Cyberscope

Audit Report

Ultimate Doge

June 2022

Type	BEP20
Network	BSC
Address	0x2254846a9037cb97a683bd6250d8591630fe4a7c
Audited by	© cyberscope

Table of Contents

Contract Review

Contract Name	CoinToken
Compiler Version	v0.6.12+commit.27d51765
Optimization	200 runs
Licence	Apache-2.0
Explorer	https://bscscan.com/token/0x2254846a9037cb97a683bd6250d8591630fe4a7c
Symbol	ULD
Decimals	9
Total Supply	420,000,000,000,000
Domain	https://ultimatedoge.club/

Source Files

Filename	**SHA256**
contract.sol	a58c9162dfe04f07139d153db9e5093717380708024fb4d294a18ecac9a6fe2d

Audit Updates

Initial Audit	5th July 2022
Corrected	

Contract Analysis

Critical Medium Minor Pass

Severity	Code	Description
●	ST	Contract Owner is not able to stop or pause transactions
●	OCTD	Contract Owner is not able to transfer tokens from specific address
●	OTUT	Owner Transfer User's Tokens
●	ELFM	Contract Owner is not able to increase fees more than a reasonable percent (25%)
●	ULTW	Contract Owner is not able to increase the amount of liquidity taken by dev wallet more than a reasonable percent
●	MT	Contract Owner is not able to mint new tokens
●	BT	Contract Owner is not able to burn tokens from specific wallet
●	BC	Contract Owner is not able to blacklist wallets from selling

ST - Stop Transactions

Criticality	medium
Location	contract.sol#L1015

Description

The contract owner has the authority to stop transactions for all users excluding the owner. The owner may take advantage of it by setting the _maxTxAmount to zero.

```
function _transfer(
      address from,
      address to,
      uint256 amount
  ) private {
      require(from != address(0), "ERC20: transfer from the zero address");
      require(to != address(0), "ERC20: transfer to the zero address");
      require(amount > 0, "Transfer amount must be greater than zero");
      if(from != owner() && to != owner())
          require(amount <= _maxTxAmount, "Transfer amount exceeds the maxTxAmount.");
```

Recommendation

The contract could embody a check for not allowing setting the _maxTxAmount less than a reasonable amount. A suggested implementation could check that the maximum amount should be more than a fixed percentage of the total supply.

The team should carefully manage the private keys of the owner’s account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions. That risk can be prevented by temporarily locking the contract or renouncing ownership.

ELFM - Exceed Limit Fees Manipulation

Criticality	critical
Location	contract.sol#L887,L891

Description

The contract owner has the authority to increase over the allowed limit of 25%. The owner may take advantage of it by calling the setTaxFeePercent and setLiquidityFeePercent function with a high percentage value.

```
function setTaxFeePercent(uint256 taxFee) external onlyOwner() {
    _taxFee = taxFee;
}

function setLiquidityFeePercent(uint256 liquidityFee) external onlyOwner() {
    _liquidityFee = liquidityFee;
}
```

Recommendation

The contract could embody a check for the maximum acceptable value.

The team should carefully manage the private keys of the owner’s account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions. That risk can be prevented by temporarily locking the contract or renouncing ownership.

Contract Diagnostics

Critical Medium Minor

Severity	Code	Description
	STC	Succeeded Transfer Check
	FSA	Fixed Swap Address
	MAL	Misused Algorithmic Logic
	L01	Public Function could be Declared External
	L04	Conformance to Solidity Naming Conventions
	L07	Missing Events Arithmetic
	L09	Dead Code Elimination

STC - Succeeded Transfer Check

Criticality	minor
Location	contract.sol#L963

Description

According to the ERC20 specification, the transfer methods should be checked if the result is successful. Otherwise, the contract may wrongly assume that the transfer has been established.

```
function claimTokens() public onlyOwner {
    payable(_owner).transfer(address(this).balance);
}
```

Recommendation

The contract should check if the result of the transfer methods is successful.

FSA - Fixed Swap Address

Criticality	minor
Location	contract.sol#L847

Description

The swap address is assigned once in the constructor and it can not be changed. The decentralized swaps sometimes create a new swap version or abandon the current. A contract that cannot change the swap address may not be able to catch-up the upgrade.

```
IUniswapV2Router02 _uniswapV2Router = IUniswapV2Router02(routerAddress);
// Create a uniswap pair for this new token
uniswapV2Pair = IUniswapV2Factory(_uniswapV2Router.factory())
        .createPair(address(this), _uniswapV2Router.WETH());
```

Recommendation

It could be better to allow the swap address mutation in case of future swap updates.

MAL - Misused Algorithmic Logic

Criticality	minor
Location	contract.sol#L929

Description

The algorithmic flow does not follow the required business logic.

The calculation of `tTranferAmount` will provoke underflow if both fees are set to 100% due to the subtractions.

```
function _getTValues(uint256 tAmount) private view returns (uint256, uint256, uint256) {
    uint256 tFee = calculateTaxFee(tAmount);
    uint256 tLiquidity = calculateLiquidityFee(tAmount);
    uint256 tTransferAmount = tAmount.sub(tFee).sub(tLiquidity);
    return (tTransferAmount, tFee, tLiquidity);
}
```

Recommendation

The algorithm should be reshaped so it will match to the business logic.

L01 - Public Function could be Declared External

Criticality	minor
Location	contract.sol#L812,423,769,899,879,808,787,825,842,816,891,803,875,432,990,438,778,792,765,761,451,798,757,783,443,895,959

Description

Public functions that are never called by the contract should be declared external to save gas.

```
claimTokens
setMaxTxPercent
lock
allowance
name
increaseAllowance
unlock
symbol
decimals
...
```

Recommendation

Use the external attribute for functions never called from the contract.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	contract.sol#L496,513,698,495,899,707,969,394,695,535,963

Description

Solidity defines a naming convention that should be followed. Rule exceptions:

- Allow constant variable name/symbol/decimals to be lowercase.
- Allow _ at the beginning of the mixed_case match for private variables and unused parameters.

```
_amount
WETH
_taxFee
_owner
_maxTxAmount
_enabled
DOMAIN_SEPARATOR
_liquidityFee
MINIMUM_LIQUIDITY
...
```

Recommendation

Follow the Solidity naming convention.
https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions.

L07 - Missing Events Arithmetic

Criticality	minor
Location	contract.sol#L895,887,891,883

Description

Detected missing events for critical arithmetic parameters. There are functions that have no event emitted, so it is difficult to track off-chain changes.

```
_taxFee = taxFee
numTokensSellToAddToLiquidity = swapNumber * 10 ** _decimals
_liquidityFee = liquidityFee
_maxTxAmount = maxTxPercent * 10 ** _decimals
```

Recommendation

Emit an event for critical parameter changes.

L09 - Dead Code Elimination

Criticality	minor
Location	contract.sol#L291,342,352,357,264,327,317

Description

Functions that are not used in the contract, and make the code's size bigger.

```
functionCall
isContract
_functionCallWithValue
functionCallWithValue
sendValue
```

Recommendation

Remove unused functions.

Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
	mod	Internal		
	mod	Internal		
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
Address	Library			
	isContract	Internal		
	sendValue	Internal	✓	
	functionCall	Internal	✓	
	functionCall	Internal	✓	
	functionCallWithValue	Internal	✓	

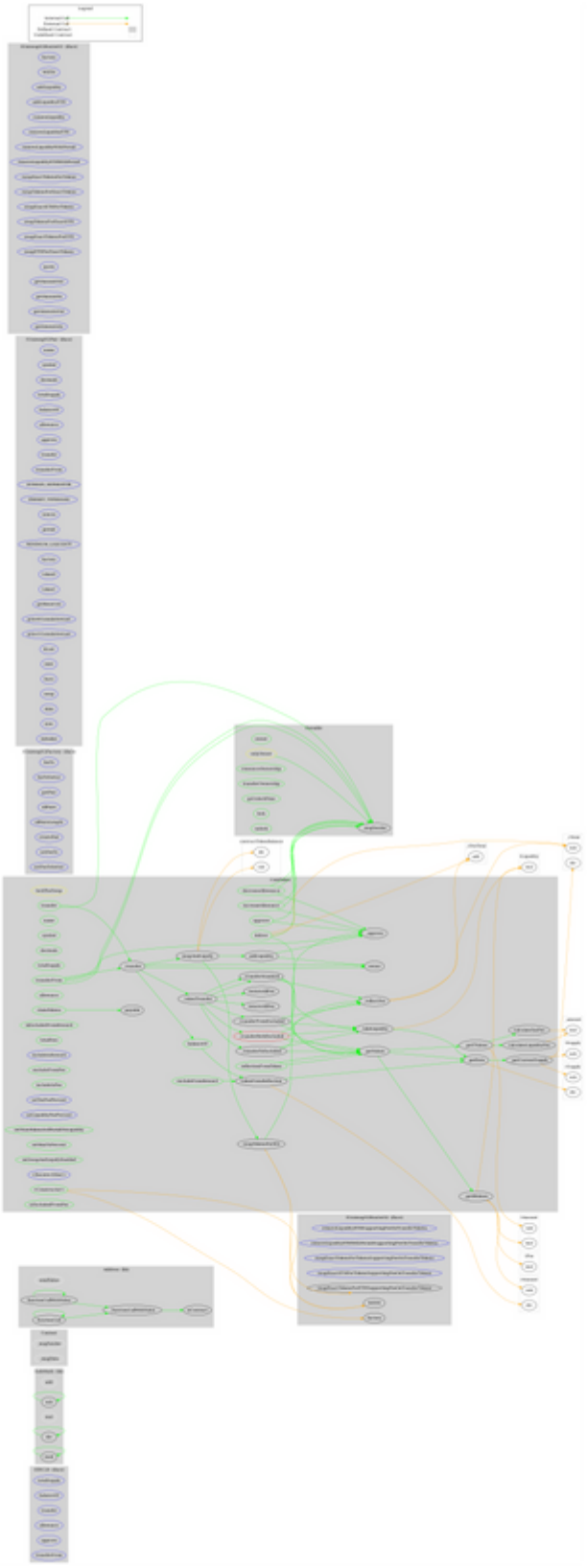
	functionCallWithValue	Internal	✓	
	_functionCallWithValue	Private	✓	
Ownable	Implementation	Context		
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	geUnlockTime	Public		-
	lock	Public	✓	onlyOwner
	unlock	Public	✓	-
IUniswapV2Factory	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-
	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	External	✓	-
IUniswapV2Pair	Interface			
	name	External		-
	symbol	External		-
	decimals	External		-
	totalSupply	External		-
	balanceOf	External		-
	allowance	External		-
	approve	External	✓	-
	transfer	External	✓	-
	transferFrom	External	✓	-
	DOMAIN_SEPARATOR	External		-
	PERMIT_TYPEHASH	External		-

	nonces	External		-
	permit	External	✓	-
	MINIMUM_LIQUIDITY	External		-
	factory	External		-
	token0	External		-
	token1	External		-
	getReserves	External		-
	price0CumulativeLast	External		-
	price1CumulativeLast	External		-
	kLast	External		-
	mint	External	✓	-
	burn	External	✓	-
	swap	External	✓	-
	skim	External	✓	-
	sync	External	✓	-
	initialize	External	✓	-
IUniswapV2Router01	Interface			
	factory	External		-
	WETH	External		-
	addLiquidity	External	✓	-
	addLiquidityETH	External	Payable	-
	removeLiquidity	External	✓	-
	removeLiquidityETH	External	✓	-
	removeLiquidityWithPermit	External	✓	-
	removeLiquidityETHWithPermit	External	✓	-
	swapExactTokensForTokens	External	✓	-
	swapTokensForExactTokens	External	✓	-
	swapExactETHForTokens	External	Payable	-
	swapTokensForExactETH	External	✓	-
	swapExactTokensForETH	External	✓	-
	swapETHForExactTokens	External	Payable	-
	quote	External		-
	getAmountOut	External		-

	getAmountIn	External		-
	getAmountsOut	External		-
	getAmountsIn	External		-
IUniswapV2Router02	Interface	IUniswapV2Router01		
	removeLiquidityETHSupportingFeeOnTransferTokens	External	✓	-
	removeLiquidityETHWithPermitSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
CoinToken	Implementation	Context, IERC20, Ownable		
	<Constructor>	Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	isExcludedFromReward	Public		-
	totalFees	Public		-
	deliver	Public	✓	-
	reflectionFromToken	Public		-
	tokenFromReflection	Public		-
	excludeFromReward	Public	✓	onlyOwner

	includeInReward	External	✓	onlyOwner
	_transferBothExcluded	Private	✓	
	excludeFromFee	Public	✓	onlyOwner
	includeInFee	Public	✓	onlyOwner
	setTaxFeePercent	External	✓	onlyOwner
	setLiquidityFeePercent	External	✓	onlyOwner
	setNumTokensSellToAddToLiquidity	Public	✓	onlyOwner
	setMaxTxPercent	Public	✓	onlyOwner
	setSwapAndLiquifyEnabled	Public	✓	onlyOwner
	<Receive Ether>	External	Payable	-
	_reflectFee	Private	✓	
	_getValues	Private		
	_getTValues	Private		
	_getRValues	Private		
	_getRate	Private		
	_getCurrentSupply	Private		
	_takeLiquidity	Private	✓	
	claimTokens	Public	✓	onlyOwner
	calculateTaxFee	Private		
	calculateLiquidityFee	Private		
	removeAllFee	Private	✓	
	restoreAllFee	Private	✓	
	isExcludedFromFee	Public		-
	_approve	Private	✓	
	_transfer	Private	✓	
	swapAndLiquify	Private	✓	lockTheSwap
	swapTokensForEth	Private	✓	
	addLiquidity	Private	✓	
	_tokenTransfer	Private	✓	
	_transferStandard	Private	✓	
	_transferToExcluded	Private	✓	
	_transferFromExcluded	Private	✓	

Contract Flow



Domain Info

Domain Name	ultimatedoge.club
Registry Domain ID	DE99A7377450844D6B8BFAD50B6092682-GDREG
Creation Date	2022-05-21T11:09:05Z
Updated Date	2022-05-26T11:09:05Z
Registry Expiry Date	2024-05-21T11:09:05Z
Registrar WHOIS Server	whois.godaddy.com
Registrar URL	whois.godaddy.com
Registrar	GoDaddy.com, LLC
Registrar IANA ID	146

The domain has been created in almost 2 years before the creation of the audit.

There is no public billing information, the creator is protected by the privacy settings.

Summary

There are some functions that can be abused by the owner like stopping transactions, transferring tokens to the team’s wallet and manipulating fees. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats.

Disclaimer

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About Cyberscope

Coinscope audit and K.Y.C. service has been rebranded to Cyberscope.

Coinscope is the leading early coin listing, voting and auditing authority firm. The audit process is analyzing and monitoring many aspects of the project. That way, it gives the community a good sense of security using an informative report and a generic score.

Cyberscope and Coinscope are aiming to make crypto discoverable and efficient globally. They provide all the essential tools to assist users draw their own conclusions.

The Cyberscope team

https://www.cyberscope.io