



**TechRate**  
AUDIT COMPANY

# Smart Contract Security Audit

# Audit Details



Audited project

**Donut Cat**



Deployer address

**0x4352d296D0B8Ed801c4F327B73e302519755789A**



Client contacts:

**Donut Cat team**



Blockchain

**Binance Smart Chain**



Project website:

**[www.donutcat.org](http://www.donutcat.org)**

# 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 Donut Cat to perform an audit of smart contracts:

<https://bscscan.com/address/0xb6cf9444994f0d5d7c8956d13e661f8649a4e98a#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

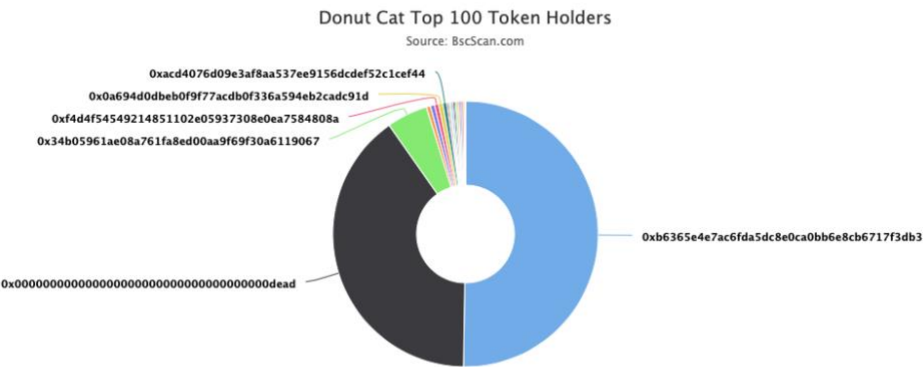
## Token contract details for 03.06.2021

Contract name	Donut Cat
Contract address	0xB6cf9444994f0d5D7c8956D13e661f8649a4e98A
Total supply	999_900_000_000
Token ticker	DCAT
Decimals	9
Token holders	17
Transactions count	58
Top 100 holders dominance	100.00%
Tax fee	0
Total fees	1000000000000000000
Contract deployer address	0x4352d296D0B8Ed801c4F327B73e302519755789A
Contract's current owner address	0xb6365e4e7ac6fda5dc8e0ca0bb6e8cb6717f3db3

# Donut Cat Token Distribution

The top 100 holders collectively own 100.00% (999,900,000,000.00 Tokens) of Donut Cat

Token Total Supply: 999,900,000,000.00 Token | Total Token Holders: 17

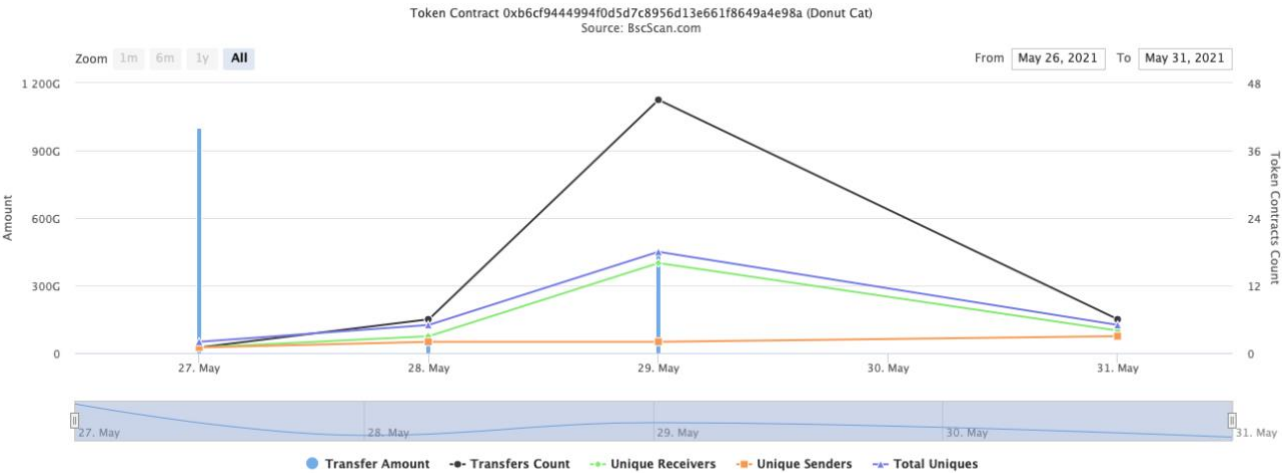


(A total of 999,900,000,000.00 tokens held by the top 100 accounts from the total supply of 999,900,000,000.00 token)

# Donut Cat Contract Interaction Details

Time Series: Token Contract Overview

Thu 27, May 2021 - Mon 31, May 2021





# Donut Cat Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	<a href="#">0xb6365e4e7ac6fda5dc8e0ca0bb6e8cb6717f3db3</a>	502,399,999,999.999999999	50.2450%
2	<a href="#">0x0000000000000000000000000000000000dead</a>	400,000,000,000	40.0040%
3	<a href="#">0x34b05961ae08a761fa8ed00aa9f69f30a6119067</a>	50,000,000,000	5.0005%
4	<a href="#">0x25ccc01872ad1a669f3e2e7283f4c52420980bfa</a>	5,000,000,000	0.5001%
5	<a href="#">0x2f5f0b0cf1a76d4492a6e3fad5f465e094ef660a</a>	5,000,000,000	0.5001%
6	<a href="#">0xf4d4f54549214851102e05937308e0ea7584808a</a>	5,000,000,000	0.5001%
7	<a href="#">0x0a694d0dbeb0f9f77acdb0f336a594eb2cad91d</a>	5,000,000,000	0.5001%
8	<a href="#">0xacd4076d09e3af8aa537ee9156dcdef52c1cef44</a>	5,000,000,000	0.5001%
9	<a href="#">0xf39e0465851ce5fd8104a9e0f194b0ab32839a44</a>	2,500,000,000	0.2500%
10	<a href="#">0xd30eb5a988a01047b6ff8d2dd7a0956328b06aca</a>	2,500,000,000	0.2500%



# Contract functions details

## + Context

- [Int] \_msgSender
- [Int] \_msgData

## + [Int] IBEP20

- [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] owner
- [Pub] renounceOwnership #
  - modifiers: onlyOwner
- [Pub] transferOwnership #
  - modifiers: onlyOwner

## + CoinToken (Context, IBEP20, 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] isExcluded
- [Pub] totalFees
- [Pub] totalBurn
- [Pub] totalCharity
- [Pub] deliver #
- [Pub] reflectionFromToken
- [Pub] tokenFromReflection
- [Ext] excludeAccount #
  - modifiers: onlyOwner
- [Ext] includeAccount #
  - modifiers: onlyOwner
- [Ext] setAsCharityAccount #
  - modifiers: onlyOwner
- [Pub] updateFee #
  - modifiers: onlyOwner
- [Prv] \_approve #
- [Prv] \_transfer #
- [Prv] \_transferStandard #
- [Prv] \_standardTransferContent #
- [Prv] \_transferToExcluded #
- [Prv] \_excludedFromTransferContent #
- [Prv] \_transferFromExcluded #
- [Prv] \_excludedToTransferContent #
- [Prv] \_transferBothExcluded #
- [Prv] \_bothTransferContent #
- [Prv] \_reflectFee #
- [Prv] \_getValues
- [Prv] \_getTBasics
- [Prv] getTTransferAmount
- [Prv] \_getRBasics
- [Prv] \_getRTransferAmount
- [Prv] \_getRate
- [Prv] \_getCurrentSupply
- [Prv] \_sendToCharity #
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Prv] \_getTaxFee

(\$) = 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 `includeAccount()` 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 includeAccount(address account) external onlyOwner() {
    require(!_isExcluded[account], "Account is already included");
    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:

Check that the excluded array length is not too big.

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

- Owner can change charity address.

```
function setAsCharityAccount(address account) external onlyOwner() {  
    require(!_isCharity[account], "Account is already charity account");  
    _isCharity[account] = true;  
    FeeAddress = account;  
}
```

- Owner can change fees.

```
function updateFee(uint256 _txFee,uint256 _burnFee,uint256 _charityFee) onlyOwner() public{  
    _TAX_FEE = _txFee* 100;  
    _BURN_FEE = _burnFee * 100;  
    _CHARITY_FEE = _charityFee* 100;  
    ORIG_TAX_FEE = _TAX_FEE;  
    ORIG_BURN_FEE = _BURN_FEE;  
    ORIG_CHARITY_FEE = _CHARITY_FEE;  
}
```

# Conclusion

Smart contracts contain low severity issues!

Liquidity locking details provided by the team:

<https://dxsale.app/app/pages/dxlockview?id=2661&add=0&type=lpdefi&chain=BSC>

Ownership renounce details provided by the team:

<https://bscscan.com/tx/0xd2abd2af076e026cdd470b572a6ba91df5801c506b3ba7d77ad1155cdebbfa7b>

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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.***