Quantstamp DRAFT

StakeWithUs Infrastructure Audit

Executive Summary

This audit report was prepared by Quantstamp, the leader in blockchain security.

Type	Staking-as-a-service infrastructure
Timeline	2023-10-03 through 2023-10-17
Language	TypeScript
Methods	Architecture Review, Computer-Aided Verification, Manual Review
Specification	None
Source Code	• stakewithus/eth-staking-fe #2fb0c6d • stakewithus/eth-staking-backend #3869c09 • stakewithus/eth-staking-playbook #e5df366 • stakewithus/eth-staking-orchestrator #4a4c9ab • stakewithus/eth-staking-nodes #93b24a9 • stakewithus/eth-staking-web3signer #fde91d3
Auditors	• Sebastian Banescu Senior Research Engineer • Pavel Shabarkin Auditing Engineer

Documentation quality	Medium	
Test quality	Undetermined	
Total Findings	16	Fixed: 11 Acknowledged: 3 Mitigated: 2
High severity findings ⓘ	1	Fixed: 1
Medium severity findings ⓘ	8	Fixed: 6 Acknowledged: 1 Mitigated: 1
Low severity findings ⓘ	5	Fixed: 4 Acknowledged: 1
Undetermined severity findings ⓘ	0	
Informational findings ⓘ	2	Acknowledged: 1 Mitigated: 1

Summary of Findings

This security review of the staking infrastructure shows that the StakeWithUs infrastructure misses a couple of industry security best practices. The Quantstamp team identified the security issues related to industry best practices that should be fixed in order to harden the infrastructure against slashing risks.

Assessment Breakdown

Quantstamp's objective was to evaluate the repository for security-related issues and best practices.

> **Disclaimer**
> Only features that are contained within the repositories at the commit hashes specified on the front page of the report are within the scope of the audit and fix review. All features added in future revisions of the code are excluded from consideration in this report.

Possible issues we looked for included (but are not limited to):

- Denial of service / logical oversights
- Access control
- Business logic contradicting the specification
- Key duplication
- Key rotation
- Insecure storage of credentials
- Downtime
- Infrastructure misconfiguration
- Privilege escalation

Methodology

1. Review of the specifications, sources, and instructions provided to Quantstamp to make sure we understand the size, scope, and functionality of the system.
2. A snapshot of the infrastructure was exported as text files. These files were subsequently checked for various security benchmarks (e.g. CIS, DoD Stig), and the results for each considered region are presented.

3. The templates were filled with values, and the resulting files were checked.
4. The individual files were checked against various benchmarks (e.g. CIS, DoD Stig).
5. Specific, itemized, and actionable recommendations to help you take steps to secure your infrastructure.

Definitions

- **High severity** – High-severity issues usually put a large number of users' sensitive information at risk, or are reasonably likely to lead to catastrophic impact for client's reputation or serious financial implications for client and users.
- **Medium severity** – Medium-severity issues tend to put a subset of users' sensitive information at risk, would be detrimental for the client's reputation if exploited, or are reasonably likely to lead to moderate financial impact.
- **Low severity** – The risk is relatively small and could not be exploited on a recurring basis, or is a risk that the client has indicated is low impact in view of the client's business circumstances.
- **Informational** – The issue does not post an immediate risk, but is relevant to security best practices or Defence in Depth.
- **Undetermined** – The impact of the issue is uncertain.
- **Fixed** – Adjusted program implementation, requirements or constraints to eliminate the risk.
- **Mitigated** – Implemented actions to minimize the impact or likelihood of the risk.
- **Acknowledged** – The issue remains in the code but is a result of an intentional business or design decision. As such, it is supposed to be addressed outside the programmatic means, such as: 1) comments, documentation, README, FAQ; 2) business processes; 3) analyses showing that the issue shall have no negative consequences in practice (e.g., gas analysis, deployment settings).

Changelog

- 2023-10-17 - Initial report

About Quantstamp

Quantstamp is a global leader in blockchain security. Founded in 2017, Quantstamp's mission is to securely onboard the next billion users to Web3 through its best-in-class Web3 security products and services.

Quantstamp's team consists of cybersecurity experts hailing from globally recognized organizations including Microsoft, AWS, BMW, Meta, and the Ethereum Foundation. Quantstamp engineers hold PhDs or advanced computer science degrees, with decades of combined experience in formal verification, static analysis, blockchain audits, penetration testing, and original leading-edge research.

To date, Quantstamp has performed more than 500 audits and secured over $200 billion in digital asset risk from hackers. Quantstamp has worked with a diverse range of customers, including startups, category leaders and financial institutions. Brands that Quantstamp has worked with include Ethereum 2.0, Binance, Visa, PayPal, Polygon, Avalanche, Curve, Solana, Compound, Lido, MakerDAO, Arbitrum, OpenSea and the World Economic Forum.

Quantstamp's collaborations and partnerships showcase our commitment to world-class research, development and security. We're honored to work with some of the top names in the industry and proud to secure the future of web3.

Notable Collaborations & Customers:

- Blockchains: Ethereum 2.0, Near, Flow, Avalanche, Solana, Cardano, Binance Smart Chain, Hedera Hashgraph, Tezos
- DeFi: Curve, Compound, Maker, Lido, Polygon, Arbitrum, SushiSwap
- NFT: OpenSea, Parallel, Dapper Labs, Decentraland, Sandbox, Axie Infinity, Illuvium, NBA Top Shot, Zora
- Academic institutions: National University of Singapore, MIT

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