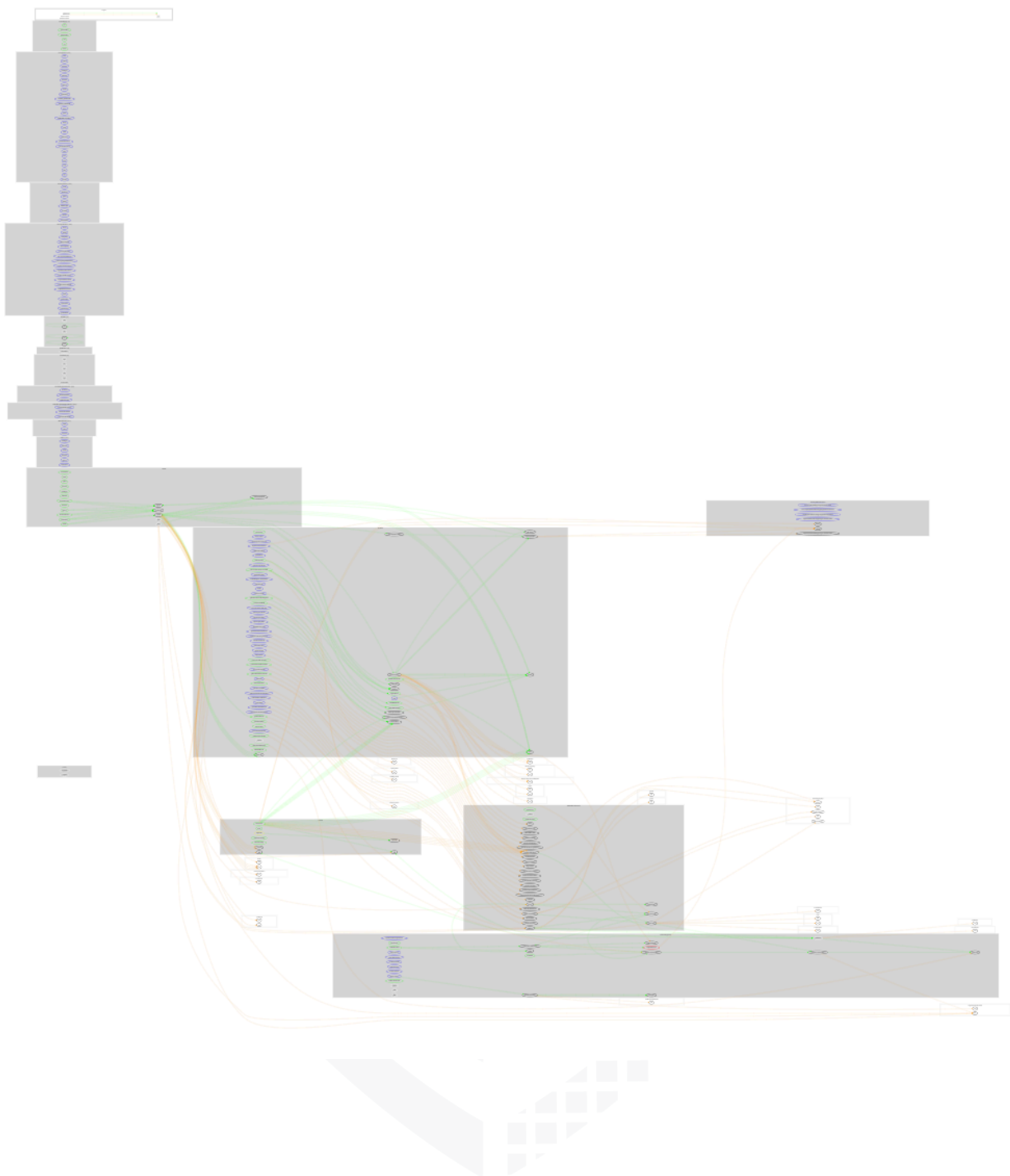
Version	Solidity Versions observed	Experimental Features	Can Receive Funds	Uses Assembly	Has Destroyable Contracts
1.0	^0.8.6		yes	yes (1 asm blocks)	

Version	Transfers ETH	Low-Level Calls	DelegateCall	Uses Hash Functions	EC Recover	New/Create/Create2
1.0	yes					yes → NewContract: SPONGSDividendTracker

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. External approve function is restricted
6. Overall checkpoint (Smart Contract Security)

Correct implementation of Token standard

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

1. activateContract	26. unsetRewardToken
2. addToWhitelist	
3. approve	27. updateBuyBackWallet
4. buyBackTokensWithNoFees	
5. claim	28. updateClaimWait
6. decreaseAllowance	
7. disableTransferDelay	29. updateDividendTokensMinimum
8. excludeFromDividends	
9. excludeFromFees	30. updateDividendTracker
10. excludeMultipleAccountsFromFees	
11. includeInDividends	31. updateDividendUniswapV2Router
12. increaseAllowance	
13. processDividendTracker	32. updateFees
14. recoverContractBNB	
15. renounceOwnership	33. updateGasForProcessing
16. setAutomatedMarketMakerPair	
17. setIgnoreToken	34. updateLiquidityWallet
18. setIsBot	
19. setMaxSellPercent	35. updateMaxTxn
20. setRewardToken	
21. setRewardTokenWithCustomAMM	36. updateOperationsWallet
22. setWhiteListAMM	
23. transfer	37. updateSwapTokensAtAmount
24. transferFrom	
25. transferOwnership	38. updateTradingStatus
	39. updateUniswapV2Router

Deployer cannot mint any new tokens

Name	Exist	Tested	Status
Deployer cannot mint	✓	✓	✓
Max / Total Supply	1.000.000.000.000.000		

Comments:

v1.0

- Tokens will be mint in setBalance function



Deployer cannot burn or lock user funds

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

Comments:

v1.0

- Tokens will be burn in setBalance function
- Deployer can lock user funds by
 - Setting address in the _isIgnoredAddress variable to true
 - Setting isTradingEnabled to false
 - Setting maxSellTransactionAmount to 0
 - You cannot sell any tokens if it is 0, this can be a honeypot

Deployer cannot pause the contract

Name	Exist	Tested	Status
Deployer cannot pause	—	—	—



External approve function is restricted

Name	Exist	Tested	Status
External approve cannot be called without restriction	—	—	—



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

✓  setWhiteListAMM	
Ⓜ onlyOwner	
✓  updateSwapTokensAtAmount	
Ⓜ onlyOwner	
✓  disableTransferDelay	
Ⓜ onlyOwner	
✓  updateDividendTracker	
Ⓜ onlyOwner	
✓  updateMaxTxn	
Ⓜ onlyOwner	
✓  updateDividendTokensMinimum	
Ⓜ onlyOwner	
✓  updateUniswapV2Router	
Ⓜ onlyOwner	
✓  updateDividendUniswapV2Router	
Ⓜ onlyOwner	
✓  updateTradingStatus	
Ⓜ onlyOwner	
✓  excludeFromFees	
Ⓜ onlyOwner	
✓  excludeMultipleAccountsFromFees	
Ⓜ onlyOwner	
✓  addToWhitelist	
Ⓜ onlyOwner	
✓  setIsBot	
Ⓜ onlyOwner	
✓  excludeFromDividends	
Ⓜ onlyOwner	
✓  includeInDividends	
Ⓜ onlyOwner	
✓  setAutomatedMarketMakerPair	
Ⓜ onlyOwner	
✓  updateLiquidityWallet	
Ⓜ onlyOwner	
✓  updateOperationsWallet	
Ⓜ onlyOwner	
✓  updateBuyBackWallet	
Ⓜ onlyOwner	
✓  updateFees	
Ⓜ onlyOwner	
✓  updateGasForProcessing	
Ⓜ onlyOwner	
✓  updateClaimWait	
	✓  setIgnoreToken
	Ⓜ onlyOwner
	✓  setRewardToken
	✓  setRewardTokenWithCustomAMM
	✓  unsetRewardToken
	✓  activateContract
	Ⓜ onlyOwner
	✓  buyBackTokensWithNoFees 💰
	✓  claim
	✓  processDividendTracker
	✓  recoverContractBNB
	Ⓜ onlyOwner
	✓  setMaxSellPercent
	Ⓜ onlyOwner





Comments

- Deployer can set following state variables without any limitations
 - swapTokensAtAmount
 - maxSellTransactionAmount
 - minimumTokenBalanceForDividends
 - BNBRewardsFee
 - liquidityFee
 - operationsFee
 - buyBackFee
 - totalFees
- Deployer can enable/disable following state variables
 - ammlsWhiteListed
 - transferDelayEnabled
 - isTradingEnabled
 - _isExcludedFromFees
 - _isExcludedFromFees
 - _isAllowedDuringDisabled
 - _isIgnoredAddress
 - excludedFromDividends
 - automatedMarketMakerPairs
 - ignoreRewardTokens
- onlyOwner can transfer address balance to operationsWallet
- onlyOwner can set maxSellTransactionAmount to a high value that can be sold, and also set the percentage of amounts to max. 99 that can be sold at most from this high value that was set earlier

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/spongeboxsquare.sol	10	8	2294	1917	1069	598	1068	
	Totals	10	8	2294	1917	1069	598	1068	

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	Possible onlyOwner function	1679, 1688	Possible onlyOwner function, alleviation from the team required
#2	Main	Reentrancy vulnerabilities	1764, 1711	Use NonReentrancy Apply the [`check-effects-interactions pattern`](Apply the [`check-effects-interactions pattern`](http://solidity.readthedocs.io/en/v0.4.21/security-considerations.html#re-entrancy)).or nonReentrant modifier from OpenZeppelin)

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

#2	Main	A floating pragma is set	7	The current pragma Solidity directive is „^0.“.
#3	Main	State variable visibility is not set	1286, 1289	It is best practice to set the visibility of state variables explicitly
#4	Main	Local variables shadowing	988, 788, 964, 971, 978	Rename the local variables that shadow another component
#5	Main	Missing Events Arithmetic	2010, 1433, 1403	Emit an event for critical parameter changes
#6	Main	Usage of equality comparison instead of assignment	1800	This equality comparison doesn't have any effect. Remove one equal sign, to assign value to variable
#7	Main	Out of gas	1467	Loop is used without any limitation. If there is no limitation and a long list of addresses function will be aborted

Informational issues

Issue	File	Type	Line	Description
#1	Main	Unused return values	1979, 1743	Ensure that all the return values of the function calls are used and handle both success and failure cases if needed by the business logic
#2	Main	Unused state variables	247	Remove unused state variables
#3	Main	NatSpec documentation missing	-	If you start to comment your code, also comment all other functions, variables etc.
#4	Main	No delay functionality	1789-1794	Transfer delay has no variable to set the delay

#5	Main	Unnecessary code	1001-1003	<p>Remove following blue part code because its unreachable</p> <pre> function _transfer(address from, address to, uint256 value) internal virtual override { require(false); int256 _magCorrection = magnifiedDividendPerShare. mul(value).toInt256Safe(); magnifiedDividendCorrectio ns[from] = magnifiedDividendCorrectio ns[from].add(_magCorrectio n); magnifiedDividendCorrectio ns[to] = magnifiedDividendCorrectio ns[to].sub(_magCorrection); } </pre>
#6	Main	Misspelling		<p>Change following words:</p> <ul style="list-style-type: none"> - exlcude to exclude line: 1299 - tokensIntoLiquidity to tokensIntoLiquidity line: 1327 - transferring to transferring line: 1781

Commented Code exist

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

Line	Comment
421	// assert(a == b * c + a % b); // There is no case in which this doesn't hold
1353	// IUniswapV2Router02 _uniswapV2Router = IUniswapV2Router02(0xD99D1c33F9fC3444f8101754aBC46c52416550D1); // Testnet

Recommendation

Remove the commented code, or address them properly.

Audit Comments

19. January 2022:

- [Read whole report for more information](#)



SWC Attacks

ID	Title	Relationships	Status
SW C-1 36	Unencrypted Private Data On-Chain	CWE-767: Access to Critical Private Variable via Public Method	PASSED
SW C-1 35	Code With No Effects	CWE-1164: Irrelevant Code	NOT PASSED
SW C-1 34	Message call with hardcoded gas amount	CWE-655: Improper Initialization	PASSED
SW C-1 33	Hash Collisions With Multiple Variable Length Arguments	CWE-294: Authentication Bypass by Capture-replay	PASSED
SW C-1 32	Unexpected Ether balance	CWE-667: Improper Locking	PASSED
SW C-1 31	Presence of unused variables	CWE-1164: Irrelevant Code	NOT PASSED
SW C-1 30	Right-To-Left-Override control character (U+202E)	CWE-451: User Interface (UI) Misrepresentation of Critical Information	PASSED
SW C-1 29	Typographical Error	CWE-480: Use of Incorrect Operator	NOT PASSED
SW C-1 28	DoS With Block Gas Limit	CWE-400: Uncontrolled Resource Consumption	PASSED

SW C-1 27	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
SW 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
SW C-1 22	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
SW C-11 9	Shadowing State Variables	CWE-710: Improper Adherence to Coding Standards	PASSED
SW C-11 8	Incorrect Constructor Name	CWE-665: Improper Initialization	PASSED
SW C-11 7	Signature Malleability	CWE-347: Improper Verification of Cryptographic Signature	PASSED

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

The logo features the words "Solid Proofed" in a white, elegant script font. The word "Solid" is positioned above "Proofed". Behind the text is a faint, stylized shield emblem with a grid-like pattern, rendered in a darker shade of blue. The entire composition is set against a solid blue background.

Solid
Proofed

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A small horizontal bar representing the German flag, with black, red, and gold stripes.

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SW C-1 05	Unprotected Ether Withdrawal	CWE-284: Improper Access Control	PASSED
SW C-1 04	Unchecked Call Return Value	CWE-252: Unchecked Return Value	PASSED
SW C-1 03	Floating Pragma	CWE-664: Improper Control of a Resource Through its Lifetime	NOT PASSED
SW C-1 02	Outdated Compiler Version	CWE-937: Using Components with Known Vulnerabilities	PASSED
SW C-1 01	Integer Overflow and Underflow	CWE-682: Incorrect Calculation	PASSED
SW C-1 00	Function Default Visibility	CWE-710: Improper Adherence to Coding Standards	PASSED