



Cyberscope

## Audit Report

# Pulse Protocol

June 2022

Type      BEP20

Network    BSC

Address    0x686d9783d0766C850940CA5f136C61C3a9607838

Audited by   © cyberscope

# 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>ULTW - Unlimited Liquidity to Team Wallet</b>	<b>5</b>
Description	5
Recommendation	5
<b>Contract Diagnostics</b>	<b>6</b>
<b>MTS - Manipulate Total Supply</b>	<b>7</b>
Description	7
Recommendation	7
<b>L01 - Public Function could be Declared External</b>	<b>8</b>
Description	8
Recommendation	8
<b>L02 - State Variables could be Declared Constant</b>	<b>9</b>
Description	9
Recommendation	9
<b>L04 - Conformance to Solidity Naming Conventions</b>	<b>10</b>
Description	10
Recommendation	10
<b>L07 - Missing Events Arithmetic</b>	<b>11</b>
Description	11
Recommendation	11
<b>L13 - Divide before Multiply Operation</b>	<b>12</b>
Description	12

<b>Recommendation</b>	<b>12</b>
<b>Contract Functions</b>	<b>13</b>
<b>Contract Flow</b>	<b>18</b>
<b>Domain Info</b>	<b>19</b>
<b>Summary</b>	<b>20</b>
<b>Disclaimer</b>	<b>21</b>
<b>About Cyberscope</b>	<b>22</b>

## Contract Review

<b>Contract Name</b>	Pulse
<b>Compiler Version</b>	v0.7.6+commit.7338295f
<b>Optimization</b>	200 runs
<b>Licence</b>	None
<b>Explorer</b>	<a href="https://bscscan.com/token/0x686d9783d0766C850940CA5f136C61C3a9607838">https://bscscan.com/token/0x686d9783d0766C850940CA5f136C61C3a9607838</a>
<b>Symbol</b>	Pulse
<b>Decimals</b>	5
<b>Total Supply</b>	325,000
<b>Domain</b>	pulse-protocol.com

## Source Files

<b>Filename</b>	<b>SHA256</b>
<b>contract.sol</b>	6c9600da484c5f105af9fb871a1a05c9212ce7288345ce9ee5aa3e4eab83c0e6

## Audit Updates

<b>Initial Audit</b>	11th June 2022
<b>Corrected</b>	23st June 2022

# 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

## ULTW - Unlimited Liquidity to Team Wallet

Criticality	minor
Location	contract.sol#L904

### Description

The contract owner has the authority to transfer funds without limit to the team wallet. These funds have been accumulated from fees collected from the contract. The owner may take advantage of it by calling the `withdrawAllToTreasury()` method.

```
function withdrawAllToTreasury() external swapping onlyOwner {  
  
    uint256 amountToSwap = _gonBalances[address(this)].div(_gonsPerFragment);  
    require( amountToSwap > 0, "There is no Pulse token deposited in token  
contract");  
    address[] memory path = new address[](2);  
    path[0] = address(this);  
    path[1] = router.WETH();  
    router.swapExactTokensForETHSupportingFeeOnTransferTokens(  
        amountToSwap,  
        0,  
        path,  
        treasuryReceiver,  
        block.timestamp  
    );  
}
```

### Recommendation

The contract could embody a check for the maximum amount of funds that can be swapped. Since a huge amount may volatile the token's price.

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
●	MTS	Manipulate Total Supply
●	L01	Public Function could be Declared External
●	L02	State Variables could be Declared Constant
●	L04	Conformance to Solidity Naming Conventions
●	L07	Missing Events Arithmetic
●	L13	Divide before Multiply Operation

## MTS - Manipulate Total Supply

<b>Criticality</b>	minor
<b>Location</b>	contract.sol#L698

### Description

Owner is able to manipulate total supply. This change will have a direct impact on the token price and Market Cap.

```
for (uint256 i = 0; i < times; i++) {  
    _totalSupply = _totalSupply  
        .mul((10**RATE_DECIMALS).add(rebaseRate))  
        .div(10**RATE_DECIMALS);  
}
```

### Recommendation

The contract owner should carefully manage the adjustment of the circulating supply (increases or decreases), according to the token's price fluctuations.



## L01 - Public Function could be Declared External

**Criticality**

minor

**Location**

contract.sol#L504,517,522,548,552,556,677,1074

### Description

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

```
getLiquidityBacking  
updatePancakeSwapRouter  
decimals  
symbol  
name  
transferOwnership  
renounceOwnership  
owner
```

### Recommendation

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

## L02 - State Variables could be Declared Constant

**Criticality**

minor

**Location**

contract.sol#L350,593,607,589

### Description

Constant state variables should be declared constant to save gas.

```
totalFee  
swapEnabled  
feeDenominator  
dividendsPerShareAccuracyFactor
```

### Recommendation

Add the constant attribute to state variables that never change.

## L04 - Conformance to Solidity Naming Conventions

<b>Criticality</b>	minor
<b>Location</b>	contract.sol#L133,134,151,171,372,327,335,953,962,1025,1040,1065,1066,1067,1084,1088,1093,570,584,585,586,587,588,624,625,626,627,628,629

### 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.

```
_totalSupply  
_lastAddLiquidityTime  
_lastRebasedTime  
_initRebaseStartTime  
_autoAddLiquidity  
_autoRebase  
burnPitFee  
sellFee  
pulseDividendFee  
...
```

### 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#L372

### 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.

```
minPeriod = _minPeriod
```

### Recommendation

Emit an event for critical parameter changes.

## L13 - Divide before Multiply Operation

**Criticality**

minor

**Location**

contract.sol#L443,681,1074

### Description

Performing divisions before multiplications may cause lose of prediction.

```
liquidityBalance = _gonBalances[pair].div(_gonsPerFragment)
times = deltaTime.div(900)
BUSD.transfer(addr_taxes, amount / 100 * 40)
BUSD.transfer(shareholder, amount / 100 * 60)
```

### Recommendation

The multiplications should be prior to the divisions.

# Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
<b>SafeMathInt</b>	Library			
	mul	Internal		
	div	Internal		
	sub	Internal		
	add	Internal		
<b>SafeMath</b>	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
<b>IERC20</b>	Interface			
	totalSupply	External		-
	balanceOf	External		-
	allowance	External		-
	transfer	External	✓	-
	approve	External	✓	-
	transferFrom	External	✓	-
<b>IPancakeSwap Pair</b>	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	✓	-
<b>IPancakeSwap Router</b>	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	-

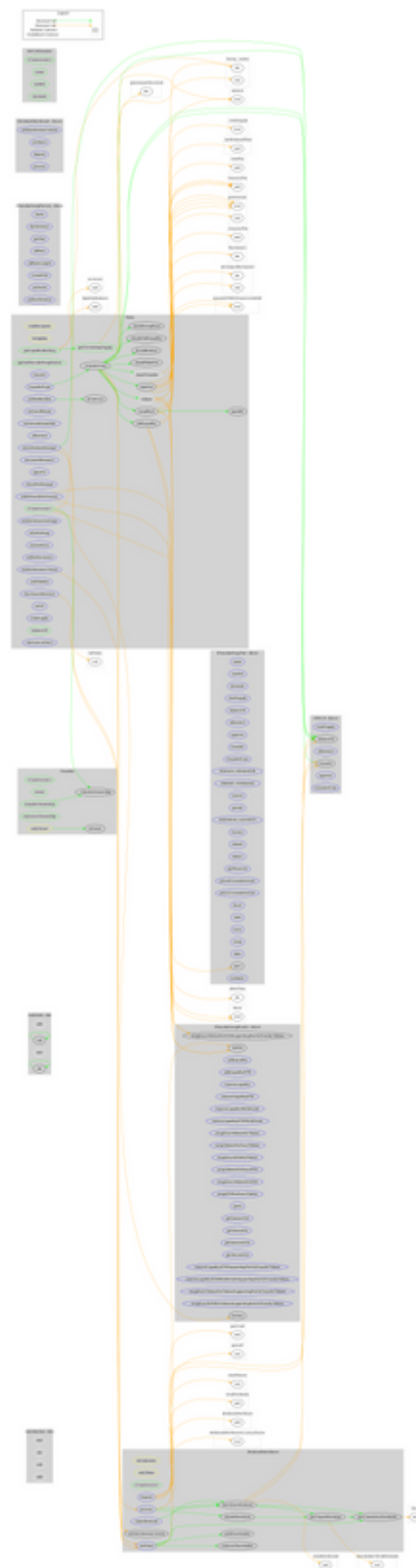
	swapTokensForExactETH	External	✓	-
	swapExactTokensForETH	External	✓	-
	swapETHForExactTokens	External	Payable	-
	quote	External		-
	getAmountOut	External		-
	getAmountIn	External		-
	getAmountsOut	External		-
	getAmountsIn	External		-
	removeLiquidityETHSupportingFeeOnTransferTokens	External	✓	-
	removeLiquidityETHWithPermitSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
<b>IPancakeSwapFactory</b>	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-
	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	External	✓	-
<b>IDividendDistributor</b>	Interface			
	setDistributionCriteria	External	✓	-
	setShare	External	✓	-
	deposit	External	Payable	-
	process	External	✓	-



<b>DividendDistributor</b>	Implementation	IDividendDistributor		
	<Constructor>	Public	✓	-
	setDistributionCriteria	External	✓	onlyToken
	setShare	External	✓	onlyToken
	deposit	External	Payable	onlyToken
	process	External	✓	onlyToken
	shouldDistribute	Internal		
	distributeDividend	Internal	✓	
	claimDividend	External	✓	-
	getUnpaidEarnings	Public		-
	getCumulativeDividends	Internal		
	addShareholder	Internal	✓	
	removeShareholder	Internal	✓	
<b>Ownable</b>	Implementation			
	<Constructor>	Public	✓	-
	owner	Public		-
	isOwner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
<b>ERC20Detailed</b>	Implementation	IERC20		
	<Constructor>	Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
<b>Pulse</b>	Implementation	ERC20Detailed, Ownable		
	<Constructor>	Public	✓	ERC20Detailed Ownable
	updatePancakeSwapRouter	Public	✓	onlyOwner
	rebase	Internal	✓	

	transfer	External	✓	validRecipient
	transferFrom	External	✓	validRecipient
	_basicTransfer	Internal	✓	
	_transferFrom	Internal	✓	
	takeFee	Internal	✓	
	addLiquidity	Internal	✓	swapping
	swapBack	Internal	✓	swapping
	withdrawAllToTreasury	External	✓	swapping onlyOwner
	shouldTakeFee	Internal		
	shouldRebase	Internal		
	shouldAddLiquidity	Internal		
	shouldSwapBack	Internal		
	setAutoRebase	External	✓	onlyOwner
	setAutoAddLiquidity	External	✓	onlyOwner
	allowance	External		-
	decreaseAllowance	External	✓	-
	increaseAllowance	External	✓	-
	approve	External	✓	-
	checkFeeExempt	External		-
	setIsDividendExempt	External	✓	onlyOwner
	setDistributionCriteria	External	✓	onlyOwner
	setDistributorSettings	External	✓	onlyOwner
	getCirculatingSupply	Public		-
	isNotInSwap	External		-
	manualSync	External	✓	-
	setFeeReceivers	External	✓	onlyOwner
	getLiquidityBacking	Public		-
	setWhitelist	External	✓	onlyOwner
	setBotBlacklist	External	✓	onlyOwner
	setLP	External	✓	onlyOwner
	totalSupply	External		-
	balanceOf	Public		-
	isContract	Internal		
	<Receive Ether>	External	Payable	-

# Contract Flow



## Domain Info

<b>Domain Name</b>	pulse-protocol.com
<b>Registry Domain ID</b>	1137702
<b>Creation Date</b>	2022-05-22T00:00:00Z
<b>Updated Date</b>	2022-05-22T00:00:00Z
<b>Registry Expiry Date</b>	2023-05-22T00:00:00Z
<b>Registrar WHOIS Server</b>	whois.ownregistrar.com
<b>Registrar URL</b>	<a href="http://www.ownregistrar.com">http://www.ownregistrar.com</a>
<b>Registrar</b>	OwnRegistrar, Inc.
<b>Registrar IANA ID</b>	1250

The domain has been created in 11 months before the creation of the audit.

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

## Summary

The Smart Contract analysis reported one minor severity issue. The contract owner has the authority to transfer funds to the team's wallet. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats. There is also a limit of max 25% fees.

## Disclaimer

All the content provided in this document is for general information only and should not be used as financial advice or a reason to buy any investment.

Cyberscope team provides no guarantees against the sale of team tokens or the removal of liquidity by the project audited in this document. Always Do your own research and protect yourselves from being scammed.

The Cyberscope team has audited this project for general information and only expresses their opinion based on similar projects and checks from popular diagnostic tools. Under no circumstances did Cyberscope receive a payment to manipulate those results or change the awarding badge that we will be adding in our website.

Always Do your own research and protect yourselves from scams. This document should not be presented as a reason to buy or not buy any particular token.

The Cyberscope team disclaims any liability for the resulting losses.

## 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>