

Dexmex

ERC20 Token Audit



The Blockchain Auditor

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Summary of Findings

This document expresses all security concerns of the Dexmex Smart ERC20 Contract as expressed by Jorge Martinez. I took care to attempt to find as many ways to improve the security, code efficiency, best practices, and overall function of the smart contracts.

Contract Status: Safe to Use

Contract is deployed at the following address:

0x0020d80229877b495D2bf3269a4c13f6f1e1B9D3

0 Critical Issue(s) found were found.

0 Medium Issue(s) were found.

0 Low Issue(s) were found.

0 Informational Issue(s) were found.

Solidity Code Coverage

Jorge's Test Suite	Dexmex	Industry Standard
100%	0%	95%

For this audit, I wasn't provided with a testing suite but as part of my audit methodology I developed a test suite to verify the functionality of the ERC20 contract, check its security, and to help reveal any underlying issues.

This audit should be seen as one step in the development process with the intent of raising awareness on the meticulous work involved in secure development and making no material statements or guarantees to the operational state of the smart contract(s) once they are deployed. This document is not an endorsement of the reliability or effectiveness of the smart contracts. This is an assessment of the smart contract logic, implementation, and best practices. I cannot take responsibility for any potential consequences of the deployment or use of the smart contract(s) related to the audit.

Test Suite Results

Jorge's Test Suite

Dexmex ERC20 Security Test Suite

Deployment

- ✓ dexmex is locked upon deployment (380ms)
- ✓ Should have a total supply of 50,000,000

Lockability functionality

- ✓ should be lockable by the owner (68ms)
- ✓ should be unlockable by the owner

Whitelist functionality

- ✓ the contract owner can add users to whitelist
- ✓ the contract owner can remove users to whitelist

Trading Behavior

- ✓ when the contract is locked only the owner or addresses on the whitelist can trade (86ms)
- ✓ when the contract is unlocked everyone can trade (47ms)
- ✓ when the contract is locked only the owner or addresses on the whitelist can use transferFrom() (86ms)
- ✓ when the contract is unlocked any approved addresses can use transferFrom() (78ms)
- ✓ if an address is whitelisted, an approved address could tranfer tokens from the whitelisted address (47ms)

11 passing (873ms)

File	% Stmts	% Branch	% Funcs	% Lines	Uncovered Lines
contracts/ Dexmex.sol	100 100	100 100	100 100	100 100	
All files	100	100	100	100	

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Audit Methodology & Techniques

The BlockChain Auditor has the following auditing process:

1. Our audits include
 - a. Review of the specifications, source code, and instructions provided to the TheBlockchainAuditor to clearly identify the desired functionality of the smart contract(s).
 - b. Manual line by line review of contract code to spot potential vulnerabilities.
 - c. Identification of deviations between desired functionality expressed to the TheBlockchainAuditor and what the smart contract(s) are doing.
2. Automated static and symbolic analysis, as well as verifying testing coverage using the provided test suite.
 - a. Automated static and symbolic analysis help determine what inputs cause each part of the smart contract to execute. Analysis of how much of the code base is tested and comparison to industry standard.
3. Examination of smart contracts and development process as a whole, ensuring best practices are followed, allowing improved efficiency and security based on established industry and academic practices.
4. Specific, itemized, and actionable recommendations to assist in securing the smart contract(s) in question.

Contract Checklist

Dexmex.sol

Contract Vulnerability	
Integer Overflow	Pass
Race Condition	Pass
Denial of Service	Pass
Logical Vulnerability	Pass
Hardcoded Address	Pass
Function Input Parameter Check	Pass
Function Access Control Check	Pass
Random Number Generation	N/A
Random Number Use	N/A
Contract Specification	
Solidity Compiler Version	Pass
Event Use	Pass
Fallback Function Use	Pass
Constructor Use	Pass
Function Visibility Declaration	Pass
Variable Storage Declaration	Pass
Deprecated Keyword Use	Pass
ERC20/223 Standard	Pass
ERC721 Standard	N/A
Business Risk	
Able to Arbitrarily Create Token	N/A
Able to Arbitrarily Destroy Token	N/A
Can Suspend Transactions	Pass
Short Address Attack	Pass
Gas Optimization	
assert()/require()/revert() misused	Pass
Loop Optimization	Pass
Storage Optimization	Pass

Issue Classification



Critical

These issues in the smart contract can have catastrophic implications that could ruin your reputation, disrupt the contract's functionality, or impact the client and your users' sensitive information.



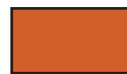
Informational

This issue relates to style and security best practices but does not pose an immediate risk.



Medium

An issue classified as medium has relatively small risk and isn't exploitable to circumvent desired functionality and could not have financial consequences but could put user's sensitive information at risk.



Acknowledged

The issue remains in the code but is a result of an intentional business or design decision.



Low

An issue classified as informational does not pose an immediate threat to disruption of functionality and could not be exploited on a recurring basis, however, it should be considered for security best practices or code integrity.



Unresolved

Although the client has been informed of the risk, it was decided to accept it because it was not relevant in the functionality of the smart contract.



Undetermined

The impact of the issue is uncertain and more investigation is required to understand the repercussions of the issue.



Mitigated

Actions were taken to minimize the impact or likelihood of the risk.

Executive Summary

Overall Thoughts

Since OpenZeppelin libraries were used extensively I was able to develop a test suite that focuses on what the team added to the standard ERC20 token contract which in this case is a whitelist, lockability, and overloaded transfer() and transferFrom() functions that interact with the whitelist and lockability. I was able to verify that the added mechanisms worked as intended. This token is EIP20 compliant so users will be able to transfer the token as expected. As mentioned, this token is lockable. It also only mints during deployment. If an exploit is found the owner of the token is able to lock transactions while they figure out what is going on. All in all as long as the user is aware of lockability then this contract should be fine.

Appendix A

File Fingerprints

Dexmex.sol

8276f2e58fb02e764b0097f1dc3fdbf6

The Blockchain Auditor is honored to have the opportunity to help verify the functionality and security for Dexmex ERC20 contract and help provide security for users of the token.

I look forward to seeing how Dexmex will do next.

The Blockchain Auditor

- Jorge Martinez

