SOLIDProof
Bring trust into your projects

Blockchain Security | Smart Contract Audits | KYC
Development | Marketing

MADE IN GERMANY

OceanosFi

AUDIT

SECURITY ASSESSMENT

27. November, 2023

FOR

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

SolidProof.io reports are not, nor should be considered, an "endorsement" or "disapproval" of any particular project or team. These reports are not, nor should be considered, an indication of the economics or value of any "product" or "asset" created by any team. SolidProof.io do not cover testing or auditing the integration with external contract or services (such as Unicrypt, Uniswap, PancakeSwap etc'...)

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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

Project Name	Oceanos Finance
Website	https://oceanos.finance
About the project	Oceanos Finance is an innovative decentralized protocol designed to instill much-needed stability into the vibrant world of cryptocurrency. Built upon the principles of various tokens including Liquid Staking Derivatives (LSD) on Manta Pacific network
Chain	Manta
Language	Solidity
Codebase Link	Provided as Files (Private Repo)
Commit	N/A
Unit Tests	Not Provided

Social Medias

Telegram	https://t.me/oceanosfi
Twitter	https://twitter.com/Oceanosfi
Facebook	N/A
Instagram	N/A
Github	N/A
Reddit	N/A
Medium	N/A
Discord	N/A
Youtube	N/A
TikTok	N/A
LinkedIn	N/A

Audit Summary

Version	Delivery Date	Changelog
v1.0	27. November 2023	• Layout Project • Automated- /Manual-Security Testing • Summary

Note - The following audit report presents a comprehensive security analysis of the smart contract utilized in the project that includes outside manipulation of the contract's functions in a malicious way. This analysis did not include functional testing (or unit testing) of the contract/s logic. We cannot guarantee 100% logical correctness of the contract as we did not functionally test it. This includes internal calculations in the formulae used in the contract.

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/pool/base/IssuedPoolBase.sol	220e290071d2c8044e7cb8ae1a121167bfe42bcb
contracts/pool/base/YieldAdapterIssuedPool.sol	e668095389870882a7deec71073bee3975fc3756
contracts/pool/SimpleIssuedPool.sol	5e19667f38a1b464d84dde740cef6311dcb276c7
contracts/pool/LayerBankPool.sol	f6c900c2af8d4583ec634558cfde1c7052c74aa0
contracts/governance/AdminTimelock.sol	a17a6d115a259bac2863f8c5044caf14f5fe9440
contracts/controller/Controller.sol	b7c0b6033b041350029cf42824ca8d68dc7c5457
contracts/incentives/MinterMultiIncentive.sol	27530327d1531776eb4d8fb78b6f4b315ecb90e9
contracts/token/OcUSD.sol	b36e814acca73fcce98144051f6dbde51c61b206

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).

Dependency / Import Path	Count
@openzeppelin/contracts-upgradeable/proxy/utils/Initializable.sol	4
@openzeppelin/contracts/governance/TimelockController.sol	1
@openzeppelin/contracts/token/ERC20/ERC20.sol	1
@openzeppelin/contracts/token/ERC20/IERC20.sol	3
@openzeppelin/contracts/token/ERC20/utils/SafeERC20.sol	1
@openzeppelin/contracts/utils/math/Math.sol	1

Note for Investors: We only audited contracts mentioned in the scope above. All contracts related to the project apart from that are not a part of the audit, and we cannot comment on its security and are not responsible for it in any way

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Audit Information

Vulnerability & 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.

Level	Value	Vulnerability	Risk (Required Action)
Critical	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.
High	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 aspossible.
Medium	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.
Low	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.
Informational	0 – 1.9	A vulnerability that have informational character but is not effecting 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

Upgradeability

Contract is an upgradeable	✗ **Deployer can update the contract with new functionalities**
Description	The deployer can replace the old contract with a new one with new features. Be aware of this, because the owner can add new features that may have a negative impact on your investments.
Example	We assume that you have funds in the contract and it has been audited by any security audit firm. Now the audit has passed. After that, the deployer can upgrade the contract to allow him to transfer the funds you purchased without any approval from you. This has the consequence that your funds can be taken by the creator.
Comment	N/A

Ownership

The ownership is not renounced	❌ The owner is not renounce
Description	The owner has not 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 several potential issues, including: • Centralizations • The owner has significant control over contract's operations
Comment	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 then the ownership is automatically considered renounced.

Alleviation - 'Oceanos team acknowledged the issue and will add time-lock and Multi-sig accordingly for more security'

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 can mint new tokens	❌ **The owner able to mint new tokens**
Description	Owners who have the ability to mint new tokens can reward themselves or other stakeholders, who can then sell the newly minted tokens on a cryptocurrency exchange to raise funds. However, there is a risk that the owner may abuse this power, leading to a decrease in trust and credibility in the project or platform. If stakeholders perceive that the owner is using their power to mint new tokens unfairly or without transparency, it can result in decreased demand for the token and a reduction in its value.
Example	If investors drive up the token price, the owner may choose to mint new tokens and sell them on a cryptocurrency exchange to raise funds. If the owner is not transparent and honest about their actions, they may be attempting a rugpull, where they suddenly abandon the project after raising funds, leaving investors with worthless tokens. This can lead to a decrease in the value of existing tokens, potentially rendering them worthless, and causing investors to suffer losses. It is essential for investors to carefully research the project and its developers and exercise caution before investing in any cryptocurrency or DeFi project.
Comment	N/A

Alleviation - 'Oceanos team acknowledged the issue and will add time-lock and Multi-sig accordingly for more security'

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 can burn tokens	❌ **The owner able to burn tokens**
Description	In some cases, burning tokens can be used as a tactic by the owner or developers to manipulate the token's value. If the owner or developers burn a significant number of tokens without transparency or justification, it can cause stakeholders to lose trust in the project and lead to a decrease in demand for the token.
Example	For example, suppose an owner burns a large number of tokens without any explanation or communication to stakeholders. In that case, it can create speculation and uncertainty among investors, potentially causing them to sell their tokens and decreasing the token's value. Additionally, if the owner has a significant number of tokens themselves and burns them, it can lead to an unfair advantage and concentration of power, as the remaining tokens may become more valuable. Therefore, it is crucial for projects and platforms to be transparent about their burning practices and ensure that they are justified and in the best interest of their stakeholders. Investors should carefully research the project and its burning practices and exercise caution before investing in any cryptocurrency or DeFi project to avoid potential losses. If the owner is able to burn tokens without any allowances then he's able to burn any tokens what you bought in the past.
Comment	N/A

Alleviation - 'Oceanos team acknowledged the issue and will add time-lock and Multi-sig accordingly for more security'

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 levy unfair taxes**
Description	The owner is not able to set the fees above 25%
Comment	N/A

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.
Comment	N/A

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
6	0	0	2

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
54	3

External	Internal	Private	Pure	View
31	67	0	0	26

StateVariables

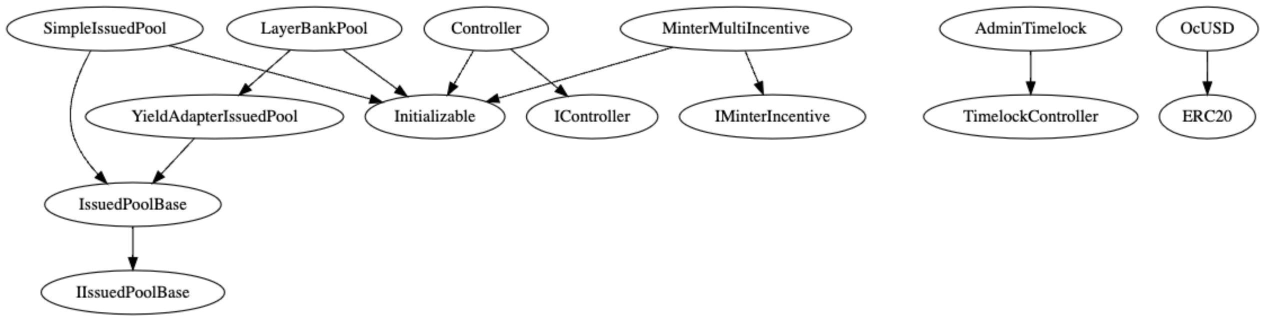
Total	🌐Public
33	26

Capabilities

Solidity Versions observed	Transfers ETH	💰 Can Receive Funds	🖥 Uses Assembly	💣 Has Destroyable Contracts
`0.8.17`	`Yes`	`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 a single entity controls the contract or if certain participants have special permissions or abilities that others do not.

In the project, some authorities have access to the following functions:

File	Privileges
Controller.sol	• Only Governance: • Allow/Disallow the addresses that will have the power to mint and burn tokens from any account • Set a New Pool Configuration including the following values: • Issued Pool Address • Minimim and Maximum Collateral Amount • Mint Fee • Safe and Liquidation Collateral Ratio • Liquidation Penalty and Liquidator Reward • Incentive Pool and Collateral Asset Address • Set Price Calculator, Incentive Admin, and Saving Pool Address
MinterMultiIncentive	• Only Incentive Admin: • Add Rewards • Set Reward Distributor Address

Recommendations

To avoid potential hacking risks, the client should 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

Critical issues

No critical issues

High issues

No high issues

Medium issues

#1 | Owner mint and burn tokens

File	Severity	Location	Status
OcUSD	Medium	L25	ACK

Description - The wallets allowed by the Governance address can mint unlimited tokens, which is not recommended as this functionality can be abused to manipulate the price of the tokens. Moreover, the addresses approved by the governor address

Remediation - Make sure it is impossible to mint or burn unlimited tokens without any restrictions.

Alleviation - ’Oceanos team acknowledged the issue and will add time-lock and Multi-sig accordingly for more security'

Low issues

#1 | Missing Zero Address Validation

File	Severity	Location	Status
Controller	Low	L119—140	ACK

Description - Make sure to validate that the address passed in the function parameters is "non-zero".

Informational issues

#1 | NatSpec documentation missing

File	Severity	Location	Status
Main	Informational		ACK

Description - If you started to comment on your code, comment on all other functions, variables etc.

#2 | Disable initializing

File	Severity	Location	Status
Controller	Informational	N/A	ACK
MinterMultiIncentive	Informational	N/A	ACK
LayerBankPool	Informational	N/A	ACK
SimpleIssuedPool	Informational	N/A	ACK

Description - If the owner updates the contract, a disableInitializer call in the constructor must be implemented. This prevents calling the initialize function again to set the state variables in the contract. This should be implemented only if the contract was deployed before. Otherwise, the owner cannot call the initialize function to set the variables.

Recommendation - If the contract hasn't been deployed, remove the disableInitializer in the constructor. Otherwise, you are not able to initialize the contract. When the contract has a deployed version already, leave it as it is.

#3 | Floating Pragma

File	Severity	Location	Status
All	Informational	N/A	ACK

Description - The contracts should be deployed with the same compiler version and flag that they have been tested thoroughly. Locking the pragma helps to ensure that contracts do not accidentally get deployed using other versions.

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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