



Cyberscope

Audit Report

GCCOIN

February 2024

Network BSC

Address 0x2d8269dae518e78d95110dbfodf1fb479b8152e7

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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	Passed

Diagnostics

● Critical ● Medium ● Minor / Informative

Severity	Code	Description	Status
●	IDI	Immutable Declaration Improvement	Acknowledged
●	MEM	Misleading Error Messages	Acknowledged
●	MFN	Misleading Fees Naming	Acknowledged
●	MC	Missing Check	Acknowledged
●	MEE	Missing Events Emission	Acknowledged
●	PLPI	Potential Liquidity Provision Inadequacy	Acknowledged
●	RES	Redundant Event Statement	Acknowledged
●	RSW	Redundant Storage Writes	Acknowledged
●	L04	Conformance to Solidity Naming Conventions	Acknowledged
●	L11	Unnecessary Boolean equality	Acknowledged
●	L20	Succeeded Transfer Check	Acknowledged

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Review

Contract Name	GCCOIN
Compiler Version	v0.8.19+commit.7dd6d404
Optimization	200 runs
Explorer	https://bscscan.com/address/0x2d8269dae518e78d95110dbfadf1fb479b8152e7
Address	0x2d8269dae518e78d95110dbfadf1fb479b8152e7
Network	BSC
Symbol	GCC
Decimals	9
Total Supply	1,000,000,000
Badge Eligibility	Yes

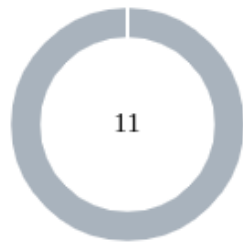
Audit Updates

Initial Audit	24 Feb 2024
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Source Files

Filename	SHA256
GCCOIN.sol	208acc638abb8e0668e7b4f096e9837784d4eac40ffff7791fbd8e92289e0649

Findings Breakdown



● Critical	0
● Medium	0
● Minor / Informative	11

Severity	Unresolved	Acknowledged	Resolved	Other
● Critical	0	0	0	0
● Medium	0	0	0	0
● Minor / Informative	0	11	0	0

IDI - Immutable Declaration Improvement

Criticality	Minor / Informative
Location	GCCOIN.sol#L139,140
Status	Acknowledged

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.

```
uniswapV2Pair  
MarketingWallet
```

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.

MEM - Misleading Error Messages

Criticality	Minor / Informative
Location	GCCOIN.sol#L283
Status	Acknowledged

Description

The contract is using misleading error messages. These error messages do not accurately reflect the problem, making it difficult to identify and fix the issue. Specifically, the error message in the `setSwapToken` suggests that the amount for `minToken` must be less than or equal to 0.3% of the total supply. However, in reality, `1e6` represents only 0.1% of the total supply.

```
require(minToken <= 1e6, "amount must be less than or equal to  
0.3% of the supply");
```

Recommendation

The team is suggested to provide a descriptive message to the errors, that accurately describes the conditions being checked to ensure clarity. This message can be used to provide additional context about the error that occurred.

MFN - Misleading Fees Naming

Criticality	Minor / Informative
Location	GCCOIN.sol#L204
Status	Acknowledged

Description

The contract employs a fees naming convention `buyTaxes` and `sellTaxes` and associated logic that does not precisely reflect the transaction contexts, leading to potential confusion. First, the application of `buyTaxes` extends beyond traditional buy transactions, affecting any transfer where neither party is excluded from fees, thus misrepresenting the fee's intended context. Second, the logic fails to distinguish between sell transactions initiated by the contract, particularly when the contract is not whitelisted. This oversight results in `buyTaxes` being applied in scenarios where `sellTaxes` might be expected.

```
function _transfer(address from, address to, uint256 amount)
private {
    require(from != address(0), "ERC20: transfer from the zero
address");
    require(to != address(0), "ERC20: transfer to the zero
address");
    require(amount > 0, "Transfer amount must be greater than
zero");
    uint256 feesum = 0;

    if (!_isExcludedFromFee[from] && !_isExcludedFromFee[to]) {
        require(tradeEnable, "Trading not enabled");
        feesum = amount * buyTaxes / 100;
    }

    if (_isExcludedFromFee[from] || _isExcludedFromFee[to]) {
        feesum = 0;
    }

    if (to == uniswapV2Pair && from != address(this) &&
!_isExcludedFromFee[from] && !_isExcludedFromFee[to]) {
        feesum = amount * sellTaxes / 100;
    }

    ...
}
```

Recommendation

It is recommended to revise the naming conventions of `buyTaxes` and `sellTaxes` to more accurately reflect their usage across all transaction types. Additionally, the contract should implement a more refined logic to correctly apply fees based on the transaction's nature and the involved parties.

MC - Missing Check

Criticality	Minor / Informative
Location	GCCOIN.sol#L281
Status	Acknowledged

Description

The contract is processing variables that have not been properly sanitized and checked that they form the proper shape. These variables may produce issues. Specifically, in the `setSwapToken` function, there is not a check to ensure that the `minToken` is set lower than the `maxToken`.

```
function setSwapToken(uint256 minToken, uint256 maxToken)
external onlyOwner {
    require(maxToken <= 2e7, "amount must be less than or equal
to 2% of the supply");
    require(minToken <= 1e6, "amount must be less than or equal
to 0.3% of the supply");
    _minSwapTokens = minToken * 10**_decimals;
    _maxSwapTokens = maxToken * 10**_decimals;
    emit SwapThresholdUpdated(minToken, maxToken);
}
```

Recommendation

The team is advised to properly check the variables according to the required specifications.

MEE - Missing Events Emission

Criticality	Minor / Informative
Location	GCCOIN.sol#L275
Status	Acknowledged

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.

```
function changeTaxes(uint256 newBuyFee, uint256 newSellFee)
external onlyOwner {
    require(newBuyFee <= 5 && newSellFee <= 5, "ERC20: wrong
tax value!");
    buyTaxes = newBuyFee;
    sellTaxes = newSellFee;
}
```

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.

PLPI - Potential Liquidity Provision Inadequacy

Criticality	Minor / Informative
Location	GCCOIN.sol#L243
Status	Acknowledged

Description

The contract operates under the assumption that liquidity is consistently provided to the pair between the contract's token and the native currency. However, there is a possibility that liquidity is provided to a different pair. This inadequacy in liquidity provision in the main pair could expose the contract to risks. Specifically, during eligible transactions, where the contract attempts to swap tokens with the main pair, a failure may occur if liquidity has been added to a pair other than the primary one. Consequently, transactions triggering the swap functionality will result in a revert.

```
function swapTokensForEth(uint256 tokenAmount) private
lockTheSwap {
    require(tokenAmount > 0, "amount must be greeter than 0");
    address[] memory path = new address[] (2);
    path[0] = address(this);
    path[1] = uniswapV2Router.WETH();
    _approve(address(this), address(uniswapV2Router),
tokenAmount);

    uniswapV2Router.swapExactTokensForETHSupportingFeeOnTransferTok
ens(
    tokenAmount,
    0,
    path,
    address(this),
    block.timestamp
);
}
```

Recommendation

The team is advised to implement a runtime mechanism to check if the pair has adequate liquidity provisions. This feature allows the contract to omit token swaps if the pair does not have adequate liquidity provisions, significantly minimizing the risk of potential failures.

Furthermore, the team could ensure the contract has the capability to switch its active pair in case liquidity is added to another pair.

Additionally, the contract could be designed to tolerate potential reverts from the swap functionality, especially when it is a part of the main transfer flow. This can be achieved by executing the contract's token swaps in a non-reversible manner, thereby ensuring a more resilient and predictable operation.

RES - Redundant Event Statement

Criticality	Minor / Informative
Location	GCCOIN.sol#L109
Status	Acknowledged

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.

The `FeesUpdated` event statement is not used in the contract's implementation.

```
event FeesUpdated(uint256 indexed _feeAmount);
```

Recommendation

The team is advised to take these segments into consideration and rewrite them so the runtime will be more performant. That way it will improve the efficiency and performance of the source code and reduce the cost of executing it. It is recommended to remove the unused event statement from the contract.

RSW - Redundant Storage Writes

Criticality	Minor / Informative
Location	GCCOIN.sol#L275,281,289
Status	Acknowledged

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.

```
function changeTaxes(uint256 newBuyFee, uint256 newSellFee)
external onlyOwner {
    require(newBuyFee <= 5 && newSellFee <= 5, "ERC20: wrong
tax value!");
    buyTaxes = newBuyFee;
    sellTaxes = newSellFee;
}

function setSwapBackSetting(bool state) external onlyOwner {
    _SwapBackEnable = state;
    emit SwapBackSettingUpdated(state);
}
```

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.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	GCCOIN.sol#L72,86,87,88,89,90,91,99,111,263,303
Status	Acknowledged

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);
mapping (address => bool) public _isExcludedFromFee
address payable public MarketingWallet
uint8 private constant _decimals = 9
uint256 private constant _tTotal = 1000000000 * 10**_decimals
string private constant _name = "GCCOIN"
string private constant _symbol = "GCC"
bool private _SwapBackEnable = false
event includeFromFeeUpdated(address indexed account);

function WhitelisWallet(address account) external onlyOwner {
    require(!_isExcludedFromFee[account] != true, "Account is
already excluded");
    _isExcludedFromFee[account] = true;
    emit ExcludeFromFeeUpdated(account);
}

...
```

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>.

L11 - Unnecessary Boolean equality

Criticality	Minor / Informative
Location	GCCOIN.sol#L264,270
Status	Acknowledged

Description

Boolean equality is unnecessary when comparing two boolean values. This is because a boolean value is either true or false, and there is no need to compare two values that are already known to be either true or false.

it's important to be aware of the types of variables and expressions that are being used in the contract's code, as this can affect the contract's behavior and performance. The comparison to boolean constants is redundant. Boolean constants can be used directly and do not need to be compared to true or false.

```
require(!_isExcludedFromFee[account] != true, "Account is already  
excluded")  
require(!_isExcludedFromFee[account] != false, "Account is  
already included")
```

Recommendation

Using the boolean value itself is clearer and more concise, and it is generally considered good practice to avoid unnecessary boolean equalities in Solidity code.

L20 - Succeeded Transfer Check

Criticality	Minor / Informative
Location	GCCOIN.sol#L307
Status	Acknowledged

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(_tokenAddy).transfer(MarketingWallet, _amount)
```

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](#).

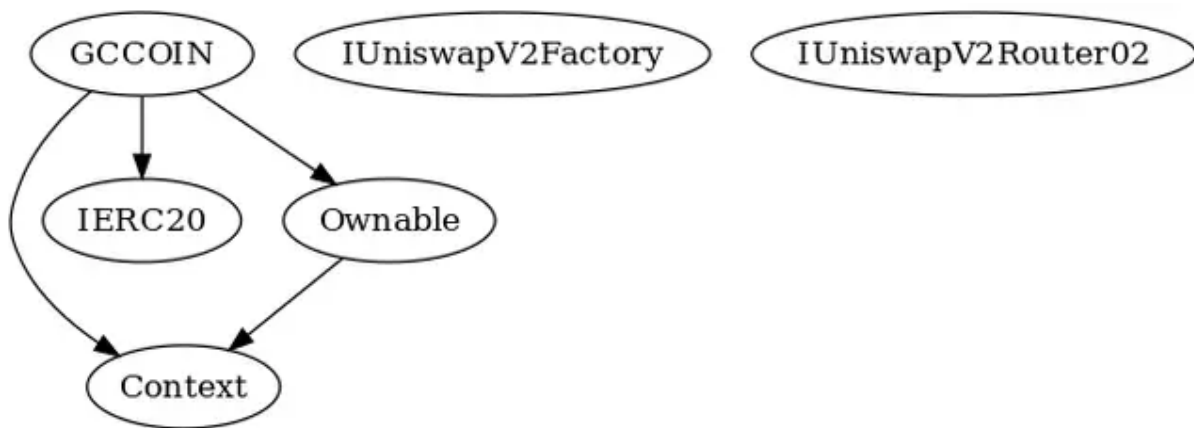
Functions Analysis

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
Context	Implementation			
	_msgSender	Internal		
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
Ownable	Implementation	Context		
		Public	✓	-
	owner	Public		-
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
	renounceOwnership	Public	✓	onlyOwner
IUniswapV2Factory	Interface			

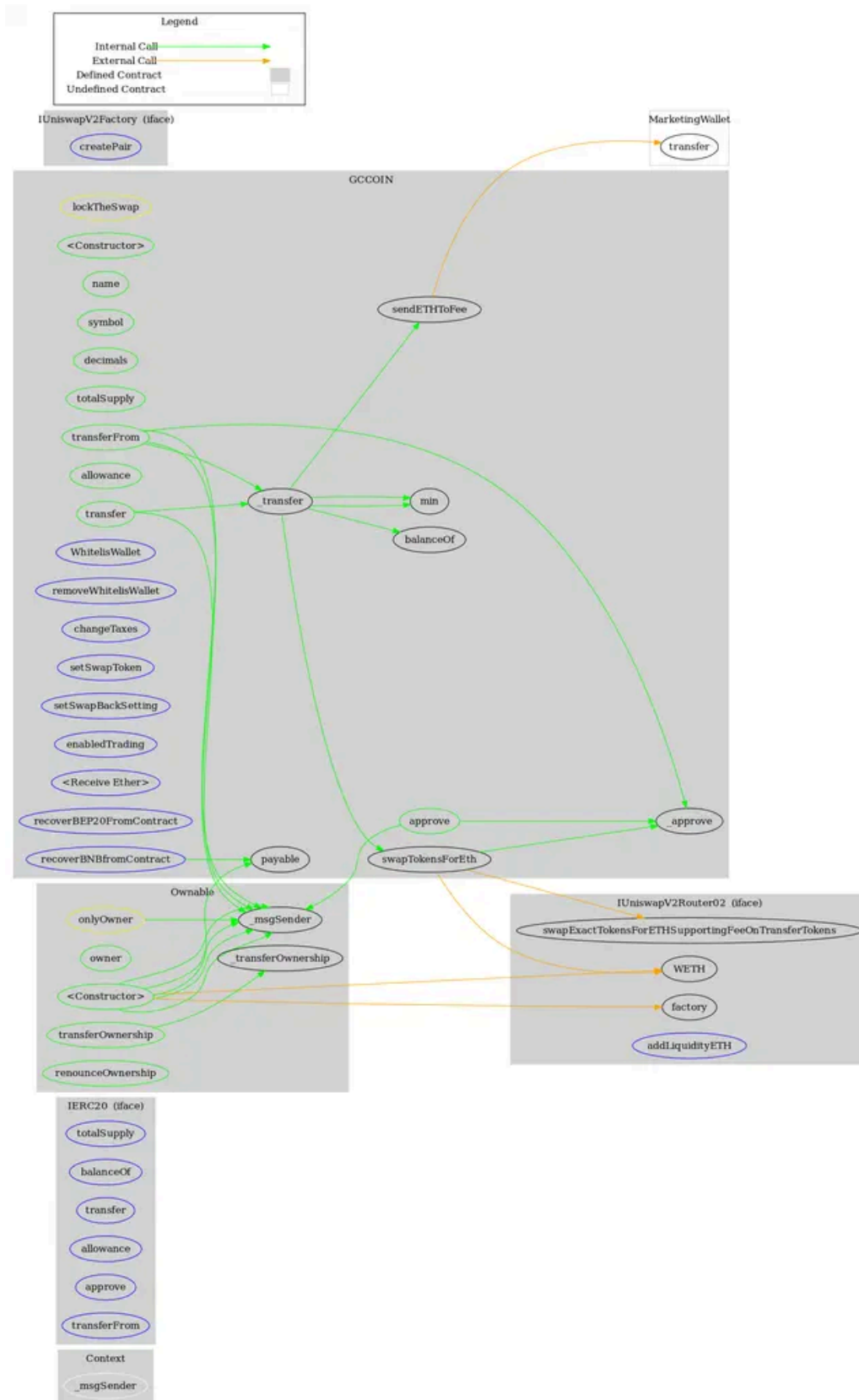
	createPair	External	✓	-
IUniswapV2Router02	Interface			
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
	factory	External		-
	WETH	External		-
	addLiquidityETH	External	Payable	-
GCCOIN	Implementation	Context, IERC20, Ownable		
		Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	min	Private		
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	_approve	Private	✓	
	_transfer	Private	✓	

	swapTokensForEth	Private	✓	lockTheSwap
	sendETHToFee	Private	✓	
	WhitelisWallet	External	✓	onlyOwner
	removeWhitelisWallet	External	✓	onlyOwner
	changeTaxes	External	✓	onlyOwner
	setSwapToken	External	✓	onlyOwner
	setSwapBackSetting	External	✓	onlyOwner
	enabledTrading	External	✓	onlyOwner
		External	Payable	-
	recoverBEP20FromContract	External	✓	onlyOwner
	recoverBNBfromContract	External	✓	-

Inheritance Graph



Flow Graph



Summary

GCCOIN contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. GCCOIN is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler error or critical issues. The contract Owner can access some admin functions that can not be used in a malicious way to disturb the users' transactions. The team has acknowledged the issues.

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The Cyberscope team

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