



FAIRYPROOF

# REX Token

## AUDIT REPORT

Version 1.0.0

Serial No. 2022052200022019

Presented by Fairyproof

May 22, 2022

# 01. Introduction

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This document includes the results of the audit performed by the Fairyproof team on the REX Token project.

**Audit Start Time:**

May 21, 2022

**Audit End Time:**

May 21, 2022

**Token's Name:**

Runex

**Token's Symbol:**

REX

**Token's Precision:**

18

**Audited Source File's Address:**

<https://etherscan.io/address/0x5bf844122db21ae6f787ddda9806aa7dd6489998#code>

The goal of this audit is to review REX's token issuance function, study potential security vulnerabilities, its general design and architecture, and uncover bugs that could compromise the software in production.

We make observations on specific areas of the code that present concrete problems, as well as general observations that traverse the entire codebase horizontally, which could improve its quality as a whole.

This audit only applies to the specified code, software or any materials supplied by the REX team for specified versions. Whenever the code, software, materials, settings, environment etc is changed, the comments of this audit will no longer apply.

## — Disclaimer

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Note that as of the date of publishing, the contents of this report reflect the current understanding of known security patterns and state of the art regarding system security. You agree that your access and/or use, including but not limited to any associated services, products, protocols, platforms, content, and materials, will be at your sole risk.

The review does not extend to the compiler layer, or any other areas beyond the programming language, or other programming aspects that could present security risks. If the audited source files are smart contract files, risks or issues introduced by using data feeds from off-chain sources are not extended by this review either.

Given the size of the project, the findings detailed here are not to be considered exhaustive, and further testing and audit is recommended after the issues covered are fixed.

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## — The REX Team's Consent/Acknowledgement:

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The audited materials of the project including but not limited to the documents, home site, source code, etc are all developed, deployed, managed, and maintained outside Mainland CHINA.

The members of the team, the foundation, and all the organizations that participate in the audited project are not Mainland Chinese residents.

The audited project doesn't provide services or products for Mainland Chinese residents.

## — Methodology

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The above files' code was studied in detail in order to acquire a clear impression of how the its specifications were implemented. The codebase was then subject to deep analysis and scrutiny, resulting in a series of observations. The problems and their potential solutions are discussed in this document and, whenever possible, we identify common sources for such problems and comment on them as well.

The Fairyproof auditing process follows a routine series of steps:

1. Code review that includes the following
  - i. Review of the specifications, sources, and instructions provided to Fairyproof to make sure we understand the size, scope, and functionality of the project's source code.
  - ii. Manual review of code, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
  - iii. Comparison to specification, which is the process of checking whether the code does what the specifications, sources, and instructions provided to Fairyproof describe.

2. Testing and automated analysis that includes the following:
  - i. Test coverage analysis, which is the process of determining whether the test cases are actually covering the code and how much code is exercised when we run the test cases.
  - ii. Symbolic execution, which is analyzing a program to determine what inputs cause each part of a program to execute.
3. Best practices review, which is a review of the source code to improve maintainability, security, and control based on the established industry and academic practices, recommendations, and research.

## — Structure of the document

This report contains a list of issues and comments on all the above source files. Each issue is assigned a severity level based on the potential impact of the issue and recommendations to fix it, if applicable. For ease of navigation, an index by topic and another by severity are both provided at the beginning of the report.

## — Documentation

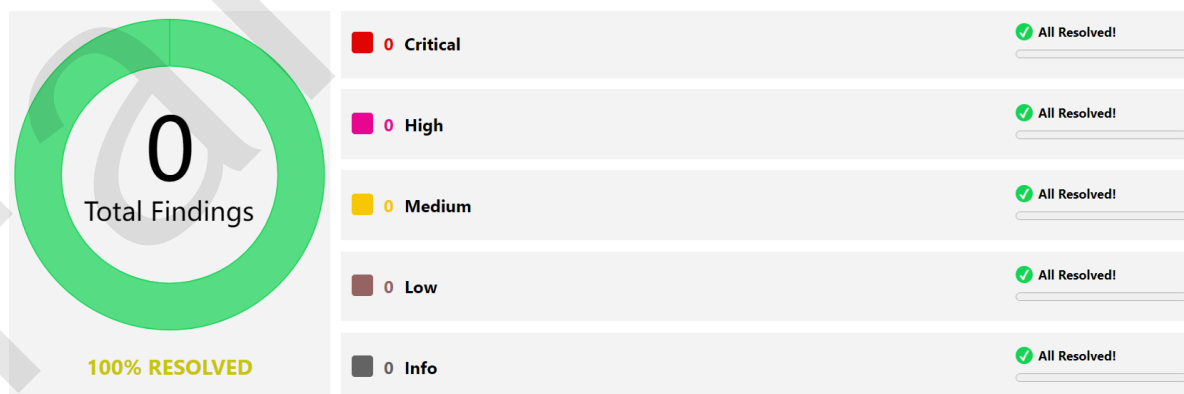
For this audit, we used the following source of truth about how the token issuance should work:

<https://etherscan.io/address/0x5bf844122db21ae6f787ddd9806aa7dd6489998#code>

This was considered the specification.

## — Comments from Auditor

Serial Number	Auditor	Audit Time	Result
2022052200022019	Fairyproof Security Team	May 21, 2022 - May 21, 2022	Passed



Summary:

The Fairyproof security team used its auto analysis tools and manual work to audit the project. During the audit, no issues were discovered.

## 02. About Fairyproof

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[Fairyproof](#) is a leading technology firm in the blockchain industry, providing consulting and security audits for organizations. Fairyproof has developed industry security standards for designing and deploying blockchain applications.

## 03. Major functions of audited code

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The audited code mainly implements a token issuance function:

Token Name: Runex

Token Symbol: REX

Token Precision: 18

Max Supply: 300,000,000

Mint/Burn: No additional mintage, no publicly accessible burning function

Transfer Pause/Freeze: Transfer cannot be paused or frozen.

Burn on Transaction: No

Misc: No

## 04. Coverage of issues

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The issues that the Fairyproof team covered when conducting the audit include but are not limited to the following ones:

- Re-entrancy Attack
- Replay Attack
- Reordering Attack
- Miner's Advantage
- Rollback Attack

- DDos Attack
- Transaction Ordering Attack
- Race Condition
- Access Control
- Integer Overflow/Underflow
- Timestamp Attack
- Gas Consumption
- Inappropriate Callback Function
- Function Visibility
- Implementation Vulnerability
- Uninitialized Storage Pointer
- Arithmetic Precision
- Tx.origin
- Fake Deposit
- Shadow Variable
- Design Vulnerability
- Token Issuance
- Admin Rights
- Inappropriate Proxy Design
- Inappropriate Use of Slots
- Asset Security
- Contract Upgrade/Migration
- Code Improvement
- Misc

## 05. Severity level reference

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Every issue in this report was assigned a severity level from the following:

**Critical** severity issues need to be fixed as soon as possible.

**High** severity issues will probably bring problems and should be fixed.

**Medium** severity issues could potentially bring problems and should eventually be fixed.

**Low** severity issues are minor details and warnings that can remain unfixed but would be better fixed at some point in the future.

**Informational** is not an issue or risk but a suggestion for code improvement.

## 06. Major areas that need attention

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Based on the provided source code the Fairyproof team focused on the possible issues and risks related to the following functions or areas.

### - Integer Overflow/Underflow

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We checked all the code sections, which had arithmetic operations and might introduce integer overflow or underflow if no safe libraries were used. All of them used safe libraries.

We didn't find issues or risks in these functions or areas at the time of writing.

### - Access Control

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We checked each of the functions that could modify a state, especially those functions that could only be accessed by "owner".

We didn't find issues or risks in these functions or areas at the time of writing.

### - Token Issurance

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We checked whether or not the contract files could mint tokens at will.

We didn't find issues or risks in these functions or areas at the time of writing.

### - State Update

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We checked some key state variables which should only be set at initialization.

We didn't find issues or risks in these functions or areas at the time of writing.

### - Asset Security

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We checked whether or not all the functions that transfer assets were safely handled.

We didn't find issues or risks in these functions or areas at the time of writing.

### - Miscellaneous

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We didn't find issues or risks in other functions or areas at the time of writing.

## 07. List of issues by severity

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### A. Critical

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- N/A

### B. High

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- N/A

### C. Medium

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- N/A

### D. Low

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- N/A

## 08. Issue descriptions

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- N/A

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## 09. Recommendations to enhance the overall security

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We list some recommendations in this section. They are not mandatory but will enhance the overall security of the system if they are adopted.



- N/A

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Fairyproof



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