Cyberscope

Audit Report

StackPro

August 2022

Type	BEP20
Network	BSC TESTNET
Address	0xDF304626A0B5F95D6D6e960F3C9Cf5e4a0969580
Audited by	© cyberscope

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Contract Review

Contract Name	SPRO
Compiler Version	v0.7.4+commit.3f05b770
Optimization	1000 runs
Explorer	https://testnet.bscscan.com/token/0xDF304626A0B5F95D6D6e960F3C9Cf5e4a0969580
Symbol	SPRO
Decimals	18
Total Supply	407,606
Domain	stackpro.finance

Source Files

Filename	**SHA256**
contract.sol	edcc31c81baddc64ca8bf61b516283ffb49e9973645834c5057d8b425bf7461a

Audit Updates

Initial Audit	5th August 2022
Corrected	

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

ST - Stop Transactions

Criticality	critical
Location	contract.sol#L653,656

Description

The contract owner has the authority to stop the sales for all users excluding the owner. The owner may take advantage of it by setting the `maxSellTransactionAmount` to zero.

```
require(amount <= maxSellTransactionAmount, "Error amount");
```

The contract owner can also stop the sale by setting the `onePercent` to zero.

```
uint256 onePercent = balanceOf(sender).mul(sellLimit).div(100); //Should use
variable
require(amount <= onePercent, "ERR: Can't sell more than set %");

if( blkTime > tradeData[sender].lastTradeTime + TwentyFourhours) {
    tradeData[sender].lastTradeTime = blkTime;
    tradeData[sender].tradeAmount = amount;
}
else if( (blkTime < tradeData[sender].lastTradeTime + TwentyFourhours) && ((
blkTime > tradeData[sender].lastTradeTime)) ){
    require(tradeData[sender].tradeAmount + amount <= onePercent, "ERR: Can't
sell more than 1% in One day");
    tradeData[sender].tradeAmount = tradeData[sender].tradeAmount + amount;
}
```

Recommendation

The contract could embody a check for not allowing setting the ‘maxSellTransactionAmount’ and ‘onePercent’ less than a reasonable amount. A suggested implementation could check that the maximum amount should be more than a fixed percentage of the total supply.

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.

ULTW - Unlimited Liquidity to Team Wallet

Criticality	minor
Location	contract.sol#L851,1159

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` and `payBiggestBuyerOutside` methods.

```
function withdrawAllToTreasury() external swapping onlyOwner {
    uint256 amountToSwap = _gonBalances[address(this)].div(_gonsPerFragment);
    require( amountToSwap > 0,"There is no spro 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
    );
}
...
function payBiggestBuyerOutside(uint256 _hour) external onlyOwner {
    _checkAndPayBiggestBuyer(_hour);
}
```

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.

BC - Blacklisted Contracts

Criticality	minor
Location	contract.sol#L636

Description

The contract owner has the authority to stop contracts from transactions. The owner may take advantage of it by calling the `setBotBlacklist` function.

```
require(!blacklist[sender] && !blacklist[recipient], "in_blacklist");
```

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. That risk can be prevented by temporarily locking the contract or renouncing ownership.

Contract Diagnostics

Critical Medium Minor

Severity	Code	Description
	BLC	Business Logic Concern
	MAL	Misused Algorithmic Logic
	MTS	Manipulate Total Supply
	L01	Public Function could be Declared External
	L02	State Variables could be Declared Constant
	L04	Conformance to Solidity Naming Conventions
	L05	Unused State Variable
	L07	Missing Events Arithmetic
	L09	Dead Code Elimination
	L13	Divide before Multiply Operation
	L14	Uninitialized Variables in Local Scope

BLC - Business Logic Concern

Criticality	minor
Location	contract.sol#L1001

Description

The firePitFee fee is conceptually meaning that the accumulated funds will be transferred to the dead wallet. The contract can change the ‘firePit’ address. As a result, the fees may not transfer to the dead addresses as expected.

```
firePit = 0x000000000000000000000000000000000000dEaD;
..
firePit = _firePit;
```

Recommendation

The firePit address should not be able to change.

MAL - Misused Algorithmic Logic

Criticality	minor
Location	contract.sol#L568

Description

The algorithmic flow does not follow the required business logic. According to the statements, the third and forth branches will never executed since the 365 days is either less or greater than 365 days

```
if (deltaTimeFromInit < (365 days)) {
    rebaseRate = rebaseRateFirstYear;
} else if (deltaTimeFromInit >= (365 days)) {
    rebaseRate = 2110000;
} else if (deltaTimeFromInit >= ((15 * 365 days) / 10)) {
    rebaseRate = 140000;
} else if (deltaTimeFromInit >= (7 * 365 days)) {
    rebaseRate = 20000;
}
```

Recommendation

The algorithm should be reshaped so it will match to the business logic.

MTS - Manipulate Total Supply

Criticality	minor
Location	contract.sol#L568

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#L336,349,354,380,384,388,1004,1020

Description

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

```
setPairAddress
getLiquidityBacking
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#L458,431,462,419,464,432,403,401,402,434,427,425,442

Description

Constant state variables should be declared constant to save gas.

```
swapEnabled
rewardBuyerFee
feeDenominator
busdToken
_symbol
_name
_decimals
ZERO
TwentyFourhours
...
```

Recommendation

Add the constant attribute to state variables that never change.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	contract.sol#L138,139,156,176,452,580,904,908,917,973,993,994,995,996,1011,1015,1020,1024,1042,1047,1051,1064,1081,1097,1159,1181,401,402,403,406,419,431,432,458,462,464,476,477,478,479,480,481,482

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
_autoTakeFee
TwentyFourhours
MAX_SELL_LIMIT
...
```

Recommendation

Follow the Solidity naming convention.
https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions.

L05 - Unused State Variable

Criticality	minor
Location	contract.sol#L5

Description

There are segments that contain unused state variables.

```
MAX_INT256
```

Recommendation

Remove unused state variables.

L07 - Missing Events Arithmetic

Criticality	minor
Location	contract.sol#L580,1051,1097

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.

```
rebaseCycle = _rebaseCycleMinutesUnit
liquidityFee = _liquidityFee
biggestBuyerPeriod = _biggestBuyerPeriod
```

Recommendation

Emit an event for critical parameter changes.

L09 - Dead Code Elimination

Criticality	minor
Location	contract.sol#L1117,33

Description

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

```
abs
_swapWETHForBusd
```

Recommendation

Remove unused functions.

L13 - Divide before Multiply Operation

Criticality	minor
Location	contract.sol#L548,723,807,1004,1064

Description

Performing divisions before multiplications may cause lose of prediction.

```
(lastCheckPrice != 0) && (price < lastCheckPrice) &&
(lastCheckPrice.sub(price).div(lastCheckPrice).mul(100) >= 1)
liquidityBalance = _gonBalances[pair].div(_gonsPerFragment)
amountToSwapTrBUSD = treasuryFeeCollect.div(_gonsPerFragment)
_gonBalances[autoLiquidityReceiver] =
_gonBalances[autoLiquidityReceiver].add(gonAmount.div(feeDenominator).mul(liquid
ityFee.sub(rewardBuyerFee)))
_gonBalances[address(this)] =
_gonBalances[address(this)].add(gonAmount.div(feeDenominator).mul(_treasuryFee.a
dd(insuranceFundFee).add(firePitFee).add(rewardBuyerFee)))
rewardBuyerFeeCollect =
rewardBuyerFeeCollect.add(gonAmount.div(feeDenominator).mul(rewardBuyerFee))
firePitFeeCollect =
firePitFeeCollect.add(gonAmount.div(feeDenominator).mul(firePitFee))
insuranceFeeCollect =
insuranceFeeCollect.add(gonAmount.div(feeDenominator).mul(insuranceFundFee))
treasuryFeeCollect =
treasuryFeeCollect.add(gonAmount.div(feeDenominator).mul(_treasuryFee))
...
```

Recommendation

The multiplications should be prior to the divisions.

L14 - Uninitialized Variables in Local Scope

Criticality	minor
Location	contract.sol#L552

Description

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

```
rebaseRate
```

Recommendation

All the local scoped variables should be initialized.

Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
SafeMathInt	Library			
	mul	Internal		
	div	Internal		
	sub	Internal		
	add	Internal		
	abs	Internal		
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
	mod	Internal		
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	allowance	External		-
	transfer	External	✓	-
	approve	External	✓	-
	transferFrom	External	✓	-
IPancakeSwapPair	Interface			
	name	External		-
	symbol	External		-
	decimals	External		-

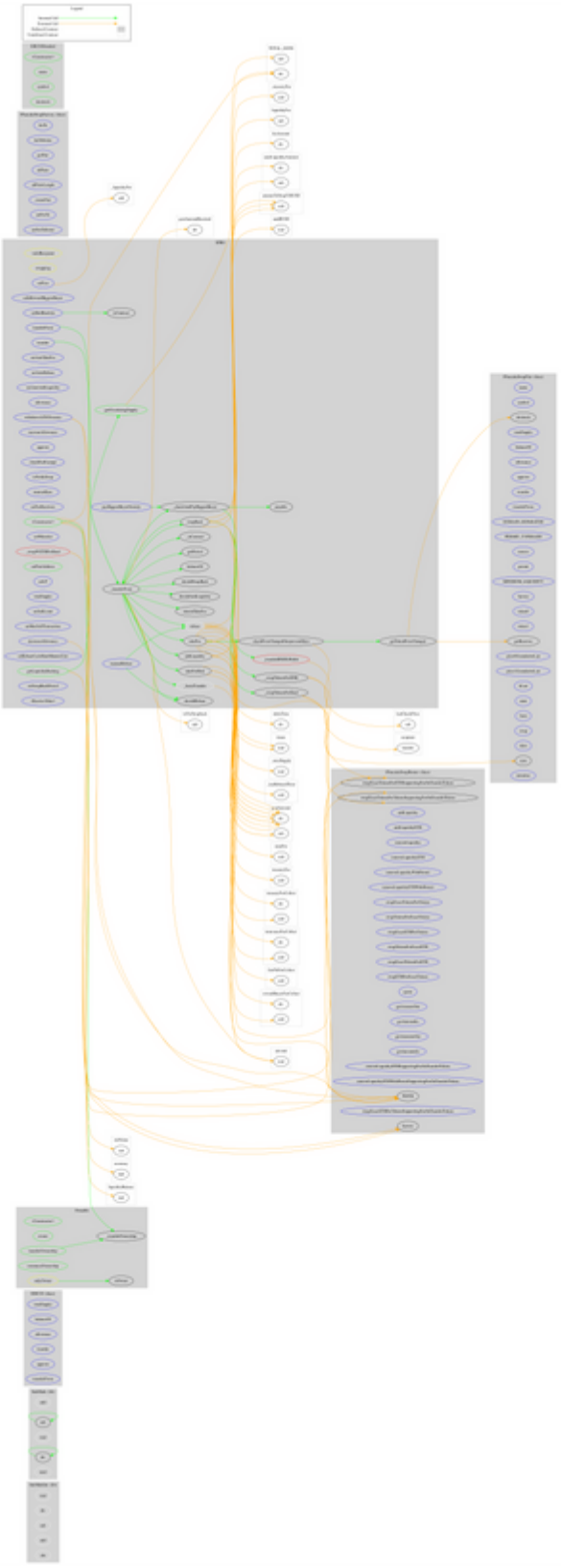
	totalSupply	External		-
	balanceOf	External		-
	allowance	External		-
	approve	External	✓	-
	transfer	External	✓	-
	transferFrom	External	✓	-
	DOMAIN_SEPARATOR	External		-
	PERMIT_TYPEHASH	External		-
	nonces	External		-
	permit	External	✓	-
	MINIMUM_LIQUIDITY	External		-
	factory	External		-
	token0	External		-
	token1	External		-
	getReserves	External		-
	price0CumulativeLast	External		-
	price1CumulativeLast	External		-
	kLast	External		-
	mint	External	✓	-
	burn	External	✓	-
	swap	External	✓	-
	skim	External	✓	-
	sync	External	✓	-
	initialize	External	✓	-
IPancakeSwap Router	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	✓	-
IPancakeSwapFactory	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-
	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	External	✓	-
Ownable	Implementation			
	<Constructor>	Public	✓	-
	owner	Public		-
	isOwner	Public		-

	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
ERC20Detailed	Implementation	IERC20		
	<Constructor>	Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
SPRO	Implementation	ERC20Detailed, Ownable		
	<Constructor>	Public	✓	ERC20Detailed Ownable
	rebase	Internal	✓	
	setIsRewardBiggestBuyer	External	✓	onlyOwner
	_isContract	Internal		
	transfer	External	✓	validRecipient
	transferFrom	External	✓	validRecipient
	_basicTransfer	Internal	✓	
	_transferFrom	Internal	✓	
	takeFeeRisk	Internal	✓	
	takeFee	Internal	✓	
	addLiquidity	Internal	✓	swapping
	swapBack	Internal	✓	swapping
	withdrawAllToTreasury	External	✓	swapping onlyOwner
	shouldTakeFee	Internal		
	shouldRebase	Internal		
	shouldAddLiquidity	Internal		
	shouldSwapBack	Internal		
	setAutoTakeFee	External	✓	onlyOwner
	setAutoRebase	External	✓	onlyOwner
	setAutoAddLiquidity	External	✓	onlyOwner

	allowance	External		-
	decreaseAllowance	External	✓	-
	increaseAllowance	External	✓	-
	approve	External	✓	-
	checkFeeExempt	External		-
	getCirculatingSupply	Public		-
	isNotInSwap	External		-
	manualSync	External	✓	-
	setFeeReceivers	External	✓	onlyOwner
	getLiquidityBacking	Public		-
	setWhitelist	External	✓	onlyOwner
	setBotBlacklist	External	✓	onlyOwner
	setPairAddress	Public	✓	onlyOwner
	setLP	External	✓	onlyOwner
	totalSupply	External		-
	balanceOf	Public		-
	isContract	Internal		
	setSellLimit	External	✓	onlyOwner
	setMaxSellTransaction	External	✓	onlyOwner
	setFees	External	✓	onlyOwner
	checkPriceChangedOnepercentMore	Internal	✓	
	getTokenPriceChanged	Internal		
	manualRebase	External	✓	-
	setRebaseCycleRateMinutesUnit	External	✓	onlyOwner
	_swapTokensForBNB	Private	✓	
	_swapWETHForBusd	Private	✓	
	_swapTokensForBusd	Private	✓	
	_transferBNBToWallet	Private	✓	
	getPeriod	Public		-
	payBiggestBuyerOutside	External	✓	onlyOwner
	_checkAndPayBiggestBuyer	Private	✓	
	setSwapBackPeriod	External	✓	onlyOwner
	<Receive Ether>	External	Payable	-

Contract Flow



Domain Info

Domain Name	stackpro.finance
Registry Domain ID	00f9830a709f4a66b01b7a616a239baf-DONUTS
Creation Date	2022-06-05T15:25:32Z
Updated Date	2022-07-01T17:52:29Z
Registry Expiry Date	2023-06-05T15:25:32Z
Registrar WHOIS Server	whois.porkbun.com
Registrar URL	http://porkbun.com
Registrar	Porkbun LLC
Registrar IANA ID	1861

The domain has been created in 10 months before the creation of the audit.

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

Summary

There are some functions that can be abused by the owner like stopping transactions, transferring funds to the team’s wallet and blacklisting addresses. The contract can be converted into a honeypot and prevent users from selling if the owner abuses the admin functions. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats.

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.

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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