

# MAGACOIN FINANCE

smart contracts  
final audit report

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# 1. Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the disclaimer below - please make sure to read it in full.

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## 2. Overview

HashEx was commissioned by the Magacoin team to perform an audit of their smart contract. The audit was conducted between 15/03/2025 and 19/03/2025.

The purpose of this audit was to achieve the following:

- Identify potential security issues with smart contracts
- Formally check the logic behind given smart contracts.

Information in this report should be used for understanding the risk exposure of smart contracts, and as a guide to improving the security posture of smart contracts by remediating the issues that were identified.

The code is available in the Sepolia testnet at [0xE78a5D27aC8A2F2c0ce90486eD075bD584dCf9D6](#) and [0xFE979f253a29a780D13849CE9252F44cf9772304](#).

The contracts are deployed with [TransparentUpgradeableProxy](#) from OpenZeppelin repository. The audited implementations are available at [0x201Ea7f721015c06DF2C48141a50b60aec01497a](#) (MagaToken) and [0xC142ac4174cF2d65c48D3cD8C59D74566b95FbB3](#) (MagaSale).

Update. The contracts were deployed to Ethereum mainnet with [TransparentUpgradeableProxy](#) to addresses [0x4fd6b7af49597ad1103bba25694de772ee44db7e](#) and [0x2e2b809a3c46b20bab4177b8d1068ff29f926adb](#). The audited implementations at Ethereum mainnet are available at [0x808B888092400BB8BA84eee4D74492AE9bE7649A](#) and [0x87152A700A40f55Ec5113Fb8a42eA8c53D8f3140](#).

## 2.1 Summary

Project name	MAGACOIN FINANCE
URL	<a href="https://magacoinfinance.com">https://magacoinfinance.com</a>
Platform	Ethereum
Language	Solidity
Centralization level	● High
Centralization risk	● High

## 2.2 Contracts

Name	Address
MagaToken	0x808B888092400BB8BA84eee4D74492AE9bE7649A
MagaSale	0x87152A700A40f55Ec5113Fb8a42eA8c53D8f3140

### 3. Project centralization risks

The project contracts are designed to be deployed with [proxies](#). Users have no choice but to trust the owners, who can update the contracts at their will.

We recommend secure the ownership with combination of timelock as updater and multisig smart account as Timelock's admin.

#### Ca4CR3f Owner privileges

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The owner can upgrade the token implementation to mint new tokens or manipulate existing balances.

The owner can pause and unpaue all transfers unless sender is included in the whitelist.

#### Ca5CR40 Owner privileges

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The owner can upgrade the implementation to modify contract's logic.

The owner can update signer's list and minimum required signatures.

The owner can update payment receiving address.

Ther owner can transfer out ERC20 tokens from contract's balance.

## 4. Found issues



● Low

4 (50%)

● Info

4 (50%)

### Ca4. MagaToken

ID	Severity	Title	Status
Ca4l25	● Low	Gas optimizations	🕒 Acknowledged
Ca4l26	● Low	Inconsistent token name and symbol	✅ Resolved
Ca4l24	● Info	Missing disableInitializers in constructor	🕒 Acknowledged

### Ca5. MagaSale

ID	Severity	Title	Status
Ca5l20	● Low	Gas optimizations	🕒 Acknowledged
Ca5l21	● Low	Lack of input validation	🕒 Acknowledged
Ca5l23	● Info	Lack of monitoring tools	🕒 Acknowledged
Ca5l27	● Info	Incorrect nonReentrant modifier placement	🕒 Acknowledged

Ca5l22

● Info

Events parameters

☑ Acknowledged



## 5. Contracts

### Ca4. MagaToken

#### Overview

An [ERC20](#) standard token contract. The initial supply is fixed, i.e. there's no active minting functionality after deployment. The token contract is inherited from OpenZeppelin's ERC20 implementation, which is considered the best practice.

#### Issues

##### Ca4I25 Gas optimizations

 Low Acknowledged

The function `initialize()` can be declared as `external` instead of `public`.

##### Ca4I26 Inconsistent token name and symbol

 Low Resolved

The contract is initialized with the name **"MAGACOIN"** and symbol **"MAGACOIN"**, but it overrides these values with **"MAGACOIN FINANCE"** and **"MAGAFINANCE"** in the `name()` and `symbol()` functions.

According to the provided documentation, the expected token name should be **"MAGACOIN FINANCE"** and the symbol should be **"MAGAFINANCE"**, but these values are not reflected in the contract.

#### Recommendation

Provide the correct name and symbol from documentation, remove unnecessary `name()` and `symbol()` overrides.

## Ca4I24 Missing disableInitializers in constructor

● Info

✔ Acknowledged

The contract lacks a call to `_disableInitializers()` in the constructor. If the contract deployed as a non-proxy, anyone can call `initialize()` after deployment and set himself as the owner of the contract.

```
constructor() {  
    //  
}
```

### Recommendation

Modify the constructor to include `_disableInitializers()` to prevent unintended re-initialization:

```
constructor() {  
    _disableInitializers();  
}
```

## Ca5. MagaSale

### Overview

A sale contract allowing users to buy or claim ERC20 tokens (MagaToken) for one of supported payment methods (stablecoins or native ETH).

The purchase prices are defined by authorized signer's, i.e., a backend service.

## Issues

### Ca5I20 Gas optimizations

● Low

☑ Acknowledged

1. Unnecessary reads from storage in the `isPaymentToken()` function: payment token status could be checked by using a mapping.
2. Unnecessary `if(...) return true else return false` condition in the `isPaymentToken()` function.

### Ca5I21 Lack of input validation

● Low

☑ Acknowledged

In the `changeMinSignatures()`, there's no safety check against `minSignatures` being greater than total number of signers. Setting it incoherent would cause a malfunction of signing authorization requiring additional operations from default admins.

### Ca5I23 Lack of monitoring tools

● Info

☑ Acknowledged

The basic version of the `AccessControl` contract does not allow to get all members of certain roles. The [AccessControlEnumerable](#) extension contains additional getters.

### Ca5I27 Incorrect nonReentrant modifier placement

● Info

☑ Acknowledged

The `nonReentrant` modifier is placed after other modifiers in function declarations, reducing its effectiveness as a security control. When `nonReentrant` is not the first modifier, other modifiers may execute code before the reentrancy guard is activated, potentially allowing reentrancy attacks.

```
function recoverERC20(
    address token,
    uint256 amount
) external onlyRole(DEFAULT_ADMIN_ROLE) nonReentrant {...}
```

## Ca5I22 Events parameters

● Info

☑ Acknowledged

Emitted events don't use indexed parameters, which could be useful for off-chain monitoring.

For example, **Claim** and **Buy** events could use user address as indexed parameter to allow reconstruction of user's history.

## 6. Conclusion

4 low severity issues were found during the audit. 1 low issue was resolved in the update. The reviewed contracts are highly dependent on the owner's account. See the centralization risks chapter.

This audit includes recommendations on code improvement and the prevention of potential attacks.

## Appendix A. Issues' severity classification

- **Critical.** Issues that may cause an unlimited loss of funds or entirely break the contract workflow. Malicious code (including malicious modification of libraries) is also treated as a critical severity issue. These issues must be fixed before deployments or fixed in already running projects as soon as possible.
- **High.** Issues that may lead to a limited loss of funds, break interaction with users, or other contracts under specific conditions. Also, issues in a smart contract, that allow a privileged account the ability to steal or block other users' funds.
- **Medium.** Issues that do not lead to a loss of funds directly, but break the contract logic. May lead to failures in contracts operation.
- **Low.** Issues that are of a non-optimal code character, for instance, gas optimization tips, unused variables, errors in messages.
- **Informational.** Issues that do not impact the contract operation. Usually, informational severity issues are related to code best practices, e.g. style guide.

## Appendix B. Issue status description

- ✔ **Resolved.** The issue has been completely fixed.
- 🔄 **Partially fixed.** Parts of the issue have been fixed but the issue is not completely resolved.
- 🕒 **Acknowledged.** The team has been notified of the issue, no action has been taken.
- ❓ **Open.** The issue remains unresolved.

## Appendix C. List of examined issue types

- Business logic overview
- Functionality checks
- Following best practices
- Access control and authorization
- Reentrancy attacks
- Front-run attacks
- DoS with (unexpected) revert
- DoS with block gas limit
- Transaction-ordering dependence
- ERC/BEP and other standards violation
- Unchecked math
- Implicit visibility levels
- Excessive gas usage
- Timestamp dependence
- Forcibly sending ether to a contract
- Weak sources of randomness
- Shadowing state variables
- Usage of deprecated code



## Appendix D. Centralization risks classification

### Centralization level

- **High.** The project owners can manipulate user's funds, lock user's funds on their will (reversible or irreversible), or maliciously update contracts parameters or bytecode.
- **Medium.** The project owners can modify contract's parameters to break some functions of the project contract or contracts, but user's funds remain withdrawable.
- **Low.** The contract is trustless or its governance functions are safe against a malicious owner.

### Centralization risk

- **High.** Lost ownership over the project contract or contracts may result in user's losses. Contract's ownership belongs to EOA or EOAs, and their security model is unknown or out of scope.
- **Medium.** Contract's ownership is transferred to a contract with not industry-accepted parameters, or to a contract without an audit. Also includes EOA with a documented security model, which is out of scope.
- **Low.** Contract's ownership is transferred to a well-known or audited contract with industry-accepted parameters.

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