



Smart Contract Audit

FOR
MOVIBIT
DATED : 12 May 23'



AUDIT SUMMARY

Project name - MOVIBIT

Date: 12 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 | 1 | 0 | 1 | 2 | 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/0x10E19de3285a7913aEEdDc402d92aBe7D9548FE4>



Token Information

Token Name : MOVIBIT

Token Symbol: MVBT

Decimals: 5

Token Supply: 280,000,000

Token Address:

0x5d6Fe0FB6d8f44C1b41151D1Afff3b3ae68C8326

Checksum:

7b25aa02430e71f6b104fc5e6bf9418f3a8edbf8

Owner:

0x7E68dC4993007e7Cc1221e28fd83d964444eE93A

Deployer:

0x7E68dC4993007e7Cc1221e28fd83d964444eE93A



TOKEN OVERVIEW

Fees:

Buy Fees: up to 15%

Sell Fees: up to 15%

Transfer Fees: up to 15%

Fees Privilege: Owner

Ownership: Owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Privileges: changing fee - including and excluding form fee - changing distribution settings (min tokens to be eligible, cool down between claims etc)



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



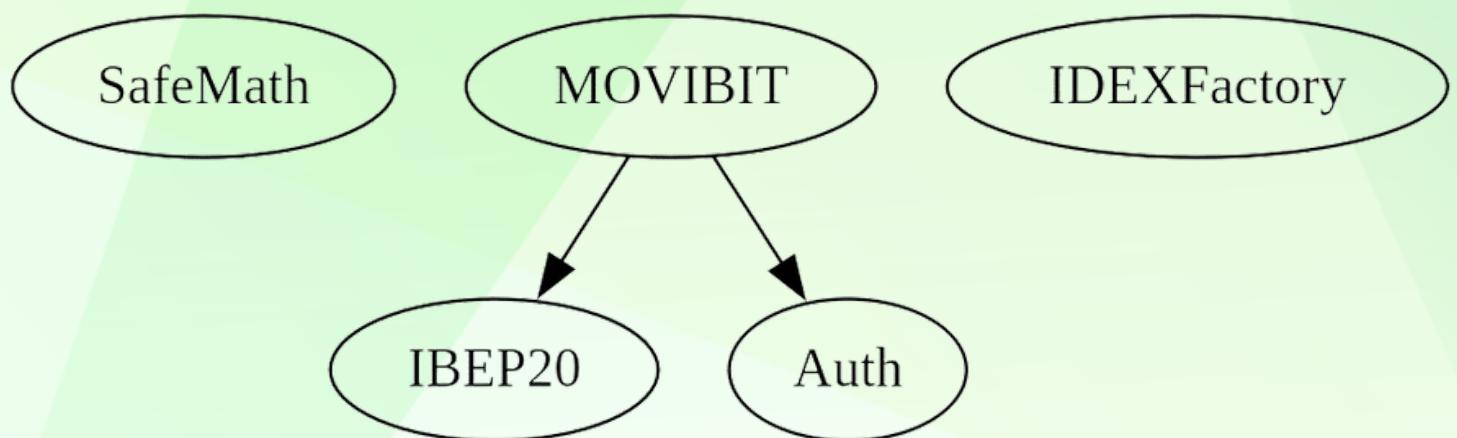
CLASSIFICATION OF RISK

| 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 | 1 |
| ◆ High-Risk | 0 |
| ◆ Medium-Risk | 1 |
| ◆ Low-Risk | 2 |
| ◆ Gas Optimization / Suggestions | 0 |

INHERITANCE TREE





POINTS TO NOTE

- Owner is able to set 15% fee for buy/sell/transfer each
- 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
- Owner is not able to mint new tokens

CONTRACT ASSESSMENT

| Contract | Type | Bases | | | |
|----------|------|---|----------------|----------------|----------------|
| | L | **Function Name** | **Visibility** | **Mutability** | **Modifiers** |
| | | | | | |
| | | **SafeMath** | Library | | |
| | L | add | Internal | 🔒 | |
| | L | sub | Internal | 🔒 | |
| | L | sub | Internal | 🔒 | |
| | L | mul | Internal | 🔒 | |
| | L | div | Internal | 🔒 | |
| | L | div | Internal | 🔒 | |
| | | | | | |
| | | **IBEP20** | Interface | | |
| | L | totalSupply | External | ! | NO ! |
| | L | decimals | External | ! | NO ! |
| | L | symbol | External | ! | NO ! |
| | L | name | External | ! | NO ! |
| | L | getOwner | External | ! | NO ! |
| | L | balanceOf | External | ! | NO ! |
| | L | transfer | External | ! | ● NO ! |
| | L | allowance | External | ! | NO ! |
| | L | approve | External | ! | ● NO ! |
| | L | transferFrom | External | ! | ● NO ! |
| | | | | | |
| | | **Auth** | Implementation | | |
| | L | <Constructor> | Public | ! | ● NO ! |
| | L | authorize | Public | ! | ● authorized |
| | L | unauthorize | Public | ! | ● authorized |
| | L | isOwner | Public | ! | NO ! |
| | L | isAuthorized | Public | ! | NO ! |
| | L | transferOwnership | Public | ! | ● onlyOwner |
| | | | | | |
| | | **IDEXFactory** | Interface | | |
| | L | createPair | External | ! | ● NO ! |
| | | | | | |
| | | **IDEXRouter** | Interface | | |
| | L | factory | External | ! | NO ! |
| | L | WETH | External | ! | NO ! |
| | L | addLiquidity | External | ! | ● NO ! |
| | L | addLiquidityETH | External | ! | \$ NO ! |
| | L | swapExactTokensForTokensSupportingFeeOnTransferTokens | External | ! | ● NO ! |
| | L | swapExactETHForTokensSupportingFeeOnTransferTokens | External | ! | \$ NO ! |
| | L | swapExactTokensForETHSupportingFeeOnTransferTokens | External | ! | ● NO ! |

CONTRACT ASSESSMENT

| | |
|---|---|
| | **MOVIBIT** Implementation IBEP20, Auth |
| L <Constructor> Public ! ● Auth | |
| L <Receive Ether> External ! 💸 NO ! | |
| L totalSupply External ! NO ! | |
| L decimals External ! NO ! | |
| L symbol External ! NO ! | |
| L name External ! NO ! | |
| L getOwner External ! NO ! | |
| L balanceOf Public ! NO ! | |
| L allowance External ! NO ! | |
| L approve Public ! ● NO ! | |
| L approveMax External ! ● NO ! | |
| L transfer External ! ● NO ! | |
| L transferFrom External ! ● NO ! | |
| L burn Public ! ● NO ! | |
| L _transferFrom Internal 🔒 ● | |
| L _basicTransfer Internal 🔒 ● | |
| L shouldTakeFee Internal 🔒 | |
| L takeFee Internal 🔒 ● | |
| L shouldSwapBack Internal 🔒 | |
| L saveStuckTokens External ! ● authorized | |
| L saveStuckBNB External ! ● authorized | |
| L isFreeFees Public ! NO ! | |
| L swapBack Internal 🔒 ● swapping | |
| L setIsFeeExempt External ! ● authorized | |
| L setFeesExchange External ! ● authorized | |
| L setFeesTransfer External ! ● authorized | |
| L setSwapBackSettings External ! ● authorized | |
| L multiTransfer External ! ● onlyOwner | |

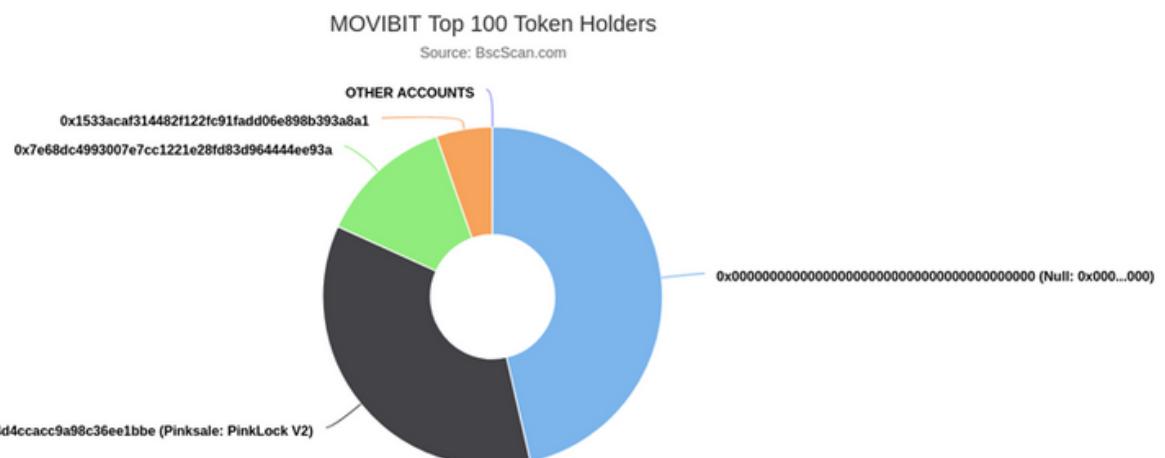
Legend

| |
|-------------------------------|
| Symbol Meaning |
| :-----: ----- |
| ● Function can modify state |
| 💸 Function is payable |

TOKENOMICS AT TIME OF AUDIT

💡 The top 100 holders collectively own 100.00% (280,000,000.00 Tokens) of MOVIBIT

💡 Token Total Supply: 280,000,000.00 Token | Total Token Holders: 4





STATIC ANALYSIS

```
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#function-initializing-state

Pragma version^0.8.17 (contracts/Token.sol#23) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6/0.8.16
solc-0.8.19 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity

Low level call in MOVIBIT.swapBack() (contracts/Token.sol#489-544):
  - (tmpSuccess = address(marketingFeeReceiver).call{gas: 30000,value: amountBNBMarketing}()) (contracts/Token.sol#525-528)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Function IDEXRouter.WETH() (contracts/Token.sol#177) is not in mixedCase
Parameter MOVIBIT.saveStuckTokens(address,uint256,address)._quant (contracts/Token.sol#474) is not in mixedCase
Parameter MOVIBIT.saveStuckTokens(address,uint256,address)._tokenrec (contracts/Token.sol#475) is not in mixedCase
Parameter MOVIBIT.setFeesExchange(uint256,uint256,uint256,uint256,uint256,uint256).burnFeeBuy (contracts/Token.sol#551) is not in mixedCase
Parameter MOVIBIT.setFeesExchange(uint256,uint256,uint256,uint256,uint256,uint256).liquidityFeeBuy (contracts/Token.sol#552) is not in mixedCase
Parameter MOVIBIT.setFeesExchange(uint256,uint256,uint256,uint256,uint256,uint256).marketingFeeBuy (contracts/Token.sol#553) is not in mixedCase
Parameter MOVIBIT.setFeesExchange(uint256,uint256,uint256,uint256,uint256,uint256).marketingFeeSell (contracts/Token.sol#554) is not in mixedCase
Parameter MOVIBIT.setFeesExchange(uint256,uint256,uint256,uint256,uint256,uint256).burnFeeSell (contracts/Token.sol#555) is not in mixedCase
Parameter MOVIBIT.setFeesExchange(uint256,uint256,uint256,uint256,uint256,uint256).liquidityFeeSell (contracts/Token.sol#556) is not in mixedCase
Parameter MOVIBIT.setFeesExchange(uint256,uint256,uint256,uint256,uint256,uint256).marketingFeeSell (contracts/Token.sol#557) is not in mixedCase
Parameter MOVIBIT.setFeesTransfer(uint256,uint256,uint256).burnFeeTransfer (contracts/Token.sol#583) is not in mixedCase
Parameter MOVIBIT.setFeesTransfer(uint256,uint256,uint256).liquidityFeeTransfer (contracts/Token.sol#584) is not in mixedCase
Parameter MOVIBIT.setFeesTransfer(uint256,uint256,uint256).marketingFeeTransfer (contracts/Token.sol#585) is not in mixedCase
Parameter MOVIBIT.setSwapBackSettings(bool,uint256).enabled (contracts/Token.sol#601) is not in mixedCase
Parameter MOVIBIT.setSwapBackSettings(bool,uint256).amount (contracts/Token.sol#602) is not in mixedCase
Variable MOVIBIT.WBNB (contracts/Token.sol#229) is not in mixedCase
Variable MOVIBIT.DEAD (contracts/Token.sol#230) is not in mixedCase
Variable MOVIBIT.ZERO (contracts/Token.sol#231) is not in mixedCase
Constant MOVIBIT._name (contracts/Token.sol#234) is not in UPPER_CASE_WITH_UNDERSCORES
Constant MOVIBIT._symbol (contracts/Token.sol#235) is not in UPPER_CASE_WITH_UNDERSCORES
Constant MOVIBIT._decimals (contracts/Token.sol#236) is not in UPPER_CASE_WITH_UNDERSCORES
Variable MOVIBIT._totalSupply (contracts/Token.sol#238) is not in mixedCase
Variable MOVIBIT._balances (contracts/Token.sol#240) is not in mixedCase
Variable MOVIBIT._allowances (contracts/Token.sol#241) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Variable IDEXRouter.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountADesired (contracts/Token.sol#182) is too similar to IDEXRouter.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountBDesired (contracts/Token.sol#183)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar

Auth.authorizationsCount (contracts/Token.sol#120) is never used in MOVIBIT (contracts/Token.sol#226-630)
MOVIBIT.DEAD (contracts/Token.sol#230) is never used in MOVIBIT (contracts/Token.sol#226-630)
MOVIBIT.ZERO (contracts/Token.sol#231) is never used in MOVIBIT (contracts/Token.sol#226-630)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable

Auth.authorizationsCount (contracts/Token.sol#120) should be constant
MOVIBIT.DEAD (contracts/Token.sol#230) should be constant
MOVIBIT.WBNB (contracts/Token.sol#229) should be constant
MOVIBIT.ZERO (contracts/Token.sol#231) should be constant
MOVIBIT.routerAddress (contracts/Token.sol#232) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

Auth.creator (contracts/Token.sol#118) should be immutable
MOVIBIT.autoLiquidityReceiver (contracts/Token.sol#264) should be immutable
MOVIBIT.marketingFeeReceiver (contracts/Token.sol#265) should be immutable
MOVIBIT.pair (contracts/Token.sol#268) should be immutable
MOVIBIT.router (contracts/Token.sol#267) 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/0xf9f426ee1f2e9e217fc953c5d64523d8d2c8b1650e32e4af7670d3779c2eeafdf>

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

<https://testnet.bscscan.com/tx/0x719e5c181e4785cda129f88b11f091c8c29e8a44457678cff6ad193918961970>

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

<https://testnet.bscscan.com/tx/0x3c7ba17db0c4135385d1567cfdda8c95689681c6fec73d4a16ac8636d0333ba2>

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

<https://testnet.bscscan.com/tx/0xbab4b5d8904f0b34eb95478fa681cabdf425f703c7f85fac522e70fb4a6b7e58>

5- Buying when not excluded from fees (up to 15% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x2a663adf4ad014f9e66ecffa56317af02880aadac05003c233bf3467c6fe0b7c>

6- Selling when not excluded from fees (up to 15% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x3acd2f0272b1085b3a1e47b8be62f0a47f43eebb1244599cd685483bc41c3d5>



FUNCTIONAL TESTING

7- Transferring when not excluded from fees (up to 15% tax) (passed):

<https://testnet.bscscan.com/tx/0x8a98c2b020cb43e24304f379ec94ba f0b22515800ad8cd7e37587d1ad54df981>

7- Internal swap (burning - auto liquidity - marketing fee) (passed):

<https://testnet.bscscan.com/tx/0x3acd2f0272b1085b3a1e47b8be62f0a 47f43eebbb1244599cd685483bc41c3d5>



MANUAL TESTING

Logical – 0 swap threshold can disable trades

Severity: **Critical**

function: setSwapBackSettings

Status: Not Resolved

Overview:

if swapThreshold is set to 0, internal swap would be failed due to a division by zero error. (at swapBack function)

```
function setSwapBackSettings(  
    bool _enabled,  
    uint256 _amount  
) external authorized {  
    swapEnabled = _enabled;  
    swapThreshold = _amount;  
}
```

Suggestion

To mitigate this Logical issue, make sure that swapTokensAtAmount is always greater than 0

```
function setSwapBackSettings(  
    bool _enabled,  
    uint256 _amount  
) external authorized {  
    swapEnabled = _enabled;  
    swapThreshold = _amount;  
    require(swapThreshold > totalSupply / 1000000);  
}
```



MANUAL TESTING

Centralization – LP tokens going to an EOA

Severity: Medium

function: swapBack

Status: Not Resolved

Overview:

LP tokens generated from auto-liquidity are sent to an EOA account, this accumulated tokens may be used by a malicious owner to remove a portion of tokens from the pool

```
if (amountToLiquify > 0) {  
    router.addLiquidityETH{value: amountBNBLiquidity}(  
        address(this),  
        amountToLiquify,  
        0,  
        0,  
        autoLiquidityReceiver,  
        block.timestamp  
    );  
    emit AutoLiquify(amountBNBLiquidity, amountToLiquify);  
}
```

Suggestion

To mitigate this Centralization issue:

- Burn the new LP tokens

or

- Lock the new LP tokens



MANUAL TESTING

Logical – Outdated compiler version

Severity: Low

Status: not resolved

Overview:

Compiler version is 0.7.4, this compiler version is outdated and doesn't support internal handling of overflow/underflows any may introduce other bugs

Recommendation:

Change the compiler version to >= 0.8.0



MANUAL TESTING

Centralization – Excessive fees

Severity: Low

Status: not resolved

Overview:

Fees can be up to 15% for each type of tax (buy/sell/transfer). This is 5% more than what is declared in pinksale safu criteria.

```
function setFeesExchange(
    uint256 _burnFeeBuy,
    uint256 _liquidityFeeBuy,
    uint256 _marketingFeeBuy,
    uint256 _burnFeeSell,
    uint256 _liquidityFeeSell,
    uint256 _marketingFeeSell,
    uint256 _feeDenominator
) external authorized {
    burnFeeBuy = _burnFeeBuy;
    liquidityFeeBuy = _liquidityFeeBuy;
    marketingFeeBuy = _marketingFeeBuy;
    totalFeeBuy = _burnFeeBuy.add(_liquidityFeeBuy).add(_marketingFeeBuy);

    burnFeeSell = _burnFeeSell;
    liquidityFeeSell = _liquidityFeeSell;
    marketingFeeSell = _marketingFeeSell;
    totalFeeSell = _burnFeeSell.add(_liquidityFeeSell).add(
        _marketingFeeSell
    );

    feeDenominator = _feeDenominator;
    require(
        totalFeeBuy <= feeDenominator.div(100).mul(15),
        "Fees cannot be more than 15%"
    );
    require(
        totalFeeSell <= feeDenominator.div(100).mul(15),
        "Fees cannot be more than 15%"
    );
}
```

Recommendation:

Ensure that sum of total buy and total sell fees is less than 25%



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