


Editing Mode



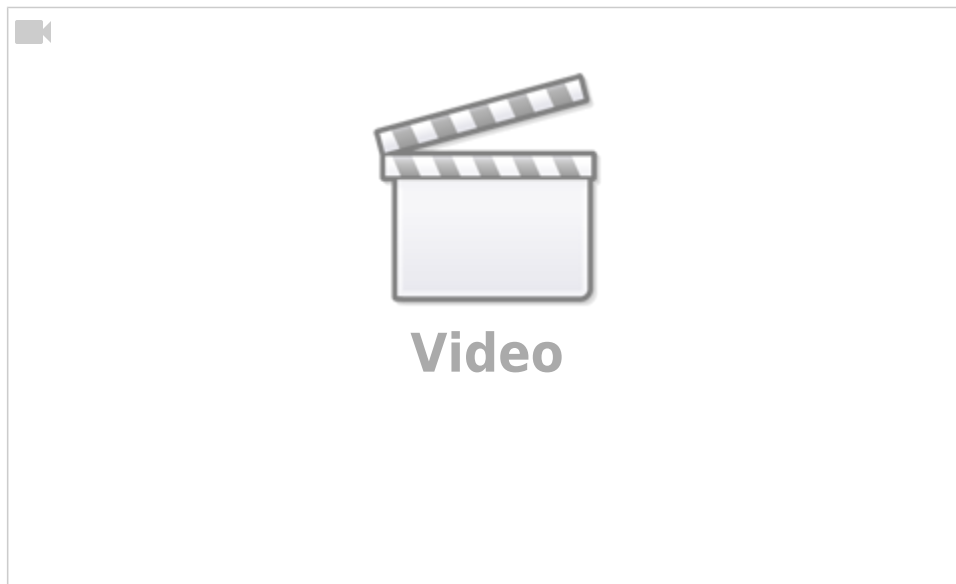
- In order to edit this site, you must first Log In (top right corner).
- After that, the “pen icon” will appear on the right, which allows you to edit the entire page.
- Alternatively, each section will have an Edit button that allows you to edit only that section.

News Item

To post a news item:

1. Make sure you are logged in.
2. Click on the Create a News Item button on the front page.

3. Enter a **short** title.
4. Write the article below the title (make sure you leave the title between the 6 equal signs as is).
5. Before you save, select the “default” Blog option.
6. Write the year and month (first three letters) in the tags field.

Here's a short video demonstration:



Formatting Syntax

 **DokuWiki** supports some simple markup language, which tries to make the datafiles to be as readable as possible. This page contains all possible syntax you may use when editing the pages. Simply have a look at the source of this page by pressing “Edit this page”. If you want to try something, just use the [playground](#) page. The simpler markup is easily accessible via  [quickbuttons](#), too.

Basic Text Formatting

DokuWiki supports **bold**, *italic*, underlined and monospaced texts. Of course you can ***combine*** all these.

```
DokuWiki supports **bold**, //italic//, __underlined__ and 'monospaced' texts.  
Of course you can __//'combine'//__ all these.
```

You can use _{subscript} and ^{superscript}, too.

```
You can use <sub>subscript</sub> and <sup>superscript</sup>, too.
```

You can mark something as ~~deleted~~ as well.

```
You can mark something as <del>deleted</del> as well.
```

Paragraphs are created from blank lines. If you want to **force a newline** without a paragraph, you can use two backslashes followed by a whitespace or the end of line.

This is some text with some linebreaks
Note that the two backslashes are only recognized at the end of a line
or followed by
a whitespace \\this happens without it.

```
This is some text with some linebreaks\\ Note that the  
two backslashes are only recognized at the end of a line\\  
or followed by\\ a whitespace \\this happens without it.
```

You should use forced newlines only if really needed.

Links

DokuWiki supports multiple ways of creating links.

External


External links are recognized automatically: <https://www.google.com> or simply www.google.com - You can set the link text as well: [This Link points to google](#). Email addresses like this one: andi@splitbrain.org are recognized, too.

DokuWiki supports multiple ways of creating links. External links are recognized automagically: `https://www.google.com` or simply `www.google.com` - You can set link text as well: `[[https://www.google.com|This Link points to google]]`. Email addresses like this one: `<andi@splitbrain.org>` are recognized, too.

Internal

Internal links are created by using square brackets. You can either just give a [pagename](#) or use an additional [link text](#).

Internal links are created by using square brackets. You can either just give a `[[pagename]]` or use an additional `[[pagename|link text]]`.

 [Wiki pagenames](#) are converted to lowercase automatically, special characters are not allowed.

You can use [namespaces](#) by using a colon in the pagename.



You can use `[[some:namespaces]]` by using a colon in the pagename.

For details about namespaces see  [namespaces](#).

Linking to a specific section is possible, too. Just add the section name behind a hash character as known from HTML. This links to [this Section](#).

This links to `[[syntax#internal|this Section]]`.

Notes:


- Links to [existing pages](#) are shown in a different style from [nonexisting](#) ones.
- DokuWiki does not use  [CamelCase](#) to automatically create links by default, but this behavior can be enabled in the  [config](#) file. Hint: If DokuWiki is a link, then it's enabled.
- When a section's heading is changed, its bookmark changes, too. So don't rely on section linking too much.

Interwiki

DokuWiki supports  [Interwiki](#) links. These are quick links to other Wikis. For example this is a link to Wikipedia's page about Wikis:  [Wiki](#).

DokuWiki supports `[[doku>Interwiki]]` links. These are quick links to other Wikis. For example this is a link to Wikipedia's page about Wikis: `[[wp>Wiki]]`.

Windows Shares

Windows shares like [this](#) are recognized, too. Please note that these only make sense in a homogeneous user group like a corporate  [Intranet](#).

Windows Shares like `[[\\server\share|this]]` are recognized, too.

Notes:

- For security reasons direct browsing of windows shares only works in Microsoft Internet Explorer per default (and only in the “local zone”).
- For Mozilla and Firefox it can be enabled through different workaround mentioned in the [Mozilla Knowledge Base](#). However, there will still be a JavaScript warning about trying to open a Windows Share. To remove this warning (for all users), put the following line in `conf/lang/en/lang.php` (more details at [localization](#)):

```
<?php
/**
 * Customization of the english language file
 * Copy only the strings that needs to be modified
 */
$lang['js']['nosmblinks'] = '';
```

Image Links

You can also use an image to link to another internal or external page by combining the syntax for links and [images](#) (see below) like this:

```
[[https://php.net|{{wiki:dokuwiki-128.png}}]]
```



Please note: The image formatting is the only formatting syntax accepted in link names.

The whole [image](#) and [link](#) syntax is supported (including image resizing, internal and external images and URLs and interwiki links).

Footnotes

You can add footnotes ¹⁾ by using double parentheses.

```
You can add footnotes ((This is a footnote)) by using double parentheses.
```

Sectioning

You can use up to five different levels of headlines to structure your content. If you have more than three headlines, a table of contents is generated automatically – this can be disabled by including the string `~~NOTOC~~` in the document.

Headline Level 3

Headline Level 4

Headline Level 5

```
==== Headline Level 3 ====
=== Headline Level 4 ===
== Headline Level 5 ==
```

By using four or more dashes, you can make a horizontal line:

Media Files

You can include external and internal  [images, videos and audio files](#) with curly brackets. Optionally you can specify the size of them.

Real size: 

Resize to given width: 

Resize to given width and height²⁾: 



Resized external image:

```
Real size:                {{wiki:dokuwiki-128.png}}
Resize to given width:   {{wiki:dokuwiki-128.png?50}}
Resize to given width and height: {{wiki:dokuwiki-128.png?200x50}}
Resized external image:  {{https://php.net/images/php.gif?200x50}}
```

By using left or right whitespaces you can choose the alignment.



```
{{ wiki:dokuwiki-128.png}}
{{wiki:dokuwiki-128.png }}
{{ wiki:dokuwiki-128.png  }}
```

Of course, you can add a title (displayed as a tooltip by most browsers), too.



```
{{ wiki:dokuwiki-128.png |This is the caption}}
```

For linking an image to another page see [Image Links](#) above.

Supported Media Formats

DokuWiki can embed the following media formats directly.

Image	gif, jpg, png
Video	webm, ogv, mp4
Audio	ogg, mp3, wav
Flash	swf

If you specify a filename that is not a supported media format, then it will be displayed as a link instead.

By adding `?\linkonly` you provide a link to the media without displaying it inline

```
{{wiki:dokuwiki-128.png?\linkonly}}
```

[dokuwiki-128.png](#) This is just a link to the image.

Fallback Formats

Unfortunately not all browsers understand all video and audio formats. To mitigate the problem, you can upload your file in different formats for maximum browser compatibility.

For example consider this embedded mp4 video:

```
{{video.mp4|A funny video}}
```

When you upload a `video.webm` and `video.ogv` next to the referenced `video.mp4`, DokuWiki will automatically add them as alternatives so that one of the three files is understood by your browser.

Additionally DokuWiki supports a “poster” image which will be shown before the video has started. That image needs to have the same filename as the video and be either a `jpg` or `png` file. In the example above a `video.jpg` file would work.

Lists

Dokuwiki supports ordered and unordered lists. To create a list item, indent your text by two spaces and use a `*` for unordered lists or a `-` for ordered ones.

- This is a list
- The second item
 - You may have different levels
- Another item

1. The same list but ordered
2. Another item

1. Just use indentation for deeper levels
3. That's it

```
* This is a list
* The second item
  * You may have different levels
* Another item

- The same list but ordered
- Another item
  - Just use indentation for deeper levels
- That's it
```

Also take a look at the [FAQ on list items](#).

Text Conversions









DokuWiki can convert certain pre-defined characters or strings into images or other text or HTML.

The text to image conversion is mainly done for smileys. And the text to HTML conversion is used for typography replacements, but can be configured to use other HTML as well.

Text to Image Conversions

DokuWiki converts commonly used [emoticons](#) to their graphical equivalents. Those [Smileys](#) and other images can be configured and extended. Here is an overview of Smileys included in DokuWiki:

-  8-)
-  8-O
-  :-(
-  :-)
-  =)
-  :-/
-  :-\
-  :-?
-  :-D

-  :-P
-  :-O
-  :-X
-  :-|
-  ;-)
-  ^_^
-  :?:
-  :!:
-  LOL
-  FIXME
-  DELETEME

Text to HTML Conversions

Typography: [dokuwiki](#) can convert simple text characters to their typographically correct entities. Here is an example of recognized characters.

→ ← ↔ ⇒ ⇐ ⇔ ” “ -- 640×480 © ™ (r) “He thought 'It's a man's world'...”

```
-> <- <-> => <=<=> >> << -- --- 640x480 (c) (tm) (r)
"He thought 'It's a man's world'..."
```

The same can be done to produce any kind of HTML, it just needs to be added to the [pattern file](#).

There are three exceptions which do not come from that pattern file: multiplication entity (640×480), 'single' and “double quotes”. They can be turned off through a [config option](#).

Quoting

Some times you want to mark some text to show it's a reply or comment. You can use the following syntax:

```
I think we should do it
> No we shouldn't
>> Well, I say we should
> Really?
>> Yes!
>>> Then lets do it!
```

I think we should do it

```
No we shouldn't
| Well, I say we should
Really?
| Yes!
| | Then lets do it!
```

Tables

DokuWiki supports a simple syntax to create tables.

Heading 1	Heading 2	Heading 3
Row 1 Col 1	Row 1 Col 2	Row 1 Col 3
Row 2 Col 1	some colspan (note the double pipe)	
Row 3 Col 1	Row 3 Col 2	Row 3 Col 3

Table rows have to start and end with a | for normal rows or a ^ for headers.

```
^ Heading 1      ^ Heading 2      ^ Heading 3      ^
| Row 1 Col 1   | Row 1 Col 2   | Row 1 Col 3   |
| Row 2 Col 1   | some colspan (note the double pipe) ||
| Row 3 Col 1   | Row 3 Col 2   | Row 3 Col 3   |
```

To connect cells horizontally, just make the next cell completely empty as shown above. Be sure to have always the same amount of cell separators!

Vertical tableheaders are possible, too.

	Heading 1	Heading 2
Heading 3	Row 1 Col 2	Row 1 Col 3
Heading 4	no colspan this time	
Heading 5	Row 2 Col 2	Row 2 Col 3

As you can see, it's the cell separator before a cell which decides about the formatting:

```
|           ^ Heading 1           ^ Heading 2           ^
^ Heading 3 | Row 1 Col 2           | Row 1 Col 3           |
^ Heading 4 | no colspan this time |           |
^ Heading 5 | Row 2 Col 2           | Row 2 Col 3           |
```

You can have rowspans (vertically connected cells) by adding :: into the cells below the one to which they should connect.

Heading 1	Heading 2	Heading 3
Row 1 Col 1		Row 1 Col 3
Row 2 Col 1	this cell spans vertically	Row 2 Col 3
Row 3 Col 1		Row 2 Col 3

Apart from the rowspan syntax those cells should not contain anything else.

```
^ Heading 1           ^ Heading 2           ^ Heading 3           ^
| Row 1 Col 1       | this cell spans vertically | Row 1 Col 3           |
| Row 2 Col 1       | :::                       | Row 2 Col 3           |
| Row 3 Col 1       | :::                       | Row 2 Col 3           |
```

You can align the table contents, too. Just add at least two whitespaces at the opposite end of your text: Add two spaces on the left to align right, two spaces on the right to align left and two spaces at least at both ends for centered text.

Table with alignment		
right	center	left
left	right	center
xxxxxxxxxxxxxx	xxxxxxxxxxxxxx	xxxxxxxxxxxxxx

This is how it looks in the source:

```
^           Table with alignment           ^^^
|           right|           center |left           |
|left           |           right|           center           |
| xxxxxxxxxxxxxx | xxxxxxxxxxxxxx | xxxxxxxxxxxxxx |
```

Note: Vertical alignment is not supported.

No Formatting

If you need to display text exactly like it is typed (without any formatting), enclose the area either with <nowiki> tags or even simpler, with double percent signs %%.

This is some text which contains addresses like this: <https://www.splitbrain.org> and **formatting**, but nothing is done with it. The same is true for `//_this_ text//` with a smiley ;-).

```
<nowiki>
This is some text which contains addresses like this: https://www.splitbrain.org and
```

```

**formatting**, but nothing is done with it.
</nowiki>
The same is true for %%//__this__ text// with a smiley ;-)%%.

```

Code Blocks

You can include code blocks into your documents by either indenting them by at least two spaces (like used for the previous examples) or by using the tags `<code>` or `<file>`.

```

This is text is indented by two spaces.

```

```

This is preformatted code all spaces are preserved: like          <-this

```

```

This is pretty much the same, but you could use it to show that you quoted a file.

```

Those blocks were created by this source:

```

This is text is indented by two spaces.

```

```

<code>
This is preformatted code all spaces are preserved: like          <-this
</code>

```

```

<file>
This is pretty much the same, but you could use it to show that you quoted a file.
</file>

```

Syntax Highlighting

[DokuWiki](#) can highlight sourcecode, which makes it easier to read. It uses the [GeSHi](#) Generic Syntax Highlighter – so any language supported by GeSHi is supported. The syntax uses the same code and file blocks described in the previous section, but this time the name of the language syntax to be highlighted is included inside the tag, e.g. `<code java>` or `<file java>`.

```

/**
 * The HelloWorldApp class implements an application that
 * simply displays "Hello World!" to the standard output.
 */
class HelloWorldApp {
    public static void main(String[] args) {
        System.out.println("Hello World!"); //Display the string.
    }
}

```

The following language strings are currently recognized:

```

4cs 6502acme 6502kickass 6502tasm 68000devpac abap actionscript3 actionscript ada
aimms algol68 apache applescript apt_sources arm asm asp asymptote autoconf autohotkey

```

```

autoit avisynth awk bascomavr bash basic4gl batch bf biblatex bibtex blitzbasic bnf
boo caddcl cadlisp ceylon cfdg cfm chaiscript chapel cil c_loadrunner clojure c_mac
cmake cobol coffeescript c cpp cpp-qt cpp-winapi csharp css cuesheet c_winapi dart dcl
dcpul6 dcs delphi diff div dos dot d ecascript eiffel email epc e erlang euphoria ezt
fl falcon fo fortran freebasic freeswitch fsharp gambas gdb genero genie gettext glsl
gml gnuplot go groovy gwbasic haskell haxe higest hq9plus html html4strict html5 icon
idl ini inno intercal io ispfpanel java5 java javascript jcl j jquery julia kixtart
klonec klonecpp kotlin latex lb ldif lisp llvm locobasic logtalk lolcode lotusformulas
lotusscript lscript lsl2 lua m68k magiksf make mapbasic mathematica matlab mercury
metapost mirc mk-61 mmix modula2 modula3 mpasm mxml mysql nagios netrexx newlisp nginx
nimrod nsis oberon2 objc object ocaml-brief ocaml octave oobas oorexx oracle11 oracle8
oxygene oz parasail parigp pascal pcre perl6 perl per pf phix php-brief php pic16 pike
pixelbender pli plsqli postgresql postscript povray powerbuilder powershell proftpd
progress prolog properties providex purebasic pycon pys60 python qbasic qml q racket
rails rbs rebol reg rexx robots rpmspec rsplus ruby rust sas sass scala scheme scilab
scl sdlbasic smalltalk smarty spark sparql sql standardml stonscript swift
systemverilog tclegg tcl teraterm texgraph text thinbasic tsql twig typoscript unicon
upc urbi uscript vala vbnet vb vbscript vedit verilog vhdl vim visualfoxpro
visualprolog whitespace whois winbatch xbasic xml xoyo xorg_conf xpp yaml z80 zbasic

```

There are additional [advanced options](#) available for syntax highlighting, such as highlighting lines or adding line numbers.

Downloadable Code Blocks

When you use the `<code>` or `<file>` syntax as above, you might want to make the shown code available for download as well. You can do this by specifying a file name after language code like this:

```

<file php myexample.php>
<?php echo "hello world!"; ?>
</file>

```

[myexample.php](#)

```

<?php echo "hello world!"; ?>

```

If you don't want any highlighting but want a downloadable file, specify a dash (-) as the language code: `<code - myfile.foo>`.

Embedding HTML and PHP

You can embed raw HTML or PHP code into your documents by using the `<html>` or `<php>` tags. (Use uppercase tags if you need to enclose block level elements.)

HTML example:

```

<html>
This is some <span style="color:red;font-size:150%;">inline HTML</span>

```

```
</html>
<HTML>
<p style="border:2px dashed red;">And this is some block HTML</p>
</HTML>
```

This is some **inline HTML**

And this is some block HTML

PHP example:


```
<php>
echo 'The PHP version: ';
echo phpversion();
echo ' (generated inline HTML)';
</php>
<PHP>
echo '<table class="inline"><tr><td>The same, but inside a block level element:</td>';
echo '<td>'.phpversion().'</td>';
echo '</tr></table>';
</PHP>
```

```
<php> echo 'The PHP version: '; echo phpversion(); echo ' (inline HTML)'; </php> <PHP> echo '<table
class="inline"><tr><td>The same, but inside a block level element:</td>'; echo '<td>'.phpversion().'</td>'; echo
'</tr></table>'; </PHP>
```

Please Note: HTML and PHP embedding is disabled by default in the configuration. If disabled, the code is displayed instead of executed.

RSS/ATOM Feed Aggregation

[dokuwiki](#) can integrate data from external XML feeds. For parsing the XML feeds, [SimplePie](#) is used. All formats understood by SimplePie can be used in DokuWiki as well. You can influence the rendering by multiple additional space separated parameters:

Parameter	Description
any number	will be used as maximum number items to show, defaults to 8
reverse	display the last items in the feed first
author	show item authors names
date	show item dates
description	show the item description. If  HTML is disabled all tags will be stripped
nosort	do not sort the items in the feed
n[dhm]	refresh period, where d=days, h=hours, m=minutes. (e.g. 12h = 12 hours).

The refresh period defaults to 4 hours. Any value below 10 minutes will be treated as 10 minutes. [DokuWiki](#) will generally try to supply a cached version of a page, obviously this is inappropriate when the page contains dynamic external content. The parameter tells [DokuWiki](#) to re-render the page if it is more than *refresh period* since the page was last rendered.

By default the feed will be sorted by date, newest items first. You can sort it by oldest first using the reverse parameter, or display the feed as is with nosort.

Example:

```
{{rss>https://slashdot.org/index.rss 5 author date 1h }}
```


- [Remembering How Microsoft's Fake Windows Error Ended In a \\$280 Million Secret Settlement](#) by EditorDavid (2026/06/30 03:34)
- [Ford Rehires 'Gray Beard' Engineers After AI Falls Short](#) by EditorDavid (2026/06/29 22:34)
- [South Korea Plans To Train Entire Military As 'Drone Warriors'](#) by EditorDavid (2026/06/29 17:34)
- [Ex-Governors, Big Tech Launch Coalition To Help Workers 'Navigate the AI Economy'](#) by EditorDavid (2026/06/29 12:34)
- [IBM Says It Can Fit Nearly 100 Billion Transistors On a Chip](#) by EditorDavid (2026/06/29 07:34)

Control Macros

Some syntax influences how DokuWiki renders a page without creating any output it self. The following control macros are available:

Macro	Description
~~NOTOC~~	If this macro is found on the page, no table of contents will be created
~~NOCACHE~~	DokuWiki caches all output by default. Sometimes this might not be wanted (eg. when the <php> syntax above is used), adding this macro will force DokuWiki to re-render a page on every call

Syntax Plugins

DokuWiki's syntax can be extended by  [Plugins](#). How the installed plugins are used is described on their appropriate description pages. The following syntax plugins are available in this particular DokuWiki installation:

- [Blockquote Plugin 2020-09-27](#) by [Anika Henke](#) (previous author: [Gina Haeussge](#))
Write quotations in a semantically correct way
- [Blog 2023-10-24](#) by [Michael Hamann](#), [Michael Klier](#), [Gina Haeussge](#)
Use DokuWiki as blogging tool. (previous authors: [Esther Brunner](#))
- [Changes Plugin 2023-12-14](#) by [Andreas Gohr](#)
List the most recent changes of the wiki
- [comment 2023-08-18](#) by [Gina Häußge](#), [Michael Klier](#)
Add comments/notes to your wiki source that won't be shown on the page.
- [config:htmllok Plugin 2023-07-12](#) by [Luis Machuca Bezzaza](#)
Enables raw HTML like the old 'config:htmllok' behaviour.
- [Structured Data Plugin 2024-01-30](#) by [Andreas Gohr](#)
Add and query structured data in your wiki
- [date plugin 2016-08-28](#) by [Marcel Pietschmann](#)
Wrapper about the php command strftime and date
- [Diagrams plugin 2025-10-15](#) by [Innovakom + CosmoCode](#)
Embed diagrams.net editor (formerly draw.io)
- [discussion plugin 2025-07-04](#) by [Michael Hamann](#), [Gerrit Uitslag](#), [Gina Häussge](#), [Christopher Smith](#), [Michael](#)

[Klier, Esther Brunner, Matthias Schulte](#)

Provides discussion functionality for wiki pages

- [Dw2Pdf plugin 2026-01-08](#) by [Andreas Gohr and Luigi Micco](#)
DokuWiki to PDF converter
- [geogebra6 syntax plugin 2020-11-08](#) by [Patrick Truchon](#)
Embed GeoGebra 6 files into Dokuwiki
- [hidden Plugin 2023-11-07](#) by [Guillaume Turri](#)
Enable to hide/show details
- [include plugin 2023-09-22](#) by [Michael Hamann, Gina Häußge, Christopher Smith, Michael Klier, Esther Brunner](#)
Functions to include another page in a wiki page
- [Info Plugin 2020-06-04](#) by [Andreas Gohr](#)
Displays information about various DokuWiki internals
- [keyboard 2023-02-23](#) by [Gina Häußge](#)
The keyboard plugin provides a combined syntax and action plugin in order to markup text as keyboard keys, similar to (and making use of) the existing (X)HTML tag `<kbd>...</kbd>`. A quick button for the markup is automatically inserted into the toolbar of the edit form.
- [Lastmod Plugin 2016-02-03](#) by [Dennis Ploeger](#)
Displays the timestamp of the last modification of the current or another page.
- [Mathjax plugin 2021-11-20](#) by [Mark Liffiton](#)
Enables MathJax (<https://www.mathjax.org/>) parsing of TeX math expressions in wiki pages
- [Pagebreak plugin 2016-02-16](#) by [Jonathan McBride and Chris Sturm](#)
Inserts " `<br style="page-break-after:always;">` " into the html of the document for every `<pagebreak>` it encounters
- [Pagelist Plugin 2023-08-27](#) by [Matthias Schulte, Michael Hamann, Michael Klier, Gina Häußge](#)
Lists pages in a nice formatted way
- [PageQuery Plugin 2025-03-04](#) by [Mark C. Prins, previously Symon Bent](#)
Search for (fulltext) and list wiki pages, sorted and optionally grouped by name, date, creator, abc, etc. in columns. Insert the pagequery markup wherever you want your list to appear.
E.g. `{{pagequery>[query;fulltext;sort=key:direction,key2:direction;group;limit=??;cols=?;inwords;proper]}}`
[..] = optional
- [PDF.js 2020-06-29](#) by [Szymon Olewniczak](#)
Show pdf files using PDF.js
- [sortablejs 2025-12-09](#) by [vaxquis](#)
Allow sorting tables by columns
- [svgEmbed plugin 2025-07-07](#) by [Emma Bowers](#)
Allows the use of the standard media syntax, but SVG files are placed with the `<object>` or `<embed>` tag, not the `` tag.
- [Table Width Plugin 2022-08-09](#) by [Mykola Ostrovskyy](#)
Allows to specify width of table columns.
- [Typography plugin 2020-07-31](#) by [Satoshi Sahara](#)
Enable typesetting capabilities with CSS font properties such as font face, size, weight, and color of text
- [Video Sharing Site Plugin 2025-12-10](#) by [Andreas Gohr](#)
Easily embed videos from various Video Sharing sites. Example: `{{youtube>XXXXXX}}`
- [Wrap Plugin 2023-08-13](#) by [Anika Henke](#)
Universal plugin which combines functionalities of many other plugins. Wrap wiki text inside containers (divs or spans) and give them a class (choose from a variety of preset classes), a width and/or a language with its associated text direction.

- [Simple universal list plugin](#) 2023-06-30 by [Mark C. Prins, previously Ben Slusky](#)
Extend DokuWiki list syntax to allow definition list and multiple paragraphs in a list entry

1)

This is a footnote

2)

when the aspect ratio of the given width and height doesn't match that of the image, it will be cropped to the new ratio before resizing