Cyberscope

Audit Report

CryptoCare

June 2023

Network	ETH
Address	0xCcfDaAdbf81de14711F5258690015826f475b828
Audited by	© cyberscope

Analysis

Critical Medium Minor / Informative Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Unresolved
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

Diagnostics

Critical Medium Minor / Informative

Severity	Code	Description	Status
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L07	Missing Events Arithmetic	Unresolved
●	L14	Uninitialized Variables in Local Scope	Unresolved
●	L16	Validate Variable Setters	Unresolved
●	L20	Succeeded Transfer Check	Unresolved

Table of Contents

Review

Contract Name	CryptoCare
Compiler Version	v0.8.19+commit.7dd6d404
Optimization	500 runs
Explorer	https://etherscan.io/address/0xccfdaadbf81de14711f5258690015826f475b828
Address	0xccfdaadbf81de14711f5258690015826f475b828
Network	ETH
Symbol	CC
Decimals	9
Total Supply	199,999,999,999,999

Audit Updates

Initial Audit	31 May 2023 https://github.com/cyberscope-io/audits/blob/main/8-cc/v1/audit.pdf
Corrected Phase 2	09 Jun 2023 https://github.com/cyberscope-io/audits/blob/main/8-cc/v2/audit.pdf
Corrected Phase 3	25 Jun 2023 https://github.com/cyberscope-io/audits/blob/main/8-cc/v3/audit.pdf
Corrected Phase 4	28 Jun 2023

Source Files

Filename	SHA256
CryptoCare.sol	cd931797e84220e4079f931e7077d8c8eabd7f770a9f3b1dab81ffecc42dd8eb

Findings Breakdown

Critical	1
Medium	0
Minor / Informative	6

Severity	Unresolved	Acknowledged	Resolved	Other
Critical	1	0	0	0
Medium	0	0	0	0
Minor / Informative	6	0	0	0

ST - Stops Transactions

Criticality	Critical
Location	CryptoCare.sol#L483,485
Status	Unresolved

Description

The transactions are initially disabled for all users excluding the authorized addresses. The owner can enable the transactions for all users. Once the transactions are enabled the owner will not be able to disable them again.

```
if (_hasLimits(from, to)) {
    if(!tradingEnabled) {
        if (!other) {
            revert("Trading not yet enabled!");
        } else if (!_isExcludedFromProtection[from] &&
!_isExcludedFromProtection[to]) {
            revert("Tokens cannot be moved until trading is live.");
        }
    }
}
```

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. Some suggestions are:

- Introduce a multi-sign wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	CryptoCare.sol#L33,112,113,114,115,116,130,136,145,157,169,375
Status	Unresolved

Description

The Solidity style guide is a set of guidelines for writing clean and consistent Solidity code. Adhering to a style guide can help improve the readability and maintainability of the Solidity code, making it easier for others to understand and work with.

The followings are a few key points from the Solidity style guide:

1. Use camelCase for function and variable names, with the first letter in lowercase (e.g., myVariable, updateCounter).
2. Use PascalCase for contract, struct, and enum names, with the first letter in uppercase (e.g., MyContract, UserStruct, ErrorEnum).
3. Use uppercase for constant variables and enums (e.g., MAX_VALUE, ERROR_CODE).
4. Use indentation to improve readability and structure.
5. Use spaces between operators and after commas.
6. Use comments to explain the purpose and behavior of the code.
7. Keep lines short (around 120 characters) to improve readability.

```
function WETH() external pure returns (address);
uint256 constant private startingSupply = 200_000_000_000_000
string constant private _name = "CryptoCare"
string constant private _symbol = "CC"
uint8 constant private _decimals = 9
uint256 constant private _tTotal = startingSupply *
10**_decimals

Fees public _taxRates = Fees({
        buyFee: 900,
        sellFee: 900,
        transferFee: 0
    })
...
```

Recommendation

By following the Solidity naming convention guidelines, the codebase increased the readability, maintainability, and makes it easier to work with.
Find more information on the Solidity documentation
https://docs.soliditylang.org/en/v0.8.17/style-guide.html#naming-convention.

L07 - Missing Events Arithmetic

Criticality	Minor / Informative
Location	CryptoCare.sol#L414,424
Status	Unresolved

Description

Events are a way to record and log information about changes or actions that occur within a contract. They are often used to notify external parties or clients about events that have occurred within the contract, such as the transfer of tokens or the completion of a task.

It's important to carefully design and implement the events in a contract, and to ensure that all required events are included. It's also a good idea to test the contract to ensure that all events are being properly triggered and logged.

```
swapThreshold = (_tTotal * thresholdPercent) / thresholdDivisor
piSwapPercent = priceImpactSwapPercent
```

Recommendation

By including all required events in the contract and thoroughly testing the contract's functionality, the contract ensures that it performs as intended and does not have any missing events that could cause issues with its arithmetic.

L14 - Uninitialized Variables in Local Scope

Criticality	Minor / Informative
Location	CryptoCare.sol#L336,566,597,598
Status	Unresolved

Description

Using an uninitialized local variable can lead to unpredictable behavior and potentially cause errors in the contract. It's important to always initialize local variables with appropriate values before using them.

```
address constructorLP
address router
uint256 initThreshold
uint256 initSwapAmount
bool checked
bool check
```

Recommendation

By initializing local variables before using them, the contract ensures that the functions behave as expected and avoid potential issues.

L16 - Validate Variable Setters

Criticality	Minor / Informative
Location	CryptoCare.sol#L243
Status	Unresolved

Description

The contract performs operations on variables that have been configured on user-supplied input. These variables are missing of proper check for the case where a value is zero. This can lead to problems when the contract is executed, as certain actions may not be properly handled when the value is zero.

```
operator = newOperator
```

Recommendation

By adding the proper check, the contract will not allow the variables to be configured with zero value. This will ensure that the contract can handle all possible input values and avoid unexpected behavior or errors. Hence, it can help to prevent the contract from being exploited or operating unexpectedly.

L20 - Succeeded Transfer Check

Criticality	Minor / Informative
Location	CryptoCare.sol#L585
Status	Unresolved

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.

```
TOKEN.transfer(_owner, TOKEN.balanceOf(address(this)))
```

Recommendation

The contract should check if the result of the transfer methods is successful. The team is advised to check the SafeERC20 library from the Openzeppelin library.

Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
IERC20	Interface			
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
IFactoryV2	Interface			
	getPair	External		-
	createPair	External	✓	-
IV2Pair	Interface			
	factory	External		-

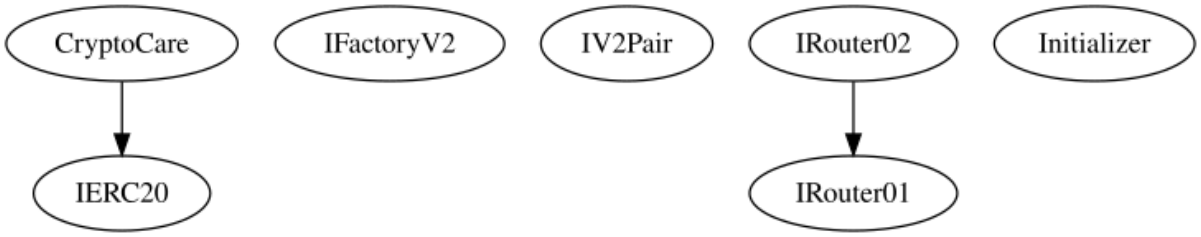
	getReserves	External		-
	sync	External	✓	-
IRouter01	Interface			
	factory	External		-
	WETH	External		-
	addLiquidityETH	External	Payable	-
	addLiquidity	External	✓	-
	swapExactETHForTokens	External	Payable	-
	getAmountsOut	External		-
	getAmountsIn	External		-
IRouter02	Interface	IRouter01		
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokens	External	✓	-
Initializer	Interface			
	setLaunch	External	✓	-
	getConfig	External	✓	-
	getInits	External	✓	-
	setLpPair	External	✓	-

	checkUser	External	✓	-
	setProtections	External	✓	-
	removeSniper	External	✓	-
CryptoCare	Implementation	IERC20		
		Public	Payable	-
	transferOwner	External	✓	onlyOwner
	renounceOwnership	External	✓	onlyOwner
	setOperator	Public	✓	-
	renounceOriginalDeployer	External	✓	-
		External	Payable	-
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	allowance	External		-
	balanceOf	Public		-
	transfer	Public	✓	-
	approve	External	✓	-
	_approve	Internal	✓	
	approveContractContingency	External	✓	onlyOwner
	transferFrom	External	✓	-

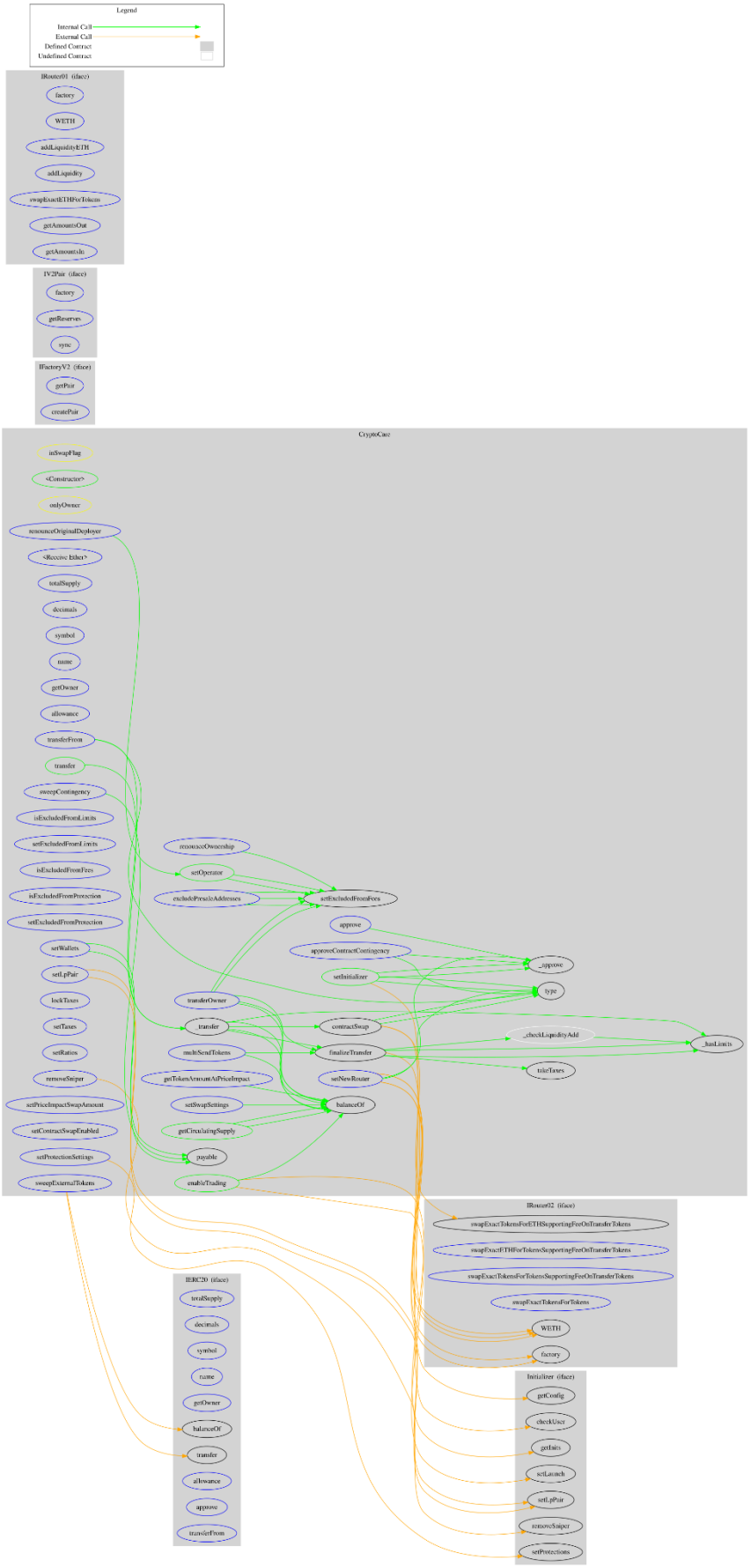
	setNewRouter	External	✓	onlyOwner
	setLpPair	External	✓	onlyOwner
	setInitializer	Public	✓	onlyOwner
	isExcludedFromLimits	External		-
	setExcludedFromLimits	External	✓	onlyOwner
	isExcludedFromFees	External		-
	setExcludedFromFees	Public	✓	onlyOwner
	isExcludedFromProtection	External		-
	setExcludedFromProtection	External	✓	onlyOwner
	getCirculatingSupply	Public		-
	removeSniper	External	✓	onlyOwner
	setProtectionSettings	External	✓	onlyOwner
	lockTaxes	External	✓	onlyOwner
	setTaxes	External	✓	onlyOwner
	setRatios	External	✓	onlyOwner
	setWallets	External	✓	onlyOwner
	getTokenAmountAtPriceImpact	External		-
	setSwapSettings	External	✓	onlyOwner
	setPriceImpactSwapAmount	External	✓	onlyOwner
	setContractSwapEnabled	External	✓	onlyOwner
	excludePresaleAddresses	External	✓	onlyOwner
	_hasLimits	Internal		
	_transfer	Internal	✓	

	contractSwap	Internal	✓	inSwapFlag
	_checkLiquidityAdd	Internal	✓	
	enableTrading	Public	✓	onlyOwner
	sweepContingency	External	✓	onlyOwner
	sweepExternalTokens	External	✓	onlyOwner
	multiSendTokens	External	✓	onlyOwner
	finalizeTransfer	Internal	✓	
	takeTaxes	Internal	✓	

Inheritance Graph



Flow Graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
IRouter01 (iface)
factory
WETH
addLiquidityETH
addLiquidity
swapExactETHForTokens
getAmountsOut
getAmountsIn
IV2Pair (iface)
factory
getReserves
sync
IFactoryV2 (iface)
getPair
createPair
CryptoCare
inSwapFlag
<Constructor>
onlyOwner
renounceOriginalDeployer
<Receive Ether>
totalSupply
decimals
symbol
name
getOwner
allowance
transferFrom
transfer
sweepContingency
isExcludedFromLimits
setExcludedFromLimits
isExcludedFromFees
isExcludedFromProtection
setExcludedFromProtection
setWallets
setLpPair
lockTaxes
setTaxes
setRatios
removeSniper
setPriceImpactSwapAmount
setContractSwapEnabled
setProtectionSettings
sweepExternalTokens
renounceOwnership
setOperator
excludePresaleAddresses
setExcludedFromFees
approve
aproveContractContingency
setInitializer
transferOwner
_transfer
multiSendTokens
getTokenAmountAtPriceImpact
setSwapSettings
getCirculatingSupply
payable
enableTrading
_approve
_type
contractSwap
finalizeTransfer
setNewRouter
balanceOf
_checkLiquidityAdd
_checkLimits
takeTaxes
IRouter02 (iface)
swapExactTokensForETHSupportingFeeOnTransferTokens
swapExactETHForTokensSupportingFeeOnTransferTokens
swapExactTokensForTokensSupportingFeeOnTransferTokens
swapExactTokensForTokens
WETH
factory
IERC20 (iface)
totalSupply
decimals
symbol
name
getOwner
balanceOf
transfer
allowance
approve
transferFrom
Initializer (iface)
getConfig
checkUser
getInits
setLaunch
setLpPair
removeSniper
setProtections

Summary

CryptoCare contract implements a token mechanism. This audit investigates security issues, business logic concerns, and potential improvements. There are some functions that can be abused by the owner like stopping transactions. A multi-wallet signing pattern will provide security against potential hacks. There is also a limit of max 9% fee.

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The Cyberscope team

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