

# Trac Macros

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Trac macros are plugins to extend the Trac engine with custom 'functions' written in Python. A macro inserts dynamic HTML data in any context supporting WikiFormatting.

Another kind of macros are WikiProcessors. They typically deal with alternate markup formats and representation of larger blocks of information (like source code highlighting).

## Using Macros

Macro calls are enclosed in two *square brackets*. Like Python functions, macros can also have arguments, a comma separated list within parentheses.

Trac macros can also be written as TracPlugins. This gives them some capabilities that macros do not have, such as being able to directly access the HTTP request.

## Example

A list of 3 most recently changed wiki pages starting with 'Trac':

```
[ [RecentChanges (Trac, 3) ] ]
```

Display:

**01/10/14**

◆ TracSupport (diff)

- ◆ [TracUpgrade](#) (diff)
- ◆ [TracSyntaxColoring](#) (diff)

## Available Macros

*Note that the following list will only contain the macro documentation if you've not enabled `-oo` optimizations, or not set the `PythonOptimize` option for mod\_python.*

### `[[BlogList]]`

A macro to display list of posts and extracts outside (or inside) the Blog module - most commonly Wiki pages.

All arguments are optional:

```
[[BlogList]]
```

Available named arguments:

- `recent=` - max. number of posts
- `category=` - a category
- `author=` - an author
- `period=` - time period of the format YYYY/MM
- `heading=` - a heading for the list
- `format=` - type of display (see below for details)
- `max_size=` - max. number of characters to render for each post
- `meta=` - use `=off` to hide date, author and categories (default 'on')

Example showing some available named arguments:

```
[[BlogList(recent=5, max_size=250, period=2007/12, author=osimons, format=float, heading=Some
```

The arguments for criteria are 'AND'-based, so the above example will render at most 5 posts by 'osimons' in December 2007.

There is no heading unless specified.

Without restriction on recent number of posts, it will use the number currently active in the Blog module as default for 'float' and 'full' rendering, but for rendering of 'inline' list it will render all found as default unless restricted. Additionally for 'float' and 'full' it will truncate content if it is larger than a `max_size` (if set).

The `format=` keyword argument supports rendering these formats:

`format=inline` Renders an unordered list in the normal text flow (default).

`format=float` A floating box out on the side of the page with slightly more detail.

`format=full` Full rendering like on period, category and author listings inside blog.

The arguments can appear in any order.

Posts are rendered sorted by newest first for all modes.

## [ [Image] ]

Embed an image in wiki-formatted text.

The first argument is the file specification. The file specification may reference attachments in three ways:

- `module:id:file`, where `module` can be either **wiki** or **ticket**, to refer to the attachment named *file* of the specified wiki page or ticket.
- `id:file`: same as above, but `id` is either a ticket shorthand or a Wiki page name.
- `file` to refer to a local attachment named 'file'. This only works from within that wiki page or a ticket.

Also, the file specification may refer to repository files, using the `source:file` syntax (`source:file@rev` works also).

Files can also be accessed with a direct URLs; `/file` for a project-relative, `//file` for a server-relative, or `http://server/file` for absolute location of the file.

The remaining arguments are optional and allow configuring the attributes and style of the rendered `<img>` element:

- `digits` and `unit` are interpreted as the size (ex. 120, 25%) for the image
- `right`, `left`, `center`, `top`, `bottom` and `middle` are interpreted as the alignment for the image (alternatively, the first three can be specified using `align=...` and the last three using `valign=...`)
- `link=some TracLinks...` replaces the link to the image source by the one specified using a [TracLinks](#). If no value is specified, the link is simply removed.
- `nolink` means without link to image source (deprecated, use `link=`)
- `key=value` style are interpreted as HTML attributes or CSS style indications for the image. Valid keys are:
  - ◆ `align`, `valign`, `border`, `width`, `height`, `alt`, `title`, `longdesc`, `class`, `margin`, `margin-(left,right,top,bottom)`, `id` and `usemap`
  - ◆ `border`, `margin`, and `margin-*` can only be a single number
  - ◆ `margin` is superseded by `center` which uses auto margins

Examples:

```
[[Image(photo.jpg)]]           # simplest
[[Image(photo.jpg, 120px)]]     # with image width size
[[Image(photo.jpg, right)]]     # aligned by keyword
[[Image(photo.jpg, nolink)]]    # without link to source
[[Image(photo.jpg, align=right)]] # aligned by attribute
```

You can use image from other page, other ticket or other module.

```
[[Image(OtherPage:foo.bmp)]]    # if current module is wiki
[[Image(base/sub:bar.bmp)]]     # from hierarchical wiki page
[[Image(#3:baz.bmp)]]           # if in a ticket, point to #3
[[Image(ticket:36:boo.jpg)]]    # straight from the repository!
[[Image(source:/images/bee.jpg)]] # straight from the repository!
[[Image(htdocs:foo/bar.png)]]   # image file in project htdocs dir.
```

*Adapted from the Image.py macro created by Shun-ichi Goto <gotoh@?>*

## **[[Include]]**

A macro to include other resources in wiki pages. More documentation to follow.

## **[[InterTrac]]**

Provide a list of known InterTrac prefixes.

## **[[InterWiki]]**

Provide a description list for the known InterWiki prefixes.

## **[[KnownMimeType]]**

List all known mime-types which can be used as WikiProcessors.

Can be given an optional argument which is interpreted as mime-type filter.

## **[[MacroList]]**

Display a list of all installed Wiki macros, including documentation if available.

Optionally, the name of a specific macro can be provided as an argument. In that case, only the documentation for that macro will be rendered.

Note that this macro will not be able to display the documentation of macros if the `PythonOptimize` option is enabled for `mod_python`!

## **[ [PageOutline] ]**

Display a structural outline of the current wiki page, each item in the outline being a link to the corresponding heading.

This macro accepts four optional parameters:

- The first is a number or range that allows configuring the minimum and maximum level of headings that should be included in the outline. For example, specifying "1" here will result in only the top-level headings being included in the outline. Specifying "2-3" will make the outline include all headings of level 2 and 3, as a nested list. The default is to include all heading levels.
- The second parameter can be used to specify a custom title (the default is no title).
- The third parameter selects the style of the outline. This can be either `inline` or `pullout` (the latter being the default). The `inline` style renders the outline as normal part of the content, while `pullout` causes the outline to be rendered in a box that is by default floated to the right side of the other content.
- The fourth parameter specifies whether the outline is numbered or not. It can be either `numbered` or `unnumbered` (the former being the default). This parameter only has an effect in `inline` style.

## **[ [RecentChanges] ]**

List all pages that have recently been modified, ordered by the time they were last modified.

This macro accepts two ordered arguments and a named argument. The named argument can be placed in any position within the argument list.

The first parameter is a prefix string; if provided, only pages with names that start with the prefix are included in the resulting list. If this parameter is omitted, all pages are included in the list.

The second parameter is the maximum number of pages to include in the list.

The `group` parameter determines how the list is presented:

`group=date`

The pages are presented in bulleted lists that are grouped by date (default).

group=none

The pages are presented in a single bulleted list.

Tip: if you only want to specify a maximum number of entries and don't want to filter by prefix, specify an empty first parameter, e.g. `[[RecentChanges(,10,group=none)]]`.

## [[RepositoryIndex]]

Display the list of available repositories.

Can be given the following named arguments:

### *format*

Select the rendering format:

- ◊ *compact* produces a comma-separated list of repository prefix names (default)
- ◊ *list* produces a description list of repository prefix names
- ◊ *table* produces a table view, similar to the one visible in the *Browse View* page

### *glob*

Do a glob-style filtering on the repository names (defaults to '\*')

### *order*

Order repositories by the given column (one of "name", "date" or "author")

### *desc*

When set to 1, order by descending order

(since 0.12)

## [[TOC]]

Generate a table of contents for the current page or a set of pages. If no arguments are given, a table of contents is generated for the current page, with the top-level title stripped:

```
[[TOC]]
```

To generate a table of contents for a set of pages, simply pass them as comma separated arguments to the TOC macro, e.g. as in

```
[[TOC(TracGuide, TracInstall, TracUpgrade, TracIni, TracAdmin, TracBackup,
      TracLogging, TracPermissions, TracWiki, WikiFormatting, TracBrowser,
      TracRoadmap, TracChangeset, TracTickets, TracReports, TracQuery,
      TracTimeline, TracRss, TracNotification)]]
```

A wildcard '\*' can be used to fetch a sorted list of all pages starting with the preceding pagename stub:

```
[[TOC(Trac*, WikiFormatting, WikiMacros)]]
```

The following *control* arguments change the default behaviour of the TOC macro:

Argument	Meaning
heading=<x>	Override the default heading of "Table of Contents"
noheading	Suppress display of the heading.
depth=<n>	Display headings of <i>subsequent</i> pages to a maximum depth of <n>.
inline	Display TOC inline rather than as a side-bar.
sectionindex	Only display the page name and title of each page in the wiki section.
titleindex	Only display the page name and title of each page, similar to <a href="#">TitleIndex</a> .
notitle	Supress display of page title.

For 'titleindex' argument, an empty pagelist will evaluate to all pages:

```
[[TOC(titleindex, notitle, heading=All pages)]]
```

'sectionindex' allows to generate a title index for all pages in a given section of the wiki. A section is defined by wiki page name, using '/' as a section level delimiter (like directories in a file system). Giving '/' or '\*' as the page name produces the same result as 'titleindex' (title of all pages). If a page name ends with a '/', only children of this page will be processed. Else the page given in the argument is also included, if it exists. For 'sectionindex' argument, an empty pagelist will evaluate to all page below the same parent as the current page:

```
[[TOC(sectionindex, notitle, heading=This section pages)]]
```

## [[TicketQuery]]

Wiki macro listing tickets that match certain criteria.

This macro accepts a comma-separated list of keyed parameters, in the form "key=value".

If the key is the name of a field, the value must use the syntax of a filter specifier as defined in [TracQuery#QueryLanguage](#). Note that this is *not* the same as the simplified URL syntax used for `query:` links starting with a ? character. Commas (,) can be included in field values by escaping them with a backslash (\).

Groups of field constraints to be OR-ed together can be separated by a literal `or` argument.

In addition to filters, several other named parameters can be used to control how the results are presented. All of them are optional.

The `format` parameter determines how the list of tickets is presented:

- **list** -- the default presentation is to list the ticket ID next to the summary, with each ticket on a separate line.
- **compact** -- the tickets are presented as a comma-separated list of ticket IDs.
- **count** -- only the count of matching tickets is displayed
- **table** -- a view similar to the custom query view (but without the controls)
- **progress** -- a view similar to the milestone progress bars

The `max` parameter can be used to limit the number of tickets shown (defaults to **0**, i.e. no maximum).

The `order` parameter sets the field used for ordering tickets (defaults to **id**).

The `desc` parameter indicates whether the order of the tickets should be reversed (defaults to **false**).

The `group` parameter sets the field used for grouping tickets (defaults to not being set).

The `groupdesc` parameter indicates whether the natural display order of the groups should be reversed (defaults to **false**).

The `verbose` parameter can be set to a true value in order to get the description for the listed tickets. For **table** format only. *deprecated in favor of the `rows` parameter*

The `rows` parameter can be used to specify which field(s) should be viewed as a row, e.g.

`rows=description|summary`

For compatibility with Trac 0.10, if there's a last positional parameter given to the macro, it will be used to specify the `format`. Also, using "&" as a field separator still works (except for `order`) but is deprecated.

## **[ [TitleIndex] ]**

Insert an alphabetic list of all wiki pages into the output.

Accepts a prefix string as parameter: if provided, only pages with names that start with the prefix are included in the resulting list. If this parameter is omitted, all pages are listed. If the prefix is specified, a second argument of value `hideprefix` can be given as well, in order to remove that prefix from the output.



Alternate `format` and `depth` named parameters can be specified:

- `format=compact`: The pages are displayed as comma-separated links.
- `format=group`: The list of pages will be structured in groups according to common prefix. This format also supports a `min=n` argument, where `n` is the minimal number of pages for a group.
- `format=hierarchy`: The list of pages will be structured according to the page name path hierarchy. This format also supports a `min=n` argument, where higher `n` flatten the display hierarchy
- `depth=n`: limit the depth of the pages to list. If set to 0, only toplevel pages will be shown, if set to 1, only immediate children pages will be shown, etc. If not set, or set to -1, all pages in the hierarchy will be shown.
- `include=page1:page*2`: include only pages that match an item in the colon-separated list of pages. If the list is empty, or if no `include` argument is given, include all pages.
- `exclude=page1:page*2`: exclude pages that match an item in the colon- separated list of pages.

The `include` and `exclude` lists accept shell-style patterns.

## **`[[TracAdminHelp]]`**

Display help for trac-admin commands.

Examples:

```
[[TracAdminHelp]]           # all commands
[[TracAdminHelp(wiki)]]     # all wiki commands
[[TracAdminHelp(wiki export)]] # the "wiki export" command
[[TracAdminHelp(upgrade)]]  # the upgrade command
```

## **`[[TracGuideToc]]`**

Display a table of content for the Trac guide.

This macro shows a quick and dirty way to make a table-of-contents for the Help/Guide?. The table of contents will contain the Trac\* and [WikiFormatting](#) pages, and can't be customized. Search for TocMacro? for a a more customizable table of contents.

## **`[[TracIni]]`**

Produce documentation for the Trac configuration file.

Typically, this will be used in the [TracIni](#) page. Optional arguments are a configuration section filter, and a

configuration option name filter: only the configuration options whose section and name start with the filters are output.

`[ [TracNav] ]`

## TracNav: The Navigation Bar for Trac

This macro implements a fully customizable navigation bar for the Trac wiki engine. The contents of the navigation bar is a wiki page itself and can be edited like any other wiki page through the web interface. The navigation bar supports hierarchical ordering of topics. The design of TracNav mimics the design of the TracGuideToc that was originally supplied with Trac. The drawback of TracGuideToc is that it is not customizable without editing its source code and that it does not support hierarchical ordering.

### Installation

See [?http://trac.edgewall.org/wiki/TracPlugins](http://trac.edgewall.org/wiki/TracPlugins).

### Usage

To use TracNav, create an index page for your site and call the TracNav? macro on each page, where the navigation bar should be displayed. The index page is a regular wiki page. The page with the table of contents must include an unordered list of links that should be displayed in the navigation bar.

To display the navigation bar on a page, you must call the TracNav macro on that page and pass the name of your table of contents as argument.

### Additional information and a life example

Please visit: [?http://svn.ipd.uka.de/trac/javaparty/wiki/TracNav](http://svn.ipd.uka.de/trac/javaparty/wiki/TracNav).

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## **[[Workflow]]**

Render a workflow graph.

This macro accepts a TracWorkflow configuration and renders the states and transitions as a directed graph. If no parameters are given, the current ticket workflow is rendered. In WikiProcessors mode the `width` and `height` arguments can be specified.

(Defaults: `width = 800` and `height = 600`)

Examples:

```
[[Workflow()]]

[[Workflow(go = here -> there; return = there -> here)]]

{{{
#!Workflow width=700 height=700
leave = * -> *
leave.operations = leave_status
leave.default = 1

accept = new,assigned,accepted,reopened -> accepted
accept.permissions = TICKET_MODIFY
accept.operations = set_owner_to_self

resolve = new,assigned,accepted,reopened -> closed
resolve.permissions = TICKET_MODIFY
resolve.operations = set_resolution

reassign = new,assigned,accepted,reopened -> assigned
reassign.permissions = TICKET_MODIFY
reassign.operations = set_owner

reopen = closed -> reopened
```

```
reopen.permissions = TICKET_CREATE
reopen.operations = del_resolution
}}}
```

## Macros from around the world

The [?Trac Hacks](#) site provides a wide collection of macros and other Trac [plugins](#) contributed by the Trac community. If you're looking for new macros, or have written one that you'd like to share with the world, please don't hesitate to visit that site.

## Developing Custom Macros

Macros, like Trac itself, are written in the [?Python programming language](#).

For more information about developing macros, see the [?development resources](#) on the main project site.

## Implementation

Here are 2 simple examples showing how to create a Macro with Trac 0.11.

Also, have a look at [?Timestamp.py](#) for an example that shows the difference between old style and new style macros and at the [?macros/README](#) which provides a little more insight about the transition.

### Macro without arguments

It should be saved as `TimeStamp.py` as Trac will use the module name as the Macro name

```
from datetime import datetime
# Note: since Trac 0.11, datetime objects are used internally

from genshi.builder import tag

from trac.util.datefmt import format_datetime, utc
from trac.wiki.macros import WikiMacroBase

class TimeStampMacro(WikiMacroBase):
    """Inserts the current time (in seconds) into the wiki page."""

    revision = "$Rev$"
    url = "$URL$"

    def expand_macro(self, formatter, name, args):
```

```
t = datetime.now(utc)
return tag.b(format_datetime(t, '%c'))
```

## Macro with arguments

It should be saved as `HelloWorld.py` (in the `plugins/` directory) as Trac will use the module name as the Macro name

```
from trac.wiki.macros import WikiMacroBase

class HelloWorldMacro(WikiMacroBase):
    """Simple HelloWorld macro.

    Note that the name of the class is meaningful:
    - it must end with "Macro"
    - what comes before "Macro" ends up being the macro name

    The documentation of the class (i.e. what you're reading)
    will become the documentation of the macro, as shown by
    the !MacroList macro (usually used in the WikiMacros page).
    """

    revision = "$Rev$"
    url = "$URL$"

    def expand_macro(self, formatter, name, args):
        """Return some output that will be displayed in the Wiki content.

        `name` is the actual name of the macro (no surprise, here it'll be
        `HelloWorld`),
        `args` is the text enclosed in parenthesis at the call of the macro.
        Note that if there are ''no'' parenthesis (like in, e.g.
        [[HelloWorld]]), then `args` is `None`.
        """
        return 'Hello World, args = ' + unicode(args)

    # Note that there's no need to HTML escape the returned data,
    # as the template engine (Genshi) will do it for us.
```

## expand\_macro details

`expand_macro` should return either a simple Python string which will be interpreted as HTML, or preferably a Markup object (use `from trac.util.html import Markup`). `Markup(string)` just annotates the string so the renderer will render the HTML string as-is with no escaping. You will also need to import `Formatter` using `from trac.wiki import Formatter`.

If your macro creates wiki markup instead of HTML, you can convert it to HTML like this:

```
text = "whatever wiki markup you want, even containing other macros"
# Convert Wiki markup to HTML, new style
out = StringIO()
Formatter(self.env, formatter.context).format(text, out)
return Markup(out.getvalue())
```