Cyberscope

Audit Report

GPAY

November 2022

Type	BEP20
Network	BSC
Address	0xf5b1167f8856aa0c849b32e52c639e7129ef7bf4
Audited by	© cyberscope

Table of Contents

Contract Review

Contract Name	RewardToken
Compiler Version	v0.8.15+commit.e14f2714
Optimization	200 runs
Licence	None
Explorer	https://bscscan.com/token/0xF5B1167f8856aa0C849B32e52c639E7129EF7Bf4
Symbol	GPAY
Decimals	18
Total Supply	21,000,000
Domain	https://gpaycoins.com

Source Files

Filename	**SHA256**
contract.sol	0f7ead31bdf2aa29a32426c826d183d3c34d8340efc23aa3f249f0aff8912b6b

Audit Updates

Initial Audit	7th November 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	Unresolved
●	ULTW	Transfers Liquidity to Team Wallet	Passed
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Unresolved

ELFM - Exceeds Fees Limit

Criticality	critical
Location	contract.sol#L1702,1706,1711,1716
Status	Unresolved

Description

The contract owner has the authority to increase over the allowed limit of 25%. The owner may take advantage of it by calling the `setMarketingWallet`, `setTokenRewardsFee`, `setLiquiditFee`, and `setMarketingFee` functions with a high percentage value.

```
function setMarketingWallet(address payable wallet) external onlyOwner {
    marketingWallet = wallet;
}

function setTokenRewardsFee(uint256 value) external onlyOwner {
    rewardsFee = value;
    totalFees = rewardsFee.add(liquidityFee).add(marketingFee);
}

function setLiquiditFee(uint256 value) external onlyOwner {
    liquidityFee = value;
    totalFees = rewardsFee.add(liquidityFee).add(marketingFee);
}
function setMarketingFee(uint256 value) external onlyOwner {
    marketingFee = value;
    totalFees = rewardsFee.add(liquidityFee).add(marketingFee);
}
```

Recommendation

The contract could embody a check for the maximum acceptable value.

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 - Blacklists Addresses

Criticality	medium
Location	contract.sol#L1733
Status	Unresolved

Description

The contract owner has the authority to stop addresses from transactions. The owner may take advantage of it by calling the blacklistAddress function.

```
function blacklistAddress(address account, bool value) external onlyOwner {
    isBlacklisted[account] = value;
}
```

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 / Informative

Severity	Code	Description	Status
●	ZD	Zero Division	Unresolved
●	CO	Code Optimization	Unresolved
●	MC	Missing Check	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L05	Unused State Variable	Unresolved
●	L07	Missing Events Arithmetic	Unresolved
●	L09	Dead Code Elimination	Unresolved
●	L12	Using Variables before Declaration	Unresolved
●	L14	Uninitialized Variables in Local Scope	Unresolved
●	L15	Local Scope Variable Shadowing	Unresolved

ZD - Zero Division

Criticality	critical
Location	contract.sol#L1897
Status	Unresolved

Description

The contract is using variables that may be set to zero as denominators. As a result, the transactions will revert. The variable totalFees could be set to zero.

```
if (canSwap && !swapping && !automatedMarketMakerPairs[from]) {
        swapping = true;

        uint256 marketingTokens = contractTokenBalance
           .mul(marketingFee)
           .div(totalFees);
```

Recommendation

The contract should prevent those variables to be set to zero or should not allow executing the corresponding statements.

CO - Code Optimization

Criticality	minor / informative
Location	contract.sol#L1929
Status	Unresolved

Description

There are code segments that could be optimized. A segment may be optimized so that it becomes a smaller size, consumes less memory, executes more rapidly, or performs fewer operations.

Since the extraSellFee is initialized with zero. The following code segment is redundant. Because the aggregation of the fees will not change.

```
if (automatedMarketMakerPairs[to]) {
    fees += amount.mul(extraSellFee).div(100); // fees = fees + 0 = fees
}
```

Recommendation

Rewrite some code segments so the runtime will be more performant.

It is recommended to remove redundant code statements.

MC - Missing Check

Criticality	minor / informative
Location	contract.sol#L1586
Status	Unresolved

Description

The contract is processing variables that have not been properly sanitized and checked that they form the proper shape. These variables may produce vulnerability issues.

```
constructor(
        string memory name_,
        string memory symbol_,
        uint256 supply_,
        uint8 decimals_,
        address rewardToken_,
        uint256 rewardsFee_,
        uint256 minTokens_,
        uint256[] memory fees_,
        address marketingWalletAddress_,
        address router_,
        address addr_
)

function setMarketingWallet(address payable wallet) external onlyOwner {
        marketingWallet = wallet;
}
```

Recommendation

The contract should properly check the variables according to the required specifications. To be more specific, the addresses should not be zero. Additionally, the sum of the initial fees should be sanitized accordingly ELFM - Exceeds Fees Limit.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor / informative
Location	contract.sol#L788,819,1322,865,786,1407,1523,1426,1414,2172,1721,1316,1440,1317
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.

```
PERMIT_TYPEHASH
MINIMUM_LIQUIDITY
magnitude
WETH
DOMAIN_SEPARATOR
_owner
Reward
_account
_pair
...
```

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 / informative
Location	contract.sol#L1177
Status	Unresolved

Description

There are segments that contain unused state variables.

```
MAX_INT256
```

Recommendation

Remove unused state variables.

L07 - Missing Events Arithmetic

Criticality	minor / informative
Location	contract.sol#L1706,1716,1711
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.

```
totalFees = rewardsFee.add(liquidityFee).add(marketingFee)
marketingFee = value
liquidityFee = value
```

Recommendation

Emit an event for critical parameter changes.

L09 - Dead Code Elimination

Criticality	minor / informative
Location	contract.sol#L1223,1083,1075,1459
Status	Unresolved

Description

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

```
abs
fee
addr
_transfer
```

Recommendation

Remove unused functions.

L12 - Using Variables before Declaration

Criticality	minor / informative
Location	contract.sol#L1944,1945,1946
Status	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.

```
iterations
claims
lastProcessedIndex
```

Recommendation

The variables should be declared before any usage of them.

L14 - Uninitialized Variables in Local Scope

Criticality	minor / informative
Location	contract.sol#L1946,1944,1945
Status	Unresolved

Description

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

```
lastProcessedIndex
iterations
claims
```

Recommendation

All the local scoped variables should be initialized.

L15 - Local Scope Variable Shadowing

Criticality	minor / informative
Location	contract.sol#L2108,1347,1440,1343,1414,1344,1407,1426
Status	Unresolved

Description

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

```
_decimals
_owner
_name
_symbol
```

Recommendation

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

Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
	mod	Internal		
	mod	Internal		
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
IERC20Metadata	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-

ERC20	Implementation	Context, IERC20, IERC20Metadata		
	<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	✓	
IterableMapping	Library			
	get	Public		-
	getIndexOfKey	Public		-
	getKeyAtIndex	Public		-
	size	Public		-
	set	Public	✓	-
	remove	Public	✓	-
IUniswapV2Factory	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-

	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	External	✓	-
IUniswapV2Pair	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	✓	-

Irouter01	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	Irouter01		
	removeLiquidityETHSupportingFeeOnTransferTokens	External	✓	-
	removeLiquidityETHWithPermitSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
Ownership	Implementation			
	<Constructor>	Public	✓	-

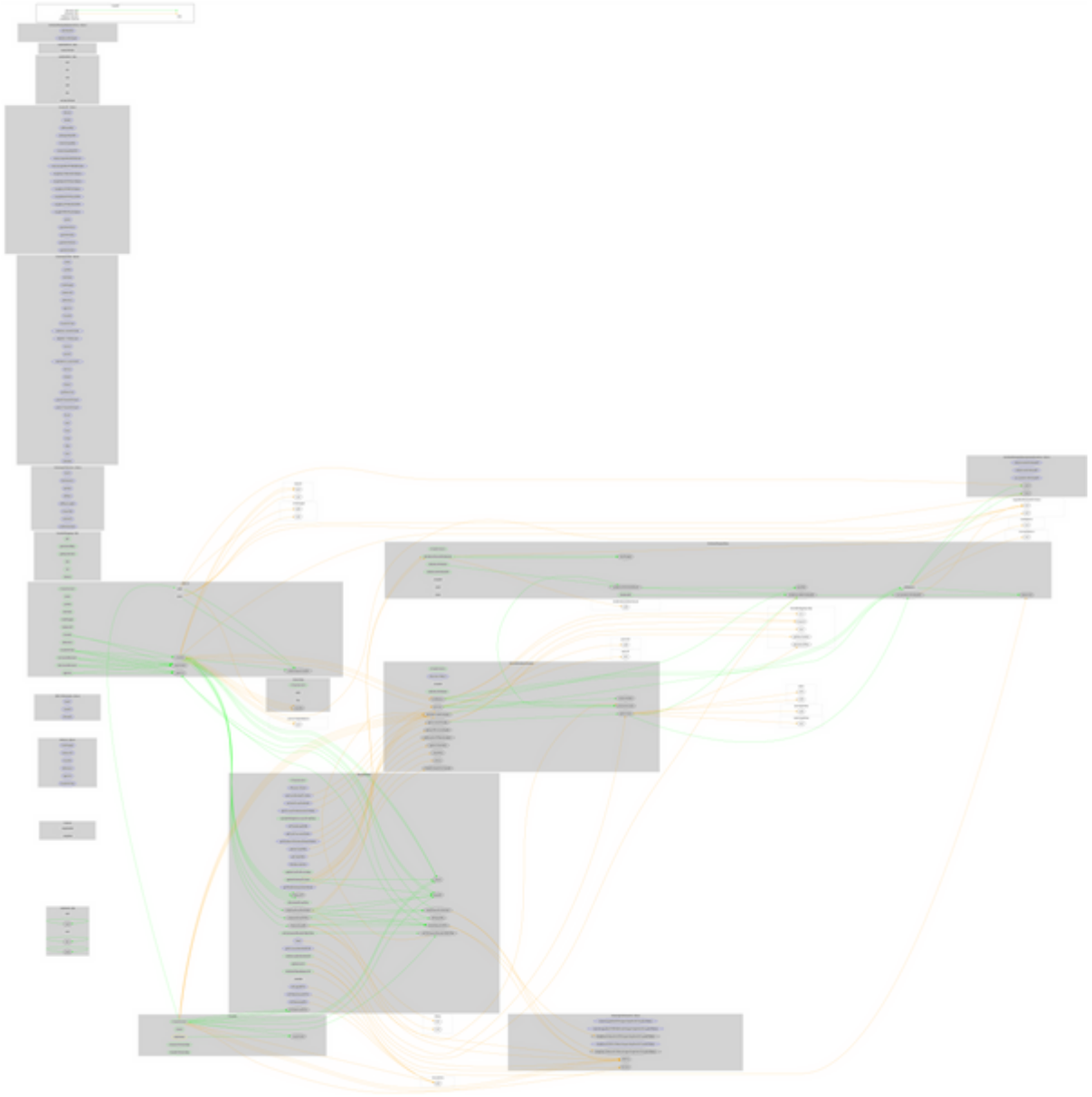
	addr	Internal		
	fee	Internal		
Ownable	Implementation	Context		
	<Constructor>	Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
SafeMathInt	Library			
	mul	Internal		
	div	Internal		
	sub	Internal		
	add	Internal		
	abs	Internal		
	toUint256Safe	Internal		
SafeMathUint	Library			
	toInt256Safe	Internal		
DividendPayingTokenInterface	Interface			
	dividendOf	External		-
	withdrawDividend	External	✓	-
DividendPayingTokenOptionalInterface	Interface			
	withdrawableDividendOf	External		-
	withdrawnDividendOf	External		-
	accumulativeDividendOf	External		-

DividendPayingToken	Implementation	ERC20, Ownable, DividendPayingTokenInterface, DividendPayingTokenOptionalInterface		
	<Constructor>	Public	✓	ERC20
	distributeRewardDividends	Public	✓	onlyOwner
	withdrawDividend	Public	✓	-
	_withdrawDividendOfUser	Internal	✓	
	dividendOf	Public		-
	withdrawableDividendOf	Public		-
	withdrawnDividendOf	Public		-
	accumulativeDividendOf	Public		-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_setBalance	Internal	✓	
RewardToken	Implementation	ERC20, Ownable, Ownership		
	<Constructor>	Public	Payable	ERC20 Ownership
	<Receive Ether>	External	Payable	-
	updateDividendTracker	Public	✓	onlyOwner
	updaterouter	Public	✓	onlyOwner
	excludeFromFees	Public	✓	onlyOwner
	excludeMultipleAccountsFromFees	Public	✓	onlyOwner
	setMarketingWallet	External	✓	onlyOwner
	setTokenRewardsFee	External	✓	onlyOwner
	setLiquiditFee	External	✓	onlyOwner
	setMarketingFee	External	✓	onlyOwner
	setAutomatedMarketMakerPair	Public	✓	onlyOwner
	blacklistAddress	External	✓	onlyOwner

	_setAutomatedMarketMakerPair	Private	✓	
	updateGasForProcessing	Public	✓	onlyOwner
	updateClaimWait	External	✓	onlyOwner
	getClaimWait	External		-
	getTotalDividendsDistributed	External		-
	isExcludedFromFees	Public		-
	withdrawableDividendOf	Public		-
	dividendTokenBalanceOf	Public		-
	excludeFromDividends	External	✓	onlyOwner
	getAccountDividendsInfo	External		-
	getAccountDividendsInfoAtIndex	External		-
	processDividendTracker	External	✓	-
	claim	External	✓	-
	getLastProcessedIndex	External		-
	getNumberOfDividendTokenHolders	External		-
	_transfer	Internal	✓	
	swapAndSendToFee	Private	✓	
	swapAndLiquify	Private	✓	
	swapTokensForEth	Private	✓	
	swapTokensForReward	Private	✓	
	addLiquidity	Private	✓	
	swapAndSendDividends	Private	✓	
RewardDividendTracker	Implementation	Ownable, DividendPayingToken		
	<Constructor>	Public	✓	DividendPayingToken
	<Receive Ether>	External	Payable	-
	_transfer	Internal		
	withdrawDividend	Public		-
	excludeFromDividends	External	✓	onlyOwner
	updateClaimWait	External	✓	onlyOwner
	getLastProcessedIndex	External		-
	getNumberOfTokenHolders	External		-
	getAccount	Public		-

	getAccountAtIndex	Public		-
	canAutoClaim	Private		
	setBalance	External	✓	onlyOwner
	process	Public	✓	-
	processAccount	Public	✓	onlyOwner

Contract Flow



Domain Info

Domain Name	gpaycoins.com
Registry Domain ID	5839857
Creation Date	2021-10-21T08:24:01Z
Updated Date	2022-11-03T00:56:13Z
Registry Expiry Date	2023-10-21T08:24:01Z
Registrar WHOIS Server	whois.bluehost.com
Registrar URL	http://www.bluehost.com/
Registrar	FastDomain Inc.
Registrar IANA ID	1154

The domain was created about 1 year before the creation of the audit. It will expire in 12 months.

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, manipulating fees, 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.

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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