

Audit Report November, 2024



For



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# **Executive Summary**

Project Name MangaChain Token

Project URL <a href="https://mchain-1.onrender.com/">https://mchain-1.onrender.com/</a>

Overview Manga Token is a ERC721A NFT contract It implements a tiered

minting system with whitelist functionality and profit sharing among owners. The contract has a specific mint date and operates

in periods, with different minting rules for different user

categories. There are 10 owner wallets configured at deployment, with 5 of them receiving shares of the profits from a total of 10,000

shares (SHARES\_DIVISOR). The base price for minting is set at 0.0000001 ETH. The minting process is structured in phases: first, a

team wallet can mint 10 NFTs, then 10 owner wallets can mint 1 NFT each during a specific period, followed by Silver and Gold

whitelist holders getting access at a discounted rate, and finally opening to the public. The contract includes standard NFT

functionality like tokenURI handling

Audit Scope The Scope of the Audit is to Analyse the Security,Code Quality and

Correctness of MangaChain Token Contract.

Contracts In-Scope <a href="https://github.com/LeAurelienX/SmartContractMangachain/blob/">https://github.com/LeAurelienX/SmartContractMangachain/blob/</a>

main/src/MyToken.sol

Branch: Main

Commit Hash 007c0cc

**Language** Solidity

**Blockchain** Ethereum

Method Manual Analysis, Functional Testing, Automated Testing

First Review 18th November 2024 - 24th November 2024

**Updated Code Received** 26th November 2024



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# **Executive Summary**

Second Review 26th November 2024

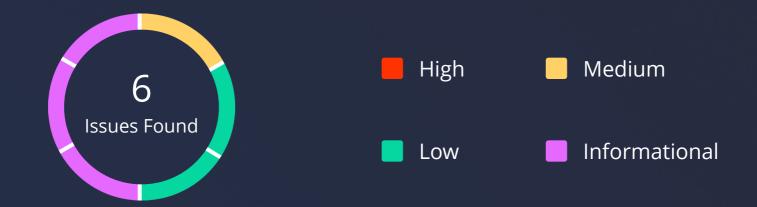
Fixed In <a href="https://github.com/LeAurelienX/SmartContractMangachain.git">https://github.com/LeAurelienX/SmartContractMangachain.git</a>

Commit: 4318fad "Audit Correction"



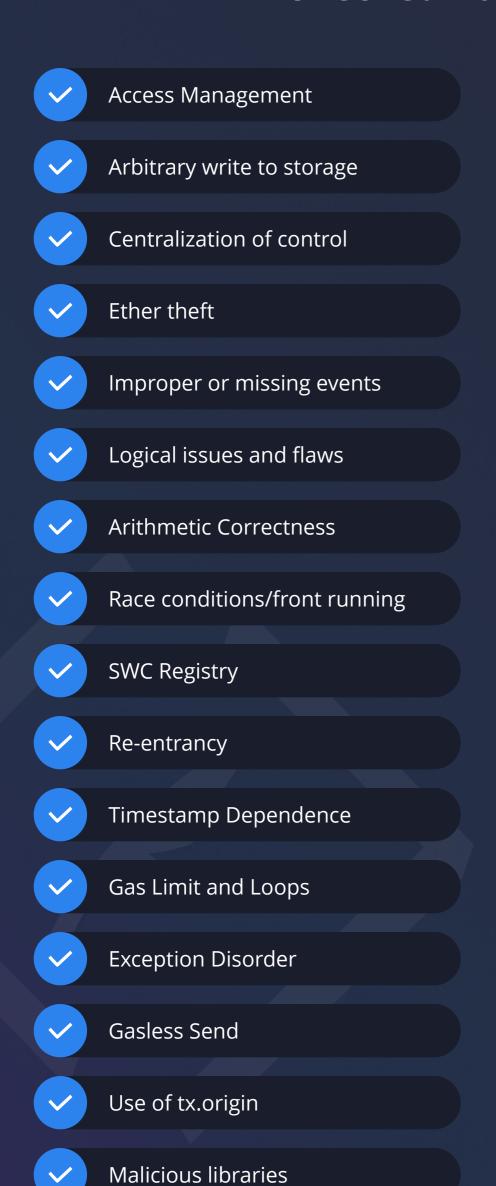
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# **Number of Security Issues per Severity**



	High	Medium	Low	Informational
Open Issues	0	0	0	0
Acknowledged Issues	0	0	0	0
Partially Resolved Issues	0	0	0	0
Resolved Issues	0	1	2	3

# **Checked Vulnerabilities**



<b>✓</b>	Compiler version not fixed
<b>Y</b>	Address hardcoded
<b>Y</b>	Divide before multiply
<b>✓</b>	Integer overflow/underflow
<b>Y</b>	ERC's conformance
<b>Y</b>	Dangerous strict equalities
V	Tautology or contradiction
<b>V</b>	Return values of low-level calls
V	Missing Zero Address Validation
<b>V</b>	Private modifier
~	Revert/require functions
~	Multiple Sends
~	Using suicide
<b>✓</b>	Using delegatecall
~	Upgradeable safety

Using throw



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# **Checked Vulnerabilities**

Using inline assembly

Style guide violation

Unsafe type inference

Implicit visibility level

06

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# **Techniques and Methods**

Throughout the audit of smart contracts, care was taken to ensure:

- The overall quality of code.
- Use of best practices.
- Code documentation and comments, match logic and expected behavior.
- Token distribution and calculations are as per the intended behavior mentioned in the whitepaper.
- Implementation of ERC standards.
- Efficient use of gas.
- Code is safe from re-entrancy and other vulnerabilities.

The following techniques, methods, and tools were used to review all the smart contracts.

#### **Structural Analysis**

In this step, we have analyzed the design patterns and structure of smart contracts. A thorough check was done to ensure the smart contract is structured in a way that will not result in future problems.

#### **Static Analysis**

A static Analysis of Smart Contracts was done to identify contract vulnerabilities. In this step, a series of automated tools are used to test the security of smart contracts.

#### **Code Review / Manual Analysis**

Manual Analysis or review of code was done to identify new vulnerabilities or verify the vulnerabilities found during the static analysis. Contracts were completely manually analyzed, their logic was checked and compared with the one described in the whitepaper. Besides, the results of the automated analysis were manually verified.

#### **Gas Consumption**

In this step, we have checked the behavior of smart contracts in production. Checks were done to know how much gas gets consumed and the possibilities of optimization of code to reduce gas consumption.

#### **Tools and Platforms used for Audit**

Remix IDE, Foundry, Solhint, Mythril, Slither, Solidity statistic analysis.



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#### **Types of Severity**

Every issue in this report has been assigned to a severity level. There are four levels of severity, and each of them has been explained below.

#### **High Severity Issues**

A high severity issue or vulnerability means that your smart contract can be exploited. Issues on this level are critical to the smart contract's performance or functionality, and we recommend these issues be fixed before moving to a live environment.

#### **Medium Severity Issues**

The issues marked as medium severity usually arise because of errors and deficiencies in the smart contract code. Issues on this level could potentially bring problems, and they should still be fixed.

#### **Low Severity Issues**

Low-level severity issues can cause minor impact and are just warnings that can remain unfixed for now. It would be better to fix these issues at some point in the future.

#### **Informational**

These are four severity issues that indicate an improvement request, a general question, a cosmetic or documentation error, or a request for information. There is low-to-no impact.

#### **Types of Issues**

#### **Open**

Security vulnerabilities identified that must be resolved and are currently unresolved.

#### **Resolved**

These are the issues identified in the initial audit and have been successfully fixed.

## **Acknowledged**

Vulnerabilities which have been acknowledged but are yet to be resolved.

## **Partially Resolved**

Considerable efforts have been invested to reduce the risk/impact of the security issue, but are not completely resolved.

## **Medium Severity Issues**

## 1. Anyone in the whitelist is able to call withdraw

#### **Path**

MyToken.sol

### **Function**

withdraw()

## **Description**

The withdraw() function intents to withdraw funds for first five owners.

However, isOwners modifier allows all 10 of them to call.

This is not the expected behavior since it allows anyone apart from first five owner to call withdraw

## Recommendation

Limit the call so that first 5 owners can call withdraw

#### **Status**

**Resolved** 

## **Low Severity Issues**

## 2. Lack of error message in modifier

#### **Path**

MyToken.sol

## **Function**

onlyDeployer()

## **Description**

The onlyDeployer modifier doesn't include an error message, leading to a default "revert" without clarity.

### Recommendation

Add a message: require(msg.sender == deployer, "Caller is not the deployer");

### **Status**

**Resolved** 

## 3. \_updateOwnerInfos should have an added safety check

#### **Path**

MyToken.sol

### **Function**

\_updateOwnerInfos

## **Description**

The \_updateOwnerInfos function assumes that the newOwnerInfos array contains exactly 10 elements, but this is not enforced with a require statement.

This can lead to unintended behavior if an incorrect array length is passed during deployment.

#### Recommendation

Add a

require(newOwnerInfos.length == 10, "Must provide exactly 10 owner infos");
check in \_updateOwnerInfos

#### **Status**

**Resolved** 

## **Informational Issues**

#### 4. Redundant Whitelist Entry

#### **Path**

MyToken.sol

#### **Function**

\_setupWhiteLists()

### **Description**

The \_setupWhiteLists function has duplicate entries for some addresses (e.g., 0xAb8483F64d9C6d1EcF9b849Ae677dD3315835cb2 and 0x4B20993Bc481177ec7E8f571ceCaE8A9e22C02db .

#### Recommendation

Remove duplicate addresses.

#### **Status**

**Resolved** 

#### 5. Redundant State Variable

#### **Path**

MyToken.sol

## **Description**

If the whitelist functionality is hardcoded and there's no intention to use Merkle trees, remove silverMerkleRoot and goldMerkleRoot to simplify the contract. This will save gas cost by removing state variables

#### Recommendation

Remove merkle root state variables

#### **Status**

**Resolved** 



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## 6. Redundant fallback function

## **Description**

Both fallback and receive functions are present but don't implement distinct behaviors, making one redundant.

## Recommendation

Retain only the receive function if no specific behavior is needed for non-ETH calls.

#### **Status**

Resolved

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## **Automated Tests**

No major issues were found. Some false positive errors were reported by the tools. All the other issues have been categorized above according to their level of severity.

# **Closing Summary**

In this report, we have considered the security of MangaChain Token. We performed our audit according to the procedure described above.

Some issues of medium and informational severity were found. Some suggestions, gas optimizations and best practices are also provided in order to improve the code quality and security posture. In the End, MangaChain Team Resolved It.

## Disclaimer

QuillAudits Smart contract security audit provides services to help identify and mitigate potential security risks in MangaChain Token. However, it is important to understand that no security audit can guarantee complete protection against all possible security threats. QuillAudits audit reports are based on the information provided to us at the time of the audit, and we cannot guarantee the accuracy or completeness of this information. Additionally, the security landscape is constantly evolving, and new security threats may emerge after the audit has been completed.

Therefore, it is recommended that multiple audits and bug bounty programs be conducted to ensure the ongoing security of MangaChain Token. One audit is not enough to guarantee complete protection against all possible security threats. It is important to implement proper risk management strategies and stay vigilant in monitoring your smart contracts for potential security risks.

QuillAudits cannot be held liable for any security breaches or losses that may occur subsequent to and despite using our audit services. It is the responsibility of MangaChain Token to implement the recommendations provided in our audit reports and to take appropriate steps to mitigate potential security risks.

# **About QuillAudits**

QuillAudits is a leading name in Web3 security, offering top-notch solutions to safeguard projects across DeFi, GameFi, NFT gaming, and all blockchain layers. With six years of expertise, we've secured over 1000 projects globally, averting over \$30 billion in losses. Our specialists rigorously audit smart contracts and ensure DApp safety on major platforms like Ethereum, BSC, Arbitrum, Algorand, Tron, Polygon, Polkadot, Fantom, NEAR, Solana, and others, guaranteeing your project's security with cutting-edge practices.



**1000+**Audits Completed



**\$30B**Secured



**1M+**Lines of Code Audited



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