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SECURITY AUDIT OF

M-CITY TOKEN SMART CONTRACT

Public Report

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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 *x*RP20 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 Jun 29, 2022. We would like to thank the M-City 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 M-City Token Smart Contract. 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 issues in the smart contracts code.

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1. MANAGEMENT SUMMARY

1.1. About M-City Token Smart Contract

M-City - the Metaverse platform encourages experiencing the world of entertainment, traveling, social meeting,... that brings the world to you.

M-City is built to become the most surreal Metaverse world, where users can enjoy the social media and realistic activities of modern life, all in a single 3D game. In M-City, you can meet up with friends, play competitive games, while also profit from real estates investing, and more to go!

1.2. Audit scope

This audit focused on identifying security flaws in code and the design of the M-City Token Smart Contract.

The audited contract is the M-City Token Smart Contract that deployed on Binance Smart Chain Mainnet at address 0x964a99bc2edd0f09fc059332f0fd9da3012253a0. The details of the deployed smart contract are listed in Table 1.

FIELD	VALUE
Contract Name	MCityTokens
Contract Address	0x964a99bc2edd0f09fc059332f0fd9da3012253a0
Compiler Version	v0.8.14+commit.80d49f37
Optimization Enabled	No with 200 runs
Explorer	*https://bscscan.com/address/0x964a99bc2edd0f09fc059332f0fd9da3012253a0*

Table 1. The deployed smart contract details

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 2. 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 M-City Token Smart Contract was written in Solidity language, with the required version to be 0.8.14.

The MCityToken contract extends Context, ERC20Burnable, AccessControlEnumerable and ERC20Pausable contract. With AccessControlEnumerable, by default, the contract deployer has DEFAULT_ADMIN_ROLE and PAUSER_ROLE roles. PAUSER_ROLE can pause/unpause the contract using ERC20Pausable contract, users can only transfer unlocked tokens and only when the contract is not paused. ERC20Burnable allows token holders to destroy both their own tokens and those that they have an allowance for.

The contract also implements a bunch of blacklist functions which allow DEFAULT_ADMIN_ROLE to block some suspect accounts.

Table 3 lists some properties of the audited M-City Token Smart Contract (as of the report writing time).

PROPERTY	VALUE
Name	M-City Token
Symbol	MCT
Decimals	18
Total Supply	500,000,000 (x10^{18}) Note: the number of decimals is 18, so the total representation token will be 500,000,000 or 500 million.

Table 3. The M-City Token Smart Contract properties

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2.2. Findings

During the audit process, the audit team found no vulnerability in the given version of M-City Token Smart Contract.

APPENDIX

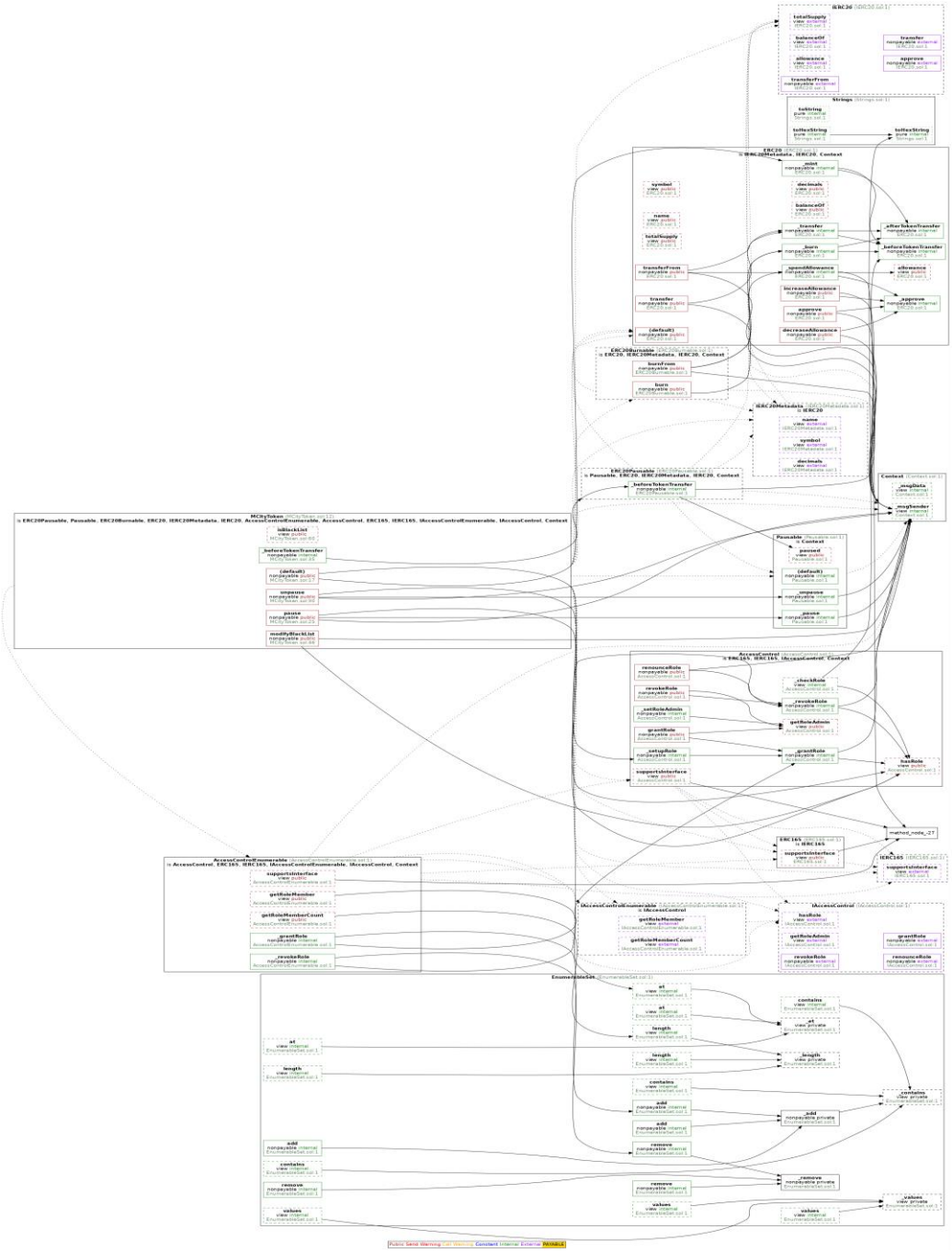

Image 1. M-City Token Smart Contract call graph

3. VERSION HISTORY

Version	Date	Status/Change	Created by
1.0	*Jun 29, 2022*	Public Report	Verichains Lab

Table 4. Report versions history