

The Graph Delegation Cooldown Removal Incremental Audit



The Graph

November 8, 2023

Table of Contents

Table of Contents	2
Summary	3
Scope	4
Overview of Changes	4
Security Model and Trust Assumptions	5
Conclusions	6

Summary

Type	DeFi	Total Issues	0 (0 resolved)
Timeline	From 2023-10-30 To 2023-11-03	Critical Severity Issues	0 (0 resolved)
Languages	Solidity	High Severity Issues	0 (0 resolved)
		Medium Severity Issues	0 (0 resolved)
		Low Severity Issues	0 (0 resolved)
		Notes & Additional Information	0 (0 resolved)

Scope

We audited [pull request #866](#) of the [graphprotocol/contracts](#) repository at commit [f453249](#).

In scope were the following contracts:

```
graphprotocol/contracts
├── l2
│   └── staking
│       └── L2Staking.sol
└── staking
    ├── IStakingBase.sol
    ├── IStakingData.sol
    ├── IStakingExtension.sol
    ├── StakingExtension.sol
    ├── Staking.sol
    └── StakingStorage.sol
```

Overview of Changes

Commit [f453249](#) removes the cooldown feature for changing delegation parameters.

Previously, the indexers were able to set a cooldown period which would disallow the changing of parameters affecting delegators too frequently. For example, indexers may set the cooldown so that they cannot change the query fees and reward cut more frequently than what is specified. The feature was introduced as a good-faith mechanism to encourage trust between indexers and delegators on the Graph network.

However, this feature has been rarely used. It was used only once on the Arbitrum mainnet, and has remained unused on Ethereum since last year. It is also error-prone and may cause parameters to be locked for a long period if applied incorrectly. Due to these realizations and the fact that the default cooldown is already 0, the proposed changes aim to remove this feature entirely to reduce the overall complexity of the system and minimize configuration errors. We have validated that the default cooldown is indeed 0 on both layers currently, which means that the change will have no effect in most cases.

Security Model and Trust Assumptions

The removal of the cooldown feature for changing delegation parameters implies a slightly more trusted model between indexers and delegators. This implication arises from the fact that indexers may now change query fees and reward cut at any time. However, this impact is considered low since the cooldown was previously an opt-in feature by indexers and rarely used. Besides, indexers are already motivated to not change parameters too often as this would deter delegators from delegating to them in the future.

Conclusions

The Graph is a decentralized protocol for indexing and querying data from blockchain networks, making it easier for developers to access blockchain data without the need to run their own infrastructure. It allows developers to create and publish APIs, called subgraphs, that provide efficient and scalable access to blockchain data.

No issues were identified during the audit.

The Graph team were highly responsive and forthcoming throughout the audit period. They also helped the audit team understand the intended changes and analyze any potential issues.