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## title: 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:

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

$r$ : searcher reputation score.

$H_U$ : set of all transactions  $T$  submitted by searcher  $U$  to `eth_sendBundle` RPC and successfully landed on chain.

$S_U$ : set of all transactions  $T$  submitted by searcher  $U$  to `eth_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.