

# Audit Report **ByBet**

October 2022

Type BEP20

Network BSC

Address 0x3545f97A768d6e165a7395e5509Aa4cf0708E239

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# **Contract Review**

Contract Name	BybetTokenERC20
Compiler Version	v0.8.0+commit.c7dfd78e
Optimization	200 runs
Explorer	https://bscscan.com/token/0x3545f97A768d6e165a7395 e5509Aa4cf0708E239
Symbol	BBET
Decimals	18
Total Supply	1,200,000,000
Domain	https://bybet.io

# Source Files

Filename	SHA256
contract.sol	18d63b03304c35b16b25e0cf76c7d0a14d0f5a3911af0c0 00217ec818dbd946b

# **Audit Updates**

Initial Audit	10th October 2022 https://github.com/cyberscope-io/audits/blob/main/1-bb et/v1/audit.pdf
Corrected	24th October 2022

# **Contract Analysis**

Critical
 Medium
 Minor / Informative
 Pass

Severity	Code	Description	Status
•	ST	Stops Transactions	Passed
•	OCTD	Transfers Contract's Tokens	Unresolved
•	OTUT	Transfers User's Tokens	Passed
•	ELFM	Exceeds Fees Limit	Passed
•	ULTW	Transfers Liquidity to Team Wallet	Unresolved
•	MT	Mints Tokens	Passed
•	ВТ	Burns Tokens	Passed
•	ВС	Blacklists Addresses	Unresolved



### OCTD - Transfers Contract's Tokens

Criticality	minor / informative
Location	contract.sol#L1065
Status	Unresolved

#### Description

The contract owner has the authority to claim all the balance of the contract. The owner may take advantage of it by calling the emergencySupport function.

```
function emergencySupport(
    address token,
    address to,
    uint256 amount
) external onlyOwner {
    ERC20(token).transfer(to, amount);
}
```

#### 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.



# **ULTW - Transfers Liquidity to Team Wallet**

Criticality	minor / informative
Location	contract.sol#L1012
Status	Unresolved

# 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 manualDistributeBuyFee method.

```
function manualDistributeBuyFee() public onlyOwner returns (bool) {
    swapping = true;
    _swapBackToBUSD(balanceOf(address(this)));
    swapping = false;
    Fees memory fees = _sellFeesByTime(block.timestamp);
    distributeRewardBUSD(fees);
    return true;
}
```

#### 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 - Blacklists Addresses

Criticality	critical
Location	contract.sol#L1030
Status	Unresolved

# Description

The contract owner has the authority to stop addresses from transactions. The owner may take advantage of it by enabling IPinkAntiBot interface.

```
function _transfer(
    address from,
    address to,
    uint256 amount
) internal override {
    super._beforeTokenTransfer(from, to, amount);
    require(from != address(0), "ERC20: transfer from the zero address");
    require(to != address(0), "ERC20: transfer to the zero address");
    if (antiBotEnabled) {
        pinkAntiBot.onPreTransferCheck(from, to, amount);
    }
}
```

#### Recommendation

The contract should initialize the pinkAntiBot with the trusted Pinksale antibot address. It should not allow changes after the initialization.

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**

CriticalMediumMinor / Informative

Severity	Code	Description	Status
•	US	Untrusted Source	Unresolved
•	STC	Succeeded Transfer Check	Unresolved
•	BLC	Business Logic Concern	Unresolved
•	CR	Code Repetition	Unresolved
•	L04	Conformance to Solidity Naming Conventions	Unresolved
•	L07	Missing Events Arithmetic	Unresolved
•	L09	Dead Code Elimination	Unresolved
•	L13	Divide before Multiply Operation	Unresolved

# **US - Untrusted Source**



Criticality	critical
Location	contract.sol#L852
Status	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.

IPinkAntiBot public pinkAntiBot;

#### 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. In addition, it is recommended to enclose every statement that uses external sources in try-catch statement. In order to avoid anomalies in the transaction flow.



### STC - Succeeded Transfer Check

Criticality	minor / informative
Location	contract.sol#L965
Status	Unresolved

#### 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.

```
function distributeRewardBUSD(Fees memory fees) internal returns (bool) {
    uint256 totalFee = fees.liquid + fees.marketing + fees.rewards + fees.team;
    uint256 amountBUSDToFee = ERC20(BUSD_ADDRESS).balanceOf(address(this));
    ERC20(BUSD_ADDRESS).transfer(LIQUID_ADDRESS, amountBUSDToFee * (fees.liquid *
1e3 / totalFee) / 1e3);
    ERC20(BUSD_ADDRESS).transfer(MARKETING_ADDRESS, amountBUSDToFee *
(fees.marketing * 1e3 / totalFee) / 1e3);
    ERC20(BUSD_ADDRESS).transfer(REWARDS_ADDRESS, amountBUSDToFee *
(fees.rewards * 1e3 / totalFee) / 1e3);
    ERC20(BUSD_ADDRESS).transfer(TEAM_ADDRESS, amountBUSDToFee * (fees.team * 1e3 / totalFee) / 1e3);
    return true;
}
```

#### Recommendation

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

# BLC - Business Logic Concern

Criticality	minor / informative
Location	contract.sol#L965
Status	Unresolved

#### Description

The ratio distribution has an accuracy problem. All integer division rounds down to the nearest integer in solidity. As a result, residual fees are left to the contract.

```
function distributeRewardBUSD(Fees memory fees) internal returns (bool) {
    uint256 totalFee = fees.liquid + fees.marketing + fees.rewards + fees.team;
    uint256 amountBUSDToFee = ERC20(BUSD_ADDRESS).balanceOf(address(this));
    ERC20(BUSD_ADDRESS).transfer(LIQUID_ADDRESS, amountBUSDToFee * (fees.liquid *

1e3 / totalFee) / 1e3);
    ERC20(BUSD_ADDRESS).transfer(MARKETING_ADDRESS, amountBUSDToFee *

(fees.marketing * 1e3 / totalFee) / 1e3);
    ERC20(BUSD_ADDRESS).transfer(REWARDS_ADDRESS, amountBUSDToFee *

(fees.rewards * 1e3 / totalFee) / 1e3);
    ERC20(BUSD_ADDRESS).transfer(TEAM_ADDRESS, amountBUSDToFee * (fees.team *

1e3 / totalFee) / 1e3);
    return true;
}
```

#### Recommendation

The ratio distribution may produce accuracy issues. All integer division rounds down to the nearest integer in Solidity. As a result, the remaining fees will remain in the contract.



# **CR - Code Repetition**

Criticality	minor / informative
Location	contract.sol#L915,938
Status	Unresolved

#### Description

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

The following code segment is used in two functions. The \_sellFeesByTime and \_buyFeesByTime functions.

```
if (time >= launchTime + 180 days) {
    return sellFeesInfo[launchTime + 180 days];
}
if (time >= launchTime + 150 days) {
    return sellFeesInfo[launchTime + 150 days];
}
if (time >= launchTime + 120 days) {
    return sellFeesInfo[launchTime + 120 days];
}
if (time >= launchTime + 90 days) {
    return sellFeesInfo[launchTime + 90 days];
}
if (time >= launchTime + 60 days) {
    return sellFeesInfo[launchTime + 60 days];
}
if (time >= launchTime + 30 days) {
    return sellFeesInfo[launchTime + 30 days];
}
```

#### Recommendation

The contract could use an internal function that accepts the fee mapping as argument. As a result, the repetitive methods will be removed.



# L04 - Conformance to Solidity Naming Conventions

ByBet Token Audit

Criticality	minor / informative
Location	contract.sol#L839,836,877,838,975,7,881,837,885,835,854
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.

BUSD\_ADDRESS
MARKETING\_ADDRESS
\_addr
TEAM\_ADDRESS
\_pair
WETH
REWARDS\_ADDRESS
PSAntibot
LIQUID\_ADDRESS

#### Recommendation

Follow the Solidity naming convention.

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

# L07 - Missing Events Arithmetic

Criticality	minor / informative
Location	contract.sol#L892
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.

launchTime = time

#### Recommendation

Emit an event for critical parameter changes.

# L09 - Dead Code Elimination

Criticality	minor / informative
Location	contract.sol#L667
Status	Unresolved

# Description

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

\_burn

#### Recommendation

Remove unused functions.

# L13 - Divide before Multiply Operation

Criticality	minor / informative
Location	contract.sol#L965
Status	Unresolved

#### Description

Performing divisions before multiplications may cause lose of prediction.

ERC20(BUSD\_ADDRESS).transfer(REWARDS\_ADDRESS,amountBUSDToFee \* (fees.rewards \* 1e3 / totalFee) / 1e3)

ERC20(BUSD\_ADDRESS).transfer(LIQUID\_ADDRESS,amountBUSDToFee \* (fees.liquid \* 1e3 / totalFee) / 1e3)

ERC20(BUSD\_ADDRESS).transfer(MARKETING\_ADDRESS,amountBUSDToFee \* (fees.marketing \* 1e3 / totalFee) / 1e3)

ERC20(BUSD\_ADDRESS).transfer(TEAM\_ADDRESS,amountBUSDToFee \* (fees.team \* 1e3 / totalFee) / 1e3)

#### Recommendation

The multiplications should be prior to the divisions.



# **Contract Functions**

Contract	Туре	Bases		
	Function Name	Visibility	Mutability	Modifiers
IPancakeSwap Router	Interface			
	factory	External		-
	WETH	External		-
	addLiquidity	External	✓	-
	addLiquidityETH	External	Payable	-
	removeLiquidity	External	1	-
	removeLiquidityETH	External	1	-
	removeLiquidityWithPermit	External	✓	-
	removeLiquidityETHWithPermit	External	✓	-
	swapExactTokensForTokens	External	<b>✓</b>	-
	swapTokensForExactTokens	External	1	-
	swapExactETHForTokens	External	Payable	-
	swapTokensForExactETH	External	1	-
	swapExactTokensForETH	External	1	-
	swapETHForExactTokens	External	Payable	-
	quote	External		-
	getAmountOut	External		-
	getAmountIn	External		-
	getAmountsOut	External		-
	getAmountsIn	External		-
	removeLiquidityETHSupportingFeeOnTransferTokens	External	<b>✓</b>	-
	removeLiquidityETHWithPermitSupp ortingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokensSupporti ngFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupporting FeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupporting	External	<b>✓</b>	-



	FeeOnTransferTokens			
0	lar alam and attack			
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
Ownable	Implementation	Context		
	<constructor></constructor>	Public	1	-
	owner	Public		-
	renounceOwnership	Public	1	onlyOwner
	transferOwnership	Public	1	onlyOwner
	_transferOwnership	Internal	1	
IERC20	Interface			
1211020	totalSupply	External		_
	balanceOf	External		_
	transfer	External	1	_
	allowance	External		_
	approve	External	1	-
	transferFrom	External	1	-
IERC20Metad	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-
ERC20	Implementation	Context, IERC20, IERC20Met adata		
	<constructor></constructor>	Public	1	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-



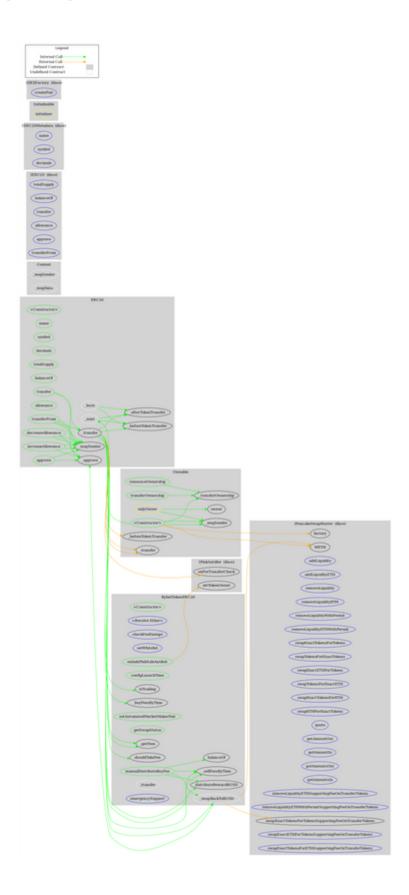
	balanceOf	Public		-
	transfer	Public	1	-
	allowance	Public		-
	approve	Public	1	-
	transferFrom	Public	1	-
	increaseAllowance	Public	1	-
	decreaseAllowance	Public	1	-
	_transfer	Internal	1	
	_mint	Internal	1	
	_burn	Internal	1	
	_approve	Internal	1	
	_beforeTokenTransfer	Internal	1	
	_afterTokenTransfer	Internal	1	
Initializable	Implementation			
IDEXFactory	Interface			
	createPair	External	✓	-
IPinkAntiBot	Interface			
	setTokenOwner	External	✓	-
	onPreTransferCheck	External	✓	-
BybetTokenER C20	Implementation	ERC20, Ownable		
	<constructor></constructor>	Public	1	ERC20 Ownable
	<receive ether=""></receive>	External	Payable	-
	checkFeeExempt	External		-
	setWhitelist	External	1	onlyOwner
	enbalePinkSaleAntibot	Public	1	onlyOwner
	configLaunchTime	Public	1	onlyOwner
	_sellFeesByTime	Internal		
	_buyFeesByTime	Internal		
	_getFees	Internal		



distributeRewardBUSD	Internal	✓	
setAutomatedMarketMakerPair	Public	✓	onlyOwner
_swapBackToBUSD	Internal	✓	
getSwapStatus	Public		-
shouldTakeFee	Public		-
isTrading	Public		-
manualDistributeBuyFee	Public	✓	onlyOwner
_transfer	Internal	1	
emergencySupport	External	✓	onlyOwner



# **Contract Flow**



# Domain Info

Domain Name	bybet.io
Registry Domain ID	c58c6bde1f0b46c4b5ee83b2eb58365e-DONUTS
Creation Date	2022-09-18T02:34:54Z
Updated Date	2022-09-28T11:15:58Z
Registry Expiry Date	2023-09-18T02:34:54Z
Registrar WHOIS Server	whois.namecheap.com
Registrar URL	https://www.namecheap.com/
Registrar	NameCheap, Inc.
Registrar IANA ID	1068

The domain was created about 1 month before the creation of the audit. It will expire in 11 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 transferring tokens to the team's wallet, transferring funds to the team's wallet, and massively blacklisting addresses. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats. There is also a max of 15% sell fees and a max of 5% buy fees. The fees are gradually decreasing after the first thirty days for the buy fees and after ninety days for the sell fees.

# Disclaimer

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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.

