CERTIK

Security Assessment

QANX

May 28th, 2021

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Summary

This report has been prepared for QANX smart contracts, to discover issues and vulnerabilities in the source code of their Smart Contract as well as any contract dependencies that were not part of an officially recognized library. A comprehensive examination has been performed, utilizing Static Analysis and Manual Review techniques.

The auditing process pays special attention to the following considerations:

- Testing the smart contracts against both common and uncommon attack vectors.
- Assessing the codebase to ensure compliance with current best practices and industry standards.
- Ensuring contract logic meets the specifications and intentions of the client.
- Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders.
- Thorough line-by-line manual review of the entire codebase by industry experts.

The security assessment resulted in findings that ranged from critical to informational. We recommend addressing these findings to ensure a high level of security standards and industry practices. We suggest recommendations that could better serve the project from the security perspective:

- Enhance general coding practices for better structures of source codes;
- Add enough unit tests to cover the possible use cases given they are currently missing in the repository;
- Provide more comments per each function for readability, especially contracts are verified in public;
- Provide more transparency on privileged activities once the protocol is live.

Overview

Project Summary

Project Name	QANX
Platform	BSC
Language	Solidity
Codebase	
Commits	

Audit Summary

Delivery Date	May 28, 2021
Audit Methodology	Static Analysis, Manual Review
Key Components	

Vulnerability Summary

Total Issues	1
● Critical	0
● Major	0
● Medium	0
● Minor	0
● Informational	1
● Discussion	0

Audit Scope

ID	file	SHA256 Checksum
QAN	QANX.sol	dc030374086f9ca83d6d606565d1cac7d3b545ba49e23fbd2a54f09e3b19978f

Findings

🟥 **Critical**			**0** (0.00%)	
🟧 **Major**			**0** (0.00%)	
🟨 **Medium**			**0** (0.00%)	
🟨 **Minor**			**0** (0.00%)	
🟦 **Informational**			**1** (100.00%)	
🟩 **Discussion**			**0** (0.00%)	

ID	Title	Category	Severity	Status
QAN-01	Functions Should Be Declared External	Language Specific	● Informational	⊘ Resolved

QAN-01 | Functions Should Be Declared External

Category	Severity	Location	Status
Language Specific	● Informational	QANX.sol: 151, 159, 176, 183, 190, 202, 210, 221, 239, 261, 280	⊘ Resolved

Description

Functions that are never called internally within the contract should have `external` visibility. For example,

- `ERC20.name()`
- `ERC20.symbol()`
- `ERC20.decimals()`
- `ERC20.totalSupply()`
- `ERC20.balanceOf(address)`
- `ERC20.transfer(address,uint256)`
- `ERC20.allowance(address,address)`
- `ERC20.approve(address,uint256)`
- `ERC20.transferFrom(address,address,uint256)`
- `ERC20.increaseAllowance(address,uint256)`
- `ERC20.decreaseAllowance(address,uint256)`

Recommendation

It is highly recommended to change the visibility of the aforementioned functions from `public` to `external`.

Alleviation

[QAN]: The team heeded our advice and resolved this issue by using `external` visibility for functions never called within the contract.

Appendix

Finding Categories

Language Specific

Language Specific findings are issues that would only arise within Solidity, i.e. incorrect usage of private or delete.

Checksum Calculation Method

The "Checksum" field in the "Audit Scope" section is calculated as the SHA-256 (Secure Hash Algorithm 2 with digest size of 256 bits) digest of the content of each file hosted in the listed source repository under the specified commit.

The result is hexadecimal encoded and is the same as the output of the Linux "sha256sum" command against the target file.

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About

Founded in 2017 by leading academics in the field of Computer Science from both Yale and Columbia University, CertiK is a leading blockchain security company that serves to verify the security and correctness of smart contracts and blockchain-based protocols. Through the utilization of our world-class technical expertise, alongside our proprietary, innovative tech, we're able to support the success of our clients with best-in-class security, all whilst realizing our overarching vision; provable trust for all throughout all facets of blockchain.