

Choosing a \LaTeX document class

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August 4, 2018

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What a document class is

Introduction

Command. In the a \LaTeX file, the first line of code is generally: `\documentclass{class-name}`. As the command name states, it corresponds to the choice of a document class.

Effects. The document class has several effects, including:

- the type of document which is generated (report, slides, etc.),
- the base layout of the document (level of headings, base font size, margins...),
- sometimes an automatic call to specific packages or a limitation in packages that can be loaded.

We will return to what a “package” is in tutorial B005.

What a document class is

Standard classes

Any \LaTeX distribution embeds document classes which answer to most needs: the so-called *standard classes*.

They are generally sufficient for most people but they can suffer from the drawbacks listed below:

- not well-suited to European standards (e.g., margins),
- limited or complicated possibilities of layout modifications,
- too “mainstream” (no, I’m kidding).

To answer specific needs, the big \LaTeX community has proposed many *alternative classes* [CTAN]. Nevertheless, the user must be aware that:

- some classes might not be available in all \LaTeX distributions,
- some classes are marginally used (so is the maintenance).

Hence this tutorial which does not aim to present an exhaustive list of all existing classes but rather to show some interesting ones.

Classes for common documents

L^AT_EX's standard classes: presentation

The table below presents the main standard classes used for most of the documents that are written:

Class	Highest heading	
	Name	Level
article	section	0
report	chapter	1
book	part	2

Refer to the “*_complier__std_” files in the “Examples” folder to see the difference.

Classes for common documents

L^AT_EX's standard classes: options review (1)

Paper size. By default, the document is a portrait paper. It is possible to use the `landscape` option.

Most common options are:

Option	Physical dimensions	
	Height	Width
<code>a4paper</code>	297 mm	210 mm
<code>a5paper</code>	210 mm	148 mm
<code>b5paper</code>	250 mm	176 mm

The physical dimensions are accessible within the document with the `\paperwidth` and `\paperheight` commands.

Font size. Three options: `10pt`, `11pt`, `12pt`.

Classes for common documents

L^AT_EX's standard classes: options review (2)

Printed sides. Two options: `oneside` (default for article and report), `twoside` (default for book).

Chapter starting page. Two options:

- 1 `openright` to force chapters to start on a right-hand page by creating an empty left-hand page if necessary,
- 2 `openany` to start chapters on any page.

These options are not valid for article as there are no chapters.

Number of columns Two options: `onecolumn`, `twocolumn`.

Maths-related options.

By default, equation tags (numbers) are created on the right-hand side. This is modified by the `leqno` option.

By default, displayed math environments (cf. tutorial B100) are centred. They can be flushed left with the `fleqn` option.

Classes for common documents

KOMA-Script classes: presentation

An alternative to the standard classes are the KOMA-Script classes. They provide default document layout that are specifically well-suited for European standard.

KOMA-Script can be considered as an extension to \LaTeX . It provides many keys to facilitate the user's life (e.g., `\addchap{}`), add fields (e.g., subtitle and dedication) and to easily change the document layout without loading additional packages.

The table below presents the main classes used for most of the documents that are written:

Class	Highest heading	
	Name	Level
scrartcl	section	0
scrreprt	chapter	1
scrbook	part	2

Classes for common documents

KOMA-Script classes: options review (1)

Paper size. By default, the document is a portrait paper. It is possible to use the `landscape` value for the `paper` key.

In addition, the `paper` key can also takes a value which specifies the size of the document. Most common are:

Value	Physical dimensions	
	Height	Width
A4	297 mm	210 mm
A5	210 mm	148 mm
B5	250 mm	176 mm

Font size. The key is `fontsize` and can take several values: 10pt, 11pt, 12pt.

Classes for common documents

KOMA-Script classes: options review (2)

Printed sides. Two options: `oneside` (default for article and report), `twoside` (default for book).

Chapter starting page. Three values for the `open` key option:

- 1 `right` to force chapters to start on a right-hand page by creating an empty left-hand page if necessary,
- 2 `left` which does the inverse of `right`,
- 3 `any` to start chapters on any page.

These options are not valid for `scrartcl` as there are no chapters.

Number of columns Two options: `onecolumn`, `twocolumn`.

Maths-related options.

By default, equation tags (numbers) are created on the right-hand side. This is modified by the `leqno` option.

By default, displayed math environments (cf. tutorial B100) are centred. They can be flushed left with the `fleqn` option.

Alternate classes for common documents

Class	Highest heading	Heading level
memoir	book	3
octavo	chapter	2
ncc	option-dependent	N/A
novel	N/A	N/A

Alternate classes for other documents

Paper and journals

Class	Journal
elsarticle	Elsevier journals
IEEEtran	IEEE Transactions journals and conferences

Miscellaneous

Class	Purpose
beamer	Presentation (slides)
powerdot	Presentation (slides)
moderncv	Curriculum Vitae
modernposter	Scientific poster
tikzposter	Scientific poster

 Comprehensive T_EX Archive Network (CTAN).
Class, <https://ctan.org/topic/class>.