TechRate

AUDIT COMPANY

Smart Contract Security Audit

CRYPTO META RADAR

TechRate

June, 2021

Audit Details

Audited project

CMR

Deployer address

0x9c89fba697AD05215a3e8b67bd2b66ccad0efe9d

Client contacts:

CMR team

Blockchain

Binance Smart Chain

Project website:

www.cryptometaradar.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 CMR to perform an audit of smart contracts:

https://bscscan.com/address/0x9c89fba697AD05215a3e8b67bd2b66ccad0efe9d

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.**

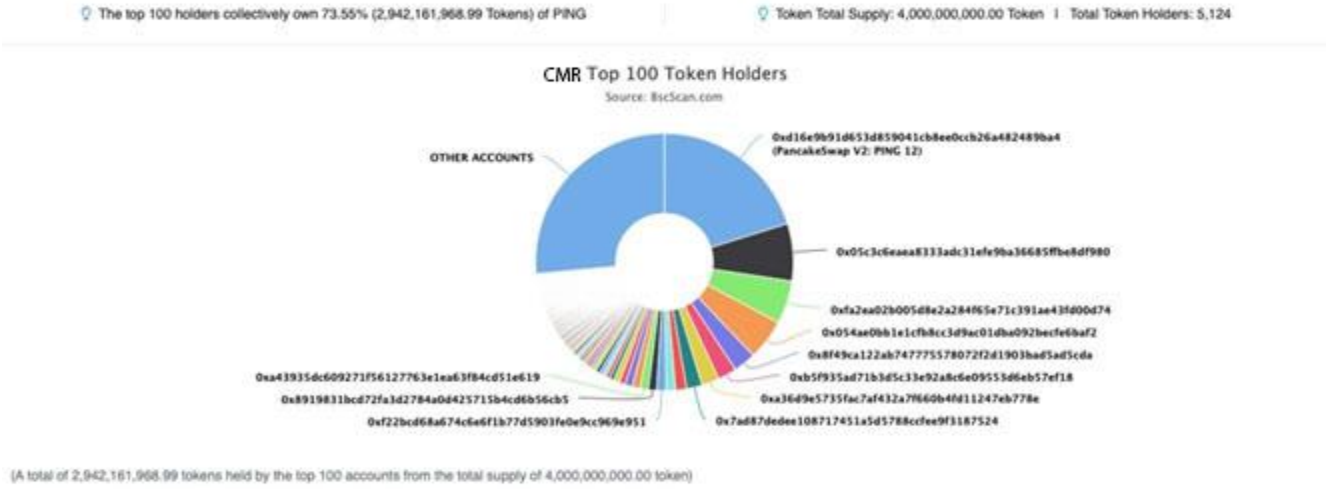
The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

Contracts Details

Token contract details for 24.06.2021

Contract name	**CMR**
Contract address	**0x9c89fba697AD05215a3e8b67bd2b66ccad0efe9d**
Total supply	**4,000,000,000**
Token ticker	**CMR**
Decimals	**18**
Token holders	**5,125**
Transactions count	**21,219**
Top 100 holders dominance	**73.55%**
Liquidity fee	**3**
Rfi fee	**2**
Total fees	**201632929520305649**

CMR Token Distribution



The top 100 holders collectively own 73.55% (2,942,161,968.99 Tokens) of PING

Token Total Supply: 4,000,000,000.00 Token | Total Token Holders: 5,124

CMR Top 100 Token Holders
Source: BscScan.com
OTHER ACCOUNTS
0xd16e9b91d653d859041cb8ee0ccb26a482489ba4 (PancakeSwap V2: PING 12)
0x05c3c6eaea8333adc31efe9ba36685ffbe8df980
0xfa2ea02b005d8e2a284f65e71c391ae43fd00d74
0x054ae0bb1e1cfb8cc3d9ac01dba092becfe6baf2
0x8f49ca122ab74777557807 2f2d1903bad5ad5cda
0xb5f935ad71b3d5c33e92a8c6e09553d6eb57ef18
0xa36d9e5735fac7af432a7f660b4fd11247eb778e
0x7ad87dedee108717451a5d5788ccfee9f3187524
0xa43935dc609271f56127763e1ea63f84cd51e619
0x8919831bcd72fa3d2784a0d425715b4cd6b56cb5
0xf22bcd68a674c6e6f1b77d5903fe0e9cc969e951

(A total of 2,942,161,968.99 tokens held by the top 100 accounts from the total supply of 4,000,000,000.00 token)

CMR Contract Interaction Details

Contract functions details

+ [Int] IERC20
- [Ext] totalSupply
- [Ext] balanceOf
- [Ext] transfer #
- [Ext] allowance
- [Ext] approve #
- [Ext] transferFrom #

+ [Lib] SafeMath
- [Int] tryAdd
- [Int] trySub
- [Int] tryMul
- [Int] tryDiv
- [Int] tryMod
- [Int] add
- [Int] sub - [Int] mul
- [Int] div
- [Int] mod
- [Int] sub
- [Int] div
- [Int] mod

+ Context
- [Int] _msgSender
- [Int] _msgData

+ [Lib] Address
- [Int] isContract
- [Int] sendValue #
- [Int] functionCall #
- [Int] functionCall #
- [Int] functionCallWithValue #
- [Int] functionCallWithValue #
- [Int] functionStaticCall
- [Int] functionStaticCall
- [Int] functionDelegateCall #
- [Int] functionDelegateCall #
- [Prv] _verifyCallResult

+ Ownable (Context)
- [Pub] <Constructor> #
- [Pub] owner
- [Pub] transferOwnership #
- modifiers: onlyOwner

+ [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 #

 + [Int] IUniswapV2Factory
- [Ext] feeTo
- [Ext] feeToSetter
- [Ext] getPair
- [Ext] allPairs
- [Ext] allPairsLength
- [Ext] createPair #
- [Ext] setFeeTo #
- [Ext] setFeeToSetter #

 +  CMR (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] reflectionFromToken   - [Pub] tokenFromReflection
- [Pub] excludeFromRFI #
- modifiers: onlyOwner
- [Ext] includeInRFI #
- modifiers: onlyOwner
- [Pub] excludeFromFeeAndRfi #
- modifiers: onlyOwner
- [Pub] excludeFromFee #
- modifiers: onlyOwner
- [Pub] includeInFee #
- modifiers: onlyOwner
- [Pub] isExcludedFromFee
- [Pub] setRfiRatesPercents #
- modifiers: onlyOwner
- [Pub] setWallets #
- modifiers: onlyOwner
- [Pub] setPresaleWallet #
- modifiers: onlyOwner
- [Ext] setMaxTxPercent #
- modifiers: onlyOwner
- [Ext] setMaxTxAmount #
- modifiers: onlyOwner
- [Ext] setThreshholdForLP #
- modifiers: onlyOwner
- [Pub] setSwapAndLiquifyEnabled #
- modifiers: onlyOwner
- [Ext] <Fallback> ($)
- [Prv] _reflectRfi #
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Prv] _getRate
- [Prv] _getCurrentSupply
- [Prv] _takeLiquidity #
- [Prv] _approve #
- [Prv] _transfer #
- [Prv] _tokenTransfer #
- [Prv] reflectDevandResearchFee #
- [Prv] swapAndLiquify #
- modifiers: lockTheSwap
- [Prv] swapTokensForBNB #
- [Prv] addLiquidity #
- [Pub] totalDevelopmentFee
- [Pub] totalResearchFee

($) = 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.	Low issues
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

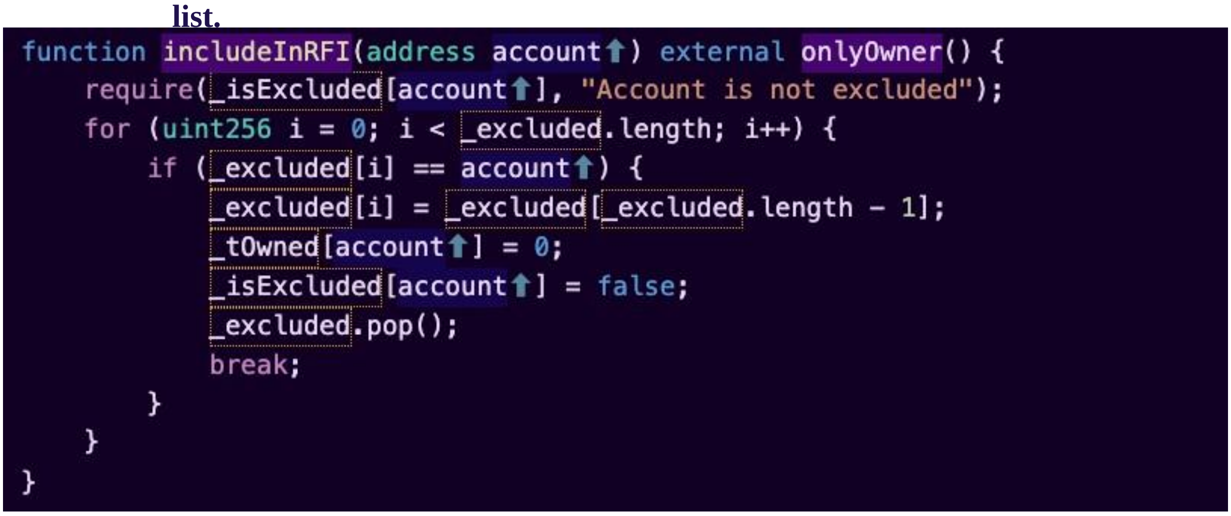
No medium severity issues found.

Low Severity Issues

1. Out of gas

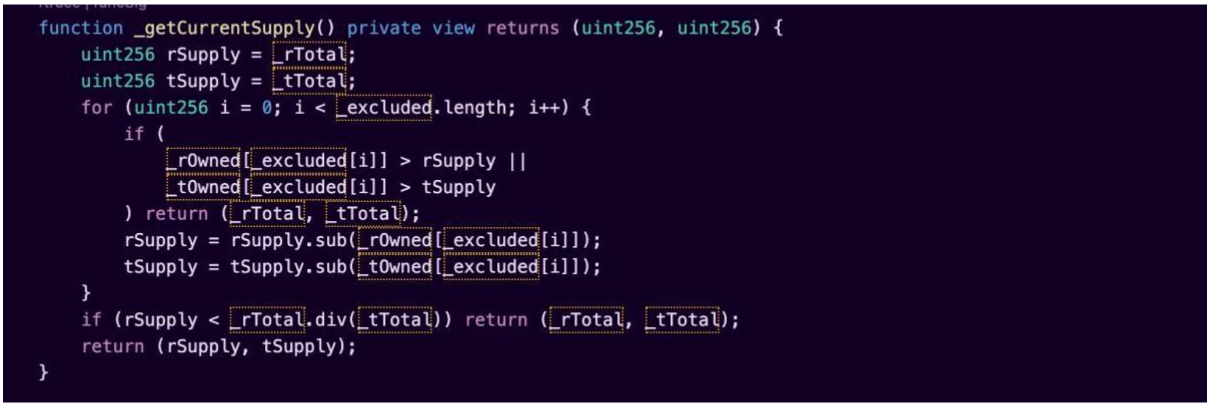
Issue:

- The function includeInR FI() 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 includeInRFI(address account) external onlyOwner() {
    require(_isExcluded[account], "Account is not 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 a lso 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);
}
```

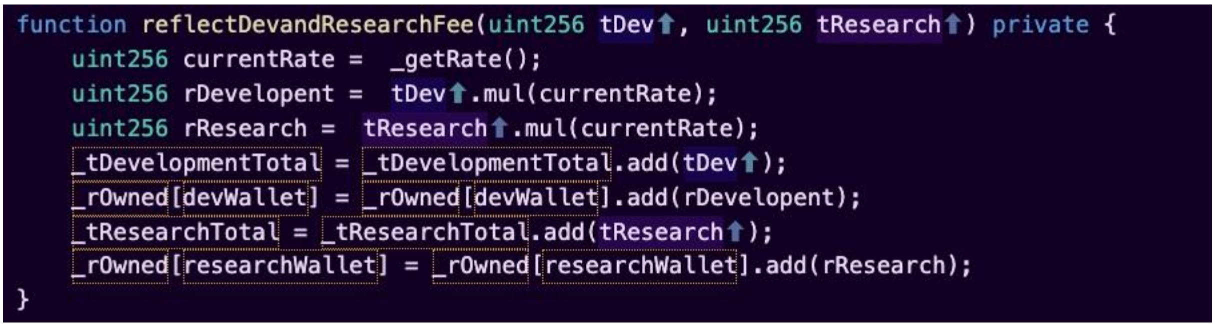
Recommendation:

Check that the excluded array length is not too big.

2. Wrong reflectDevandResearchFee taking

Issue:

- The function reflectDevandResearchFee() do not check dev and research addresses to be excluded from reward and do not increase _tOwned balance of this addresses if needed.



```
function reflectDevandResearchFee(uint256 tDev, uint256 tResearch) private {
    uint256 currentRate =  _getRate();
    uint256 rDevelopent =  tDev.mul(currentRate);
    uint256 rResearch =  tResearch.mul(currentRate);
    _tDevelopmentTotal = _tDevelopmentTotal.add(tDev);
    _rOwned[devWallet] = _rOwned[devWallet].add(rDevelopent);
    _tResearchTotal = _tResearchTotal.add(tResearch);
    _rOwned[researchWallet] = _rOwned[researchWallet].add(rResearch);
}
```

Recommendation:

Check dev and research addresses to be excluded and increase addresses' _tOwned balance if needed.

Team comments:

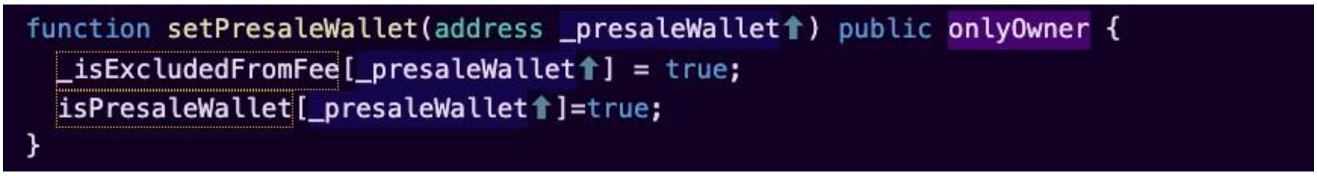
Dev and Research wallets are already excluded from fee. _tOwned increment is not necessary as these wallets will not be excluded from reward.

Notes:

Now dev and research wallets are included in reward, if them would not be – this will be a high mistake

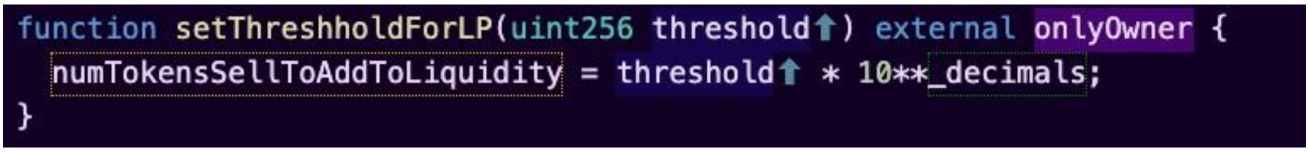
Owner privileges (In the period when the owner is not renounced)

- **Owner can change presale wallet.**



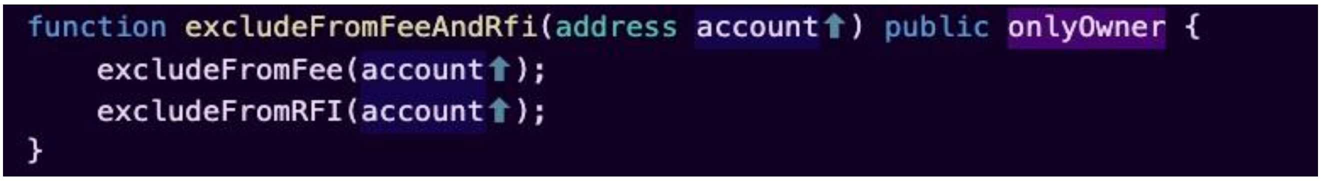
```
function setPresaleWallet(address _presaleWallet) public onlyOwner {
  _isExcludedFromFee[_presaleWallet] = true;
  isPresaleWallet[_presaleWallet]=true;
}
```

- **Owner can change minimum number of tokens to add to liquidity.**



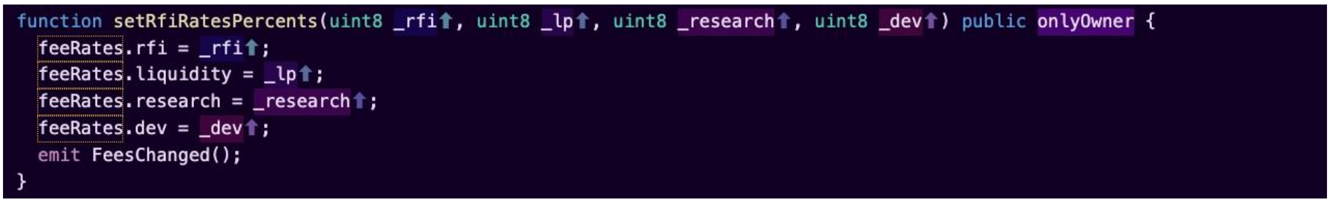
```
function setThreshholdForLP(uint256 threshold) external onlyOwner {
  numTokensSellToAddToLiquidity = threshold * 10**_decimals;
}
```

- Owner can exclude from fee and rfi.



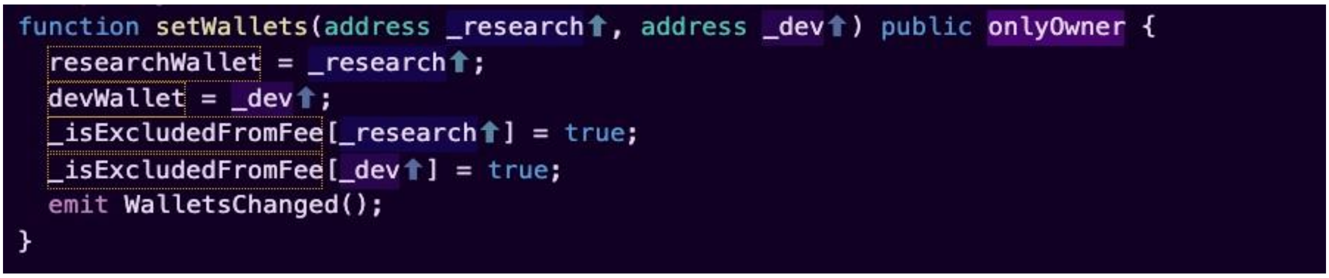
```
function excludeFromFeeAndRfi(address account) public onlyOwner {
     excludeFromFee(account);
     excludeFromRFI(account);
 }
```

- Owner can change fee rates.



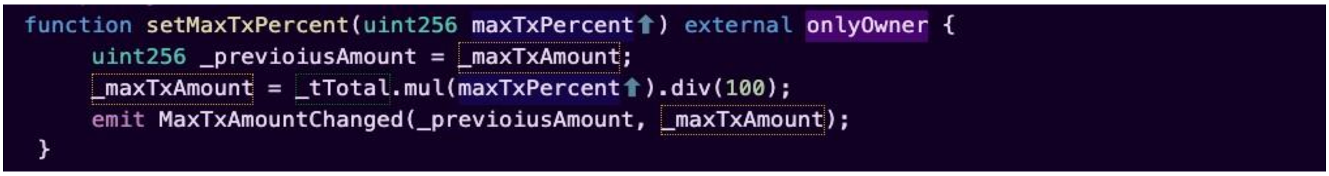
```
function setRfiRatesPercents(uint8 _rfi, uint8 _lp, uint8 _research, uint8 _dev) public onlyOwner {
  feeRates.rfi = _rfi;
  feeRates.liquidity = _lp;
  feeRates.research = _research;
  feeRates.dev = _dev;
  emit FeesChanged();
}
```

- Owner can change research and dev wallets.



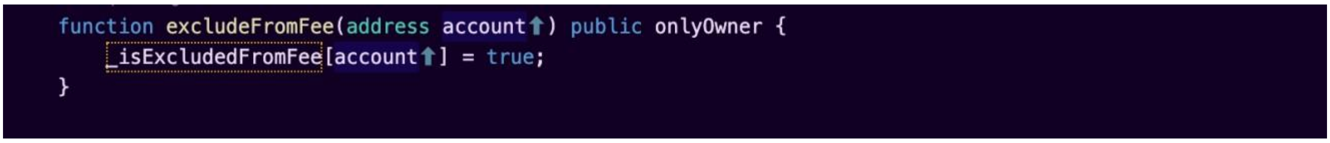
```
function setWallets(address _research, address _dev) public onlyOwner {
  researchWallet = _research;
  devWallet = _dev;
  _isExcludedFromFee[_research] = true;
  _isExcludedFromFee[_dev] = true;
  emit WalletsChanged();
}
```

- Owner can change the maximum transaction amount.



```
function setMaxTxPercent(uint256 maxTxPercent) external onlyOwner {
     uint256 _previoiusAmount = _maxTxAmount;
     _maxTxAmount = _tTotal.mul(maxTxPercent).div(100);
     emit MaxTxAmountChanged(_previoiusAmount, _maxTxAmount);
 }
```

- Owner can exclude from the fee.



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

Conclusion

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

Tec hRate 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.

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