

# How do I update memory consumption to fix indexer memory errors?

During the indexing phase, many fetching processes are run asynchronously due to the load placed on trying to fetch all of the block content at once. These processes are stored in memory to be fetched at set intervals defined in each asynchronous fetcher.

Indexer.Memory.Monitor checks if the BEAM memory usage exceeds a set limit (defaults to 1 GiB) and if it does, it asks the process with the most memory that is registered as shrinkable to shrink.

Memory usage is checked once per minute. If the soft-limit is reached, the shrinkable work queues will shed half their load. The shed load will be restored from the database, the same as when a restart of the server occurs, so rebuilding the work queue will be slower, but use less memory.

If all queues are at their minimum size, then no more memory can be reclaimed and an error will be logged.

## Future Work

As mentioned above, future work is entered into memory to be processed later. These same processes are imported into the database to be checked on a server restart and reentered into memory to be processed.

## Updating Memory Consumption

The default Memory limit is 1 GiB and can be edited by setting `INDEXER_MEMORY_LIMIT` environment variable. See [Memory Usage](#) for more info.

## Left Bitshift Conversion Table

To perform a left bitshift conversion yourself open the interactive shell.

```
1.iex
2.import Bitwise
3.1 <<< 30 //1073741824

INDEXER_MEMORY_LIMIT environment variable value Left Bitshift Bytes GiB 1 or1gb or1g regardless of the
letters 1 <<< 30 1073741824 1 5 or5gb or5g 5 <<< 30 5368709120 5.3 10 or10gb or10g 10 <<< 30 10737418240 10.7 15
or15gb or15g 15 <<< 30 16106127360 16.1 20 or20gb or20g 20 <<< 30 21474836480 21.4 25 or25gb or25g 25 <<< 30
26843545600 26.8 30 or30gb or30g 30 <<< 30 32212254720 32.2 35 or35gb or35g 35 <<< 30 37580963840 37.6 40 or40gb
or40g 40 <<< 30 42949672960 43 45 or45gb or45g 45 <<< 30 48318382080 48.3 50 or50gb or50g 50 <<< 30 53687091200
53.7 100mb or100m regardless of the case of the letters 100 <<< 20 104857600 0.105 500mb or500m 500 <<< 20
524288000 0.52 1500mb or1500m 1500 <<< 20 1572864000 1.57 9536mb or9536m 9536 <<< 20 9999220736 ~10
28610mb or28610m 28610 <<< 20 29999759360 ~30
```

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