



# Smart Contract Audit

FOR

**BUFFI**

DATED : 5 June 23'



# AUDIT SUMMARY

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**Project name –** BUFFI

**Date:** 5 June, 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	0	0	0	0
Acknowledged	0	0	0	0	0
Resolved	0	0	0	0	0

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# USED TOOLS

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## Tools:

### 1- Manual Review:

A line by line code review has been performed by audit ace team.

**2- BSC Test Network:** All tests were conducted on the BSC Test network, and each test has a corresponding transaction attached to it. These tests can be found in the "Functional Tests" section of the report.

### 3- Slither :

The code has undergone static analysis using Slither.

### Testnet version:

The tests were performed using the contract deployed on the BSC Testnet, which can be found at the following address:

<https://testnet.bscscan.com/address/0x9D13EC32405dc7D08F9Ccd1367ee3D9e060EC3a2#code>

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# Token Information

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**Token Name :** BUFFICORN

**Token Symbol:** BUFFI

**Decimals:** 9

**Token Supply:** 227,000,000,000,000,000

**Token Address:**

0x8a601616795dFf64ECdB271519f199ae4DA0836e

**Checksum:**

a53705f3eb183560fbd781b3424a8bd538c2271c

**Owner:**

0x41099d1046Aaeb91fa5a46C9D552efCb37F94C83  
(at time of writing the audit)

**Deployer:**

0x41099d1046Aaeb91fa5a46C9D552efCb37F94C83

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# TOKEN OVERVIEW

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## **Fees:**

Buy Fees: 0-6%

Sell Fees: 0-6%

Transfer Fees: 0%

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**Fees Privilege:** Owner

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**Ownership:** Owned

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**Minting:** None

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**Max Tx Amount/ Max Wallet Amount:** No

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**Blacklist:** No

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**Other Privileges:** - modifying fees  
- changing swap threshold

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# AUDIT METHODOLOGY

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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 is exercised 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.
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# VULNERABILITY CHECKLIST

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

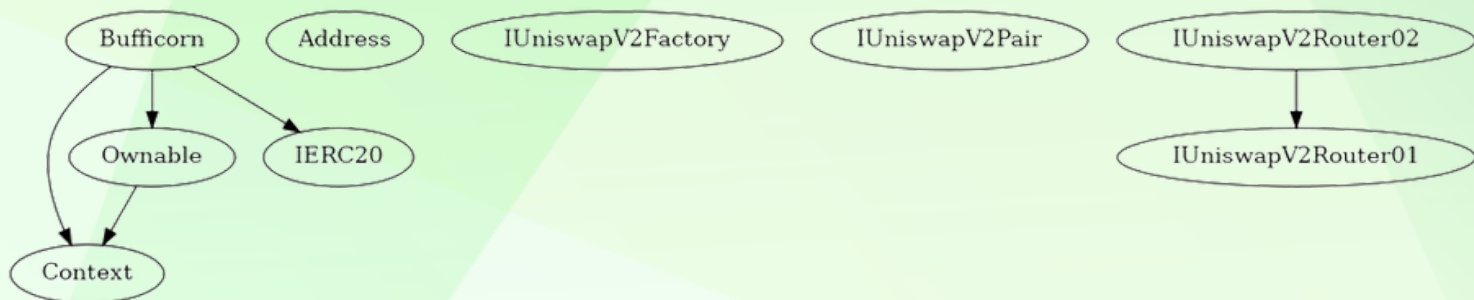
### Found

◆ Critical	0
◆ High-Risk	0
◆ Medium-Risk	0
◆ Low-Risk	0
◆ Gas Optimization / Suggestions	0



# INHERITANCE TREE

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# POINTS TO NOTE

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- owner is not able to set buy/sell fees more than 6%
  - owner is not able to set transfer fees (0%)
  - owner is not able to blacklist an arbitrary wallet
  - owner is not able to set limit for  
buy/sell/transfer/holding amounts
  - owner is not able to mint new tokens
  - owner is not able to disable trades
  - owner can exclude/include an address from fees
  - owner can set staking address
  - owner can lock/unlock tokens for staking
  - owner can update buy/sell fees
  - owner can set swap tokens at amount
  - owner can enable/disable swap
  - owner can claim stuck tokens
  - owner can exclude/include an address from rewards
  - owner can transfer ownership
  - owner can renounce ownership
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# CONTRACT ASSESMENT

Contract	Type	Bases			
----- :----- :----- :----- :-----					
L	**Function Name**	**Visibility**	**Mutability**	**Modifiers**	
**Context**   Implementation					
L	_msgSender	Internal	🔒		
L	_msgData	Internal	🔒		
**Ownable**   Implementation   Context					
L	<Constructor>	Public	!	●	NO !
L	owner	Public	!		NO !
L	renounceOwnership	Public	!	●	onlyOwner
L	transferOwnership	Public	!	●	onlyOwner
**IERC20**   Interface					
L	totalSupply	External	!		NO !
L	balanceOf	External	!		NO !
L	transfer	External	!	●	NO !
L	allowance	External	!		NO !
L	approve	External	!	●	NO !
L	transferFrom	External	!	●	NO !
**Address**   Library					
L	isContract	Internal	🔒		
L	sendValue	Internal	🔒	●	
L	functionCall	Internal	🔒	●	
L	functionCall	Internal	🔒	●	
L	functionCallWithValue	Internal	🔒	●	
L	functionCallWithValue	Internal	🔒	●	
L	_functionCallWithValue	Private	🔒	●	
**IUniswapV2Factory**   Interface					
L	feeTo	External	!		NO !
L	feeToSetter	External	!		NO !
L	getPair	External	!		NO !
L	allPairs	External	!		NO !
L	allPairsLength	External	!		NO !
L	createPair	External	!	●	NO !
L	setFeeTo	External	!	●	NO !
L	setFeeToSetter	External	!	●	NO !
**IUniswapV2Pair**   Interface					
L	name	External	!		NO !

# CONTRACT ASSESMENT

```

└─ symbol | External ! | |NO ! |
└─ decimals | External ! | |NO ! |
└─ totalSupply | External ! | |NO ! |
└─ balanceOf | External ! | |NO ! |
└─ allowance | External ! | |NO ! |
└─ approve | External ! | ● |NO ! |
└─ transfer | External ! | ● |NO ! |
└─ transferFrom | External ! | ● |NO ! |
└─ DOMAIN_SEPARATOR | External ! | |NO ! |
└─ PERMIT_TYPEHASH | External ! | |NO ! |
└─ nonces | External ! | |NO ! |
└─ permit | External ! | ● |NO ! |
└─ MINIMUM_LIQUIDITY | External ! | |NO ! |
└─ factory | External ! | |NO ! |
└─ token0 | External ! | |NO ! |
└─ token1 | External ! | |NO ! |
└─ getReserves | External ! | |NO ! |
└─ price0CumulativeLast | External ! | |NO ! |
└─ price1CumulativeLast | External ! | |NO ! |
└─ kLast | External ! | |NO ! |
└─ burn | External ! | ● |NO ! |
└─ swap | External ! | ● |NO ! |
└─ skim | External ! | ● |NO ! |
└─ sync | External ! | ● |NO ! |
└─ initialize | External ! | ● |NO ! |
|||||
**IUniswapV2Router01** | Interface | |||
└─ factory | External ! | |NO ! |
└─ WETH | External ! | |NO ! |
└─ addLiquidity | External ! | ● |NO ! |
└─ addLiquidityETH | External ! | 🇸🇬 |NO ! |
└─ removeLiquidity | External ! | ● |NO ! |
└─ removeLiquidityETH | External ! | ● |NO ! |
└─ removeLiquidityWithPermit | External ! | ● |NO ! |
└─ removeLiquidityETHWithPermit | External ! | ● |NO ! |
└─ swapExactTokensForTokens | External ! | ● |NO ! |
└─ swapTokensForExactTokens | External ! | ● |NO ! |
└─ swapExactETHForTokens | External ! | 🇸🇬 |NO ! |
└─ swapTokensForExactETH | External ! | ● |NO ! |
└─ swapExactTokensForETH | External ! | ● |NO ! |
└─ swapETHForExactTokens | External ! | 🇸🇬 |NO ! |
└─ quote | External ! | |NO ! |

```



# CONTRACT ASSESMENT



```
| L | getAmountOut | External ! | | NO ! |
| L | getAmountIn | External ! | | NO ! |
| L | getAmountsOut | External ! | | NO ! |
| L | getAmountsIn | External ! | | NO ! |
|||||
| **IUniswapV2Router02** | Interface | IUniswapV2Router01 |||
| L | removeLiquidityETHSupportingFeeOnTransferTokens | External ! | ● | NO ! |
| L | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External ! | ● | NO ! |
| L | swapExactTokensForTokensSupportingFeeOnTransferTokens | External ! | ● | NO ! |
| L | swapExactETHForTokensSupportingFeeOnTransferTokens | External ! | 📄 | NO ! |
| L | swapExactTokensForETHSupportingFeeOnTransferTokens | External ! | ● | NO ! |
|||||
| **Bufficorn** | Implementation | Context, IERC20, Ownable |||
| L | <Constructor> | Public ! | ● | NO ! |
| L | name | Public ! | | NO ! |
| L | symbol | Public ! | | NO ! |
| L | decimals | Public ! | | NO ! |
| L | totalSupply | Public ! | | NO ! |
| L | balanceOf | Public ! | | NO ! |
| L | transfer | Public ! | ● | NO ! |
| L | allowance | Public ! | | NO ! |
| L | approve | Public ! | ● | NO ! |
| L | transferFrom | Public ! | ● | NO ! |
| L | increaseAllowance | Public ! | ● | NO ! |
| L | decreaseAllowance | Public ! | ● | NO ! |
| L | isExcludedFromReward | Public ! | | NO ! |
| L | totalReflectionDistributed | Public ! | | NO ! |
| L | deliver | Public ! | ● | NO ! |
| L | reflectionFromToken | Public ! | | NO ! |
| L | tokenFromReflection | Public ! | | NO ! |
| L | excludeFromReward | Public ! | ● | onlyOwner |
| L | includeInReward | External ! | ● | onlyOwner |
| L | <Receive Ether> | External ! | 📄 | NO ! |
| L | claimStuckTokens | External ! | ● | NO ! |
| L | setStakingAddress | External ! | ● | onlyOwner |
| L | lockToken | Public ! | ● | NO ! |
| L | unlockToken | Public ! | ● | NO ! |
| L | updateFeeBuy | Public ! | ● | onlyOwner |
| L | updateFeeSell | Public ! | ● | onlyOwner |
| L | _reflectFee | Private 🔒 | ● | |
| L | _getValues | Private 🔒 | | |
| L | _getTValues | Private 🔒 | | |
```



# CONTRACT ASSESSMENT

	L	_getRValues   Private				
	L	_getRate   Private				
	L	_getCurrentSupply   Private				
	L	_takeLiquidity   Private				
	L	_takeMarketing   Private				
	L	calculateTaxFee   Private				
	L	calculateLiquidityFee   Private				
	L	calculateMarketingFee   Private				
	L	removeAllFee   Private				
	L	setBuyFee   Private				
	L	setSellFee   Private				
	L	isExcludedFromFee   Public			NO	
	L	_approve   Private				
	L	_transfer   Private				
	L	swapAndLiquify   Private				
	L	swapAndSendMarketing   Private				
	L	setSwapTokensAtAmount   External				onlyOwner
	L	setSwapEnabled   External				onlyOwner
	L	_tokenTransfer   Private				
	L	_transferStandard   Private				
	L	_transferToExcluded   Private				
	L	_transferFromExcluded   Private				
	L	_transferBothExcluded   Private				
	L	excludeFromFees   External				onlyOwner
	L	isContract   Internal				

### ### Legend

Symbol	Meaning
	Function can modify state
	Function is payable



# STATIC ANALYSIS

```
Variable Bufficorn._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#943) is too similar to Bufficorn._transferToExcluded(addr
ess,address,uint256).tTransferAmount (contracts/Token.sol#926)
Variable Bufficorn._getRValues(uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#686) is too similar to Bufficorn._transferToExclude
d(address,address,uint256).tTransferAmount (contracts/Token.sol#926)
Variable Bufficorn._getValues(uint256).rTransferAmount (contracts/Token.sol#664) is too similar to Bufficorn._transferToExcluded(address,address,uint256).tTrans
ferAmount (contracts/Token.sol#926)
Variable Bufficorn._transferBothExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#962) is too similar to Bufficorn._getTValues(uint256).tTr
ansferAmount (contracts/Token.sol#673)
Variable Bufficorn._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#943) is too similar to Bufficorn._getTValues(uint256).tTr
ansferAmount (contracts/Token.sol#673)
Variable Bufficorn._getRValues(uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#686) is too similar to Bufficorn._getTValues(uint25
6).tTransferAmount (contracts/Token.sol#673)
Variable Bufficorn._getValues(uint256).rTransferAmount (contracts/Token.sol#664) is too similar to Bufficorn._getTValues(uint256).tTransferAmount (contracts/Tok
en.sol#673)
Variable Bufficorn._transferBothExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#962) is too similar to Bufficorn._transferFromExcluded(ad
dress,address,uint256).tTransferAmount (contracts/Token.sol#945)
Variable Bufficorn._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#924) is too similar to Bufficorn._transferStandard(address,
address,uint256).tTransferAmount (contracts/Token.sol#908)
Variable Bufficorn._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#906) is too similar to Bufficorn._transferStandard(address,ad
dress,uint256).tTransferAmount (contracts/Token.sol#908)
Variable Bufficorn._transferBothExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#962) is too similar to Bufficorn._getValues(uint256).tTra
nsferAmount (contracts/Token.sol#663)
Variable Bufficorn._getRValues(uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#686) is too similar to Bufficorn._transferFromExclu
ded(address,address,uint256).tTransferAmount (contracts/Token.sol#945)
Variable Bufficorn._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#906) is too similar to Bufficorn._transferToExcluded(address,
address,uint256).tTransferAmount (contracts/Token.sol#926)
Variable Bufficorn._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#943) is too similar to Bufficorn._getValues(uint256).tTra
nsferAmount (contracts/Token.sol#663)
Variable Bufficorn._getRValues(uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#686) is too similar to Bufficorn._getValues(uint256
).tTransferAmount (contracts/Token.sol#663)
Variable Bufficorn._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#924) is too similar to Bufficorn._getTValues(uint256).tTran
sferAmount (contracts/Token.sol#673)
Variable Bufficorn._getValues(uint256).rTransferAmount (contracts/Token.sol#664) is too similar to Bufficorn._getValues(uint256).tTransferAmount (contracts/Toke
n.sol#663)
Variable Bufficorn._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#906) is too similar to Bufficorn._getTValues(uint256).tTransf
erAmount (contracts/Token.sol#673)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar

Bufficorn.DEAD (contracts/Token.sol#402) should be constant
Bufficorn.decimals (contracts/Token.sol#376) should be constant
Bufficorn.name (contracts/Token.sol#374) should be constant
Bufficorn.symbol (contracts/Token.sol#375) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

Bufficorn.DEV (contracts/Token.sol#403) should be immutable
Bufficorn.tTotal (contracts/Token.sol#379) should be immutable
Bufficorn.mk (contracts/Token.sol#399) should be immutable
Bufficorn.mkTwo (contracts/Token.sol#400) should be immutable
Bufficorn.totalBuyFees (contracts/Token.sol#396) should be immutable
Bufficorn.totalSellFees (contracts/Token.sol#397) should be immutable
Bufficorn.uniswapV2Pair (contracts/Token.sol#406) should be immutable
Bufficorn.uniswapV2Router (contracts/Token.sol#405) 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

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**Router (PCS V2):**

**0xD99D1c33F9fC3444f8101754aBC46c52416550D1**

**1- Adding liquidity (passed):**

<https://testnet.bscscan.com/tx/0x0f0fd65399f60e48c51afcfee5eb3de704f9f23d8f3a18a29ecb6112b31b0f10>

**2- Buying when excluded (0% tax) (passed):**

<https://testnet.bscscan.com/tx/0x2ccd51abbafd8e328fa46861f7c1235ed7b7dc6b8f5adbe55cae0bc0d696c43>

**3- Selling when excluded (0% tax) (passed):**

<https://testnet.bscscan.com/tx/0x645dfe857744285b3ce8ea30e7593f6e34fc2f6543001ca89a39d283b7ea5e57>

**4- Transferring when excluded from fees (0% tax) (passed):**

<https://testnet.bscscan.com/tx/0x1a375d85cc4a32aae8a560a2a679baa01c171bd40601308e88093e6d8f2fa71f>

**5- Buying when not excluded from fees (0-6% tax) (passed):**

<https://testnet.bscscan.com/tx/0x5e452c28242d328531cd53b5e20b1bda7994fc6527539c46d913cf0465e910a2>

**6- Selling when not excluded from fees (0-6% tax) (passed):**

<https://testnet.bscscan.com/tx/0x87f36b7704cc2dbb7e3e1762724531b4293294a4573ec7cdc15f302914bc20db>

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# FUNCTIONAL TESTING

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**7- Transferring when not excluded from fees (0% tax) (passed):**

<https://testnet.bscscan.com/tx/0x3745191f7baf048092c578da3d88580635bdde9e604f1ffa26216397441ff450>

**8- Internal swap (BNB fee + auto liquidity) (passed):**

<https://testnet.bscscan.com/tx/0x87f36b7704cc2dbb7e3e1762724531b4293294a4573ec7cdc15f302914bc20db>

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We specialize 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.



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**<https://github.com/Audit-Ace>**

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