



Smart Contract Audit

FOR

Itchy Scratchy Inu

DATED : 4 June 23'

ISSUES FOUND

Centralisation – Trades must be enabled

Severity: **High**

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 3rd party in order to guarantee enabling of the trades



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	1	0	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/0xd719eefa258132b183ff5e3213696bf9b5368c04#code>



Token Information

Token Name : Itchy Scratchy Inu

Token Symbol: ISI

Decimals: 9

Token Supply: 10,000,000,000

Token Address:

0xa885aE57e6c768567c882b250364207Da7733bD4

Checksum:

6552075746215d4a0f2704bc5592c550f79d6c0d

Owner:

0x53d22ac9A891De7A0EC955EF5e2cdE5f36753B92

Deployer:

0x53d22ac9A891De7A0EC955EF5e2cdE5f36753B92



TOKEN OVERVIEW

Fees:

Buy Fees: 3%

Sell Fees: 3 %

Transfer Fees: 3%

Fees Privilege: None (Immutable fees)

Ownership : Owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: none

Blacklist: No

Other Privileges: - changing swap threshold

- modifying swap settings

- enabling trades

- initial distribution of tokens



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.

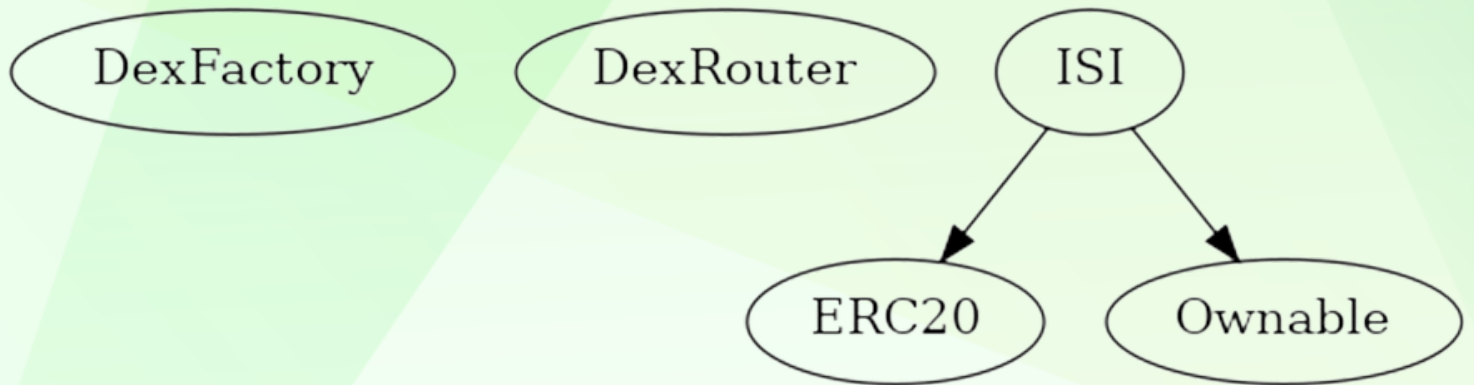
Findings

Severity

Found

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

INHERITANCE TREE























POINTS TO NOTE



- 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 ASSESMENT

Contract	Type	Bases			
:-----: :-----: :-----: :-----: :-----:					
L	**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 !		
IS1 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

Router (PCS V2):

0xD99D1c33F9fC3444f8101754aBC46c52416550D1

All the functionalities have been tested, no issues were found

1- Adding liquidity (passed):

<https://testnet.bscscan.com/tx/0x0647ea93818cd749d97aa8608cbb5b95b3a4e030c30ac11098a8269e21dafd4>

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/0xe325d89e21ff42da51860d05d41ad3cd3c7552deede50ab7ab7fb468e33104b>

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>



FUNCTIONAL TESTING

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/0x0fb63b314b82023480d284c08efbe2ed644db4c50196b2c61a45c5f0cf3d31ca>

ISSUES FOUND

Centralisation – Trades must be enabled

Severity: **High**

function: EnableTrading

Status: Not Resolved

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Suggestion

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

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