



TechRate

AUDIT COMPANY

Smart Contract Security Audit

TechRate

June, 2021

Audit Details



Audited project

MoonAMI



Deployer address

0x69A27306171c9739c1293697Df0E1f2944E225ff



Client contacts:

MoonAMI Finance



Blockchain

Binance Smart Chain



Project website:

<https://www.moonami.finance>

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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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

Background

TechRate was commissioned by MoonAMI to perform an audit of smart contracts:

<https://bscscan.com/address/0xa4b104e75a9b6aeb875e8bf87f249ea9ac3b2b74#code>

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.

Contracts Details

Token contract details for 14.06.2021

Contract name	MoonAMI
Contract address	0xA4B104e75a9B6aEb875e8BF87f249Ea9AC3b2B74
Total supply	1,000,000,000,000,000
Token ticker	MAMI
Decimals	9
Token holders	9
Transactions count	18
Top 100 holders dominance	100.00%
Total fees	5212773078295822016
Uniswap V2 pair	0xade2f00559fbb724d8e9bcf44d1232d4e6e52d8f
Contract deployer address	0x69A27306171c9739c1293697Df0E1f2944E225ff
Contract's current owner address	0x69a27306171c9739c1293697df0e1f2944e225ff

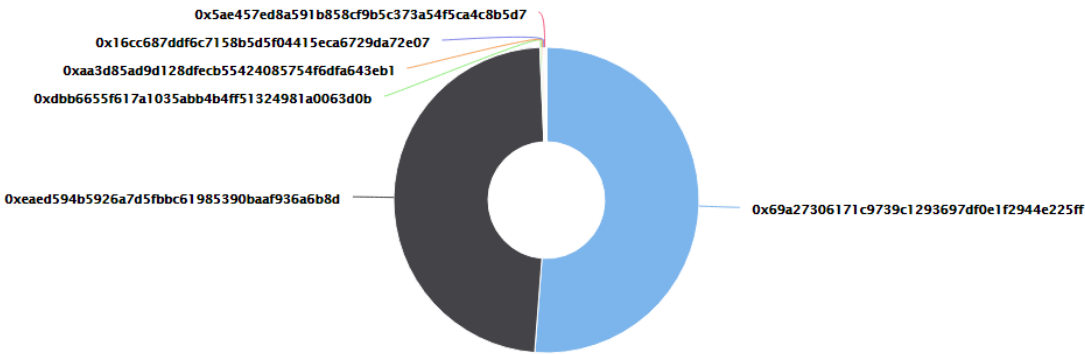
MoonAMI Token Distribution

The top 100 holders collectively own 100.00% (999,997,708,425,167.00 Tokens) of MoonAMI

Token Total Supply: 1,000,000,000,000.00 Token | Total Token Holders: 9

MoonAMI Top 100 Token Holders

Source: BscScan.com



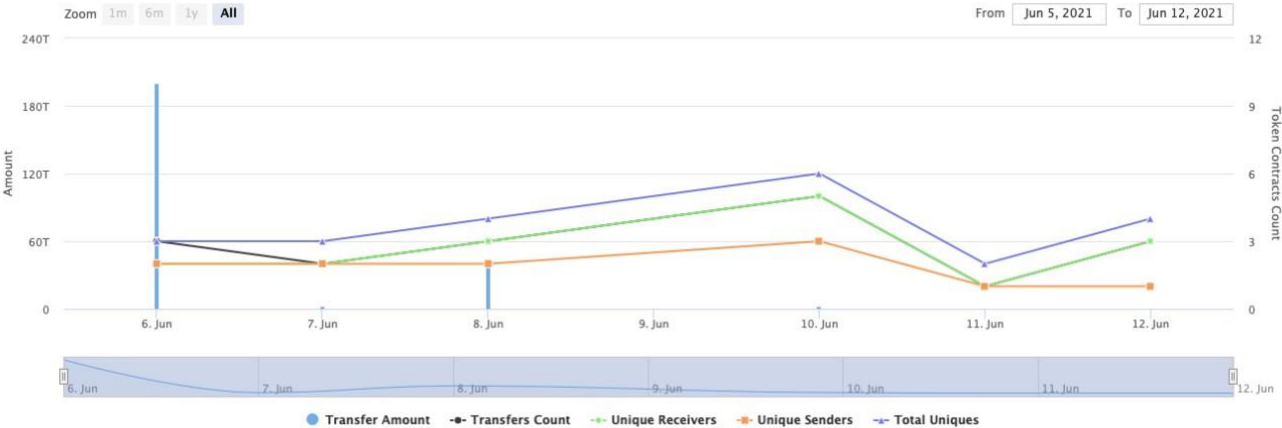
(A total of 999,997,708,425,167.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000.00 token)

MoonAMI Contract Interaction Details

Time Series: Token Contract Overview

Sun 6, Jun 2021 - Sat 12, Jun 2021

Token Contract 0x3a3c42dc70a73f7561166d46c708349dbde5198b (😼MoonAMI)
Source: BscScan.com



MoonAMI Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	0x69a27306171c9739c1293697df0e1f2944e225ff	512,310,903,931,962.153582794	51.2311%
2	 0xeaed594b5926a7d5fbbc61985390baaf936a6b8d	481,000,138,230,545.712093235	48.1000%
3	0xdbb6655f617a1035abb4b4ff51324981a0063d0b	1,800,000,000,000	0.1800%
4	0xaa3d85ad9d128dfecb55424085754f6dfa643eb1	1,687,386,134,697.783944144	0.1687%
5	0x16cc687ddf6c7158b5d5f04415eca6729da72e07	1,000,000,000,000	0.1000%
6	0x5ae457ed8a591b858cf9b5c373a54f5ca4c8b5d7	1,000,000,000,000	0.1000%
7	0x182b59d446178ac78ba334e65cf70f3052a09dfd	600,000,096,000.00832	0.0600%
8	0xe556d91cd618d207f31fb55e5e49ecccab3c035d	399,520,023,971.201278464	0.0400%
9	0xec4331b67d6b65bed91594d84f4abb6fa433d6ab	199,760,007,990.400319616	0.0200%



Contract functions details

+ Context

- [Int] _msgSender
- [Int] _msgData

+ [Int] IERC20

- [Ext] totalSupply
- [Ext] balanceOf
- [Ext] transfer #
- [Ext] allowance
- [Ext] approve #
- [Ext] transferFrom #

+ [Lib] SafeMath

- [Int] add
- [Int] sub
- [Int] sub
- [Int] mul
- [Int] div
- [Int] div
- [Int] mod
- [Int] mod

+ [Lib] Address

- [Int] isContract
- [Int] sendValue #
- [Int] functionCall #
- [Int] functionCall #
- [Int] functionCallWithValue #
- [Int] functionCallWithValue #
- [Prv] _functionCallWithValue #

+ Ownable (Context)

- [Int] <Constructor> #
- [Pub] owner
- [Pub] renounceOwnership #
 - modifiers: onlyOwner
- [Pub] transferOwnership #
 - modifiers: onlyOwner
- [Pub] geUnlockTime
- [Pub] lock #
 - modifiers: onlyOwner
- [Pub] unlock #

+ [Int] IUniswapV2Factory

- [Ext] feeTo
- [Ext] feeToSetter
- [Ext] getPair
- [Ext] allPairs
- [Ext] allPairsLength
- [Ext] createPair #
- [Ext] setFeeTo #

- [Ext] setFeeToSetter #
- + [Int] IUniswapV2Pair
 - [Ext] name
 - [Ext] symbol
 - [Ext] decimals
 - [Ext] totalSupply
 - [Ext] balanceOf
 - [Ext] allowance
 - [Ext] approve #
 - [Ext] transfer #
 - [Ext] transferFrom #
 - [Ext] DOMAIN_SEPARATOR
 - [Ext] PERMIT_TYPEHASH
 - [Ext] nonces
 - [Ext] permit #
 - [Ext] MINIMUM_LIQUIDITY
 - [Ext] factory
 - [Ext] token0
 - [Ext] token1
 - [Ext] getReserves
 - [Ext] price0CumulativeLast
 - [Ext] price1CumulativeLast
 - [Ext] kLast
 - [Ext] mint #
 - [Ext] burn #
 - [Ext] swap #
 - [Ext] skim #
 - [Ext] sync #
 - [Ext] initialize #
- + [Int] IUniswapV2Router01
 - [Ext] factory
 - [Ext] WETH
 - [Ext] addLiquidity #
 - [Ext] addLiquidityETH (\$)
 - [Ext] removeLiquidity #
 - [Ext] removeLiquidityETH #
 - [Ext] removeLiquidityWithPermit #
 - [Ext] removeLiquidityETHWithPermit #
 - [Ext] swapExactTokensForTokens #
 - [Ext] swapTokensForExactTokens #
 - [Ext] swapExactETHForTokens (\$)
 - [Ext] swapTokensForExactETH #
 - [Ext] swapExactTokensForETH #
 - [Ext] swapETHForExactTokens (\$)
 - [Ext] quote
 - [Ext] getAmountOut
 - [Ext] getAmountIn
 - [Ext] getAmountsOut
 - [Ext] getAmountsIn
- + [Int] IUniswapV2Router02 (IUniswapV2Router01)
 - [Ext] removeLiquidityETHSupportingFeeOnTransferTokens #
 - [Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens #

- [Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens #
- [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens (\$)
- [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #

+ MAMI (Context, IERC20, Ownable)

- [Pub] <Constructor> #
- [Pub] name
- [Pub] symbol
- [Pub] decimals
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Pub] isExcludedFromReward
- [Ext] setExcludeFromFee #
 - modifiers: onlyOwner
- [Pub] totalFees
- [Pub] deliver #
- [Pub] reflectionFromToken
- [Pub] tokenFromReflection
- [Ext] excludeFromReward #
- modifiers: onlyOwner
 - [Ext] includeInReward #
- modifiers: onlyOwner
- [Ext] addBotToBlackList #
 - modifiers: onlyOwner
- [Ext] removeBotFromBlackList #
 - modifiers: onlyOwner
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] isExcludedFromFee
- [Prv] _approve #
- [Prv] _transfer #
- [Prv] swapAndLiquify #
- modifiers: lockTheSwap
- [Prv] swapTokensForEth #
- [Prv] addLiquidity #
- [Prv] sendETHToCharity #
- [Ext] manualSwap #
 - modifiers: onlyOwner
- [Pub] manualSend #
 - modifiers: onlyOwner
- [Ext] setSwapAndLiquifyEnabled #
- modifiers: onlyOwner
 - [Prv] _tokenTransfer #
- [Prv] _transferStandard #
- [Prv] _transferToExcluded #

- [Ext] <Fallback> (\$)
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Prv] _getRate
- [Prv] _getCurrentSupply
- [Prv] _getTaxFee
- [Prv] _getMaxTxAmount
- [Pub] _getETHBalance
- [Ext] _setTaxFee #
 - modifiers: onlyOwner
- [Ext] _setCharityFee #
 - modifiers: onlyOwner
 - [Ext]
 - _setLiquidityFee #
 - modifiers: onlyOwner
- [Ext]
 - _setNumTokensSellToAddToLiquidity #
 - modifiers: onlyOwner
- [Ext] _setMaxTxAmount
 - #
 - modifiers: onlyOwner

(\$) = payable function

= non-constant function

Issues Checking Status

Issue description		Checking status
1.	Compiler errors.	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.	Low issues
10.	Methods execution permissions.	Passed
11.	Economy model of the contract.	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
19.	Cross-function race conditions.	Passed
20.	Safe Open Zeppelin contracts implementation and usage.	Passed
21.	Fallback function security.	Passed

Security Issues

✓ High Severity Issues

No high severity issues found.

✓ Medium Severity Issues

No medium severity issues found.

✓ Low Severity Issues

1. Out of gas

Issue:

- The function `includeInReward()` uses the loop to find and remove addresses from the `_excluded` 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);
}
```

- The function `removeBotFromBlackList` uses the loop to remove addresses from black list array. It also could be aborted with `OUT_OF_GAS` exception if there will be a long addresses list.

Conclusion

Smart contracts contain low severity issues! Liquidity pair contract's security is not checked due to out of scope.

Liquidity locking details provided by the team:

<https://app.unicrypt.network/services/lock-tokens/?token=0xa4b104e75a9b6aeb875e8bf87f249ea9ac3b2b74>

TechRate note:

Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.