AuditAce
FROM INCEPTION TO SUCCESS

Smart Contract Audit

FOR

Bowser Inu

DATED : 15 Apr 23'

AUDIT SUMMARY

Project name – Bowser Inu

Date: 15 April, 2023

Scope of Audit- Audit Ace was consulted to conduct the smart contract audit of the solidity source codes.

Audit Status: Passed

Issues Found

Status	Critical	High	Medium	Low	Suggestion
Open	0	1	0	0	1
Acknowledged	0	0	0	0	0
Resolved	0	0	0	0	0

USED TOOLS

Tools:

1- Manual Review:
a line by line code review has been performed by audit ace team.

2- BSC Test Network:
all tests were done on BSC Test network, each test has its transaction has attached to it.

3- Slither : Static Analysis

Testnet Link: all tests were done using this contract, tests are done on BSC Testnet

https://testnet.bscscan.com/token/0xfce0D84501d952B0A905b9c3e684764A00Ab10eC

Token Information

Token Name : Bowser Inu

Token Symbol: Bowser

Decimals: 18

Token Supply: 100,000,000,000,000

Token Address:
0x6fcA6fE5af1cCc277f8c4ee07B3Eb92c59d686d1

Checksum:
2e11115598ed9120a0119940ad98a1b45f5d6a9c

Owner:
0x0EE13b44c1995B1f3f369baaD33464128765FE0A

Deployer:
0x0EE13b44c1995B1f3f369baaD33464128765FE0A

TOKEN OVERVIEW

Fees:

Buy Fees: up to 15%

Sell Fees: up to 15%

Transfer Fees: 0%

Fees Privilige: Owner

Ownership : Owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Priviliges: including and excluding form fee - changing swap threshold - enabling trades - modifying fees - changing max wallet/buy/sell/transrers

AUDIT METHODOLOGY

The auditing process will follow a routine as special considerations by Auditace:

- Review of the specifications, sources, and instructions provided to Auditace to make sure the contract logic meets the intentions of the client without exposing the user's funds to risk.
- Manual review of the entire codebase by our experts, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
- Specification comparison is the process of checking whether the code does what the specifications, sources, and instructions provided to Auditace describe.
- Test coverage analysis determines whether the test cases are covering the code and how much code isexercised when we run the test cases.
- Symbolic execution is analysing a program to determine what inputs cause each part of a program to execute.
- Reviewing the codebase to improve maintainability, security, and control based on the established industry and academic practices.

VULNERABILITY CHECKLIST

- [x] Return values of low-level calls
- [x] Private modifier
- [x] Multiple Sends
- [x] Using Suicide
- [x] Gas Limitand Loops
- [x] Address hardcoded
- [x] Exception Disorder
- [x] Using inline assembly
- [x] Divide before multiply
- [x] Missing Zero Address Validation
- [x] Compiler version not fixed
- [x] **Gasless Send**
- [x] Using block.timestamp
- [x] Re-entrancy
- [x] Tautology or contradiction
- [x] Timestamp Dependence
- [x] Revert/require functions
- [x] Use of tx.origin
- [x] Integer overflow/underflow
- [x] Dangerous strict equalities
- [x] Using SHA3
- [x] Using throw

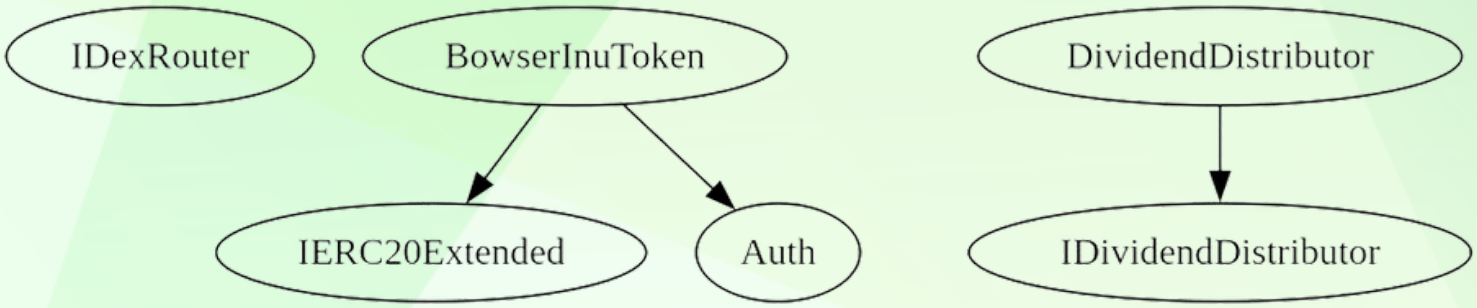
CLASSIFICATION OF RISK

Severity	Description
Critical	These vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
High-Risk	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.
Medium-Risk	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.
Low-Risk	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.
Gas Optimization /Suggestion	A vulnerability that has an informational character but is not affecting any of the code.

Findings

Severity	Found
Critical	0
High-Risk	1
Medium-Risk	0
Low-Risk	0
Gas Optimization / Suggestions	1

INHERITANCE TREE



POINTS TO NOTE

- Owner is not able to set buy/sell fees over 15%
- Owner is not able to set transfer fees (0% always)
- Owner is not able to set max buy/sell/transfer/hold amount
- Owner is not able to blacklist an arbitrary wallet
- Owner is not able to disable trades
- Owner is not able to mint new tokens
- **Owner must enable trading for investors**

CONTRACT ASSESMENT

Contract	Type	Bases		
└	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
SafeMath	Library			
└	tryAdd	Internal 🔒		
└	trySub	Internal 🔒		
└	tryMul	Internal 🔒		
└	tryDiv	Internal 🔒		
└	tryMod	Internal 🔒		
└	add	Internal 🔒		
└	sub	Internal 🔒		
└	mul	Internal 🔒		
└	div	Internal 🔒		
└	mod	Internal 🔒		
└	sub	Internal 🔒		
└	div	Internal 🔒		
└	mod	Internal 🔒		
IDexFactory	Interface			
└	createPair	External ❗	🛑	NO❗
IDexRouter	Interface			
└	factory	External ❗		NO❗
└	WETH	External ❗		NO❗
└	addLiquidityETH	External ❗	💵	NO❗
└	swapExactETHForTokensSupportingFeeOnTransferTokens	External ❗	💵	NO❗
└	swapExactTokensForETHSupportingFeeOnTransferTokens	External ❗	🛑	NO❗
IERC20Extended	Interface			
└	totalSupply	External ❗		NO❗
└	decimals	External ❗		NO❗
└	symbol	External ❗		NO❗
└	name	External ❗		NO❗
└	balanceOf	External ❗		NO❗
└	transfer	External ❗	🛑	NO❗
└	allowance	External ❗		NO❗
└	approve	External ❗	🛑	NO❗
└	transferFrom	External ❗	🛑	NO❗
Auth	Implementation			
└	<Constructor>	Public ❗	🛑	NO❗

CONTRACT ASSESMENT

└	authorize	Public ❗	🛑	onlyOwner
└	unauthorize	Public ❗	🛑	onlyOwner
└	isOwner	Public ❗		NO❗
└	isAuthorized	Public ❗		NO❗
└	transferOwnership	Public ❗	🛑	onlyOwner
IDividendDistributor	Interface				
└	setDistributionCriteria	External ❗	🛑	NO❗
└	setShare	External ❗	🛑	NO❗
└	deposit	External ❗	💵	NO❗
└	process	External ❗	🛑	NO❗
└	claimDividend	External ❗	🛑	NO❗
└	getPaidEarnings	External ❗		NO❗
└	getUnpaidEarnings	External ❗		NO❗
└	totalDistributed	External ❗		NO❗
DividendDistributor	Implementation	IDividendDistributor			
└	<Constructor>	Public ❗	🛑	NO❗
└	setDistributionCriteria	External ❗	🛑	onlyToken
└	setShare	External ❗	🛑	onlyToken
└	deposit	External ❗	💵	onlyToken
└	process	External ❗	🛑	onlyToken
└	shouldDistribute	Internal 🔒		
└	distributeDividend	Internal 🔒	🛑	
└	claimDividend	External ❗	🛑	NO❗
└	getPaidEarnings	Public ❗		NO❗
└	getUnpaidEarnings	Public ❗		NO❗
└	getCumulativeDividends	Internal 🔒		
└	addShareholder	Internal 🔒	🛑	
└	removeShareholder	Internal 🔒	🛑	
BowserInuToken	Implementation	IERC20Extended, Auth			
└	<Constructor>	Public ❗	🛑	Auth
└	<Receive Ether>	External ❗	💵	NO❗
└	totalSupply	External ❗		NO❗
└	decimals	External ❗		NO❗
└	symbol	External ❗		NO❗
└	name	External ❗		NO❗
└	balanceOf	Public ❗		NO❗
└	allowance	External ❗		NO❗
└	approve	Public ❗	🛑	NO❗

CONTRACT ASSESMENT

└	approveMax	External ❗	🛑	NO❗
└	transfer	External ❗	🛑	NO❗
└	transferFrom	External ❗	🛑	NO❗
└	_transferFrom	Internal 🔒	🛑	
└	_basicTransfer	Internal 🔒	🛑	
└	takeFee	Internal 🔒	🛑	
└	setBuyAccFee	Internal 🔒	🛑	
└	setSellAccFee	Internal 🔒	🛑	
└	shouldSwapBack	Internal 🔒		
└	swapBack	Internal 🔒	🛑	swapping
└	enableTrading	External ❗	🛑	authorized
└	claimDividend	External ❗	🛑	NO❗
└	getPaidDividend	Public ❗		NO❗
└	getUnpaidDividend	External ❗		NO❗
└	getTotalDistributedDividend	External ❗		NO❗
└	removeStuckBnb	External ❗	🛑	authorized
└	setIsDividendExempt	External ❗	🛑	authorized
└	setIsFeeExempt	External ❗	🛑	authorized
└	setIsLimitExempt	External ❗	🛑	authorized
└	removeBots	External ❗	🛑	onlyOwner
└	setIsWalletExempt	External ❗	🛑	authorized
└	setBuyFees	Public ❗	🛑	authorized
└	setSellFees	Public ❗	🛑	authorized
└	setFeeReceivers	External ❗	🛑	authorized
└	setMaxWalletlimit	External ❗	🛑	authorized
└	setMaxTxnLimit	External ❗	🛑	authorized
└	setSwapBackSettings	External ❗	🛑	authorized
└	setDistributionCriteria	External ❗	🛑	authorized
└	setDistributorSettings	External ❗	🛑	authorized

Legend

Symbol	Meaning
🛑	Function can modify state
💵	Function is payable

STATIC ANALYSIS

```
Reentrancy in BowserInuToken.swapBack() (contracts/Token.sol#783-836):
        External calls:
        - address(marketingFeeReceiver).transfer(amountBNBMarketing) (contracts/Token.sol#826)
        - address(devFeeReceiver).transfer(amountBNBDev) (contracts/Token.sol#829)
        External calls sending eth:
        - distributor.deposit{value: amountBNBReflection}() (contracts/Token.sol#823)
        - address(marketingFeeReceiver).transfer(amountBNBMarketing) (contracts/Token.sol#826)
        - address(devFeeReceiver).transfer(amountBNBDev) (contracts/Token.sol#829)
        State variables written after the call(s):
        - _burnFeeCount = 0 (contracts/Token.sol#834)
        - _devFeeCount = 0 (contracts/Token.sol#835)
        - _marketingFeeCount = 0 (contracts/Token.sol#833)
        - _reflectionFeeCount = 0 (contracts/Token.sol#832)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-4

BowserInuToken.slitherConstructorVariables() (contracts/Token.sol#481-983) uses literals with too many digits:
        - distributorGas = 500000 (contracts/Token.sol#519)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits

BowserInuToken.ZERO (contracts/Token.sol#492) is never used in BowserInuToken (contracts/Token.sol#481-983)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable

BowserInuToken.USDC (contracts/Token.sol#490) should be constant
BowserInuToken.snipingTime (contracts/Token.sol#522) should be constant
DividendDistributor.USDC (contracts/Token.sol#287-288) should be constant
DividendDistributor.dividendsPerShareAccuracyFactor (contracts/Token.sol#301) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

BowserInuToken.distributor (contracts/Token.sol#518) should be immutable
BowserInuToken.pair (contracts/Token.sol#494) should be immutable
BowserInuToken.router (contracts/Token.sol#493) should be immutable
DividendDistributor.router (contracts/Token.sol#289) should be immutable
DividendDistributor.token (contracts/Token.sol#279) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
```

Result => A static analysis of contract's source code has been performed using slither,

No major issues were found in the output

FUNCTIONAL TESTING

Router (PCS V2):
0xD99D1c33F9fC3444f8101754aBC46c52416550D1

All the functionalities have been tested, no issues were found

1- Adding liquidity (passed):
https://testnet.bscscan.com/tx/0x8fb90e8a5e02c134423eced5b19efd63bc7bb7255e68ab32234ff8fd9b679e5c

2- Buying when excluded (0% tax) (passed):
https://testnet.bscscan.com/tx/0x883b0a2927d5adeb5144145d1bb6b02e05faf3b59ac50dc492327520acbfeb3e

3- Selling when excluded (0% tax) (passed):
https://testnet.bscscan.com/tx/0x4f04d6441cea4d69908aff0a374832acf3860dc0b07b95ad557774e332a028ee

4- Transferring when excluded (0% tax) (passed):
https://testnet.bscscan.com/tx/0xa0038c66f910ccaedd08cf370473972be27b73907a2c131fabd8444b4672dc70

5- Buying when not excluded (upto 15% tax) (passed):
https://testnet.bscscan.com/tx/0x64855af4f7b663c3937b0d5e0c0b2ec58a786ccc590d54b1befc34064ebd7ee3

6- Selling when not excluded (upto 15% tax) (passed):
https://testnet.bscscan.com/tx/0xe9648f56b9b4e26e3741b124f20f65e4e2af8f4928bd78f6753561b306e254ed

FUNCTIONAL TESTING

7- Transferring when not excluded (0% tax) (passed):
https://testnet.bscscan.com/tx/0x2a337442d4cf404fa34b445012a9e05c81a1090fe2341a0d8a96ee69796b217e

8- Internal swap (passed):
fees **wallet received BNB**
https://testnet.bscscan.com/address/0xD7973B7baf14699646AebeF631875c65DAcc493F#internaltx

9- **Distribution of rewards (passed):**
rewrad tokens are distributed between holders, this can be seen in this transaction
https://testnet.bscscan.com/tx/0xe9648f56b9b4e26e3741b124f20f65e4e2af8f4928bd78f6753561b306e254ed

MANUAL TESTING

Centralization - Owner must enable trading

Severity: High
Function: enableTrading
Lines: 813
Status: Not Resolved
Overview:
The owner must activate trading for investors to buy, sell, or transfer tokens. If trading remains disabled, token holders will be unable to trade their tokens.

```
function enableTrading() external authorized {
    require(!trading, "LYKOICare: already enabled");
    trading = true;
    swapEnabled = true;
    launchedAt = block.timestamp;
}
```

Recommendation:
to address this issue there are multiple options
- transfer ownership of contract to a trusted 3rd wallet (pinksale safu developer) to guarante enabling of trades
- Incorporate a safety mechanism that allows investors to activate trading if a specified duration has elapsed since the conclusion of the presale or consider alternative ways such as allowing trades ater investors claimed their presale tokens.

MANUAL TESTING

Informational – No way to withdraw stuck tokens

Severity: Informational
Function: ---
Lines: ---
Status: Not Resolved
Overview:
Currently threre are no functions to withdraw ERC20 tokens from the contract. If tokens are sent to the contract by mistake there will not be anyway to withdraw them.

Recommendation:
to address this issue implement a function to be able to withdraw ERC20 tokens from the contract

DISCLAIMER

All the content provided in this document is for general information only and should not be used as financial advice or a reason to buy any investment. Team provides no guarantees against the sale of team tokens or the removal of liquidity by the project audited in this document. Always Do your own research and protect yourselves from being scammed. The Auditace team has audited this project for general information and only expresses their opinion based on similar projects and checks from popular diagnostic tools. Under no circumstances did Auditace receive a payment to manipulate those results or change the awarding badge that we will be adding in our website. Always Do your own research and protect yourselves from scams. This document should not be presented as a reason to buy or not buy any particular token. The Auditace team disclaims any liability for the resulting losses.

ABOUT AUDITACE

We specializes in providing thorough and reliable audits for Web3 projects. With a team of experienced professionals, we use cutting-edge technology and rigorous methodologies to evaluate the security and integrity of blockchain systems. We are committed to helping our clients ensure the safety and transparency of their digital assets and transactions.

https://auditace.tech/

https://t.me/Audit_Ace

https://twitter.com/auditace_

https://github.com/Audit-Ace