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AUDIT COMPANY

Smart Contract Security Audit

techrate.org

May, 2021

Audit Details

Audited project

Dooog Finance

Deployer address

0xee821e35f4763c53872f878b2b95e4ef688fd602

Client contacts:

Dooog Finance team

Blockchain

Binance Smart Chain

Project website:

https://dooog.fi

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 Dooog Finance to perform an audit of smart contracts:

- https://bscscan.com/address/0xddf07b29e9e9e1efc78cffbdf2650bacb7f28ce3#code
- https://bscscan.com/address/0x1053fa642c14a9a0f67910fa31819acb48859627#code
- https://bscscan.com/address/0xc64b28a9c6329ebbf31f386b2ad352fbc0a913a4#code
- https://bscscan.com/address/0x81a9c4efbc349288215db04bf7cf88494604bc56#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.

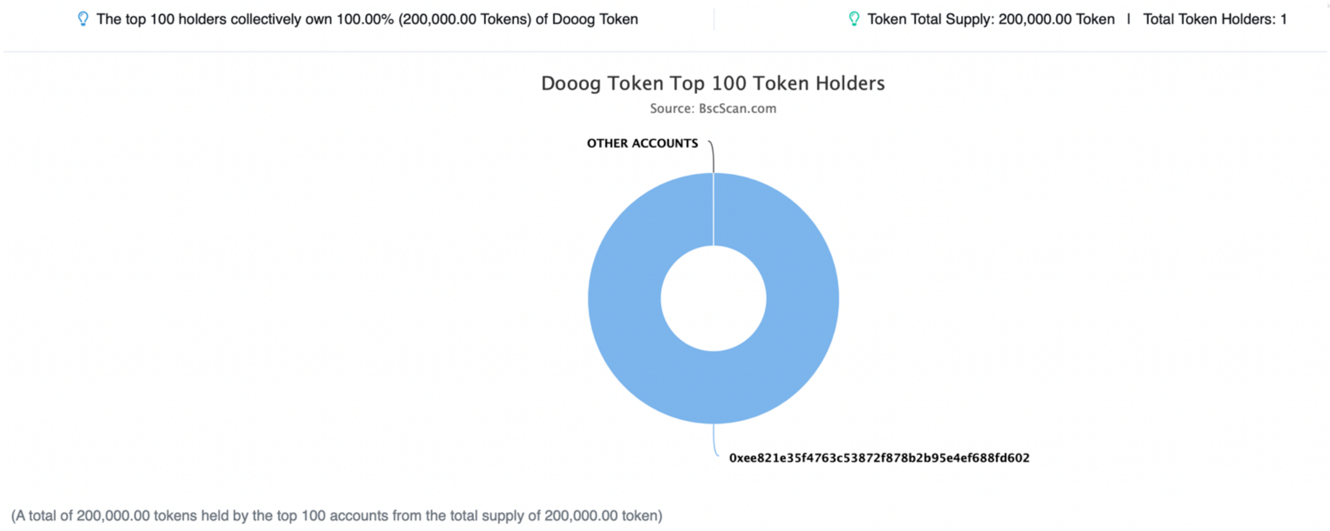
The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

Contracts Details

Token contract details for 29.05.2021

Contract name	Dooog Finance
Contract address	0xddf07b29e9e9e1efc78cffbdf2650bacb7f28ce3
Total supply	200,000
Token ticker	DOOOG
Decimals	18
Token holders	1
Transactions count	1
Top 100 holders dominance	100 %
Contract deployer address	0xee821e35f4763c53872f878b2b95e4ef688fd602
Contract’s current owner address	0x1053fa642c14a9a0f67910fa31819acb48859627

Dooog Token Distribution



The top 100 holders collectively own 100.00% (200,000.00 Tokens) of Dooog Token

Token Total Supply: 200,000.00 Token | Total Token Holders: 1

Dooog Token Top 100 Token Holders

Source: BscScan.com

(A total of 200,000.00 tokens held by the top 100 accounts from the total supply of 200,000.00 token)

Dooog Token Holders

Rank	Address	Quantity (Token)	Percent
1.	0xddf07b29e9e9e1efc78cffbdf2650bacb7f28ce3	200,000	100%

MasterChef functions details

+ [Int] IUniswapV2Router02 (IUniswapV2Router01)
  - [Ext] removeLiquidityETHSupportingFeeOnTransferTokens #
  - [Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens #
  - [Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens #
  - [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens ($)
  - [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #

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

+ ReentrancyGuard
  - [Int] <Constructor> #

+ 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

+ [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

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

+ [Lib] SafeBEP20
  - [Int] safeTransfer #
  - [Int] safeTransferFrom #
  - [Int] safeApprove #
  - [Int] safeIncreaseAllowance #
  - [Int] safeDecreaseAllowance #
  - [Prv] _callOptionalReturn #

+ [Int] IDooogReferral
  - [Ext] recordReferral #
  - [Ext] recordReferralCommission #
  - [Ext] getReferrer

+ [Int] IBEP20
  - [Ext] totalSupply
  - [Ext] decimals
  - [Ext] symbol
  - [Ext] name
  - [Ext] getOwner
  - [Ext] balanceOf
  - [Ext] transfer #
  - [Ext] allowance
  - [Ext] approve #
  - [Ext] transferFrom #

+  BEP20 (Context, IBEP20, Ownable)
  - [Pub] <Constructor> #
  - [Ext] getOwner
  - [Pub] name
  - [Pub] decimals
  - [Pub] symbol
```

- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Pub] mint #
  - modifiers: onlyOwner
- [Int] _transfer #
- [Int] _mint #
- [Int] _burn #
- [Int] _approve #
- [Int] _burnFrom #

+ DooogToken (BEP20)
  - [Pub] <Constructor> #
    - modifiers: BEP20
  - [Pub] mint #
    - modifiers: onlyOwner
  - [Int] _transfer #
    - modifiers: antiWhale
  - [Prv] swapAndLiquify #
    - modifiers: lockTheSwap,transferTaxFree
  - [Prv] swapTokensForEth #
  - [Prv] addLiquidity #
  - [Pub] maxTransferAmount
  - [Pub] isExcludedFromAntiWhale
  - [Ext] <Fallback> ($)
  - [Pub] updateTransferTaxRate #
    - modifiers: onlyOperator
  - [Pub] updateBurnRate #
    - modifiers: onlyOperator
  - [Pub] updateMaxTransferAmountRate #
    - modifiers: onlyOperator
  - [Pub] updateMinAmountToLiquify #
    - modifiers: onlyOperator
  - [Pub] setExcludedFromAntiWhale #
    - modifiers: onlyOperator
  - [Pub] updateSwapAndLiquifyEnabled #
    - modifiers: onlyOperator
  - [Pub] updateDooogSwapRouter #
    - modifiers: onlyOperator
  - [Pub] operator
  - [Pub] transferOperator #
    - modifiers: onlyOperator
  - [Ext] delegates

- [Ext] delegate #
- [Ext] delegateBySig #
- [Ext] getCurrentVotes
- [Ext] getPriorVotes
- [Int] _delegate #
- [Int] _moveDelegates #
- [Int] _writeCheckpoint #
- [Int] safe32
- [Int] getChainId

+ MasterChef (Ownable, ReentrancyGuard)
  - [Pub] <Constructor> #
  - [Ext] poolLength
  - [Pub] add #
    - modifiers: onlyOwner
  - [Pub] set #
    - modifiers: onlyOwner
  - [Pub] getMultiplier
  - [Ext] pendingDooog
  - [Pub] canHarvest
  - [Pub] massUpdatePools #
  - [Pub] updatePool #
  - [Pub] deposit #
    - modifiers: nonReentrant
  - [Pub] withdraw #
    - modifiers: nonReentrant
  - [Pub] emergencyWithdraw #
    - modifiers: nonReentrant
  - [Int] payOrLockupPendingDooog #
  - [Int] safeDooogTransfer #
  - [Pub] setDevAddress #
  - [Pub] setFeeAddress #
  - [Pub] updateEmissionRate #
    - modifiers: onlyOwner
  - [Pub] setDooogReferral #
    - modifiers: onlyOwner
  - [Pub] setReferralCommissionRate #
    - modifiers: onlyOwner
  - [Int] payReferralCommission #

($) = 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.	Medium 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

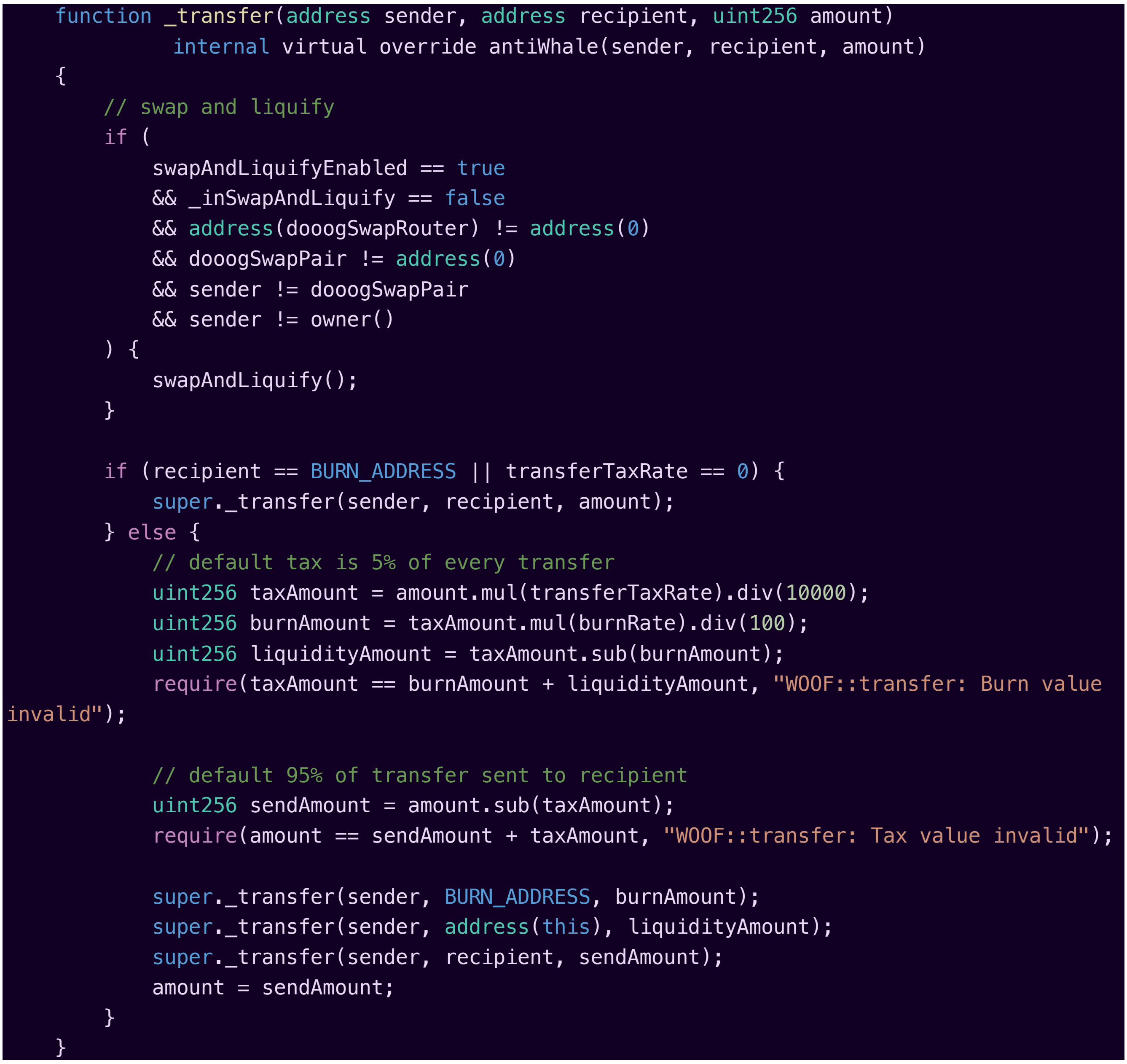
No high severity issues found.

Medium Severity Issues

1. Wrong burning

Issue:

There is sending tokens to the dead address in overridden _transfer functions, instead of burning them in token contract.



```
    function _transfer(address sender, address recipient, uint256 amount)
              internal virtual override antiWhale(sender, recipient, amount)
    {
        // swap and liquify
        if (
            swapAndLiquifyEnabled == true
            && _inSwapAndLiquify == false
            && address(dooogSwapRouter) != address(0)
            && dooogSwapPair != address(0)
            && sender != dooogSwapPair
            && sender != owner()
        ) {
            swapAndLiquify();
        }

        if (recipient == BURN_ADDRESS || transferTaxRate == 0) {
            super._transfer(sender, recipient, amount);
        } else {
            // default tax is 5% of every transfer
            uint256 taxAmount = amount.mul(transferTaxRate).div(10000);
            uint256 burnAmount = taxAmount.mul(burnRate).div(100);
            uint256 liquidityAmount = taxAmount.sub(burnAmount);
            require(taxAmount == burnAmount + liquidityAmount, "WOOF::transfer: Burn value
invalid");

            // default 95% of transfer sent to recipient
            uint256 sendAmount = amount.sub(taxAmount);
            require(amount == sendAmount + taxAmount, "WOOF::transfer: Tax value invalid");

            super._transfer(sender, BURN_ADDRESS, burnAmount);
            super._transfer(sender, address(this), liquidityAmount);
            super._transfer(sender, recipient, sendAmount);
            amount = sendAmount;
        }
    }
```

Recommendation:

There should be a burn instead of sending to the dead address.

✓ Low Severity Issues

1. Block gas limit

Issue:

The updateEmissionRate function can fail due to block gas limit if the pool size is too big.

2. add function issue

Issue:

If some LP token is added to the contract twice using function add, then the total amount of reward in function updatePool will be incorrect.

Recommendation:

Add the mapping from address to bool and check that same address will not be added twice.

Owner privileges

- Owner can drain tokens that are sent to the referral contract which is useful for withdrawing tokens sent by mistake to the contract.
- Owner can change the operator of the referral contract.
- Operator can change the transfer tax rate.
- Operator can change the burn rate.
- Operator can change the max transfer amount rate.
- Operator can change the min amount to liquify.
- Operator can change the router and pair contract addresses, which could be not audited contract

Conclusion

Smart contracts contain medium and low severity issues!

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.