



Cyberscope

Audit Report

Chow Chow

March 2022

Type BEP20

Network BSC

Address 0x726697fa9672Cf5d53f8D9C92877076c8553DD3c

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Contract Review

Contract Name	ChowChow
Compiler Version	v0.8.9+commit.e5eed63a
Optimization	200 runs
Licence	Unlicense
Explorer	https://bscscan.com/token/0x726697fa9672Cf5d53f8D9C92877076c8553DD3c
Symbol	\$CHOW
Decimals	2
Total Supply	100,000,000,000
Source	contract.sol
Domain	

Audit Updates

Initial Audit	14th March 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#L345

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 `tradingOpen` to false.

```
if (!authorizations[sender] && !authorizations[recipient]) {  
    require(tradingOpen, "Trading is not enabled");  
}
```

Recommendation

The contract could allow to enable the *tradingOpen* toggle once.

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.

BC - Blacklisted Contracts

Criticality	medium
Location	contract.sol#L628

Description

The contract owner has the authority to stop contracts from transactions. The owner may take advantage of it by calling the `setLocks` function.

```
if (lockingEnabled) {  
    require(!isLocked[sender] && !isLocked[recipient], "Wallet is locked");  
}
```

Recommendation

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
●	L01	Public Function could be Declared External
●	L04	Conformance to Solidity Naming Conventions
●	L07	Missing Events Arithmetic
●	L14	Uninitialized Variables in Local Scope
●	L13	Divide before Multiply Operation

L01 - Public Function could be Declared External

Criticality	minor
Location	contract.sol#L106,110,123,674

Description

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

```
tradingStatus  
transferOwnership  
unauthorize  
authorize
```

Recommendation

Use the external attribute for functions never called from the contract

L04 - Conformance to Solidity Naming Conventions

Criticality

minor

Location

contract.sol#L141,612,624,628,641,642,643,650,674,173 and 12 more

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.

```
_feeWallets  
_multipliers  
_fees  
_maxHoldings  
_maxTxAmount  
_allowances  
_balances  
_totalSupply  
_decimals  
...
```

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#L526,537,545,553,640,650,674

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.

```
deadBlocks = _deadBlocks
targetLiquidity = _target
swapThreshold = _swapThreshold
_maxTxAmount = amount
_maxTxAmount = (_totalSupply * percent) / base
_maxHoldings = amount
_maxHoldings = (_totalSupply * percent) / base
```

Recommendation

Emit an event for critical parameter changes.

L14 - Uninitialized Variables in Local Scope

Criticality

minor

Location

contract.sol#L520,412

Description

There are variables that are defined in the local scope and are not initialized.

```
feeAmount  
i
```

Recommendation

All the local scoped variables should be initialized.

L13 - Divide before Multiply Operation

Criticality

minor

Location

contract.sol#L586

Description

Performing divisions before multiplications may cause lose of prediction.

```
fees =
_fees.total.mul(100).div(_fees.divisor).mul(_multipliers.sellMultiplier).div(_multipliers.divisor)
fees =
_fees.total.mul(100).div(_fees.divisor).mul(_multipliers.buyMultiplier).div(_multipliers.divisor)
```

Recommendation

The multiplications should be prior to the divisions.

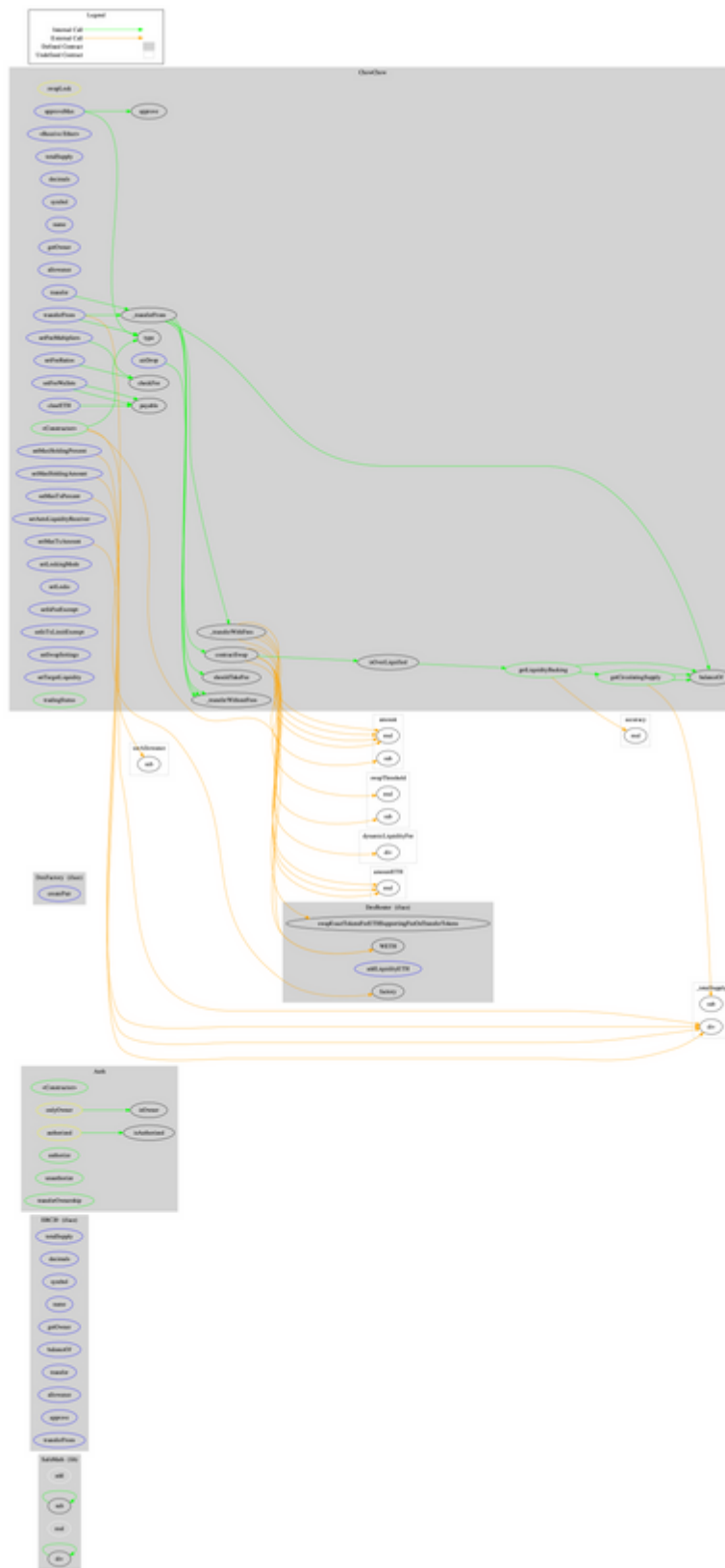
Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
ERC20	Interface			
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
Auth	Implementation			
	<Constructor>	Public	✓	-
	authorize	Public	✓	onlyOwner
	unauthorize	Public	✓	onlyOwner
	isOwner	Public		-
	isAuthorized	Public		-
	transferOwnership	Public	✓	onlyOwner
DexFactory	Interface			

	createPair	External	✓	-
DexRouter	Interface			
	factory	External		-
	WETH	External		-
	addLiquidityETH	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
ChowChow	Implementation	ERC20, Auth		
	<Constructor>	Public	✓	Auth
	<Receive Ether>	External	Payable	-
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	Public		-
	allowance	External		-
	approve	Public	✓	-
	approveMax	External	✓	-
	transfer	External	✓	-
	transferFrom	External	✓	-
	_transferFrom	Internal	✓	
	shouldTakeFee	Internal		
	_transferWithoutFees	Internal	✓	
	_transferWithFees	Internal	✓	
	contractSwap	Internal	✓	swapLock
	airDrop	External	✓	onlyOwner
	setMaxHoldingPercent	External	✓	onlyOwner
	setMaxHoldingAmount	External	✓	onlyOwner
	setMaxTxPercent	External	✓	onlyOwner
	setMaxTxAmount	External	✓	onlyOwner
	setFeeMultipliers	External	✓	onlyOwner
	setFeeRatios	External	✓	onlyOwner

	checkFee	Internal		
	setFeeWallets	External	✓	onlyOwner
	setAutoLiquidityReceiver	External	✓	onlyOwner
	clearETH	External	✓	authorized
	setLockingMode	External	✓	onlyOwner
	setLocks	External	✓	onlyOwner
	setIsFeeExempt	External	✓	onlyOwner
	setIsTxLimitExempt	External	✓	onlyOwner
	setSwapSettings	External	✓	onlyOwner
	setTargetLiquidity	External	✓	onlyOwner
	getCirculatingSupply	Public		-
	getLiquidityBacking	Public		-
	isOverLiquified	Public		-
	tradingStatus	Public	✓	onlyOwner

Contract Flow



Domain Info

Domain Name	chow-token.com
Registry Domain ID	2667958511_DOMAIN_COM-VRSN
Creation Date	2022-01-13T13:44:43Z
Updated Date	2022-02-07T20:27:04Z
Registry Expiry Date	2025-01-13T13:44:43Z
Registrar WHOIS Server	whois.namecheap.com
Registrar URL	http://www.namecheap.com
Registrar	NameCheap, Inc.
Registrar IANA ID	1068

The domain has been created 2 months before the creation of the audit. It will expire in almost 3 years.

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 and blacklisting contracts. The maximum fee percentage that can be set is 25%. 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 provides all the essential tools to assist users draw their own conclusions.



The Cyberscope team

<https://www.cyberscope.io>