Smart Contract Security Audit

Audit details:

Audited project:	NoCapCoin
Deployer address:	0x1bd164d8532900d377feecfdbf6ace43bbd1f94d
Client contacts:	NoCapCoin team
Blockchain:	Binance Smart Chain
Project website:	https://www.nocapcoin.net

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 NoCapCoin to perform an audit of smart contracts:

- *https://bscscan.com/address/0x93dfc1e09b7164bafd4860963b6d94cbc4284774#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

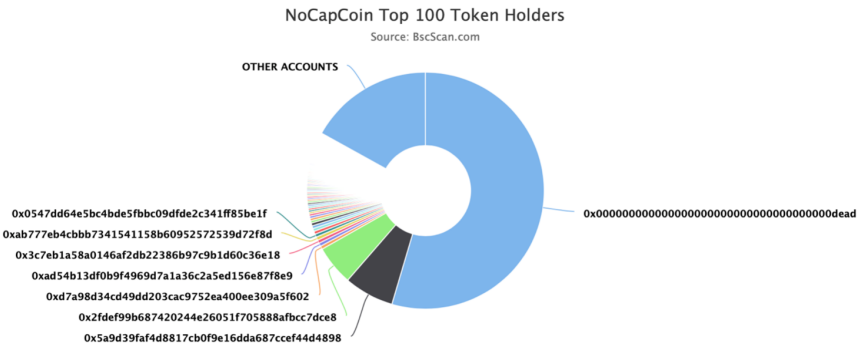
Token contract details for 13.05.2021.

Contract name:	NoCapCoin
Contract address:	0x93dfc1e09b7164bafd4860963b6d94cbc4284774
Total supply:	100000000000000000000000
Token ticker:	NCC
Decimals:	9
Token holders:	8316
Transactions count:	15677
Top 100 holders dominance:	83.06 %
Liquidity fee:	5
Tax fee:	5
Total fees:	91255070859486467025420
Uniswap V2 pair:	0x5a9d39faf4d8817cb0f9e16dda687ccef44d4898
Contract deployer address:	0x1bd164d8532900d377feecfdbf6ace43bbd1f94d
Contract’s current owner address:	0x0000000000000000000000000000000000000000

NoCapCoin token distribution

The top 100 holders collectively own 83.06% (830,607,889,141,915.00 Tokens) of NoCapCoin

Token Total Supply: 1,000,000,000,000,000.00 Token | Total Token Holders: 8,316

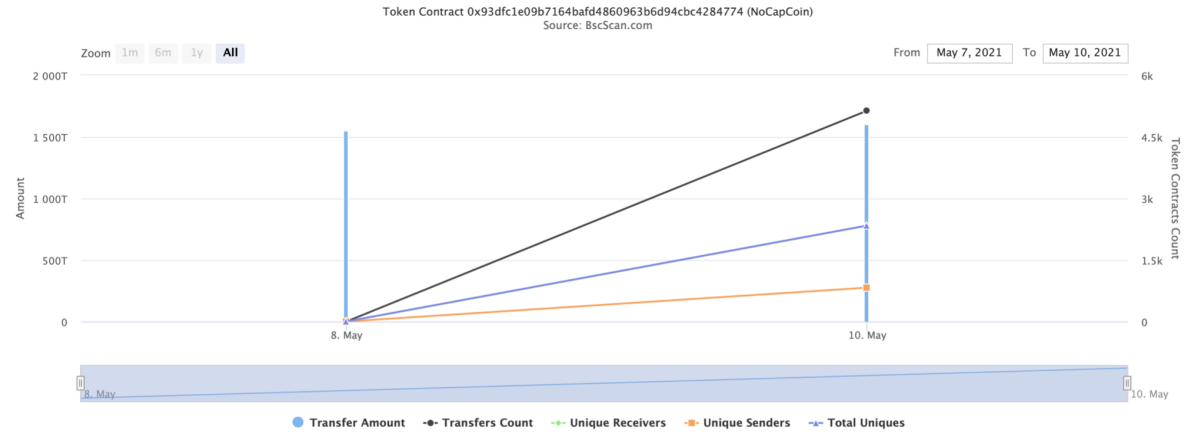


(A total of 830,607,889,141,915.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000,000.00 token)

NoCapCoin contract interaction details

Time Series: Token Contract Overview

Sat 8, May 2021 - Mon 10, May 2021



NoCapCoin top 10 token holders

Rank	Address	Quantity (Token)	Percentage
1	0x000000000000000000000000000000000000dead	545,760,828,323,322.469794627	54.5761%
2	0x5a9d39faf4d8817cb0f9e16dda687ccef44d4898	67,893,581,606,917.97409343	6.7894%
3	0x2fdef99b687420244e26051f705888afbcc7dce8	54,237,654,487,705.572624689	5.4238%
4	0xd7a98d34cd49dd203cac9752ea400ee309a5f602	4,499,301,796,243.997716004	0.4499%
5	0xad54b13df0b9f4969d7a1a36c2a5ed156e87f8e9	4,499,203,793,031.989538237	0.4499%
6	0x3c7eb1a58a0146af2db22386b97c9b1d60c36e18	4,492,085,727,837.409950893	0.4492%
7	0xab777eb4cbbb7341541158b60952572539d72f8d	4,490,101,874,411.770561211	0.4490%
8	0x0547dd64e5bc4bde5fbbc09dfde2c341ff85be1f	4,226,422,464,383.436938347	0.4226%
9	0x2b08954b8c92bde243ba9495daaa276baad1d2fa	4,162,906,844,583.144426117	0.4163%
10	0x7c69e5ae3dbba0c04831c1adc1087fedc06e52f6	3,988,306,564,140.857650503	0.3988%

NoCapCoin LP token holders

Rank	Address	Quantity	Percentage
1	0xeb3a9c56d963b971d320f889be2fb8b59853e449	4,429.081349601838057546	74.9694%
2	0x0000000000000000000000000000000000000000	1,257.289314779992849942	21.2817%
3	0x1bd164d8532900d377feecfdbf6ace43bbd1f94d	123.078827125723404384	2.0833%
4	0x07d80ae6f36a5e08dca74ce884a24d39db9934ed	75.69353721676229821	1.2812%
5	0x92db17c02432ee10702b4b787f4cab30eeace79a	0.00334863041330550 9	0.0001%

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

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

+ NoCapCoin (Context, IBEP20, Ownable)
  - [Pub] <Constructor> #
    - modifiers: Ownable
  - [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
  - [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> ($)
  - [Ext] setUniswapRouter #

  - modifiers: onlyOwner
- [Ext] setUniswapPair #
  - modifiers: onlyOwner
- [Ext] setExcludedFromAutoLiquidity #
  - modifiers: onlyOwner
- [Ext] setAntiWhaleEnabled #
  - modifiers: onlyOwner
- [Ext] setAntiWhaleThreshold #
  - modifiers: onlyOwner
- [Ext] setExcludedFromAntiWhale #
  - modifiers: onlyOwner
- [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] swapTokensForBnb #
- [Prv] addLiquidity #
- [Prv] _tokenTransfer #
- [Prv] _transferStandard #
- [Prv] _transferBothExcluded #
- [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.

Owner privileges

- ❏ Owner can change the tax and liquidity fee.
- ❏ Owner can change the maximum transaction amount.
- ❏ Owner can exclude from the fee.
- ❏ Owner can change the uniswap router and pair.

Conclusion

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

Liquidity locking info provided by the team -
https://dxsale.app/app/pages/dxlockview?id=0&add=0x1BD164d8532900d377feecFdBF6aCE43Bbd1F94d&type=lplock&chain=BSC

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