



Cyberscope

# Audit Report

## **Virtual health**

November 2022

SHA256 5ae0a8bc52bae837313377c92c5f29b0fddde0af784896b8b6798892821268bd2

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# Table of Contents

<b>Table of Contents</b>	<b>1</b>
<b>Contract Review</b>	<b>3</b>
<b>Source Files</b>	<b>3</b>
<b>Audit Updates</b>	<b>3</b>
<b>Contract Analysis</b>	<b>4</b>
<b>Contract Diagnostics</b>	<b>5</b>
<b>L04 - Conformance to Solidity Naming Conventions</b>	<b>6</b>
Description	6
Recommendation	6
<b>L05 - Unused State Variable</b>	<b>7</b>
Description	7
Recommendation	7
<b>L07 - Missing Events Arithmetic</b>	<b>8</b>
Description	8
Recommendation	8
<b>L12 - Using Variables before Declaration</b>	<b>9</b>
Description	9
Recommendation	9
<b>L13 - Divide before Multiply Operation</b>	<b>10</b>
Description	10
Recommendation	10
<b>L14 - Uninitialized Variables in Local Scope</b>	<b>11</b>
Description	11
Recommendation	11
<b>Contract Functions</b>	<b>12</b>
<b>Contract Flow</b>	<b>15</b>

<b>Summary</b>	<b>16</b>
<b>Disclaimer</b>	<b>17</b>
<b>About Cyberscope</b>	<b>18</b>

## Contract Review

<b>Contract Name</b>	VirtualHealthAssistant
<b>Compiler Version</b>	v0.8.15+commit.e14f2714
<b>Optimization</b>	0 runs
<b>Explorer</b>	<a href="https://testnet.bscscan.com/token/0x0292CCad1Ecb6489E909CD0D00D0f278dc2426Bd">https://testnet.bscscan.com/token/0x0292CCad1Ecb6489E909CD0D00D0f278dc2426Bd</a>
<b>Symbol</b>	\$VHA
<b>Decimals</b>	18
<b>Total Supply</b>	100,000,000
<b>Domain</b>	undefined

## Source Files

<b>Filename</b>	<b>SHA256</b>
<b>contract.sol</b>	5ae0a8bc52bae837313377c92c5f29b0fdde0af784896b8b6798892821268bd2

## Audit Updates

<b>Initial Audit</b>	14th November 2022
<b>Corrected</b>	

# Contract Analysis

● Critical ● Medium ● Minor / Informative ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Passed
●	OCTD	Transfers Contract's Tokens	Passed
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	ULTW	Transfers Liquidity to Team Wallet	Passed
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

# Contract Diagnostics

● Critical   ● Medium   ● Minor / Informative

Severity	Code	Description	Status
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L05	Unused State Variable	Unresolved
●	L07	Missing Events Arithmetic	Unresolved
●	L12	Using Variables before Declaration	Unresolved
●	L13	Divide before Multiply Operation	Unresolved
●	L14	Uninitialized Variables in Local Scope	Unresolved

## L04 - Conformance to Solidity Naming Conventions

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L33,114,111,142,160,143,141,112,113,144,115,129,373,135
<b>Status</b>	Unresolved

### 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.

```
WETH
_decimals
startingSupply
maxSellTaxes
_hasLiqBeenAdded
maxTransferTaxes
maxBuyTaxes
_name
_symbol
...
```

### Recommendation

Follow the Solidity naming convention.

<https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions>.

## L05 - Unused State Variable

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L100
<b>Status</b>	Unresolved

### Description

There are segments that contain unused state variables.

```
_rOwned
```

### Recommendation

Remove unused state variables.



## L07 - Missing Events Arithmetic

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L419,410
<b>Status</b>	Unresolved

### 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.

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

### Recommendation

Emit an event for critical parameter changes.

## L12 - Using Variables before Declaration

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L604
<b>Status</b>	Unresolved

### Description

The contract is using a variable before the declaration. This is usually happening either if it has not been declared yet or the variable has been declared in a different scope.

check

### Recommendation

The variables should be declared before any usage of them.

## L13 - Divide before Multiply Operation

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L506
<b>Status</b>	Unresolved

### Description

Performing divisions before multiplications may cause lose of prediction.

```
toLiquify = ((contractTokenBalance * ratios.liquidity) / ratios.totalSwap) / 2
```

### Recommendation

The multiplications should be prior to the divisions.

## L14 - Uninitialized Variables in Local Scope

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L604,603
<b>Status</b>	Unresolved

### Description

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

check  
checked

### Recommendation

All the local scoped variables should be initialized.

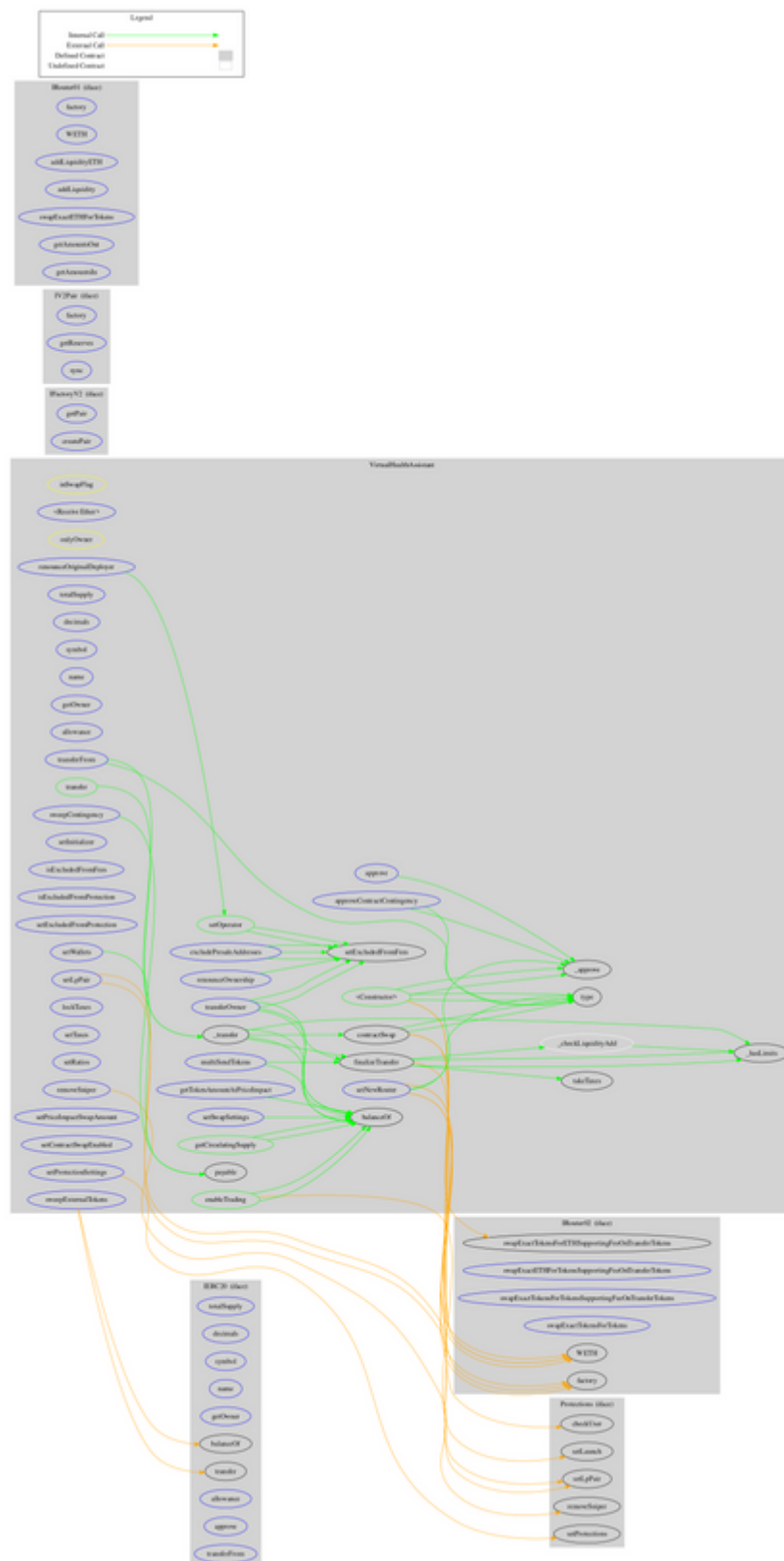
# Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
<b>IERC20</b>	Interface			
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
<b>IFactoryV2</b>	Interface			
	getPair	External		-
	createPair	External	✓	-
<b>IV2Pair</b>	Interface			
	factory	External		-
	getReserves	External		-
	sync	External	✓	-
<b>IRouter01</b>	Interface			
	factory	External		-
	WETH	External		-
	addLiquidityETH	External	Payable	-
	addLiquidity	External	✓	-
	swapExactETHForTokens	External	Payable	-
	getAmountsOut	External		-
	getAmountsIn	External		-

<b>IRouter02</b>	Interface	IRouter01		
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokens	External	✓	-
<b>Protections</b>	Interface			
	checkUser	External	✓	-
	setLaunch	External	✓	-
	setLpPair	External	✓	-
	setProtections	External	✓	-
	removeSniper	External	✓	-
<b>VirtualHealthAssistant</b>	Implementation	IERC20		
	<Constructor>	Public	Payable	-
	<Receive Ether>	External	Payable	-
	transferOwner	External	✓	onlyOwner
	renounceOwnership	External	✓	onlyOwner
	setOperator	Public	✓	-
	renounceOriginalDeployer	External	✓	-
	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	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
	getTokenAmountAtPricImpact	External		-
	setSwapSettings	External	✓	onlyOwner
	setPricImpactSwapAmount	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	✓	

# Contract Flow







## Summary

Virtual health is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler error or critical issues. The contract Owner can access some admin functions that can not be used in a malicious way to disturb the users' transactions. There is also a limit of max 8% fees.

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## About Cyberscope

Cyberscope is a blockchain cybersecurity company that was founded with the vision to make web3.0 a safer place for investors and developers. Since its launch, it has worked with thousands of projects and is estimated to have secured tens of millions of investors' funds.

Cyberscope is one of the leading smart contract audit firms in the crypto space and has built a high-profile network of clients and partners.



The Cyberscope team

<https://www.cyberscope.io>