



Cyberscope

# Audit Report

## **Summertime**

November 2022

Type           BEP20

Network       BSC

Address       0xBa365337E6512139AA9283A4473612a21D23d356

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## Contract Review

<b>Contract Name</b>	SantaCoin
<b>Compiler Version</b>	v0.8.17+commit.8df45f5f
<b>Optimization</b>	200 runs
<b>Licence</b>	MIT
<b>Explorer</b>	<a href="https://bscscan.com/token/0xBa365337E6512139AA9283A4473612a21D23d356">https://bscscan.com/token/0xBa365337E6512139AA9283A4473612a21D23d356</a>
<b>Symbol</b>	Santa
<b>Decimals</b>	18
<b>Total Supply</b>	1,000,000,000,000
<b>Domain</b>	frozensummerishere.com

## Source Files

<b>Filename</b>	<b>SHA256</b>
<b>contract.sol</b>	4d76aa52654cb0750041829ced8c6bebbf53fa164554aa8955e2d8b196452df7

## Audit Updates

<b>Initial Audit</b>	21st 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
●	US	Untrusted Source	Unresolved
●	RSL	Redundant SafeMath Library	Unresolved
●	PVC	Price Volatility Concern	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L05	Unused State Variable	Unresolved
●	L07	Missing Events Arithmetic	Unresolved
●	L09	Dead Code Elimination	Unresolved
●	L11	Unnecessary Boolean equality	Unresolved
●	L12	Using Variables before Declaration	Unresolved
●	L13	Divide before Multiply Operation	Unresolved
●	L14	Uninitialized Variables in Local Scope	Unresolved
●	L15	Local Scope Variable Shadowing	Unresolved

## US - Untrusted Source

<b>Criticality</b>	critical
<b>Location</b>	contract.sol#L1293
<b>Status</b>	Unresolved

### Description

The contract uses an external contract in order to determine the transaction's flow. The external contract is untrusted. As a result it may produce security issues and harm the transactions.

```
dividendTracker.distributeDividends(balanceRewardToken);
```

### Recommendation

The contract should use a trusted external source. A trusted source could be either a commonly recognized or an audited contract. The pointing addresses should not be able to change after the initialization. Otherwise, the contract could wrap the above code line in a try-catch block, in order to handle any case in which it may fail.

## RSML - Redundant SafeMath Library

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L49
<b>Status</b>	Unresolved

### Description

Solidity versions greater than or equal to 0.8.0 no longer need the use of SafeMath Library.

```
library SafeMath {  
    .....  
}
```

### Recommendation

The team is advised to remove this library as it is safe to do math operations without it.



## PVC - Price Volatility Concern

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L1298
<b>Status</b>	Unresolved

### Description

If the owner sets the `swapTokensAtAmount` variable to a high number, it can drastically decrease the token's price.

```
function setSwapTokensAtAmount(uint256 newAmount) external onlyOwner{  
    require(newAmount > totalSupply() / 100000, "SwapTokensAtAmount must be  
greater than 0.001% of total supply");  
    swapTokensAtAmount = newAmount;  
    emit SwapTokensAtAmountUpdated(newAmount);  
}
```

### Recommendation

The contract should check that the new amount is not higher than a fixed percentage of the total supply.

## L04 - Conformance to Solidity Naming Conventions

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L1107,967,790,1318,756,235,252,626,234,672,680,1100,676,272,684
<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.

```
_charityWallet  
DEAD  
_account  
_maxWalletAmount  
_newMinimumBalance  
PERMIT_TYPEHASH  
MINIMUM_LIQUIDITY  
magnitude  
DOMAIN_SEPARATOR  
...
```

### 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#L103
<b>Status</b>	Unresolved

### Description

There are segments that contain unused state variables.

```
MAX_INT256
```

### Recommendation

Remove unused state variables.

## L07 - Missing Events Arithmetic

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L778
<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.

```
lastProcessedIndex = index
```

### Recommendation

Emit an event for critical parameter changes.

## L09 - Dead Code Elimination

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L446,130,450,455,689,419,442,438
<b>Status</b>	Unresolved

### Description

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

```
functionCallWithValue  
abs  
_functionCallWithValue  
_transfer  
isContract  
functionCall
```

### Recommendation

Remove unused functions.

## L11 - Unnecessary Boolean equality

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L1114
<b>Status</b>	Unresolved

### Description

The comparison to boolean constants is redundant. Boolean constants can be used directly and do not need to be compared to true or false.

```
_isExcludedFromMaxWalletLimit[from] == false && _isExcludedFromMaxWalletLimit[to] == false  
&& to != uniswapV2Pair
```

### Recommendation

Remove the equality to the boolean constant.

## L12 - Using Variables before Declaration

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L1237
<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.

```
lastProcessedIndex  
claims  
iterations
```

### 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#L1114
<b>Status</b>	Unresolved

### Description

Performing divisions before multiplications may cause lose of prediction.

```
fees = (amount * _totalFees) / 100
```

### 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#L1146,1237,1192,1008
<b>Status</b>	Unresolved

### Description

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

```
liquidityTokens  
claims  
burnTaxShare  
lastProcessedIndex  
router  
iterations
```

### Recommendation

All the local scoped variables should be initialized.

## L15 - Local Scope Variable Shadowing

<b>Criticality</b>	minor / informative
<b>Location</b>	contract.sol#L635,684,676,672,680
<b>Status</b>	Unresolved

### Description

There are variables that are defined in the local scope containing the same name from an upper scope.

```
_name  
_owner  
_symbol
```

### Recommendation

The local variables should have different names from the upper scoped variables.

# Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
<b>Context</b>	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
<b>Ownable</b>	Implementation	Context		
	<Constructor>	Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
<b>SafeMath</b>	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
	mod	Internal		
	mod	Internal		
<b>SafeMathInt</b>	Library			
	mul	Internal		
	div	Internal		
	sub	Internal		
	add	Internal		
	abs	Internal		
	toUint256Safe	Internal		

<b>SafeMathUint</b>	Library			
	toInt256Safe	Internal		
<b>IterableMapping</b>	Library			
	get	Public		-
	getIndexOfKey	Public		-
	getKeyAtIndex	Public		-
	size	Public		-
	set	Public	✓	-
	remove	Public	✓	-
<b>IUniswapV2Factory</b>	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-
	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	External	✓	-
<b>IUniswapV2Pair</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>IUniswapV2Router01</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		-
<b>IUniswapV2Router02</b>	Interface	IUniswapV2Router01		
	removeLiquidityETHSupportingFeeOnTransferTokens	External	✓	-
	removeLiquidityETHWithPermitSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
<b>IERC20</b>	Interface			
	totalSupply	External		-
	balanceOf	External		-
	allowance	External		-
	transfer	External	✓	-
	approve	External	✓	-
	transferFrom	External	✓	-
<b>Address</b>	Library			
	isContract	Internal		
	sendValue	Internal	✓	
	functionCall	Internal	✓	
	functionCall	Internal	✓	
	functionCallWithValue	Internal	✓	
	functionCallWithValue	Internal	✓	
	_functionCallWithValue	Private	✓	
<b>IERC20Metadata</b>	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-

<b>ERC20</b>	Implementation	Context, IERC20, IERC20Met adata		
	<Constructor>	Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_approve	Internal	✓	
	_beforeTokenTransfer	Internal	✓	
<b>DividendPayin gTokenInterfa ce</b>	Interface			
	dividendOf	External		-
	withdrawDividend	External	✓	-
<b>DividendPayin gTokenOption alInterface</b>	Interface			
	withdrawableDividendOf	External		-
	withdrawnDividendOf	External		-
	accumulativeDividendOf	External		-

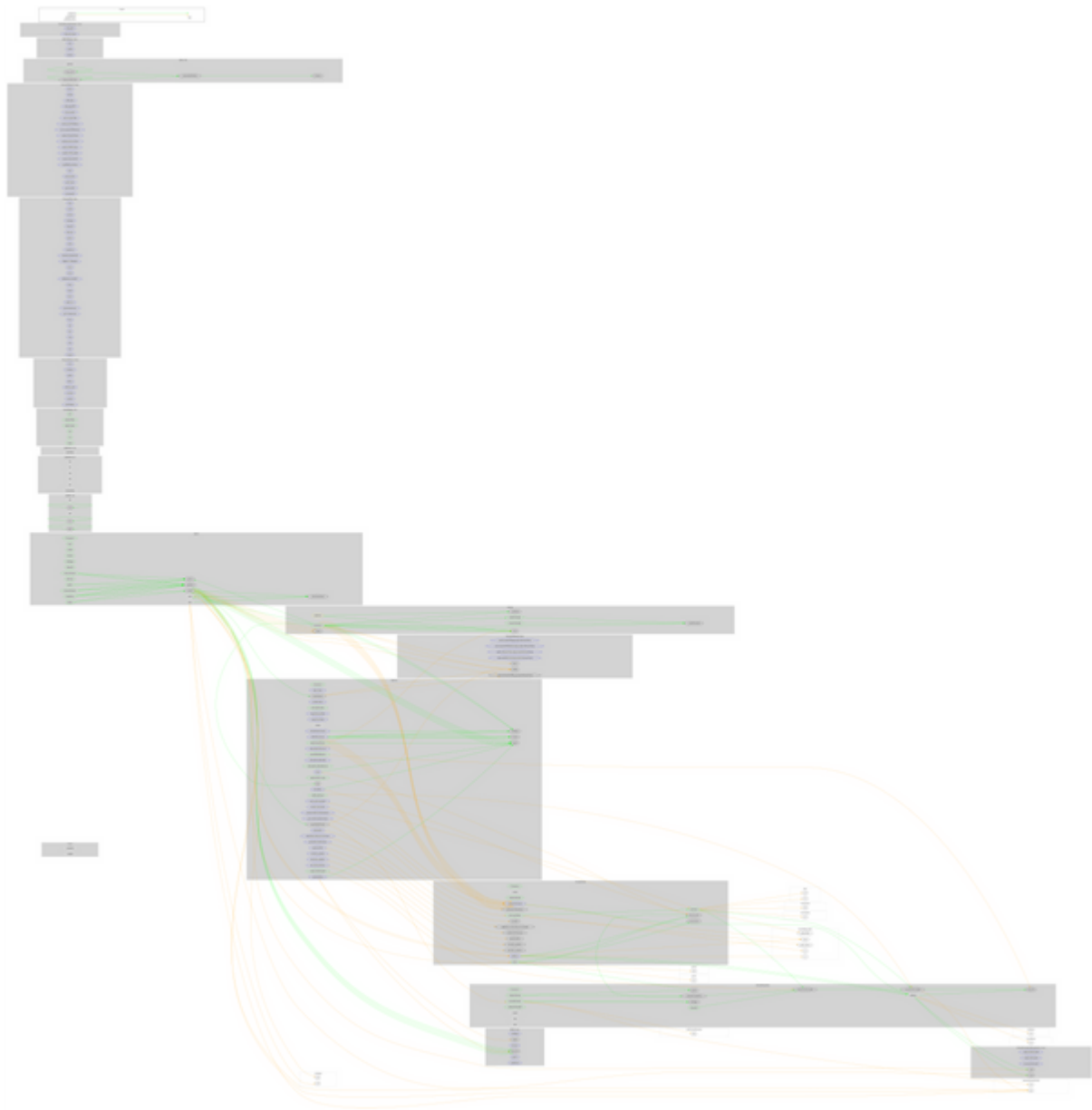
<b>DividendPayingToken</b>	Implementation	ERC20, Ownable, DividendPayingTokenInterface, DividendPayingTokenOptionalInterface		
	<Constructor>	Public	✓	ERC20
	distributeDividends	Public	✓	onlyOwner
	withdrawDividend	Public	✓	-
	_withdrawDividendOfUser	Internal	✓	
	dividendOf	Public		-
	withdrawableDividendOf	Public		-
	withdrawnDividendOf	Public		-
	accumulativeDividendOf	Public		-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_setBalance	Internal	✓	
<b>DividendTracker</b>	Implementation	Ownable, DividendPayingToken		
	<Constructor>	Public	✓	DividendPayingToken
	_transfer	Internal		
	withdrawDividend	Public		-
	updateMinimumTokenBalanceForDividends	External	✓	onlyOwner
	excludeFromDividends	External	✓	onlyOwner
	updateClaimWait	External	✓	onlyOwner
	setLastProcessedIndex	External	✓	onlyOwner
	getLastProcessedIndex	External		-
	getNumberOfTokenHolders	External		-
	getAccount	Public		-
	getAccountAtIndex	Public		-
	canAutoClaim	Private		



	setBalance	External	✓	onlyOwner
	process	Public	✓	-
	processAccount	Public	✓	onlyOwner
<b>SantaCoin</b>	Implementation	ERC20, Ownable		
	<Constructor>	Public	✓	ERC20
	<Receive Ether>	External	Payable	-
	claimStuckTokens	External	✓	onlyOwner
	excludeFromFees	External	✓	onlyOwner
	isExcludedFromFees	Public		-
	changeMarketingWallet	External	✓	onlyOwner
	changeCharityWallet	External	✓	onlyOwner
	_transfer	Internal	✓	
	swapAndLiquify	Private	✓	
	swapAndSendDividends	Private	✓	
	setSwapTokensAtAmount	External	✓	onlyOwner
	setEnableMaxWalletLimit	External	✓	onlyOwner
	setMaxWalletAmount	External	✓	onlyOwner
	setExcludeFromMaxWallet	External	✓	onlyOwner
	isExcludedFromMaxWalletLimit	Public		-
	updateDividendTracker	Public	✓	onlyOwner
	updateGasForProcessing	Public	✓	onlyOwner
	updateMinimumBalanceForDividends	External	✓	onlyOwner
	updateClaimWait	External	✓	onlyOwner
	getClaimWait	External		-
	getTotalDividendsDistributed	External		-
	withdrawableDividendOf	Public		-
	dividendTokenBalanceOf	Public		-
	totalRewardsEarned	Public		-
	excludeFromDividends	External	✓	onlyOwner
	getAccountDividendsInfo	External		-
	getAccountDividendsInfoAtIndex	External		-
	processDividendTracker	External	✓	-
	claim	External	✓	-
	claimAddress	External	✓	onlyOwner

	getLastProcessedIndex	External		-
	setLastProcessedIndex	External	✓	onlyOwner
	getNumberOfDividendTokenHolders	External		-

# Contract Flow



## Summary

Summertime 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 10% 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>