



Cyberscope

# Audit Report **Token**

January 2024

SHA256      cff591b8a4b22f81bcade02097450cf4372c5d936804fc094ace3d736387ab59

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	Passed

# Diagnostics

● Critical ● Medium ● Minor / Informative

Severity	Code	Description	Status
●	IDI	Immutable Declaration Improvement	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L09	Dead Code Elimination	Unresolved
●	L14	Uninitialized Variables in Local Scope	Unresolved
●	L19	Stable Compiler Version	Unresolved

# Table of Contents

<b>Analysis</b>	<b>1</b>
<b>Diagnostics</b>	<b>2</b>
<b>Table of Contents</b>	<b>3</b>
<b>Review</b>	<b>4</b>
Audit Updates	4
Source Files	4
<b>Findings Breakdown</b>	<b>5</b>
IDI - Immutable Declaration Improvement	6
Description	6
Recommendation	6
L04 - Conformance to Solidity Naming Conventions	7
Description	7
Recommendation	7
L09 - Dead Code Elimination	8
Description	8
Recommendation	8
L14 - Uninitialized Variables in Local Scope	9
Description	9
Recommendation	9
L19 - Stable Compiler Version	10
Description	10
Recommendation	10
<b>Functions Analysis</b>	<b>11</b>
<b>Inheritance Graph</b>	<b>15</b>
<b>Flow Graph</b>	<b>16</b>
<b>Summary</b>	<b>17</b>
<b>Disclaimer</b>	<b>18</b>
<b>About Cyberscope</b>	<b>19</b>

## Review

Contract Name	TheToken
Compiler Version	v0.8.20+commit.a1b79de6
Optimization	200 runs
Testnet Deploy	<a href="https://mumbai.polygonscan.com/address/0x067e4A6346d53296998E3F13242C4B9628E5D066">https://mumbai.polygonscan.com/address/0x067e4A6346d53296998E3F13242C4B9628E5D066</a>
Address	0x067e4A6346d53296998E3F13242C4B9628E5D066
Symbol	THE
Decimals	9
Total Supply	250,000,000,000,000,000
Badge Eligibility	Yes

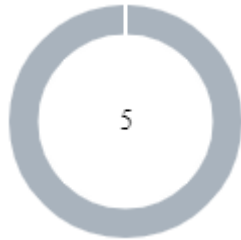
## Audit Updates

Initial Audit	24 Jan 2024
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## Source Files

Filename	SHA256
theToken.sol	cff591b8a4b22f81bcade02097450cf4372c5d936804fc094ace3d736387ab59

## Findings Breakdown



● Critical	0
● Medium	0
● Minor / Informative	5

Severity	Unresolved	Acknowledged	Resolved	Other
● Critical	0	0	0	0
● Medium	0	0	0	0
● Minor / Informative	5	0	0	0

## IDI - Immutable Declaration Improvement

<b>Criticality</b>	Minor / Informative
<b>Location</b>	theToken.sol#L140,141,142,143,144,158
<b>Status</b>	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.

```
_decimals  
_totalSupply  
_swapAmount  
_tax  
marketing  
pcsV2Pair
```

### 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.

## L04 - Conformance to Solidity Naming Conventions

<b>Criticality</b>	Minor / Informative
<b>Location</b>	theToken.sol#L78
<b>Status</b>	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);
```

### 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>.



## L09 - Dead Code Elimination

Criticality	Minor / Informative
Location	theToken.sol#L14
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 _contextSuffixLength() internal view virtual returns (uint256) {  
    return 0;  
}
```

### 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.

## L14 - Uninitialized Variables in Local Scope

<b>Criticality</b>	Minor / Informative
<b>Location</b>	theToken.sol#L286
<b>Status</b>	Unresolved

### Description

Using an uninitialized local variable can lead to unpredictable behavior and potentially cause errors in the contract. It's important to always initialize local variables with appropriate values before using them.

```
bool success
```

### Recommendation

By initializing local variables before using them, the contract ensures that the functions behave as expected and avoid potential issues.

## L19 - Stable Compiler Version

<b>Criticality</b>	Minor / Informative
<b>Location</b>	theToken.sol#L3
<b>Status</b>	Unresolved

### Description

The `^` symbol indicates that any version of Solidity that is compatible with the specified version (i.e., any version that is a higher minor or patch version) can be used to compile the contract. The version lock is a mechanism that allows the author to specify a minimum version of the Solidity compiler that must be used to compile the contract code. This is useful because it ensures that the contract will be compiled using a version of the compiler that is known to be compatible with the code.

```
pragma solidity ^0.8.20;
```

### Recommendation

The team is advised to lock the pragma to ensure the stability of the codebase. The locked pragma version ensures that the contract will not be deployed with an unexpected version. An unexpected version may produce vulnerabilities and undiscovered bugs. The compiler should be configured to the lowest version that provides all the required functionality for the codebase. As a result, the project will be compiled in a well-tested LTS (Long Term Support) environment.

## Functions Analysis

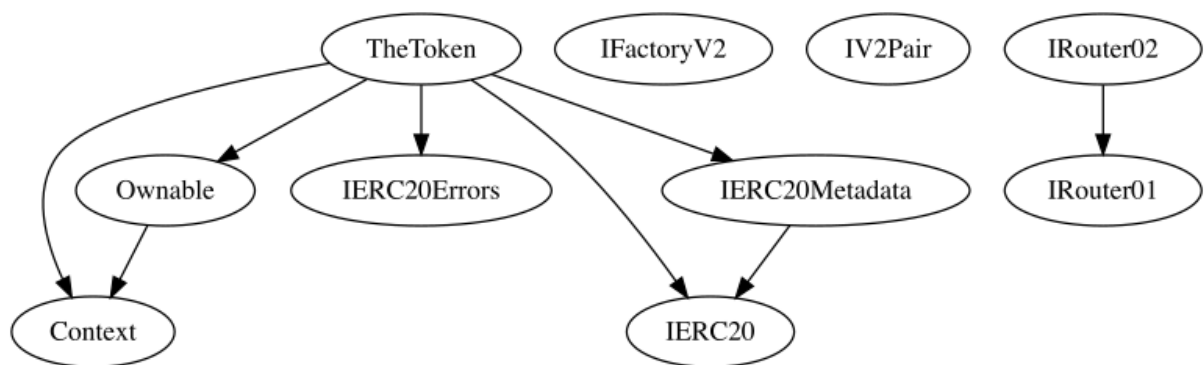
Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
<b>Context</b>	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
	_contextSuffixLength	Internal		
<b>Ownable</b>	Implementation	Context		
		Public	✓	-
	owner	Public		-
	_checkOwner	Internal		
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
<b>IFactoryV2</b>	Interface			
	getPair	External		-
	createPair	External	✓	-
<b>IV2Pair</b>	Interface			
	factory	External		-

	getReserves	External		-
	sync	External	✓	-
<b>IRouter01</b>	Interface			
	factory	External		-
	WETH	External		-
	addLiquidityETH	External	Payable	-
	addLiquidity	External	✓	-
	swapExactETHForTokens	External	Payable	-
	getAmountsOut	External		-
	getAmountsIn	External		-
<b>IRouter02</b>	Interface	IRouter01		
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokens	External	✓	-
<b>IERC20Errors</b>	Interface			
<b>IERC20</b>	Interface			
	totalSupply	External		-
	balanceOf	External		-

	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
<b>IERC20Metadata</b>	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-
<b>TheToken</b>	Implementation	Context, Ownable, IERC20, IERC20Meta data, IERC20Error s		
		Public	✓	-
		External	Payable	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	swapAmount	Public		-
	tax	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-

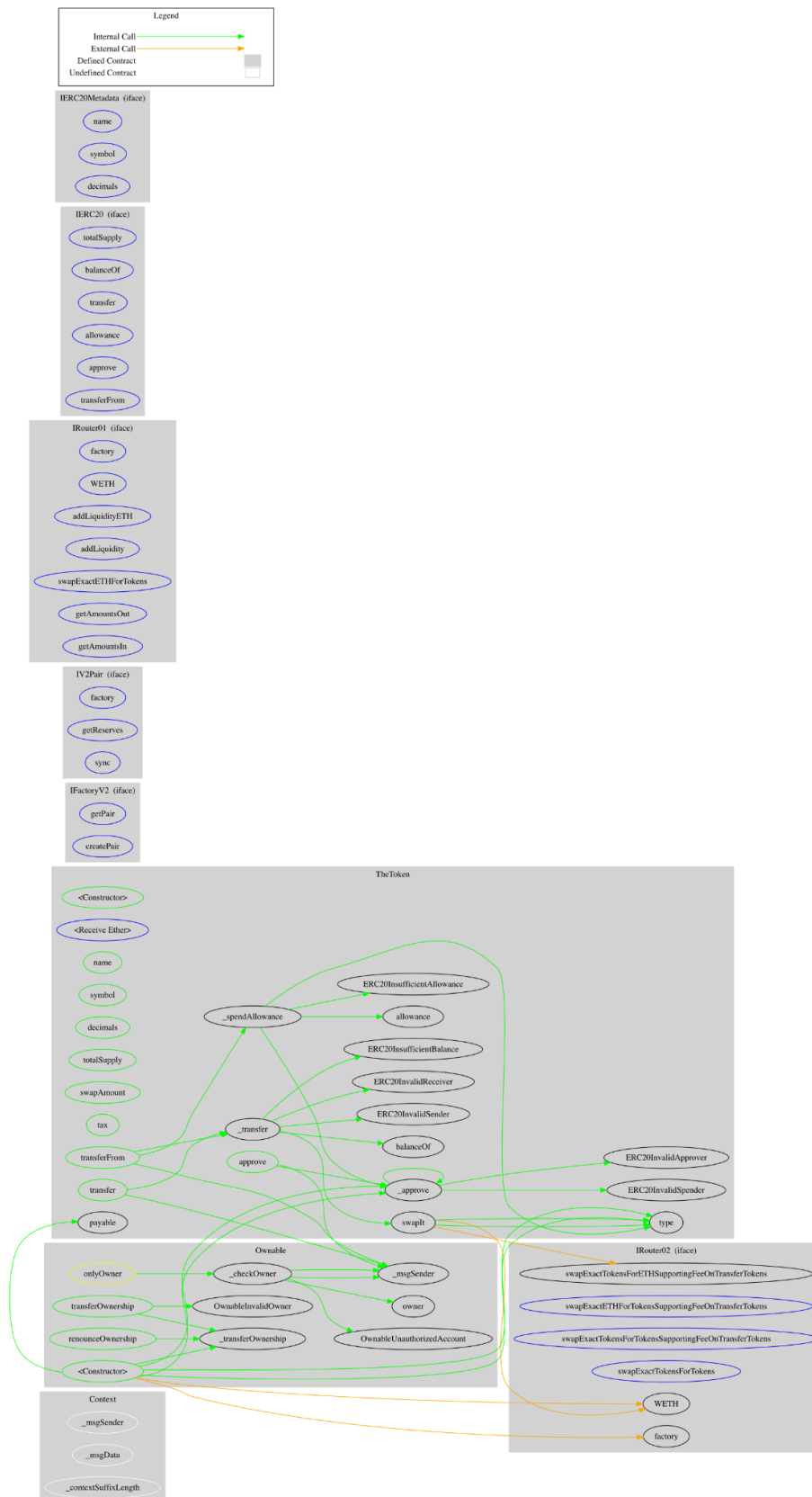
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	_transfer	Internal	✓	
	swapIt	Internal	✓	
	_approve	Internal	✓	
	_approve	Internal	✓	
	_spendAllowance	Internal	✓	

## Inheritance Graph





# Flow Graph



## Summary

Token audit contract implements a token mechanism. This audit investigates security issues, business logic concerns, and potential improvements. Token audit is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler errors 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 fees are locked at 5% on both buys and sales.

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# 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**

<https://www.cyberscope.io>