

# Searcher Reputation

In order to maintain reliable performance, we've introduced searcher reputation to provide consistent access to the Flashbots block builder for searchers with a good performance track record during periods of heavy load. Reputation is one of many solutions currently being explored to make Flashbots infrastructure resilient against sophisticated Layer 7 attacks. The system described on this page is likely to change and we encourage you to participate in defining the direction it will take by engaging in the [discussion board](#).

## Reputation queues

The current reputation system is designed to classify searchers into a high reputation and low reputation queue. The high reputation queue is designed to filter out searchers who use an excessive amount of computation resources. Otherwise, both queues are identical.

## Reputation scoring

To determine which queue a searcher belongs to, Flashbots looks at their history of submissions to the builder. Specifically, Flashbots uses the following scoring function:

$$r(U) = \frac{\sum_{T \in H_U} (\Delta_{\text{coinbase}} T + g_T p_T)}{\sum_{T \in S_U} g_T} \quad r(U) = \frac{\sum_{T \in H_U} (\Delta_{\text{coinbase}} T + g_T p_T)}{\sum_{T \in S_U} g_T}$$

$$= \sum_{T \in S_U}$$

$$g_T$$

$$\sum_{T \in H_U} (\Delta_{\text{coinbase}} T$$

+

$g_T p_T)$   $r$ : searcher reputation score.  $H_U$ : set of all transactions submitted by searcher  $U$  to the `toeth_sendBundle` RPC and successfully landed on chain.  $S_U$ : set of all transactions submitted by searcher  $U$  to the `toeth_sendBundle` and `eth_callBundle` RPC.  $g_T$ : gas used by transaction  $T$ .  $p_T$ : gas price of transaction  $T$ .  $\Delta_{\text{coinbase}} T$ : coinbase difference from direct payment in transaction  $T$ .

## Querying reputation

Flashbots uses a dynamic threshold to classify users between the high reputation and low reputation queue. The dynamic variables are: 1) the historical time period considered to calculate reputation, 2) the cutoff reputation score which classifies a searcher as "high reputation". Using a dynamic threshold allows the builder to adapt in periods of high demand and maintain high reliability for top searchers.

A searcher can query their current reputation status using the [flashbots\\_getUserStatsV2 RPC method](#).

## Building reputation

Searcher reputation is associated with the signing key used to authenticate with Flashbots. That is, the ethereum address associated with the `X-Flashbots-Signature` field of your bundle submission.

As a searcher, the best way to improve your score is to only submit bundles/transactions which have a high likelihood of landing on chain. [Edit this page](#) Last updated on Jan 30, 2024 [Previous](#) [Bundle Pricing](#) [Next](#) [Testnets](#)