



CONTRACT
CHECKER

Blockchain Solutions



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Anywhere on the Blockchain

Date: 06.10.2022

Smart Contract Security Audit

ALPHA FI STAKING



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Audit Result

- 🔍 ALPHA FI STAKING contract has PASSED the smart contract audit with below listed privileges

(Other unknown security vulnerabilities are not included in the audit responsibility scope)

Audit Result:	Passed
Ownership:	Not renounced yet
KYC Verification:	NA at report edition date
Audit Date:	October 06, 2022
Audit Team:	CONTRACTCHECKER

Findings

Privileges of Ownership

- ⚠️ Owner can change APR rate without limit
- ⚠️ Owner can change DepositDeduction rate without limit
- ⚠️ Owner can change Withdraw Deduction rate without limit
- ⚠️ Owner can change Early Penalty rate without limit
- ⚠️ Owner can transfer the staked tokens from the contract to themselves

Important Notice for Investors

As Contract Checker team we are mainly auditing the contract code to find out how it will be functioning, and risks which are hidden in the code if any.

There are many factors must be taken into consideration before inSTAKING to a project, like: ownership status, project team approach, marketing, general market condition, liquidity, token holdings etc.

Investors must always do their own research and manage their risk considering different factors which can affect the success of a project.

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SUMMARY

CONTRACTCHECKER received an application for smart contract security audit of ALPHA FI STAKING contract on October 05, 2022, from the project team to discover if any vulnerability in the source codes of the ALPHA FI STAKING contract as well as any contract dependencies. Detailed test has been performed using Static Analysis and Manual Review techniques.

The auditing process focuses to the following considerations with collaboration of an expert team

- Functionality test of the Smart Contract to determine if proper logic has been followed throughout the whole process.
- Manually detailed examination of the code line by line by experts.
- Live test by multiple clients using Testnet.
- Analysing failure preparations to check how the Smart Contract performs in case of any bugs and vulnerabilities.
- Checking whether all the libraries used in the code are on the latest version.
- Analysing the security of the on-chain data.

Project Summary

Project Name	ALPHA FI STAKING
Web Site	https://alphafi.finance/
Twitter	https://twitter.com/AlphaFi_finance
Telegram	https://t.me/AlphaFiportal
Medium	https://medium.com/@alphafi.finance
Reddit	https://www.reddit.com/user/Alphafifinance/
Platform	Binance Smart Chain
Token Type	BEP20
Language	Solidity
Platforms & Tools	Remix IDE, Truffle, Truffle Team, Ganache, Solhint, VScode, Mythril, Contract Library
Contract	0x40d3cc83fa4C4A25183F3bC5e9953776c719211C
Contract Link	https://bscscan.com/address/0x40d3cc83fa4C4A25183F3bC5e9953776c719211C
Testnet Link	https://testnet.bscscan.com/address/0x7f95DD7D6780096b32b2F27A21736d4f5461FE1A

OVERVIEW

This Audit Report mainly focuses on overall security of ALPHA FI STAKING smart contract. Contract Checker team scanned the contract and assessed overall system architecture and the smart contract codebase against vulnerabilities, exploitations, hacks, and back-doors to ensure its reliability and correctness.

Auditing Approach and Applied Methodologies

Contract Checker team has performed rigorous test procedures of the project

- Code design patterns analysis in which smart contract architecture is reviewed to ensure it is structured according to industry standards and safe use of third-party smart contracts and libraries.
- Line-by-line inspection of the Smart Contract to find any potential vulnerability like race conditions, transaction-ordering dependence, timestamp dependence, and denial of service attacks.
- Unit testing Phase, we coded/conducted custom unit tests written for each function in the contract to verify that each function works as expected.
- Automated Test performed with our in-house developed tools to identify vulnerabilities and security flaws of the Smart Contract.

The focus of the audit was to verify that the Smart Contract System is secure, resilient, and working according to the specifications. The audit activities can be grouped in the following three categories:

Security

Identifying security related issues within each contract and the system of contract.

Sound Architecture

Evaluation of the architecture of this system through the lens of established smart contract best practices and general software best practices.

Code Correctness and Quality

A full review of the contract source code. The primary areas of focus include:

- Accuracy
- Readability
- Sections of code with high complexity
- Quantity and quality of test coverage

Risk Classification

Vulnerabilities are classified in 3 main levels as below based on possible effect to the contract.

High level vulnerability

Vulnerabilities on this level must be fixed immediately as they might lead to fund and data loss and open to manipulation. Any High-level finding will be highlighted with **RED** text

Medium level vulnerability

Vulnerabilities on this level also important to fix as they have potential risk of future exploit and manipulation. Any Medium-level finding will be highlighted with **ORANGE** text

Low level vulnerability

Vulnerabilities on this level are minor and may not affect the smart contract execution. Any Low-level finding will be highlighted with **BLUE** text

Vulnerability Checklist

Nº	Description.	Result
1	Compiler warnings.	Passed
2	Race conditions and Re-entrancy. Cross-function race conditions.	Passed
3	Possible delays in data delivery.	Passed
4	Oracle calls.	Passed
5	Front running.	Passed
6	Timestamp dependence.	Passed
7	Integer Overflow and Underflow.	Passed
8	DoS with Revert.	Passed
9	DoS with block gas limit.	Passed
10	Methods execution permissions.	Passed
11	Economy model.	Passed
12	The impact of the exchange rate on the logic.	Passed
13	Private user data leaks.	Passed
14	Malicious Event log.	Passed
15	Scoping and Declarations.	Passed
16	Uninitialized storage pointers.	Passed
17	Arithmetic accuracy.	Passed
18	Design Logic.	Passed
19	Cross-function race conditions.	Passed
20	Safe Zeppelin module.	Passed
21	Fallback function security.	Passed

Manual Audit:

For this section the code was tested/read line by line by our developers. Additionally, Remix IDE's JavaScript VM and Kovan networks used to test the contract functionality.

Automated Audit

Remix Compiler Warnings

It throws warnings by Solidity's compiler. No issues found.



Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. To get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us based on what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed. If you have any doubt about the Genuity for this document please check qr code:

