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Audit

Security Assessment
17. August, 2021

For



Lil Doge Coin

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Version	Date	Description
1.0	21. July 2021	<ul style="list-style-type: none">• Layout project• Automated- /Manual-Security Testing• Summary
1.1	17. August 2021	<ul style="list-style-type: none">• Recheck new contract

Network

Binance Smart Chain (BEP20)

Website

<https://www.lildogecoin.dog/>

Telegram

https://t.me/lildoge_coin

Twitter

https://twitter.com/lildoge_coin

Youtube

https://www.youtube.com/results?search_query=lil+doge

Github

<https://github.com/lildogecoin>

Medium

<https://medium.com/@lildogecoin>

Reddit

<https://www.reddit.com/r/lildogecoin/>

Instagram

https://www.instagram.com/lildoge_coin/

Discord

<https://discord.gg/27t6Bxgz69>

Description

Lil Doge is very giving and is designed to reward long term holders. Community is first and foremost. Lil Doge is proud to run with DOGE and provide transparency and fairness to the community.

Project Engagement

During the 19th of July 2021, **LilDoge 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. **LilDoge Team** provided Solidproof.io with access to their code repository and whitepaper.

During the 16th of August 2021, **LilDoge Team** engaged Solidproof.io to reaudit their smart contract.

Logo



Contract Link

v1.0

<https://bscscan.com/address/0xa638e525abb8aa42d0aeadd9b17f497c702902b0#code>

v1.1

<https://bscscan.com/address/0x329861d96c862e879142a19c5c6ed8a046f25ea3#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:

- OpenZeppelin
 - Address
 - Ownable
 - SafeMath
- Uniswap
 - UniswapV2Factory
 - UniswapV2Pair
 - UniswapV2Router01
 - UniswapV2Router02



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/lildoge.sol	01a9fbd751b953a5e7e8b31a434f46a7f8246c7f

v1.1

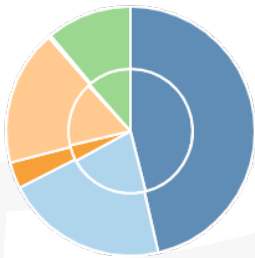
File Name	SHA-1 Hash
contracts/lildoge.sol	f9cb27ae36939150375f67786bd79951192c417d

Metrics

Source Lines

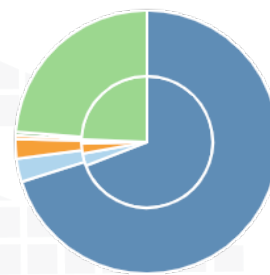
v1.0

source comment single block mixed
empty todo blockEmpty



v1.1

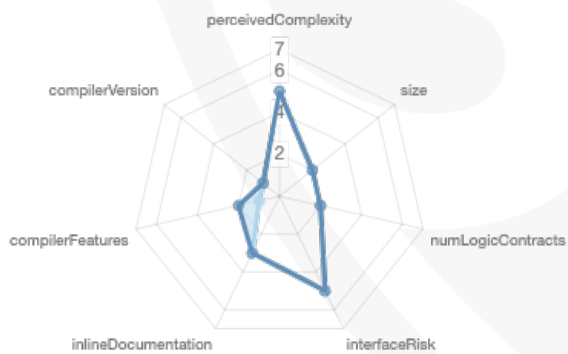
source comment single block mixed
empty todo blockEmpty



Risk Level

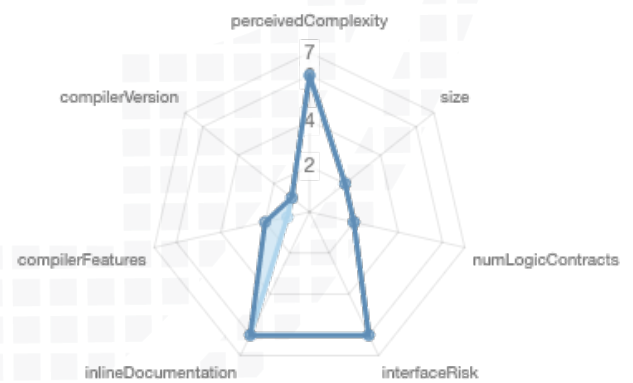
v1.0

overall average



v1.1

overall average



Capabilities

Components

Version	Contracts	Libraries	Interfaces	Abstract
1.0	2	2	5	1
1.1	4	4	7	2

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	100	5
1.1	148	5

Version	External	Internal	Private	Pure	View
1.0	69	86	22	19	44
1.1	112	137	9	31	57

State Variables

Version	Total	Public
1.0	26	8
1.1	48	32

Capabilities

Version	Solidity Versions observed	Experimental Features	Can Receive Funds	Uses Assembly	Has Destroyable Contracts
1.0	<code>^0.6.12</code>		yes	yes (2 asm blocks)	
1.1	<code>^0.8.4</code>		yes	**** (0 asm blocks)	

Version	Transfers ETH	Low-Level Calls	DelegateCall	Uses Hash Functions	ECRecover	New/Create/Create2
1.0	yes					
1.1	yes					yes → New Contract: DogeDividendTracker

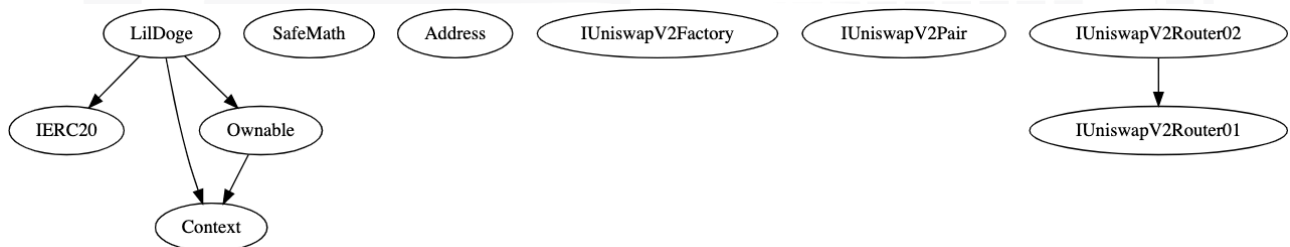
Scope of Work

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).

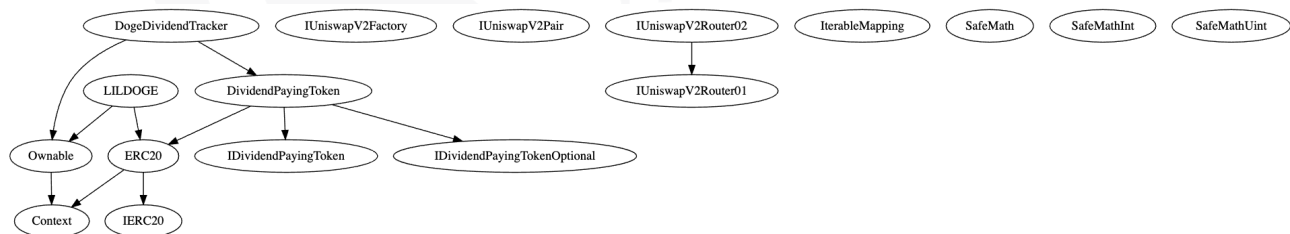
We will verify the following claims:

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)

Inheritance Graph v1.0



v1.1



Verify Claims

Correct implementation of Token standard

Tested	Verified
✓	✓

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	✓	✓	✓

Optional implementations

Function	Description	Exist	Tested	Verified
renounceOwnership	Owner renounce ownership for more trust	✓	✓	✗

Deployer cannot mint any new tokens

Name	Exist	Tested	Verified	File
Deployer cannot mint	✓	✓	✓	Main
Comment	Line: -			

Max / Total Supply: 100.000.000.000

```
constructor() ERC20("Lil Doge Coin", "LILDOGE") {
    dogeDividendTracker = new DogeDividendTracker();

    marketingWallet = 0xe2A4c688EA049F5Ef2D4306C9C2DA1ebb2FEc84a;
    dogeDividendToken = 0xbA2aE424d960c26247Dd6c32edC70B295c744C43;

    IUniswapV2Router02 _uniswapV2Router = IUniswapV2Router02(0x10ED43C718714eb63d5aA57B78B54704E256024E);
    // Create a uniswap pair for this new token
    address _uniswapV2Pair = IUniswapV2Factory(_uniswapV2Router.factory())
        .createPair(address(this), _uniswapV2Router.WETH());

    uniswapV2Router = _uniswapV2Router;
    uniswapV2Pair = _uniswapV2Pair;

    _setAutomatedMarketMakerPair(_uniswapV2Pair, true);

    excludeFromDividend(address(dogeDividendTracker));
    excludeFromDividend(address(this));
    excludeFromDividend(address(_uniswapV2Router));
    excludeFromDividend(deadAddress);

    // exclude from paying fees or having max transaction amount
    excludeFromFees(marketingWallet, true);
    excludeFromFees(address(this), true);
    excludeFromFees(deadAddress, true);
    excludeFromFees(owner(), true);

    setAuthOnDividends(owner());

    /*
    _mint is an internal function in ERC20.sol that is only called here,
    and CANNOT be called ever again
    */
    _mint(owner(), 100000000000 * (10**18));
}
```

```
function _mint(address account, uint256 amount) internal virtual {
    require(account != address(0), "ERC20: mint to the zero address");

    _beforeTokenTransfer(address(0), account, amount);

    _totalSupply = _totalSupply.add(amount);
    _balances[account] = _balances[account].add(amount);
    emit Transfer(address(0), account, amount);
}
```

Deployer cannot burn or lock user funds

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



1. approve	→
2. claim	→
3. decreaseAllowance	→
4. excludeFromDividend	→
5. excludeFromFees	→
6. excludeMultipleAccountsFromFees	→
7. increaseAllowance	→
8. prepareForPartnerOrExchangeListing	→
9. processDividendTracker	→
10. renounceOwnership	→
11. setAuthOnDividends	→
12. setAutomatedMarketMakerPair	→
13. setDogeDividendEnabled	→
14. setMarketingEnabled	→
15. setMaxBuyTransaction	→
16. setMaxSellTransaction	→
17. setSellTransactionMultiplier	→
18. setSwapAndLiquifyEnabled	→
19. setSwapTokensAtAmount	→
20. setTradingIsEnabled	→
21. setWalletBalance	→
22. transfer	→
23. transferFrom	→
24. transferOwnership	→
25. updateClaimWait	→
26. updateDogeDividendRewardFee	→
27. updateDogeDividendToken	→
28. updateDogeDividendTracker	→
29. updateGasForProcessing	→
30. updateLiquidityFee	→
31. updateMarketingFee	→
32. updateMarketingWallet	→
33. updateMinimumBalanceForDividends	→
34. updateUniswapV2Router	→
35. whitelistDxSale	→

[Browse source code](#)

Deployer cannot pause the contract

Name	Exist	Tested	Verified
Deployer cannot pause	✓	✓	✓



1. approve	→
2. claim	→
3. decreaseAllowance	→
4. excludeFromDividend	→
5. excludeFromFees	→
6. excludeMultipleAccountsFromFees	→
7. increaseAllowance	→
8. prepareForPartnerOrExchangeListing	→
9. processDividendTracker	→
10. renounceOwnership	→
11. setAuthOnDividends	→
12. setAutomatedMarketMakerPair	→
13. setDogeDividendEnabled	→
14. setMarketingEnabled	→
15. setMaxBuyTransaction	→
16. setMaxSellTransaction	→
17. setSellTransactionMultiplier	→
18. setSwapAndLiquifyEnabled	→
19. setSwapTokensAtAmount	→
20. setTradingEnabled	→
21. setWalletBalance	→
22. transfer	→
23. transferFrom	→
24. transferOwnership	→
25. updateClaimWait	→
26. updateDogeDividendRewardFee	→
27. updateDogeDividendToken	→
28. updateDogeDividendTracker	→
29. updateGasForProcessing	→
30. updateLiquidityFee	→
31. updateMarketingFee	→
32. updateMarketingWallet	→
33. updateMinimumBalanceForDividends	→
34. updateUniswapV2Router	→
35. whitelistDxSale	→

[Browse source code](#)

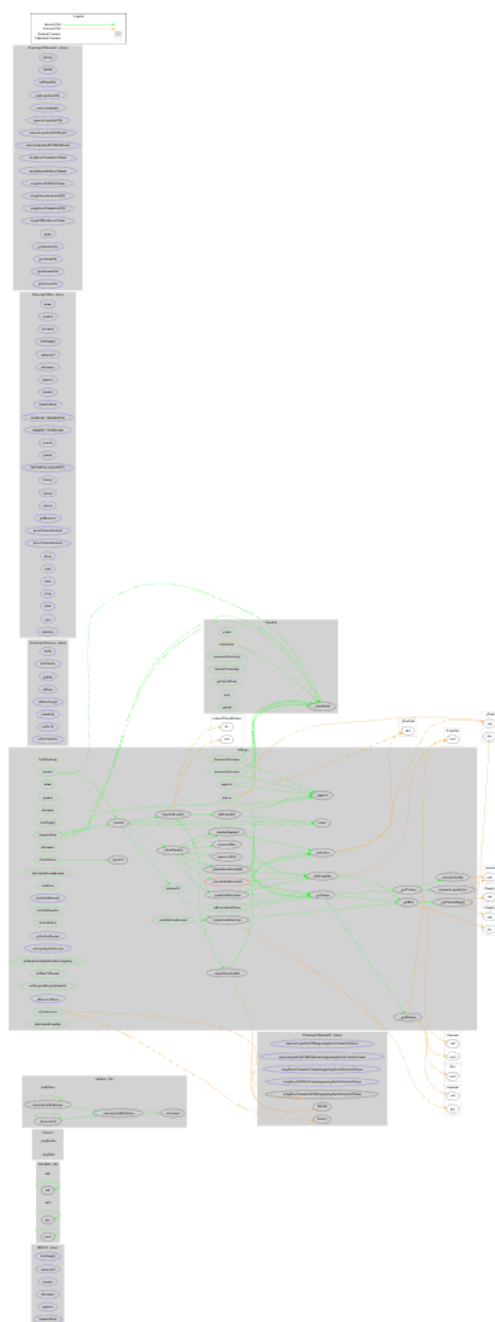
Overall checkup (Smart Contract Security)

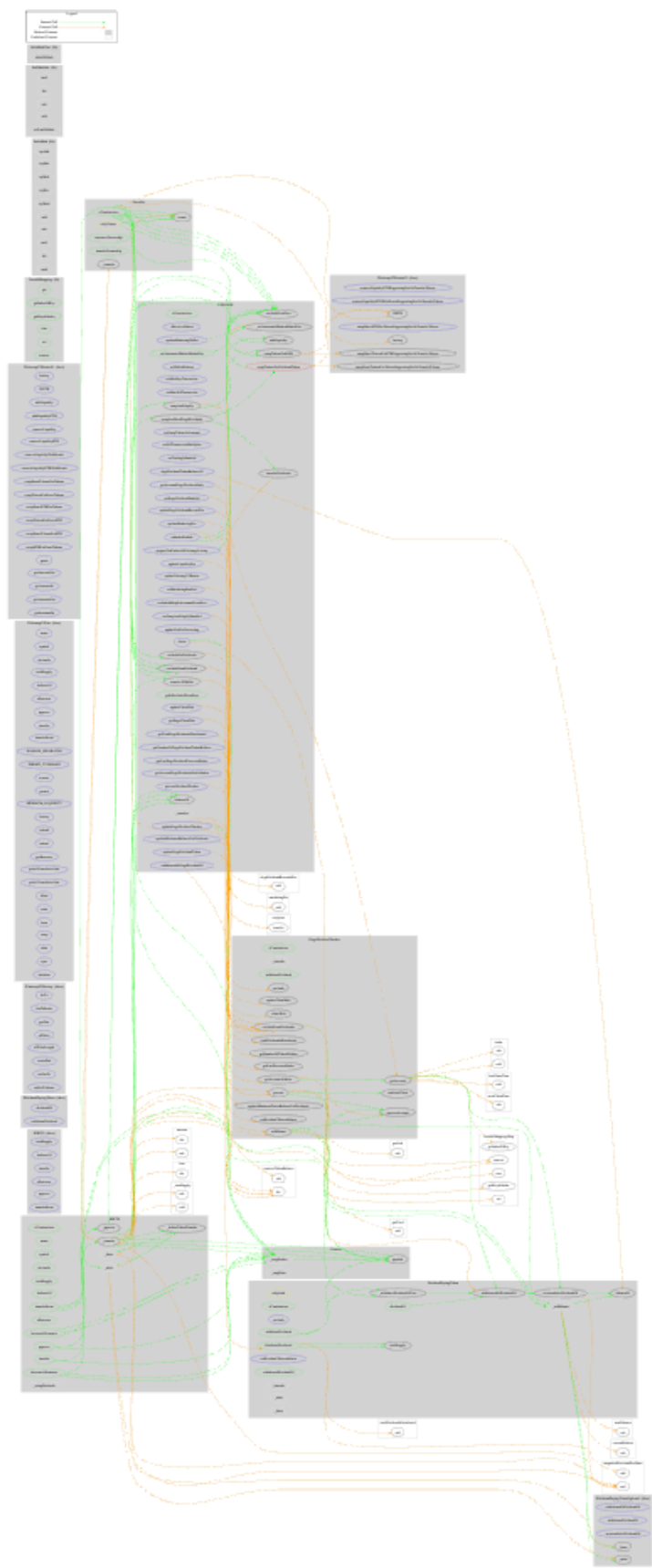
Tested	Verified
✓	✓

Legend

Attribute	Symbol
Verified / Checked	✓
Partly Verified	⚠
Unverified / Not checked	✗
Not available	—





CallGraph v1.0





Source Units in Scope

v1.0

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
	contracts/iildoge.sol	5	5	1165	885	522	314	528	
	Totals	5	5	1165	885	522	314	528	

v1.1

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
	contracts/iildoge.sol	10	7	1411	1235	889	42	886	
	Totals	10	7	1411	1235	889	42	886	

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 found -

High issues

- no high issues found -

Medium issues

- no medium issues found -

Low issues

Issue	File	Type	Line	Description
#1	Main	A floating pragma is set	7	The current pragma Solidity directive is ""^0.8.4"".
#2	Main	State variable visibility is not set	225	

Informational issues

- no informational issues found -

Audit Comments

17. August 2021:

- There is still an owner (Owner still has not renounced ownership)
- Deployer can enable/disable „tradingIsEnabled“ variable
 - When condition „tradingIsEnable“ equals to false, you are not allowed to transfer or when from or to is excluded from Fees you can transfer

```
1020 | require(tradingIsEnabled || (isExcludedFromFees[from] || isExcludedFromFees[to]), "LILDOGE: Trading has not started yet");
```

- Deployer can setBuyTransactionAmount/setMaxSellTransaction

```
if (
    tradingIsEnabled &&
    automatedMarketMakerPairs[from] &&
    !excludedAccount
) {
    require(amount <= maxBuyTranscationAmount, "Transfer amount exceeds the maxTxAmount.");
} else if (
    tradingIsEnabled &&
    automatedMarketMakerPairs[to] &&
    !excludedAccount
) {
    require(amount <= maxSellTransactionAmount, "Sell transfer amount exceeds the maxSellTransactionAmount.");
}
```

- Deployer can setSwapAndLiquifyEnabled
- Deployer can setSwapTokenAtAmount

```
if(!automatedMarketMakerPairs[to] && tradingIsEnabled && !excludedAccount){
    require(balanceOf(to).add(amount) <= maxWalletBalance, 'Wallet balance is exceeding maxWalletBalance');
}
```

SWC Attacks

ID	Title	Relationships	Status
SW C-13 6	Unencrypted Private Data On-Chain	CWE-767: Access to Critical Private Variable via Public Method	PASSED
SW C-13 5	Code With No Effects	CWE-1164: Irrelevant Code	PASSED
SW C-13 4	Message call with hardcoded gas amount	CWE-655: Improper Initialization	PASSED
SW C-13 3	Hash Collisions With Multiple Variable Length Arguments	CWE-294: Authentication Bypass by Capture-replay	PASSED
SW C-13 2	Unexpected Ether balance	CWE-667: Improper Locking	PASSED
SW C-13 1	Presence of unused variables	CWE-1164: Irrelevant Code	PASSED
SW C-13 0	Right-To-Left-Override control character (U+202E)	CWE-451: User Interface (UI) Misrepresentation of Critical Information	PASSED
SW C-12 9	Typographical Error	CWE-480: Use of Incorrect Operator	PASSED
SW C-12 8	DoS With Block Gas Limit	CWE-400: Uncontrolled Resource Consumption	PASSED

SW C-12 7	Arbitrary Jump with Function Type Variable	CWE-695: Use of Low-Level Functionality	PASSED
SW C-12 5	Incorrect Inheritance Order	CWE-696: Incorrect Behavior Order	PASSED
SW C-12 4	Write to Arbitrary Storage Location	CWE-123: Write-what-where Condition	PASSED
SW C-12 3	Requirement Violation	CWE-573: Improper Following of Specification by Caller	PASSED
SW C-12 2	Lack of Proper Signature Verification	CWE-345: Insufficient Verification of Data Authenticity	PASSED
SW C-12 1	Missing Protection against Signature Replay Attacks	CWE-347: Improper Verification of Cryptographic Signature	PASSED
SW C-12 0	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-111	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-10 9	Uninitialized Storage Pointer	CWE-824: Access of Uninitialized Pointer	PASSED
SW C-10 8	State Variable Default Visibility	CWE-710: Improper Adherence to Coding Standards	NOT PASSED
SW C-10 7	Reentrancy	CWE-841: Improper Enforcement of Behavioral Workflow	PASSED
SW C-10 6	Unprotected SELFDESTRUCT Instruction	CWE-284: Improper Access Control	PASSED

SW C-10 5	Unprotected Ether Withdrawal	CWE-284: Improper Access Control	PASSED
SW C-10 4	Unchecked Call Return Value	CWE-252: Unchecked Return Value	PASSED
SW C-10 3	Floating Pragma	CWE-664: Improper Control of a Resource Through its Lifetime	NOT PASSED
SW C-10 2	Outdated Compiler Version	CWE-937: Using Components with Known Vulnerabilities	PASSED
SW C-10 1	Integer Overflow and Underflow	CWE-682: Incorrect Calculation	PASSED
SW C-10 0	Function Default Visibility	CWE-710: Improper Adherence to Coding Standards	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 slightly darker shade of blue than the background.

Solid
Proofed

Blockchain Security | Smart Contract Audits | KYC

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

MADE IN GERMANY