



TechRate

AUDIT COMPANY

Smart Contract Security Audit

TechRate

August, 2021

Audit Details



Audited project

Bobo Cash



Deployer address

0x1bb9cc6efb01d51e6b08401423c2518226c7637d



Client contacts:

Bobo Cash team



Blockchain

Ethereum



Project website:

<http://bobocash.com/>

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 Bobo Cash to perform an audit of smart contracts:

<https://etherscan.io/address/0xf53c24f7729c88c110265929c7124e6259efccab#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 17.08.2021

Contract name	Bobo Cash
Contract address	0xF53c24f7729C88C110265929c7124E6259eFccAB
Total supply	1,000,000,000,000
Token ticker	BOBO
Decimals	9
Token holders	277
Transactions count	764
Top 100 holders dominance	98.22%
Burn fee	1
Reward fee	4
Total HODL rRewards	16818356633211895566
Uniswap V2 pair	0xde089c608c5fb839c89b3f9cdd99bd31c2d35578
Contract deployer address	0x1bb9cc6efb01d51e6b08401423c2518226c7637d
Contract's current owner address	0xf779490c41c8e51c4be0afac87ca7fe77e51018b

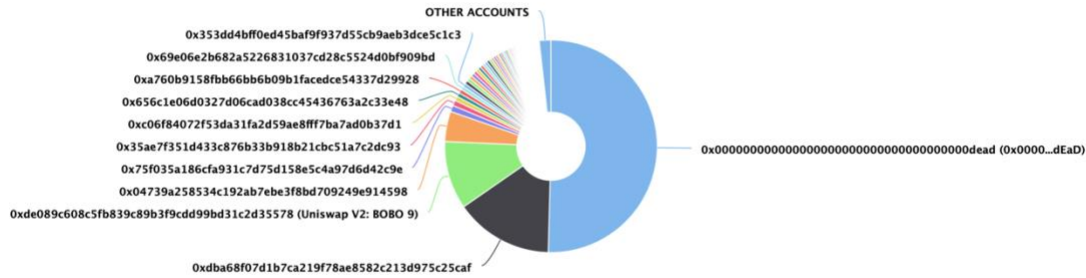
Bobo Cash Token Distribution

The top 100 holders collectively own 98.22% (982,200,422,194.98 Tokens) of Bobo Cash

Token Total Supply: 1,000,000,000,000.00 Token | Total Token Holders: 277

Bobo Cash Top 100 Token Holders

Source: Etherscan.io



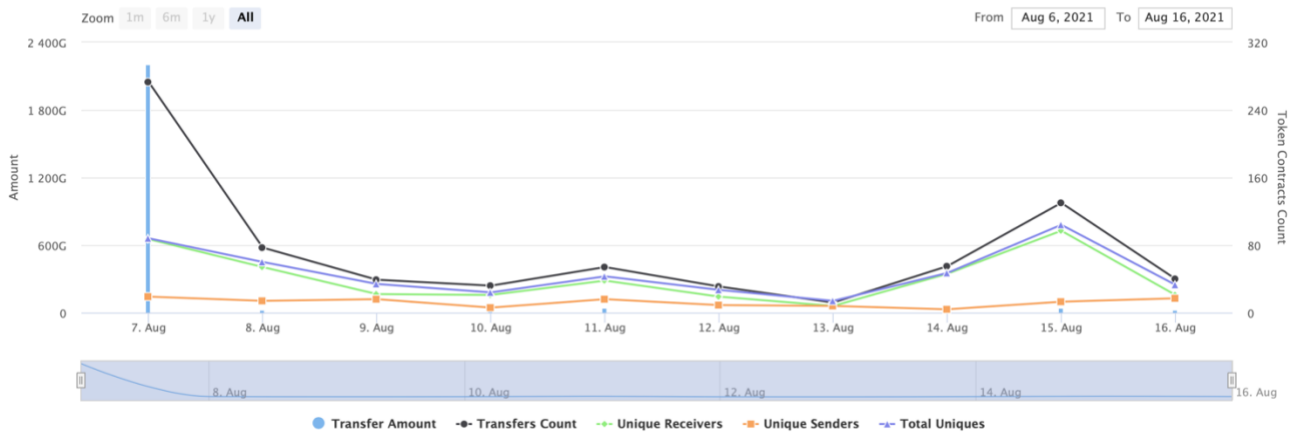
(A total of 982,200,422,194.98 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000.00 token)

Bobo Cash Contract Interaction Details

Time Series: Token Contract Overview

Sat 7, Aug 2021 - Mon 16, Aug 2021

Token Contract 0xf53c24f7729c88c110265929c7124e6259efccab (Bobo Cash)
Source: Etherscan.io



Bobo Cash Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	0x0000...dEaD	504,127,045,097.583684187	50.4127%
2	0xdba68f07d1b7ca219f78ae8582c213d975c25caf	149,475,000,000	14.9475%
3	Uniswap V2: BOBO 9	103,659,863,428.894220854	10.3660%
4	0x04739a258534c192ab7ebe3f8bd709249e914598	45,954,120,375.876057555	4.5954%
5	0x75f035a186cfa931c7d75d158e5c4a97d6d42c9e	9,559,139,597.820730089	0.9559%
6	0x35ae7f351d433c876b33b918b21cbc51a7c2dc93	8,194,678,658.103678979	0.8195%
7	0xc06f84072f53da31fa2d59ae8fff7ba7ad0b37d1	6,714,459,976.529262075	0.6714%
8	0x656c1e06d0327d06cad038cc45436763a2c33e48	6,221,952,352.158855421	0.6222%
9	0xa760b9158fbb66bb6b09b1facedce54337d29928	6,068,051,992.747568129	0.6068%
10	0x69e06e2b682a5226831037cd28c5524d0bf909bd	5,371,845,842.201647196	0.5372%



Contract functions details

- + [Int] IERC20
 - [Ext] totalSupply
 - [Ext] balanceOf
 - [Ext] transfer #
 - [Ext] allowance
 - [Ext] approve #
 - [Ext] transferFrom #
- + ReentrancyGuard
 - [Pub] <Constructor> #
- + [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)
 - [Pub] <Constructor> #
 - [Pub] owner
 - [Pub] renounceOwnership #
 - modifiers: onlyOwner
 - [Pub] transferOwnership #
 - modifiers: onlyOwner
- + [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 #
- + BoboCash (Context, IERC20, Ownable, ReentrancyGuard)
 - [Pub] <Constructor> #
 - [Pub] name
 - [Pub] symbol
 - [Pub] decimals
 - [Pub] totalSupply

- [Pub] balanceOf
- [Ext] withdraw #
 - modifiers: onlyOwner,nonReentrant
- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Pub] totalHODLrRewards
- [Pub] totalBurned
- [Pub] deliver #
- [Pub] reflectionFromToken
- [Pub] tokenFromReflection
- [Pub] isExcludedFromReward
- [Pub] excludeFromReward #
 - modifiers: onlyOwner
- [Ext] includeInReward #
 - modifiers: onlyOwner
- [Pub] excludeFromFee #
 - modifiers: onlyOwner
- [Pub] includeInFee #
 - modifiers: onlyOwner
- [Ext] setRewardFeePercent #
 - modifiers: onlyOwner
- [Ext] setBurnFeePercent #
 - modifiers: onlyOwner
- [Ext] setMaxTxPercent #
 - modifiers: onlyOwner
- [Ext] <Fallback> (\$)
- [Prv] _HODLrFee #
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Pub] _getRate
- [Pub] _getCurrentSupply
- [Prv] calculateRewardFee
- [Prv] calculateBurnFee
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] isExcludedFromFee
- [Prv] _approve #
- [Prv] _transfer #
- [Prv] _tokenTransfer #
- [Prv] _transferBurn #
- [Prv] _transferFromExcluded #
- [Prv] _transferToExcluded #
- [Prv] _transferStandard #
- [Prv] _transferBothExcluded #

(\$) = 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:

Check that the excluded array length is not too big.

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

- **Owner can change reward and burn fee.**
- **Owner can change the maximum transaction amount.**
- **Owner can exclude from the fee.**
- **Owner can withdraw tokens and BNBs from the contract.**

Conclusion

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

Liquidity locking details provided by the team:

<https://app.unicrypt.network/amm/uni-v2/pair/0xDE089C608C5FB839c89B3f9CdD99BD31C2D35578>

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.