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AUDIT COMPANY

Smart Contract Security Audit

TechRate

October, 2021

Audit Details

Audited project

Charizard Inu

Deployer address

0x2d167b15c53ffdd87f290bcafaafe5647e86dadf

Client contacts:

Charizard Inu team

Blockchain

Ethereum

Project website:

https://charizardinu.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 Charizard Inu to perform an audit of smart contracts:
https://etherscan.io/address/0x727e8260877f8507f8d61917e9778b6af8491e63#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

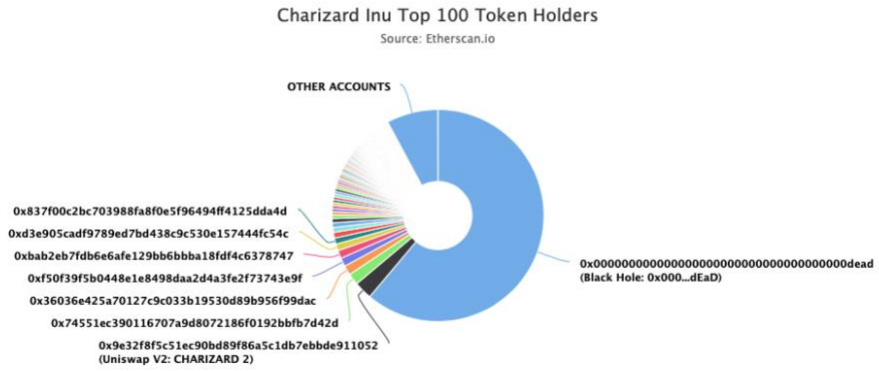
Token contract details for 10.10.2021

Contract name	Charizard Inu
Contract address	0x727e8260877F8507F8D61917e9778b6aF8491e63
Total supply	100,000,000,000,000,000
Token ticker	CHARIZARD
Decimals	9
Token holders	550
Transactions count	1,853
Top 100 holders dominance	92.15%
Liquidity fee	9
Tax fee	1
BNB balance	2272701313130771953
Pancake V2 pair	0x9e32f8f5c51ec90bd89f86a5c1db7ebbde911052
Contract deployer address	0x2d167b15c53ffdd87f290bcafaafe5647e86dadf
Contract's current owner address	0x2d167b15c53ffdd87f290bcafaafe5647e86dadf

Charizard Inu Token Distribution

The top 100 holders collectively own 92.15% (92,150,097,634,451,600.00 Tokens) of Charizard Inu

Token Total Supply: 100,000,000,000,000,000.00 Token | Total Token Holders: 550

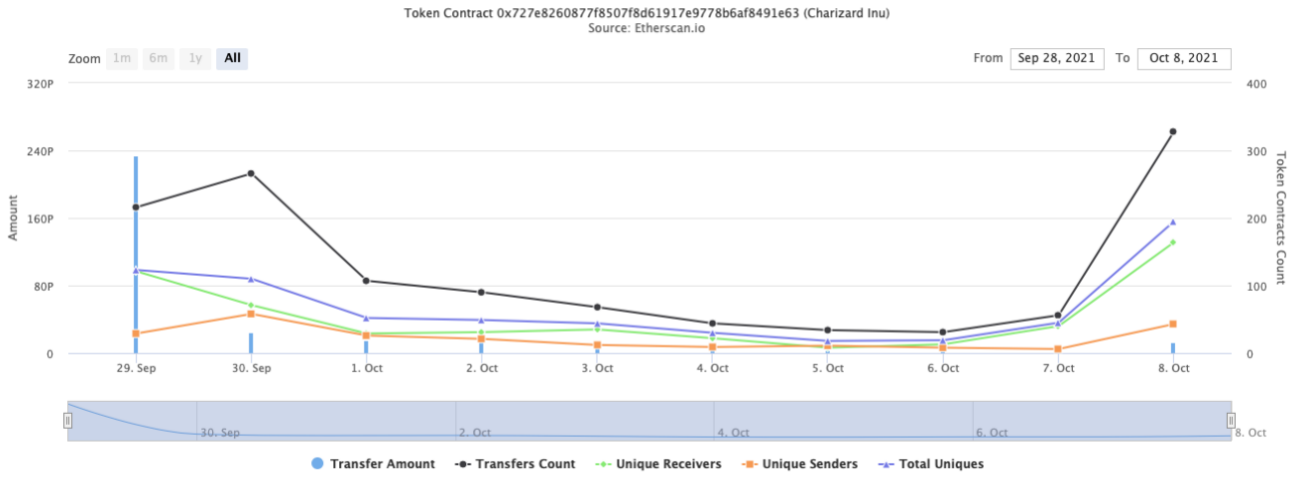


(A total of 92,150,097,634,451,600.00 tokens held by the top 100 accounts from the total supply of 100,000,000,000,000,000.00 token)

Charizard Inu Contract Interaction Details

Time Series: Token Contract Overview

Wed 29, Sept 2021 - Fri 8, Oct 2021



Charizard Inu Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	Black Hole: 0x000...dEaD	61,147,792,907,008,100.967515056	61.1478%
2	Uniswap V2: CHARIZARD 2	2,756,715,323,400,920.595386925	2.7567%
3	0x74551ec390116707a9d8072186f0192bbfb7d42d	1,738,662,064,331,560.260414612	1.7387%
4	0x36036e425a70127c9c033b19530d89b956f99dac	1,456,813,535,315,160.891939655	1.4568%
5	0xf50f39f5b0448e1e8498daa2d4a3fe2f73743e9f	1,299,007,875,981,140.320483863	1.2990%
6	0xbab2eb7fdb6e6afe129bb6bbba18fdf4c6378747	1,221,581,821,344,270.71268346	1.2216%
7	0xd3e905cadf9789ed7bd438c9c530e157444fc54c	1,033,474,710,466,170.172385725	1.0335%
8	0x837f00c2bc703988fa8f0e5f96494ff4125dda4d	924,632,788,721,451.708085908	0.9246%
9	0x0af594d75eb9e9d9ff84568a109ce59be32f3a3a	866,868,622,762,285.257230543	0.8669%
10	0xe3541220c67297cb3f22dc9181d0d07e5f277367	747,426,775,312,838.711630867	0.7474%

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] geUnlockTime
  - [Pub] lock #
    - modifiers: onlyOwner
  - [Pub] unlock #

+ [Int] IPancakeFactory
  - [Ext] feeTo
  - [Ext] feeToSetter
  - [Ext] getPair
  - [Ext] allPairs
  - [Ext] allPairsLength
  - [Ext] createPair #
  - [Ext] setFeeTo #

  - [Ext] setFeeToSetter #

+ [Int] IPancakePair
  - [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] IPancakeRouter01
  - [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] IPancakeRouter02 (IPancakeRouter01)
  - [Ext] removeLiquidityETHSupportingFeeOnTransferTokens #
  - [Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens #

- [Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens #
- [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens ($)
- [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #

+ CharizardInu (Context, IERC20, Ownable)
- [Pub] <Constructor> #
- [Ext] setPair #
  - modifiers: onlyOwner
- [Ext] setRouter #
  - modifiers: onlyOwner
- [Pub] name
- [Pub] symbol
- [Pub] decimals
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Ext] addBotToBlackList #
  - modifiers: onlyOwner
- [Ext] removeBotFromBlackList #
  - modifiers: onlyOwner
- [Pub] isBlackListed
- [Pub] blacklistSingleWallet #
  - modifiers: onlyOwner
- [Pub] blacklistMultipleWallets #
  - modifiers: onlyOwner
- [Pub] isBlacklisted
- [Ext] unBlacklistSingleWallet #
  - modifiers: onlyOwner
- [Pub] unBlacklistMultipleWallets #
  - modifiers: onlyOwner
- [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] _approve #
- [Pub] changeLimit #
  - modifiers: onlyOwner
- [Ext] expectedRewards
- [Prv] _transfer #
- [Prv] swapAndLiquify #
  - modifiers: lockTheSwap
- [Ext] BNBBalance
- [Prv] swapTokensForEth #
- [Prv] addLiquidity #
- [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] calculateLiquidityFee
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] excludeFromFee #
  - modifiers: onlyOwner
- [Pub] includeInFee #
  - modifiers: onlyOwner
- [Ext] setTaxFeePercent #
  - modifiers: onlyOwner
- [Ext] setLiquidityFeePercent #
  - modifiers: onlyOwner
- [Ext] setMaxTxPercent #
  - modifiers: onlyOwner
- [Ext] setCooldownEnabled #
  - modifiers: onlyOwner
- [Ext] manualswap #
- [Ext] manualSend #
- [Prv] sendETHToMarketing #
- [Pub] setSwapAndLiquifyEnabled #
  - modifiers: onlyOwner
- [Pub] timeToBuy
- [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.
- 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.
- The function `expectedRewards` also uses the loop for calculating rewards. It also could be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.

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 pair and router addresses.
- Owner can enable limit.
- Owner can blacklist addresses.
- Owner can blacklist addresses as bots.
- Owner can change the tax and liquidity fee.
- Owner can change the maximum transaction amount.
- Owner can exclude from the fee.
- Owner can enable/disable cooldown.
- Anybody can manually swap tokens to ETH.
- Anybody can manually send ETH balance to marketing.
- Owner can lock and unlock. By the way, using these functions the owner could retake privileges even after the ownership was renounced.

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://team.finance/view-coin/0x727e8260877F8507F8D61917e9778b6aF8491e63

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.