

# Smart Contract Security Audit

## MoonBoys Finance

<https://moonboys.finance>

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# Background

FAR was commissioned by Moonboys Finance to perform an audit of their smart contract.

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

## Project Information

- **Website:** <https://moonboys.finance>
- **Telegram:** <https://t.me/MoonBoysOfficial>
- **Platform:** Binance Smart Chain
- **Contract Address:** 0xe361344013cc906c56bba111bde00c421852c73b

MoonBoys Finance is a community-driven, fair-launched DeFi token which builds exponential value for its holders using three main principles : static rewards, liquidity pool acquisition, and burns.

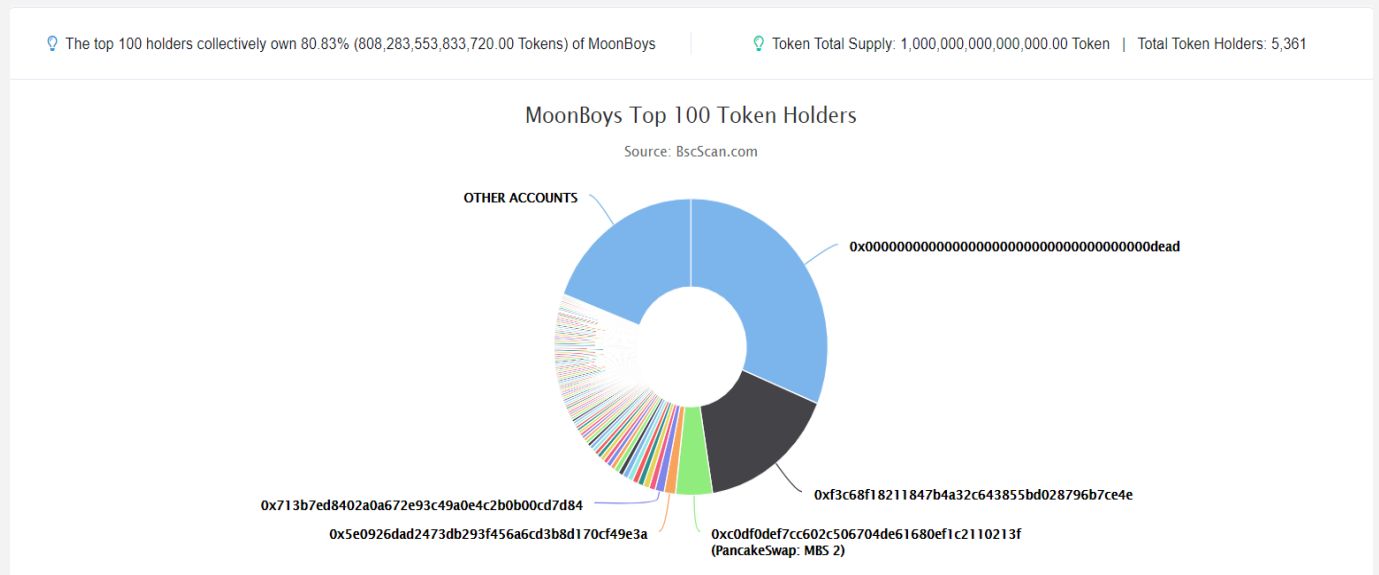
MoonBoys Finance wants everyone to explore the galaxy with us, INCLUDING charities! With an already incredibly active and compassionate community, we are dedicated to using a combination of our rocket fuel and NFTs to help those in need.

MoonBoys Finance is primed to be one of those unique opportunities which don't come around often. Be on the lookout for some exciting upcoming news. We promise this is a ride you don't want to miss.

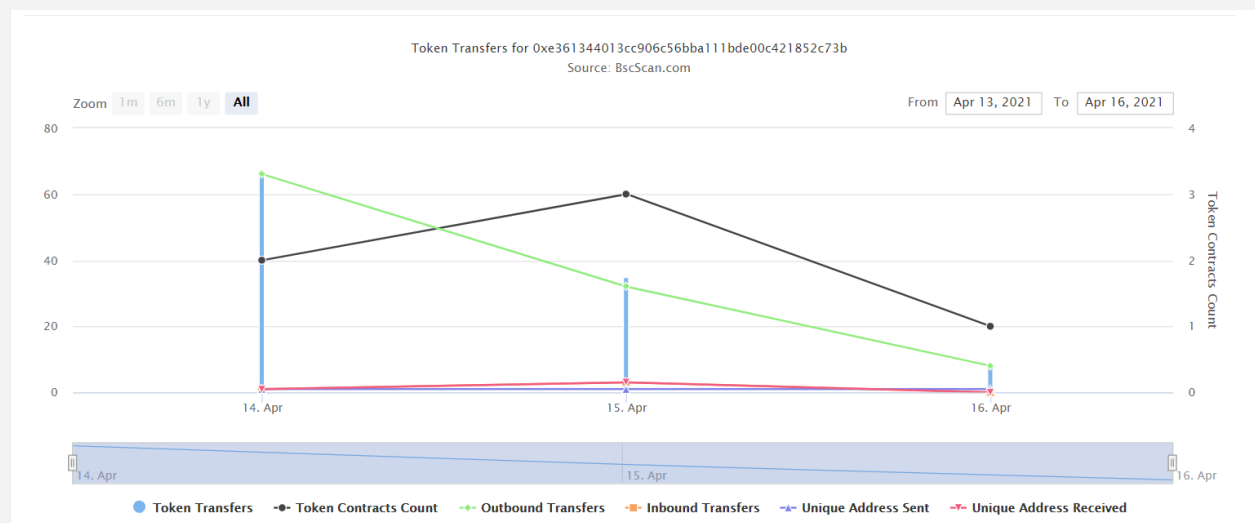
## Token Information

- Name: MBS
  - Total Supply: 1,000,000,000,000,000
  - Circulating Supply: 6.882178e+14
  - Burned Supply: 311,782,195,427,486
  - Holders: 5205 addresses
  - Total transactions: 16,407
  - Contract: 0xe361344013cc906c56bba111bde00c421852c73b
- 
- 30% distributed in presale
  - 25% added for initial PancakeSwap liquidity
  - 16% held in the Dev wallet for “milestone burns”
  - 10% Tax on each transaction
  - 6% redistributed proportionately to each holder as “thank you” for being an investor
  - 4% locked as liquidity to alleviate the potential for serious liquidity issues in the future

## MoonBoys Token Distribution:



### Contract Interaction Details:



## Executive Summary

The contract is based on the famous RFI project with some known liquidity addition mechanisms.

According to our assessment, the customer`s solidity smart contract is **Secured**.

Well Secured	
<b>Secured</b>	✓
Poor Secured	
Insecure	

Automated checks are with smartDec, Mythril, and remix IDE. All issues were performed by our team, which included the analysis of code functionality, manual audit found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the audit overview section. The general overview is presented in the Project Information section and all issues found are located in the audit overview section.

We found 0 critical, 0 high, 0 medium, 2 low and 0 very low level issues.

# File and Function Level Report

## File in Scope:

Contract Name	MD5	Contract Address
MoonBoys.sol	028971d4b107ce087d7a18bb3b7b14c7	0xe361344013cc906c56bba111bde00c421852c73b

- Contract: **Ownable**
- Inherit: Context
- Observation: All passed including security check
- Test Report: passed
- Score: passed
- Conclusion: passed

Function	Test Result	Return Type	Score
owner	✓	public	Passed
onlyOwner	✓	public	Passed
renounceOwnership	✓	public	Passed
transferOwnership	✓	public	Passed
geUnlockTime	✓	public	Passed
lock	✓	public	Passed
unlock	✓	public	Passed

- Contract: **MoonBoys**
- Inherit: Context, IERC20, Ownable
- Observation: All passed including security check
- Test Report: passed
- Score: passed
- Conclusion: passed

Function	Test Result	Return Type	Score
name	✓	public	Passed
symbol	✓	public	Passed
decimals	✓	public	Passed
totalSupply	✓	public	Passed
balanceOf	✓	public	Passed
transfer	✓	public	Passed
allowance	✓	public	Passed
approve	✓	public	Passed
TransferFrom	✓	public	Passed
increaseAllowance	✓	public	Passed
decreaseAllowance	✓	public	Passed
isExcludedFromReward	✓	public	Passed
totalFees	✓	public	Passed
deliver	✓	public	Passed
reflectionFromToken	✓	public	Passed
tokenFromReflection	✓	public	Passed
excludeFromReward	✓	owner	Passed
includeInReward	✓	owner	Passed
transferBothExcluded	✓	private	Passed
excludeFromFee	✓	owner	Passed
includeInFee	✓	owner	Passed



setTaxFeePercent	✓	owner	Passed
setLiquidityFeePercent	✓	owner	Passed
setMaxPercent	✓	owner	Passed
setSwapAndLiquifyEnabled	✓	owner	Passed
_reflectFee	✓	private	Passed
_getValues	✓	private	Passed
_getTValues	✓	private	Passed
_getRValues	✓	private	Passed
_getRate	✓	private	Passed
_getCurrentSupply	✓	private	Passed
_takeLiquidity	✓	private	Passed
_calculateTaxFee	✓	private	Passed
calculateLiquidityFee	✓	private	Passed
removeAllFee	✓	private	Passed
restoreAllFee	✓	private	Passed
isExcludedFromFee	✓	public	Passed
_approve	✓	private	Passed
_transfer	✓	private	Passed
swapAndLiquify	✓	private	Passed
swapTokenForEth	✓	private	Passed
addLiquidity	✓	private	Passed
_tokenTransfer	✓	private	Passed
_transferStandard	✓	private	Passed
_transferToExcluded	✓	private	Passed
_transferFromExcluded	✓	private	Passed

# Issues Checking Status

No.	Issue Description	Checking Status
1	Compiler warnings.	Passed
2	Race conditions and Reentrancy. Cross-function race conditions.	Passed
3	Possible delays in data delivery.	Passed
4	Oracle calls.	Passed
5	Front running.	Passed
6	Timestamp dependence.	Passed
7	Integer Overflow and Underflow.	Passed
8	DoS with Revert.	Passed
9	DoS with block gas limit.	Passed
10	Methods execution permissions.	Passed
11	Economy model. If application logic is based on an incorrect economic model, the application would not function correctly and participants would incur financial losses. This type of issue is most often found in bonus rewards systems, Staking and Farming contracts, Vault and Vesting contracts, etc.	Passed
12	The impact of the exchange rate on the logic.	Passed
13	Private user data leaks.	Passed
14	Malicious Event log.	Passed
15	Scoping and Declarations.	Passed
16	Uninitialized storage pointers.	Passed
17	Arithmetic accuracy.	Passed
18	Design Logic.	Passed

## Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to tokens loss etc.
High	High-level vulnerabilities are difficult to exploit; however, they also have significant impact on smart contract execution, e.g. public access to crucial functions
Medium	Medium-level vulnerabilities are important to fix; however, they can't lead to tokens lose
Low	Low-level vulnerabilities are mostly related to outdated, unused etc. code snippets, that can't have significant impact on execution
Info	Lowest-level vulnerabilities, code style violations and info statements can't affect smart contract execution and can be ignored.

## Audit Findings

### Critical:

No critical severity vulnerabilities were found.

### High:

No high severity vulnerabilities were found.

### Medium:

No Medium severity vulnerabilities were found.

### Low:

#### Issue #1. Out of gas:

Issue: ☐ The function `includeInReward()` uses the loop to find and remove addresses from the `_isExcluded` list. Function will be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.

```
function includeInReward(address account) external onlyOwner() {
    require(!_isExcluded[account], "Account is already excluded");
    for (uint256 i = 0; i < _excluded.length; i++) {
```

```

        if (_excluded[i] == account) {
            _excluded[i] = _excluded[_excluded.length - 1];
            _tOwned[account] = 0;
            _isExcluded[account] = false;
            _excluded.pop();
            break;
        }
    }
}

```

❑ The function `_getCurrentSupply` also uses the loop for evaluating total supply. It also could be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list

```

function _getCurrentSupply() private view returns(uint256, uint256) {
    uint256 rSupply = _rTotal;
    uint256 tSupply = _tTotal;
    for (uint256 i = 0; i < _excluded.length; i++) {
        if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return (_rTotal,
        _tTotal);
        rSupply = rSupply.sub(_rOwned[_excluded[i]]);
        tSupply = tSupply.sub(_tOwned[_excluded[i]]);
    }
    if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
    return (rSupply, tSupply);
}

```

**Recommendation:** Use `EnumerableSet` instead of array or do not use long arrays.

## **1. Owner privileges**

❑ Owner can change the tax fee.

```

function setTaxFeePercent(uint256 taxFee) external onlyOwner() {
    _taxFee = taxFee;
}

```

❑ Owner can change the liquidity fee

```

function setLiquidityFeePercent(uint256 liquidityFee) external onlyOwner() {
    _liquidityFee = liquidityFee;
}

```

❑ Owner can change the maximum transaction amount

```

function setMaxTxPercent(uint256 maxTxPercent) external onlyOwner() {
    _maxTxAmount = _tTotal.mul(maxTxPercent).div(

```

10\*\*2

)

❑ Owner can exclude from the fee.

```
function excludeFromFee(address account) public onlyOwner {  
    _isExcludedFromFee[account] = true;  
}
```

## **Issue #2 : Optimization Error**

### **Description:**

public functions that are never called by the contract should be declared external to save gas.

### **Recommendation:**

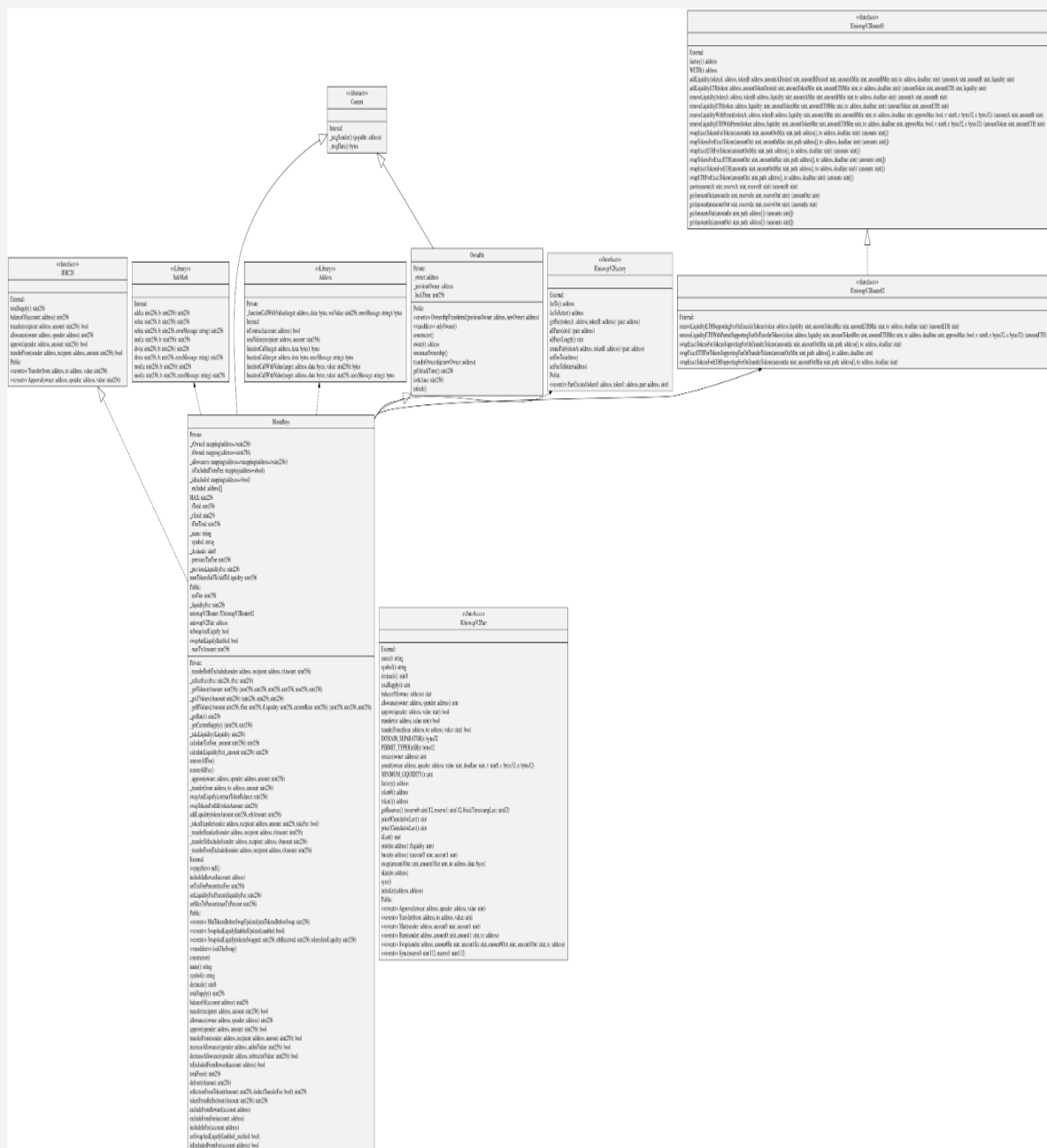
Consider using “external” attribute for these functions:

MoonBoys.isExcludedFromReward, MoonBoys.totalFees, MoonBoys.deliver,  
MoonBoys.reflectionFromToken, MoonBoys.excludeFromReward, MoonBoys.changeLimit,  
MoonBoys.isExcludedFromFee, MoonBoys.excludeFromFee, MoonBoys.includeInFee,  
MoonBoys.setSwapAndLiquifyEnabled

### **Very Low:**

No very Low severity vulnerabilities were found.

## UML:



# Conclusion



We were given contract files. And we have used all possible tests based on the given object.

The contracts are written systematically. We found no critical issues So it is good to go for production.

Since possible test cases can be unlimited and developer level documentation (code flow diagram with function level description) not provided, for such an extensive smart contract protocol, we provide no such guarantee of future outcomes. We have used all the latest static tools and manual observations to cover maximum possible test cases to scan everything.

Security state of the reviewed contract is “secured”.

- ✓ No mint function
- ✓ No volatile code
- ✓ No high severity issues were found.

⚠ 4% Liquidity is locked by a third-party service called dexsale.

⚠ 16% of token are held by dev wallet and are currently unlocked used for milestone burns and it will be multisig by 3rd party auditor

# Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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