Cyberscope

Audit Report

TeamAffordaHouse

October 2023

Network	BSC
Address	0xa7e5311DC6926d4407b6d20F8Ca5Ce6C92581B35
Audited by	© cyberscope

Analysis

● Critical ● Medium ● Minor / Informative ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Passed
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Unresolved

Diagnostics

● Critical ● Medium ● Minor / Informative

Severity	Code	Description	Status
●	PAV	Pair Address Validation	Unresolved
●	GO	Gas Optimization	Unresolved
●	FRV	Fee Restoration Vulnerability	Unresolved
●	RSW	Redundant Storage Writes	Unresolved
●	MEE	Missing Events Emission	Unresolved
●	EPC	Existing Pair Creation	Unresolved
●	TUU	Time Units Usage	Unresolved
●	RRS	Redundant Require Statement	Unresolved
●	RSML	Redundant SafeMath Library	Unresolved
●	RSK	Redundant Storage Keyword	Unresolved
●	IDI	Immutable Declaration Improvement	Unresolved
●	L02	State Variables could be Declared Constant	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L05	Unused State Variable	Unresolved

●	L07	Missing Events Arithmetic	Unresolved
●	L08	Tautology or Contradiction	Unresolved
●	L09	Dead Code Elimination	Unresolved
●	L13	Divide before Multiply Operation	Unresolved
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●	L20	Succeeded Transfer Check	Unresolved

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Review

Contract Name	Token
Compiler Version	v0.8.6+commit.11564f7e
Optimization	200 runs
Explorer	https://bscscan.com/address/0xa7e5311dc6926d4407b6d20f8ca5ce6c92581b35
Address	0xa7e5311dc6926d4407b6d20f8ca5ce6c92581b35
Network	BSC
Symbol	TAH
Decimals	18
Total Supply	10,000,000,000

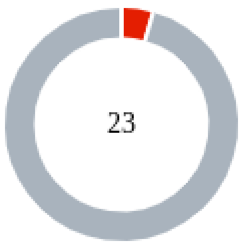
Audit Updates

Initial Audit	24 Oct 2023

Source Files

Filename	SHA256
Token.sol	0f3008b5dd7731a5197d4ddda7b7e1428cdc3ea05c24c87b492fc62f8fd1f99d

Findings Breakdown



●	Critical	1
●	Medium	0
●	Minor / Informative	22

Severity		Unresolved	Acknowledged	Resolved	Other
●	Critical	1	0	0	0
●	Medium	0	0	0	0
●	Minor / Informative	22	0	0	0

BC - Blacklists Addresses

Criticality	Critical
Location	Token.sol#L2007
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.

Temporary Solutions:

These measurements do not decrease the severity of the finding

- Introduce a time-locker mechanism with a reasonable delay.
- Introduce a multi-signature wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

Permanent Solution:

- Renouncing the ownership, which will eliminate the threats but it is non-reversible.

PAV - Pair Address Validation

Criticality	Minor / Informative
Location	Token.sol#L1577
Status	Unresolved

Description

The contract is missing address validation in the pair address argument. The absence of validation reveals a potential vulnerability, as it lacks proper checks to ensure the integrity and validity of the pair address provided as an argument. The pair address is a parameter used in certain methods of decentralized exchanges for functions like token swaps and liquidity provisions.

The absence of address validation in the pair address argument can introduce security risks and potential attacks. Without proper validation, if the owner's address is compromised, the contract may lead to unexpected behavior like loss of funds.

```
address[] memory path = new address[](3);
path[0] = address(this);
path[1] = pcsV2Router.WETH();
path[2] = rewardToken;
```

Recommendation

To mitigate the risks associated with the absence of address validation in the pair address argument, it is recommended to implement comprehensive address validation mechanisms. A recommended approach could be to verify pair existence in the decentralized application. Prior to interacting with the pair address contract, perform checks to verify the existence and validity of the contract at the provided address. This can be achieved by querying the provider's contract or utilizing external libraries that provide contract verification services.

GO - Gas Optimization

Criticality	Minor / Informative
Location	Token.sol#L1444
Status	Unresolved

Description

Gas optimization refers to the process of reducing the amount of gas required to execute a transaction. Gas is the unit of measurement used to calculate the fees paid to miners for including a transaction in a block on the blockchain.

The `swapAndLiquify` function is a critical part of the contract's transfer flow, responsible for swapping the contract's balance into various tokens, including BNB and reward tokens. However, the function executes multiple token swaps, and each swap operation consumes gas. This can lead to increased gas costs, especially when multiple swaps are triggered within a single transaction.

```
function swapAndLiquify(uint256 contractTokenBalance) private lockTheSwap
{ ... }
```

Recommendation

To optimize gas usage, the team should consider reducing the number of token swaps in the `swapAndLiquify` function. Instead of executing multiple swaps for different purposes, the team could try to consolidate these operations where possible. For instance, a recommended approach would be to batch the swaps and execute them in a more efficient way to reduce gas costs. This optimization will help reduce transaction fees and make the contract more efficient.

FRV - Fee Restoration Vulnerability

Criticality	Minor / Informative
Location	Token.sol#L1325,1345
Status	Unresolved

Description

The contract demonstrates a potential vulnerability upon removing and restoring the fees. This vulnerability can occur when the fees have been set to zero. During a transaction, if the fees have been set to zero, then both remove fees and restore fees functions will be executed. The remove fees function is executed to temporarily remove the fees, ensuring the sender is not taxed during the transfer. However, the function prematurely returns without setting the variables that hold the previous fee values.

As a result, when the subsequent restore fees function is called after the transfer, it restores the fees to their previous values. However, since the previous fee values were not properly set to zero, there is a risk that the fees will retain their non-zero values from before the fees were removed. This can lead to unintended consequences, potentially causing incorrect fee calculations or unexpected behavior within the contract.

```
function removeAllFee() private {
    if(_taxFee == 0 && _liquidityFee == 0 && _burnFee == 0 && _walletFee
== 0 && _buybackFee == 0 && _walletCharityFee == 0 && _rewardFee == 0)
return;

    _previousTaxFee = _taxFee;
    _previousLiquidityFee = _liquidityFee;
    _previousBurnFee = _burnFee;
    _previousWalletFee = _walletFee;
    _previousBuybackFee = _buybackFee;
    _previousWalletCharityFee = _walletCharityFee;
    _previousRewardFee = _rewardFee;

    _taxFee = 0;
    _liquidityFee = 0;
    _burnFee = 0;
    _walletFee = 0;
    _buybackFee = 0;
    _walletCharityFee = 0;
    _rewardFee = 0;
}

function restoreAllFee() private {
    _taxFee = _previousTaxFee;
    _liquidityFee = _previousLiquidityFee;
    _burnFee = _previousBurnFee;
    _walletFee = _previousWalletFee;
    _buybackFee = _previousBuybackFee;
    _walletCharityFee = _previousWalletCharityFee;
    _rewardFee = _previousRewardFee;
}
```

Recommendation

The team is advised to modify the remove fees function to ensure that the previous fee values are correctly set to zero, regardless of their initial values. A recommended approach would be to remove the early return when both fees are zero.

RSW - Redundant Storage Writes

Criticality	Minor / Informative
Location	Token.sol#L1246,1250,2008
Status	Unresolved

Description

The contract modifies the state of the following variables without checking if their current value is the same as the one given as an argument. As a result, the contract performs redundant storage writes, when the provided parameter matches the current state of the variables, leading to unnecessary gas consumption and inefficiencies in contract execution.

```
walletFeeInBNB = inBNB;
walletCharityFeeInBNB = inBNB;
_isBlacklisted[account] = value;
```

Recommendation

The team is advised to implement additional checks within to prevent redundant storage writes when the provided argument matches the current state of the variables. By incorporating statements to compare the new values with the existing values before proceeding with any state modification, the contract can avoid unnecessary storage operations, thereby optimizing gas usage.

MEE - Missing Events Emission

Criticality	Minor / Informative
Location	Token.sol#L1237,1242,1246,1250,2008
Status	Unresolved

Description

The contract performs actions and state mutations from external methods that do not result in the emission of events. Emitting events for significant actions is important as it allows external parties, such as wallets or dApps, to track and monitor the activity on the contract. Without these events, it may be difficult for external parties to accurately determine the current state of the contract.

```
feeWallet = newFeeWallet;
feeWalletCharity = newFeeWallet;
walletFeeInBNB = inBNB;
walletCharityFeeInBNB = inBNB;
_isBlacklisted[account] = value;
```

Recommendation

It is recommended to include events in the code that are triggered each time a significant action is taking place within the contract. These events should include relevant details such as the user's address and the nature of the action taken. By doing so, the contract will be more transparent and easily auditable by external parties. It will also help prevent potential issues or disputes that may arise in the future.

EPC - Existing Pair Creation

Criticality	Minor / Informative
Location	Token.sol#L1070
Status	Unresolved

Description

The contract contains a function that does not handle the scenario where a pair already exists prior to its execution. If a pair for the given tokens has already been established, the `createPair` function will revert and not proceed with the creation of a new pair. As a result, if a pair has been previously set up before the function is invoked, the contract will encounter an error when trying to call the `createPair` function. This will prevent the successful execution, essentially leading the function to revert.

```
function updatePcsV2Router(address newAddress) public onlyOwner {
    require(
    newAddress != address(pcsV2Router),
    "The router already has that address"
    );
    IUniswapV2Router02 _pcsV2Router = IUniswapV2Router02(newAddress);
        // Create a uniswap pair for this new token
    pcsV2Pair = IUniswapV2Factory(_pcsV2Router.factory())
        .createPair(address(this), _pcsV2Router.WETH());

    // set the rest of the contract variables
    pcsV2Router = _pcsV2Router;
}
```

Recommendation

To mitigate the risks associated with attempting to create an already existing pair, it is recommended to implement a check to determine whether the pair already exists before proceeding to create a new pair. This can be achieved by utilizing the getPair function of the Factory contract to retrieve the address of the pair contract for the specified tokens. If the address returned by the getPair function is the zero address, it indicates that the pair does not exist, and the contract can proceed with the createPair function. Conversely, if a non-zero address is returned, it indicates that the pair already exists, and the createPair function will revert.

TUU - Time Units Usage

Criticality	Minor / Informative
Location	Token.sol#L872,1819
Status	Unresolved

Description

The contract is using arbitrary numbers to form time-related values. As a result, it decreases the readability of the codebase and prevents the compiler to optimize the source code.

```
uint256 public claimWait=3600;
newClaimWait >= 3600 && newClaimWait <= 86400
```

Recommendation

It is a good practice to use the time units reserved keywords like `seconds`, `minutes`, `hours`, `days` and `weeks` to process time-related calculations.

It's important to note that these time units are simply a shorthand notation for representing time in seconds, and do not have any effect on the actual passage of time or the execution of the contract. The time units are simply a convenience for expressing time in a more human-readable form.

RRS - Redundant Require Statement

Criticality	Minor / Informative
Location	Token.sol#L101
Status	Unresolved

Description

The contract utilizes a `require` statement within the `add` function aiming to prevent overflow errors. This function is designed based on the SafeMath library's principles. In Solidity version 0.8.0 and later, arithmetic operations revert on overflow and underflow, making the overflow check within the function redundant. This redundancy could lead to extra gas costs and increased complexity without providing additional security.

```
function add(uint256 a, uint256 b) internal pure returns (uint256) {
      uint256 c = a + b;
      require(c >= a, "SafeMath: addition overflow");

      return c;
}
```

Recommendation

It is recommended to remove the `require` statement from the add function since the contract is using a Solidity pragma version equal to or greater than 0.8.0. By doing so, the contract will leverage the built-in overflow and underflow checks provided by the Solidity language itself, simplifying the code and reducing gas consumption. This change will uphold the contract's integrity in handling arithmetic operations while optimizing for efficiency and cost-effectiveness.

RSML - Redundant SafeMath Library

Criticality	Minor / Informative
Location	Token.sol
Status	Unresolved

Description

SafeMath is a popular Solidity library that provides a set of functions for performing common arithmetic operations in a way that is resistant to integer overflows and underflows.

Starting with Solidity versions that are greater than or equal to 0.8.0, the arithmetic operations revert to underflow and overflow. As a result, the native functionality of the Solidity operations replaces the SafeMath library. Hence, the usage of the SafeMath library adds complexity, overhead and increases gas consumption unnecessarily.

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

Recommendation

The team is advised to remove the SafeMath library. Since the version of the contract is greater than `0.8.0` then the pure Solidity arithmetic operations produce the same result.

If the previous functionality is required, then the contract could exploit the `unchecked { ... }` statement.

Read more about the breaking change on https://docs.soliditylang.org/en/v0.8.16/080-breaking-changes.html#solidity-v0-8-0-breaking-changes.

RSK - Redundant Storage Keyword

Criticality	Minor / Informative
Location	Token.sol#L331,335,342,348
Status	Unresolved

Description

The contract uses the `storage` keyword in a view function. The `storage` keyword is used to persist data on the contract's storage. View functions are functions that do not modify the state of the contract and do not perform any actions that cost gas (such as sending a transaction). As a result, the use of the `storage` keyword in view functions is redundant.

```
Map storage map
```

Recommendation

It is generally considered good practice to avoid using the `storage` keyword in view functions because it is unnecessary and can make the code less readable.

IDI - Immutable Declaration Improvement

Criticality	Minor / Informative
Location	Token.sol#L996,997,998,999,1009,1019
Status	Unresolved

Description

The contract declares state variables that their value is initialized once in the constructor and are not modified afterwards. The `immutable` is a special declaration for this kind of state variables that saves gas when it is defined.

```
_name
_symbol
_decimals
_tTotal
rewardToken
numTokensSellToAddToLiquidity
```

Recommendation

By declaring a variable as immutable, the Solidity compiler is able to make certain optimizations. This can reduce the amount of storage and computation required by the contract, and make it more gas-efficient.

L02 - State Variables could be Declared Constant

Criticality	Minor / Informative
Location	Token.sol#L846,848,849,850,851,852,853,854,899,908
Status	Unresolved

Description

State variables can be declared as constant using the constant keyword. This means that the value of the state variable cannot be changed after it has been set. Additionally, the constant variables decrease gas consumption of the corresponding transaction.

```
address dead = 0x000000000000000000000000000000000000dEaD
uint8 public maxLiqFee = 10
uint8 public maxTaxFee = 10
uint8 public maxBurnFee = 10
uint8 public maxWalletFee = 10
uint8 public maxBuybackFee = 10
uint8 public minMxTxPercentage = 1
uint8 public minMxWalletPercentage = 1
address public router = 0x10ED43C718714eb63d5aA57B78B54704E256024E
bool public mintedByUnicarve = true
```

Recommendation

Constant state variables can be useful when the contract wants to ensure that the value of a state variable cannot be changed by any function in the contract. This can be useful for storing values that are important to the contract's behavior, such as the contract's address or the maximum number of times a certain function can be called. The team is advised to add the constant keyword to state variables that never change.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	Token.sol#L699,861,862,904,910,911,914,917,920,923,926,929,932,946,947,951,1230,1253,1313,1319,1740,1744,1748,1752,1835
Status	Unresolved

Description

The Solidity style guide is a set of guidelines for writing clean and consistent Solidity code. Adhering to a style guide can help improve the readability and maintainability of the Solidity code, making it easier for others to understand and work with.

The followings are a few key points from the Solidity style guide:

1. Use camelCase for function and variable names, with the first letter in lowercase (e.g., myVariable, updateCounter).
2. Use PascalCase for contract, struct, and enum names, with the first letter in uppercase (e.g., MyContract, UserStruct, ErrorEnum).
3. Use uppercase for constant variables and enums (e.g., MAX_VALUE, ERROR_CODE).
4. Use indentation to improve readability and structure.
5. Use spaces between operators and after commas.
6. Use comments to explain the purpose and behavior of the code.
7. Keep lines short (around 120 characters) to improve readability.

```
function WETH() external pure returns (address);
uint256 public _tDividendTotal = 0
uint256 internal constant magnitude = 2**128
uint256 public _tTotal
string public _name
string public _symbol
uint8 public _taxFee = 0
uint8 public _rewardFee = 0
uint8 public _liquidityFee = 0
uint8 public _burnFee = 0
uint8 public _walletFee = 0
uint8 public _walletCharityFee = 0
uint8 public _buybackFee = 0
uint256 public _maxTxAmount

...
```

Recommendation

By following the Solidity naming convention guidelines, the codebase increased the readability, maintainability, and makes it easier to work with.
Find more information on the Solidity documentation
https://docs.soliditylang.org/en/v0.8.17/style-guide.html#naming-convention.

L05 - Unused State Variable

Criticality	Minor / Informative
Location	Token.sol#L250
Status	Unresolved

Description

An unused state variable is a state variable that is declared in the contract, but is never used in any of the contract's functions. This can happen if the state variable was originally intended to be used, but was later removed or never used.

Unused state variables can create clutter in the contract and make it more difficult to understand and maintain. They can also increase the size of the contract and the cost of deploying and interacting with it.

```
int256 private constant MAX_INT256 = ~(int256(1) << 255)
```

Recommendation

To avoid creating unused state variables, it's important to carefully consider the state variables that are needed for the contract's functionality, and to remove any that are no longer needed. This can help improve the clarity and efficiency of the contract.

L07 - Missing Events Arithmetic

Criticality	Minor / Informative
Location	Token.sol#L1199,1213,1218,1225,1255,1999
Status	Unresolved

Description

Events are a way to record and log information about changes or actions that occur within a contract. They are often used to notify external parties or clients about events that have occurred within the contract, such as the transfer of tokens or the completion of a task.

It's important to carefully design and implement the events in a contract, and to ensure that all required events are included. It's also a good idea to test the contract to ensure that all events are being properly triggered and logged.

```
_taxFee = taxFee
buyBackUpperLimit = buyBackLimit * 10**18

_maxTxAmount = _tTotal.mul(maxTxPercent).div(
            10**4
        )

_maxWalletAmount = _tTotal.mul(maxWalletPercent).div(
            10**4
        )
minimumTokenBalanceForDividends = _minimumTokenBalanceForDividends
gasForProcessing = newValue
```

Recommendation

By including all required events in the contract and thoroughly testing the contract's functionality, the contract ensures that it performs as intended and does not have any missing events that could cause issues with its arithmetic.

L08 - Tautology or Contradiction

Criticality	Minor / Informative
Location	Token.sol#L1038,1039,1040,1041,1042,1043,1044,1190,1191,1192,1193,1194,1195,1196
Status	Unresolved

Description

A tautology is a logical statement that is always true, regardless of the values of its variables. A contradiction is a logical statement that is always false, regardless of the values of its variables.

Using tautologies or contradictions can lead to unintended behavior and can make the code harder to understand and maintain. It is generally considered good practice to avoid tautologies and contradictions in the code.

```
require(fee.setTaxFee >= 0 && fee.setTaxFee <=maxTaxFee,"TF err")
require(fee.setLiqFee >= 0 && fee.setLiqFee <=maxLiqFee,"LF err")
require(fee.setBurnFee >= 0 && fee.setBurnFee <=maxBurnFee,"BF err")
require(fee.setWalletFee >= 0 && fee.setWalletFee <=maxWalletFee,"WF err")
require(fee.setBuybackFee >= 0 && fee.setBuybackFee <=maxBuybackFee,"BBF
err")
require(fee.setWalletCharityFee >= 0 && fee.setWalletCharityFee
<=maxWalletFee,"WFT err")
require(fee.setRewardFee >= 0 && fee.setRewardFee <=maxTaxFee,"RF err")
require(taxFee >= 0 && taxFee <=maxTaxFee,"TF err")
require(liquidityFee >= 0 && liquidityFee <=maxLiqFee,"LF err")
require(burnFee >= 0 && burnFee <=maxBurnFee,"BF err")
require(walletFee >= 0 && walletFee <=maxWalletFee,"WF err")
require(buybackFee >= 0 && buybackFee <=maxBuybackFee,"BBF err")
require(walletCharityFee >= 0 && walletCharityFee <=maxWalletFee,"WFT
err")
require(rewardFee >= 0 && rewardFee <=maxTaxFee,"RF err")
```

Recommendation

The team is advised to carefully consider the logical conditions is using in the code and ensure that it is well-defined and make sense in the context of the smart contract.

L09 - Dead Code Elimination

Criticality	Minor / Informative
Location	Token.sol#L296,331,405,432,458,468,483,493,498,534,538,549,560,565,576,1762
Status	Unresolved

Description

In Solidity, dead code is code that is written in the contract, but is never executed or reached during normal contract execution. Dead code can occur for a variety of reasons, such as:

- Conditional statements that are always false.
- Functions that are never called.
- Unreachable code (e.g., code that follows a return statement).

Dead code can make a contract more difficult to understand and maintain, and can also increase the size of the contract and the cost of deploying and interacting with it.

```
function abs(int256 a) internal pure returns (int256) {
        require(a != MIN_INT256);
        return a < 0 ? -a : a;
    }

function get(Map storage map, address key) internal view returns (uint) {
        return map.values[key];
    }

...
```

Recommendation

To avoid creating dead code, it's important to carefully consider the logic and flow of the contract and to remove any code that is not needed or that is never executed. This can help improve the clarity and efficiency of the contract.

L13 - Divide before Multiply Operation

Criticality	Minor / Informative
Location	Token.sol#L1451,1457,1475,1481,1500
Status	Unresolved

Description

It is important to be aware of the order of operations when performing arithmetic calculations. This is especially important when working with large numbers, as the order of operations can affect the final result of the calculation. Performing divisions before multiplications may cause loss of prediction.

```
spentAmount  = contractTokenBalance.div(totFee).mul(_burnFee)
```

Recommendation

To avoid this issue, it is recommended to carefully consider the order of operations when performing arithmetic calculations in Solidity. It's generally a good idea to use parentheses to specify the order of operations. The basic rule is that the multiplications should be prior to the divisions.

L15 - Local Scope Variable Shadowing

Criticality	Minor / Informative
Location	Token.sol#L1740,1744,1748,1752
Status	Unresolved

Description

Local scope variable shadowing occurs when a local variable with the same name as a variable in an outer scope is declared within a function or code block. When this happens, the local variable "shadows" the outer variable, meaning that it takes precedence over the outer variable within the scope in which it is declared.

```
address _owner
```

Recommendation

It's important to be aware of shadowing when working with local variables, as it can lead to confusion and unintended consequences if not used correctly. It's generally a good idea to choose unique names for local variables to avoid shadowing outer variables and causing confusion.

L16 - Validate Variable Setters

Criticality	Minor / Informative
Location	Token.sol#L1009
Status	Unresolved

Description

The contract performs operations on variables that have been configured on user-supplied input. These variables are missing of proper check for the case where a value is zero. This can lead to problems when the contract is executed, as certain actions may not be properly handled when the value is zero.

```
rewardToken = _rewardToken
```

Recommendation

By adding the proper check, the contract will not allow the variables to be configured with zero value. This will ensure that the contract can handle all possible input values and avoid unexpected behavior or errors. Hence, it can help to prevent the contract from being exploited or operating unexpectedly.

L17 - Usage of Solidity Assembly

Criticality	Minor / Informative
Location	Token.sol#L412,511
Status	Unresolved

Description

Using assembly can be useful for optimizing code, but it can also be error-prone. It's important to carefully test and debug assembly code to ensure that it is correct and does not contain any errors.

Some common types of errors that can occur when using assembly in Solidity include Syntax, Type, Out-of-bounds, Stack, and Revert.

```
assembly { codehash := extcodehash(account) }

assembly {
                    let returndata_size := mload(returndata)
                    revert(add(32, returndata), returndata_size)
                }
```

Recommendation

It is recommended to use assembly sparingly and only when necessary, as it can be difficult to read and understand compared to Solidity code.

L20 - Succeeded Transfer Check

Criticality	Minor / Informative
Location	Token.sol#L1696
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.

```
IERC20(tokenAddress).transfer(owner(), tokenAmount)
```

Recommendation

The contract should check if the result of the transfer methods is successful. The team is advised to check the SafeERC20 library from the Openzeppelin library.

Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
	mod	Internal		
	mod	Internal		

Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
SafeMathInt	Library			
	mul	Internal		
	div	Internal		
	sub	Internal		
	add	Internal		
	abs	Internal		
	toUint256Safe	Internal		
SafeMathUint	Library			
	toInt256Safe	Internal		
IterableMapping	Library			
	get	Internal		
	getIndexOfKey	Internal		
	getKeyAtIndex	Internal		
	size	Internal		
	set	Internal	✓	
	remove	Internal	✓	

Address	Library			
	isContract	Internal		
	sendValue	Internal	✓	
	functionCall	Internal	✓	
	functionCall	Internal	✓	
	functionCallWithValue	Internal	✓	
	functionCallWithValue	Internal	✓	
	_functionCallWithValue	Private	✓	
SafeERC20	Library			
	safeTransfer	Internal	✓	
	safeTransferFrom	Internal	✓	
	safeApprove	Internal	✓	
	safeIncreaseAllowance	Internal	✓	
	safeDecreaseAllowance	Internal	✓	
	_callOptionalReturn	Private	✓	
Ownable	Implementation	Context		
		Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	geUnlockTime	Public		-

	lock	Public	✓	onlyOwner
	unlock	Public	✓	-
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	✓	-
Token	Implementation	Context, IERC20, Ownable		
		Public	Payable	-
	name	Public		-

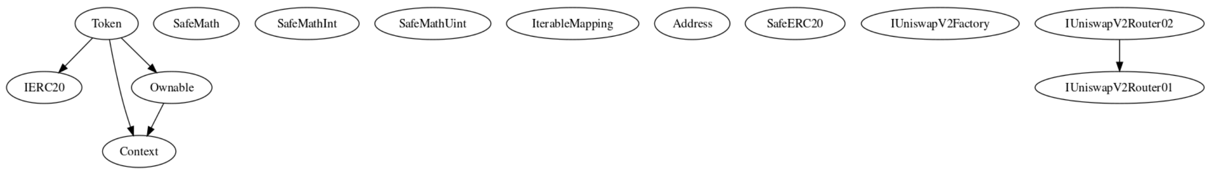
	updatePcsV2Router	Public	✓	onlyOwner
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	isExcludedFromReward	Public		-
	totalFees	Public		-
	deliver	Public	✓	-
	reflectionFromToken	Public		-
	tokenFromReflection	Public		-
	excludeFromReward	Public	✓	onlyOwner
	includeInReward	External	✓	onlyOwner
	excludeFromFee	Public	✓	onlyOwner
	includeInFee	Public	✓	onlyOwner
	setAllFeePercent	External	✓	onlyOwner
	buyBackUpperLimitAmount	Public		-
	setBuybackUpperLimit	External	✓	onlyOwner

	setMaxTxPercent	External	✓	onlyOwner
	setMaxWalletPercent	External	✓	onlyOwner
	setSwapAndLiquifyEnabled	Public	✓	onlyOwner
	setFeeWallet	External	✓	onlyOwner
	setFeeWalletCharity	External	✓	onlyOwner
	setWalletFeeTokenType	External	✓	onlyOwner
	setWalletCharityFeeTokenType	External	✓	onlyOwner
	setMinimumTokenBalanceForDividends	External	✓	onlyOwner
		External	Payable	-
	_reflectFee	Private	✓	
	_getValues	Private		
	_getTValues	Private		
	_getRValues	Private		
	_getRate	Private		
	_getCurrentSupply	Private		
	_takeLiquidity	Private	✓	
	calculateTaxFee	Private		
	calculateLiquidityFee	Private		
	removeAllFee	Private	✓	
	restoreAllFee	Private	✓	
	isExcludedFromFee	Public		-
	_approve	Private	✓	
	_transfer	Private	✓	

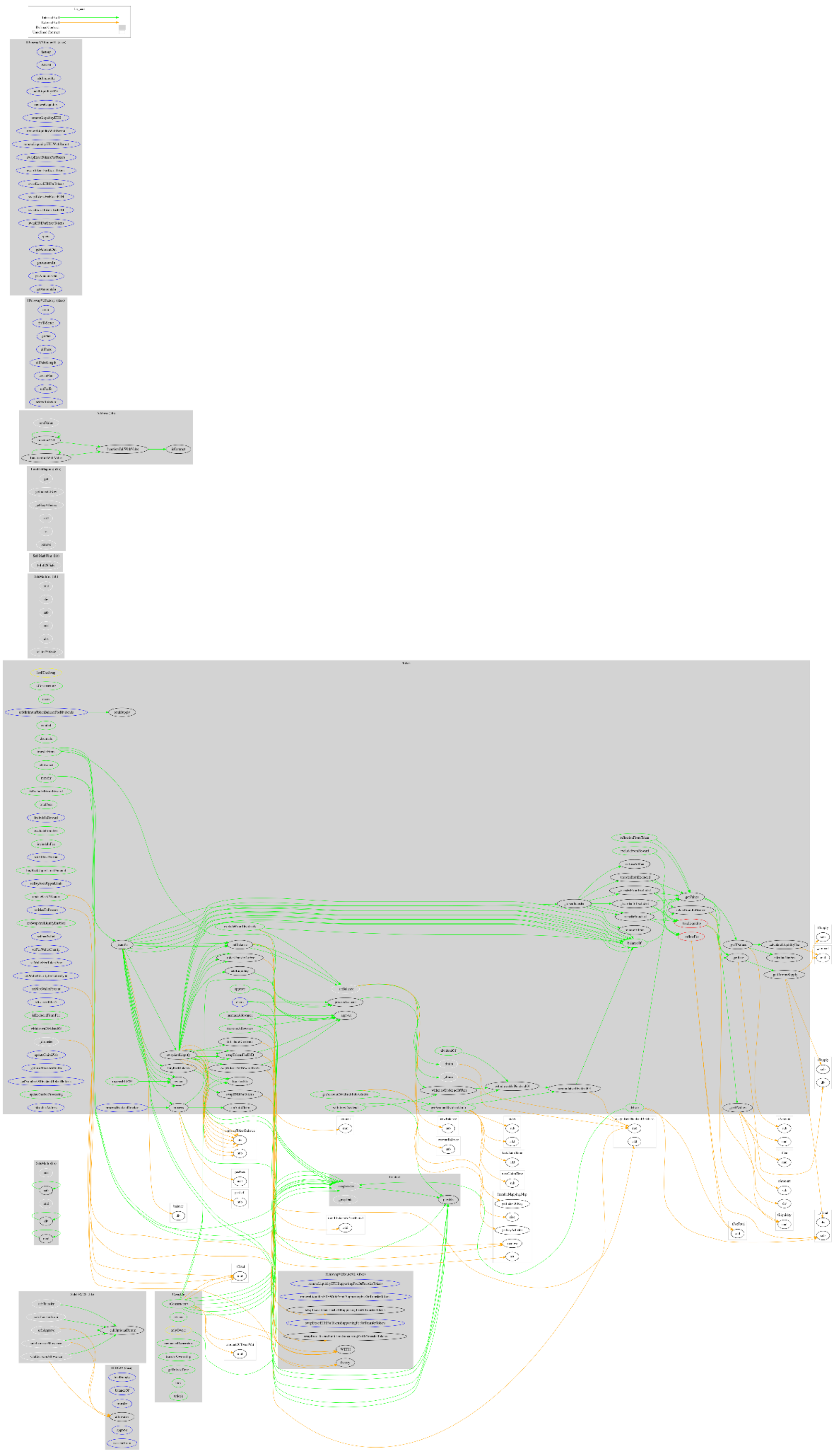
	swapAndLiquify	Private	✓	lockTheSwap
	buyBackTokens	Private	✓	lockTheSwap
	swapTokensForBNB	Private	✓	
	swapBNBForTokens	Private	✓	
	swapTokensForRewardToken	Private	✓	
	addLiquidity	Private	✓	
	_tokenTransfer	Private	✓	
	_transferStandard	Private	✓	
	_transferToExcluded	Private	✓	
	_transferFromExcluded	Private	✓	
	_transferBothExcluded	Private	✓	
	_tokenTransferNoFee	Private	✓	
	transferEth	Private	✓	
	recoverBEP20	Public	✓	onlyOwner
	distributeDividends	Internal	✓	
	withdrawDividend	Public	✓	-
	_withdrawDividendOfUser	Internal	✓	
	dividendOf	Public		-
	withdrawableDividendOf	Public		-
	withdrawnDividendOf	Public		-
	accumulativeDividendOf	Public		-
	_dtransfer	Internal	✓	
	_dmint	Internal	✓	

	_dburn	Internal	✓	
	_setBalance	Internal	✓	
	excludeFromDividends	Public	✓	onlyOwner
	updateClaimWait	External	✓	onlyOwner
	getLastProcessedIndex	External		-
	getNumberOfDividendTokenHolders	External		-
	getAccountDividendsInfo	Public		-
	getAccountDividendsInfoAtIndex	Public		-
	canAutoClaim	Private		
	setBalance	Private	✓	
	process	Public	✓	-
	processAccount	Internal	✓	
	updateGasForProcessing	Public	✓	onlyOwner
	processDividendTracker	External	✓	-
	blacklistAddress	External	✓	onlyOwner
	claim	External	✓	-

Inheritance Graph



Flow Graph



Summary

TeamAffordaHouse contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. There are some functions that can be abused by the owner like massively blacklist 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 limit of max 20% fees.

Disclaimer

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

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