



Cyberscope

Audit Report

SAFECATVILLS

June 2023

Network BSC

Address 0x43e0B214D742AcoC1050Ac362DcDb007C6B698BD

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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
●	MEE	Missing Events Emission	Unresolved
●	RSW	Redundant Storage Writes	Unresolved
●	FSA	Fixed Swap Address	Unresolved
●	RVD	Redundant Variable Declaration	Unresolved
●	MVN	Misleading Variables Naming	Unresolved
●	RSML	Redundant SafeMath Library	Unresolved
●	IDI	Immutable Declaration Improvement	Unresolved
●	L02	State Variables could be Declared Constant	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L09	Dead Code Elimination	Unresolved
●	L17	Usage of Solidity Assembly	Unresolved
●	L19	Stable Compiler Version	Unresolved

Table of Contents

Analysis	1
Diagnostics	2
Table of Contents	3
Review	5
Audit Updates	5
Source Files	5
Findings Breakdown	6
MEE - Missing Events Emission	7
Description	7
Recommendation	7
RSW - Redundant Storage Writes	8
Description	8
Recommendation	8
FSA - Fixed Swap Address	9
Description	9
Recommendation	9
RVD - Redundant Variable Declaration	10
Description	10
Recommendation	10
MVN - Misleading Variables Naming	11
Description	11
Recommendation	11
RSML - Redundant SafeMath Library	12
Description	12
Recommendation	12
IDI - Immutable Declaration Improvement	13
Description	13
Recommendation	13
L02 - State Variables could be Declared Constant	14
Description	14
Recommendation	14
L04 - Conformance to Solidity Naming Conventions	15
Description	15
Recommendation	16
L09 - Dead Code Elimination	17
Description	17
Recommendation	18
L17 - Usage of Solidity Assembly	19
Description	19

Recommendation	19
L19 - Stable Compiler Version	20
Description	20
Recommendation	20
Functions Analysis	21
Inheritance Graph	27
Flow Graph	28
Summary	29
Renounced Ownership	29
Disclaimer	30
About Cyberscope	31

Review

Contract Name	SAFECA TVILLS
Compiler Version	v0.8.19+commit.7dd6d404
Optimization	200 runs
Explorer	https://bscscan.com/address/0x43e0b214d742acac1050ac362dcd007c6b698bd
Address	0x43e0b214d742acac1050ac362dcd007c6b698bd
Network	BSC
Symbol	SAFECA TVILLS
Decimals	9
Total Supply	420,690,000,000

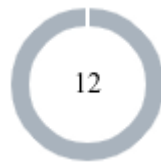
Audit Updates

Initial Audit	28 Jun 2023
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Source Files

Filename	SHA256
SAFECA TVILLS.sol	73fefe6f39cfb4ec2636bf54b5c6bfce4ea129be26e54963eb806f975a919513

Findings Breakdown



● Critical	0
● Medium	0
● Minor / Informative	12

Severity	Unresolved	Acknowledged	Resolved	Other
● Critical	0	0	0	0
● Medium	0	0	0	0
● Minor / Informative	12	0	0	0

MEE - Missing Events Emission

Criticality	Minor / Informative
Location	SAFECATVILLS.sol#L765,769
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.

```
function excludeFromFee(address account) public onlyOwner {  
    _isExcludedFromFee[account] = true;  
}  
  
function includeInFee(address account) public onlyOwner {  
    _isExcludedFromFee[account] = false;  
}
```

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.

RSW - Redundant Storage Writes

Criticality	Minor / Informative
Location	SAFECATVILLS.sol#L765,769
Status	Unresolved

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 contract modifies the state of certain variables without checking if their current state is the same as the one given as an argument. As a result, the contract performs redundant storage writes.

```
function excludeFromFee(address account) public onlyOwner {  
    _isExcludedFromFee[account] = true;  
}  
  
function includeInFee(address account) public onlyOwner {  
    _isExcludedFromFee[account] = false;  
}
```

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.

FSA - Fixed Swap Address

Criticality	Minor / Informative
Location	SAFECATVILLS.sol#L700
Status	Unresolved

Description

The swap address is assigned once and it can not be changed. It is a common practice in decentralized exchanges to create new swap versions. A contract that cannot change the swap address may not be able to catch up to the upgrade. As a result, the contract will not be able to migrate to a new liquidity pool pair or decentralized exchange.

```
IUniswapV2Router02 _uniswapV2Router =  
IUniswapV2Router02(0x10ED43C718714eb63d5aA57B78B54704E256024E);  
// Create a uniswap pair for this new token  
address _uniswapV2Pair =  
IUniswapV2Factory(_uniswapV2Router.factory()).createPair(address(this),  
_uniswapV2Router.WETH());  
  
uniswapV2Router = _uniswapV2Router;  
uniswapV2Pair = _uniswapV2Pair;
```

Recommendation

The team is advised to add the ability to change the pair and router address in order to cover potential liquidity pool migrations. It would be better to support multiple pair addresses so the token will be able to have the same behavior in all the decentralized liquidity pairs.

RVD - Redundant Variable Declaration

Criticality	Minor / Informative
Location	Odesis.sol#L687,690,780,813
Status	Unresolved

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 contract declares and initializes the `_buyCooldown` and `_liquidityFee` variables at zero. Adding or subtracting zero from any value does not impact the result of the operation in any way. As a result, the `_buyCooldown` and `_liquidityFee` variables are redundant.

```
uint256 public _buyCooldown = 0 minutes;

if (from == uniswapV2Pair) {
    require (_lastBuy[to] + _buyCooldown < block.timestamp, "Must wait til
after cooldown to buy");
    _lastBuy[to] = block.timestamp;
}
...
uint256 public _liquidityFee = 0;

uint256 liquidityFee = amount * _liquidityFee / 100;
```

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.

MVN - Misleading Variables Naming

Criticality	Minor / Informative
Location	SAFECA TVILLS.sol#L809
Status	Unresolved

Description

Variables can have misleading names if their names do not accurately reflect the value they contain or the purpose they serve. The contract uses some variable names that are too generic or do not clearly convey the information stored in the variable. Misleading variable names can lead to confusion, making the code more difficult to read and understand.

The `_maxTxAmount` variable name indicates that it's the maximum amount users can transfer. However, its usage indicates that it's the maximum balance a user can own. As a result, the variable name is misleading.

```
if(from != owner() && to != owner() && to != uniswapV2Pair)
    require(balanceOf(to) + amount <= _maxTxAmount, "Transfer amount
exceeds the maxTxAmount.");
```

Recommendation

It's always a good practice for the contract to contain variable names that are specific and descriptive. The team is advised to keep in mind the readability of the code.

RSML - Redundant SafeMath Library

Criticality	Minor / Informative
Location	SAFECA TVILLS.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>.

IDI - Immutable Declaration Improvement

Criticality	Minor / Informative
Location	SAFECA TVILLS.sol#L704,705
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.

```
uniswapV2Router
uniswapV2Pair
```

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	SAFECA TVILLS.sol#L679,680,686,687,688,690
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.

```
uint256 private _tTotal = 420690000000 * 10**9
uint256 public _maxTxAmount = 12620700000 * 10**9
uint256 public _marketingFee = 4
uint256 public _liquidityFee = 0
address public _marketingWallet =
0xf5fd3A75dBAE736af856c83fa30A1BFCf7d2c562
uint256 public _buyCooldown = 0 minutes
```

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	SAFECATVILLS.sol#L490,491,508,530,680,682,683,684,686,687,688,690
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 DOMAIN_SEPARATOR() external view returns (bytes32);
function PERMIT_TYPEHASH() external pure returns (bytes32);
function MINIMUM_LIQUIDITY() external pure returns (uint);
function WETH() external pure returns (address);
uint256 public _maxTxAmount = 12620700000 * 10**9
string private constant _name = "SAFECATVILLS"
string private constant _symbol = "SAFECATVILLS"
uint8 private constant _decimals = 9
uint256 public _marketingFee = 4
uint256 public _liquidityFee = 0
address public _marketingWallet =
0xf5fd3A75dBAE736af856c83fa30A1BFcf7d2c562
uint256 public _buyCooldown = 0 minutes
```

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	SAFECATVILLS.sol#L273,300,326,336,351,361,366,845,879
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 isContract(address account) internal view returns (bool) {
    // According to EIP-1052, 0x0 is the value returned for not-yet
    created accounts
    // and
    0xc5d2460186f7233c927e7db2dcc703c0e500b653ca82273b7bfad8045d85a470 is returned
    // for accounts without code, i.e. `keccak256('')`
    bytes32 codehash;
    bytes32 accountHash =
    0xc5d2460186f7233c927e7db2dcc703c0e500b653ca82273b7bfad8045d85a470;
    // solhint-disable-next-line no-inline-assembly
    assembly { codehash := extcodehash(account) }
    return (codehash != accountHash && codehash != 0x0);
}

...
```

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.

L17 - Usage of Solidity Assembly

Criticality	Minor / Informative
Location	SAFECATVILLS.sol#L280,379
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.

L19 - Stable Compiler Version

Criticality	Minor / Informative
Location	SAFECATVILLS.sol#L7
Status	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 ^0.8.19;
```

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
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		
Address	Library			
	isContract	Internal		
	sendValue	Internal	✓	
	functionCall	Internal	✓	
	functionCall	Internal	✓	
	functionCallWithValue	Internal	✓	
	functionCallWithValue	Internal	✓	
	_functionCallWithValue	Private	✓	
Ownable	Implementation	Context		
		Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
IUniswapV2Factory	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-

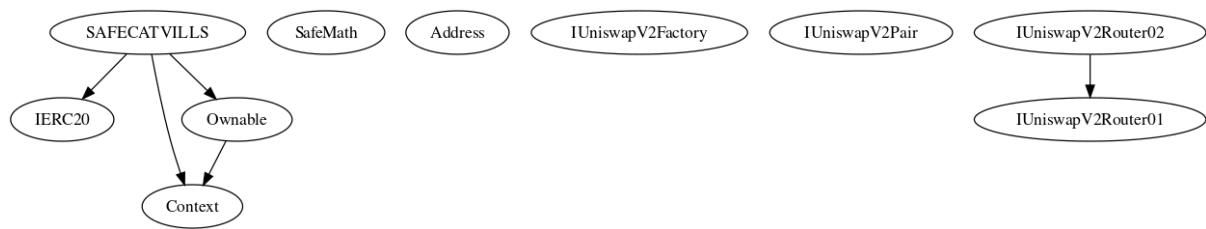
	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	External	✓	-
IUniswapV2Pair	Interface			
	name	External		-
	symbol	External		-
	decimals	External		-
	totalSupply	External		-
	balanceOf	External		-
	allowance	External		-
	approve	External	✓	-
	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		-
	burn	External	✓	-
	swap	External	✓	-
	skim	External	✓	-
	sync	External	✓	-
	initialize	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	-

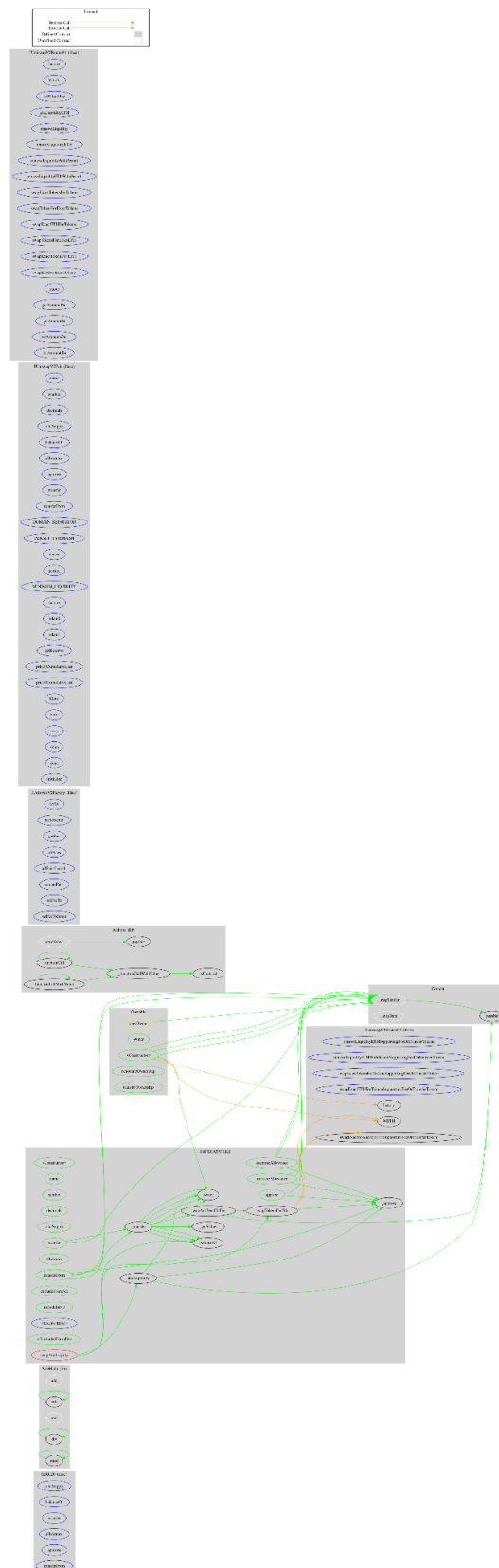
	swapTokensForExactETH	External	✓	-
	swapExactTokensForETH	External	✓	-
	swapETHForExactTokens	External	Payable	-
	quote	External		-
	getAmountOut	External		-
	getAmountIn	External		-
	getAmountsOut	External		-
	getAmountsIn	External		-
IUniswapV2Router02	Interface	IUniswapV2 Router01		
	removeLiquidityETHSupportingFeeOnTransferTokens	External	✓	-
	removeLiquidityETHWithPermitSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
SAFECATVILLS	Implementation	Context, IERC20, Ownable		
		Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-

	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	excludeFromFee	Public	✓	onlyOwner
	includeInFee	Public	✓	onlyOwner
		External	Payable	-
	_getValues	Private	✓	
	isExcludedFromFee	Public		-
	_approve	Private	✓	
	_transfer	Private	✓	
	swapAndSendToFee	Private	✓	
	swapAndLiquify	Private	✓	
	swapTokensForEth	Private	✓	
	addLiquidity	Private	✓	

Inheritance Graph



Flow Graph



Summary

SAFECATVILLS contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. SAFECATVILLS 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 fees are fixed at 4%.

Renounced Ownership

The contract's ownership has been renounced, and the information regarding the transaction can be accessed through this link:

<https://bscscan.com/tx/0x2bc4491bfa71801b3ad2e221c84113640e7ab34db4b40d2fc569887470151195>.

Disclaimer

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Blockchain technology and cryptographic assets present a high level of ongoing risk. Cyberscope's position is that each company and individual are responsible for their own due diligence and continuous security. Cyberscope's goal is to help reduce the attack vectors and the high level of variance associated with utilizing new and consistently changing technologies and in no way claims any guarantee of security or functionality of the technology we agree to analyze. The assessment services provided by Cyberscope are subject to dependencies and are under continuing development. You agree that your access and/or use including but not limited to any services reports and materials will be at your sole risk on an as-is where-is and as-available basis. Cryptographic tokens are emergent technologies and carry with them high levels of technical risk and uncertainty. The assessment reports could include false positives, false negatives and other unpredictable results. The services may access and depend upon multiple layers of third parties.

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>