

# Logs

warning This article requires a revision.

## Log config file location

Logging in Nethermind is done via NLog library that can be configured by editing the NLog.config file.

Environment Type NLog.config location built from src - Debug mode

src\Nethermind\Nethermind.Runner\bin\Debug\netcoreapp3.1\NLog.config built from src - Release mode

src\Nethermind\Nethermind.Runner\bin\Release\netcoreapp3.1\NLog.config PPA /usr/share/nethermind/NLog.config Docker /nethermind/NLog.config from [downloads page](#) top level directory after unzipping the package from [GitHub releases page](#) top level directory after unzipping the package dAppNode ? [to be documented]

## Log config file syntax

Detailed NLog configuration options can be found here <https://nlog-project.org/config/>

## Config or CLI log rules

Simple logging rules can be added through configuration file or command line argument.

For example this would addTrace level logs to any logger underSynchronization module andDebug level logs forBlockTree fromBlockchain module: --Init.LogRules Synchronization.\*:Trace;Blockchain.BlockTree:Debug

## Global logging override

Additionally there are global logging override that you can use temporarily:

Command line override Log level ./Nethermind.Runner --config mainnet --log TRACE TRACE ./Nethermind.Runner --config mainnet --log DEBUG DEBUG ./Nethermind.Runner --config mainnet --log INFO INFO ./Nethermind.Runner --config mainnet --log WARN WARN ./Nethermind.Runner --config mainnet --log ERROR ERROR

## JSON RPC logging level

This can be done by including these lines in the logging configuration file:

## Enterprise Logging

See how to configure See [here](#)

## Explaining Nethermind logs

You can check the supported operating systems, architectures and hardware requirements here [system-requirements.md](#)

After the node starts, you will see some initial info about the node and then the sync will start. Görli fast sync uses a fast blocks sync mode initially. The fast blocks sync picks some known pivot block from the past and downloads headers, bodies, and receipts downwards all the way to genesis block. All blocks from 0 to the pivot block are showed as Old Headers in the fast blocks sync logs. The console display shows the number growing from 0 to pivot, but this is just to make the display more user-friendly.

You will see some information about the sync progress, like below:

1. Shows the number of already downloaded headers
2. ,bodies
3. and receipts
4. under the name Downloaded
5. out of all to
6. be downloaded in the fast blocks stage.
7. Shows the current queue of already downloaded blocks
8. ,headers
9. and receipts
10. waiting for being saved to the
11. database.
12. Shows the current download speed (blocks per second - bps).

13. Shows the average download speed (blocks per second - bps).

When the fast blocks stage finishes, there will be some period of downloading blocks between the pivot and the latest blocks which will have some additional info:

1. Shows the last entry from the fast blocks stage.
2. Shows the mode transition moment.
3. Displays the speed (in blocks per second) of all headers
4. , bodies
5. and receipts
6. at the same time.
7. Additional info will appear every 30000 blocks with information about the Görli epoch being stored.

After the fast sync part finished, the node will transition to the state sync stage when the state trie is being downloaded. Much information is displayed about the progress, as this process may take a long time on mainnet (a few hours).

1. Total elapsed time in state sync
2. is displayed.
3. The total percentage of downloaded DB size is displayed (on mainnet the sync finishes around 34GB in March 2020, on Görli around 800MB).
4. branches
5. stands for the percentage of downloaded branches.
6. Download speed in kilobytes per second is displayed.
7. accounts
8. stands for the number of accounts data downloaded already.
9. nodes
10. stands for the number of Patricia trie nodes
11. downloaded by the sync process.
12. diagnostic
13. shows the time spent in the DB write / read access. The higher the value, the worse. It may get much worse if you restart the node during the sync process, as we need to recreate some caches then by reading data from the DB.
14. the DB.

When the state sync is nearing completion, you may see a series of branch sync information reloading many times from 0% to nearly 100%. This is the node trying to retrieve the few remaining state nodes and progressing with the head block rapidly:

At some point, the entire state is downloaded and the node enters the full sync mode and will allow you to issue CLI / Web3 queries and send / receive transactions

1. The root
2. is saved at the moment when the entire Patricia trie
3. is downloaded.
4. We also clearly state that the node transitions to the full sync
5. .
6. When you see the block being processed, then you are in the full sync
7. and the newly arrived block is being
8. calculated.
9. Every two minutes you will see a summary of connected peers with their client version, IP address, highest synced
10. block, and data download speeds.

Also, every now and then, a peer report will appear like below:

1. First bracket is for Allocated contexts. It has possible values of H
2. for Headers, B
3. for Bodies, R
4. for
5. Receipts, N
6. for State, S
7. for Snap, and W
8. for Witness.
9. Second bracket is for Sleeping contexts. It has possible values of H
10. for Headers, B
11. for Bodies, R
12. for
13. Receipts, N
14. for State, S
15. for Snap, and W
16. for Witness.

17. Third bracket contains Peer Info.
18. Fourth bracket is for Speeds as Follows:\* Latency
19.
  - Headers Transfer
20.
  - Bodies Transfer
21.
  - Receipts Transfer
22.
  - Node Data Transfer
23.
  - Snap Ranges Transfer
24. Fifth bracket is for Client Info like Client Name, Client Version, Operating System and Language Version.[Edit this page](#)  
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