AuditAce
FROM INCEPTION TO SUCCESS

Smart Contract Audit

FOR

WojakMemeCoin

DATED : 27 May 23'

HIGH RISK

Centralization – Trades must be enabled

Severity: **High**

function: startTrading

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 – WojakMemeCoin

Date: 27 May, 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/0x2Daf26D9a1E4a2CA8C172C90c095ea885aD984CD

Token Information

Token Name : WojakMemeCoin

Token Symbol: WojakCoin

Decimals: 9

Token Supply: 1,000,000,000

Token Address:
0xB6Af22E72Fb7ac5Bb8a4E30189CBc2448a16b454

Checksum:
425447c30e0cd2536a177c87168b3952451df73a

Owner:
0x54deB88004936e1d9A312ba1994B8Bf894B7eb72

Deployer:
0x89F30534B602BE37e32d3576BFebc1099DB6b870

TOKEN OVERVIEW

Fees:

Buy Fees: 0-10%

Sell Fees: 0-10%

Transfer Fees: 0-5%

Fees Privilege: Owner

Ownership: 0x54deB88004936e1d9A312ba1994B8Bf894B7eb72

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Privileges: including in fees

excluding from fees

initial distribution of the tokens

modifying 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 isexercised 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
- ✓ Private modifier
- ✓ Multiple Sends
- ✓ Using Suicide
- ✓ Gas Limitand Loops
- ✓ Address hardcoded
- ✓ Exception Disorder
- ✓ Using inline assembly
- ✓ Divide before multiply
- ✓ Missing Zero Address Validation
- ✓ Compiler version not fixed
- ✓ **Gasless Send**
- ✓ Using block.timestamp
- ✓ Re-entrancy
- ✓ Tautology or contradiction
- ✓ Timestamp Dependence
- ✓ Revert/require functions
- ✓ Use of tx.origin
- ✓ Integer overflow/underflow
- ✓ Dangerous strict equalities
- ✓ Using SHA3
- ✓ Using throw

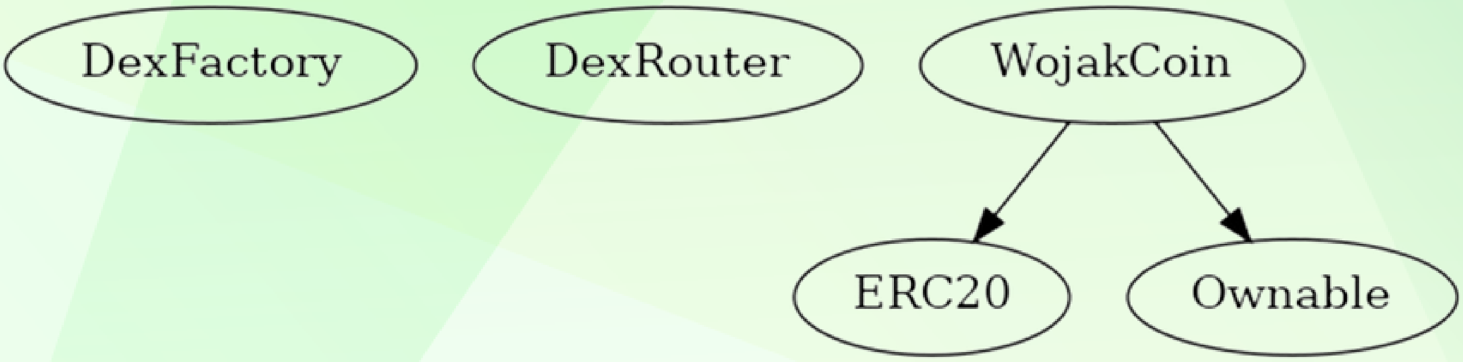
CLASSIFICATION OF RISK

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



CONTRACT ASSESMENT

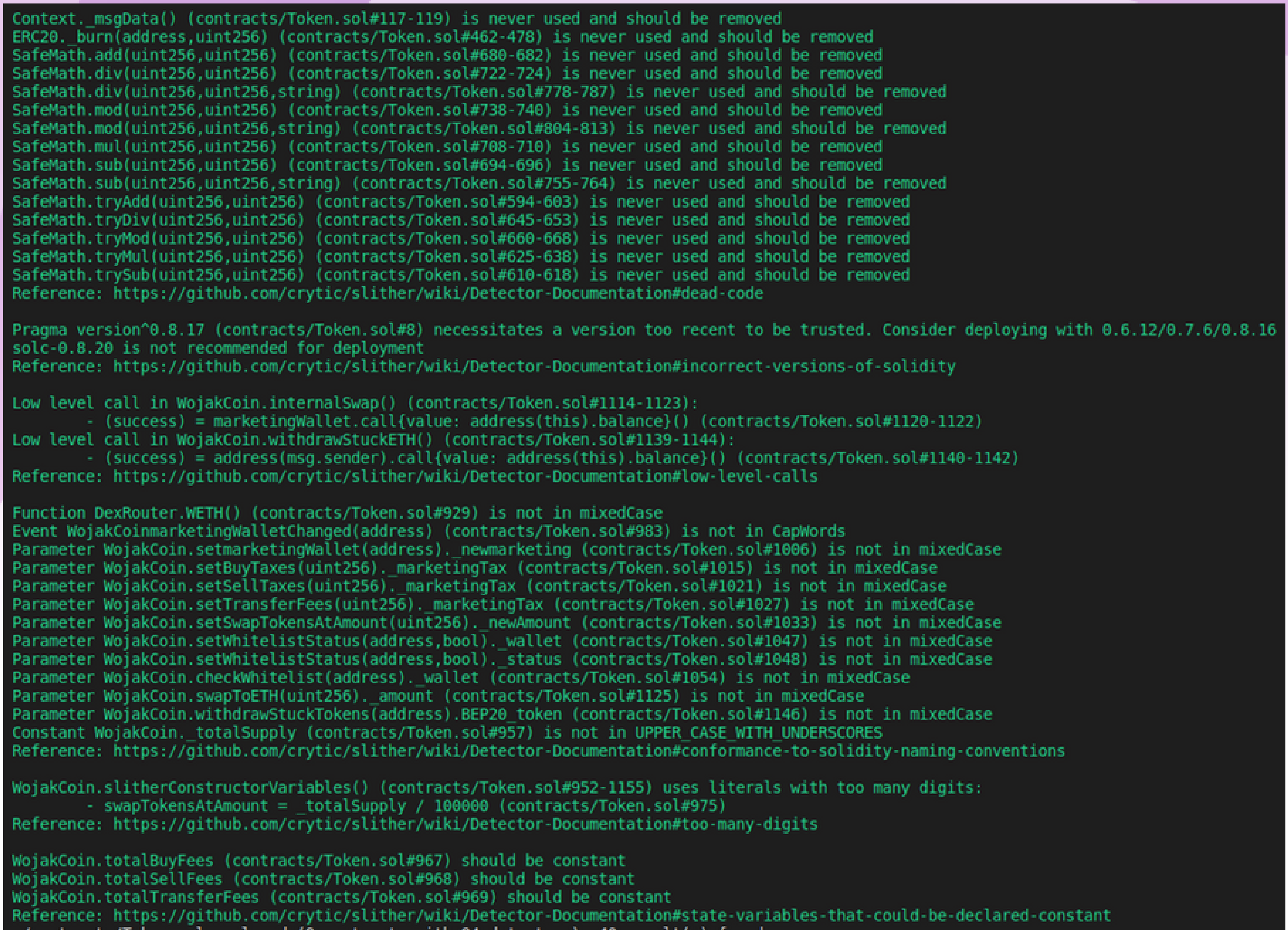
```
| Contract | Type | Bases | | |
|:----------:|:-------------------:|:----------------:|:---------------:|:---------------:|
| └ | **Function Name** | **Visibility** | **Mutability** | **Modifiers** |
||||||
| **DexFactory** | Interface | |||
| └ | createPair | External ❗ | 🛑 |NO ❗ |
||||||
| **DexRouter** | Interface | |||
| └ | factory | External ❗ | |NO ❗ |
| └ | WETH | External ❗ | |NO ❗ |
| └ | addLiquidityETH | External ❗ | 💵 |NO ❗ |
| └ | swapExactTokensForETHSupportingFeeOnTransferTokens | External ❗ | 🛑 |NO ❗ |
||||||
| **WojakCoin** | Implementation | ERC20, Ownable |||
| └ | <Constructor> | Public ❗ | 🛑 | ERC20 |
| └ | setmarketingWallet | External ❗ | 🛑 | onlyOwner |
| └ | setBuyTaxes | External ❗ | 🛑 | onlyOwner |
| └ | setSellTaxes | External ❗ | 🛑 | onlyOwner |
| └ | setTransferFees | External ❗ | 🛑 | onlyOwner |
| └ | setSwapTokensAtAmount | External ❗ | 🛑 | onlyOwner |
| └ | toggleSwapping | External ❗ | 🛑 | onlyOwner |
| └ | setWhitelistStatus | External ❗ | 🛑 | onlyOwner |
| └ | checkWhitelist | External ❗ | |NO ❗ |
| └ | startTrading | External ❗ | 🛑 | onlyOwner |
| └ | _takeTax | Internal 🔒 | 🛑 | |
| └ | _transfer | Internal 🔒 | 🛑 | |
| └ | internalSwap | Internal 🔒 | 🛑 | |
| └ | swapToETH | Internal 🔒 | 🛑 | |
| └ | withdrawStuckETH | External ❗ | 🛑 | onlyOwner |
| └ | withdrawStuckTokens | External ❗ | 🛑 | onlyOwner |
| └ | <Receive Ether> | External ❗ | 💵 |NO ❗ |

| Symbol | Meaning |
|:--------:|-----------|
| 🛑 | Function can modify state |
| 💵 | Function is payable |
```

POINTS TO NOTE

- **Owner is not able to change buy/sell fees over 12% and transfer fee over 5%**
- Owner is not able to blacklist an arbitrary address.
- Owner is not able to disable trades
- Owner is not able to set max buy/sell/transfer/hold amount to 0
- Owner is not able to mint new tokens
- **Owner must enable trades manually**

STATIC ANALYSIS



```
Context._msgData() (contracts/Token.sol#117-119) is never used and should be removed
ERC20._burn(address,uint256) (contracts/Token.sol#462-478) is never used and should be removed
SafeMath.add(uint256,uint256) (contracts/Token.sol#680-682) is never used and should be removed
SafeMath.div(uint256,uint256) (contracts/Token.sol#722-724) is never used and should be removed
SafeMath.div(uint256,uint256,string) (contracts/Token.sol#778-787) is never used and should be removed
SafeMath.mod(uint256,uint256) (contracts/Token.sol#738-740) is never used and should be removed
SafeMath.mod(uint256,uint256,string) (contracts/Token.sol#804-813) is never used and should be removed
SafeMath.mul(uint256,uint256) (contracts/Token.sol#708-710) is never used and should be removed
SafeMath.sub(uint256,uint256) (contracts/Token.sol#694-696) is never used and should be removed
SafeMath.sub(uint256,uint256,string) (contracts/Token.sol#755-764) is never used and should be removed
SafeMath.tryAdd(uint256,uint256) (contracts/Token.sol#594-603) is never used and should be removed
SafeMath.tryDiv(uint256,uint256) (contracts/Token.sol#645-653) is never used and should be removed
SafeMath.tryMod(uint256,uint256) (contracts/Token.sol#660-668) is never used and should be removed
SafeMath.tryMul(uint256,uint256) (contracts/Token.sol#625-638) is never used and should be removed
SafeMath.trySub(uint256,uint256) (contracts/Token.sol#610-618) 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 WojakCoin.internalSwap() (contracts/Token.sol#1114-1123):
        - (success) = marketingWallet.call{value: address(this).balance}() (contracts/Token.sol#1120-1122)
Low level call in WojakCoin.withdrawStuckETH() (contracts/Token.sol#1139-1144):
        - (success) = address(msg.sender).call{value: address(this).balance}() (contracts/Token.sol#1140-1142)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Function DexRouter.WETH() (contracts/Token.sol#929) is not in mixedCase
Event WojakCoinmarketingWalletChanged(address) (contracts/Token.sol#983) is not in CapWords
Parameter WojakCoin.setmarketingWallet(address)._newmarketing (contracts/Token.sol#1006) is not in mixedCase
Parameter WojakCoin.setBuyTaxes(uint256)._marketingTax (contracts/Token.sol#1015) is not in mixedCase
Parameter WojakCoin.setSellTaxes(uint256)._marketingTax (contracts/Token.sol#1021) is not in mixedCase
Parameter WojakCoin.setTransferFees(uint256)._marketingTax (contracts/Token.sol#1027) is not in mixedCase
Parameter WojakCoin.setSwapTokensAtAmount(uint256)._newAmount (contracts/Token.sol#1033) is not in mixedCase
Parameter WojakCoin.setWhitelistStatus(address,bool)._wallet (contracts/Token.sol#1047) is not in mixedCase
Parameter WojakCoin.setWhitelistStatus(address,bool)._status (contracts/Token.sol#1048) is not in mixedCase
Parameter WojakCoin.checkWhitelist(address)._wallet (contracts/Token.sol#1054) is not in mixedCase
Parameter WojakCoin.swapToETH(uint256)._amount (contracts/Token.sol#1125) is not in mixedCase
Parameter WojakCoin.withdrawStuckTokens(address).BEP20_token (contracts/Token.sol#1146) is not in mixedCase
Constant WojakCoin._totalSupply (contracts/Token.sol#957) is not in UPPER_CASE_WITH_UNDERSCORES
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

WojakCoin.slitherConstructorVariables() (contracts/Token.sol#952-1155) uses literals with too many digits:
        - swapTokensAtAmount = _totalSupply / 100000 (contracts/Token.sol#975)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits

WojakCoin.totalBuyFees (contracts/Token.sol#967) should be constant
WojakCoin.totalSellFees (contracts/Token.sol#968) should be constant
WojakCoin.totalTransferFees (contracts/Token.sol#969) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant
```

Result => A static analysis of contract’s source code has been performed using slither,

No major issues were found in the output

FUNCTIONAL TESTING

1- Adding liquidity (passed):
https://testnet.bscscan.com/tx/0x8fec88e4187cd83d44403b296a90698211ae06a2bc8ebefab94555cd106c6e00

2- Buying when excluded (0% tax) (passed):
https://testnet.bscscan.com/tx/0xdb5f6fd0df349ec84e3507532a9db48c460e2f106d48c7d228db2c3370f55aeb

3- Selling when excluded (0% tax) (passed):
https://testnet.bscscan.com/tx/0xafaafeba79de2f9b24694bebe860b5fba61051fa45a64f05fb575ae0af8560df

4- Transferring when excluded from fees (0% tax) (passed):
https://testnet.bscscan.com/tx/0x295119e035e70915132669d9fc7139d6c330fff5f37dd1938944bd94b3ab0eb1

5- Buying when not excluded from fees (0-12% tax) (passed):
https://testnet.bscscan.com/tx/0xe647effac153c5f3f429673ce5453d8cb3f50788a0cc6b8c2c0bbe7b3c9dcd1a

6- Selling when not excluded from fees (0-12% tax) (passed):
https://testnet.bscscan.com/tx/0x66a1774f0c138990fefeb716d934f3d932dfe5193007ed5f32559de10b01b035

FUNCTIONAL TESTING

7- Transferring when not excluded from fees (0-5% tax) (passed):
https://testnet.bscscan.com/tx/0x41d1b584a089a9dfd1f5db57c532f3c70739a31634ad3e77ef2df06f70446ab9

8- Internal swap (marketing bnb) (passed):
https://testnet.bscscan.com/address/0xa480701222ba660e888cacc62f53259c887cd824#internaltx

MANUAL TESTING

Centralization – Trades must be enabled

Severity: **High**

function: startTrading

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

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