FusionTech

# CoreDogAi

## Audit Report

www.coredogai.com

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# 1 | Audit Summary

| | |
|---|---|
| Project Name | CoreDogAi ( COGAI ) - ( https://coredogai.com/ ) |
| Platform | CORE DAO |
| Language | Solidity ( 0.8.7 ) |
| Contract Address | 0x1E0A1761e51E3571d5a8EA72f400f6137E431012 |
| Delivery Date | May 13, 2024 |
| Audit Msolodology | Static Analysis, Manual Review |
| Key Components | DxStandardToken |

## 1.1 | Vulnerability Summary

| Vulnerability Summary | Total | ⓘ Pending | ⓘ Declined | ⓘ Acknowledged | ⓘ Partially Resolved | ⓘ Resolved |
|---|---|---|---|---|---|---|
| Critical | 0 | 0 | 0 | 0 | 0 | 0 |
| Major | 0 | 0 | 0 | 0 | 0 | 0 |
| Medium | 0 | 0 | 0 | 0 | 0 | 0 |
| Minor | 0 | 0 | 0 | 0 | 0 | 0 |
| Informational | 0 | 0 | 0 | 0 | 0 | 0 |
| Discussion | 0 | 0 | 0 | 0 | 0 | 0 |

# 1.2 | Audit Scope

## External Dependencies

This audit focused on identifying security flaws in code and the design of EscrowDapp Contract. It was conducted on the source code provided by the EscrowDapp team. The following files were made available in the course of the review:

## Privileged Functions

The contract contains the following privileged functions that are restricted by role with the modifier. Since the contract is the owner cannot modify the contract configurations and address attributes.

## Audit methodology

## Dependencies

**Our security audit process for smart contract includes two steps:**

• Smart contract codes are scanned/tested for commonly known and more specific vulnerabilities using public and RK87, our in-house smart contract security analysis tool.

• Manual audit of the codes for security issues. The contracts are manually analyzed to look for any potential problems.

# 1.3 | Source Code

```
// SPDX-License-Identifier: MIT

pragma solidity 0.8.7;
pragma experimental ABIEncoderV2;


/**
 * @dev Interface of the ERC20 standard as defined in the EIP.
 */
interface IERC20 {
    /**
     * @dev Emitted when `value` tokens are moved from one account (`from`) to
     * another (`to`).
     *
     * Note that `value` may be zero.
     */
    event Transfer(address indexed from, address indexed to, uint256 value);

    /**
     * @dev Emitted when the allowance of a `spender` for an `owner` is set by
     * a call to {approve}. `value` is the new allowance.
     */
    event Approval(address indexed owner, address indexed spender, uint256 value);

    /**
     * @dev Returns the amount of tokens in existence.
     */
    function totalSupply() external view returns (uint256);

    /**
     * @dev Returns the amount of tokens owned by `account`.
     */
    function balanceOf(address account) external view returns (uint256);

    /**
     * @dev Moves `amount` tokens from the caller's account to `to`.
     *
     * Returns a boolean value indicating whether the operation succeeded.
     *
     * Emits a {Transfer} event.
     */
    function transfer(address to, uint256 amount) external returns (bool);

    /**
```

```
contract DxStandardToken is Context, IERC20, IERC20Metadata,Ownable {

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

    bool public mintedByDxsale = true;
    uint256 private _totalSupply;
    bool public mintingFinishedPermanent = false;
    string private _name;
    string private _symbol;
    uint8 private _decimals;
    address public _creator;
    /**
     * @dev Sets the values for {name}, {symbol} and {decimals}.
     *
     *
     * All two of these values are immutable: they can only be set once during
     * construction.
     */
      constructor (address creator_,string memory name_, string memory symbol_,uint8 decimals_,
uint256 tokenSupply_) {
        _name = name_;
        _symbol = symbol_;
        _decimals = decimals_;
        _creator = creator_;

        _mint(_creator,tokenSupply_);
        mintingFinishedPermanent = true;
    }

    /**
     * @dev Returns the name of the token.
     */
    function name() public view virtual override returns (string memory) {
        return _name;
    }

    /**
     * @dev Returns the symbol of the token, usually a shorter version of the
     * name.
     */
    function symbol() public view virtual override returns (string memory) {
        return _symbol;
    }
```

```
function _burn(address account, uint256 amount) internal virtual {
        require(account != address(0), "ERC20: burn from the zero address");

        _beforeTokenTransfer(account, address(0), amount);

        uint256 accountBalance = _balances[account];
        require(accountBalance >= amount, "ERC20: burn amount exceeds balance");
        _balances[account] = accountBalance - amount;
        _totalSupply -= amount;

        emit Transfer(account, address(0), amount);
    }

    /**
     * @dev Sets `amount` as the allowance of `spender` over the `owner` s tokens.
     *
     * This internal function is equivalent to `approve`, and can be used to
     * e.g. set automatic allowances for certain subsystems, etc.
     *
     * Emits an {Approval} event.
     *
     * Requirements:
     *
     * - `owner` cannot be the zero address.
     * - `spender` cannot be the zero address.
     */
    function _approve(address owner, address spender, uint256 amount) internal virtual {
        require(owner != address(0), "ERC20: approve from the zero address");
        require(spender != address(0), "ERC20: approve to the zero address");

        _allowances[owner][spender] = amount;
        emit Approval(owner, spender, amount);
    }

    /**
     * @dev Hook that is called before any transfer of tokens. This includes
     * minting and burning.
     *
     * Calling conditions:
     *
     * - when `from` and `to` are both non-zero, `amount` of ``from``'s tokens
     * will be to transferred to `to`.
     * - when `from` is zero, `amount` tokens will be minted for `to`.
     * - 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 { }
}
```

```
contract DxStandardToken is Context, IERC20, IERC20Metadata,Ownable {

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

    bool public mintedByDxsale = true;
    uint256 private _totalSupply;
    bool public mintingFinishedPermanent = false;
    string private _name;
    string private _symbol;
    uint8 private _decimals;
    address public _creator;
    /**
     * @dev Sets the values for {name}, {symbol} and {decimals}.
     *
     *
     * All two of these values are immutable: they can only be set once during
     * construction.
     */
    constructor (address creator_,string memory name_, string memory symbol_,uint8 decimals_, uint256 tokenSupply_) {
        _name = name_;
        _symbol = symbol_;
        _decimals = decimals_;
        _creator = creator_;

        _mint(_creator,tokenSupply_);
        mintingFinishedPermanent = true;
    }

    /**
     * @dev Returns the name of the token.
     */
    function name() public view virtual override returns (string memory) {
        return _name;
    }

    /**
     * @dev Returns the symbol of the token, usually a shorter version of the
     * name.
     */
    function symbol() public view virtual override returns (string memory) {
        return _symbol;
    }

    /**
     * @dev Moves tokens `amount` from `sender` to `recipient`.
     *
     * This is internal function is equivalent to {transfer}, and can be used to
     * e.g. implement automatic token fees, slashing mechanisms, etc.
     *
     * Emits a {Transfer} event.
     *
     * Requirements:
     *
     * - `sender` cannot be the zero address.
     * - `recipient` cannot be the zero address.
     * - `sender` must have a balance of at least `amount`.
     */
```

# 2 | Disclaimer

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Blockchain technology and cryptographic assets present a high level of ongoing risk. FusionTech's position is that each companyand individual are responsible for their own due diligenceand continuous security.
FusionTech's goal is to help reduce the attack vectorsand 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.

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## 3 | Global Overview

FusionTech uses certain vulnerability levels, these indicate how bad a certain issue is. The higher the risk, the more strictly it is recommended to correct the error before using the contract.

| SEVERITY LEVEL | DESCRIPTION |
|---|---|
| **CRITICAL** | A vulnerability that can disrupt the contract functioning; creates a critical risk to the contract; required to be fixed immediately. |
| **HIGH** | A vulnerability that could affect the desired outcome of executing the contract with high impact; needs to be fixed with high priority. |
| **MEDIUM** | A vulnerability that could affect the desired outcome of executing the contract with medium impact in a specific scenario; needs to be fixed. |
| **LOW** | An issue that does not have a significant impact, can be considered as less important. |

# 4 | Vulnerabilities Findings

**The Smart Contract Weakness Classification Registry (SWC Registry) is an implementation of the weakness classication scheme proposed in EIP-1470. It is loosely aligned to the terminologies and structure used in the Common Weakness Enumeration (CWE) while overlaying a wide range of weakness variants that are specfic to smart contracts.**

| ID SWC- | Description | Status |
|---|---|---|
| 100 | Function Default Visibility | Passed |
| SWC-101 | Integer Overflow and Underflow | Passed |
| SWC-102 | Outdated Compiler Version | Passed |
| SWC-103 | Floating Pragma | Passed |
| SWC-104 | Unchecked Call Return Value | Passed |
| SWC-105 | Unprotected soler Withdrawal | Passed |
| SWC-106 | Unprotected SELFDESTRUCT | Passed |
| SWC-107 | Instruction Reentrancy | Passed |
| SWC-108 | State Variable Default Visibility | Passed |
| SWC-109 | Uninitialized Storage Pointer | Passed |
| SWC-110 | Assert Violation | Passed |
| SWC-111 | Use of Deprecated Solidity Functions | Passed |
| SWC-112 | Delegatecall to Untrusted Callee | Passed |
| SWC-113 | DoS with Failed Call | Passed |
| SWC-114 | Transaction Order Dependence | Passed |
| SWC-115 | Authorization through tx.origin | Passed |

| | | |
|---|---|---|
| SWC-116 | Block values as a proxy for time | Passed |
| SWC-117 | Signature Malleability | Passed |
| SWC-118 | Incorrect Constructor Name | Passed |
| SWC-119 | Shadowing State Variables | Passed |
| SWC-120 | Weak Sources of Randomness from Chain Attributes | Passed |
| SWC-121 | Missing Protection against Signature Replay Attacks | Passed |
| SWC-122 | Lack of Proper Signature Veri cation | Passed |
| SWC-123 | Requirement Violation | Passed |
| SWC-124 | Write to Arbitrary Storage Location | Passed |
| SWC-125 | Incorrect Inheritance Order | Passed |
| SWC-126 | Insuf cient Gas Grie ng | Passed |
| SWC-127 | Arbitrary Jump with Function Type Variable | Passed |
| SWC-128 | DoS With Block Gas Limit | Passed |
| SWC-129 | Typographical Error | Passed |
| SWC-130 | Right-To-Left-Override control character (U+202E) | Passed |
| SWC-131 | Presence of unused variables | Passed |
| SWC-132 | Unexpected soler balance | Passed |
| SWC-133 | Hash Collisions With Multiple Variable Length | Passed |
| SWC-134 | Arguments Message call with hardcoded gas amount | Passed |
| SWC-135 | Code With No Effects | Passed |
| SWC-136 | Unencrypted Private Data On-Chain | Passed |

## Recommendation

Private keys belonging to the employer and/or contract owner should be stored properly. The initial asset allocation procedure should involve consultation with the community.

# 5 | Contract Privileges

## 5.1 | Maximum Fee Limit Check

FusionTech tests if the owner of the smart contract can set the transfer, buy or sell fee to 25% or more. It is bad practice to set the fees to 25% or more, because owners can prevent healthy trading or even stop trading when the fees are set too high.

| ERROR | Description |
|---|---|
| Code | Centralization: Operator Fee |
| CEN-01 | Manipulation |

| TYPE OF FEE | DESCRIPTION |
|---|---|
| Transacted without Tax | 0% |
| Max buy fee | 0% |
| Max sell fee | 0% |

## 5.2 | Contract Pausability Check

FusionTech tests if the owner of the smart contract has the ability to pause the contract. If this is the case, users can no longer interact with the smart contract; users can no longer trade the token.

| Privilege Check | Description |
| --- | --- |
| Can owner pause the contract? | ● Owner cannot pause the contract |

## 5.3 | Max Transaction Amount Check

FusionTech tests if the owner of the smart contract can set the maximum amount of a transaction. If the transaction exceeds this limit, the transaction will revert. Owners could prevent normal transactions to take place if they abuse this function.

| PRIVILEGE CHECK | DESCRIPTION |
| --- | --- |
| Can owner set max tx amount? | ● Owner cannot set max transaction amount |

## 5.4 | Exclude From Fees Check

FusionTech tests if the owner of the smart contract can exclude addresses from paying tax fees. If the owner of the smart contract can exclude from fees, they could set high tax fees and exclude themselves from fees and bene t from 0% trading fees. However, some smart contracts require this function to exclude routers, dex, cex or other contracts / wallets from fees.

| Privilege Check | Description |
| --- | --- |
| Can owner exclude from fees? | ● Owner can exclude from fees |

## FUNCTION

```
function excludeFromFees(address account, bool excluded) external onlyOwner{
_isExcludedFromFees[account] = excluded;

 emit ExcludeFromFees(account, excluded); }
```

## 5.5 | Ability to Mint Check

FusionTech tests if the owner of the smart contract can mint new tokens. If the contract contains a mint function, we refer to the token's total supply as non- xed, allowing the token owner to "mint" more tokens whenever they want.

A mint function in the smart contract allows minting tokens at a later stage. A msolod to disable minting can also be added to stop the minting process irreversibly.

Minting tokens is done by sending a transaction that creates new tokens inside of the token smart contract. With the help of the smart contract function, an unlimited number of tokens can be created without spending additional energy or money.

| Privilege Check | Description |
| --- | --- |
| Can owner mint? | ● Owner cannot mint new tokens |

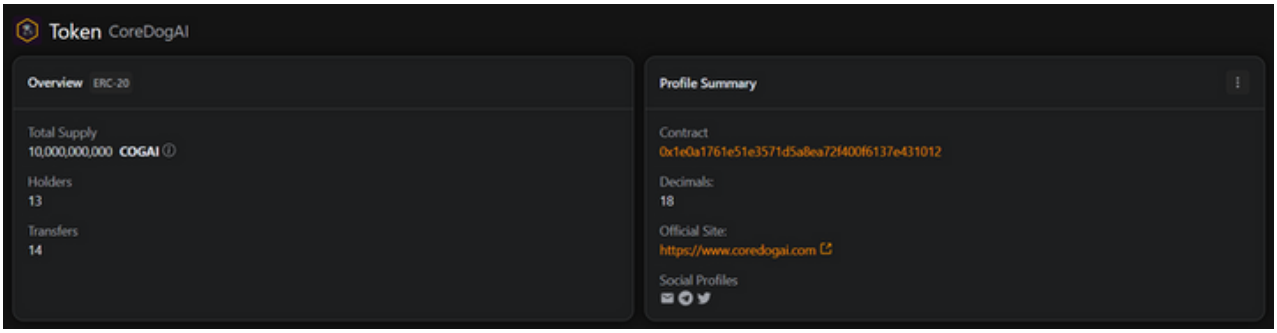
## 5.6 | Ability to Blacklist Check

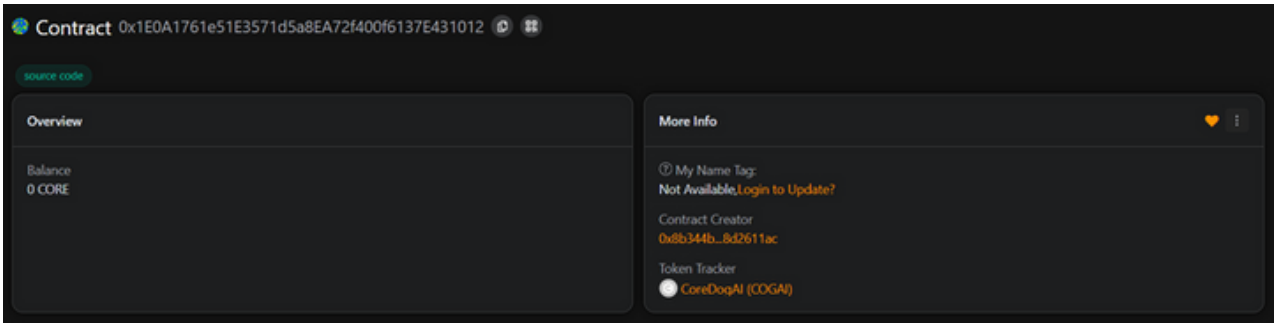
FusionTech tests if the owner of the smart contract can blacklist accounts from interacting with the smart contract. Blacklisting msolods allow the contract owner to enter wallet addresses which are not allowed to interact with the smart contract.

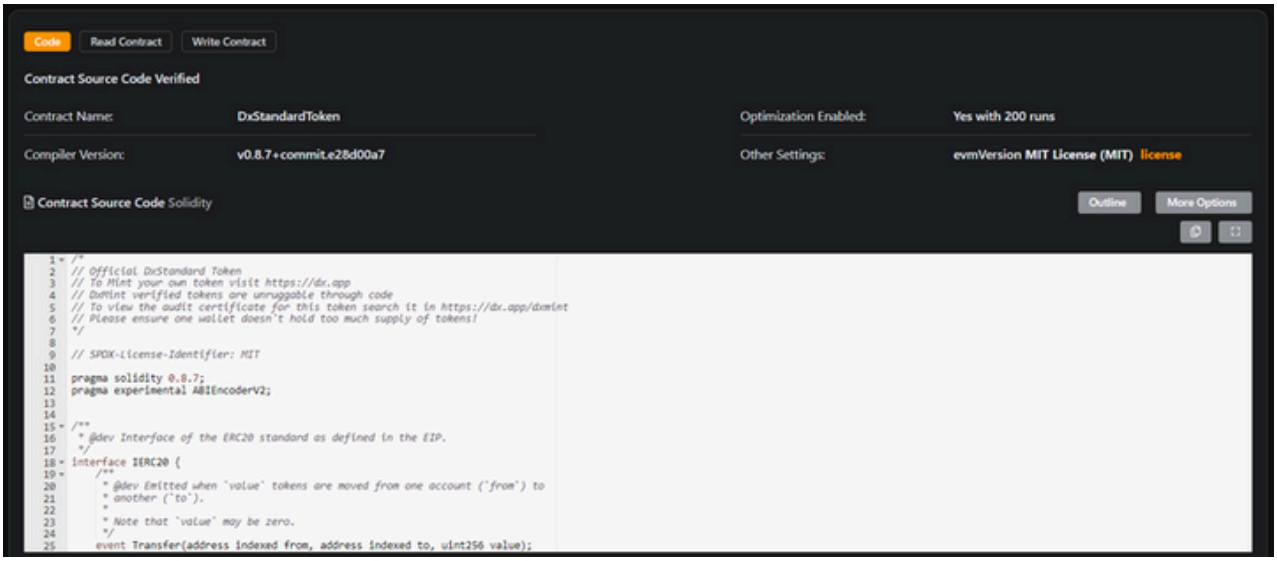
This msolod can be abused by token owners to prevent certain / all holders from trading the token. However, blacklists might be good for tokens that want to rule out certain addresses from interacting with a smart contract.

| Privilege Check | Description |
| --- | --- |
| Can owner blacklist? | ● Owner cannot blacklist an wallet/address |

# 6 | Contract Snapshot



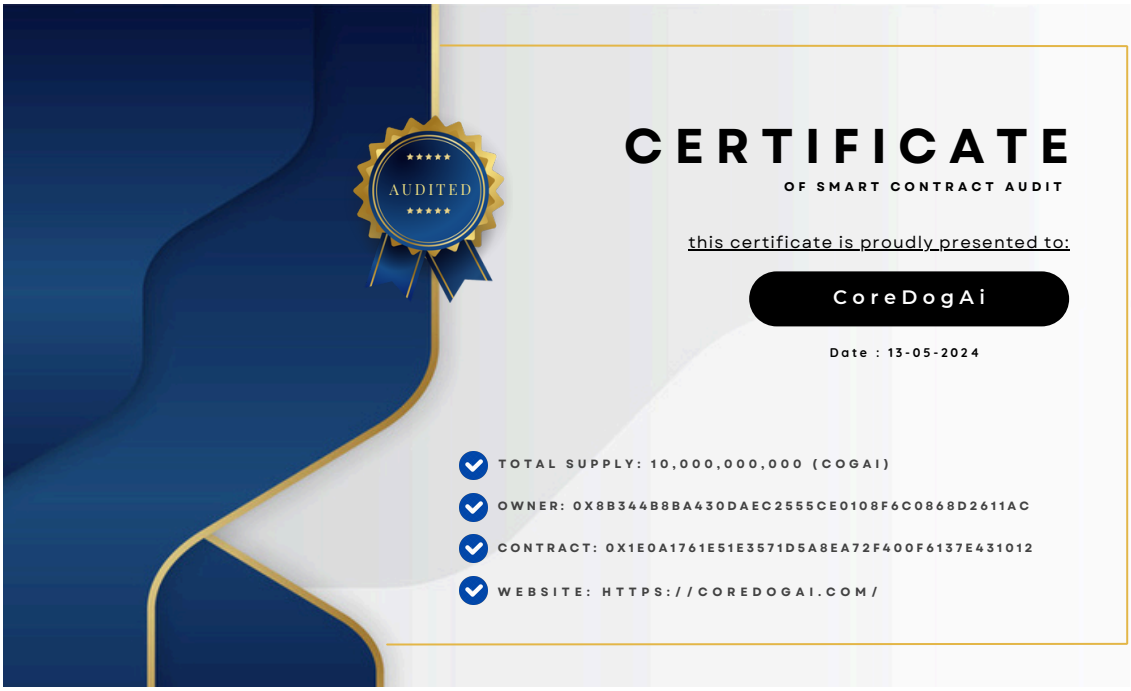
## 7 | Website Review

FusionTech checks the website completely manually and looks for visual, technical and textual errors. We also look at the security, speed and accessibility of the website. In short, a complete check to see if the website meets the current standard of the web development industry.


| Type of check | Description |
|---|---|
| Mobile friendly? | The website is mobile friendly |
| Contains jQuery errors? | The website does not contain jQuery errors |
| Is SSL secured? | The website is SSL secured |
| Contains spelling errors? | The website does not contain spelling errors |

# 8 | Certifcate of Proof

- Smart Contract Audited



# Appendix

## Finding Categories

### Centralization / Privilege

Centralization / Privilege findings refer to either feature logic or implementation of components that act against the nature of decentralization, such as explicit ownership or specialized access roles in combination with a mechanismto relocate funds.

### Logical Issue

Logical Issue findingsdetail a fault in the logic of the linked code, such as an incorrect notion on how block.times tamp works.

### Volatile Code

Volatile Code findingsrefer to segmentsof code that behave unexpectedly on certain edge cases that may resultin a vulnerability.

### Coding Style

Coding Style findings usually do not affect the generated byte-code but rather commenton how to make the codebase more legible and, as a result, easily maintainable.

### Inconsistency

Inconsistency findings referto functions that should seemingly behave similarly yet contain different code, such as a constructor assignment imposing different require statements on the input variables than a setterfunction.

### Checksum Calculation Msolod

The "Checksum" field in the "Audit Scope" section is calculated as the SHA-256 (Secure Hash Algorithm 2 with digest size of 256 bits) digest of the content of each file hosted in the listed source repository under the specified commit.

**The result is hexa-decimal encoded and is the same as the output of the Linux "sha256sum" commandagainst the target file.**

## About

Founded in 2022 by leading academics in the field of Computer Science, FusionTech is going to be a leading blockchain security company that serves to verify the security and correctness of smart contracts KYC and blockchain-based protocols. Through the utilization of our world-class technical expertise, alongside our proprietary, innovative tech, we're able to support the success of ourclients with best-in-class security, all whilst realizing our overarching vision; provable trust for all throughout all facets of blockchain.

FusionTech

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