



**SOLID**Proof  
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**Blockchain Security | Smart Contract Audits | KYC  
Development | Marketing**

MADE IN GERMANY

# Cipher Core

# AUDIT

SECURITY ASSESSMENT

**28. June, 2023**

FOR



[SolidProof.io](https://SolidProof.io)



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## Introduction

SolidProof.io is a brand of the officially registered company MAKE Network GmbH, based in Germany. We're mainly focused on Blockchain Security such as Smart Contract Audits and KYC verification for project teams. Solidproof.io assess potential security issues in the smart contracts implementations, review for potential inconsistencies between the code base and the whitepaper/documentation, and provide suggestions for improvement.

## Disclaimer

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SolidProof.io Reports represent an extensive auditing process intending to help our customers increase the quality of their code while reducing the high level of risk presented by cryptographic tokens and blockchain technology. Blockchain technology and cryptographic assets present a high level of ongoing risk. SolidProof's position is that each company and individual are responsible for their own due diligence and continuous security. SolidProof in no way claims any guarantee of the security or functionality of the technology we agree to analyze.



# Project Overview

## Summary

<b>Project Name</b>	Cipher Core
<b>Website</b>	<a href="https://ciphercore.io">https://ciphercore.io</a>
<b>About the project</b>	Cipher Core is a DAO that is dedicated to preserving privacy and enabling anonymous transactions within the blockchain space on ETH & BSC Networks. With a strong emphasis on confidentiality and security, Cipher Core empowers individuals to engage in financial interactions while safeguarding their wallet addresses.
<b>Chain</b>	Ethereum
<b>Language</b>	Solidity
<b>Codebase Link</b>	<a href="https://etherscan.io/address/0xa4a4bfed65907281ff6d28d8951975576b77233#code">https://etherscan.io/address/0xa4a4bfed65907281ff6d28d8951975576b77233#code</a>
<b>Commit</b>	N/A
<b>Unit Tests</b>	Not Provided

## Social Medias

<b>Telegram</b>	<a href="https://t.me/ciphercoreofficial">https://t.me/ciphercoreofficial</a>
<b>Twitter</b>	<a href="https://twitter.com/CipherPrivacy">https://twitter.com/CipherPrivacy</a>
<b>Facebook</b>	N/A
<b>Instagram</b>	N/A
<b>Github</b>	N/A
<b>Reddit</b>	N/A
<b>Medium</b>	N/A
<b>Discord</b>	N/A
<b>Youtube</b>	<a href="https://youtube.com/@CipherCore">youtube.com/@CipherCore</a>
<b>TikTok</b>	N/A
<b>LinkedIn</b>	N/A



## Audit Summary

### Delivery Date

Changelog 27. June 2023

- Layout Project
- Automated- /Manual-Security Testing
- Summary

**Note** - This Audit report consists of a security analysis of the **CipherCore** smart contract. This analysis did not include functional testing (or unit testing) of the contract's logic.





## File Overview

The 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	SHA-1 Hash
contracts/CipherCoreETH1.sol	778b95c3ad300ba7a85d59edc62eca84c77d76de

*Please 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).*

```
./MerkleTreeWithHistory.sol  
@openzeppelin/contracts/utils/ReentrancyGuard.sol
```

**Note for Investors:** We only Audited a simple staking contract for **Cipher Core**. However, If the project has other contracts (for example, a Presale 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. Moreover, two interfaces were used in the contracts which are not audited by us; “IVerifier”, and “IHasher”

# Audit Information

## Vulnerability & Risk Level

Risk represents the probability that a certain source threat will exploit the vulnerability and the impact of that event on the organization or system. The risk level is computed based on CVSS version 3.0.

Level	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 affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.	Implementation of corrective actions as soon as possible.
<b>Medium</b>	4 – 6.9	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.	Implementation of corrective actions in a certain period.
<b>Low</b>	2 – 3.9	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.	Implementation of certain corrective actions or accepting the risk.
<b>Informational</b>	0 – 1.9	A vulnerability that has informational character but is not affecting any of the code.	An observation that does not determine a level of risk



## 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 auditing process follows a routine series of steps:

1. Code review that includes the following:
  - a. Reviewing the specifications, sources, and instructions provided to SolidProof to ensure we understand the size, scope, and functionality of the smart contract.
  - b. Manual review of the code, i.e., reading the source code line by line to identify potential vulnerabilities.
  - c. Comparison to the specification, i.e., verifying that the code does what is described in the specifications, sources, and instructions provided to SolidProof.
2. Testing and automated analysis that includes the following:
  - a. Test coverage analysis determines whether test cases cover code and how much code is executed when those test cases are executed.
  - b. Symbolic execution, which is analysing a program to determine what inputs cause each part of a program to execute.
3. Review best practices, i.e., review smart contracts to improve efficiency, effectiveness, clarity, maintainability, security, and control based on best practices, recommendations, and research from industry and academia.
4. Concrete, itemized and actionable recommendations to help you secure your smart contracts.



## Overall Security

### Medium or higher issues

No critical Issues found

 Contract is safe to deploy

Description	The contract does not contain issues of high or medium criticality. This means that no known vulnerabilities were found in the source code.
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Comment	N/A
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## Upgradeability

**Contract is not an upgradeable**



**Deployer cannot update the contract with new functionalities**

Description

The contract is not an upgradeable contract. The deployer is not able to change or add any functionalities to the contract after deploying.

Comment

N/A

## Ownership

**The ownership is renounced**

 **The owner is renounced**

Description

There is no ownership functionality in the contract so we consider it renounced.

Comment

There is only one authority function in the contract that is the platform fee. Which can be set by the platform address. Moreover, this privilege can never be renounced because the platform address can be updated even if it is set to zero





## 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 tokens

Minting tokens refer to the process of creating new tokens in a cryptocurrency or blockchain network. This process is typically performed by the project's owner or designated authority, who has the ability to add new tokens to the network's total supply.

Contract owner cannot mint new tokens	 The owner cannot mint new tokens
Description	The owner is not able to mint new tokens once the contract is deployed.
Comment	N/A



## 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 allowances.
Comment	N/A

## 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 is not able blacklist addresses to lock funds.
Comment	N/A



## 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.

Contract owner cannot set fees more than 25%	 The owner cannot blacklist addresses
Description	The owner is not able to set the fees above 25%
Comment	The relayer fee will be passed at the time of withdraw and it must be less than or equal to half of the denomination amount. The case is same for the Platform fee which can be set by the platform address only

## Lock User Funds

In a smart contract, locking refers to the process of restricting access to certain tokens or assets for a specified 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.

### Owner cannot lock the contract



The owner cannot lock the contract

Description	The owner is not able to lock the contract by any functions or updating any variables.
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Comment	N/A
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## 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 defined with a visibility modifier, such as public, private, or internal, which determines the access level of the variable.*

## Components

 Contracts	 Libraries	 Interfaces	 Abstract
1	0	1	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
5	1

External	Internal	Private	Pure	View
4	5	0	1	1

## StateVariables

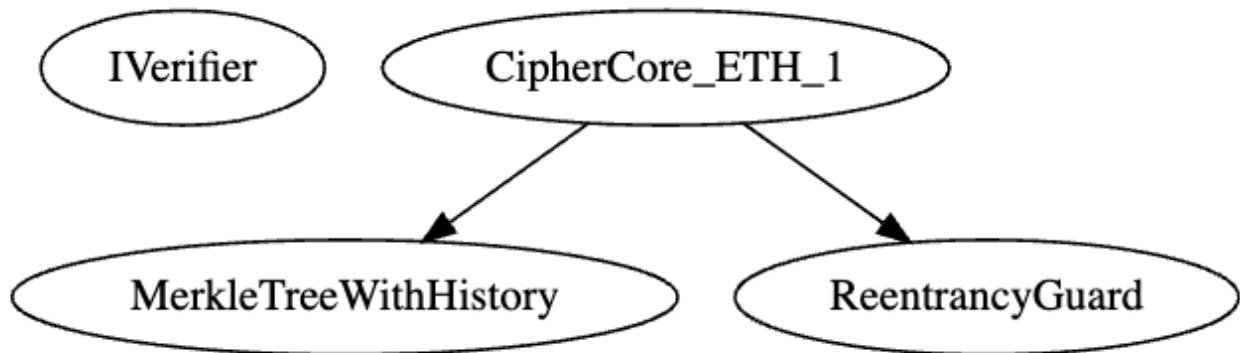
Total	 Public
6	6

## Capabilities

Solidity Versions observed	Experimentation Features	Can Receive Funds	Uses Assembly	Has Destroyable Contracts
^0.7.0	-----	Yes	-----	-----

## Inheritance Graph

An inheritance graph is a graphical representation of the inheritance hierarchy among contracts. In object-oriented programming, inheritance is a mechanism that allows one class (or contract, in the case of Solidity) to inherit properties and methods from another class. It shows the relationships between different contracts and how they are related to each other through inheritance.





## Centralization Privileges

*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:

File	Privileges
Main	<ul style="list-style-type: none"><li>▶ The platform address can set platform fee and platform address. However, the platform fee must be less than or equal to the half of the “denomination” value</li></ul>

## Recommendations

To avoid potential hacking risks, it is advisable for the client to manage the private key of the privileged account with care. Additionally, we recommend enhancing the security practices of centralized privileges or roles in the protocol through a decentralized mechanism or smart-contract-based accounts, such as multi-signature wallets.

Here are some suggestions of what the client can do:

- Consider using multi-signature wallets: Multi-signature wallets require multiple parties to sign off on a transaction before it can be executed, providing an extra layer of security e.g. Gnosis Safe
- Use of a timelock at least with a latency of e.g. 48-72 hours for awareness of privileged operations
- Introduce a DAO/Governance/Voting module to increase transparency and user involvement
- Consider Renouncing the ownership so that the owner cannot modify any state variables of the contract anymore. Make sure to set up everything before renouncing.



# Audit Results

## #1 | Missing Event

File	Severity	Location	Status
Main	Low	L110	ACK

### Description

- Make sure to emit events for all the critical parameter changes in the contract to ensure the transparency and trackability of all the state variable changes in the contract.

## #2 | Outdated compiler version

File	Severity	Location	Status
Main	Informational	L2	ACK

**Description**

- The contracts use outdated compiler versions which is not recommended for deployment as it may be susceptible to known vulnerabilities.

## Legend for the Issue Status

Attribute or Symbol	Meaning
Open	The issue is not fixed by the project team.
Fixed	The issue is fixed by the project team.
Acknowledged(ACK)	The issue has been acknowledged or declared as part of business logic.



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