Unified Index

This applies to the search capabilities in Tiki, such as those used by PluginList or the search at tiki-searchindex.php which rely on a search index.

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Tiki can support multiple search engines internally. Each of those will have different capabilities and limitations. The default engine should provide capabilities good enough for small and medium sites. Larger sites may need additional infrastructure to get the most performance. Please see: Unified Index Comparison

Fields

Below is a matrix between the fields and the object types.

Legend:

- **X** - Available
- **/** - Static value
- **?** - Depends on the data

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Tracker Fields

In general, tracker fields are indexed as `tracker_field_PERMNAME/ID`. `PERMNAME/ID` is your tracker field permanent name or ID. However, many tracker field types have additional useful variants of the main field (see below) that are indexed for each field.

The indexing for tracker fields will vary depending on the field type. As a general rule, `tracker_field_PERMNAME/ID` will be used as the field and will be sortable. However, there are a few exceptions:

- Image and File fields are not indexed
- TextArea is not sortable
Multilingual fields are indexed as multiple fields

- The main one (tracker_field_PERMNAME/ID) contains all languages
- tracker_field_PERMNAME/ID_lang contains one language only (tracker_field_12_fr for example)

Rating and related fields store as multiple fields

- tracker_field_PERMNAME/ID contains the average
- tracker_field_PERMNAME/ID_sum contains the vote totals
- tracker_field_PERMNAME/ID_count contains the number of votes

Items List and Item Link fields

- tracker_field_PERMNAME/ID_text contains the text instead of the IDs of the linked/listed items

Language of the tracker item

- If a language field is set for the tracker item, that language is indexed as the item language, i.e. the language field.

Some used in buildQuery/tiki-searchindex.php (need explanation on whether these are real fields or just helpers):

type: refers to object_type
deep: if this is set, categories will be considered deep-categories
autocomplete: Will search for items with title starting with this

Rebuild search index

The index is stored in temp/unified-index/. While the rebuild is occurring, a directory temp/unified-index-new/ will appear (This is to permit the existing index to be used until the new one is ready). If temp/unified-index-new/ doesn't disappear after the indexing, something must have gone wrong. You can delete it and try the re-indexing again. You may want to run sh setup.sh to make sure the permissions are OK.

From the Tiki interface

You can visit this url: tiki-admin.php?page=search&rebuild=now and search index will be rebuilt if the site is small. For medium to high load sites, you can do that from the command line.

From the command line

The search index can be rebuilt from the command line, and since Tiki9 can be run using a Cron job where the server runs the command automatically - see Cron Job to Rebuild Search Index.

Below are the commands that may be used to rebuild the index.

You can also rebuild it using the unified console.php command, with the appropriate parameters. For
Example:

**Basic command**

```bash
php console.php index:rebuild
```

<-- or -->

```bash
php console.php i:r
```

**Multitiki sites**

For multitiki sites, you can rebuild with commands like:

```bash
php console.php index:rebuild --site=site1.example.com
php console.php index:rebuild --site=site2.example.com
...
```

**Successful rebuild**

If the rebuild is successful a message like the following will be produced (for cron jobs, this can usually be sent to you via email as part of automatically running the command):

```
Started rebuilding index...
Indexation
    wiki page: 150
    forum post: 67
    blog post: 412
    article: 61
    file: 1294
    trackeritem: 196
    comment: 0
Rebuilding index done
X-Powered-By: PHP/5.5.8
Content-type: text/html; charset=utf-8
```

**Troubleshooting**

If the rebuild is unsuccessful, instead of the above message you may get a message that indicates there has been an internal server error, or it may say "Rebuild in progress." This may be because the rebuild process uses more memory or takes more time than allowed by the server's php settings. Such settings can be changed on the fly as part of the rebuild command - examples of how to do this are shown below.

**Increase memory limit**

One way to increase memory is to change the `memory_limit` php setting as follows (this example changes the memory limit to 4 gigabytes while the rebuild process is running):

```bash
php -dmemory_limit=4G console.php i:r --log
```

You could also direct php to use a specific `php.ini` file, where there may be a higher memory limit setting or no limit. In this case you would use the `-c` parameter followed by the path to the `php.ini` file, as in the example below:
**Increase maximum execution time**

Getting an internal server error may indicate the rebuild process takes longer than the `max_execution_time` `php` setting. That can be increased as part of the command as shown below where the max execution time is set to 300 seconds, or 5 minutes. (This command is also increasing the memory limit as described above):

```bash
call_php --log -dmemory_limit=4G -dmax_execution_time=300 console.php i:r --force --log
```

**Force rebuild**

When the rebuild is unsuccessful with a "Rebuild in progress" message, this usually means that the rebuild failed previously in the middle of the process, leaving a temporary folder called `temp/unified-index-new` on the server. When a new rebuild is started and the program sees this folder, it thinks there is a rebuild already in progress and will stop. You can either delete this folder before rebuilding again or include the `--force` parameter in the rebuild command as follows:

```bash
call_php --log -dmemory_limit=4G -dmax_execution_time=300 console.php i:r --force --log
```

**Mysql limits for very big numbers of tracker fields**

**How to detect**

If `Unified Search` is configured with the `Mysql Full Text Search` engine, you might encounter a failure to reindex with the following symptoms:

- `php console index:rebuild` stops without displaying the list of indexing statistics:

  ```bash
  call_php --log
  [14 mai 2020 09:26 EDT] Started rebuilding index...
  Unified search engine: MySQL, version 10.1.45-MariaDB
  (it takes a very long time and in the end nothing shows up)
  ```

If you investigate with producing a log it ends this way:

```bash
call_php --log
[14 mai 2020 16:10 EDT] Started rebuilding index... logging to file:
temp/Search_Indexer_mysql_database_name_console.log
Unified search engine: MySQL, version 10.1.45-MariaDB
(it takes a very long time and in the end nothing shows up)
```

```
tail temp/Search_Indexer_mysql_database_name_console.log
...
2020-05-14T16:21:47-04:00 ERR (3): Indexing failed while processing "2512" (type trackeritem) with the error "Could not perform index modification: Too many columns"
2020-05-14T16:21:47-04:00 ERR (3): WARNING: PDO::query(): SQLSTATE[HY000]: General error: 1117 Too many columns
"code":null,"file":"/path/to/tikiroot/lib/core/TikiDb/Pdo.php","line":104
2020-05-14T16:21:47-04:00 INFO (6): addDocument trackeritem 2513 {"memoryUsage":46.5 MiB}
2020-05-14T16:21:47-04:00 ERR (3): Indexing failed while processing "2513" (type tracker...```
trackeritem) with the error "Could not perform index modification: Too many columns"
2020-05-14T16:21:47-04:00 ERR (3): WARNING: PDO::query(): SQLSTATE[HY000]: General error: Too many columns
{"code":null,"file":"/path/to/tikiroot/lib/core/TikiDb/Pdo.php","line":104}
2020-05-14T16:21:47-04:00 INFO (6): addDocument trackeritem 2514 {"memoryUsage":"46.5 MiB"}

Technical explanation (thanks Victor)

[Solutions]

The following options in Control panels → Search help for this situation:

- **MySQL use short field names**
  Due to frm file constraints, number of search fields that one index can hold is usually limited to about 1500. This can be exceeded if you have numerous tracker fields. Enabling this option will try to shorten the field names internally that should allow you to use 300-500 more fields. Switching this option requires full index rebuild.
  Summary: This makes no difference in how you use Tiki.

- **Don't index non searchable fields**
  Indexing will skip adding all tracker fields that are not marked as "searchable". This will free index space but also make it impossible to use those fields in search index queries.
  Summary: You need to review the Searchable property of your tracker fields. A full index rebuild will be necessary after changes in the tracker fields Searchable properties.

Hint: If the first option is enough for your site, you may ignore the second one.

**Related**

- Cron Job to Rebuild Search Index
- PluginList
- PluginCustomSearch
- Unified Search

**Developer Notes**

See https://dev.tiki.org/Unified-Index#Developer_Notes.

 Alias names for this page

Unified Search | UnifiedSearch | Enterprise search | Search Index | SearchIndex | UnifiedIndex | IndexRebuild | Index Rebuild