Token

Smart Contract Audit Report Prepared for GuildFi

Date Issued:	Dec 8, 2021
Project ID:	AUDIT2021044
Version:	v2.0
Confidentiality Level:	Public

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Report Information

Project ID	AUDIT2021044
Version	v2.0
Client	GuildFi
Project	Token
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Reviewer	Weerawat Pawanawiwat
Confidentiality Level	Public

Version History

Version	Date	Description	Author(s)
2.0	Dec 8, 2021	Update project information	Pongsakorn Sommalai
1.0	Nov 9, 2021	Full report	Pongsakorn Sommalai

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1. Executive Summary

As requested by GuildFi, Inspex team conducted an audit to verify the security posture of the Token smart contract on Nov 9, 2021. During the audit, Inspex team examined all smart contracts and the overall operation within the scope to understand the overview of the Token smart contract. Static code analysis, dynamic analysis, and manual review were done in conjunction to identify smart contract vulnerabilities together with technical & business logic flaws that may be exposed to the potential risk of the platform and the ecosystem. Practical recommendations are provided according to each vulnerability found and should be followed to remediate the issue.

1.1. Audit Result

In the current assessment, Inspex found no issue in the smart contract within the scope. The Token smart contract is well-designed with effective protections in place. Inspex certifies that Token smart contact has passed Inspex's security verification standard, making it safe from most attacks.

This smart contract passes Inspex's security verification standard, and is trustworthy.

Approved by Inspex on Nov 9, 2021

1.2. Disclaimer

This security audit is not produced to supplant any other type of assessment and does not guarantee the discovery of all security vulnerabilities within the scope of the assessment. However, we warrant that this audit is conducted with goodwill, professional approach, and competence. Since an assessment from one single party cannot be confirmed to cover all possible issues within the smart contract(s), Inspex suggests conducting multiple independent assessments to minimize the risks. Lastly, nothing contained in this audit report should be considered as investment advice.

2. Project Overview

2.1. Project Introduction

GuildFi is an interconnected ecosystem of games, communities, and NFT assets for maximizing yields and enabling interoperability across the Metaverse.

The GuildFi Token is the main token of the GuildFi platform that is based on OpenZeppelin's ERC20.

Scope Information:

Project Name	Token
Website	https://guildfi.com/
Smart Contract Type	Ethereum Smart Contract
Chain	Ethereum
Programming Language	Solidity

Audit Information:

Audit Method	Whitebox
Audit Date	Nov 9, 2021
Reassessment Date	-

The audit method can be categorized into two types depending on the assessment targets provided:

1. **Whitebox**: The complete source code of the smart contracts are provided for the assessment.
2. **Blackbox**: Only the bytecodes of the smart contracts are provided for the assessment.

2.2. Scope

The following GuildFi Token smart contract was fully audited:

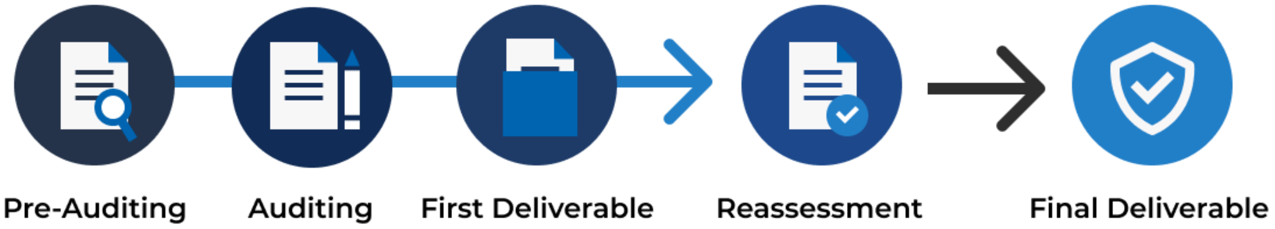
GFToken.sol

```
//SPDX-License-Identifier: MIT
pragma solidity 0.8.9;

import { ERC20 } from "@openzeppelin/contracts/token/ERC20/ERC20.sol";

contract GuildFiToken is ERC20("GuildFi Token", "GF") {
  constructor() {
    _mint(msg.sender, 1_000_000_000 ether);
  }
}
```

3. Methodology

Inspex conducts the following procedure to enhance the security level of our clients' smart contracts:

1. **Pre-Auditing**: Getting to understand the overall operations of the related smart contracts, checking for readiness, and preparing for the auditing
2. **Auditing**: Inspecting the smart contracts using automated analysis tools and manual analysis by a team of professionals
3. **First Deliverable and Consulting**: Delivering a preliminary report on the findings with suggestions on how to remediate those issues and providing consultation
4. **Reassessment**: Verifying the status of the issues and whether there are any other complications in the fixes applied
5. **Final Deliverable**: Providing a full report with the detailed status of each issue



3.1. Test Categories

Inspex smart contract auditing methodology consists of both automated testing with scanning tools and manual testing by experienced testers. We have categorized the tests into 3 categories as follows:

1. **General Smart Contract Vulnerability (General)** - Smart contracts are analyzed automatically using static code analysis tools for general smart contract coding bugs, which are then verified manually to remove all false positives generated.
2. **Advanced Smart Contract Vulnerability (Advanced)** - The workflow, logic, and the actual behavior of the smart contracts are manually analyzed in-depth to determine any flaws that can cause technical or business damage to the smart contracts or the users of the smart contracts.
3. **Smart Contract Best Practice (Best Practice)** - The code of smart contracts is then analyzed from the development perspective, providing suggestions to improve the overall code quality using standardized best practices.

3.2. Audit Items

The following audit items were checked during the auditing activity.

General
Reentrancy Attack
Integer Overflows and Underflows
Unchecked Return Values for Low-Level Calls
Bad Randomness
Transaction Ordering Dependence
Time Manipulation
Short Address Attack
Outdated Compiler Version
Use of Known Vulnerable Component
Deprecated Solidity Features
Use of Deprecated Component
Loop with High Gas Consumption
Unauthorized Self-destruct
Redundant Fallback Function
Insufficient Logging for Privileged Functions
Invoking of Unreliable Smart Contract
Use of Upgradable Contract Design
Advanced
Business Logic Flaw
Ownership Takeover
Broken Access Control
Broken Authentication
Improper Kill-Switch Mechanism

Improper Front-end Integration
Insecure Smart Contract Initiation
Denial of Service
Improper Oracle Usage
Memory Corruption
Best Practice
Use of Variadic Byte Array
Implicit Compiler Version
Implicit Visibility Level
Implicit Type Inference
Function Declaration Inconsistency
Token API Violation
Best Practices Violation

3.3. Risk Rating

OWASP Risk Rating Methodology[1] is used to determine the severity of each issue with the following criteria:

- **Likelihood**: a measure of how likely this vulnerability is to be uncovered and exploited by an attacker.
- **Impact**: a measure of the damage caused by a successful attack

Both likelihood and impact can be categorized into three levels: **Low**, **Medium**, and **High**.

Severity is the overall risk of the issue. It can be categorized into five levels: **Very Low**, **Low**, **Medium**, **High**, and **Critical**. It is calculated from the combination of likelihood and impact factors using the matrix below. The severity of findings with no likelihood or impact would be categorized as **Info**.

Likelihood Impact	Low	Medium	High
Low	Very Low	Low	Medium
Medium	Low	Medium	High
High	Medium	High	Critical

4. Summary of Findings

From the assessment, no issue was found in the GuildFi Token smart contract.

5. Detailed Findings Information

From the assessment, no issue was found in the GuildFi Token smart contract.

6. Appendix

6.1. About Inspex

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Inspex is formed by a team of cybersecurity experts highly experienced in various fields of cybersecurity. We provide blockchain and smart contract professional services at the highest quality to enhance the security of our clients and the overall blockchain ecosystem.

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6.2. References

[1] “OWASP Risk Rating Methodology.” [Online]. Available: https://owasp.org/www-community/OWASP_Risk_Rating_Methodology. [Accessed: 08-May-2021]

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