Cyberscope

# Audit Report

# Santa Musk

December 2022

| | |
|---|---|
| Type | BEP20 |
| Network | BSC |
| Address | 0x716130205547C093354eAbAcA56294571B938B3B |
| Audited by | © cyberscope |

# Table of Contents

# Contract Review

| | |
|---|---|
| **Contract Name** | LiquidityGeneratorToken |
| **Compiler Version** | v0.8.4+commit.c7e474f2 |
| **Optimization** | 200 runs |
| **Licence** | MIT |
| **Explorer** | https://bscscan.com/token/0x716130205547C093354eAbAcA56294571B938B3B |
| **Symbol** | MUSK |
| **Decimals** | 9 |
| **Total Supply** | 1,000,000 |

# Source Files

| **Filename** | **SHA256** |
|---|---|
| **contract.sol** | 1724eac36d3892bd38b0d2906dcc95930443e7f66b307b3295bc1cad040ceac7 |

# Audit Updates

| | |
|---|---|
| **Initial Audit** | 8th December 2022 |
| **Corrected** | |

# 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 |
|---|---|---|---|
| ● | PVC | Price Volatility Concern | Unresolved |
| ● | RSML | Redundant SafeMath Library | Unresolved |
| ● | L04 | Conformance to Solidity Naming Conventions | Unresolved |
| ● | L07 | Missing Events Arithmetic | Unresolved |
| ● | L09 | Dead Code Elimination | Unresolved |

# PVC - Price Volatility Concern

| | |
|---|---|
| **Criticality** | minor / informative |
| **Location** | contract.sol#L1264 |
| **Status** | Unresolved |

## Description

The numTokensSellToAddToLiquidity could produce a dramatically price volatility. If the variable set to a high number, then the contract will sell a huge amount of tokens in a single transaction.

```
function setSwapBackSettings(uint256 _amount) external onlyOwner {
    require(
        _amount >= totalSupply().mul(5).div(10**4),
        "Swapback amount should be at least 0.05% of total supply"
    );
    numTokensSellToAddToLiquidity = _amount;
    emit SwapAndLiquifyAmountUpdated(_amount);
}
```

## Recommendation

The contract could ensure that it will not sell more than a reasonable amount of tokens once. A suggested implementation could check that the maximum amount should be less than a fixed percentage of the total supply.

# RSML - Redundant SafeMath Library

| | |
|---|---|
| **Criticality** | minor / informative |
| **Location** | contract.sol#L201 |
| **Status** | Unresolved |

## Description

The Solidity versions that are greater than or equal to 0.8.0 do not need the use of SafeMath Library. The usage of the SafeMath library produces unnecessary additional gas.

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

## Recommendation

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

# L04 - Conformance to Solidity Naming Conventions

| | |
|---|---|
| **Criticality** | minor / informative |
| **Location** | contract.sol#L942,945,1264,948,953,1415,641,1407,1403 |
| **Status** | 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.

```
_taxFee
_liquidityFee
_amount
_charityFee
_charityAddress
WETH
```

## Recommendation

Follow the Solidity naming convention.
https://docs.soliditylang.org/en/v0.8.17/style-guide.html#naming-conventions.

# L07 - Missing Events Arithmetic

| | |
|---|---|
| **Criticality** | minor / informative |
| **Location** | contract.sol#L1245,1256,1237 |
| **Status** | 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.

```
_liquidityFee = liquidityFeeBps
_charityFee = charityFeeBps
_taxFee = taxFeeBps
```

## Recommendation

Emit an event for critical parameter changes.

# L09 - Dead Code Elimination

| | |
|---|---|
| **Criticality** | minor / informative |
| **Location** | contract.sol#L610,469,523,593,583,537,556,441,504,566,494 |
| **Status** | Unresolved |

## Description

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

```
verifyCallResult
sendValue
functionCallWithValue
functionDelegateCall
functionStaticCall
isContract
functionCall
...
```

## Recommendation

Remove unused functions.

# Contract Functions

| Contract | Type | Bases | | |
|---|---|---|---|---|
| | Function Name | Visibility | Mutability | Modifiers |
| | | | | |
| IERC20 | Interface | | | |
| | totalSupply | External | | - |
| | balanceOf | External | | - |
| | transfer | External | ✓ | - |
| | allowance | External | | - |
| | approve | External | ✓ | - |
| | transferFrom | External | ✓ | - |
| | | | | |
| Context | Implementation | | | |
| | _msgSender | Internal | | |
| | _msgData | Internal | | |
| | | | | |
| Ownable | Implementation | Context | | |
| | <Constructor> | Public | ✓ | - |
| | owner | Public | | - |
| | renounceOwnership | Public | ✓ | onlyOwner |
| | transferOwnership | Public | ✓ | onlyOwner |
| | _setOwner | Private | ✓ | |
| | | | | |
| SafeMath | Library | | | |
| | tryAdd | Internal | | |
| | trySub | Internal | | |
| | tryMul | Internal | | |
| | tryDiv | Internal | | |
| | tryMod | Internal | | |
| | add | Internal | | |
| | sub | Internal | | |
| | mul | Internal | | |
| | div | Internal | | |

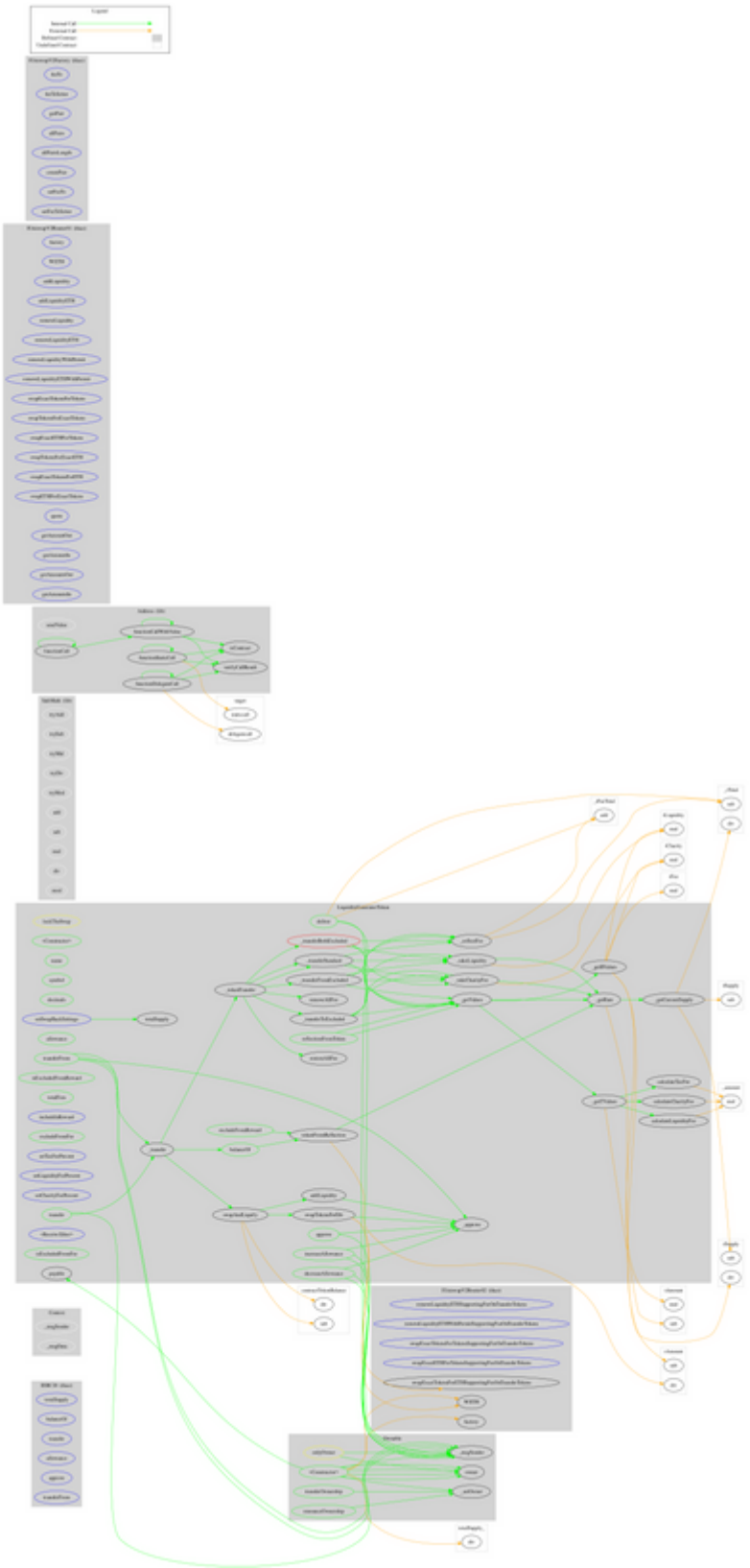
| | | | | |
|---|---|---|---|---|
| | mod | Internal | | |
| | sub | Internal | | |
| | div | Internal | | |
| | mod | Internal | | |
| | | | | |
| **Address** | Library | | | |
| | isContract | Internal | | |
| | sendValue | Internal | ✓ | |
| | functionCall | Internal | ✓ | |
| | functionCall | Internal | ✓ | |
| | functionCallWithValue | Internal | ✓ | |
| | functionCallWithValue | Internal | ✓ | |
| | functionStaticCall | Internal | | |
| | functionStaticCall | Internal | | |
| | functionDelegateCall | Internal | ✓ | |
| | functionDelegateCall | Internal | ✓ | |
| | verifyCallResult | Internal | | |
| | | | | |
| **IUniswapV2Router01** | 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 | | - |
| | | | | |
| **IUniswapV2Router02** | Interface | IUniswapV2Router01 | | |
| | removeLiquidityETHSupportingFeeOnTransferTokens | External | ✓ | - |
| | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External | ✓ | - |
| | swapExactTokensForTokensSupportingFeeOnTransferTokens | External | ✓ | - |
| | swapExactETHForTokensSupportingFeeOnTransferTokens | External | Payable | - |
| | swapExactTokensForETHSupportingFeeOnTransferTokens | External | ✓ | - |
| | | | | |
| **IUniswapV2Factory** | Interface | | | |
| | feeTo | External | | - |
| | feeToSetter | External | | - |
| | getPair | External | | - |
| | allPairs | External | | - |
| | allPairsLength | External | | - |
| | createPair | External | ✓ | - |
| | setFeeTo | External | ✓ | - |
| | setFeeToSetter | External | ✓ | - |
| | | | | |
| **BaseToken** | Implementation | | | |
| | | | | |
| **LiquidityGeneratorToken** | Implementation | IERC20, Ownable, BaseToken | | |
| | <Constructor> | Public | Payable | - |
| | name | Public | | - |
| | symbol | Public | | - |
| | decimals | Public | | - |
| | totalSupply | Public | | - |

| | | | | |
|---|---|---|---|---|
| | balanceOf | Public | | - |
| | transfer | Public | ✓ | - |
| | allowance | Public | | - |
| | approve | Public | ✓ | - |
| | transferFrom | Public | ✓ | - |
| | increaseAllowance | Public | ✓ | - |
| | decreaseAllowance | Public | ✓ | - |
| | isExcludedFromReward | Public | | - |
| | totalFees | Public | | - |
| | deliver | Public | ✓ | - |
| | reflectionFromToken | Public | | - |
| | tokenFromReflection | Public | | - |
| | excludeFromReward | Public | ✓ | onlyOwner |
| | includeInReward | External | ✓ | onlyOwner |
| | _transferBothExcluded | Private | ✓ | |
| | excludeFromFee | Public | ✓ | onlyOwner |
| | setTaxFeePercent | External | ✓ | onlyOwner |
| | setLiquidityFeePercent | External | ✓ | onlyOwner |
| | setCharityFeePercent | External | ✓ | onlyOwner |
| | setSwapBackSettings | External | ✓ | onlyOwner |
| | <Receive Ether> | External | Payable | - |
| | _reflectFee | Private | ✓ | |
| | _getValues | Private | | |
| | _getTValues | Private | | |
| | _getRValues | Private | | |
| | _getRate | Private | | |
| | _getCurrentSupply | Private | | |
| | _takeLiquidity | Private | ✓ | |
| | _takeCharityFee | Private | ✓ | |
| | calculateTaxFee | Private | | |
| | calculateLiquidityFee | Private | | |
| | calculateCharityFee | Private | | |
| | removeAllFee | Private | ✓ | |
| | restoreAllFee | Private | ✓ | |
| | isExcludedFromFee | Public | | - |

| | | | | |
|---|---|---|---|---|
| | _approve | Private | ✓ | |
| | _transfer | Private | ✓ | |
| | swapAndLiquify | Private | ✓ | lockTheSwap |
| | swapTokensForEth | Private | ✓ | |
| | addLiquidity | Private | ✓ | |
| | _tokenTransfer | Private | ✓ | |
| | _transferStandard | Private | ✓ | |
| | _transferToExcluded | Private | ✓ | |
| | _transferFromExcluded | Private | ✓ | |

# Contract Flow



# Summary

Santa Musk 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 25% fees.

# Disclaimer

The information provided in this report does not constitute investment, financial or trading advice and you should not treat any of the document's content as such. This report may not be transmitted, disclosed, referred to or relied upon by any person for any purposes nor may copies be delivered to any other person other than the Company without Cyberscope's prior written consent. This report is not nor should be considered an "endorsement" or "disapproval" of any particular project or team. This report is not nor should be regarded as an indication of the economics or value of any "product" or "asset" created by any team or project that contracts Cyberscope to perform a security assessment. This document does not provide any warranty or guarantee regarding the absolute bug-free nature of the technology analyzed, nor do they provide any indication of the technologies proprietors' business, business model or legal compliance. This report should not be used in any way to make decisions around investment or involvement with any particular project. This report represents an extensive assessment process intending to help our customers increase the quality of their code while reducing the high level of risk presented by cryptographic tokens and blockchain technology.

Blockchain technology and cryptographic assets present a high level of ongoing risk Cyberscope's position is that each company and individual are responsible for their own due diligence and continuous security Cyberscope's goal is to help reduce the attack vectors and the high level of variance associated with utilizing new and consistently changing technologies and in no way claims any guarantee of security or functionality of the technology we agree to analyze. The assessment services provided by Cyberscope are subject to dependencies and are under continuing development. You agree that your access and/or use including but not limited to any services reports and materials will be at your sole risk on an as-is where-is and as-available basis Cryptographic tokens are emergent technologies and carry with them high levels of technical risk and uncertainty. The assessment reports could include false positives false negatives and other unpredictable results. The services may access and depend upon multiple layers of third parties.

# 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