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:

$$ r(U) = \frac{\sum_{T\in H_U}(\Delta_{coinbase_T} + g_Tp_T)}{\sum_{T\in S_U}g_T} $$

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.
$\Delta_{coinbase_T}$: 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 theflashbots_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.