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AUDIT COMPANY

Smart Contract Security Audit

TechRate

December, 2021

Audit Details

Audited project

Belka

Deployer address

0x66629195f6a31d24a7f1c732865dda612ee1db71

Client contacts:

Belka team

Blockchain

Binance Smart Chain

Project website:

https://belkaproject.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 Belka to perform an audit of smart contracts:

https://bscscan.com/address/0x50107870f4b1cb10b2af0182ecdb78c5c1bc3d28#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 05.12.2021

Contract name	Belka
Contract address	0x50107870F4b1cb10B2Af0182eCdB78C5C1Bc3d28
Total supply	1,000,000,000
Token ticker	BLK
Decimals	9
Token holders	3
Transactions count	5
Top 100 holders dominance	100.00%
Buy fee	15
Sell fee	15
Project wallet	0xe36d237b56351ede2ba147db3e3c74bb166cfb1b
Operations wallet	0x7e481f71e5e9fdeecbed7ce70c5ae12d5f2031cd
Contract deployer address	0x66629195f6a31d24a7f1c732865dda612ee1db71
Contract's current owner address	0x66629195f6a31d24a7f1c732865dda612ee1db71

Belka Token Distribution

The top 100 holders collectively own 100.00% (1,000,000,000.00 Tokens) of Belka

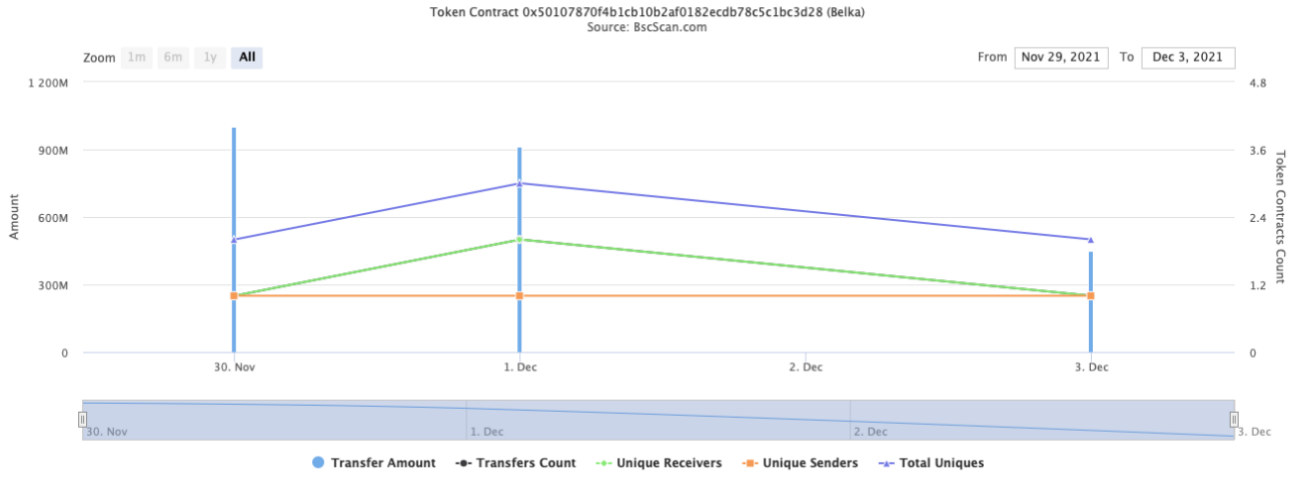
Token Total Supply: 1,000,000,000.00 Token | Total Token Holders: 3

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

Belka Contract Interaction Details

Time Series: Token Contract Overview

Tue 30, Nov 2021 - Fri 3, Dec 2021



Belka Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	Burn Address	460,275,000	46.0275%
2	0xb80d25b64fc2a4bad14158026e6b338d8ace6259	451,725,000	45.1725%
3	0x66629195f6a31d24a7f1c732865dda612ee1db71	88,000,000	8.8000%

Contract functions details

+ Context
  - [Int] _msgSender

+ [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

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

+ [Int] IUniswapV2Factory
  - [Ext] createPair #

+ [Int] IUniswapV2Router02
  - [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #
  - [Ext] factory
  - [Ext] WETH
  - [Ext] addLiquidityETH ($)

+ Belka (Context, IERC20, Ownable)
  - [Pub] <Constructor> #
  - [Pub] name
  - [Pub] symbol
  - [Pub] decimals
  - [Pub] totalSupply
  - [Pub] balanceOf
  - [Pub] transfer #
  - [Pub] allowance
  - [Pub] approve #
  - [Pub] transferFrom #
  - [Ext] setIsExcludedFromFee #
    - modifiers: onlyOwner
  - [Pub] isExcludedFromFee
  - [Ext] setProjectWallet #

    - modifiers: onlyOwner
  - [Ext] setBuybackWallet #
    - modifiers: onlyOwner
  - [Ext] setMarketingWallet #
    - modifiers: onlyOwner
  - [Ext] setOperationsWallet #
    - modifiers: onlyOwner
  - [Prv] tokenFromReflection
  - [Prv] removeAllFee #
  - [Prv] restoreAllFee #
  - [Ext] setRemoveAllFee #
    - modifiers: onlyOwner
  - [Ext] setRestoreAllFee #
    - modifiers: onlyOwner
  - [Prv] _approve #
  - [Prv] _transfer #
  - [Prv] swapTokensForEth #
    - modifiers: lockTheSwap
  - [Prv] _tokenTransfer #
  - [Prv] _transferStandard #
  - [Prv] _reflectFee #
  - [Prv] _calculateReflectTransfer #
  - [Ext] <Fallback> ($)
  - [Prv] _getRate
  - [Prv] _getCurrentSupply
  - [Ext] setMaxTxPercent #
    - modifiers: onlyOwner
  - [Ext] setBuyFee #
    - modifiers: onlyOwner
  - [Ext] setSellFee #
    - modifiers: onlyOwner
  - [Ext] withdrawResidualBnb #
    - modifiers: onlyOwner
  - [Ext] withdrawResidualErc20 #
    - modifiers: onlyOwner

($) = 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.	Passed
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.	Low issues
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. Rounding error

Issue:

- At each calculation with division, it is goes first. In Solidity we don't have floating points, but instead we get rounding errors.

Recommendation:
Do division after multiplication.

Notes:

- Operations wallet get the rest of swapped amount.

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

- Owner can exclude from the fee.
- Owner can change project, buyback, marketing and operations wallet.
- Owner can remove and restore fees.
- Owner can change the maximum transaction amount.
- Owner can change buy and sell fees.
- Owner can withdraw contract tokens and BNBs.

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://www.pinksale.finance/#/launchpad/0xB80D25b64FC2a4BAD14158026E6b338D8Ace6259?chain=BSC

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.