



Smart Contract Security Audit

Audit details:

Audited project:	LaikaCoin
Deployer address:	0x2e6b66c4770878dbdf0406df601fca153a6f73b6
Client contacts:	LaikaCoin team
Blockchain:	Binance Smart Chain
Project website:	https://www.laikacoin.com

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 LaikaCoin to perform an audit of smart contracts:

- <https://bscscan.com/address/0x270877fbdadd2e28c7eaf08e528691b95684207e#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.

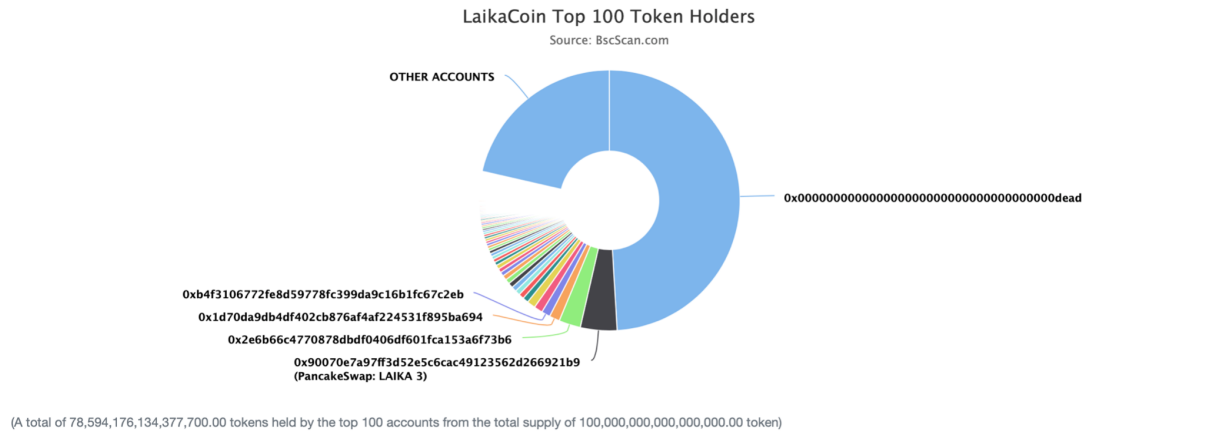
Contracts details

Token contract details for 24.04.2021.

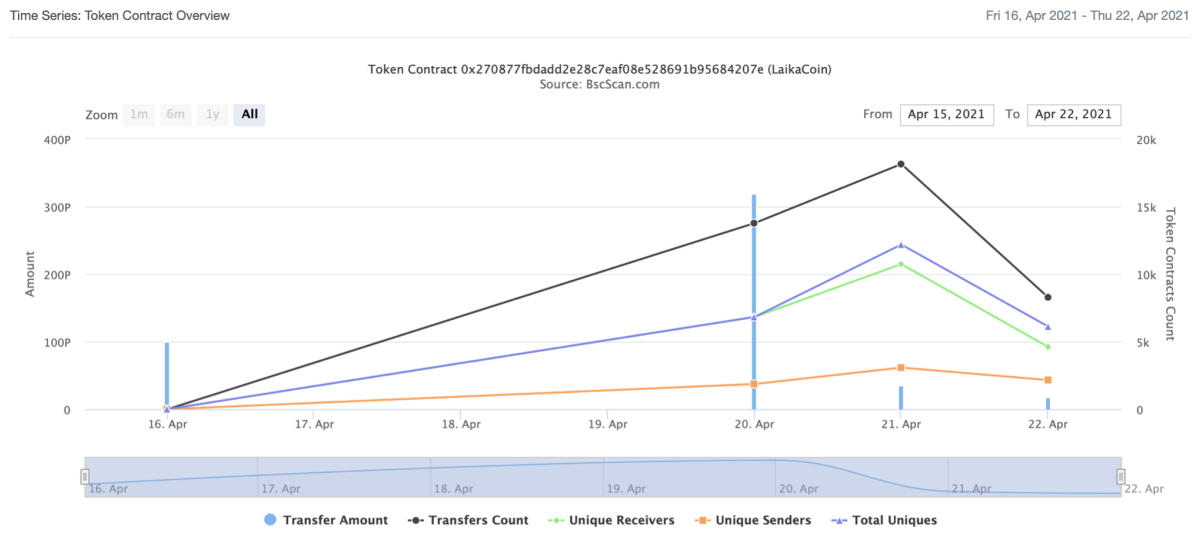
Contract name:	LaikaCoin
Contract address:	0x270877fbdadd2e28c7eaf08e528691b95684207e
Total supply:	100_000_000_000_000_000_000_000
Token ticker:	LAIKA
Decimals:	9
Token holders:	21144
Transactions count:	46053
Top 100 holders dominance:	78.59 %
Liquidity fee:	5
Tax fee:	3
Total fees:	8_794_777_082_752_860_200_575_270
Uniswap V2 pair:	0x90070e7a97ff3d52e5c6cac49123562d266921b9
Contract deployer address:	0x2e6b66c4770878dbdf0406df601fca153a6f73b6
Contract's current owner address:	0x00

LaikaCoin token distribution


The top 100 holders collectively own 78.59% (78,594,176,134,377,700.00 Tokens) of LaikaCoin | Token Total Supply: 100,000,000,000,000.00 Token | Total Token Holders: 21,144





LaikaCoin contract interaction details



LaikaCoin top 10 token holders

Rank	Address	Quantity (Token)	Percentage
1	0x00000000000000000000000000000000dead	49,059,819,596,730,600.454665916	49.0598%
2	 PancakeSwap: LAIKA 3	4,547,765,152,344,110.288391231	4.5478%
3	0x2e6b66c4770878dbdf0406df601fca153a6f73b6	2,678,686,600,185,150.769155879	2.6787%
4	0x1d70da9db4df402cb876af4af224531f895ba694	1,300,043,704,832,440.079296977	1.3000%
5	0xb4f3106772fe8d59778fc399da9c16b1fc67c2eb	1,071,213,842,131,020.50101434	1.0712%
6	0x4775a8d8fb9336deea65179c1c30abbf37b6f1df	1,070,909,255,772,710.734791077	1.0709%
7	0xf8a2d291ce72bd83d010151ca1c14580ef05181f	1,049,410,447,921,970.623715801	1.0494%
8	0x6c1fc969375fbd55e16200381e3cb49b69dd954	710,368,833,452,394.690728799	0.7104%
9	0x1d038e806729fd8ee3a81e5bd6fe65d7b2cdb50b	657,915,379,270,715.809686984	0.6579%
10	0x48902c5b307737574a067005c90cf695425c006c	620,300,084,543,358.68230093	0.6203%

LaikaCoin LP token holders

Rank	Address	Quantity	Percentage
1	 0x000000000000000000000000000000000000	45,070.005322197049360157	65.1847%
2	 0xeb3a9c56d963b971d320f889be2fb8b59853e449	17,393.730898241713541362	25.1565%
3	0x2e6b66c4770878dbdf0406df601fca153a6f73b6	5,977.631317361701050546	8.6454%
4	0x9e2c4933d6228a69149e3011cb1302f3e46a4263	672.25155045537869297	0.9723%
5	0x43f46086f40367dbab4d7b0c48d5401d74b4a4a4	27.694832828936398103	0.0401%
6	0x44221ae5d2ce5d4ccf6203cd2d7871f6c480c453	0.658462879384406198	0.0010%
7	0xb0c3035edb91ba8f35ab1e01f4b5025d4df86d66	0.027855585175498018	0.0000%

LAIKA / WBNB liquidity locking on DXSale



LAIKA / WBNB

LAIKA ADDRESS |→

LP TOKEN ADDRESS |→

WBNB ADDRESS |→

DxLock Certified Liquidity Locker



148:14:53:35

Total LP Tokens
Locked LP Tokens
Unlock Date

69142.00023954934
17393.730898241713
20 Sep 2021 at 04:28

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 #

+ LaikaCoin (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.