



Smart Contract Audit

FOR

Unicorn Super Market Maker

DATED : 12 June 23'



HIGH RISK

Centralization – Trades must be enabled

Severity: High

function: enableTrading

Status: Open

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 enableTrading() external onlyOwner {  
    tradingActive = true;  
    swapEnabled = 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 trade



AUDIT SUMMARY

Project name - Unicorn Super Market Maker

Date: 12 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 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/token/0x1AB2665fC56D3aD1e730C65a935B2546653ACdE2>



Token Information

Token Name : Unicorn Super MarketMaker

Token Symbol:Unicorn

Decimals: 9

Token Supply: 1,000,000,000

Token Address:

0xE3E8fF8ffca3CE01427279197E06bbea307A6681

Checksum:

e9be41dddc13646770a7c6becb239d023ebd8e33

Owner:

**0x1943e14C6b4bC3D8F481Cf7061c49849E25De7Fb
(at time of writing the audit)**

Deployer:

0x0cd8b4C87a8dd063Af404eaDC27d79628f165092



TOKEN OVERVIEW

Fees:

Buy Fees: 10%

Sell Fees: 10%

Transfer Fees: 0%

Fees Privilege: None

Ownership: owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Privileges: Initial distribution of the 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 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



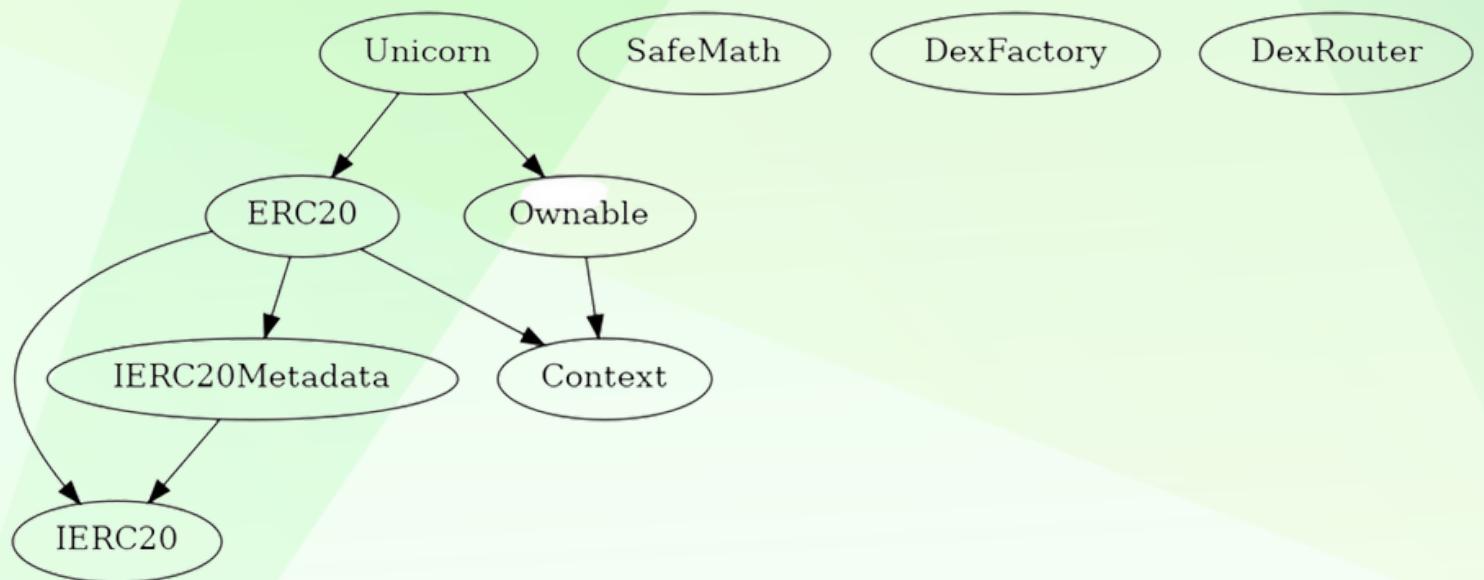
CLASSIFICATION OF RISK

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	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
- Owner has 100% of total supply after deployment



STATIC ANALYSIS

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-3>

Context. msgData() (contracts/Token.sol#106-108) is never used and should be removed
ERC20. burn(address,uint256) (contracts/Token.sol#421-437) is never used and should be removed
SafeMath.add(uint256,uint256) (contracts/Token.sol#605-607) is never used and should be removed
SafeMath.div(uint256,uint256) (contracts/Token.sol#647-649) is never used and should be removed
SafeMath.div(uint256,uint256,string) (contracts/Token.sol#699-704) is never used and should be removed
SafeMath.mod(uint256,uint256) (contracts/Token.sol#663-665) is never used and should be removed
SafeMath.mod(uint256,uint256,string) (contracts/Token.sol#721-726) is never used and should be removed
SafeMath.mul(uint256,uint256) (contracts/Token.sol#633-635) is never used and should be removed
SafeMath.sub(uint256,uint256) (contracts/Token.sol#619-621) is never used and should be removed
SafeMath.sub(uint256,uint256,string) (contracts/Token.sol#680-685) is never used and should be removed
SafeMath.tryAdd(uint256,uint256) (contracts/Token.sol#534-540) is never used and should be removed
SafeMath.tryDiv(uint256,uint256) (contracts/Token.sol#576-581) is never used and should be removed
SafeMath.tryMod(uint256,uint256) (contracts/Token.sol#588-593) is never used and should be removed
SafeMath.tryMul(uint256,uint256) (contracts/Token.sol#559-569) is never used and should be removed
SafeMath.trySub(uint256,uint256) (contracts/Token.sol#547-552) 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 Unicorn.internalSwap() (contracts/Token.sol#972-979):
- (success) = marketingWallet.call{value: address(this).balance}() (contracts/Token.sol#978)
Low level call in Unicorn.withdrawStuckETH() (contracts/Token.sol#991-994):
- (success) = address(msg.sender).call{value: address(this).balance}() (contracts/Token.sol#992)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls>

Function DexRouter.WETH() (contracts/Token.sol#833) is not in mixedCase
Event UnicornmarketingWalletChanged(address) (contracts/Token.sol#881) is not in CapWords
Parameter Unicorn.setmarketingWallet(address)._newmarketing (contracts/Token.sol#899) is not in mixedCase
Parameter Unicorn.setSwapTokensAtAmount(uint256)._newAmount (contracts/Token.sol#905) is not in mixedCase
Parameter Unicorn.setWhitelistStatus(address,bool)._wallet (contracts/Token.sol#918) is not in mixedCase
Parameter Unicorn.setWhitelistStatus(address,bool)._status (contracts/Token.sol#918) is not in mixedCase
Parameter Unicorn.checkWhitelist(address)._wallet (contracts/Token.sol#923) is not in mixedCase
Parameter Unicorn.swapToETH(uint256)._amount (contracts/Token.sol#981) is not in mixedCase
Parameter Unicorn.withdrawStuckTokens(address).BEP20_token (contracts/Token.sol#996) is not in mixedCase
Constant Unicorn._totalSupply (contracts/Token.sol#858) is not in UPPER_CASE_WITH_UNDERSCORES
Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions>

Unicorn.slitherConstructorVariables() (contracts/Token.sol#853-1002) uses literals with too many digits:
- swapTokensAtAmount = _totalSupply / 100000 (contracts/Token.sol#873)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits>

Unicorn.pairAddress (contracts/Token.sol#862) should be immutable
Unicorn.uniswapRouter (contracts/Token.sol#861) 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**



CONTRACT ASSESSMENT

Contract	Type	Bases			
Function Name **Visibility** **Mutability** **Modifiers**					
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 !					
Context Implementation					
L _msgSender Internal 🔒					
L _msgData Internal 🔒					
IERC20Metadata Interface IERC20					
L name External ! NO !					
L symbol External ! NO !					
L decimals External ! NO !					
ERC20 Implementation Context, IERC20, IERC20Metadata					
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 _transfer Internal 🔒 ●					
L _mint Internal 🔒 ●					
L _burn Internal 🔒 ●					
L _approve Internal 🔒 ●					
L _spendAllowance Internal 🔒 ●					
L _beforeTokenTransfer Internal 🔒 ●					
L _afterTokenTransfer Internal 🔒 ●					



CONTRACT ASSESSMENT

	SafeMath Library				
	L tryAdd Internal 🔒				
	L trySub Internal 🔒				
	L tryMul Internal 🔒				
	L tryDiv Internal 🔒				
	L tryMod Internal 🔒				
	L add Internal 🔒				
	L sub Internal 🔒				
	L mul Internal 🔒				
	L div Internal 🔒				
	L mod Internal 🔒				
	L sub Internal 🔒				
	L div Internal 🔒				
	L mod Internal 🔒				
	Ownable Implementation Context				
	L <Constructor> Public ! ● NO !				
	L owner Public ! NO !				
	L _checkOwner Internal 🔒				
	L renounceOwnership Public ! ● onlyOwner				
	L transferOwnership Public ! ● onlyOwner				
	L _transferOwnership Internal 🔒 ●				
	DexFactory Interface				
	L createPair External ! ● NO !				
	DexRouter Interface				
	L factory External ! NO !				
	L WETH External ! NO !				
	L addLiquidityETH External ! 💸 NO !				
	L swapExactTokensForETHSupportingFeeOnTransferTokens External ! ● NO !				
	Unicorn 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 🔒 ●				

CONTRACT ASSESSMENT

	L	internalSwap Internal					
	L	swapToETH Internal					
	L	withdrawStuckETH External					onlyOwner
	L	withdrawStuckTokens External					onlyOwner
	L	<Receive Ether> External				NO	
	Symbol	Meaning					
	----- -----						
		Function can modify state					
		Function is payable					



FUNCTIONAL TESTING

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

<https://testnet.bscscan.com/tx/0xe71834721aef6e2bb2efab0e8803bbe548e25267d04785e0b9f408978afdb109>

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

<https://testnet.bscscan.com/tx/0xe5bbb1be1d20995b819892513fd78a3e2627803a722ced833aac29fea8b07d71>

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

<https://testnet.bscscan.com/tx/0x9aac4b4ee6961c6877614cdec7bcb810baa837b3198e496ec839389dac09cb27>

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

<https://testnet.bscscan.com/tx/0x4cf322065a417a1336a1f1890409803ebd9306c6d5ffc19c8818e6ccb173fd21>

5- Buying when not excluded from fees (10% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x80d3b6ca0223efe2e71882a577eb189f26c0760793ef3feb548d289967eee70>

6- Selling when not excluded from fees (10% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x7426cfa328ff3d0471633ad07395c91c9aed3f7c0ac8c90d3f1c453e1fdeba87>



FUNCTIONAL TESTING

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

<https://testnet.bscscan.com/tx/0xb9c52bb6b03c4856f9b7030dc493229ebfa2071522f6f6c962cac72e2903b4ea>

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

<https://testnet.bscscan.com/address/0x0cd8b4c87a8dd063af404eadc27d79628f165092#internaltx>



MANUAL TESTING

Centralization – Trades must be enabled

Severity: High

function: enableTrading

Status: Open

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 enableTrading() external onlyOwner {  
    tradingActive = true;  
    swapEnabled = 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.
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