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AUDIT COMPANY

Smart Contract Security Audit

TechRate

October, 2021

Audit Details

Audited project

RickMortyDoxx

Deployer address

0xfCC9c5DF19626413e0c2803F81762D5007d31cAB

Client contacts:

RickMortyDoxx team

Blockchain

Ethereum

Project website:

https://rickmorty.io

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

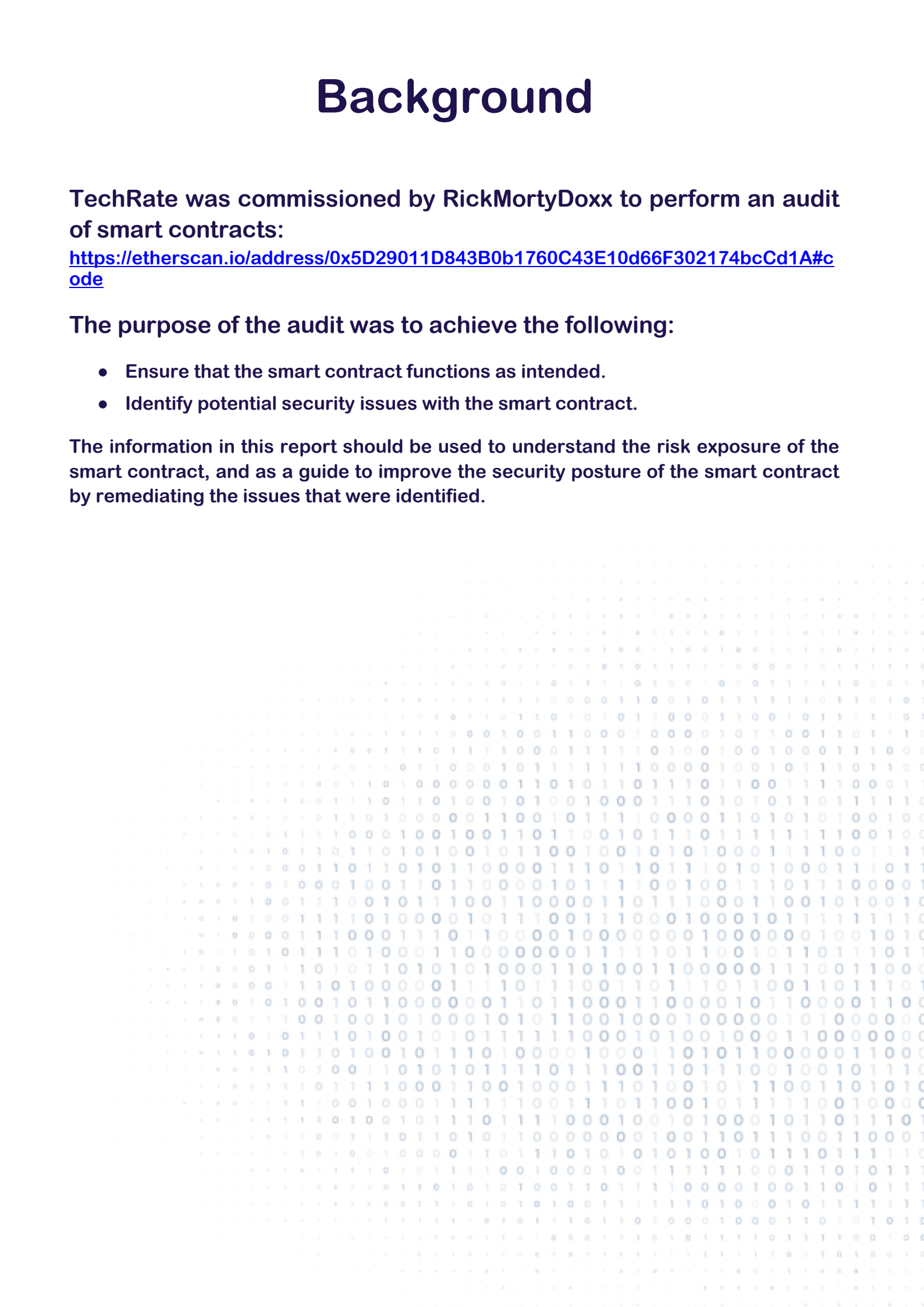
TechRate was commissioned by RickMortyDoxx to perform an audit of smart contracts:

https://etherscan.io/address/0x5D29011D843B0b1760C43E10d66F302174bcCd1A#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

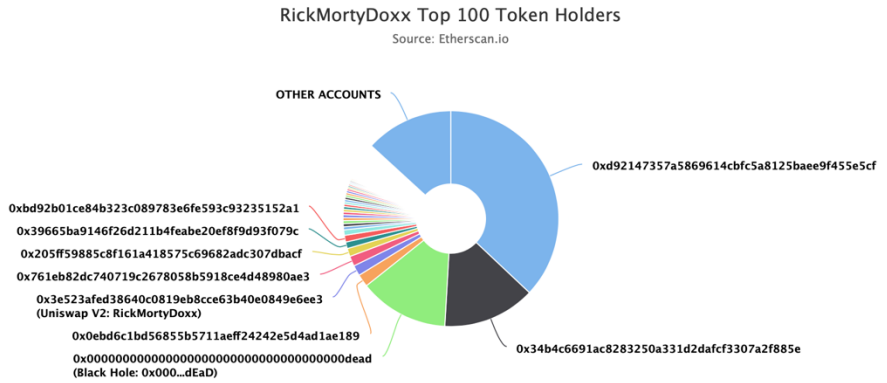
Token contract details for 20.10.2021

Contract name	RickMortyDoxx
Contract address	0x5D29011D843B0b1760C43E10d66F302174bcCd1A
Total supply	10,000,000,000,000
Token ticker	RickMortyDoxx
Decimals	9
Token holders	547
Transactions count	1,380
Top 100 holders dominance	86.80%
Liquidity fee	0
Tax fee	7
Total fees	460049796757367468903
Uniswap V2 pair	0x3e523aFeD38640c0819eB8CCe63B40E0849e6Ee3
Contract deployer address	0xfCC9c5DF19626413e0c2803F81762D5007d31cAB
Contract's current owner address	0xd92147357a5869614Cbfc5A8125bAee9F455E5cF

RickMortyDoxx Token Distribution

The top 100 holders collectively own 86.80% (8,680,375,946,854.38 Tokens) of RickMortyDoxx

Token Total Supply: 10,000,000,000,000.00 Token | Total Token Holders: 547



(A total of 8,680,375,946,854.38 tokens held by the top 100 accounts from the total supply of 10,000,000,000,000.00 token)

RickMortyDoxx Contract Interaction Details

RickMortyDoxx Top 10 Token Holders

Rank	Address	Quantity	Percentage
1	0xd92147357a5869614cbfc5a8125baee9f455e5cf	3,703,359,977,967.726225438	37.0336%
2	0x34b4c6691ac8283250a331d2dafcf3307a2f885e	1,387,696,419,901.081321885	13.8770%
3	Black Hole: 0x000...dEaD	1,341,034,655,951.783023606	13.4103%
4	0x0ebd6c1bd56855b5711aeff24242e5d4ad1ae189	189,473,522,662.430870616	1.8947%
5	Uniswap V2: RickMortyDoxx	158,024,203,809.668080277	1.5802%
6	0x761eb82dc740719c2678058b5918ce4d48980ae3	152,062,511,371.482324242	1.5206%
7	0x205ff59885c8f161a418575c69682adc307dbacf	121,149,120,638.966046931	1.2115%
8	0x39665ba9146f26d211b4feabe20ef8f9d93f079c	100,006,027,090.910218796	1.0001%
9	0xbd92b01ce84b323c089783e6fe593c93235152a1	99,800,083,215.197976079	0.9980%
10	0x229db50cf2575beeebfd61bea9a34de1ecce4c42	81,526,141,325.520096833	0.8153%

RickMortyDoxx LP Token Holders

Rank	Address	Quantity	Percentage
1	0xc68c522682614a9f1d336f756c0c0d71352925d3	106.2996821975423	100.0000%
2	Black Hole: 0x000…000	0.000000000000001	0.0000%

Contract functions details

+ [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

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

+ [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 #

+ LiquidityGeneratorToken (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
- [Prv] _transferBothExcluded #
- [Pub] excludeFromFee #
  - modifiers: onlyOwner
- [Pub] includeInFee #
  - modifiers: onlyOwner
- [Ext] setTaxFeePercent #
  - modifiers: onlyOwner
- [Ext] setLiquidityFeePercent #
  - modifiers: onlyOwner
- [Ext] setMaxTxPercent #
  - modifiers: onlyOwner
- [Pub] setSwapAndLiquifyEnabled #
  - modifiers: onlyOwner
- [Ext] <Fallback> ($)
- [Prv] _reflectFee #
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Prv] _getRate
- [Prv] _getCurrentSupply
- [Prv] _takeLiquidity #
- [Prv] calculateTaxFee
- [Prv] calculateLiquidityFee
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] isExcludedFromFee
- [Prv] _approve #
- [Prv] _transfer #
- [Prv] swapAndLiquify #
  - modifiers: lockTheSwap
- [Prv] swapTokensForEth #
- [Prv] addLiquidity #
- [Prv] _tokenTransfer #

- [Prv] _transferStandard #
- [Prv] _transferToExcluded #
- [Prv] _transferFromExcluded #
- [Pub] disableFees #
  - modifiers: onlyOwner
- [Pub] enableFees #
  - 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 `_getCurrentSupply()` 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.

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

- Owner can change the tax and liquidity fee.

```
function setTaxFeePercent(uint256 taxFee) external onlyOwner() {
     require(taxFee >= 0 && taxFee <=maxTaxFee,"taxFee out of range");
    _taxFee = taxFee;
}

function setLiquidityFeePercent(uint256 liquidityFee) external onlyOwner() {
     require(liquidityFee >= 0 && liquidityFee <=maxLiqFee,"liquidityFee out of range");
    _liquidityFee = liquidityFee;
}
```

- Owner can lock and unlock. By the way, using these functions the owner could leave as owner even after the ownership was renounced.

```
//Locks the contract for owner for the amount of time provided
function lock(uint256 time) public virtual onlyOwner {
    _previousOwner = _owner;
    _owner = address(0);
    _lockTime = now + time;
    emit OwnershipTransferred(_owner, address(0));
}

//Unlocks the contract for owner when _lockTime is exceeds
function unlock() public virtual {
    require(_previousOwner == msg.sender, "You don't have permission to unlock the token contract");
    require(now > _lockTime , "Contract is locked until 7 days");
    emit OwnershipTransferred(_owner, _previousOwner);
    _owner = _previousOwner;
}
```

- Owner can include in and exclude from fee.

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

function includeInFee(address account) public onlyOwner {
    _isExcludedFromFee[account] = false;
}
```

- Owner can change the maximum transaction amount.

```
function setMaxTxPercent(uint256 maxTxPercent) external onlyOwner() {
    require(maxTxPercent >= minMxTxPercentage && maxTxPercent <=100,"maxTxPercent out of range");
    _maxTxAmount = _tTotal.mul(maxTxPercent).div(
        10**2
    );
}
```

- Owner can enable / disable swap and liquify.

```
function setSwapAndLiquifyEnabled(bool _enabled) public onlyOwner {
    swapAndLiquifyEnabled = _enabled;
    emit SwapAndLiquifyEnabledUpdated(_enabled);
}
```

- Owner can enable / disable fees.

```
function disableFees() public onlyOwner {
    prevLiqFee = _liquidityFee;
    prevTaxFee = _taxFee;

    _maxTxAmount = _tTotal;
    _liquidityFee = 0;
    _taxFee = 0;
    swapAndLiquifyEnabled = false;
}

function enableFees() public onlyOwner {
    _maxTxAmount = _tTotal;
    _liquidityFee = prevLiqFee;
    _taxFee = prevTaxFee;
    swapAndLiquifyEnabled = true;
}
```

Conclusion

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

Liquidity locking details NOT provided by the team.

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.