



**TechRate**  
AUDIT COMPANY

# Smart Contract Security Audit

# Audit Details



Audited project

**ADAcash**



Deployer address

**0xdc3768ec07c6c17f6f8bbe8db7693a699a5ce116**



Client contacts:

**ADAcash team**



Blockchain

**Binance Smart Chain**



Project website:

**<https://adacash.io/>**

# 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 ADAcash to perform an audit of smart contracts:

<https://bscscan.com/address/0x651a89fed302227d41425235f8e934502fb94c48#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 28.10.2021

Contract name	ADAcash
Contract address	0x651a89fed302227d41425235F8E934502FB94C48
Total supply	100,000,000,000,000
Token ticker	ADAcash
Decimals	18
Token holders	3,527
Transactions count	16,572
Top 100 holders dominance	85.63%
Dividend tracker	0xc0908ea0b6642ab8dfb1fcb4cde432a1a5fe6067
Total fees	15
ADA rewards fee	8
Uniswap V2 pair	0x504d67fe989eed20871551f961071b1275fdd17b
Contract deployer address	0xdc3768ec07c6c17f6f8bbe8db7693a699a5ce116
Contract's current owner address	0xdc3768ec07c6c17f6f8bbe8db7693a699a5ce116

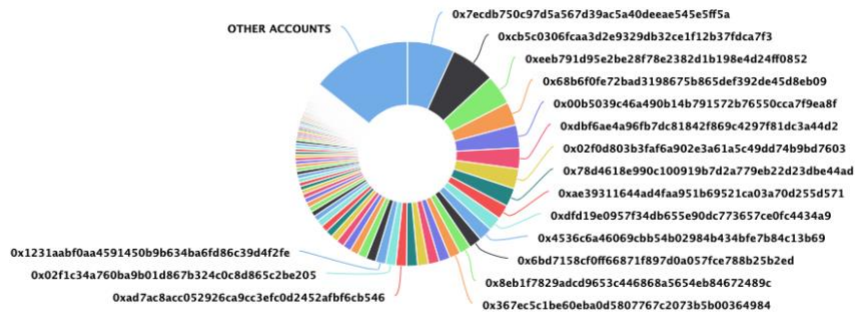
# ADAcash Token Distribution

The top 100 holders collectively own 85.63% (85,630,802,851,403.40 Tokens) of ADAcash

Token Total Supply: 100,000,000,000.00 Token | Total Token Holders: 3,527

ADAcash Top 100 Token Holders

Source: BscScan.com



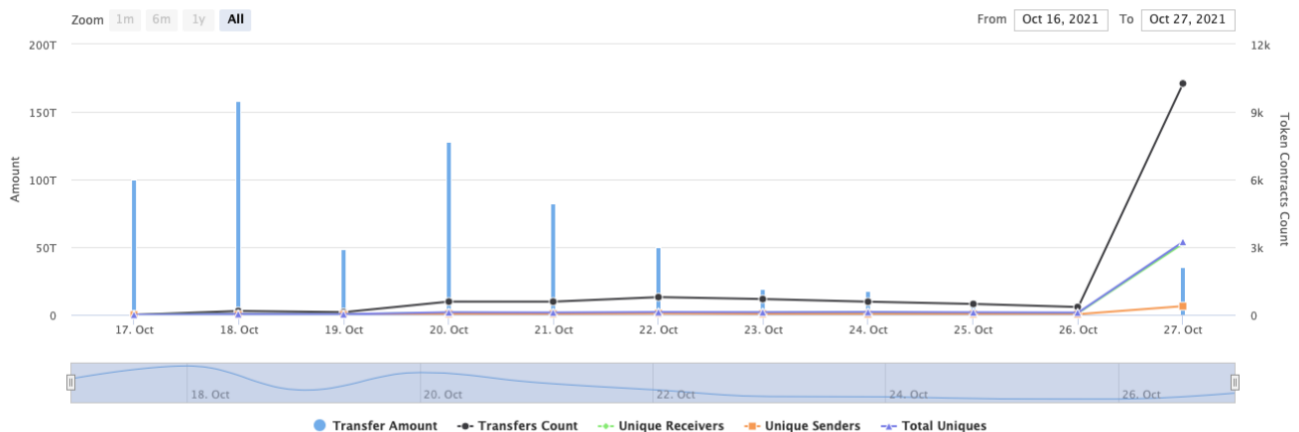
(A total of 85,630,802,851,403.40 tokens held by the top 100 accounts from the total supply of 100,000,000,000.00 token)

# ADAcash Contract Interaction Details

Time Series: Token Contract Overview

Sun 17, Oct 2021 - Wed 27, Oct 2021

Token Contract 0x651a89fed302227d41425235f8e934502fb94c48 (ADAcash)  
Source: BscScan.com





# ADAcash Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	<a href="#">0x7ecdb750c97d5a567d39ac5a40deee545e5ff5a</a>	6,798,082,315,007.649898841738995306	6.7981%
2	<a href="#">0xcb5c0306fcaa3d2e9329db32ce1f12b37fdca7f3</a>	6,387,260,581,924.002733039105526271	6.3873%
3	<a href="#">0xeeb791d95e2be28f78e2382d1b198e4d24ff0852</a>	4,325,000,000,000	4.3250%
4	<a href="#">0x68b6f0fe72bad3198675b865def392de45d8eb09</a>	3,331,530,800,000.00255	3.3315%
5	<a href="#">0x00b5039c46a490b14b791572b76550cca7f9ea8f</a>	3,320,752,387,058.603346370551452962	3.3208%
6	<a href="#">0xdbf6ae4a96fb7dc81842f869c4297f81dc3a44d2</a>	2,999,000,000,000	2.9990%
7	<a href="#">0x02f0d803b3fa6a902e3a61a5c49dd74b9bd7603</a>	2,888,888,888,888	2.8889%
8	<a href="#">0x78d4618e990c100919b7d2a779eb22d23dbe44ad</a>	2,646,428,805,347.416590114522859561	2.6464%
9	<a href="#">0xae39311644ad4faa951b69521ca03a70d255d571</a>	2,054,297,934,999.99998674862709146	2.0543%
10	<a href="#">0xdfd19e0957f34db655e90dc773657ce0fc4434a9</a>	2,000,000,000,000	2.0000%



# Contract functions details

- + [Lib] SafeMathUint
  - [Int] toInt256Safe
- + [Lib] SafeMathInt
  - [Int] mul
  - [Int] div
  - [Int] sub
  - [Int] add
  - [Int] abs
  - [Int] toUint256Safe
- + [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
- + [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 #

- + [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] IUniswapV2Factory
  - [Ext] feeTo
  - [Ext] feeToSetter
  - [Ext] getPair
  - [Ext] allPairs
  - [Ext] allPairsLength
  - [Ext] createPair #
  - [Ext] setFeeTo #
  - [Ext] setFeeToSetter #

- + [Lib] IterableMapping
  - [Pub] get
  - [Pub] getIndexOfKey
  - [Pub] getKeyAtIndex
  - [Pub] size
  - [Pub] set #
  - [Pub] remove #

- + [Int] IERC20Metadata (IERC20)
  - [Ext] name

- [Ext] symbol
- [Ext] decimals

+ [Int] IERC20

- [Ext] totalSupply
- [Ext] balanceOf
- [Ext] transfer #
- [Ext] allowance
- [Ext] approve #
- [Ext] transferFrom #

+ ERC20 (Context, IERC20, IERC20Metadata)

- [Pub] <Constructor> #
- [Pub] name
- [Pub] symbol
- [Pub] decimals
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Int] \_transfer #
- [Int] \_mint #
- [Int] \_burn #
- [Int] \_approve #
- [Int] \_beforeTokenTransfer #

+ [Int] DividendPayingTokenOptionalInterface

- [Ext] withdrawableDividendOf
- [Ext] withdrawnDividendOf
- [Ext] accumulativeDividendOf

+ [Int] DividendPayingTokenInterface

- [Ext] dividendOf
- [Ext] withdrawDividend #

+ DividendPayingToken (ERC20, Ownable, DividendPayingTokenInterface, DividendPayingTokenOptionalInterface)

- [Pub] <Constructor> #
  - modifiers: ERC20
- [Pub] distributeADADividends #
  - modifiers: onlyOwner
- [Pub] withdrawDividend #
- [Int] \_withdrawDividendOfUser #
- [Pub] dividendOf
- [Pub] withdrawableDividendOf
- [Pub] withdrawnDividendOf
- [Pub] accumulativeDividendOf
- [Int] \_transfer #
- [Int] \_mint #
- [Int] \_burn #
- [Int] \_setBalance #

## + Context

- [Int] \_msgSender
- [Int] \_msgData

## + ADAcash (ERC20, Ownable)

- [Pub] <Constructor> #
  - modifiers: ERC20
- [Ext] <Fallback> (\$)
- [Pub] updateDividendTracker #
  - modifiers: onlyOwner
- [Pub] updateUniswapV2Router #
  - modifiers: onlyOwner
- [Pub] excludeFromFees #
  - modifiers: onlyOwner
- [Pub] excludeMultipleAccountsFromFees #
  - modifiers: onlyOwner
- [Ext] setMarketingWallet #
  - modifiers: onlyOwner
- [Ext] setADARewardsFee #
  - modifiers: onlyOwner
- [Ext] setLiquiditFee #
  - modifiers: onlyOwner
- [Ext] setMarketingFee #
  - modifiers: onlyOwner
- [Ext] setMaxTxAmount #
  - modifiers: onlyOwner
- [Ext] setMaxWalletBalance #
  - modifiers: onlyOwner
- [Pub] setAutomatedMarketMakerPair #
  - modifiers: onlyOwner
- [Prv] \_setAutomatedMarketMakerPair #
- [Pub] updateGasForProcessing #
  - modifiers: onlyOwner
- [Ext] updateClaimWait #
  - modifiers: onlyOwner
- [Ext] getClaimWait
- [Ext] getTotalDividendsDistributed
- [Pub] isExcludedFromFees
- [Pub] withdrawableDividendOf
- [Pub] dividendTokenBalanceOf
- [Ext] excludeFromDividends #
  - modifiers: onlyOwner
- [Ext] getAccountDividendsInfo
- [Ext] getAccountDividendsInfoAtIndex
- [Ext] processDividendTracker #
- [Ext] claim #
- [Ext] getLastProcessedIndex
- [Ext] getNumberOfDividendTokenHolders
- [Int] \_transfer #
- [Prv] swapAndSendToFee #
- [Prv] swapAndLiquify #
- [Prv] swapTokensForEth #
- [Prv] swapTokensForADA #
- [Prv] addLiquidity #

- [Prv] swapAndSendDividends #
- + ADAcashDividendTracker (Ownable, DividendPayingToken)
  - [Pub] <Constructor> #
    - modifiers: DividendPayingToken
  - [Int] \_transfer #
  - [Pub] withdrawDividend #
  - [Ext] excludeFromDividends #
    - modifiers: onlyOwner
  - [Ext] updateClaimWait #
    - modifiers: onlyOwner
  - [Ext] getLastProcessedIndex
  - [Ext] getNumberOfTokenHolders
  - [Pub] getAccount
  - [Pub] getAccountAtIndex
  - [Prv] canAutoClaim
  - [Ext] setBalance #
    - modifiers: onlyOwner
  - [Pub] process #
  - [Pub] processAccount #
    - 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.	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 `excludeMultipleAccountsFromFees()` uses the loop to exclude multiple accounts from fees. Function will be aborted with `OUT_OF_GAS` exception if there will be a long addresses list.

Recommendation:

Be careful about accounts array length.

## Notes:

- Owner can change dividend tracker that could be not audited and some functions may work in different ways.

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

- Owner can change dividend tracker.
- Owner can change Uniswap router address.
- Owner can exclude from the fees.
- Owner can blacklist addresses.
- Owner can change liquidity, marketing and ADA reward fees.
- Owner can exclude and include addresses in `automatedMarketMakerPairs` array.
- Owner can exclude from dividends.
- Owner can change marketing wallet.
- Owner can change gas for processing.
- Owner can update `claimWait` value.
- Owner can change `maxTxAmount`.
- Owner can change `maxWalletBalance`.



# Conclusion

Smart contracts contain low severity issues! Liquidity pair contract's security is not checked due to out of scope. The further transfers and operations with the funds raise are not related to this particular contract.

Liquidity locking details are provided by the team:

<https://deeplock.io/lock/0x504D67Fe989eed20871551f961071b1275fDD17b>

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## *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.*



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