

# Unified Index Comparison

The [Search and List from Unified Index](#) has support for multiple engines. While all of them offer the same general functionality and connect to various functionality such as the content search, [PluginList](#), [PluginCustomSearch](#) and various others, they will have different performance characteristics and some may offer additional features.

As a general rule, the engine can simply be switched and the index rebuilt without any additional change to the configuration.

## Overview

The unified index engines are:

- [MariaDB / MySQL / Percona Server for MySQL Full Text Search \(is the default for 12.x onwards\)](#)
  - *introduced in [Tiki12](#)*
  - Additional memory required
  - Fast indexing (can be 10 times faster than now removed Zend\_Search\_Lucene), slower/unstable query speed
  - No configuration required
  - Not customizable
  - Stored in tables in the database with a prefix of index\_ and are stored in [MyISAM](#) even if the actual data is in [InnoDB](#)
- [Elasticsearch](#)
  - *introduced in [Tiki12](#)*
  - Independent Java server(s), horizontally scalable
  - Feature-rich
  - Fast indexing, fast/stable query speed, decent/good results
  - Typically, Elasticsearch is set up as a cluster on different servers than Tiki (or using a third-party service), but it is also possible to install on the same server.
  - Customizable
- [Manticore Search](#), new in [Tiki25](#)
  - Feature-rich
  - Very fast
  - Written in C++ with [Manticore Buddy](#) in PHP
  - Customizable
  - Can be set up as a cluster
  - Requires small amounts of RAM. (compared to Elasticsearch)
    - It runs fine on a virtual machine with 1 GB of RAM
  - Great support for [PHP](#)
  - [Can be installed without root access](#) so shared hosting should be OK (They will need SSH though).
  - [This is the default setup for WikiSuite](#) once [Tiki26](#) is released, and it is an option of the [installer](#).

The system is designed for maintaining an autonomy vis à vis the engines. So more can be added later. No long-term data is stored in the indexes and it's fairly easy to switch from one to another. The next logical addition is [OpenSearch](#). Please contact Marc Laporte if you have specific needs.

## Limitations

### MySQL/MariaDB

- Words with fewer than 3 or 4 characters will not be indexed unless the server configuration is modified. Variables name: `ft_min_word_len` and `innodb_ft_min_token_size`
- Comes with an extensive list of English stop words, preventing many queries from working.
- Can use a single index at a time. Depending on the query, performance can vary significantly.
- Several limitations on the number of columns and indexes it can contain. Complex sites with many different query patterns may hit those limitations.
- No support for field boosting, such as providing more relevance for hits on the title.
- There is a limitation on the number of tracker fields. The limitation is quite high (2000+), but when you hit it, you need to move to another engine because MySQL/MariaDB has a [hard limit](#). It is not possible to know in advance the precise number of maximum fields because some tracker field types require more than one column.
  - It is possible to exclude some fields from the index to stay within the limit.
- [How to search currency amounts](#) likely produces bad results (to be tested)

### Elasticsearch

- [No longer Open Source](#)
- Requires a dedicated environment to be installed and works better with multiple instances running in a cluster.
  - Requires Java and a lot of RAM/CPU

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*A machine with 64 GB of RAM is the ideal sweet spot, but 32 GB and 16 GB machines are also common.*

Source:

[https://www.elastic.co/guide/en/elasticsearch/guide/current/hardware.html#\\_memory](https://www.elastic.co/guide/en/elasticsearch/guide/current/hardware.html#_memory) [↗](#)

### Manticore

There is a hard limit of 256 full text fields per index. Additional fields will be slower.

### Extra features

- [Stored Search](#)
  - Only supported by Elasticsearch and Manticore
- [Faceted search](#) (dynamic filters applicable on search results)
  - Only supported by Elasticsearch and Manticore
- [Module More Like This](#)
  - Only supported by Elasticsearch (Manticore on roadmap)
- [Federated Search](#)
  - Only supported by Elasticsearch (Manticore on roadmap)

### Selection guidelines

#### Tiki 25 and before

- Small sites, simple functionality: MariaDB/MySQL Full Text Search
- Medium or large sites, advanced functionality: Elasticsearch

#### Tiki 26 and up

- Small sites, simple functionality: MySQL Full Text Search

- If you are already using Elasticsearch and are happy with it: Elasticsearch
- Medium or large sites, advanced functionality: Manticore

### Speed comparison

- [https://db-benchmarks.com/?cache=fast\\_avg&engines=elasticsearch%2Cmanticoresearch\\_rowwise%2Cmysql&tests=hn\\_small&memory=110000&queries=0%2C1%2C2%2C3%2C4%2C5%2C6%2C7%2C8%2C9%2C10%2C11%2C12%2C13%2C14%2C15%2C16%2C17%2C18%2C19%2C20%2C21%2C22%2C23%2C24%2C25%2C27](https://db-benchmarks.com/?cache=fast_avg&engines=elasticsearch%2Cmanticoresearch_rowwise%2Cmysql&tests=hn_small&memory=110000&queries=0%2C1%2C2%2C3%2C4%2C5%2C6%2C7%2C8%2C9%2C10%2C11%2C12%2C13%2C14%2C15%2C16%2C17%2C18%2C19%2C20%2C21%2C22%2C23%2C24%2C25%2C27)

### Differences of results between engines

[index:compare-engines](#)

### Legacy

Zend\_Search\_Lucene (PHP Implementation) was introduced in [Tiki7](#) and later removed Last version: [Tiki21](#).

### alias

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- [Search Engine Comparison](#)