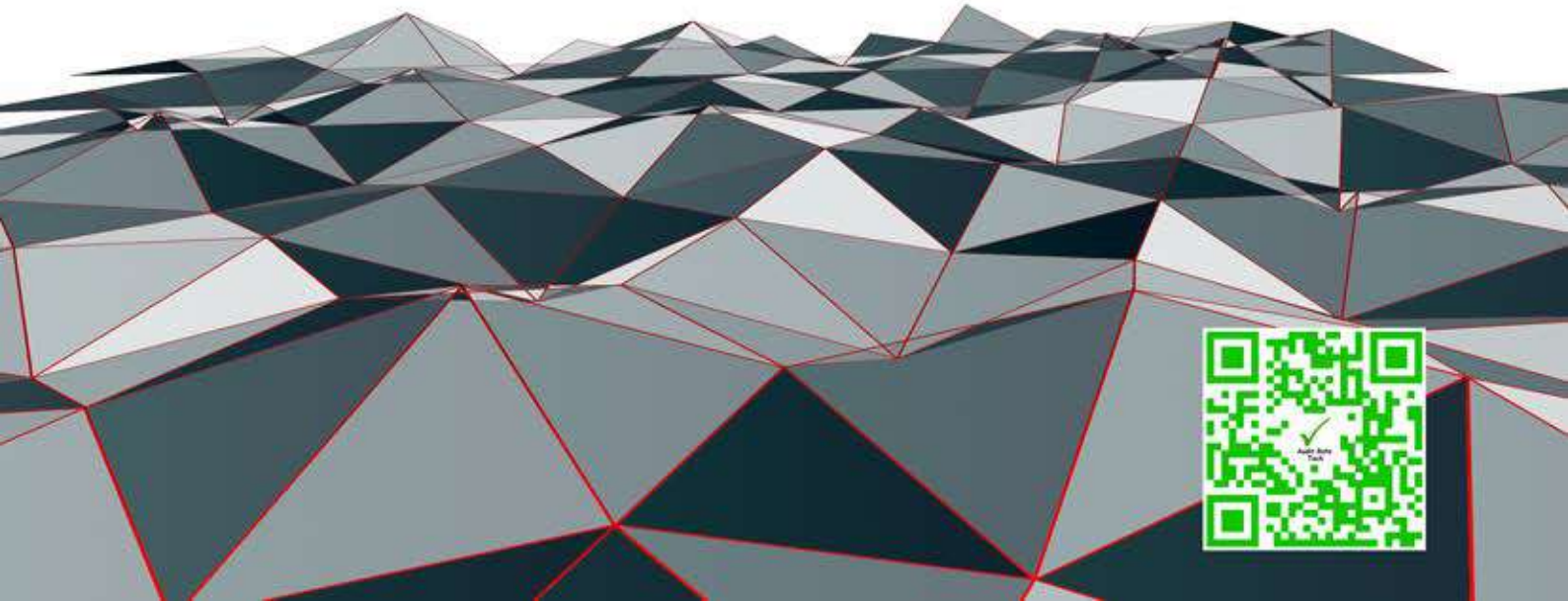
Smart Contract Security Audit

AUDIT RATE TECH

for

FREEBIRD



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. In order 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 on the basis of 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.

Audit details:

Audited project: FREEBIRD

Total supply: 2,000,000,000,000

Token ticker: FREEBIRD

Decimals: 18

Contract address: 0xaed0e84e1B54040119d8d4e47b244e8E4F5634A9

Languages: Solidity (Smart contract)

Platforms and Tools: Remix IDE, Truffle, Truffle Team, Ganache, Solhint, VScode, Mythril, Contract Library

Compiler Version: v0.8.7+commit.e28d00a7

Optimization Enabled: No with 200 runs

Contract Deployer Address: 0x4c8Ceb6f0378050A4288B814b3102aD70262EDEF

Blockchain: MATIC

Project website: https://www.decentrelon.com/

The audit items and results:

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

Audit Result: Passed

Audit Date: July 05, 2022

Audit Team: AUDIT RATE TECH

https://www.auditrate.tech/

Introduction

This Audit Report mainly focuses on the overall security of FREEBIRD Smart Contract.
With this report, we have tried to ensure the reliability and correctness of their smart contract by complete and rigorous assessment of their system's architecture and the smart contract codebase.

Auditing Approach and Methodologies applied

The AUDIT RATE TECH team has performed rigorous testing of the project starting with analyzing the code design patterns in which we reviewed the smart contract architecture to ensure it is structured and safe use of third-party smart contracts and libraries.
Our team then performed a formal line by line inspection of the Smart Contract to find any potential issue like race conditions, transaction-ordering dependence, timestamp dependence, and denial of service attacks.
In the Unit testing Phase, we coded/conducted custom unit tests written for each function in the contract to verify that each function works as expected.
In Automated Testing, we tested the Smart Contract with our in-house developed tools to identify vulnerabilities and security flaws.
The code was tested in collaboration of our multiple team members and this included -

- Testing the functionality of the Smart Contract to determine proper logic has been followed throughout the whole process.
- Analyzing the complexity of the code in depth and detailed, manual review of the code, lineby-line.
- Deploying the code on testnet using multiple clients to run live tests.
- Analyzing 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.
- Analyzing the security of the on-chain data.

Audit Goals

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

Issue Categories

Every issue in this report was assigned a severity level from the following:
High level severity issues
Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.
Medium level severity issues
Issues on this level could potentially bring problems and should eventually be fixed.
Low level severity issues
Issues on this level are minor details and warnings that can remain unfixed but would be better fixed at some point in the future.

Manual Audit:

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

Automated Audit

Remix Compiler Warnings
It throws warnings by Solidity's compiler. If it encounters any errors the contract cannot be compiled and deployed. No issues found.

Issues Checking Status

SWC ID	Description	Checking status
SWC-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 Ether Withdrawal	Passed
SWC-106	Unprotected SELFDESTRUCT Instruction	Passed
SWC-107	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 Verification	Passed
SWC-123	Requirement Violation	Passed
SWC-124	Write to Arbitrary Storage Location	Passed
SWC-125	Incorrect Inheritance Order	Passed
SWC-126	Insufficient Gas Griefing	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 Ether balance	Passed
SWC-133	Hash Collisions With Multiple Variable Length Arguments	Passed
SWC-134	Message call with hardcoded gas amount	Passed
SWC-135	Code With No Effects	Passed
SWC-136	Unencrypted Private Data On-Chain	Passed

Admin privileges

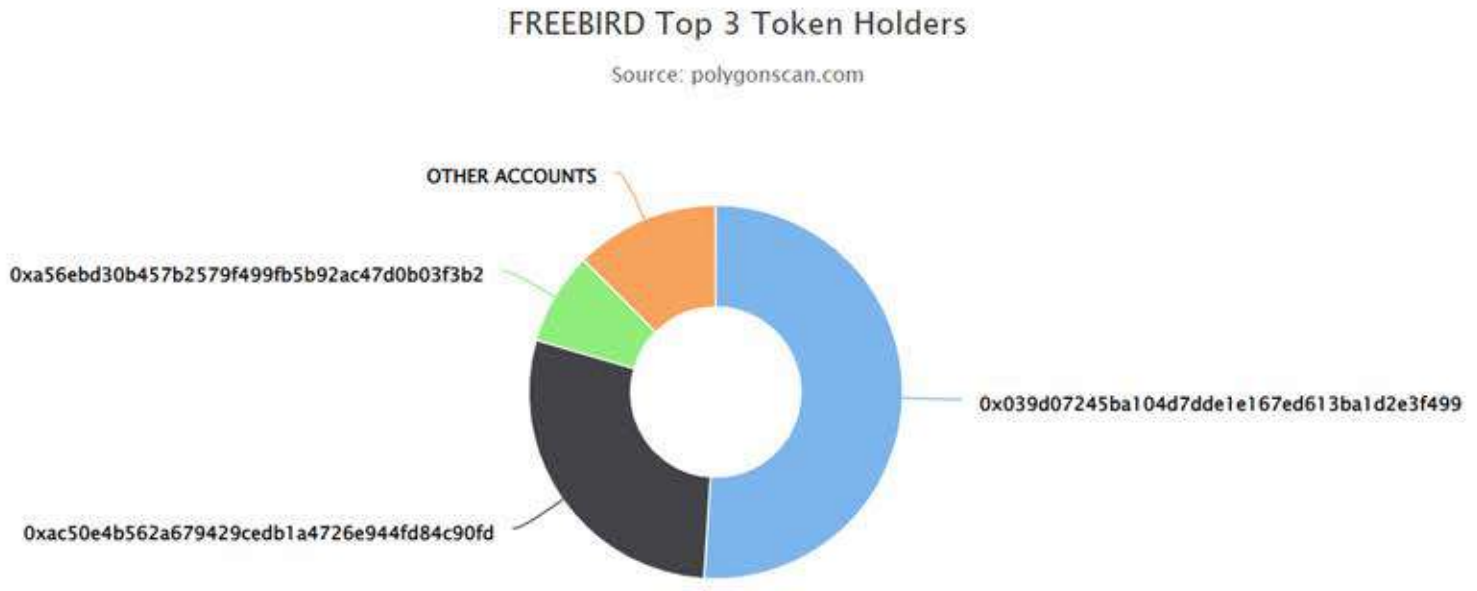
968 enableTrading
975 relinquishControl
983 addTempAdmin
997 removeTempAdmin
1019 setAdmin
1291 withdraw

Top Token Holders

At the time of the audit

The top 3 holders collectively own 87.50% (1,750,000,000,000.00 Tokens) of FREEBIRD

Token Total Supply: 2,000,000,000,000.00 Token | Total Token Holders: 6



(A total of 1,750,000,000,000.00 tokens held by the top 3 accounts from the total supply of 2,000,000,000,000.00 token)

Rank	Address	Quantity (Token)	Percentage
1	0x039d07245ba104d7dde1e167ed613ba1d2e3f499	1,020,000,000,000	51.0000%
2	0xac50e4b562a679429cedb1a4726e944fd84c90fd	570,000,000,000	28.5000%
3	0xa56ebd30b457b2579f499fb5b92ac47d0b03f3b2	160,000,000,000	8.0000%

KYC/Doxx

At the time of the audit, there is no information about the conduct of KYC / Doxx

Owner cannot set fees

Owner cannot mint, but he can appoint a temporary administrator who can mint tokens

```
function mint(address to, uint256 amount)
    external
    onlyApproved(amount) {
    require(to != address(0x0), "ERR:ZA"); // ZA => Zero Address
    require(amount > 0, "ERR:MA"); // MA => Mint Amount
    if (tempAdminAllowed[msg.sender]) {
       tempAdminTokensMinted[msg.sender] += amount;}
    _mint(to, amount);
    emit MintedTokens(to, amount);    }
```

Owner cannot set max tx amount

Owner cannot pause trading

Note:

Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner. The analysis of the contract does not give complete security and includes only the analysis that is indicated in the report. We do not analyze locked tokens or LP tokens, the presence of KYC in other companies, and so on. Also, our audit is not a recommendation for investment. All responsibility for the loss of investment lies with you!