



**TechRate**  
AUDIT COMPANY

# Smart Contract Security Audit

# Audit Details



Audited project

**Metaloop Tech**



Deployer address

**0xce036df77891ea4bfef72acac74b242becba5865**



Client contacts:

**Metaloop Tech team**



Blockchain

**Binance Smart Chain**



Project website:

**[www.metalooptech.com](http://www.metalooptech.com)**

# 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 Metaloop Tech to perform an audit of smart contracts:

<https://bscscan.com/address/0x90bb4c7824182e6f37c97cad683f46bc68894907#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 24.01.2022

Contract name	Metaloop Tech
Contract address	0x90BB4c7824182e6F37c97cAD683f46bC68894907
Total supply	2,000,000,000
Token ticker	MLT
Decimals	9
Token holders	3,336
Transactions count	17,199
Top 100 holders dominance	89.58%
Liquidity fee	6
Tax fee	2
Total fees	52603620755002124
Uniswap V2 pair	0x419eced7927e3c73d8b93ae6a6e43d8ddeef6a83
Contract deployer address	0xce036df77891ea4bfef72acac74b242becba5865
Contract's current owner address	0x15f4ce11c61330f0354776f6d587030393146eff

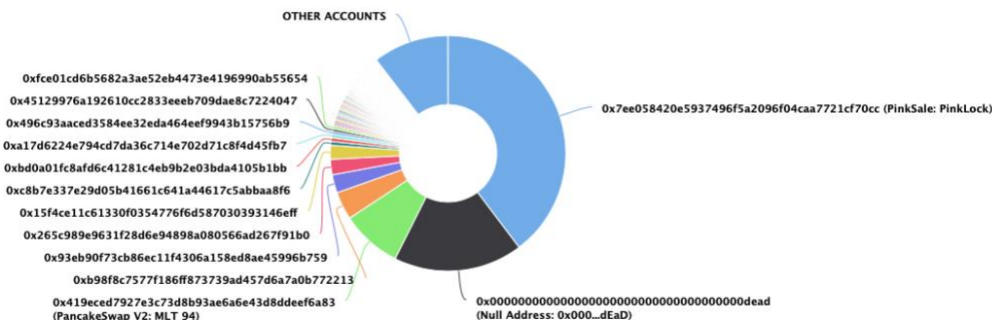
# Metaloop Tech Token Distribution

The top 100 holders collectively own 89.58% (1,791,548,271.22 Tokens) of Metaloop Tech

Token Total Supply: 2,000,000,000.00 Token | Total Token Holders: 3,336

Metaloop Tech Top 100 Token Holders

Source: BscScan.com



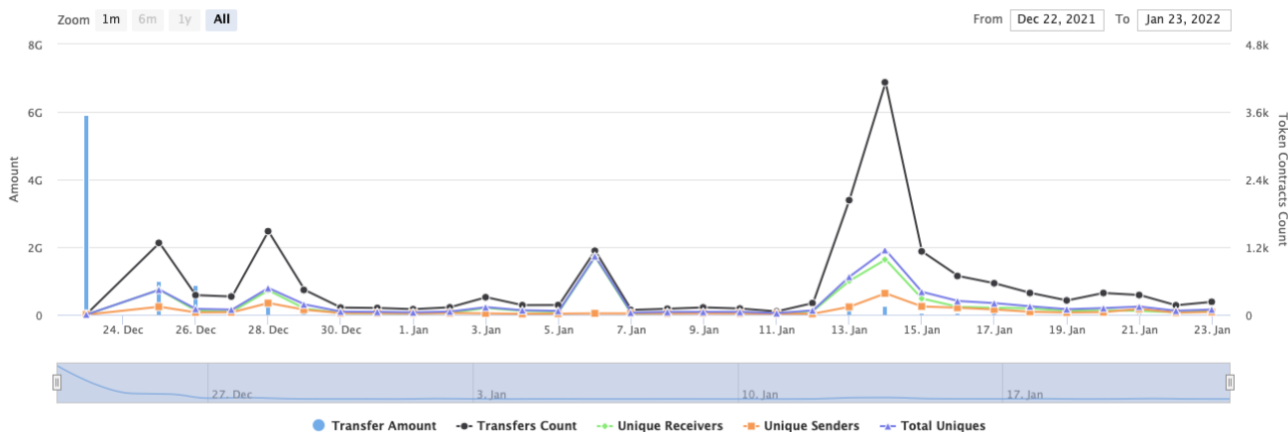
(A total of 1,791,548,271.22 tokens held by the top 100 accounts from the total supply of 2,000,000,000.00 token)

## Metaloop Tech Contract Interaction Details

Time Series: Token Contract Overview




Thu 23, Dec 2021 - Sun 23, Jan 2022

Token Contract 0x90bb4c7824182e6f37c97cad683f46bc68894907 (Metaloop Tech)  
Source: BscScan.com





# Metaloop Tech Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	 PinkSale: PinkLock	794,040,000	39.7020%
2	Null Address: 0x000...dEaD	354,377,448.705101396	17.7189%
3	 PancakeSwap V2: MLT 94	166,448,067.755081418	8.3224%
4	 0xb98f8c7577f186ff873739ad457d6a7a0b772213	76,756,365.475557566	3.8378%
5	0x93eb90f73cb86ec11f4306a158ed8ae45996b759	50,091,442.999647353	2.5046%
6	0x265c989e9631f28d6e94898a080566ad267f91b0	42,256,970.742861622	2.1128%
7	0x15f4ce11c61330f0354776f6d587030393146eff	38,079,802.101850998	1.9040%
8	0xc8b7e337e29d05b41661c641a44617c5abbaa8f6	10,350,996.429626713	0.5175%
9	0xbd0a01fc8afd6c41281c4eb9b2e03bda4105b1bb	10,125,796.591956972	0.5063%
10	0xa17d6224e794cd7da36c714e702d71c8f4d45fb7	9,943,152.589099667	0.4972%



# 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)

- [Pub] <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] 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 #

#### + Metaloop (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
- [Pub] totalFees
- [Pub] deliver #
- [Pub] reflectionFromToken
- [Pub] tokenFromReflection
- [Pub] excludeFromReward #
  - modifiers: onlyOwner
- [Ext] includeInReward #
  - modifiers: onlyOwner
- [Prv] \_transferBothExcluded #
- [Ext] <Fallback> (\$)
- [Prv] \_reflectFee #
- [Prv] \_getValues
- [Prv] \_getTValues
- [Prv] \_getRValues
- [Prv] \_getRate
- [Prv] \_getCurrentSupply
- [Prv] \_takeLiquidity #
- [Prv] calculateLiquidityFee
- [Prv] calculateTaxFee
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] isExcludedFromFee
- [Prv] \_approve #
- [Prv] \_transfer #
- [Prv] swapAndLiquify #
  - modifiers: lockTheSwap
- [Prv] swapTokensForBUSD #
- [Prv] swapTokensForEth #
- [Prv] addLiquidity #
- [Prv] \_tokenTransfer #
- [Prv] \_transferStandard #
- [Prv] takeMarketing #
- [Prv] \_transferToExcluded #
- [Prv] \_transferFromExcluded #
- [Pub] excludeFromFee #
  - modifiers: onlyOwner
- [Pub] includeInFee #
  - modifiers: onlyOwner

- [Ext] setMarketingWallet #
  - modifiers: onlyOwner
- [Prv] setAllFees #
- [Ext] setFees #
  - modifiers: onlyOwner
- [Ext] setSaleFees #
  - modifiers: onlyOwner
- [Ext] setMaxWalletTokend #
  - modifiers: onlyOwner
- [Ext] setMinimumTokensBeforeSwap #
  - modifiers: onlyOwner
- [Ext] setMaxBuyTxAmount #
  - modifiers: onlyOwner
- [Ext] setMaxSellTxAmount #
  - modifiers: onlyOwner
- [Pub] setSwapAndLiquifyEnabled #
  - 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.	Low issues
18. Design Logic.	Low issues
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.
- 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.

Recommendation:

Check that the excluded array length is not too big.

### 2. Rounding error

Issue:

- At some calculation with division, it goes first. In Solidity we don't have floating points, but instead we get rounding errors.

Recommendation:

Do division after multiplication.

### 3. Fee checking

Issue:

- `swapAndLiquify()` function distributes marketing balance as part of liquidity fee. But there is no checking of marketing fee to be less than liquidity fee.

Recommendation:

Add check on fee changings.

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

- Owner can change fees.
- Owner can change the maximum buy/sell transaction amounts.
- Owner can exclude from the fee.
- Owner can change marketing wallet.
- Owner can change max wallet token.
- Owner can change minimumTokensBeforeSwap.
- Owner can enable/disable swapAndLiquify.
- Owner can lock and unlock. By the way, using these functions the owner could retake privileges even after the ownership was renounced.



# Conclusion

Smart contracts contain low severity issues! Liquidity pair contract's security is not checked due to out of scope. Marketing fee is taking only in `_transferStandard()` function.

Liquidity locking details are provided by the team:  
<https://www.pinksale.finance/#/pinklock/detail/0x419ecED7927e3C73D8B93aE6A6E43d8ddeef6A83?chain=BSC>

<https://www.pinksale.finance/#/pinklock/detail/0x90BB4c7824182e6F37c97cAD683f46bC68894907?chain=BSC>

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## *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.*

