



Smart Contract Security Audit

Audit details:

Audited project:	CLOUT
Deployer address:	0x12b75341a4e9c9e5e550728f48a41695f8bf62d3
Client contacts:	CLOUT team
Blockchain:	Binance Smart Chain
Project website:	https://www.cloutdefi.app

May, 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 CLOUT to perform an audit of smart contracts:

- <https://bscscan.com/address/0x0fFB09e25d2Cb7D56EF3eA7Fac08756Dfb579208#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

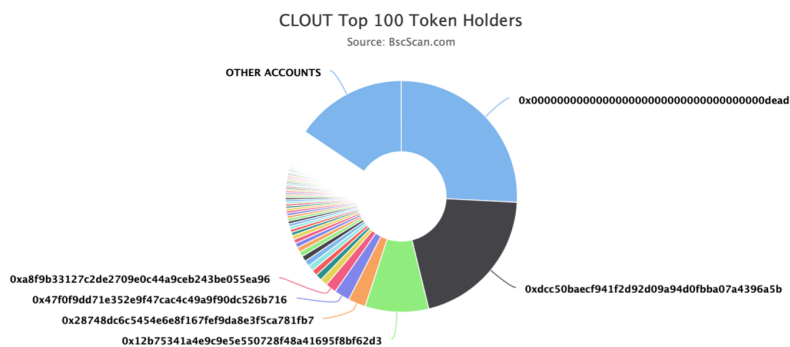
Token contract details for 15.05.2021.

Contract name:	CLOUT
Contract address:	0x0fFB09e25d2Cb7D56EF3eA7Fac08756Dfb579208
Total supply:	932639458240195115
Token ticker:	CLOUT
Decimals:	9
Token holders:	1841
Transactions count:	4596
Top 100 holders dominance:	84.45 %
Burn fee:	3
Tax fee:	3
Dev fee:	1
Total fees:	67360541759804885
Total donation BNB:	70393842532391350826
Pancake V2 pair:	0xdcc50baecf941f2d92d09a94d0fbba07a4396a5b
Contract deployer address:	0x12b75341a4e9c9e5e550728f48a41695f8bf62d3
Contract's current owner address:	0x12b75341a4e9c9e5e550728f48a41695f8bf62d3

CLOUT token distribution

💡 The top 100 holders collectively own 84.45% (787,571,194.07 Tokens) of CLOUT

💡 Token Total Supply: 932,639,458.24 Token | Total Token Holders: 1,841

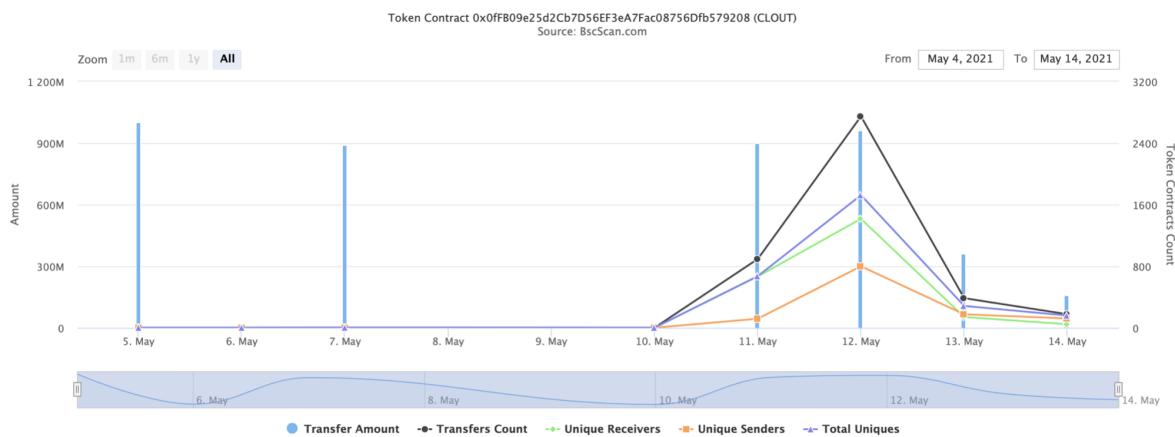


(A total of 787,571,194.07 tokens held by the top 100 accounts from the total supply of 932,639,458.24 token)

CLOUT contract interaction details

Time Series: Token Contract Overview



Wed 5, May 2021 - Fri 14, May 2021



CLOUT top 10 token holders

Rank	Address	Quantity (Token)	Percentage
1	0x00000000000000000000000000000000dead	240,767,446.916930794	25.8157%
2	 0xdcc50baecf941f2d92d09a94d0fba07a4396a5b	190,077,353.989138059	20.3806%
3	0x12b75341a4e9c9e5e550728f48a41695f8bf62d3	82,760,317.357059767	8.8738%
4	0x28748dc6c5454e6e8f167fef9da8e3f5ca781fb7	22,786,282.888646655	2.4432%
5	0x47f0f9dd71e352e9f47cac4c49a9f0dc526b716	20,000,000	2.1445%
6	0xa8f9b33127c2de2709e0c44a9ceb243be055ea96	14,282,079.208313935	1.5314%
7	0xd8f5fdae64af7c24da03f10fa2772d77a73b6d26	9,503,253.726056346	1.0190%
8	0xfe82044fa1ceb0f0c994aae6df32797d4bcbca92a	8,263,587.058842629	0.8860%
9	 0x3f4d6bf08cb7a003488ef082102c2e6418a4551e	7,775,186.660045159	0.8337%
10	0x0754eee8bd9d4b0093434cf75e9ae55fb318b869	7,736,301.478673425	0.8295%

CLOUT LP token holders

Rank	Address	Quantity	Percentage
1	 0xc765bddb93b0d1c1a88282ba0fa6b2d00e3e0c83	7.009535707681072128	99.0000%
2	0xaa3d85ad9d128dfecb554240857a546dfa643eb1	0.070803390986677496	1.0000%
3	 0x00	0.0000000000000001	0.0000%

Contract functions details

+ Context

- [Int] _msgSender
- [Int] _msgData

+ [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

+ [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] getUnlockTime
- [Pub] getTime
- [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] 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 #

+ CLOUTCOIN (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] totalBurn
- [Pub] totalDonationBNB
- [Pub] minimumTokensBeforeSwapAmount
- [Pub] deliver #
- [Pub] reflectionFromToken
- [Pub] tokenFromReflection
- [Pub] excludeFromReward #
 - modifiers: onlyOwner
- [Ext] includeInReward #
 - modifiers: onlyOwner
- [Prv] _approve #
- [Prv] _transfer #
- [Prv] swapAndLiquify #

- modifiers: lockTheSwap
- [Prv] swapTokensForBNB #
- [Prv] _tokenTransfer #
- [Prv] _transferStandard #
- [Prv] _transferToExcluded #
- [Prv] _transferFromExcluded #
- [Prv] _transferBothExcluded #
- [Prv] _reflectFee #
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Prv] _getRate
- [Prv] _getCurrentSupply
- [Prv] _takeLiquidity #
- [Prv] calculateTaxFee
- [Prv] calculateBurnFee
- [Prv] calculateLiquidityFee
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] isExcludedFromFee
- [Pub] excludeFromFee #
 - modifiers: onlyOwner
- [Pub] includeInFee #
 - modifiers: onlyOwner
- [Ext] setTaxFeePercent #
 - modifiers: onlyOwner
- [Ext] setBurnFeePercent #
 - modifiers: onlyOwner
- [Ext] setDonationFeePercent #
 - modifiers: onlyOwner
- [Ext] setDonationAddress1 #
 - modifiers: onlyOwner
- [Ext] setMaxTxPercent #
 - modifiers: onlyOwner
- [Pub] getUnlockTimeSeconds
- [Pub] getUnlockTimeDays
- [Ext] setNumTokensSellToAddToLiquidity #
 - modifiers: onlyOwner
- [Pub] setSwapAndLiquifyEnabled #
 - modifiers: onlyOwner
- [Prv] TransferCharityBNB #
- [Ext] <Fallback> (\$)

(\$) = 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.

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

- ❑ Owner can change the tax, burn and dev fee.
- ❑ Owner can change the maximum transaction amount.
- ❑ Owner can exclude from the fee.
- ❑ Owner can change the dev address to any address. By the way, all the liquidity will be transferred to the dev wallet.
- ❑ Owner can lock and unlock. By the way, using these functions the owner could leave as owner even after the ownership was renounced.

Recommendations

- ❑ There is using dev fee and sending to the dev wallet instead of charity. The dev has the ability to raise the dev fee and as a result liquidate more and more clout for every transaction

Conclusion

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

Liquidity locking details provided by the team -

<https://unicrypt.network/amm/pancakev2/ilo/0x1fD543a61878B876494b625B2Ecc0749346a234E>

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.