



# Smart Contract Audit

FOR

# Itchy Scratchy Inu

DATED : 4 June 23'



# AUDIT SUMMARY

**Project name - Itchy Scratchy Inu**

**Date:** 4 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	1
Acknowledged	0	0	0	0	0
Resolved	0	0	0	0	0



# 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 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/0xd719eefa258132b183ff5e3213696bf9b5368c04#code>

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# Token Information

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**Token Name:** Itchy Scratchy Inu

**Token Symbol:** ISI

**Decimals:** 9

**Token Supply:** 10,000,000,000

**Token Address:** 0xE05c9Bf464c1250136380834CCfA3E77Fbc8E7C5

**Checksum:**

b55207574b215d4a0f2704bc5592c550f79d6c0d

**Owner:** 0x53d22ac9A891De7A0EC955EF5e2cdE5f36753B92

**Deployer:** 0x0eD70Bc9baa2027216977C11c1a90281f1aB7e3D



# TOKEN OVERVIEW

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**Fees:**

Buy Fees: 5%

Sell Fees: 5 %

Transfer Fees: 5%

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**Fees Privilege:** None (Immutable fees)

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**Ownership :** Owned

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**Minting:** No mint function

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**Max Tx Amount/ Max Wallet Amount:** none

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**Blacklist:** No

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**Other Privileges:** - changing swap threshold

- modifying swap settings
  - enabling trades
  - initial distribution of tokens
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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.

# 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 Limit and 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

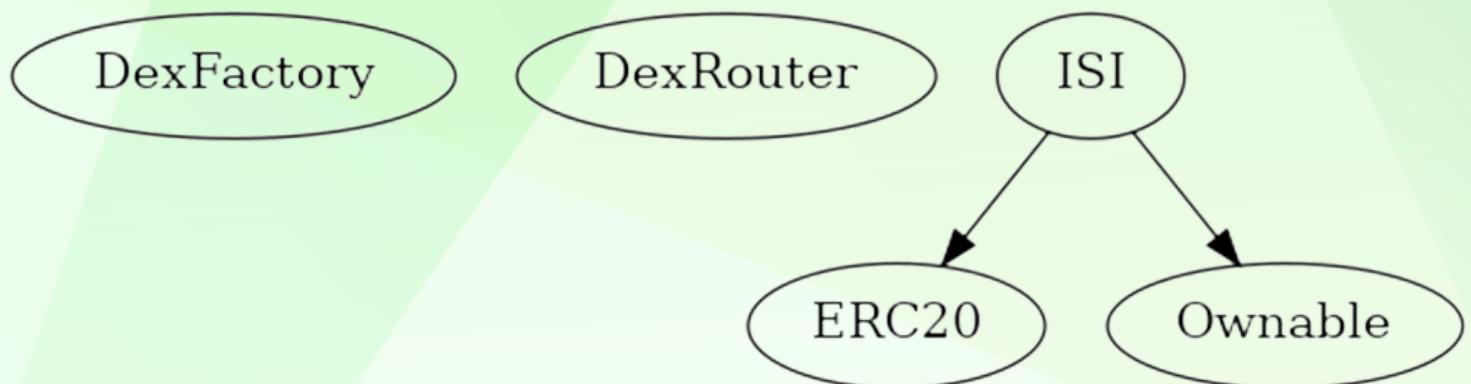
Severity	Description
◆ Critical	These vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
◆ High-Risk	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a 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	1

# INHERITANCE TREE

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## POINTS TO NOTE

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- Owner is not able to change buy/sell/transfer fees (5% static)
- 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 mint new tokens
- Owner is not able to disable trades



# CONTRACT ASSESSMENT

Contract	Type	Bases			
	**Function Name**	**Visibility**	**Mutability**	**Modifiers**	
	**DexFactory**   Interface				
L	createPair   External !		NO!		
	**DexRouter**   Interface				
L	factory   External !		NO!		
L	WETH   External !		NO!		
L	addLiquidityETH   External !		NO!		
L	swapExactTokensForETHSupportingFeeOnTransferTokens   External !		NO!		
	**ISI**   Implementation   ERC20, Ownable				
L	<Constructor>   Public !		ERC20		
L	setmarketingWallet   External !		onlyOwner		
L	setSwapTokensAtAmount   External !		onlyOwner		
L	toggleSwapping   External !		onlyOwner		
L	setWhitelistStatus   External !		onlyOwner		
L	checkWhitelist   External !		NO!		
L	startTrading   External !		onlyOwner		
L	_takeTax   Internal				
L	_transfer   Internal				
L	internalSwap   Internal				
L	swapToETH   Internal				
L	withdrawStuckETH   External !		onlyOwner		
L	withdrawStuckTokens   External !		onlyOwner		
L	<Receive Ether>   External !		NO!		

## ### Legend

Symbol	Meaning
	Function can modify state
	Function is payable



# STATIC ANALYSIS

```
Reentrancy in ISI.transfer(address,address,uint256) (contracts/Token.sol#1073-1096):
  External calls:
    - internalSwap() (contracts/Token.sol#1092)
      - uniswapRouter.swapExactTokensForETHSupportingFeeOnTransferTokens(_amount,0,path,address(this),block.timestamp) (contracts/Token.sol#1114-1120)
        - (success) = marketingWallet.call{value: address(this).balance}() (contracts/Token.sol#1104-1106)
  External calls sending eth:
    - internalSwap() (contracts/Token.sol#1092)
      - (success) = marketingWallet.call{value: address(this).balance}() (contracts/Token.sol#1104-1106)
  Event emitted after the call(s):
    - Transfer(from,to,amount) (contracts/Token.sol#424)
      - super._transfer(_from,_to,toTransfer) (contracts/Token.sol#1095)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-3

Context._msgData() (contracts/Token.sol#117-119) is never used and should be removed
ERC20._burn(address,uint256) (contracts/Token.sol#464-480) is never used and should be removed
SafeMath.add(uint256,uint256) (contracts/Token.sol#683-685) is never used and should be removed
SafeMath.div(uint256,uint256) (contracts/Token.sol#725-727) is never used and should be removed
SafeMath.div(uint256,uint256,string) (contracts/Token.sol#781-790) is never used and should be removed
SafeMath.mod(uint256,uint256) (contracts/Token.sol#741-743) is never used and should be removed
SafeMath.mod(uint256,uint256,string) (contracts/Token.sol#807-816) is never used and should be removed
SafeMath.mul(uint256,uint256) (contracts/Token.sol#711-713) is never used and should be removed
SafeMath.sub(uint256,uint256) (contracts/Token.sol#697-699) is never used and should be removed
SafeMath.sub(uint256,uint256,string) (contracts/Token.sol#758-767) is never used and should be removed
SafeMath.tryAdd(uint256,uint256) (contracts/Token.sol#597-606) is never used and should be removed
SafeMath.tryDiv(uint256,uint256) (contracts/Token.sol#648-656) is never used and should be removed
SafeMath.tryMod(uint256,uint256) (contracts/Token.sol#663-671) is never used and should be removed
SafeMath.tryMul(uint256,uint256) (contracts/Token.sol#628-641) is never used and should be removed
SafeMath.trySub(uint256,uint256) (contracts/Token.sol#613-621) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

Pragma version^0.8.17 (contracts/Token.sol#8) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6/0.8.16
solc-0.8.20 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity

Low level call in ISI.internalSwap() (contracts/Token.sol#1098-1107):
  - (success) = marketingWallet.call{value: address(this).balance}() (contracts/Token.sol#1104-1106)
Low level call in ISI.withdrawStuckETH() (contracts/Token.sol#1123-1128):
  - (success) = address(msg.sender).call{value: address(this).balance}() (contracts/Token.sol#1124-1126)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Function DexRouter.WETH() (contracts/Token.sol#934) is not in mixedCase
Event ISIMarketingWalletChanged(address) (contracts/Token.sol#985) is not in CapWords
Parameter ISI.setmarketingWallet(address), newmarketing (contracts/Token.sol#1007) is not in mixedCase
Parameter ISI.setSwapTokensAtAmount(uint256), newAmount (contracts/Token.sol#1016) is not in mixedCase
Parameter ISI.setWhitelistStatus(address,bool), wallet (contracts/Token.sol#1030) is not in mixedCase
Parameter ISI.setWhitelistStatus(address,bool), status (contracts/Token.sol#1031) is not in mixedCase
Parameter ISI.checkWhitelist(address), _wallet (contracts/Token.sol#1037) is not in mixedCase
Parameter ISI.swapToETH(uint256), amount (contracts/Token.sol#1109) is not in mixedCase
Parameter ISI.withdrawStuckTokens(address),BEP20_token (contracts/Token.sol#1130) is not in mixedCase
Constant ISI._totalSupply (contracts/Token.sol#962) is not in UPPER CASE WITH underscores
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

ISI.slitherConstructorVariables() (contracts/Token.sol#957-1139) uses literals with too many digits:
  - swapTokensAtAmount = _totalSupply / 100000 (contracts/Token.sol#977)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits
```

**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

All the functionalities have been tested, no issues were found

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

<https://testnet.bscscan.com/tx/0x0647ea93818cd749d97aa8608ccbbe5b95b3a4e030c30ac11098a8269e21dafd4>

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

<https://testnet.bscscan.com/tx/0x576a5736042e9ea83a39ba5c78ff4168e4204725d209084fe35c22f336f0d83d>

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

<https://testnet.bscscan.com/tx/0x027296fcb42efad84ea25ee87039760d204526bf7e1c6b5ed718f3ebf825b8a2>

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

<https://testnet.bscscan.com/tx/0xe325d89e21ff42da51860d05d41ad3cd3c7552deeede50ab7ab7fb468e33104b>

**5- Buying from a regular wallet (5% tax) (passed):**

<https://testnet.bscscan.com/tx/0xebc7d37936345342be806223f9b23b37fb513b8d3b680b6320ed62a1bd3ef8ef>

**6- Selling from a regular wallet (5% tax) (passed):**

<https://testnet.bscscan.com/tx/0x0fb63b314b82023480d284c08efbe2ed644db4c50196b2c61a45c5f0cf3d31ca>

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# FUNCTIONAL TESTING

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**7- Transferring from a regular wallet (5% tax) (passed):**

<https://testnet.bscscan.com/tx/0x55ef457f3ee67fe24dfe46ac857fcd41026fe196cb0ba1bd394f1ae56fe9e2da>

**8-Internal swap (BNB Fees and auto-liquidity) ( (passed):**

<https://testnet.bscscan.com/tx/0xfb63b314b82023480d284c08efbe2ed644db4c50196b2c61a45c5f0cf3d31ca>



# ISSUES FOUND

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## Centralization – Trades must be enabled

**Severity:** Informational

**function:** EnableTrading

**Status:** Not Resolved

### Overview:

The smart contract owner must enable trades for holders. If trading remain disabled, no one would be able to buy/sell/transfer tokens.

```
function startTrading() external onlyOwner {  
    require(!tradingEnabled, "Trading already enabled");  
    tradingEnabled = true;  
}
```

### Suggestion

To mitigate this centralization issue, we propose the following options:

1. Renounce Ownership: Consider relinquishing control of the smart contract by renouncing ownership. This would remove the ability for a single entity to manipulate the router, reducing centralization risks.
2. Multi-signature Wallet: Transfer ownership to a multi-signature wallet. This would require multiple approvals for any changes to the mainRouter, adding an additional layer of security and reducing the centralization risk.
3. Transfer ownership to a trusted and valid 3<sup>rd</sup> party in order to guarantee enabling of the trades



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