

# Aegis AI

Pioneering Blockchain Security with  
AI-Enabled Audit Solutions.



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# About **Aegis AI**

Aegis AI is a revolutionary tool designed to bring accessibility, transparency, and trust to the world of blockchain technology. With the increasing use of smart contracts in various industries, the need for efficient and user-friendly auditing tools has never been more critical. Aegis AI is the solution that bridges the gap between complex smart contract code and non-technical users, making it easy for anyone to ensure the security and reliability of their digital assets and transactions.

- Run quick audits from dApp using AI
- Generate detailed audit reports
- Monitor of smart contracts and protocols in real time.
- Automated Penetration Testing.

# Introduction

Aegis AI is an AI-powered smart contract auditing tool that empowers end users with the ability to assess and enhance the security of their smart contracts, even without any coding knowledge. Aegis AI offers a seamless and intuitive interface, allowing users to audit smart contracts with a few clicks, instantly identifying vulnerabilities and malicious elements.

Addressing these issues is essential to realizing the full potential of blockchain technology and smart contracts. A solution that empowers users, regardless of their technical background, to easily audit and secure their smart contracts is not only desirable but imperative for the continued adoption and trust in blockchain ecosystems.



## Project Overview



# Aegis AI

Project Name	CHECKMATE
Symbol	CMBOT
Address	0xE02F72be83855C9E400Fd9Cd9F83158aBfC87053
Type	ERC-20
Decimals	8
Total Supply	1,00,00,000
Market Cap	529310
Exchange Rate	0.052931
Holders	570

# Social Media



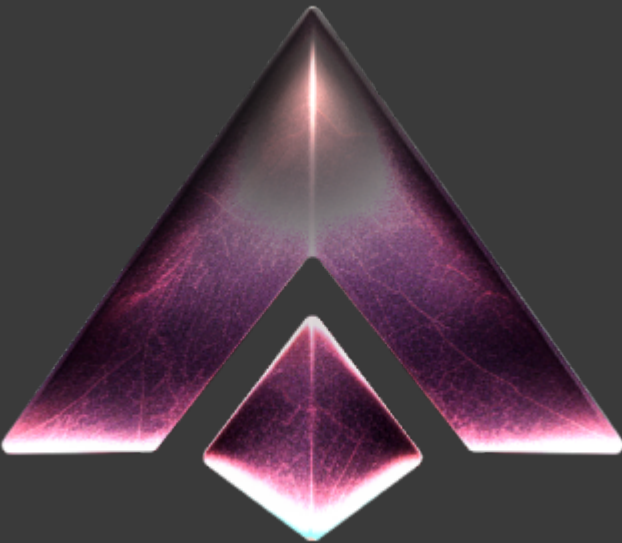
**Audit Summary**

Version	Delivery Date	Changelog
1.0	December 16, 2023	<ul style="list-style-type: none"><li>Layout project</li><li>Automated / Manual Security Testing</li><li>Summary</li></ul>

**Note**

This Audit report consists of a security analysis of the Aegis AI smart contract.

This analysis did not include functional testing (or unit testing) of the contract’s logic



## Vulnerability and Risk Level

Risk represents the probability that a certain source threat will exploit vulnerability and the impact of that event on the organization or system.

The risk Level is computed based on CVSS version 3.0.

Choose your plan	Value	Vulnerability	Risk (Required Action)
<b>Critical</b>	9-10	A vulnerability that can disrupt the contract functioning in a number of scenarios, or creates a risk that the contract may be broken.	Immediate action to reduce risk level
<b>High</b>	7-8.9	A vulnerability that can disrupt the contract functioning in a number of scenarios, or creates a risk that the contract may be broken.	Immediate action to reduce risk level
<b>Medium</b>	4-6.9	A vulnerability that can disrupt the contract functioning in a number of scenarios, or creates a risk that the contract may be broken.	Caution advised
<b>Low</b>	2-3.9	A vulnerability that can disrupt the contract functioning in a number of scenarios, or creates a risk that the contract may be broken.	Awareness and monitoring
<b>Informational</b>	0-1.9	A vulnerability that can disrupt the contract functioning in a number of scenarios, or creates a risk that the contract may be broken.	Awareness and monitoring



## Auditing Strategy and Techniques Applied

Throughout the review process, care was taken to check the repository for security-related issues, code quality, and compliance with specifications and best practices. To this end, our team of experienced pen-testers and smart contract developers reviewed the code line by line and documented any issues discovered.

We check every file manually. We use automated tools only so that they help us achieve faster and better results.

## Methodology

The audit adopted a systematic and risk-based approach to thoroughly evaluate the smart contract [Smart Contract Name]. The assessment focused on key areas including security, code quality, compliance, gas efficiency, and functionality.

- **Security Assessment:**

Our team employed both manual and automated techniques to identify and assess security vulnerabilities. Manual code reviews, static analysis tools, and dynamic testing were utilized to ensure a comprehensive evaluation of potential threats.

- **Code Quality Evaluation:**

The audit included an in-depth analysis of the smart contract code, assessing readability, maintainability, and adherence to industry coding standards. Best practices for smart contract development were considered, and recommendations for code improvement were provided.

- **Compliance Review:**

To ensure adherence to industry standards and protocols, the audit team reviewed the smart contract against relevant specifications, such as ERC-20 or ERC-721. Any deviations were identified and reported, along with recommendations for alignment.

- **Gas Efficiency Analysis:**

Gas consumption patterns were analyzed to evaluate the efficiency of contract execution. Recommendations for optimizing gas usage and improving overall cost-effectiveness were provided.


- **Functionality and Logic Verification:**

The intended functionalities of the smart contract were rigorously tested to verify their accuracy and reliability. The audit team identified and addressed any logical errors, edge cases, or inconsistencies in the contract logic.

## Overall Security


### Honeypot

Honeypots are smart contracts that appear to have an obvious flaw in their design, which allows an arbitrary user to drain ether (Ethereum's cryptocurrency) from the contract, given that the user transfers a priori a certain amount of ether to the contract.

Is it a honeypot?  The contract is not a Honey Pot	
<b>Description</b>	Owner cannot drain your wallet through honeypot

### Antiwhale

Certain features adopted to prevent large holders (aka whales) from exerting excessive influence or engaging in manipulative behaviors within the token ecosystem. Some examples are setting maximum transaction limits, imposing penalties for transactions exceeding some specific threshold, imposing a more equitable distribution of tokens

Can whales dump?  The contract is Anti Whale	
<b>Description</b>	Whales can't dump

## Listing

Listings on multiple decentralized exchanges (DEX) with good amount of liquidity is a good sign

Is it on a dex? <span>✓ The contract is listed</span>	
<b>Description</b>	You can swap tokens on dex

## Opensource

Open source contract is contract with source code that anyone can inspect, modify, and enhance.

Is code available? <span>✓ The contract is Open Source</span>	
<b>Description</b>	Contract code can be reviewed and audited by anyone

## Proxy

Proxy contract is a contract that delegates calls to another contract. It is a contract that has a fallback function that calls another contract. If the proxy contract is well-designed, secure, and serves a legitimate purpose (such as upgradability or modularity), it may not raise concerns. However, if the proxy introduces vulnerabilities, lacks transparency, or is used in a way that compromises the security of the token, it could be flagged during a thorough audit

Is it a proxy?

☒ The contract is not a Proxy contract

**Description**

This is a full contract

Ownership

The ownership is not renounced

✗ Contract has an owner

Description	<p>The owner hasnot renounced the ownership that means that the owner retains control over the contract’s operations, including the ability to execute functions that may impact the contract’s users or stakeholders. This can lead to potential issues including:</p> <ul style="list-style-type: none"><li>• Centralization: The owner has significant over contract’s operations.</li></ul>
Comments	N/A

Note

If the contract is not deployed then we would consider the ownership to be not renounced. Moreover, if there are no ownership functionalities, ownership is automatically considered renounced.

## Ownership Privileges

These functions can be dangerous. Please note that abuse can lead to financial loss. We have a guide where you can learn more about these Functions.

## Minting Privileges

Minting is the process of creating new tokens. This is usually done by the contract owner, and the newly minted tokens are added to the owner's balance. Minting is usually done to increase the total supply of a cryptocurrency or token.

Contract owner cannot mint new tokens

✓ The owner cannot mint new tokens

### Description

The owner cannot mint new tokens

## Burning Tokens

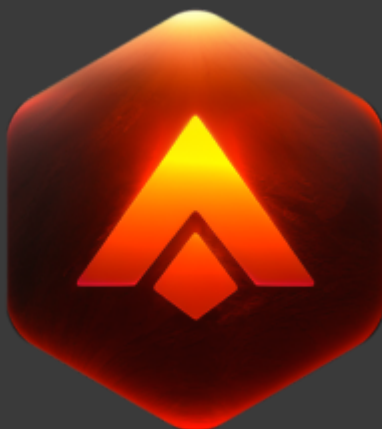
Burning tokens is the process of permanently destroying a certain number of tokens, reducing the total supply of a cryptocurrency or token. This is usually done to increase the value of the remaining tokens, as the reduced supply can create scarcity and potentially drive up demand.

Contract owner cannot burn tokens

☒ The owner cannot burn tokens

### Description

The owner is not able burn tokens without any allowance





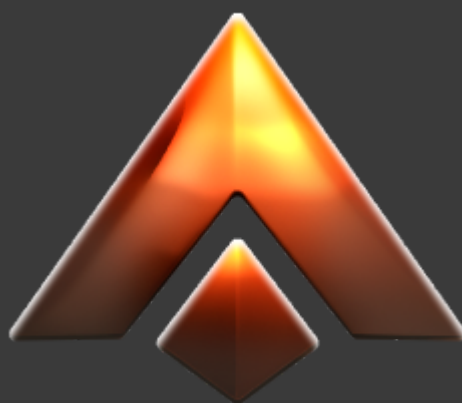
## Blacklist addresses

Blacklisting addresses in smart contracts is the process of adding a certain address to a blacklist, effectively preventing them from accessing or participating in certain functionalities or transactions within the contract. This can be useful in preventing fraudulent or malicious activities, such as hacking attempts or money laundering.

Contract owner cannot blacklist addresses

☒ The owner cannot blacklist addresses

Description	The owner cannot blacklist addresses



## Fees and tax

In some smart contracts, the owner or creator of the contract can set fees for certain actions or operations within the contract. These fees can be used to cover the cost of running the contract, such as paying for gas fees or compensating the contract's owner for their time and effort in developing and maintaining the contract.

There is a buy tax of 5.00%

There is a sell tax of 5.00%


### Description

There is a tax to the contract owner when you buy or sell the token



# Lock User Funds

In a smart contract, locking refers to the process of restricting access to certain tokens or assets for a speci ed period of time. When tokens or assets are locked in a smart contract, they cannot be transferred or used until the lock-up period has expired or certain conditions have been met.

<div><div>Owner Cannot lock the contract</div><div> The owner cannot lock the contract</div></div>	
Description	The owner is not able to lock the contract by any functions or updating any variables.

## External/Public functions

External/public functions are functions that can be called from outside of a contract, i.e., they can be accessed by other contracts or external accounts on the blockchain. These functions are specified using the function declaration's external or public visibility modifier.

## State variables

State variables are variables that are stored on the blockchain as part of the contract's state.

They are declared at the contract level and can be accessed and modified by any function within the contract. State variables can be denied with a visibility modifier, such as public, private, or internal, which determines the access level of the variable.

### Components

External	Internal	Private	Pure
20	26	5	0

## Exposed Functions

This section lists functions that are explicitly declared public or payable. Please note that getter methods for public stateVars are not included

Public	Payable
20	0

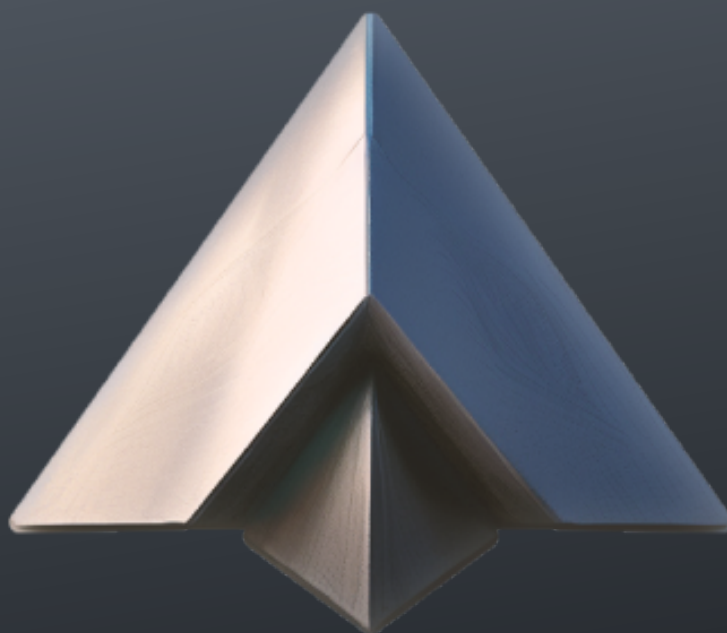
External	Internal	Private	Pure	View
20	26	5	0	26

## StateVariables

Total	Public
104	26

## Capabilities

Aegis Version observed	Transfers ETH	Can Receive Funds	Uses Assembly	Delegate Call
$\geq 0.6.0$ $< 0.9.0$	Yes	Yes	Yes	Yes



## Inheritance Graph



## Centralization Privilege

Centralization can arise when one or more parties have privileged access or control over the contract's functionality, data, or decision-making. This can occur, for example, if the contract is controlled by a single entity or if certain participants have special permissions or abilities that others do not. In the project, there are authorities that have access to the following functions:

Contract	Privileges
IERC20	transfer, approve, transferFrom
IERC20Metadata	N/A
IUniswapV2Router02	addLiquidity, swapExactTokensForTokensSupportingFeeOnTransferTokens, swapExactTokensForETHSupportingFeeOnTransferTokens
IUniswapV2Pair	approve, transfer, transferFrom, permit, mint, burn, swap, skim, sync, initialize
IUniswapV2Factory	createPair, setFeeTo, setFeeToSetter
ReentrancyGuard	_nonReentrantBefore, _nonReentrantAfter
Context	N/A
ERC20	transfer, approve, transferFrom, increaseAllowance, decreaseAllowance
Ownable	renounceOwnership, transferOwnership
SafeMath	N/A
Checkmate	enableTrading, setBuyFees, setSellFees, swapTokensForEth, swapBack



## Files Overview

The CHECKMATE team provided us with the files that should be tested in the security assessment. This audit covered the following files listed below with an SHA-1 Hash.

File Name

Checkmate.sol

## Note

Files with a different hash value than in this table have been modified after the security check, either intentionally or unintentionally. A different hash value may (but need not) be an indication of a changed state or potential vulnerability that was not the subject of this scan.

## Imported Packages

Used code from other Frameworks/Smart Contracts (direct imports).

## Note for Investors:

We only audited a token contract for CHECKMATE. However, If the project has other contracts (for example, a Presale, staking contract etc), and they were not provided to us in the audit scope, then we cannot comment on its security and are not responsible for it in any way.

No external libraries used.

## Source

language: solidity

version: 0.8.17+commit.8df45f5f

verified at: 2023-12-12T18:46:17.534915Z

# Conclusion

The audit conducted on the CHECKMATE (CMBOT) token revealed a variety of findings. While some aspects of the token are commendable, others require careful consideration. A potential concern is the 5% sell tax and buy tax which is found to be a bit high. However, it was ascertained that the token is not a honeypot, this being a typical feature. Positively, the token has incorporated antiwhale measures and it is not mintable, ensuring the scarcity of the token. There is no blacklisting provision associated with the CHECKMATE token, signifying unrestricted trading. This again is a valuable factor for stakeholders. As is norm, it is listed in a dex. But a spotlight of concern is highlighted by the fact that the token has less than 1000 holders, indicating a low rate of adoption. In the audit, there were no high-severity issues identified on the token, which is noteworthy news. Still, there were two medium-severity issues found. While these are not immediate threats, they suggest a word of caution and spotlight room for improvements to enhance the security and trustworthiness of the code. The presence of more than 5 LP holders is encouraging, demonstrating diversity among liquidity providers. In conclusion, this audit shows that while the CHECKMATE token has established certain sound precautions, there are issues and tokenomics which could be restructured to better enhance user adoption and trust. All stakeholders associated with the token are advised to proceed with caution, paying attention to the details outlined in this audit.

# Conclusion Overview

Overview	Notes	Result
<b>Honeypot</b>	The contract owner can drain the funds from contract	✅ False
<b>Anti whale check</b>	Features preventing whales to manipulate the Token	✅ True
<b>Opensource</b>	The code of the contract is public	✅ True
<b>Ownership renounced</b>	Contract owner has renounced ownership	❌ False
<b>Buy tax</b>	Fees incurred when buying the token	✅
<b>Sell tax</b>	Fees incurred when selling the token	✅
<b>High Severity Issues</b>	Number of High severity issues	0
<b>Medium Severity Issues</b>	Number of Medium severity issues	2
<b>Mintable</b>	Can mint new tokens	✅ False
<b>Blacklist</b>	Owner can blacklist users	✅ False
<b>Holders</b>	Total wallets holding the token	572
<b>LP holder</b>	Total wallets holding the token	✅ 5

# Glossary

## 1. Honey pot:

A cybersecurity strategy involving the deployment of decoy systems or resources that appear vulnerable to attackers. The goal is to attract and monitor malicious activity, gaining insights into hacker tactics and motives for enhanced security.

## 2. Blacklist:

Catalog of known malicious entities, such as IP addresses, domain names, or applications, used to deny access or privileges. Blacklists safeguard systems and networks by blocking or restricting interaction with these entities, preventing potential threats or unauthorized access.

## 3. Ownership privileges:

Ownership is the legal right to possess, use, and dispose of property or assets, typically accompanied by control, responsibility, and the ability to transfer or sell.

## 4. Automated Penetration Testing:

Automated Penetration Testing is a cybersecurity practice that employs automated tools and technologies to identify and exploit vulnerabilities in computer systems, networks, or applications. It aims to simulate potential cyberattacks to assess the security posture and discover weaknesses in order to enhance overall defense against malicious activities.

## 5. LLM:

What is LLM in simple words? A large language model (LLM) is a type of artificial intelligence (AI) algorithm that uses deep learning techniques and massively large data sets to understand, summarize, generate and predict new content.

## 6. CVSS:

CVSS stands for the Common Vulnerability Scoring System. It's a way to evaluate and rank reported vulnerabilities in a standardized and repeatable way.

## **7. EOA:**

Externally Owned Accounts (EOAs) are the most common type of blockchain account that gives us direct control. These accounts are created using private keys. The associated key gives you a unique signature and access to the blockchain. You can use it to send and receive transactions and interact with applications.