Cyberscope

Audit Report

# Tradecurve

April 2023

| | |
|---|---|
| Network | ETH |
| Address | 0x923607a06aa8f1c525a5bb2d921cf85e625be776 |
| Audited by | © cyberscope |

# Table of Contents

# Review

| | |
|---|---|
| **Contract Name** | Tradecurve |
| **Compiler Version** | v0.8.19+commit.7dd6d404 |
| **Optimization** | 200 runs |
| **Explorer** | https://etherscan.io/address/0x923607a06aa8f1c525a5bb2d921cf85e625be776 |
| **Address** | 0x923607a06aa8f1c525a5bb2d921cf85e625be776 |
| **Network** | ETH |
| **Symbol** | TCRV |
| **Decimals** | 18 |
| **Total Supply** | 1,800,000,000 |

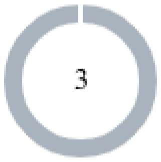
## Audit Updates

| | |
|---|---|
| **Initial Audit** | 07 Apr 2023 |
| **Corrected Phase 2** | 29 Apr 2023 |

## Source Files

| **Filename** | SHA256 |
|---|---|
| **Tradecurve.sol** | b1677d16425651ad9ec7d94f34f32f3aed47cb0540ae1a41014b0ebe5f8ebd47 |

# Findings Breakdown



| | | |
|---|---|---|
| ● | Critical | 0 |
| ● | Medium | 0 |
| ● | Minor / Informative | 3 |

| Severity | | Unresolved | Acknowledged | Resolved | Other |
|---|---|---|---|---|---|
| ● | Critical | 0 | 0 | 0 | 0 |
| ● | Medium | 0 | 0 | 0 | 0 |
| ● | Minor / Informative | 3 | 0 | 0 | 0 |

# Analysis

● Critical ● Medium ● Minor / Informative ● Pass

| Severity | Code | Description | Status |
|---|---|---|---|
| ● | ST | Stops Transactions | Passed |
| ● | OCTD | Transfers Contract's Tokens | Passed |
| ● | OTUT | Transfers User's Tokens | Passed |
| ● | ELFM | Exceeds Fees Limit | Passed |
| ● | ULTW | Transfers Liquidity to Team Wallet | 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 |
| ⚪ | L03 | Redundant Statements | Unresolved |
| ⚪ | L09 | Dead Code Elimination | Unresolved |

# IDI - Immutable Declaration Improvement

| | |
|---|---|
| **Criticality** | Minor / Informative |
| **Location** | Tradecurve.sol#L238,239 |
| **Status** | Unresolved |

## Description

The contract uses variables that initialize them only in the constructor. The other functions are not mutating the variables. These variables are not defined as `immutable`.

```
_name
_symbol
```

## 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.

## L03 - Redundant Statements

| | |
|---|---|
| **Criticality** | Minor / Informative |
| **Location** | Tradecurve.sol#L217 |
| **Status** | Unresolved |

### Description

Redundant statements are statements that are unnecessary or have no effect on the contract's behavior. These can include declarations of variables or functions that are not used or assignments to variables that are never used.

As a result, it can make the contract's code harder to read and maintain, and can also increase the contract's size and gas consumption, potentially making it more expensive to deploy and execute.

```
contract Tradecurve is Context, IERC20, IERC20Metadata, Ownable {
    mapping (address => uint256) private _balances;

    mapping (address => mapping (address => uint256)) private _allowances;

    uint256 private _totalSupply;
...
     * - when `to` is zero, `amount` of ``from``'s tokens will be burned.
     * - `from` and `to` are never both zero.
     *
     * To learn more about hooks, head to
xref:ROOT:extending-contracts.adoc#using-hooks[Using Hooks].
     */
    function _beforeTokenTransfer(address from, address to, uint256
amount) internal virtual { }
}
```

## Recommendation

To avoid redundant statements, it's important to carefully review the contract's code and remove any statements that are unnecessary or not used. This can help to improve the clarity and efficiency of the contract's code.

By removing unnecessary or redundant statements from the contract's code, the clarity and efficiency of the contract will be improved. Additionally, the size and gas consumption will be reduced.

# L09 - Dead Code Elimination

| | |
|---|---|
| **Criticality** | Minor / Informative |
| **Location** | Tradecurve.sol#L439,454,466 |
| **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 mint(uint256 amount) private onlyOwner {
        _mint(msg.sender, amount);
    }

...
```

## 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.

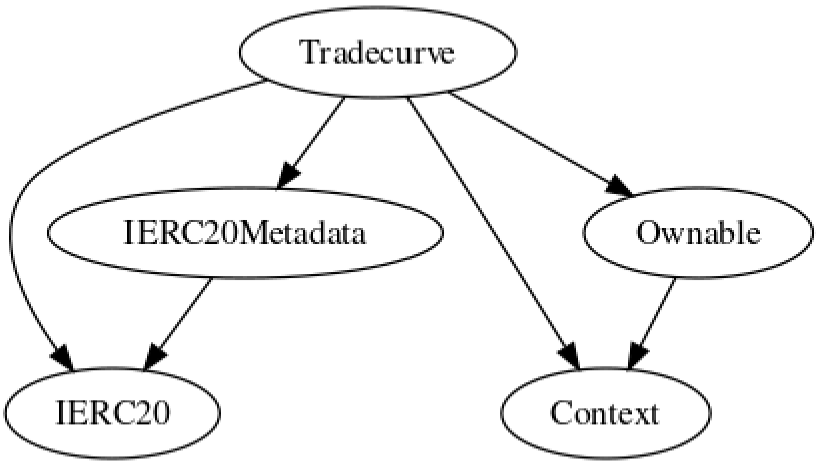
# Functions Analysis

| Contract | Type | Bases | | |
|---|---|---|---|---|
| | **Function Name** | **Visibility** | **Mutability** | **Modifiers** |
| | | | | |
| **IERC20** | Interface | | | |
| | totalSupply | External | | - |
| | balanceOf | External | | - |
| | transfer | External | ✓ | - |
| | allowance | External | | - |
| | approve | External | ✓ | - |
| | transferFrom | External | ✓ | - |
| | | | | |
| **IERC20Metadata** | Interface | IERC20 | | |
| | name | External | | - |
| | symbol | External | | - |
| | decimals | External | | - |
| | | | | |
| **Context** | Implementation | | | |
| | _msgSender | Internal | | |
| | _msgData | Internal | | |
| | | | | |
| **Ownable** | Implementation | Context | | |

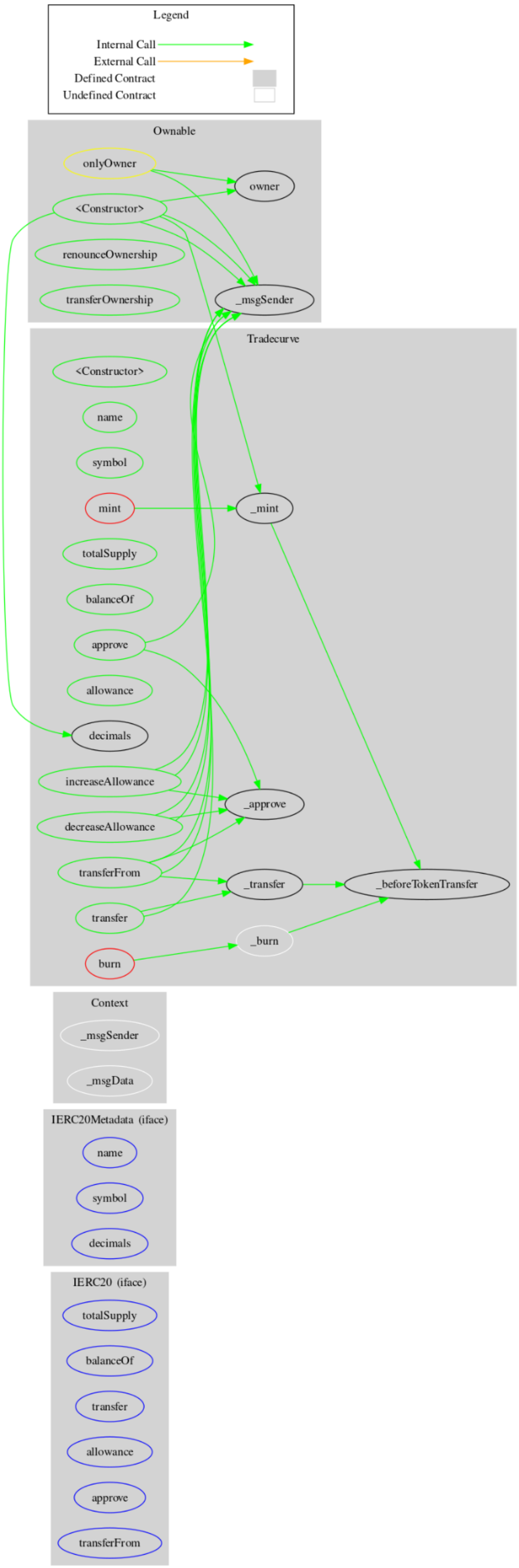
| | | | | |
|---|---|---|---|---|
| | | Public | ✓ | - |
| | owner | Public | | - |
| | renounceOwnership | Public | ✓ | onlyOwner |
| | transferOwnership | Public | ✓ | onlyOwner |
| | | | | |
| **Tradecurve** | Implementation | Context, IERC20, IERC20Metadata, Ownable | | |
| | | Public | ✓ | - |
| | name | Public | | - |
| | symbol | Public | | - |
| | decimals | Public | | - |
| | totalSupply | Public | | - |
| | balanceOf | Public | | - |
| | transfer | Public | ✓ | - |
| | allowance | Public | | - |
| | approve | Public | ✓ | - |
| | transferFrom | Public | ✓ | - |
| | increaseAllowance | Public | ✓ | - |
| | decreaseAllowance | Public | ✓ | - |
| | _transfer | Internal | ✓ | |
| | _mint | Internal | ✓ | |
| | mint | Private | ✓ | onlyOwner |
| | _burn | Internal | ✓ | |

| | | | | |
|---|---|---|---|---|
| | burn | Private | ✓ | onlyOwner |
| | _approve | Internal | ✓ | |
| | _beforeTokenTransfer | Internal | ✓ | |

# Inheritance Graph



# Flow Graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
Ownable
onlyOwner
owner
<Constructor>
renounceOwnership
transferOwnership
_msgSender
Tradecurve
<Constructor>
name
symbol
mint
_mint
totalSupply
balanceOf
approve
allowance
decimals
increaseAllowance
_approve
decreaseAllowance
transferFrom
_transfer
_beforeTokenTransfer
transfer
_burn
burn
Context
_msgSender
_msgData
IERC20Metadata (iface)
name
symbol
decimals
IERC20 (iface)
totalSupply
balanceOf
transfer
allowance
approve
transferFrom

# Summary

Tradecurve contract implements a token mechanism. This audit investigates security issues, business logic concerns, and potential improvements. Tradecurve 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.

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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