Cyberscope

Audit Report

BetFinance

August 2022

Type	BEP20
Network	BSC
Address	0x445325119 74dc451daae046c47ba19529ea18960
Audited by	© cyberscope

Table of Contents

Contract Review

Contract Name	CoinToken
Compiler Version	v0.8.10+commit.fc410830
Optimization	200 runs
Licence	None
Explorer	https://bscscan.com/token/0x44532511974DC451daAe046c47BA19529eA18960
Symbol	BETFI
Decimals	18
Total Supply	10,000,000,000
Domain	betfinance.io

Source Files

Filename	**SHA256**
contract.sol	07bf1b7844f274d1a10ddee98f577cf68a2ddd06b515b7f1fd68066d11f3b0b1

Audit Updates

Initial Audit	3rd 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#L917

Description

The contract owner has the authority to stop transactions for all users excluding the owner. The owner may take advantage of it by setting the sellTaxes to maximum amount and the contract into a honeypot.

```
} else if(to == address(uniswapV2Pair)) {
            tax += baseUnit * sellTaxes["marketing"];
            tax += baseUnit * sellTaxes["dev"];
            tax += baseUnit * sellTaxes["liquidity"];
            tax += baseUnit * sellTaxes["charity"];

            if(tax > 0) {
                _transfer(from, address(this), tax);
            }

            marketingTokens += baseUnit * sellTaxes["marketing"];
            devTokens += baseUnit * sellTaxes["dev"];
            liquidityTokens += baseUnit * sellTaxes["liquidity"];
            charityTokens += baseUnit * sellTaxes["charity"];
```

The contract owner has the authority to stop transactions including the owner by calling the pause method.

```
function _transfer(
    address sender,
    address recipient,
    uint256 amount
) internal override virtual {
    require(!paused(), "CoinToken: token transfer while paused");
```

Recommendation

The contract could embody a check for not allowing setting the `sellTaxes` to 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.

ELFM - Exceed Limit Fees Manipulation

Criticality	critical
Location	contract.sol#L1082,1092,1005

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 `setBuyTax, setSellTax` function with a high percentage value.

```
    function setBuyTax(uint256 dev, uint256 marketing, uint256 liquidity, uint256 charity) public
onlyOwner {
        buyTaxes["dev"] = dev;
        buyTaxes["marketing"] = marketing;
        buyTaxes["liquidity"] = liquidity;
        buyTaxes["charity"] = charity;
    }

    function setSellTax(uint256 dev, uint256 marketing, uint256 liquidity, uint256 charity) public
onlyOwner {

        sellTaxes["dev"] = dev;
        sellTaxes["marketing"] = marketing;
        sellTaxes["liquidity"] = liquidity;
        sellTaxes["charity"] = charity;
    }
```

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.

ULTW - Unlimited Liquidity to Team Wallet

Criticality	minor
Location	contract.sol#L1020

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 `triggerTax` method.

```
/**
 * @dev Triggers the tax handling functionality
 */
function triggerTax() public onlyOwner {
    handleTax(address(0), address(uniswapV2Pair), 0);
}
```

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	medium
Location	contract.sol#L1050

Description

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

```
/**
 * @dev Blacklists the specified account (Disables transfers to and from the account).
 */
function enableBlacklist(address account) public onlyOwner {
    require(!blacklist[account], "CoinToken: Account is already blacklisted");
    blacklist[account] = true;
}
```

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
	STC	Succeeded Transfer Check
	CR	Code Repetition
	L01	Public Function could be Declared External
	L02	State Variables could be Declared Constant
	L04	Conformance to Solidity Naming Conventions
	L05	Unused State Variable
	L13	Divide before Multiply Operation
	L14	Uninitialized Variables in Local Scope

STC - Succeeded Transfer Check

Criticality	minor
Location	contract.sol#L978

Description

According to the ERC20 specification, the transfer methods should be checked if the result is successful. Otherwise, the contract may wrongly assume that the transfer has been established.

```
                taxWallets["marketing"].call{value: marketingETH}("");
                taxWallets["dev"].call{value: devETH}("");
                taxWallets["charity"].call{value: charityETH}("");

                if(ethGained - (marketingETH + devETH + liquidityETH + charityETH) > 0) {
                    taxWallets["marketing"].call{value: ethGained - (marketingETH + devETH +
liquidityETH + charityETH)}("");
                }
```

Recommendation

The contract should check if the result of the transfer methods is successful.

CR - Code Repetition

Criticality	minor
Location	contract.sol#L903,917

Description

There are code segments that are repetitive in the contract. Those segments increase the code size of the contract unnecessarily.

The method `handleTax` can be optimized. The following code segment is repetitive.

```
tax += baseUnit * buyTaxes["marketing"];
tax += baseUnit * buyTaxes["dev"];
tax += baseUnit * buyTaxes["liquidity"];
tax += baseUnit * buyTaxes["charity"];

if(tax > 0) {
    _transfer(from, address(this), tax);
}

marketingTokens += baseUnit * buyTaxes["marketing"];
devTokens += baseUnit * buyTaxes["dev"];
liquidityTokens += baseUnit * buyTaxes["liquidity"];
charityTokens += baseUnit * buyTaxes["charity"];
```

Recommendation

Create an internal function that contains the code segment and remove it from all the sections.

L01 - Public Function could be Declared External

Criticality	minor
Location	contract.sol#L1023,265,518,1054,202,1116,312,185,216,228,293,1070,1031,526,1016,177,1108,1046,209,247,1039,236

Description

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

```
allowance
burn
approve
totalSupply
enableBlacklist
enableTax
name
triggerTax
transferOwnership
...
```

Recommendation

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

L02 - State Variables could be Declared Constant

Criticality	minor
Location	contract.sol#L845,842,843,848,846,836,840,831,841,847,835,837,838,833

Description

Constant state variables should be declared constant to save gas.

```
swapThreshold
charityTaxBuy
liquidityTaxBuy
devTaxBuy
liquidityTaxWallet
marketingTaxSell
denominator
devTaxSell
marketingTaxBuy
...
```

Recommendation

Add the constant attribute to state variables that never change.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	contract.sol#L639,656,638,692

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.

```
WETH
DOMAIN_SEPARATOR
MINIMUM_LIQUIDITY
PERMIT_TYPEHASH
```

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#L842,846,837,847,845,840,848,835,841,836,838,843

Description

There are segments that contain unused state variables.

```
charityTaxSell
charityTaxBuy
marketingTaxBuy
marketingTaxSell
devTaxBuy
charityTaxWallet
devTaxSell
devTaxWallet
liquidityTaxWallet
...
```

Recommendation

Remove unused state variables.

L13 - Divide before Multiply Operation

Criticality	minor
Location	contract.sol#L890

Description

Performing divisions before multiplications may cause lose of prediction.

```
marketingETH = (ethGained * ((marketingTokens * 10 ** 18) / taxSum)) / 10 ** 18
baseUnit = amount / denominator
charityETH = (ethGained * ((charityTokens * 10 ** 18) / taxSum)) / 10 ** 18
devETH = (ethGained * ((devTokens * 10 ** 18) / taxSum)) / 10 ** 18
liquidityETH = (ethGained * ((liquidityTokens / 2 * 10 ** 18) / taxSum)) / 10 ** 18
...
```

Recommendation

The multiplications should be prior to the divisions.

L14 - Uninitialized Variables in Local Scope

Criticality	minor
Location	contract.sol#L896

Description

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

```
tax
```

Recommendation

All the local scoped variables should be initialized.

Contract Functions

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
IERC20Metadata	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
ERC20	Implementation	Context, IERC20, IERC20Metadata		
	<Constructor>	Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-

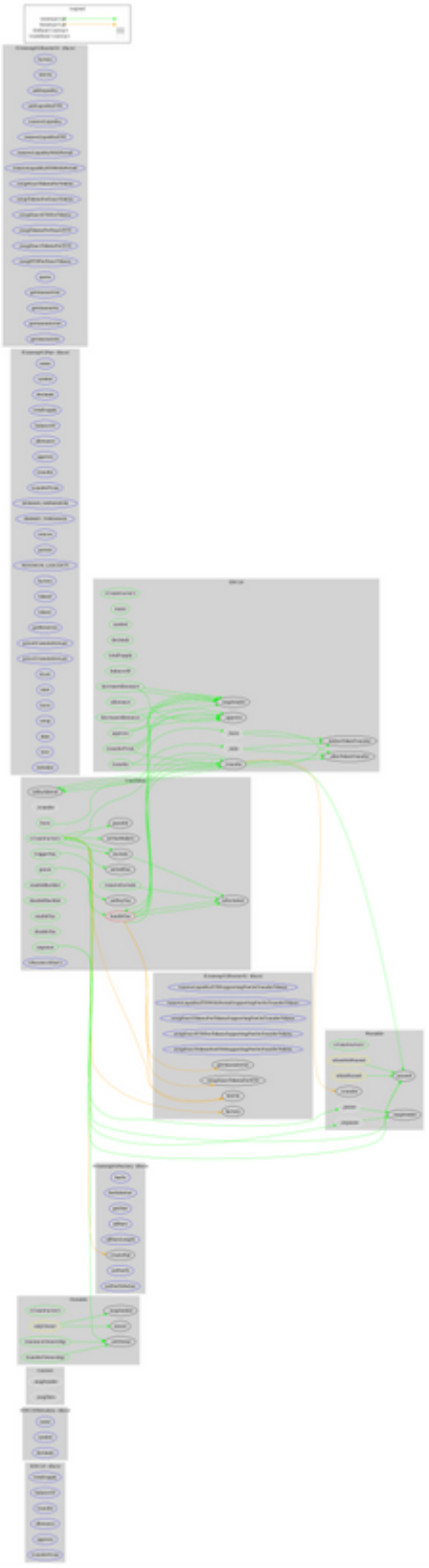
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_approve	Internal	✓	
	_beforeTokenTransfer	Internal	✓	
	_afterTokenTransfer	Internal	✓	
Ownable	Implementation	Context		
	<Constructor>	Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_setOwner	Internal	✓	
Pausable	Implementation	Context		
	<Constructor>	Public	✓	-
	paused	Public		-
	_pause	Internal	✓	whenNotPaused
	_unpause	Internal	✓	whenPaused
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	✓	-
IUniswapV2Factory	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-
	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	External	✓	-
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	✓	-
CoinToken	Implementation	ERC20, Ownable, Pausable		
	<Constructor>	Public	Payable	ERC20
	handleTax	Private	✓	
	_transfer	Internal	✓	
	triggerTax	Public	✓	onlyOwner
	pause	Public	✓	onlyOwner
	unpause	Public	✓	onlyOwner

	burn	Public	✓	onlyOwner
	enableBlacklist	Public	✓	onlyOwner
	disableBlacklist	Public	✓	onlyOwner
	exclude	Public	✓	onlyOwner
	removeExclude	Public	✓	onlyOwner
	setBuyTax	Public	✓	onlyOwner
	setSellTax	Public	✓	onlyOwner
	setTaxWallets	Public	✓	onlyOwner
	enableTax	Public	✓	onlyOwner
	disableTax	Public	✓	onlyOwner
	isBlacklisted	Public		-
	isExcluded	Public		-
	<Receive Ether>	External	Payable	-

Contract Flow



Domain Info

Domain Name	betfinance.io
Registry Domain ID	b2dd9b056416462bb484fa8fd7ae8447-DONUTS
Creation Date	2022-07-14T11:37:07Z
Updated Date	2022-07-21T03:13:56Z
Registry Expiry Date	2023-07-14T11:37:07Z
Registrar WHOIS Server	whois.namecheap.com
Registrar URL	https://www.namecheap.com/
Registrar	NameCheap, Inc.
Registrar IANA ID	1068

The domain has been created in 12 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, manipulating fees, 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.

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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