



verichains

SECURITY AUDIT OF
ECIO LOCK TOKEN SMART
CONTRACTS



Public Report

Dec 24, 2021

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Driving Technology > Forward

ABBREVIATIONS

Name	Description
Ethereum	An open source platform based on blockchain technology to create and distribute smart contracts and decentralized applications.
Ether (ETH)	A cryptocurrency whose blockchain is generated by the Ethereum platform. Ether is used for payment of transactions and computing services in the Ethereum network.
Smart contract	A computer protocol intended to digitally facilitate, verify or enforce the negotiation or performance of a contract.
Solidity	A contract-oriented, high-level language for implementing smart contracts for the Ethereum platform.
Solc	A compiler for Solidity.
ERC20	ERC20 (BEP20 in Binance Smart Chain or xRP20 in other chains) tokens are blockchain-based assets that have value and can be sent and received. The primary difference with the primary coin is that instead of running on their own blockchain, ERC20 tokens are issued on a network that supports smart contracts such as Ethereum or Binance Smart Chain.



EXECUTIVE SUMMARY

This Security Audit Report prepared by Verichains Lab on Dec 24, 2021. We would like to thank the ECIO for trusting Verichains Lab in auditing smart contracts. Delivering high-quality audits is always our top priority.

This audit focused on identifying security flaws in code and the design of the ECIO Lock Token Smart Contracts. The scope of the audit is limited to the source code files provided to Verichains. Verichains Lab completed the assessment using manual, static, and dynamic analysis techniques.

During the audit process, the audit team had identified no vulnerable issue in the contract code.

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1. MANAGEMENT SUMMARY

1.1. About ECIO Lock Token Smart Contracts

ECIO is filled with fun and exciting gameplay elements & an immersive gaming experience with story-rich gameplay. Aside from the game itself, the ECIO ecosystem will be complemented with a Comic amongst others, which will reveal the background story of our game. Discover how the different races are fighting an intense battle for freedom & power. In a galaxy engulfed in war, you must train yourself to be the deadliest warrior.

As a first in blockchain gaming, ECIO allows you to join forces with a friend and expand your Space Crew from 3 to 6 members. Challenge other crew in the team arena or battle in survival mode to earn more rewards.

ECIO's goal is to deliver the best gaming experience for players. We focus on the entertainment factors of the gameplay which will reflect in the sustainable economic growth. Through this, ECIO aims to reach a long-term business interest for everyone involved.

1.2. Audit scope

This audit focused on identifying security flaws in code and the design of the ECIO Lock Token Smart Contracts.

It was conducted on commit [313206e8df0941c623d8894d91266daad05088c8](#) from git repository <https://github.com/EcioSpace/LockTokens>.

The following files were made available in the course of the review:

SHA256 SUM	FILE
907fa47924723db6cb3acc6de0dde5a2d5635b57fd9c479da845da422f036d70	ECIOLockToken.sol

1.3. Audit methodology

Our security audit process for smart contract includes two steps:

- Smart contract codes are scanned/tested for commonly known and more specific vulnerabilities using public and RK87, our in-house smart contract security analysis tool.
- Manual audit of the codes for security issues. The contracts are manually analyzed to look for any potential problems.

Following is the list of commonly known vulnerabilities that was considered during the audit of the smart contract:

- Integer Overflow and Underflow
- Timestamp Dependence
- Race Conditions
- Transaction-Ordering Dependence
- DoS with (Unexpected) revert
- DoS with Block Gas Limit
- Gas Usage, Gas Limit and Loops
- Redundant fallback function
- Unsafe type Inference
- Reentrancy
- Explicit visibility of functions state variables (external, internal, private and public)
- Logic Flaws

For vulnerabilities, we categorize the findings into categories as listed in table below, depending on their severity level:

SEVERITY LEVEL	DESCRIPTION
CRITICAL	A vulnerability that can disrupt the contract functioning; creates a critical risk to the contract; required to be fixed immediately.
HIGH	A vulnerability that could affect the desired outcome of executing the contract with high impact; needs to be fixed with high priority.
MEDIUM	A vulnerability that could affect the desired outcome of executing the contract with medium impact in a specific scenario; needs to be fixed.
LOW	An issue that does not have a significant impact, can be considered as less important.

Table 1. Severity levels

1.4. Disclaimer

Please note that security auditing cannot uncover all existing vulnerabilities, and even an audit in which no vulnerabilities are found is not a guarantee for a 100% secure smart contract. However, auditing allows discovering vulnerabilities that were unobserved, overlooked during development and areas where additional security measures are necessary.

2. AUDIT RESULT

2.1. Overview

The ECIO Lock Token Smart Contracts was written in [Solidity](#) language, with the required version to be [>=0.8.0](#) [<0.9.0](#). Almost all source codes in the ECIO Lock Token Smart Contracts are imported from OpenZeppelin contracts.

The contract extends [Ownable](#) and [ReentrancyGuard](#) contracts. With [Ownable](#), by default, Token Owner is contract deployer, but he can transfer ownership to another address at any time. The contract implements a lock mechanism to lock and release tokens for the owner according to the schedule.

2.2. Findings

During the audit process, the audit team had identified no vulnerable issue in the contract code.

APPENDIX

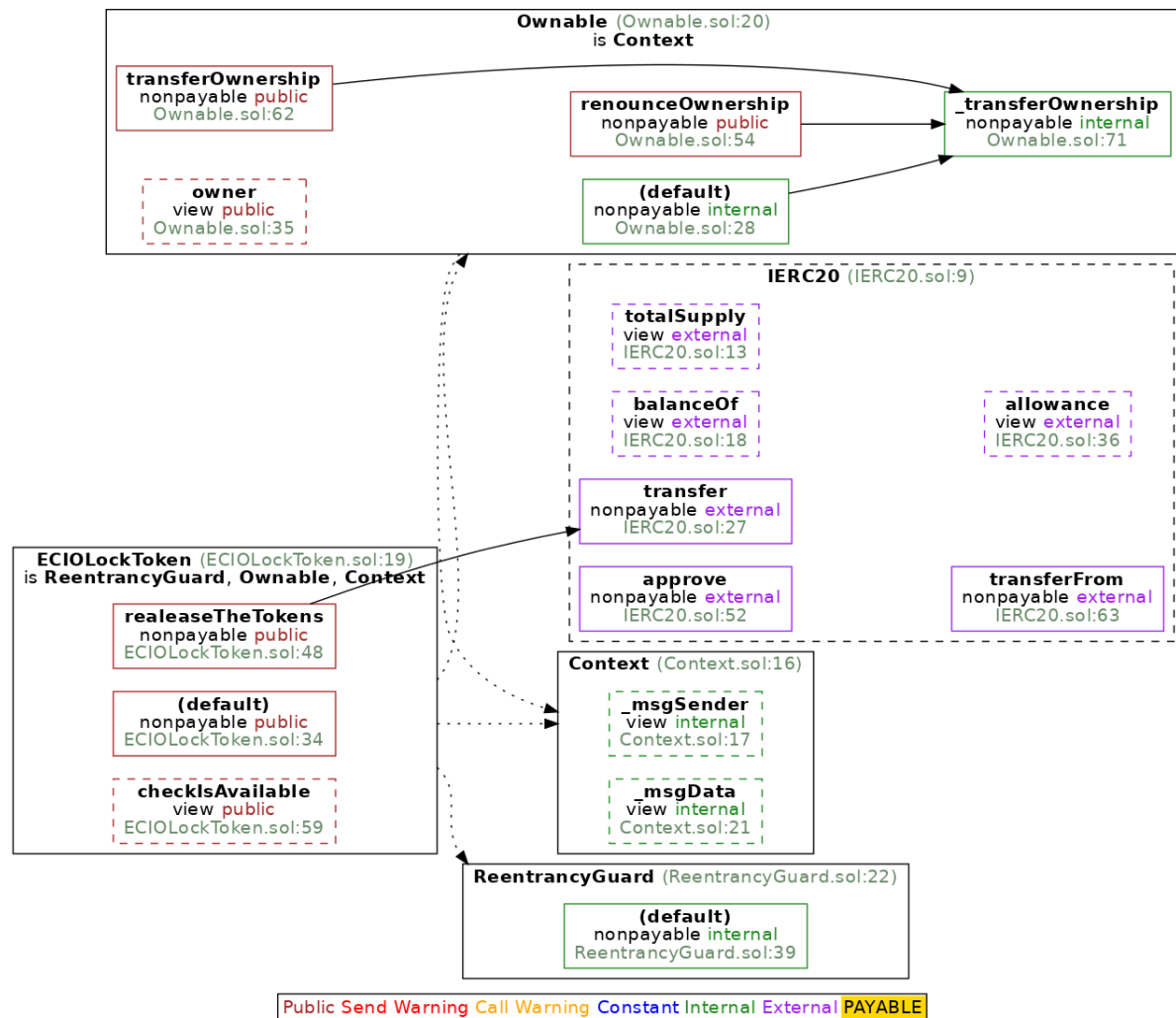


Image 1. Lock Token call graph

Report for ECIO

Security Audit – ECIO Lock Token Smart Contracts

Version: 1.0 - Public Report

Date: Dec 24, 2021



3. VERSION HISTORY

Version	Date	Status/Change	Created by
1.0	<i>Dec 24, 2021</i>	Public Report	Verichains Lab

Table 2. Report versions history