



# Smart Contract Security Audit

## Audit details:

Audited project:	Dogefather
Deployer address:	0xc82a3e1516dde24e489e0155020991859790cf8f
Client contacts:	Dogefather team
Blockchain:	Binance Smart Chain
Project website:	<a href="https://t.me/dogefatherBSC">t.me/dogefatherBSC</a>

April, 2021  
[TechRate](#)

# 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 Dogefather to perform an audit of smart contracts:

- <https://bscscan.com/address/0x3d29aa78fb558f84112bbc48a84f371147a920c9#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

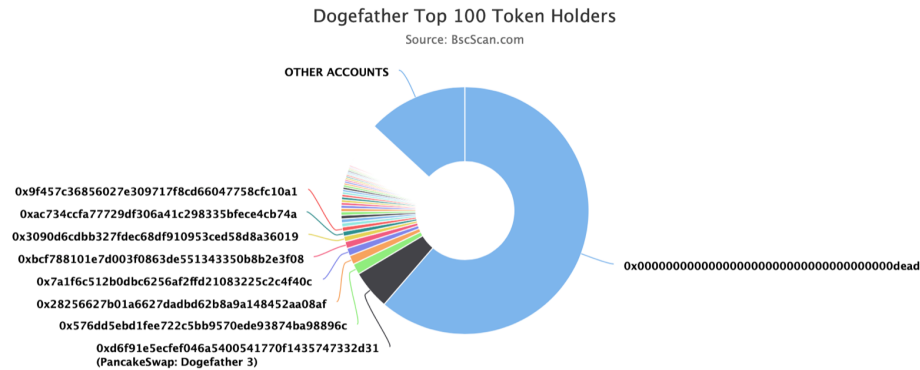
Token contract details for 30.04.2021.

Contract name:	Dogefather
Contract address:	0x3d29aa78fb558f84112bbc48a84f371147a920c9
Total supply:	1_000_000_000_000_000_000_000_000
Token ticker:	Dogefather
Decimals:	9
Token holders:	16856
Transactions count:	53518
Top 100 holders dominance:	86.93 %
Liquidity fee:	5
Tax fee:	5
Total fees:	98_306_239_245_233_968_247_686
Uniswap V2 pair:	0xd6f91e5ecfef046a5400541770f1435747332d31
Contract deployer address:	0xc82a3e1516dde24e489e0155020991859790cf8f
Contract's current owner address:	0x00

## Dogefather token distribution

💡 The top 100 holders collectively own 86.93% (869,252,388,962,618.00 Tokens) of Dogefather

💡 Token Total Supply: 1,000,000,000,000.00 Token | Total Token Holders: 16,856

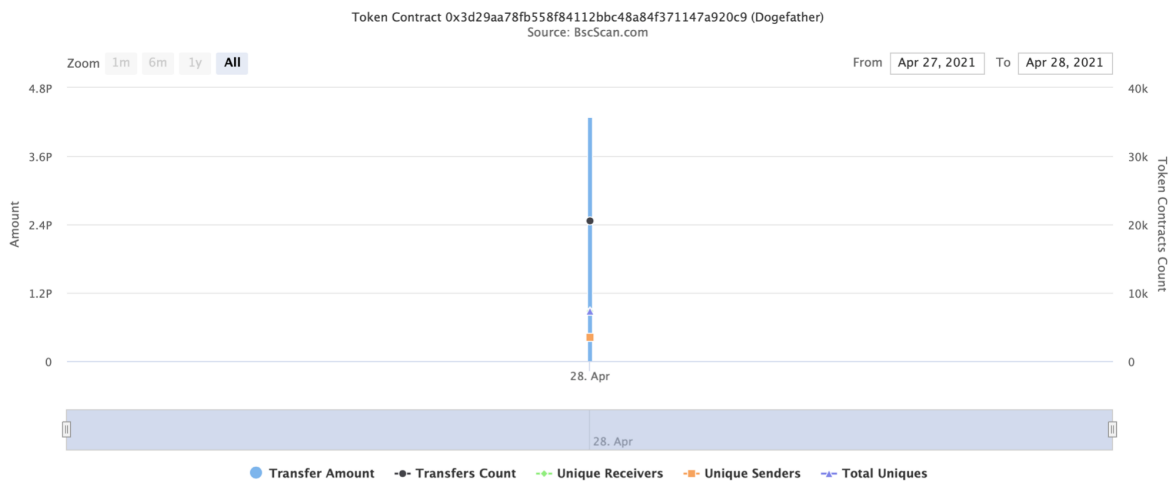


(A total of 869,252,388,962,618.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000,000.00 token)


## Dogefather contract interaction details

### Time Series: Token Contract Overview



Wed 28, Apr 2021 - Wed 28, Apr 2021



## Dogefather top 10 token holders

Rank	Address	Quantity (Token)	Percentage
1	<a href="#">0x00000000000000000000000000000000dead</a>	613,166,208,774,648.995699537	61.3166%
2	 PancakeSwap: Dogefather 3	51,279,315,930,866.3157034	5.1279%
3	<a href="#">0x576dd5ebd1fee722c5bb9570ede93874ba98896c</a>	14,120,958,783,569.279447002	1.4121%
4	<a href="#">0x28256627b01a6627dadbd62b8a9a148452aa08af</a>	12,008,330,984,553.688280415	1.2008%
5	<a href="#">0x7a1f6c512b0dbc6256af2ffd21083225c2c4f40c</a>	10,000,000,000,000	1.0000%
6	<a href="#">0xbcf788101e7d003f0863de551343350b8b2e3f08</a>	9,004,610,937,926.0665589	0.9005%
7	<a href="#">0x3090d6cdbb327fdec68df910953ced58d8a36019</a>	7,100,209,206,140.711784027	0.7100%
8	<a href="#">0xac734ccfa77729df306a41c298335bfece4cb74a</a>	6,517,491,451,609.40572137	0.6517%
9	<a href="#">0x9f457c36856027e309717f8cd66047758fc10a1</a>	5,640,892,114,254.816529513	0.5641%
10	<a href="#">0x72b7e2b1777c62039ce5cdd2851deb001c6ddccf</a>	5,352,418,663,009.477732586	0.5352%

## Dogefather LP token holders

Rank	Address	Quantity	Percentage
1	 <a href="#">0x00</a>	5,796.862554257370177862	<u>68.1287%</u>
2	 <a href="#">0x8d075ed0bfa8dddaaa78bf45375d3a4ed91978f8</a>	2,622.374999999999999	<u>30.8199%</u>
3	<a href="#">0x9e2c4933d6228a69149e3011cb1302f3e46a4263</a>	83.962762299172154545	<u>0.9868%</u>
4	<a href="#">0xc82a3e1516dde24e489e0155020991859790cf8f</a>	5.076440183549667996	<u>0.0597%</u>
5	<a href="#">0xdc798f72f05894a49d3164d17ded11205164e696</a>	0.419904733270223678	<u>0.0049%</u>

# 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 #

+ Dogefather (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 #
- [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 #

(\$ ) = 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 `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:

Use `EnumerableSet` instead of array or do not use long arrays.

# Conclusion

Smart contracts contain only low severity issues. LP pair contract security is not checked.

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.*