IBS Token

AUDIT REPORT

Version 1.0.0

Serial No. 20221026000012018

Presented by Fairyproof

October 26, 2022

01. Introduction

This document includes the results of the audit performed by the Fairyproof team on the IBS token project.

Audit Start Time:

October 26, 2022

Audit End Time:

October 26, 2022

Audited Source File' Link:

https://bscscan.com/address/0x57D2A45653B329FAc354B04cEAd92C4db71cF09f#code

The goal of this audit is to review IBS team' solidity implementation for its 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 IBS team for specified versions. Whenever the code, software, materials, settings, environment etc is changed, the comments of this audit will no longer apply.

— Disclaimer

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 offchain 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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— Methodology

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, Including:

- Project Diagnosis

Understanding the size, scope and functionality of your project's source code based on the specifications, sources, and instructions provided to Fairyproof.

- Manual Code Review

Reading your source code line-by-line to identify potential vulnerabilities.

- Specification Comparison

Determining whether your project's code successfully and efficiently accomplishes or executes its functions according to the specifications, sources, and instructions provided to Fairyproof.

2. Testing and Automated Analysis, Including:

- Test Coverage Analysis

Determining whether the test cases cover your code and how much of your code is exercised or executed when test cases are run.

- Symbolic Execution

Analyzing a program to determine the specific input that causes different parts of a program to execute its functions.

3. Best Practices Review

Reviewing the source code to improve maintainability, security, and control based on the latest 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

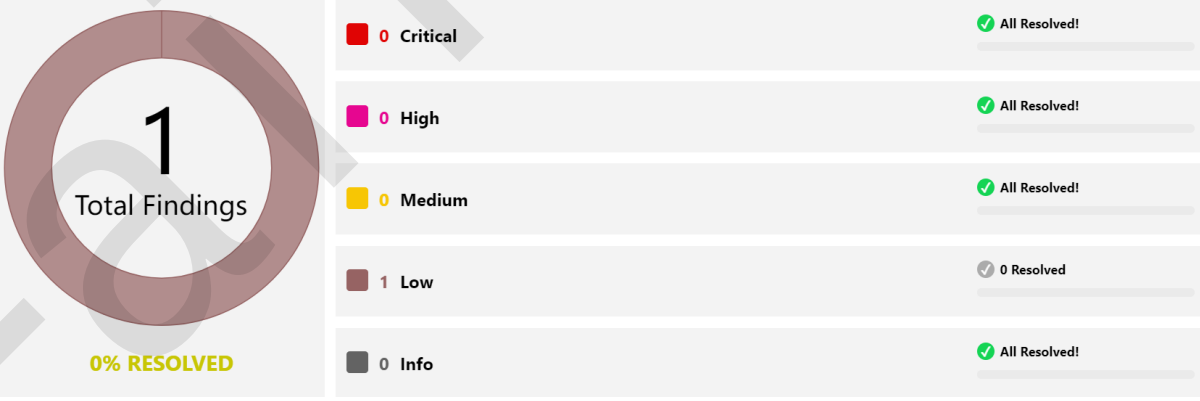
For this audit, we used the following sources of truth about how the token issuance system should work:

https://bscscan.com/address/0x57D2A45653B329FAc354B04cEAd92C4db71cF09f#code

This was considered the specification, and when discrepancies arose with the actual code behavior, we consulted with the IBS team or reported an issue.

— Comments from Auditor

Serial Number	Auditor	Audit Time	Result
2022102600012018	Fairyproof Team	Oct 26, 2022 - Oct 26, 2022	Low Severity



Summary:

The Fairyproof security team used its auto analysis tools and manual work to audit the project. During the audit, one issue of low-severity has been found and has been acknowledged by the IBS team.

02. About Fairyproof

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

The audited code implements an token issuance function and here are the details:

- Token Address: 0x57D2A45653B329FAc354B04cEAd92C4db71cF09f (BNB chain)
- Token Standard: ERC-20
- Name: IBStoken
- Symbol: IBS
- Decimals: 18
- Max Supply: 1,500,000,000
- Transfer Can be Paused: Yes
- Misc: No

Note: the contract has a transfer pause function. The IBS team can pause token transfers.

04. Coverage of issues

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
- Injection 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

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

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

- Function Implementation

We checked whether or not the functions were correctly implemented.

We found one issue, for more details please refer to FP-1 in "08. Issue description".

- Integer Overflow/Underflow

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

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 Issuance & Exchange

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

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

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

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

07. List of issues by severity

Index	Title	Issue/Risk	Severity	Status
FP-1	Incomplete Blacklist Function	Implementation Vulnerability	Low	Acknowledged

08. Issue descriptions

[FP-1] Incomplete Blacklist Function Low Acknowledged

Issue/Risk: Implementation Vulnerability

description:

The contract has a blacklist function. The blacklisted addresses cannot transfer the IBS token. However the function implemented in `transferFrom` is incomplete. Here is the code section:

```
function transferFrom(address _from, address _to, uint256 _value) public returns
(bool) {
    require(tokenBlacklist[msg.sender] == false);
    require(_to != address(0));
    require(_value <= balances[_from]);
    require(_value <= allowed[_from][msg.sender]);

    balances[_from] = balances[_from].sub(_value);
    balances[_to] = balances[_to].add(_value);
    allowed[_from][msg.sender] = allowed[_from][msg.sender].sub(_value);
    emit Transfer(_from, _to, _value);
    return true;
  }
```

Based on the above implementation, it works for a blacklisted contract address. However if an EOA address is added to the blacklist, this address can still call the function to transfer the IBS token.

Recommendation:

Consider adding a `require` directive `require(tokenBlacklist[_from] == false);`

Update/Status:

The IBS team has acknowledged this issue but hasn't had a plan to enable the blacklist function.

09. Recommendations to enhance the overall security

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

- Consider transferring the admin's access control to a multi-sig wallet or DAO to prevent a single-point of failure.

Appendices

- N/A

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