



Smart Contract Audit

FOR
SMURFS

DATED : 30 June 23'



AUDIT SUMMARY

Project name – SMURFS

Date: 30 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	2	0	0
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/0x4ffc5e519369b3aed09e7ae9a83b14734beb5a07>



Token Information

Token Name : SMURFS

Token Symbol: \$SMURFS

Decimals: 18

Token Supply:420,690,000,000,000

Token Address:

0xa4Ae624B813Ac08300f3fB0700ffEd373cA55715

Checksum:

0d13ff50475c3fea38371e558f4b13bc5a383542

Owner:

0x542191f552DB0c15F9a4a59403452cA0699aB2b5



TOKEN OVERVIEW

Fees:

Buy Fees: 0-25%

Sell Fees: 0-25%

Transfer Fees: 0-25%

Fees Privilege: Owner

Ownership : Owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: none

Blacklist: No

Other Privileges:

- initial distribution of tokens
 - including or excluding from fees
 - changing swap threshold
 - changing fees
-
-



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 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.
-

VULNERABILITY CHECKLIST

- | | |
|--|---|
|  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

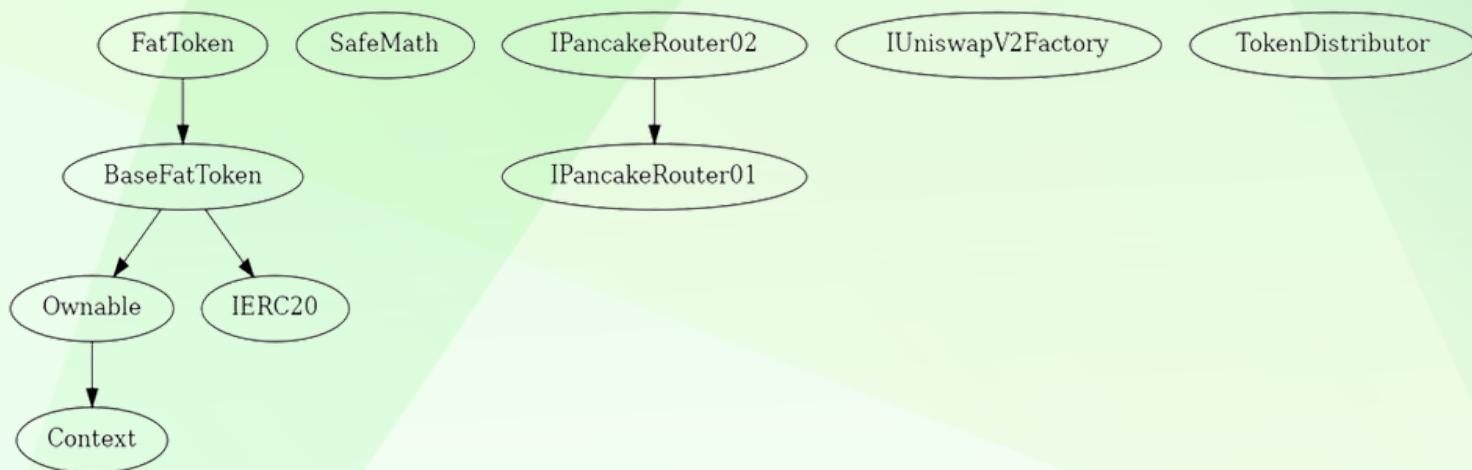
Severity

Found

◆ Critical	0
◆ High-Risk	0
◆ Medium-Risk	2
◆ Low-Risk	0
◆ Gas Optimization / Suggestions	0



INHERITANCE TREE





POINTS TO NOTE

- Owner is able to set buy/sell/transfer tax up to 25% each
 - Owner is not able to blacklist an arbitrary address.
 - Owner is not able to set max wallet/transfer/buy/sell
 - Owner is not able to mint new tokens
-






























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	renounceOwnership	Public	!	🛑	onlyOwner
L	transferOwnership	Public	!	🛑	onlyOwner
L	owner	Public	!		NO!
SafeMath Library					
L	add	Internal	🔒		
L	sub	Internal	🔒		
L	sub	Internal	🔒		
L	mul	Internal	🔒		
L	div	Internal	🔒		
L	div	Internal	🔒		
L	mod	Internal	🔒		
L	mod	Internal	🔒		
IERC20 Interface					
L	name	External	!		NO!
L	symbol	External	!		NO!
L	totalSupply	External	!		NO!
L	decimals	External	!		NO!
L	balanceOf	External	!		NO!
L	transfer	External	!	🛑	NO!
L	allowance	External	!		NO!
L	approve	External	!	🛑	NO!
L	transferFrom	External	!	🛑	NO!
IPancakeRouter01 Interface					
L	factory	External	!		NO!
L	WETH	External	!		NO!
L	addLiquidity	External	!	🛑	NO!
L	addLiquidityETH	External	!	📦	NO!
IPancakeRouter02 Interface IPancakeRouter01					

CONTRACT ASSESMENT














```

|  | swapExactTokensForTokensSupportingFeeOnTransferTokens | External ! |  | NO! |
|  | swapExactTokensForETHSupportingFeeOnTransferTokens | External ! |  | NO! |
|||||
| **IUniswapV2Factory** | Interface | |||
|  | feeTo | External ! | | NO! |
|  | feeToSetter | External ! | | NO! |
|  | getPair | External ! | | NO! |
|  | allPairs | External ! | | NO! |
|  | allPairsLength | External ! | | NO! |
|  | createPair | External ! |  | NO! |
|  | setFeeTo | External ! |  | NO! |
|  | setFeeToSetter | External ! |  | NO! |
|||||
| **BaseFatToken** | Implementation | IERC20, Ownable |||
|  | setFundAddress | External ! |  | onlyOwner |
|  | changeSwapLimit | External ! |  | onlyOwner |
|  | changeWalletLimit | External ! |  | onlyOwner |
|  | launch | External ! |  | onlyOwner |
|  | disableSwapLimit | Public ! |  | onlyOwner |
|  | disableWalletLimit | Public ! |  | onlyOwner |
|  | disableChangeTax | Public ! |  | onlyOwner |
|  | completeCustoms | External ! |  | onlyOwner |
|  | transfer | External ! |  | NO! |
|  | transferFrom | External ! |  | NO! |
|  | balanceOf | Public ! | | NO! |
|  | allowance | Public ! | | NO! |
|  | approve | Public ! |  | NO! |
|  | _approve | Private  |  | |
|  | setFeeWhiteList | External ! |  | onlyOwner |
|  | multi_bclist | Public ! |  | onlyOwner |
|||||
| **TokenDistributor** | Implementation | |||
|  | <Constructor> | Public ! |  | NO! |
|||||
| **FatToken** | Implementation | BaseFatToken |||
|  | <Constructor> | Public ! |  | NO! |
|  | transfer | Public ! |  | NO! |
|  | transferFrom | Public ! |  | NO! |
|  | setkb | Public ! |  | onlyOwner |
|  | isReward | Public ! | | NO! |
|  | setAirDropEnable | Public ! |  | onlyOwner |
|  | _basicTransfer | Internal  |  | |



```



CONTRACT ASSESMENT

^L	setAirdropNumbs	Public !		onlyOwner
^L	setEnableTransferFee	Public !		onlyOwner
^L	_transfer	Private 		
^L	setTransferFee	Public !		onlyOwner
^L	_tokenTransfer	Private 		
^L	swapTokenForFund	Private 		lockTheSwap
^L	_takeTransfer	Private 		
^L	setSwapPairList	External !		onlyOwner
^L	<Receive Ether>	External !		NO !

Legend

Symbol	Meaning
:-----: -----	
	Function can modify state
	Function is payable



STATIC ANALYSIS

```
Reentrancy in FatToken._transfer(address,address,uint256) (contracts/Token.sol#489-561):
  External calls:
    - swapTokenForFund(numTokensSellToFund,swapFee) (contracts/Token.sol#544)
      - address(fundAddress).transfer(fundAmount) (contracts/Token.sol#663)
  External calls sending eth:
    - swapTokenForFund(numTokensSellToFund,swapFee) (contracts/Token.sol#544)
      - address(fundAddress).transfer(fundAmount) (contracts/Token.sol#663)
      - _swapRouter.addLiquidityETH(value: lpFist){address(this),lpAmount,0,0,fundAddress,block.timestamp) (contracts/Token.sol#667-671)
  State variables written after the call(s):
    - _tokenTransfer(from,to,amount,takeFee,isSell,isTransfer) (contracts/Token.sol#560)
      - _balances[to] = _balances[to] + tAmount (contracts/Token.sol#698)
      - _balances[sender] = _balances[sender] - tAmount (contracts/Token.sol#578)
  Event emitted after the call(s):
    - Transfer(sender,to,tAmount) (contracts/Token.sol#699)
      - _tokenTransfer(from,to,amount,takeFee,isSell,isTransfer) (contracts/Token.sol#560)
Reentrancy in FatToken.swapTokenForFund(uint256,uint256) (contracts/Token.sol#627-695):
  External calls:
    - address(fundAddress).transfer(fundAmount) (contracts/Token.sol#663)
  External calls sending eth:
    - address(fundAddress).transfer(fundAmount) (contracts/Token.sol#663)
    - _swapRouter.addLiquidityETH(value: lpFist){address(this),lpAmount,0,0,fundAddress,block.timestamp) (contracts/Token.sol#667-671)
  Event emitted after the call(s):
    - FailedAddLiquidityETH() (contracts/Token.sol#670)
Reentrancy in FatToken.transferFrom(address,address,uint256) (contracts/Token.sol#438-444):
  External calls:
    - _transfer(sender,recipient,amount) (contracts/Token.sol#439)
      - address(fundAddress).transfer(fundAmount) (contracts/Token.sol#663)
  External calls sending eth:
    - _transfer(sender,recipient,amount) (contracts/Token.sol#439)
      - address(fundAddress).transfer(fundAmount) (contracts/Token.sol#663)
      - _swapRouter.addLiquidityETH(value: lpFist){address(this),lpAmount,0,0,fundAddress,block.timestamp) (contracts/Token.sol#667-671)
  State variables written after the call(s):
    - _allowances[sender][msg.sender] = _allowances[sender][msg.sender] - amount (contracts/Token.sol#441)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-4

Variable IPancakeRouter01.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountADesired (contracts/Token.sol#158) is too similar to IPancakeRouter01.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountBDesired (contracts/Token.sol#159)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar

BaseFatToken.deadAddress (contracts/Token.sol#247) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

BaseFatToken._mainPair (contracts/Token.sol#258) should be immutable
BaseFatToken._swapRouter (contracts/Token.sol#254) should be immutable
BaseFatToken.currency (contracts/Token.sol#225) should be immutable
BaseFatToken.currencyIsEth (contracts/Token.sol#215) should be immutable
BaseFatToken.decimals (contracts/Token.sol#244) should be immutable
BaseFatToken.enableKillBlock (contracts/Token.sol#218) should be immutable
BaseFatToken.enableOffTrade (contracts/Token.sol#217) should be immutable
BaseFatToken.enableRewardList (contracts/Token.sol#219) should be immutable
BaseFatToken.name (contracts/Token.sol#242) should be immutable
BaseFatToken.symbol (contracts/Token.sol#243) should be immutable
BaseFatToken.totalSupply (contracts/Token.sol#245) should be immutable
FatToken._tokenDistributor (contracts/Token.sol#352) should be immutable
FatToken.enableTransferFee (contracts/Token.sol#478) 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/0x6a6a6d1f515719fa0313df0c579763113434fb618b41dd2d59fe250213a1040d>

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

<https://testnet.bscscan.com/tx/0xa49287a23121820961659e420b4bc8dc829046d65f0dfbcea6c2b52497bbd63f>

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

<https://testnet.bscscan.com/tx/0xf3be19749fcab96954b855eba420a0eb2370f30b5147fe2b60d02cb3c8de5e87>

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

<https://testnet.bscscan.com/tx/0x561ff3cdcbf43a8cdf46e3e21bbfe10a08816b92e43142709c0b5cb50a2a3c66>

5- Buying when not excluded from fees (0-25% tax) (passed):

<https://testnet.bscscan.com/tx/0x158dd2e133048d5323158eb07732451d7e7a53956f7522b0395a91cab27ed4ac>

6- Selling when not excluded from fees (0-25% tax) (passed):

<https://testnet.bscscan.com/tx/0x9040436b967b1be2b66468cbb042642ec5c0381e52bfca68437e7e8f4dfd0fa3>



FUNCTIONAL TESTING

7- Transferring when not excluded from fees (0-25% tax)

(passed):

<https://testnet.bscscan.com/tx/0x8198bce9f975ff97b6b72db942d4ddf19e306218bebf47c5b099e6f06efb3547>

8-Internal swap (passed):

-Auto-liquidity

- Fund wallet received BNB

<https://testnet.bscscan.com/tx/0x9040436b967b1be2b66468cbb042642ec5c0381e52bfca68437e7e8f4dfd0fa3>

9- Airdrop (passed):

<https://testnet.bscscan.com/tx/0x8198bce9f975ff97b6b72db942d4ddf19e306218bebf47c5b099e6f06efb3547>

ISSUES FOUND

Centralization – Excessive fees

Severity: **Medium**

function: completeCustoms

Status: Not Resolved

Overview:

Owner is able to set 25% tax on buy/sell/transfers.

```
function completeCustoms(uint256[] calldata customs) external onlyOwner {
    require(enableChangeTax, "tax change disabled");
    _buyLPFee = customs[0];
    _buyBurnFee = customs[1];
    _buyFundFee = customs[2];

    _sellLPFee = customs[3];
    _sellBurnFee = customs[4];
    _sellFundFee = customs[5];

    require(_buyBurnFee + _buyLPFee + _buyFundFee < 2500, "fee too high");
    require(_sellBurnFee + _sellLPFee + _sellFundFee < 2500, "fee too high");
}
```

High amount of buy/sell fees can often be used to control price volatility / buy – sell pressure at launch time, however this is still considered a centralization issue, because:

- 1- buy/sell/transfer fees are exceeding the safe range (0-10% according to pinksale safu criteria)
- 2- This function can be called anytime meaning that its not limited to launch time

Suggestion

Its suggested to keep fees in range 0-10% for buy/sell/transfers

```
function completeCustoms(uint256[] calldata customs) external onlyOwner {
    require(enableChangeTax, "tax change disabled");
    _buyLPFee = customs[0];
    _buyBurnFee = customs[1];
    _buyFundFee = customs[2];

    _sellLPFee = customs[3];
    _sellBurnFee = customs[4];
    _sellFundFee = customs[5];

    require(_buyBurnFee + _buyLPFee + _buyFundFee < 1000, "fee too high");
    require(_sellBurnFee + _sellLPFee + _sellFundFee < 1000, "fee too high");
}
```

ISSUES FOUND

Centralization – EOA receiving LP

Severity: **Medium**

Status: Not Resolved

Overview:

an EOA is receiving LP tokens generated from auto-liquidity. This tokens can be used to remove a portion of liquidity pool.

```
if (lpAmount > 0 && lpFist > 0) {  
    // add the liquidity  
    try _swapRouter.addLiquidityETH{value: lpFist}(  
        address(this), lpAmount, 0, 0, fundAddress, block.timestamp  
    ) {} catch {  
        emit Failed_AddLiquidityETH();  
    }  
}
```

Suggestion

Its suggested to Burn or lock new LP tokens



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