



TechRate
AUDIT COMPANY

Smart Contract Security Audit

Audit Details



Audited project

Mind Music



Deployer address

0x6a8f1ce2b9542698a65b401e0259e4e6344874b8



Client contacts:

Mind Music team



Blockchain

Binance Smart Chain



Project website:

<https://mindmusic.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 Mind Music to perform an audit of smart contracts:

<https://bscscan.com/address/0x897304d4606b2d5fcdf886aa7aa143e478ec36c5#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 22.07.2021

Contract name	Mind Music
Contract address	0x897304D4606B2d5FcAf886aa7AA143e478EC36C5
Total supply	180,889,919,787,880.9669
Token ticker	MND
Decimals	9
Token holders	483
Transactions count	5,261
Top 100 holders dominance	95.65%
Liquidity fee	10 / 1000
Reflection fee	10 / 1000
Burn fee	10 / 1000
External fee	90 / 1000
Total fees	4110.080212119033033006 BNB (1)
Pancake V2 pair	0x513a6611a62f2d47da87fbc9c5435abf075dffffd
Contract deployer address	0x6a8f1ce2b9542698a65b401e0259e4e6344874b8
Contract's current owner address	0x6a8f1ce2b9542698a65b401e0259e4e6344874b8

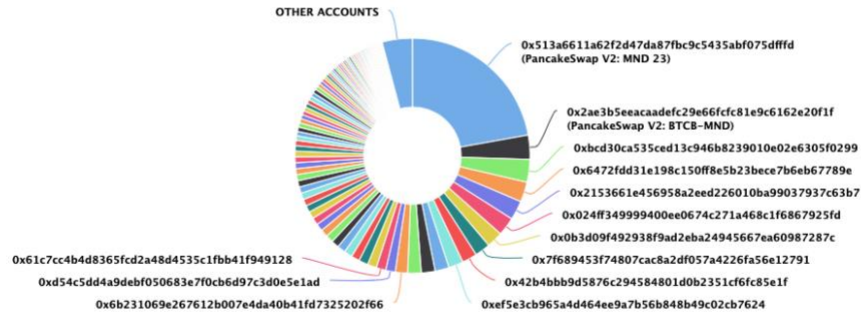
Mind Music Token Distribution

The top 100 holders collectively own 95.83% (173,781,328,068,659.00 Tokens) of Mind Music

Token Total Supply: 181,337,472,627,110.98 Token | Total Token Holders: 398

Mind Music Top 100 Token Holders

Source: BscScan.com



(A total of 173,781,328,068,659.00 tokens held by the top 100 accounts from the total supply of 181,337,472,627,110.98 token)

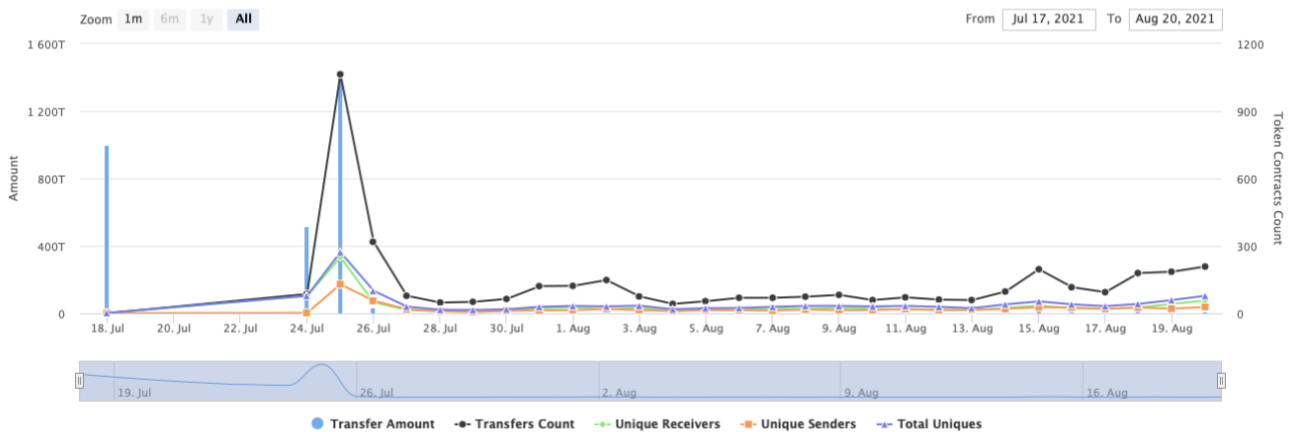
Mind Music Contract Interaction Details

Time Series: Token Contract Overview



Sun 18, Jul 2021 - Fri 20, Aug 2021

Token Contract 0x897304d4606b2d5fca886aa7aa143e478ec36c5 (Mind Music)

Source: BscScan.com



Mind Music Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	 PancakeSwap V2: MND 23	42,072,571,767,820.408976838	23.2587%
2	0xbcd30ca535ced13c946b8239010e02e6305f0299	5,334,573,803,535.005373126	2.9491%
3	0x6472fdd31e198c150ff8e5b23bece7b6eb67789e	5,039,102,698,733.571306908	2.7857%
4	0x2153661e456958a2eed226010ba99037937c63b7	4,864,638,989,930.514516505	2.6893%
5	0x85d322254b1372bf8caa6ee821699f5dc7ceb585	4,862,583,646,766.006123627	2.6881%
6	0x024ff349999400ee0674c271a468c1f6867925fd	4,810,963,092,228.518323815	2.6596%
7	 PancakeSwap V2: BTCB-MND	4,540,516,164,863.236634033	2.5101%
8	0xe07bf0c56a0a7ea7d03ab4c13d40f665d23780a5	4,348,404,613,669.055954093	2.4039%
9	0x7abfad471f1e0feffd728e45ddf3cff6d91d2627	3,968,832,922,424.008836516	2.1941%
10	0x42b4bbb9d5876c294584801d0b2351cf6fc85e1f	3,755,602,516,568.18538703	2.0762%



Contract functions details

- + [Int] IBEP20
 - [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
- + Context
 - [Int] _msgSender
 - [Int] _msgData
- + [Lib] Address
 - [Int] isContract
 - [Int] sendValue #
 - [Int] functionCall #
 - [Int] functionCall #
 - [Int] functionCallWithValue #
 - [Int] functionCallWithValue #
 - [Prv] _functionCallWithValue #
- + Ownable (Context)
 - [Pub] <Constructor> #
 - [Pub] owner
 - [Pub] renounceOwnership #
 - modifiers: onlyOwner
 - [Pub] transferOwnership #
 - modifiers: onlyOwner
 - [Pub] geUnlockTime
 - [Pub] lock #
 - modifiers: onlyOwner
 - [Pub] unlock #
- + [Int] IPancakeFactory
 - [Ext] feeTo
 - [Ext] feeToSetter
 - [Ext] getPair
 - [Ext] allPairs
 - [Ext] allPairsLength
 - [Ext] createPair #
 - [Ext] setFeeTo #

- [Ext] setFeeToSetter #
- + [Int] IPancakePair
 - [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] IPancakeRouter01
 - [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] IPancakeRouter02 (IPancakeRouter01)
 - [Ext] removeLiquidityETHSupportingFeeOnTransferTokens #
 - [Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens #

- [Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens #
- [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens (\$)
- [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #
- + MindMusic (Context, IBEP20, 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
 - [Pub] totalFeesCollected
 - [Pub] deliver #
 - [Pub] reflectionFromToken
 - [Pub] tokenFromReflection
 - [Pub] excludeFromReward #
 - modifiers: onlyOwner
 - [Ext] includeInReward #
 - modifiers: onlyOwner
 - [Int] _burn #
 - [Pub] excludeFromFee #
 - modifiers: onlyOwner
 - [Pub] includeInFee #
 - modifiers: onlyOwner
 - [Pub] excludedFromMaxTxAmount #
 - modifiers: onlyOwner
 - [Pub] includeInMaxTxAmount #
 - modifiers: onlyOwner
 - [Pub] excludedFromExternalTokenMinAmount #
 - modifiers: onlyOwner
 - [Pub] includeInExternalTokenMinAmount #
 - modifiers: onlyOwner
 - [Pub] excludedFromAntiWhale #
 - modifiers: onlyOwner
 - [Pub] includeInAntiWhale #
 - modifiers: onlyOwner
 - [Ext] setBurnFeePercent #
 - modifiers: onlyOwner
 - [Ext] setExternalFeePercent #
 - modifiers: onlyOwner
 - [Ext] setReflectFeePercent #
 - modifiers: onlyOwner
 - [Ext] setLiquidityFeePercent #
 - modifiers: onlyOwner
 - [Ext] setMaxTxTokensSell #
 - modifiers: onlyOwner
 - [Ext] setMaxTxTokensBuy #
 - modifiers: onlyOwner

- [Ext] setMaxTokenPerAddress #
 - modifiers: onlyOwner
- [Ext] setExternalTokenMinAmount #
 - modifiers: onlyOwner
- [Ext] setExternalAddress #
 - modifiers: onlyOwner
- [Pub] setTransactionlockTime #
 - modifiers: onlyOwner
- [Pub] setSwapAndLiquifyEnabled #
 - modifiers: onlyOwner
- [Pub] excludedFromTransactionlock #
 - modifiers: onlyOwner
- [Pub] includeInTransactionlock #
 - modifiers: onlyOwner
- [Pub] getIsExcludedFromTransactionlock
- [Ext] <Fallback> (\$)
- [Prv] _reflectFee #
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Prv] _getRate
- [Prv] _getCurrentSupply
- [Prv] _takeLiquidity #
- [Prv] calculateBurnFee
- [Prv] calculateReflectionFee
- [Prv] calculateLiquidityFee
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] isExcludedFromFee
- [Pub] setMinTokensSellToAndTransfer #
 - modifiers: onlyOwner
- [Prv] _approve #
- [Prv] _transfer #
- [Prv] swapAndLiquify #
 - modifiers: lockTheSwap
- [Prv] swapTokensForEth #
- [Prv] addLiquidity #
- [Prv] _tokenTransfer #
- [Prv] _transferFromExcluded #
- [Prv] _transferToExcluded #
- [Prv] _transferStandard #
- [Prv] _transferBothExcluded #
- [Pub] blacklistSingleWallet #
 - modifiers: onlyOwner
- [Pub] blacklistMultipleWallets #
 - modifiers: onlyOwner
- [Pub] isBlacklisted
- [Ext] unBlacklistSingleWallet #
 - modifiers: onlyOwner
- [Pub] unBlacklistMultipleWallets #
 - modifiers: onlyOwner
- [Ext] setExternalToken #
 - modifiers: onlyOwner
- [Ext] setIsExternalTokenHoldEnabled #
 - modifiers: onlyOwner

- [Ext] burnTokens #
- [Pub] recoverBNB #
 - modifiers: onlyOwner
- [Pub] setRouterAddress #
 - 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.	Low issues
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);
}
```

Recommendation:

Check that the excluded array length is not too big.

2. Burn event issue

Issue:

- The function `_burn` and `burnTokens` emits transferring burn amount from address to burn to contract address. This is wrong event, there is not transferring tokens to contract address.

Recommendation:

Change burn event.

Owner privileges (In the period when the owner is not renounced)

- Owner can change the reflection fee, external fee, burn fee and liquidity fee.
- Owner can change the maximum transaction amount.
- Owner can exclude from the maximum transaction amount.
- Owner can exclude from the external token min amount.
- Owner can exclude from the transaction lock.
- Owner can exclude from the antiwhale.
- Owner can exclude from the fees.
- Owner can change `_maxTxAmountBuy` and `_maxTxAmountSell`.
- Owner can change charity address.
- Owner can change max tokens per address.
- Owner can change `_externalTokenMinAmount`.
- Owner can change external address.
- Owner can change transaction lock time.
- Owner can change charity address.
- Owner can change `_numTokensSellToAndTransfer`.
- Owner can change blacklist wallets.
- Owner can change external tokens.
- Owner can change `isExternalTokenHoldEnabled` value.
- Owner can withdraw contract BNBs.
- Owner can change router address.

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://dxsale.app/app/v2_9/dxlockview?id=3&add=0x6A8f1CE2B9542698a65b401E0259e4e6344874b8&type=lplock&chain=BSC

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.