# Smart Contract Security Audit V1

# **Snow Fox Token**

https://snow-fox-token.com/

6/12/2021



business@saferico.com https://t.me/SFI\_ANN

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# Background

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

# **Project Information**

• Website: <a href="https://snow-fox-token.com/">https://snow-fox-token.com/</a>

• Telegram group: <a href="https://t.me/snowfoxtoken">https://t.me/snowfoxtoken</a>

• Twitter: <a href="https://twitter.com/snowfoxtoken">https://twitter.com/snowfoxtoken</a>

• WhitePaper: <a href="https://adobe.ly/3DmFQac">https://adobe.ly/3DmFQac</a>

• Platform: Binance Smart Chain

• Contract Address: 0xA3cA049de7BF1350C21Efc5fA5A1E041795403d9

#### **Token Information**

• Name: SNOWFOX

• Total Supply: 100,000,000,000

• Holders: 65 address

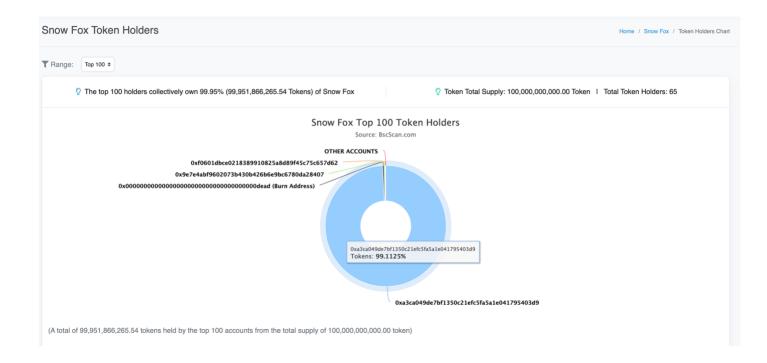
• Total transactions: 246

Contracts address deployed to test net (BSC)

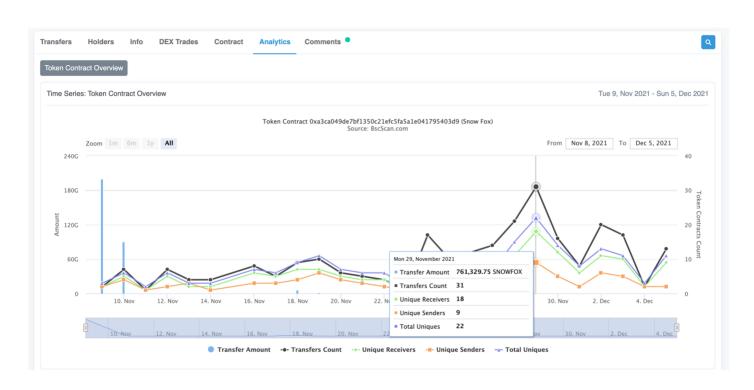
Snow Fox token contract on testnet.bsc (BSC Test Net)

https://testnet.bscscan.com/address/0x9e96b01c71b02daa0d1337e8f5e29fe992d5f5f1

#### **SNOWFOX Token Distribution**

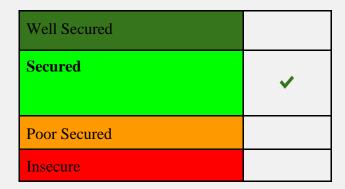


### **Contract Interaction Details**



### **Executive Summary**

According to our assessment, the customer's solidity smart contract is **Secured**.



Automated checks are with remix IDE. All issues were performed by the team, which included the analysis of code functionality, manual audit found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the audit overview section. The general overview is presented in the Project Information section and all issues found are located in the audit overview section.

Team found 0 critical, 0 high, 0 medium, 0 low, 1 very low-level issues and 1 note in all solidity files of the contract

The files:

Snow Fox Token.sol

# File and Function Level Report

## File in Scope:

Contract Name	SHA 256 hash	Contract Address
Snow Fox Token.sol	4d264f773c88115b3c457f15 628f62535d822a607edd4e5 e138acaed3e3379cd	0xA3cA049de7BF1350C21Efc5fA5A1E04179 5403d9

• Contract: premiumcontract

• Inherit: Context, IERC20, Ownable

• Observation: All passed including security check

• Test Report: passed

• Score: passed

• Conclusion: passed

Function	Test Result	Type / Return Type	Score
name	<b>~</b>	Read / public	Passed
symbol	<b>~</b>	Read / public	Passed
decimals	<b>~</b>	Read / public	Passed
totalSupply	<b>~</b>	Read / public	Passed
allowance	<b>~</b>	Read / public	Passed
balanceOf	<b>~</b>	Read / public	Passed
Owner	<b>~</b>	Read / public	Passed
geUnlockTime	<b>~</b>	Read / public	Passed
swapAndLiquifyEnabled	<b>~</b>	Read / public	Passed
rewards	<b>~</b>	Read / public	Passed
reflectionFromToken	<b>~</b>	Read / public	Passed
isExcludedFromReward	<b>~</b>	Read / public	Passed

tokenFromReflection	<b>~</b>	Read / public	Passed
_maxTxAmount	<b>~</b>	Read / private	Passed
_taxFee	<b>~</b>	Read / private	Passed
isExcludedFromFees	<b>~</b>	Read / public	Passed
_liquidityFee	<b>~</b>	Read / private	Passed
_marketingFee	<b>~</b>	Read / private	Passed
totalFees	<b>~</b>	Read / public	Passed
uniswapV2Pair	<b>~</b>	Read / public	Passed
uniswapV2Router	<b>~</b>	Read / public	Passed
unLock	<b>~</b>	Write / public	Passed
approve	<b>~</b>	Write / public	Passed
transferFrom	<b>~</b>	Write / public	Passed
transfer	<b>~</b>	Write / public	Passed
deliver	<b>~</b>	Write / public	Passed
excludeFromFees	<b>~</b>	Write / public	Passed
excludeFromReward	<b>~</b>	Write / public	Passed
includeInFee	<b>~</b>	Write / public	Passed
renounceOwnership	*	Write / public	Passed
transferOwnership	<b>*</b>	Write / public	Passed
includeInReward	<b>~</b>	Write / public	Passed
setLiquiditFeePercent	<b>~</b>	Write / public	Passed
decreaseAllowance	<b>~</b>	Write / public	Passed
setTaxFeePercent	<b>~</b>	Write / public	Passed
lock	<b>~</b>	Write / public	Passed
setMaxAmount	<b>~</b>	Write / public	Passed
setMaxTxAmount	<b>~</b>	Write / public	Passed
setSwapAndLiquifyEnabl ed	<b>*</b>	Write / public	Passed
increaseAllowance	<b>*</b>	Write / public	Passed

# **Issues Checking Status**

No.	Issue Description	Checking Status
1	Compiler warnings.	Passed
2	Race conditions and Reentrancy. Cross-function race conditions.	Passed
3	Possible delays in data delivery.	Passed
4	Oracle calls.	Passed
5	Front running.	Passed
6	Timestamp dependence.	Passed
7	Integer Overflow and Underflow. Passed	
8	DoS with Revert. Passed	
9	DoS with block gas limit. Passed	
10	Methods execution permissions. Passed	
11	Economy model. If application logic is based on an incorrect economic model, the application would not function correctly and participants would incur financial losses.  This type of issue is most often found in bonus rewards systems, Staking and Farming contracts, Vault and Vesting contracts, etc.	
12	The impact of the exchange rate on the logic.	Passed
13	Private user data leaks. Passed	
14	Malicious Event log. Passed	
15	Scoping and Declarations. Passed	
16	Uninitialized storage pointers. Passed	
17	Arithmetic accuracy.	Passed
18	Design Logic. Passed	

# Severity Definitions

Risk Level	Description	
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to tokens loss etc.	
High	High-level vulnerabilities are difficult to exploit; however, they also have significant impact on smart contract execution, e.g. public access to crucial functions	
Medium	Medium-level vulnerabilities are important to fix; however, they can't lead to tokens lose	
Low	Low-level vulnerabilities are mostly related to outdated, unused etc. code snippets, that can't have significant impact on execution	
Note	Lowest-level vulnerabilities, code style violations and info statements can't affect smart contract execution and can be ignored.	

### **Audit Findings**

#### **Critical:**

No critical severity vulnerabilities were found.

#### High:

No High severity vulnerabilities were found

#### **Medium:**

No Medium severity vulnerabilities were found.

#### Low:

No Low severity vulnerabilities were found.

#### Very Low:

Issue #1. Constant/View/Pure functions:

SafeMath.sub(uint256,uint256): Is constant but potentially should not be. Note: Modifiers are currently not considered by this static analysis.

```
function sub(uint256 a, uint256 b) internal pure returns (uint256) {
  return sub(a, b, "SafeMath: subtraction overflow");
}
```

Notes:

#### #Note1

#### **#ERC20:**

In detail

ERC20 contract's "decimals" function should have "uint8" as return type.

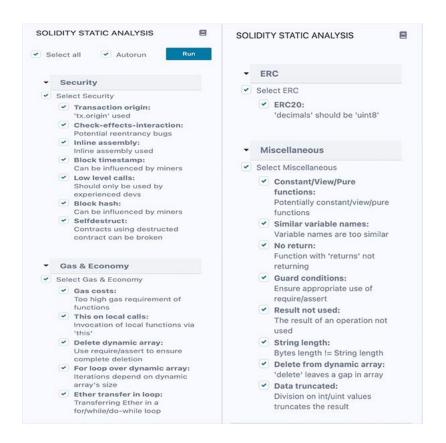
```
function decimals() external pure returns
(uint8);
```

# **Automatic Testing**

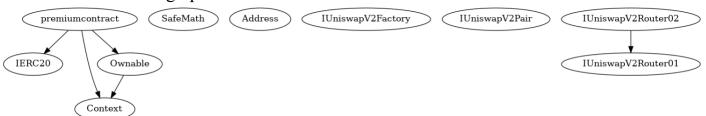
#### 1- Check for security



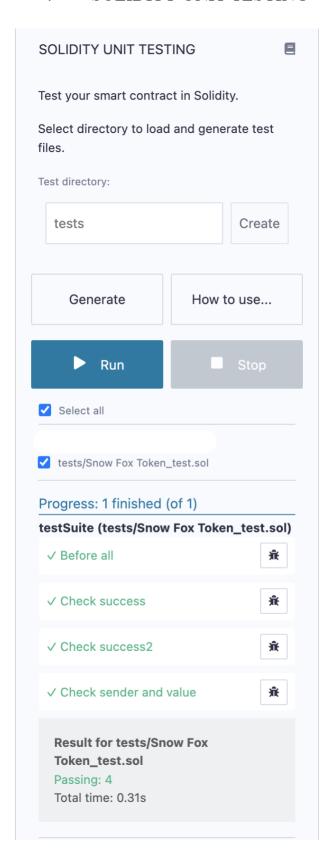
#### 2- SOLIDITY STATIC ANALYSIS



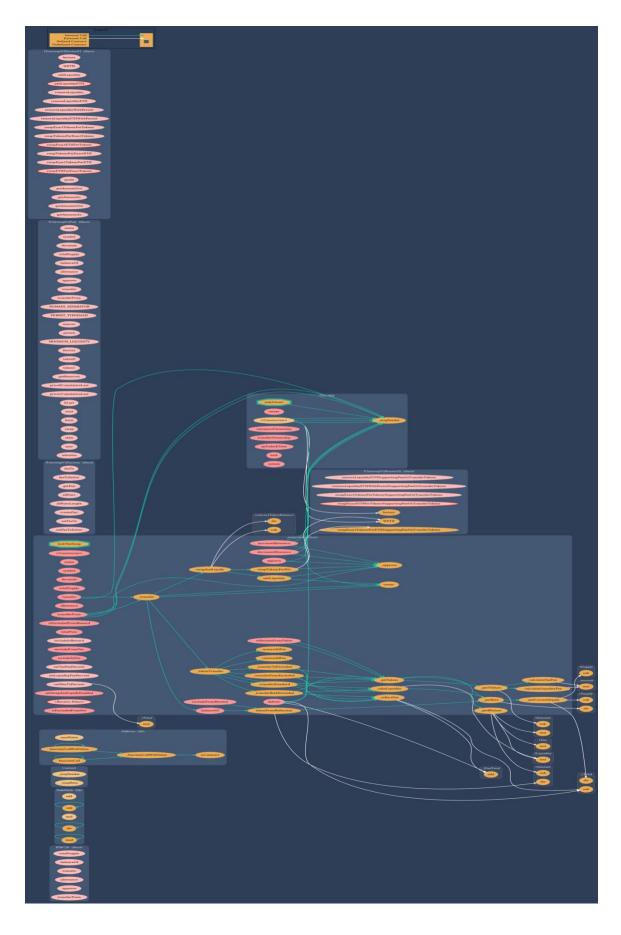
#### 3- Inheritance graph



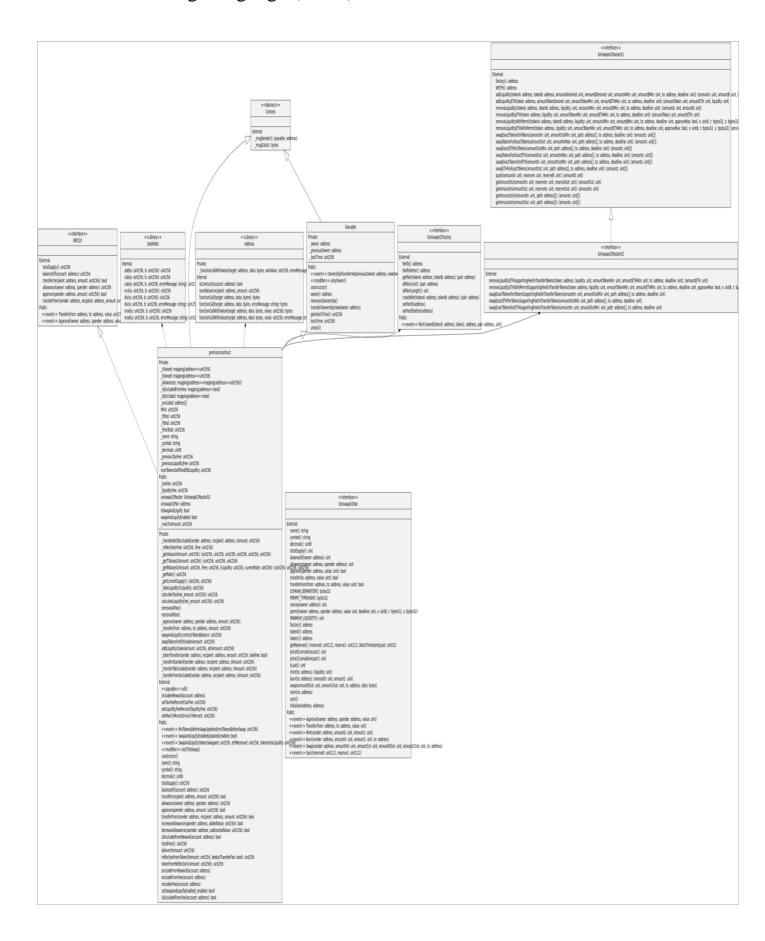
#### 4- SOLIDITY UNIT TESTING



# 5- Call graph



## Unified Modeling Language (UML)



### Functions signature

```
11902160 => getTValues(uint256)
16279055 = \overline{isContract(address)}
39509351 => increaseAllowance(address, uint256)
75128141 => calculateTaxFee (uint256)
18160ddd => totalSupply()
70a08231 => balanceOf(address)
a9059cbb => transfer(address, uint256)
dd62ed3e => allowance(address, address)
095ea7b3 => approve(address, uint256)
23b872dd => transferFrom(address,address,uint256)
771602f7 => add(uint256, uint256)
b67d77c5 => sub(uint256, uint256)
e31bdc0a => sub(uint256,uint256,string)
c8a4ac9c => mul(uint256,uint256)
a391c15b => div(uint256, uint256)
b745d336 => div(uint256, uint256, string)
f43f523a => mod(uint256, uint256)
71af23e8 => mod(uint256,uint256,string)
119df25f => _msgSender()
8b49d47e => _msgData()
24a084df => sendValue(address,uint256)
a0b5ffb0 => functionCall(address,bytes)
241b5886 => functionCall(address,bytes,string)
2a011594 => functionCallWithValue(address, bytes, uint256)
d525ab8a => functionCallWithValue(address, bytes, uint256, string)
36455e42 => _functionCallWithValue(address,bytes,uint256,string)
8da5cb5b => owner()
715018a6 => renounceOwnership()
f2fde38b => transferOwnership(address)
b6c52324 => geUnlockTime()
dd467064 \Rightarrow lock(uint256)
a69df4b5 => unlock()
017e7e58 => feeTo()
094b7415 => feeToSetter()
e6a43905 => getPair(address,address)
1e3dd18b => allPairs(uint256)
574f2ba3 => allPairsLength()
c9c65396 => createPair(address,address)
f46901ed => setFeeTo(address)
a2e74af6 => setFeeToSetter(address)
06fdde03 => name()
95d89b41 => symbol()
313ce567 => decimals()
3644e515 => DOMAIN SEPARATOR()
30adf81f => PERMIT TYPEHASH()
7ecebe00 => nonces(address)
d505accf => permit(address,address,uint256,uint256,uint8,bytes32,bytes32)
ba9a7a56 => MINIMUM LIQUIDITY()
c45a0155 \Rightarrow factory()
0dfe1681 => token0()
d21220a7 => token1()
0902flac => getReserves()
5909c0d5 => price0CumulativeLast()
5a3d5493 => price1CumulativeLast()
7464fc3d => kLast()
6a627842 \Rightarrow mint(address)
```

```
89afcb44 => burn(address)
022c0d9f => swap (uint256, uint256, address, bytes)
bc25cf77 => skim(address)
fff6cae9 => sync()
485cc955 => initialize(address,address)
ad5c4648 => WETH()
e8e33700 =>
addLiquidity (address, address, uint256, uint256, uint256, uint256, address, uint256)
f305d719 => addLiquidityETH(address,uint256,uint256,uint256,address,uint256)
baa2abde =>
removeLiquidity(address,address,uint256,uint256,uint256,address,uint256)
02751cec => removeLiquidityETH(address, uint256, uint256, uint256, address, uint256)
2195995c =>
removeLiquidityWithPermit(address,address,uint256,uint256,uint256,address,uint256,b
ool, uint8, bytes32, bytes32)
ded9382a =>
removeLiquidityETHWithPermit(address,uint256,uint256,uint256,address,uint256,bool,u
int8, bytes32, bytes32)
38ed1739 => swapExactTokensForTokens(uint256, uint256, address[], address, uint256)
8803dbee => swapTokensForExactTokens(uint256, uint256, address[], address, uint256)
7ff36ab5 => swapExactETHForTokens(uint256,address[],address,uint256)
4a25d94a => swapTokensForExactETH(uint256,uint256,address[],address,uint256)
18cbafe5 => swapExactTokensForETH(uint256,uint256,address[],address,uint256)
fb3bdb41 => swapETHForExactTokens(uint256,address[],address,uint256)
ad615dec => quote(uint256, uint256)
054d50d4 => getAmountOut(uint256, uint256, uint256)
85f8c259 => getAmountIn(uint256, uint256, uint256)
d06ca61f => getAmountsOut(uint256,address[])
1f00ca74 => getAmountsIn(uint256,address[])
af2979eb =>
removeLiquidityETHSupportingFeeOnTransferTokens(address, uint256, uint256, uint256, add
ress, uint256)
5b0d5984 =>
removeLiquidityETHWithPermitSupportingFeeOnTransferTokens(address,uint256,uint256,u
int256, address, uint256, bool, uint8, bytes32, bytes32)
5c11d795 =>
swapExactTokensForTokensSupportingFeeOnTransferTokens(uint256, uint256, address[], add
ress, uint256)
b6f9de95 =>
swapExactETHForTokensSupportingFeeOnTransferTokens(uint256,address[],address,uint25
6)
swapExactTokensForETHSupportingFeeOnTransferTokens(uint256,uint256,address[],addres
s,uint256)
a457c2d7 => decreaseAllowance(address, uint256)
88f82020 => isExcludedFromReward(address)
13114a9d => totalFees()
3bd5d173 \Rightarrow deliver(uint256)
4549b039 => reflectionFromToken(uint256,bool)
2d838119 => tokenFromReflection(uint256)
52390c02 => excludeFromReward(address)
3685d419 => includeInReward(address)
6ff6cdf4 => transferBothExcluded(address,address,uint256)
437823ec => excludeFromFee(address)
ea2f0b37 => includeInFee(address)
061c82d0 => setTaxFeePercent(uint256)
8ee88c53 => setLiquidityFeePercent(uint256)
d543dbeb => setMaxTxPercent(uint256)
c49b9a80 => setSwapAndLiquifyEnabled(bool)
```

#### Automatic general report

```
Files Description Table
| File Name | SHA-1 Hash |
|----|
| /Users/macbook/Desktop/smart contracts/Snow Fox Token.sol |
3ce49c515079efae66eadeced5432d90c005d677 |
Contracts Description Table
| Contract |
                Type Bases
| **Function Name** | **Visibility** | **Mutability** |
**Modifiers** |
| **IERC20** | Interface | ||| | |
| L | totalSupply | External | | NO | |
| L | balanceOf | External | | NO | |
| L | allowance | External | | | NO | |
L | approve | External | |
                         |NO∭ |
| **SafeMath** | Library | |||
| L | add | Internal A |
| L | sub | Internal 🖺 |
| L | sub | Internal A |
| L | mul | Internal
| L | div | Internal 🖺 |
| L | div | Internal A |
| L | mod | Internal
| L | mod | Internal 🖺 | | |
| **Context** | Implementation | |||
| L | msgSender | Internal 🖺 | | |
| L | msgData | Internal 🖺 | | |
| L | functionCall | Internal 🖺 | 🔘
| L | functionCall | Internal A | D | |
| L | functionCallWithValue | Internal | L | functionCallWithValue | Internal | L |
 L | functionCallWithValue | Internal
| L | functionCallWithValue | Private 🖺 | | | | | | |
| **Ownable** | Implementation | Context |||
| L | owner | Public | | NO |
| L | renounceOwnership | Public | | OnlyOwner | L | transferOwnership | Public | OnlyOwner |
| L | geUnlockTime | Public | | NO | |
| L | lock | Public | | ● | onlyOwner |
```

```
| **IUniswapV2Factory** | Interface | |||
 L | feeTo | External | | | NO | |
 | getPair | External | NO |
 ∐NO∦ ∣
 | allPairsLength | External | | | NO | |
 createPair | External | | NO | |
 **IUniswapV2Pair** | Interface | |||
 L | name | External | | | NO | |
 L | symbol | External | |
                      | NO |
 L | decimals | External | |
 L | totalSupply | External | | | NO | |
 L | balanceOf | External | | | NO | | L | allowance | External | | NO | |
 | approve | External | |
                          |NO|| |
 L | transfer | External | |
                          |NO∭ |
 L | DOMAIN_SEPARATOR | External | | | NO | |
 | NO|| |
 L | nonces | External | | | NO | | | L | permit | External | | | NO | |
                        |NO.
 |NO| |
  | factory | External | | | NO | |
 L | token0 | External | | | NO| |
 L | token1 | External | |
                       | NO |
  | getReserves | External | | | NO
 |NO|| |
 | price1CumulativeLast | External | |
 | NO
                        |NON|
                        |NO|| |
 L | swap | External
                        |NO|
                   | skim | External
                        |NO|
                   L | sync | External |
                        INO
                   **IUniswapV2Router01** | Interface | |||
 L | factory | External | | | NO | |
 L | WETH | External | | | NO | |
 L | addLiquidity | External | | _ ●
                              | NON |
 | addLiquidityETH | External | | III | NO | |
 removeLiquidity | External [ |
                              ● NO |
 | removeLiquidityETH | External | | | | NO | |
 | removeLiquidityETHWithPermit | External | | | | NO| |
 L | swapExactTokensForTokens | External | | L | swapTokensForExactTokens | External | | L |
                                     ● NON I
 L | swapExactETHForTokens | External | | III | NO | |
 L | swapTokensForExactETH | External L | swapExactTokensForETH | External L
                                      | NO |
                                      |NON |
 | swapETHForExactTokens | External | |
   | quote | External | |
                      | NON |
```

L | getAmountIn | External | | NO| |

```
L | getAmountsOut | External | | | NO | |
| L | getAmountsIn | External | | | NO | |
| **IUniswapV2Router02** | Interface | IUniswapV2Router01 |||
| | removeLiquidityETHSupportingFeeOnTransferTokens | External | | | NO| |
| L | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External 🌡 | 🌑
| L | swapExactTokensForTokensSupportingFeeOnTransferTokens | External | | |
 **premiumcontract** | Implementation | Context, IERC20, Ownable |||
 Constructor> | Public | |
 L | name | Public | | NO
 L | symbol | Public | |
 L | decimals | Public | |
 L | totalSupply | Public | | NO | |
 L | balanceOf | Public | |
 L | transfer | Public | | NO | |
 L | allowance | Public | | NO | |
 L | approve | Public | |
                       | NO |
 L | transferFrom | Public | |
                           |NON |
 L | increaseAllowance | Public 1
                           | NON |
 L | decreaseAllowance | Public | |
                                |NON |
 | NON |
 L | deliver | Public | | NO
 | reflectionFromToken | Public | |
 L | tokenFromReflection | Public
                                | NO
 | excludeFromReward | Public | |
                                | onlyOwner |
 | includeInReward | External | |
                               | onlyOwner |
 L | transferBothExcluded | Private 🖺 | 🔘 | |
 L | excludeFromFee | Public | | OnlyOwner |
 L | includeInFee | Public | | ● | onlyOwner |
 L | <Receive Ether> | External | | III | NO | |
 L | _reflectFee | Private 🖺 | 🔘 | |
 _ | getValues | Private 🖺 |
                          L | _getTValues | Private
 L | _getRValues | Private 🖺 |
 💄 | getRate | Private 🖺 |
 L | _getCurrentSupply | Private 🖺 |
 L | _takeLiquidity | Private 🖺 | 🔘 | |
 - | calculateTaxFee | Private 👚 | | |
 calculateLiquidityFee | Private 🖺 |
 | removeAllFee | Private 🖺 | 🔘 | |
 L | restoreAllFee | Private 🖺 |
 | isExcludedFromFee | Public | |
 L | _approve | Private 🖺 | 🔘 | |
 L | _transfer | Private 🔐 | 🔘
 L | swapAndLiquify | Private 🖺 | 🔘 | lockTheSwap |
 L | swapTokensForEth | Private 🖺 | 🔘 | |
 | addLiquidity | Private 🖺 |
 L | tokenTransfer | Private 🖺 | 🔘 | |
```

## Conclusion

The contracts are written systematically. Team found no critical issues. So, it is good to go for production.

Since possible test cases can be unlimited and developer level documentation (code flow diagram with function level description) not provided, for such an extensive smart contract protocol, we provide no such guarantee of future outcomes. We have used all the latest static tools and manual observations to cover maximum possible test cases to scan Everything.

Security state of the reviewed contract is "secured".

- ✓ No mint function.
- ✓ No volatile code.
- ✓ Not many high severity issues were found.
- ✓ Contract Ownership Renounced.

#### Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as of the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against the team on the basis of what it says or doesn't say, or how team produced it, and it is important for you to conduct your own independent investigations before making any decisions. team go into more detail on this in the below disclaimer below – please make sure to read it in full.

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