SOLIDProof

Blockchain Security | Smart Contract Audits

MADE IN GERMANY

Audit Passed

Security Assessment
14. June, 2021

For

STELLAR DIAMOND

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Overview

Network
Binance Smart Chain (BEP20)

Website
https://stellardiamond.net/

Telegram
https://t.me/StellarXLD

Twitter
https://twitter.com/XLDStellar

Email
admin@stellardiamond.net

Github
https://github.com/stellardiamond/StellarDiamondToken

Description

Project Engagement

During the 9th of June, **Stellar Diamond 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. **Stellar Diamond Team** provided Solidproof.io with access to their code repository and whitepaper.

Logo

Contract Link

TBA

https://github.com/stellardiamond/StellarDiamondToken

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-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.

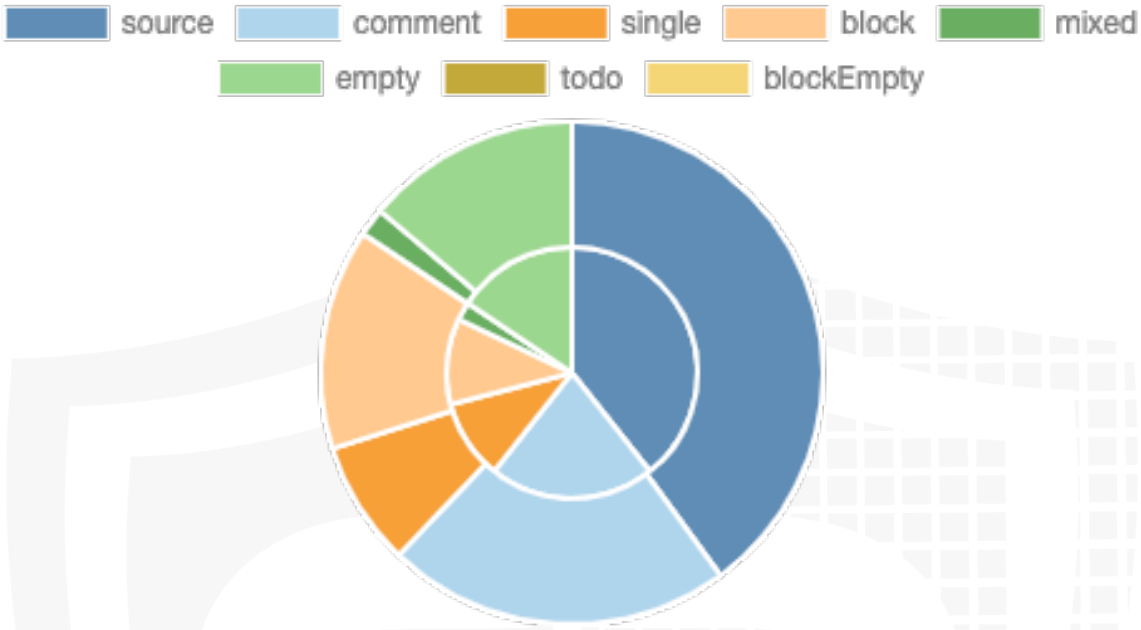
4. Specific, itemized, actionable recommendations to help you take steps to secure your smart contracts.

Used Code from other Frameworks/Smart Contracts (direct imports)

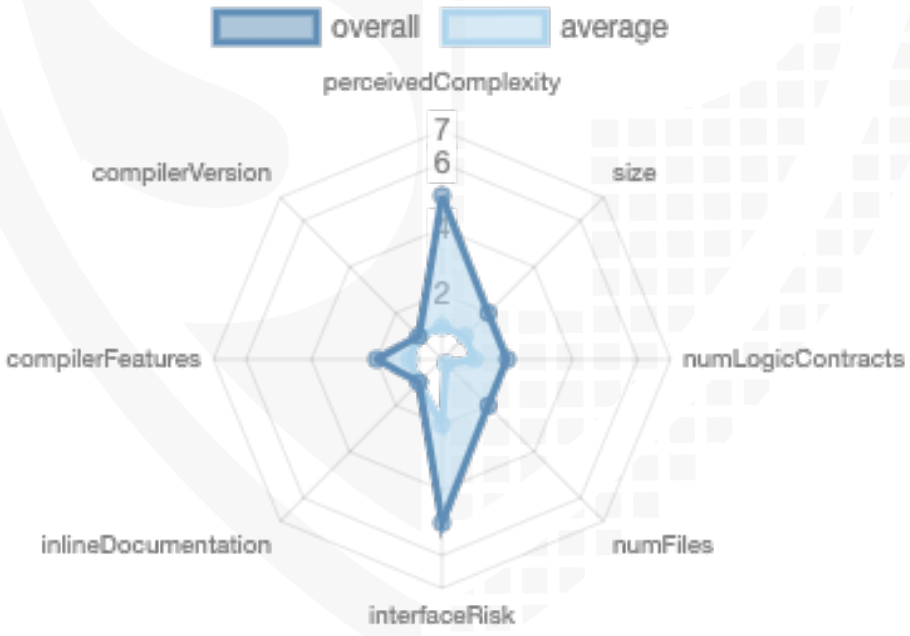
No frameworks used

Metrics

Source Lines



Risk Level

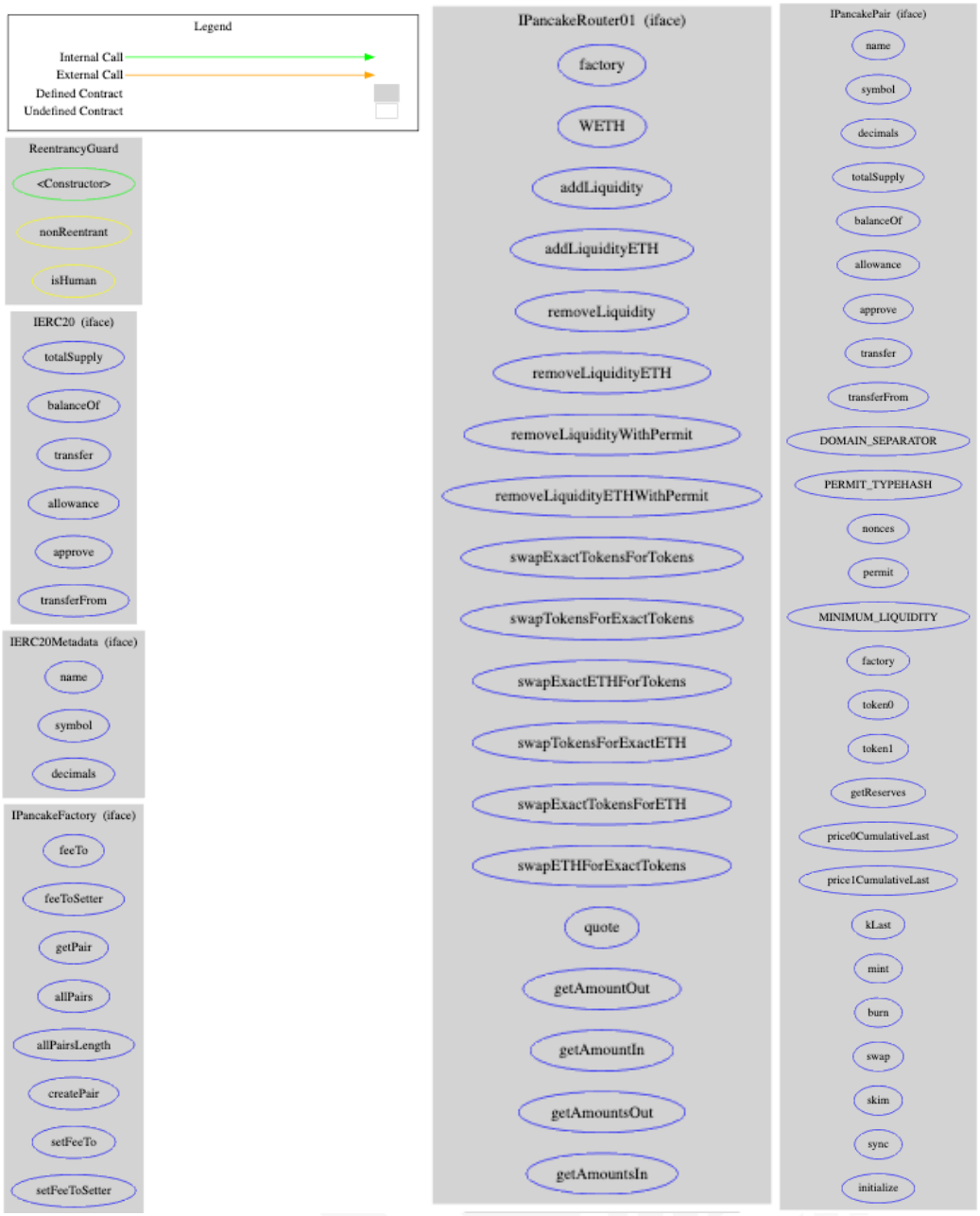


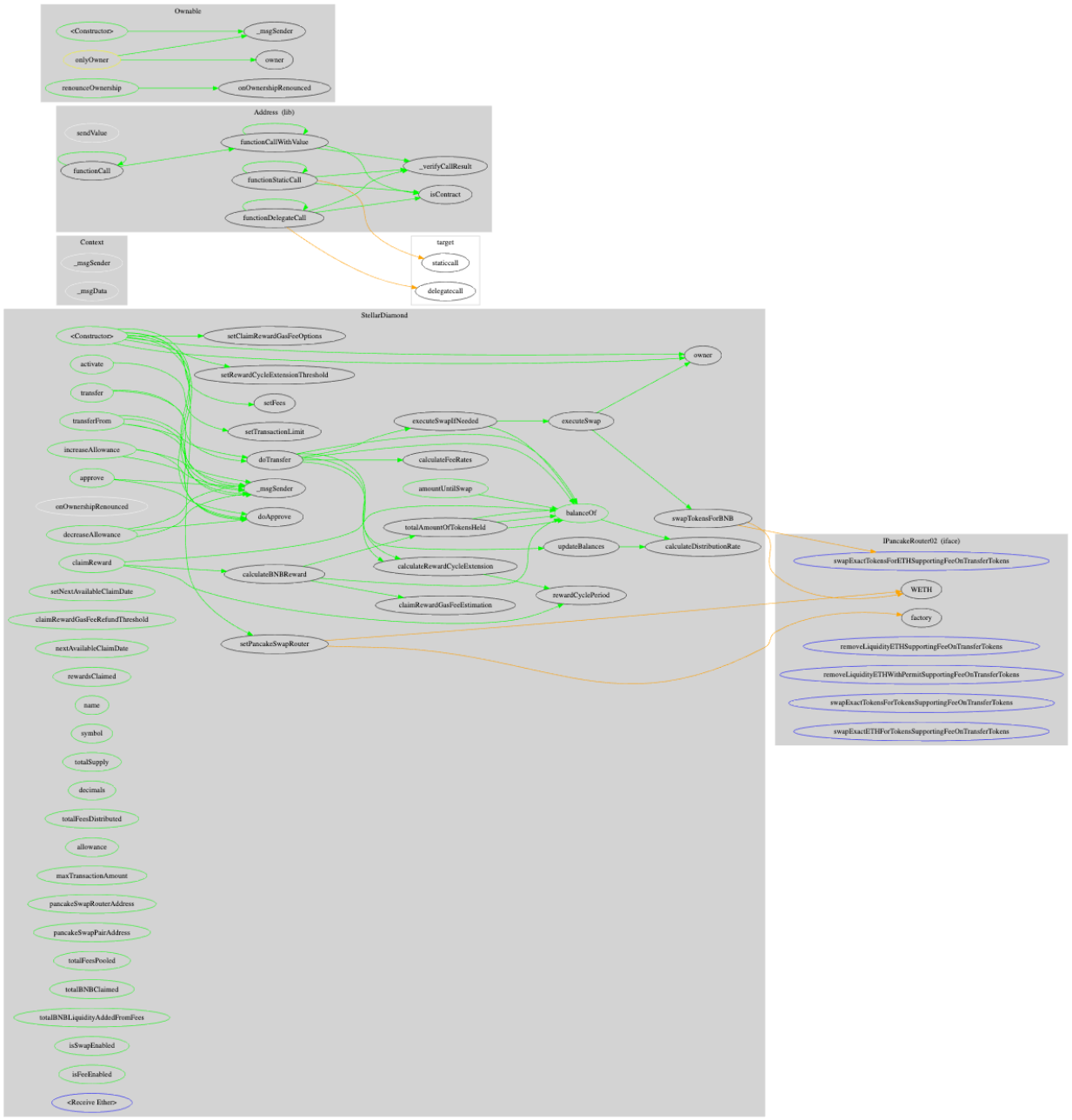
Capabilities

Solidity Versions observed	🧪 Experimental Features	💰 Can Receive Funds	🖥️ Uses Assembly	💣 Has Destroyable Contracts
0.8.4		Yes	Yes (2 asm blocks)	

📤 Transfers ETH	⚡ Low-Level Calls	👥 Delegate Call	🧱 Uses Hash Functions	🪚 ECRecover	🌀 New/ Create/ Create2
		yes			

CallGraph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
ReentrancyGuard
<Constructor>
nonReentrant
isHuman
IERC20 (iface)
totalSupply
balanceOf
transfer
allowance
approve
transferFrom
IERC20Metadata (iface)
name
symbol
decimals
IPancakeFactory (iface)
feeTo
feeToSetter
getPair
allPairs
allPairsLength
createPair
setFeeTo
setFeeToSetter
IPancakeRouter01 (iface)
factory
WETH
addLiquidity
addLiquidityETH
removeLiquidity
removeLiquidityETH
removeLiquidityWithPermit
removeLiquidityETHWithPermit
swapExactTokensForTokens
swapTokensForExactTokens
swapExactETHForTokens
swapTokensForExactETH
swapExactTokensForETH
swapETHForExactTokens
quote
getAmountOut
getAmountIn
getAmountsOut
getAmountsIn
IPancakePair (iface)
name
symbol
decimals
totalSupply
balanceOf
allowance
approve
transfer
transferFrom
DOMAIN_SEPARATOR
PERMIT_TYPEHASH
nonces
permit
MINIMUM_LIQUIDITY
factory
token0
token1
getReserves
price0CumulativeLast
price1CumulativeLast
kLast
mint
burn
swap
skim
sync
initialize


Ownable
<Constructor>
_msgSender
onlyOwner
owner
renounceOwnership
onOwnershipRenounced
Address (lib)
sendValue
functionCallWithValue
functionCall
functionStaticCall
_verifyCallResult
isContract
functionDelegateCall
Context
_msgSender
_msgData
target
staticcall
delegatecall
StellarDiamond
<Constructor>
setClaimRewardGasFeeOptions
owner
activate
setRewardCycleExtensionThreshold
transfer
setFees
transferFrom
setTransactionLimit
executeSwapIfNeeded
executeSwap
increaseAllowance
doTransfer
calculateFeeRates
approve
_msgSender
amountUntilSwap
onOwnershipRenounced
doApprove
balanceOf
swapTokensForBNB
decreaseAllowance
totalAmountOfTokensHeld
updateBalances
calculateDistributionRate
claimReward
calculateBNBReward
calculateRewardCycleExtension
IPancakeRouter02 (iface)
swapExactTokensForETHSupportingFeeOnTransferTokens
setNextAvailableClaimDate
rewardCyclePeriod
WETH
claimRewardGasFeeRefundThreshold
claimRewardGasFeeEstimation
factory
nextAvailableClaimDate
setPancakeSwapRouter
removeLiquidityETHSupportingFeeOnTransferTokens
rewardsClaimed
removeLiquidityETHWithPermitSupportingFeeOnTransferTokens
name
swapExactTokensForTokensSupportingFeeOnTransferTokens
symbol
swapExactETHForTokensSupportingFeeOnTransferTokens
totalSupply
decimals
totalFeesDistributed
allowance
maxTransactionAmount
pancakeSwapRouterAddress
pancakeSwapPairAddress
totalFeesPooled
totalBNBClaimed
totalBNBLiquidityAddedFromFees
isSwapEnabled
isFeeEnabled
<Receive Ether>

Source Units in Scope

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
📝	contracts/StellarDiamond.sol	1	———	549	547	333	95	263	💰
🎨	contracts/base/utils/Context.sol	1	———	24	24	10	12	1	———
📚	contracts/base/utils/Address.sol	1	———	189	169	78	113	47	💻👥
🎨	contracts/base/access/Ownable.sol	1	———	62	62	24	29	19	———
🔍	contracts/base/token/ERC20/PancakeSwap/IPancakePair.sol	———	1	54	9	5	1	55	———
🔍	contracts/base/token/ERC20/PancakeSwap/IPancakeRouter02.sol	———	1	46	8	4	1	16	💰
🔍	contracts/base/token/ERC20/PancakeSwap/IPancakeRouter01.sol	———	1	97	6	3	1	48	💰
🔍	contracts/base/token/ERC20/PancakeSwap/IPancakeFactory.sol	———	1	19	8	4	1	17	———
🔍	contracts/base/token/ERC20/extensions/IERC20Metadata.sol	———	1	27	16	4	15	9	———
🔍	contracts/base/token/ERC20/IERC20.sol	———	1	77	26	17	57	13	🔆
🎨	contracts/base/access/ReentrancyGuard.sol	1	———	67	67	19	38	6	———
📝📚🔍🎨	**Totals**	**5**	**6**	**1211**	**942**	**501**	**363**	**494**	💻💰👥🔆

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	Local variables shadowing (shadowing-local)	496	StellarDiamond.allowance(address,address).owner shadows: • Ownable.owner() (base/access/Ownable.sol, Line: 36-38)
#2	Main	Dangerous usage of `block.timestamp` (timestamp)	432-437	StellarDiamond.setNextAvailableClaimDate(address,uint256) uses timestamp for comparisons • require(bool,string)(date > block.timestamp,Cannot be a date in the past) (Line: 433) • require(bool,string)(date < block.timestamp + 2678400,Cannot be more than 31 days in the future) (Line: 434)
#3	Main	Missing Zero Address Validation (missing-zero-check)	403	StellarDiamond.setPancakeSwapRouter(address).routerAddress lacks a zero-check on : • _pancakeSwapRouterAddress = routerAddress (Line: 404)

#4	Main	Functions that send Ether to arbitrary destinations (arbitrary-send)	248-269	StellarDiamond.executeSwap(uint256) (StellarDiamond.sol:) sends eth to arbitrary user • (bnbAddedToLiquidity) = _pancakeswapV2Router.addLiquidityETH{value: bnbToBeAddedToLiquidity}(address(this),tokensToAddAsLiquidity,0,0,owner(),block.timestamp + 360) (Line: 263)
#5	Main	Tautology or contradiction (tautology)	410-423	StellarDiamond.setFees(uint8,uint8,uint8) contains a tautology or contradiction: • require(bool,string)(distributionFee >= 0 && distributionFee <= 2,Distribution fee must be between 0% and 2%) (Line: 414)

Informational issues

Issue	File	Type	Line	Description
#1	base/utils/Address.sol	Functions that are not used (dead-code)	171-188	Address._verifyCallResult(bool,bytes,string) is never used and should be removed
#2	Main	Conformity to Solidity naming conventions (naming-convention)	32	Constant StellarDiamond._burnWallet is not in UPPER_CASE_WITH_UNDERSCORES

SWC Attacks

ID	Title	Relationships	Status
SWC-131	Presence of unused variables	CWE-1164: Irrelevant Code	PASSED
SWC-130	Right-To-Left-Override control character (U+202E)	CWE-451: User Interface (UI) Misrepresentation of Critical Information	PASSED
SWC-129	Typographical Error	CWE-480: Use of Incorrect Operator	PASSED
SWC-128	DoS With Block Gas Limit	CWE-400: Uncontrolled Resource Consumption	PASSED
SWC-127	Arbitrary Jump with Function Type Variable	CWE-695: Use of Low-Level Functionality	PASSED
SWC-125	Incorrect Inheritance Order	CWE-696: Incorrect Behavior Order	PASSED
SWC-124	Write to Arbitrary Storage Location	CWE-123: Write-what-where Condition	PASSED
SWC-123	Requirement Violation	CWE-573: Improper Following of Specification by Caller	PASSED
SWC-122	Lack of Proper Signature Verification	CWE-345: Insufficient Verification of Data Authenticity	PASSED

SWC-121	Missing Protection against Signature Replay Attacks	CWE-347: Improper Verification of Cryptographic Signature	PASSED
SWC-120	Weak Sources of Randomness from Chain Attributes	CWE-330: Use of Insufficiently Random Values	PASSED
SWC-119	Shadowing State Variables	CWE-710: Improper Adherence to Coding Standards	PASSED
SWC-118	Incorrect Constructor Name	CWE-665: Improper Initialization	PASSED
SWC-117	Signature Malleability	CWE-347: Improper Verification of Cryptographic Signature	PASSED
SWC-116	Timestamp Dependence	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	PASSED
SWC-115	Authorization through tx.origin	CWE-477: Use of Obsolete Function	PASSED
SWC-114	Transaction Order Dependence	CWE-362: Concurrent Execution using Shared Resource with Improper Synchronization ('Race Condition')	PASSED
SWC-113	DoS with Failed Call	CWE-703: Improper Check or Handling of Exceptional Conditions	PASSED
SWC-112	Delegatecall to Untrusted Callee	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	PASSED

SWC-111	Use of Deprecated Solidity Functions	CWE-477: Use of Obsolete Function	PASSED
SWC-110	Assert Violation	CWE-670: Always-Incorrect Control Flow Implementation	PASSED
SWC-109	Uninitialized Storage Pointer	CWE-824: Access of Uninitialized Pointer	PASSED
SWC-108	State Variable Default Visibility	CWE-710: Improper Adherence to Coding Standards	PASSED
SWC-107	Reentrancy	CWE-841: Improper Enforcement of Behavioral Workflow	PASSED
SWC-106	Unprotected SELFDESTRUCT Instruction	CWE-284: Improper Access Control	PASSED
SWC-105	Unprotected Ether Withdrawal	CWE-284: Improper Access Control	PASSED
SWC-104	Unchecked Call Return Value	CWE-252: Unchecked Return Value	PASSED
SWC-103	Floating Pragma	CWE-664: Improper Control of a Resource Through its Lifetime	PASSED
SWC-102	Outdated Compiler Version	CWE-937: Using Components with Known Vulnerabilities	PASSED
SWC-101	Integer Overflow and Underflow	CWE-682: Incorrect Calculation	PASSED

SWC-100	Function Default Visibility	CWE-710: Improper Adherence to Coding Standards	PASSED

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