



Smart Contract Audit

FOR
BETCOIN CASH

DATED : 28 JAN 23'



AUDIT SUMMARY

Project name – BETCOIN CASH

Date: 28 January , 2023

Scope of Audit- Audit Ace was consulted to conduct the smart contract audit of the solidity source codes.

Audit Status: **Passed** (Contract is developed by Pinksale safu dev)

Issues Found

Status	Critical	High	Medium	Low	Suggestion
Open	0	0	0	0	1
Acknowledged	0	0	0	0	0
Resolved	0	0	0	0	0

USED TOOLS

Tools:

1- Manual Review:

a line by line code review has been performed by audit ace team.

2- BSC Test Network:

all tests were done on BSC Testnet network, each test has its transaction has attached to it.

3- Slither : Static Analysis

Testnet Link: all tests were done using this contract, tests are done on BSC Testnet

<https://testnet.bscscan.com/token/0xc45b6ca0c2528c71f863f63127e6ff2badb5fdf6>



Token Information

Token Name : Bitcoin Cash

Token Symbol: BETC

Decimals: 9

Token Address: -

Checksum:

89328eb1ccf7bd0b115ecd91f95d7136fd5c3e571db1c
337e7bd356c8bfec0f3

Deployer: -

Owner: -



TOKEN OVERVIEW

Fees:

Buy Fees: -

Sell Fees: -

Transfer Fees: -

Fees Privilege: Owner

Ownership : Owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Privileges: None



AUDIT METHODOLOGY

The auditing process will follow a routine as special considerations by Auditace:

- Review of the specifications, sources, and instructions provided to Auditace to make sure the contract logic meets the intentions of the client without exposing the user's funds to risk.
 - Manual review of the entire codebase by our experts, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
 - Specification comparison is the process of checking whether the code does what the specifications, sources, and instructions provided to Auditace describe.
 - Test coverage analysis determines whether the test cases are covering the code and how much code is exercised when we run the test cases.
 - Symbolic execution is analysing a program to determine what inputs cause each part of a program to execute.
 - Reviewing the codebase to improve maintainability, security, and control based on the established industry and academic practices.
-

VULNERABILITY CHECKLIST

- | | |
|------------------------------------|-------------------------------|
| ✓ Return values of low-level calls | ✓ Gasless Send |
| ✓ Private modifier | ✓ Using block.timestamp |
| ✓ Multiple Sends | ✓ Re-entrancy |
| ✓ Using Suicide | ✓ Tautology or contradiction |
| ✓ Gas Limitand Loops | ✓ Timestamp Dependence |
| ✓ Address hardcoded | ✓ Revert/require functions |
| ✓ Exception Disorder | ✓ Use of tx.origin |
| ✓ Using inline assembly | ✓ Integer overflow/underflow |
| ✓ Divide before multiply | ✓ Dangerous strict equalities |
| ✓ Missing Zero Address Validation | ✓ Using SHA3 |
| ✓ Compiler version not fixed | ✓ Using throw |
-



CLASSIFICATION OF RISK

Severity

Description

◆ Critical	These vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
◆ High-Risk	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.
◆ Medium-Risk	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.
◆ Low-Risk	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.
◆ Gas Optimization / Suggestion	A vulnerability that has an informational character but is not affecting any of the code.

Findings

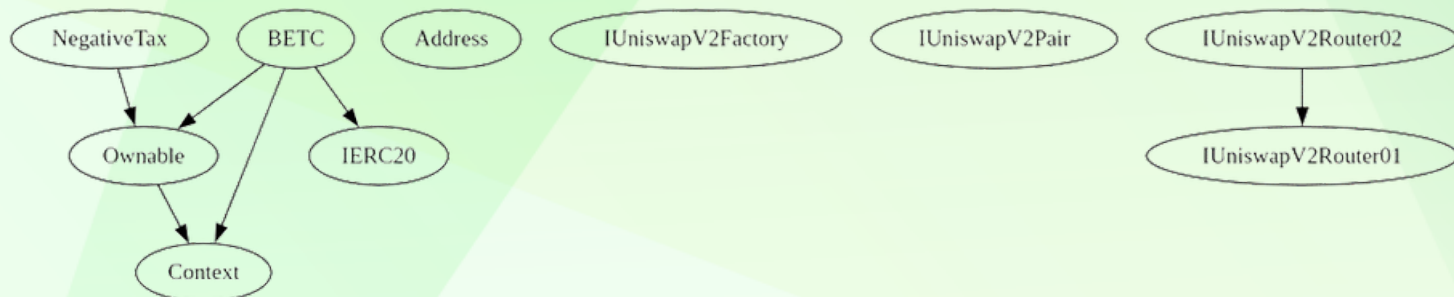
Severity

Found

◆ Critical	0
◆ High-Risk	0
◆ Medium-Risk	0
◆ Low-Risk	0
◆ Gas Optimization / Suggestions	1



INHERITANCE TREE























POINTS TO NOTE

- **There is up to 5% cashback on buys (negative tax)**
 - **Owner is not able to set taxes over 25% (Buy + Sell = 50% maximum tax)**
 - **Owner is not able to blacklist an arbitrary wallet**
 - **Owner is not able to set max buy/sell/transfer amounts**
 - **Owner is not able to disable trades**
 - **Owner is not able to mint new tokens**
-

CONTRACT ASSESMENT

Contract	Type	Bases			
:-----: :-----: :-----: :-----: :-----:					
L	**Function Name**	**Visibility**	**Mutability**	**Modifiers**	
	Context	Implementation			
L	_msgSender	Internal			
L	_msgData	Internal			
	Ownable	Implementation	Context		
L	<Constructor>	Public	!		NO!
L	owner	Public	!	NO!	
L	renounceOwnership	Public	!		onlyOwner
L	transferOwnership	Public	!		onlyOwner
	IERC20	Interface			
L	totalSupply	External	!	NO!	
L	balanceOf	External	!	NO!	
L	transfer	External	!		NO!
L	allowance	External	!	NO!	
L	approve	External	!		NO!
L	transferFrom	External	!		NO!
	Address	Library			
L	isContract	Internal			
L	sendValue	Internal			
L	functionCall	Internal			
L	functionCall	Internal			
L	functionCallWithValue	Internal			
L	functionCallWithValue	Internal			
L	_functionCallWithValue	Private			
	IUniswapV2Factory	Interface			
L	feeTo	External	!	NO!	
L	feeToSetter	External	!	NO!	
L	getPair	External	!	NO!	
L	allPairs	External	!	NO!	
L	allPairsLength	External	!	NO!	
L	createPair	External	!		NO!
L	setFeeTo	External	!		NO!
L	setFeeToSetter	External	!		NO!
	IUniswapV2Pair	Interface			

CONTRACT ASSESMENT

```
|  | name | External ! | | NO! |
|  | symbol | External ! | | NO! |
|  | decimals | External ! | | NO! |
|  | totalSupply | External ! | | NO! |
|  | balanceOf | External ! | | NO! |
|  | allowance | External ! | | NO! |
|  | approve | External ! |  | NO! |
|  | transfer | External ! |  | NO! |
|  | transferFrom | External ! |  | NO! |
|  | DOMAIN_SEPARATOR | External ! | | NO! |
|  | PERMIT_TYPEHASH | External ! | | NO! |
|  | nonces | External ! | | NO! |
|  | permit | External ! |  | NO! |
|  | MINIMUM_LIQUIDITY | External ! | | NO! |
|  | factory | External ! | | NO! |
|  | token0 | External ! | | NO! |
|  | token1 | External ! | | NO! |
|  | getReserves | External ! | | NO! |
|  | price0CumulativeLast | External ! | | NO! |
|  | price1CumulativeLast | External ! | | NO! |
|  | kLast | External ! | | NO! |
|  | burn | External ! |  | NO! |
|  | swap | External ! |  | NO! |
|  | skim | External ! |  | NO! |
|  | sync | External ! |  | NO! |
|  | initialize | External ! |  | NO! |
|  |  |  |  |  |
| **IUniswapV2Router01** | Interface |  |  |
|  | factory | External ! | | NO! |
|  | WETH | External ! | | NO! |
|  | addLiquidity | External ! |  | NO! |
|  | addLiquidityETH | External ! |  | NO! |
|  | removeLiquidity | External ! |  | NO! |
|  | removeLiquidityETH | External ! |  | NO! |
|  | removeLiquidityWithPermit | External ! |  | NO! |
|  | removeLiquidityETHWithPermit | External ! |  | NO! |
|  | swapExactTokensForTokens | External ! |  | NO! |
|  | swapTokensForExactTokens | External ! |  | NO! |
|  | swapExactETHForTokens | External ! |  | NO! |
|  | swapTokensForExactETH | External ! |  | NO! |
|  | swapExactTokensForETH | External ! |  | NO! |
```



CONTRACT ASSESMENT


```
|  | swapETHForExactTokens | External ! |  | NO ! |
|  | quote | External ! | | NO ! |
|  | getAmountOut | External ! | | NO ! |
|  | getAmountIn | External ! | | NO ! |
|  | getAmountsOut | External ! | | NO ! |
|  | getAmountsIn | External ! | | NO ! |
|  |  |
|  |  |
| **IUniswapV2Router02** | Interface | IUniswapV2Router01 |  |
|  | removeLiquidityETHSupportingFeeOnTransferTokens | External ! |  | NO ! |
|  | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External ! |  | NO ! |
|  | swapExactTokensForTokensSupportingFeeOnTransferTokens | External ! |  | NO ! |
|  | swapExactETHForTokensSupportingFeeOnTransferTokens | External ! |  | NO ! |
|  | swapExactTokensForETHSupportingFeeOnTransferTokens | External ! |  | NO ! |
|  |  |
|  |  |
| **NegativeTax** | Implementation | Ownable |  |
|  | claimStuckTokens | External ! |  | onlyOwner |
|  |  |
|  |  |
| **BETC** | Implementation | Context, IERC20, Ownable |  |
|  | <Constructor> | Public ! |  | NO ! |
|  | name | Public ! | | NO ! |
|  | symbol | Public ! | | NO ! |
|  | decimals | Public ! | | NO ! |
|  | totalSupply | Public ! | | NO ! |
|  | balanceOf | Public ! | | NO ! |
|  | transfer | Public ! |  | NO ! |
|  | allowance | Public ! | | NO ! |
|  | approve | Public ! |  | NO ! |
|  | transferFrom | Public ! |  | NO ! |
|  | increaseAllowance | Public ! |  | NO ! |
|  | decreaseAllowance | Public ! |  | NO ! |
|  | isExcludedFromReward | Public ! | | NO ! |
|  | totalReflectionDistributed | Public ! | | NO ! |
|  | deliver | Public ! |  | NO ! |
|  | reflectionFromToken | Public ! | | NO ! |
|  | tokenFromReflection | Public ! | | NO ! |
|  | excludeFromReward | Public ! |  | onlyOwner |
|  | includeInReward | External ! |  | onlyOwner |
|  | <Receive Ether> | External ! |  | NO ! |
|  | excludeFromNegativeTax | External ! |  | onlyOwner |
|  | isExcludedFromNegativeTax | Public ! | | NO ! |
|  | setNegativeTaxSettings | External ! |  | onlyOwner |
```

CONTRACT ASSESMENT

	claimStuckTokens	External 		onlyOwner
	_reflectFee	Private 		
	_getValues	Private 		
	_getTValues	Private 		
	_getRValues	Private 		
	_getRate	Private 		
	_getCurrentSupply	Private 		
	_takeLiquidity	Private 		
	_takeMarketing	Private 		
	calculateTaxFee	Private 		
	calculateLiquidityFee	Private 		
	calculateMarketingFee	Private 		
	removeAllFee	Private 		
	setBuyFee	Private 		
	setSellFee	Private 		
	isExcludedFromFee	Public 		NO 
	_approve	Private 		
	enableTrading	External 		onlyOwner
	_transfer	Private 		
	swapAndLiquify	Private 		
	swapAndSendMarketing	Private 		
	setSwapTokensAtAmount	External 		onlyOwner
	setSwapEnabled	External 		onlyOwner
	_tokenTransfer	Private 		
	_transferStandard	Private 		
	_transferToExcluded	Private 		
	_transferFromExcluded	Private 		
	_transferBothExcluded	Private 		
	excludeFromFees	External 		onlyOwner
	changeMarketingWallet	External 		onlyOwner
	setBuyFeePercentages	External 		onlyOwner
	setSellFeePercentages	External 		onlyOwner
	enableWalletToWalletTransferWithoutFee	External 		onlyOwner

| Symbol | Meaning |

| :-----: | ----- |

|  | Function can modify state |

|  | Function is payable |



STATIC ANALYSIS

```
Variable BETC._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1238) is too similar to BETC._getTVValues(uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#917)
Variable BETC.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Ace_Testing_BSC.sol#795) is too similar to BETC._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1286)
Variable BETC._getValues(uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#893) is too similar to BETC._getValues(uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#888)
Variable BETC._getValues(uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#893) is too similar to BETC._getTVValues(uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#917)
Variable BETC.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Ace_Testing_BSC.sol#795) is too similar to BETC._getTVValues(uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#917)
Variable BETC._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1261) is too similar to BETC._getValues(uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#888)
Variable BETC._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1261) is too similar to BETC._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1286)
Variable BETC._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1261) is too similar to BETC._getTVValues(uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#917)
Variable BETC._transferStandard(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1216) is too similar to BETC._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1240)
Variable BETC._getRValues(uint256,uint256,uint256,uint256,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#932) is too similar to BETC._transferStandard(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1218)
Variable BETC.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Ace_Testing_BSC.sol#795) is too similar to BETC._transferStandard(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1218)
Variable BETC._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1261) is too similar to BETC._transferStandard(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1218)
Variable BETC._transferBothExcluded(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1284) is too similar to BETC._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1240)
Variable BETC._transferBothExcluded(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1284) is too similar to BETC._transferFromExcluded(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1263)
Variable BETC._getRValues(uint256,uint256,uint256,uint256,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#932) is too similar to BETC._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1240)
Variable BETC.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Ace_Testing_BSC.sol#795) is too similar to BETC._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1240)
Variable BETC._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1238) is too similar to BETC._transferStandard(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1218)
Variable BETC._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1261) is too similar to BETC._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1240)
Variable BETC._transferBothExcluded(address,address,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#1284) is too similar to BETC._transferStandard(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1218)
Variable BETC._getRValues(uint256,uint256,uint256,uint256,uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#932) is too similar to BETC._transferFromExcluded(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1263)
Variable BETC._getValues(uint256).rTransferAmount (contracts/Ace_Testing_BSC.sol#893) is too similar to BETC._transferStandard(address,address,uint256).tTransferAmount (contracts/Ace_Testing_BSC.sol#1218)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar

BETC._decimals (contracts/Ace_Testing_BSC.sol#556) should be constant
BETC._name (contracts/Ace_Testing_BSC.sol#554) should be constant
BETC._symbol (contracts/Ace_Testing_BSC.sol#555) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

BETC._total (contracts/Ace_Testing_BSC.sol#559) should be immutable
BETC._negativeTax (contracts/Ace_Testing_BSC.sol#563) should be immutable
BETC._uniswapV2Pair (contracts/Ace_Testing_BSC.sol#592) should be immutable
BETC._uniswapV2Router (contracts/Ace_Testing_BSC.sol#591) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
```

Result => A static analysis of contract's source code has been performed using slither, no major issues were found (except some "minor impact" suggestions)



FUNCTIONAL TESTING

Router (PCS V2):

0xD99D1c33F9fC3444f8101754aBC46c52416550D1

0- Deploying (Passed):

<https://testnet.bscscan.com/tx/0x83d209b9e868916315a9c15cfcb9ddd7a47c11f0943559588e782e8ad3453d27>

1- Adding Liquidity (Passed):

liquidity added on Pancakeswap V2:

<https://testnet.bscscan.com/tx/0x15443cc8182367ed3da4de488a8c7d2a832e76d767a6c87834f01eba3b539a95>

no issue were found on adding liquidity.

2- Enabling trade for public (Passed):

<https://testnet.bscscan.com/tx/0x88d8f6898921ab9b08105049d3410a098c64aaa63d1a8a129da6a8238b1b4bbd>

3- Excluding deployer's wallet from taxes (to test taxes) (Passed):

<https://testnet.bscscan.com/tx/0x8a2d2f1369358c0ab93d6cd07036a51b20d34fe2aa17d0a674b60365d89387b1>



FUNCTIONAL TESTING

4- Enabling swap and liquify (Passed):

<https://testnet.bscscan.com/tx/0x8a65708bd50e73dde9e210d014799d28ac0229bef5c2aa77599a475d25de8349>

5- Setting buy and sell fees to max (25%) (Passed):

<https://testnet.bscscan.com/tx/0x076b6db648ee67c90e1bf93a33f8ad97c3339f60552c6844e9a73814d9d3ebd2>

<https://testnet.bscscan.com/tx/0x686788d3ebd5d80d2206454d0269d606910f475a3b06346b07e9dafce160a335>

6- Buying from a non-whitelisted wallet (Passed):

<https://testnet.bscscan.com/tx/0x7659a5a0760ffbfff8fde411d4b3c4d26185f5c020f64dd027f20d37376823ef>

cashback tx:

<https://testnet.bscscan.com/address/0x890c6ae98ae2962f73d762d38416702843222dff#tokentxns>

25% - 5% cashback => 20% tax applied

7- Selling from a non-whitelisted wallet (Passed):

<https://testnet.bscscan.com/tx/0xdc05f5bafbad470f2704c6cb7736fb6eeeeef127287950b7b02c6aca363ad9f7b>

25% tax applied



FUNCTIONAL TESTING

8- Internal Swap (Passed):

taxes were swapped to BNB and sent to marketing wallet which can be seen here:

<https://testnet.bscscan.com/address/0x024238ae95bf8e4361ba58ca018e84c12c654509#internaltx>

9- Auto Liquidity (Passed):

LP tokens generated and sent to dead wallet which can be seen here:

[https://testnet.bscscan.com/token/0x4cb202df73c90485bf4df97e7076a5275b31ce63?
a=0x00dead](https://testnet.bscscan.com/token/0x4cb202df73c90485bf4df97e7076a5275b31ce63?a=0x00dead)

10- 6- Enabling negative tax (cashback, up to 5%) (Passed):

<https://testnet.bscscan.com/tx/0xf539dc09cab6531c332db82816ec402b2a28a3979e8166a255bc24e6f21583a8>



FUNCTIONAL TESTING

11- Transferring while transfer taxes are off (wallet to wallet transfer without fee) (Passed):

disabling transfer fees:

<https://testnet.bscscan.com/tx/0xca3fdada83f0637cf6454a20251ec384b97d3c8959bcb0adbfa7e3a4b6a801e7>

transferring 100,000,000 tokens from a non-whitelisted wallet to a non-whitelisted wallet without fee:

<https://testnet.bscscan.com/tx/0xd4da6a451e6594af93ec22f17388e4fc2172dd7e65ecd2805e00aefd7989d856>



MANUAL TESTING

Suggestions

- Emit a transfer event at `_takeMarketing` and `_takeLiquidity` functions

Social Media Overview

**Here are the Social Media Accounts of
BetCoin**



<https://t.me/BetcoinCashOfficial>



https://twitter.com/Betcoin_Cash



<https://betcoincash.io/>



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