

LaTeX/基础

维基教科书，自由的教学读本

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文件類型

LaTeX在处理输入文档(input file)时,首先需要的信息就是**文档类型**,由\documentclass这个指令来定义:

```
\documentclass[options]{class}
```

这里,"class(种类)"指定了将要被创建的文档的类型. LaTeX 也为其他种类的文件提供了额外的类型设置, 包括信件(letters)和幻灯片(slides). 选项参数(英文为options parameter, 指的应该是花括号里的内容)定义了\documentclass这个指令的行为.选项参数之间必须有逗号(comma)隔开.

例如:一个LaTeX文档可以由类似下行的样子开始。

```
\documentclass[11pt,twoside,a4paper]{article}
```

上述指令告訴 Latex 在本文檔長寬 A4 紙張相同，文字採双边編排（即奇偶页左右边距正好相反），基本字體大小是 11pt。

以下是LaTeX支持的一些文档类型。

文档类型

article	科学期刊文章、演示、短小的报告、程序文档、邀请函等文档
IEEEtran	for articles with the IEEE Transactions format.
proc	a class for proceedings based on the article class.
minimal	is as small as it can get. It only sets a page size and a base font. It is mainly used for debugging purposes.
report	for longer reports containing several chapters, small books, thesis, ...
book	實體書籍寫作
slides	for slides. The class uses big sans serif letters.
memoir	for changing sensibly the output of the document. It is based on the book class, but you can create any kind of document with it [1] (http://www.ctan.org/tex-archive/macros/latex/contrib/memoir/memman.pdf)
letter	信件寫作
beamer	for writing presentations (see LaTeX/Presentations).

The most common options for the standard document classes are listed in the following table:

Document Class Options

10pt, 11pt, 12pt	設定該文件主字體的大小，如果沒有設置的話會以10pt作為預設值。
a4paper, letterpaper, ...	Defines the paper size. The default size is letterpaper; However, many European distributions of TeX now come pre-set for A4, not Letter, and this is also true of all distributions of pdfLaTeX. Besides that, a5paper, b5paper, executivepaper, and legalpaper can be specified.
fleqn	Typesets displayed formulas left-aligned instead of centered.
leqno	Places the numbering of formulae on the left hand side instead of the right.
titlepage, notitlepage	Specifies whether a new page should be started after the document title or not. The article class does not start a new page by default, while report and book do.
onecolumn, twocolumn	指示LaTeX此文件要以單列 (onecolumn) 或双列 (twocolumn) 進行排版
twoside, oneside	Specifies whether double or single sided output should be generated. The classes article and report are single sided and the book class is double sided by default. Note that this option concerns the style of the document only. The option twoside does not tell the printer you use that it should actually make a two-sided printout.
landscape	Changes the layout of the document to print in landscape mode.
openright, openany	Makes chapters begin either only on right hand pages or on the next page available. This does not work with the article class, as it does not know about chapters. The report class by default starts chapters on the next page available and the book class starts them on right hand pages.
draft	makes LaTeX indicate hyphenation and justification problems with a small square in the right-hand margin of the problem line so they can be located quickly by a human. It also suppresses the inclusion of images and shows only a frame where they would normally occur.

For example, if you want a report to be in 12pt type on A4, but printed one-sided in draft mode, you would use:

```
\documentclass[12pt,a4paper,oneside,draft]{report}
```

套件

While writing your document, you will probably find that there are some areas where basic LaTeX cannot solve your problem. If you want to include graphics, colored text or source code from a file into your document, you need to enhance the capabilities of LaTeX. Such enhancements are called packages. Packages are activated with the

```
\usepackage[options]{package}
```

command, where package is the name of the package and options is a list of keywords that trigger special features in the package. Some packages come with the LaTeX base distribution. Others are provided separately.

Modern TeX distributions come with a large number of packages pre-installed. If you are working on a Unix system, use the command `texdoc` for accessing package documentation. For more information, see the [Packages](#) section.

你將遇到的檔案類型

當你使用LaTeX後，很快你就會發現你會處在一堆不同副檔名的檔案迷宮裡面，甚至於找不到這些檔案來源的線索。以下表格將會解釋使用TeX時最常見的檔案類型。

LaTeX中常見的副檔名

.aux	A file that transports information from one compiler run to the next. Among other things, the .aux file is used to store information associated with cross-references.
.bb1	BiBTeX產生供LaTeX使用的參考書目檔
.bib	參考書目資料庫檔案
.blg	BiBTeX紀錄檔
.bst	BiBTeX樣式檔
.cls	定義文件外觀的類別檔，藉由\documentclass指令來進行選擇
.dtx	Documented TeX. This is the main distribution format for LaTeX style files. If you process a .dtx file you get documented macro code of the LaTeX package contained in the .dtx file.
.ins	The installer for the files contained in the matching .dtx file. If you download a LaTeX package from the net, you will normally get a .dtx and a .ins file. Run LaTeX on the .ins file to unpack the .dtx file.
.fd	告訴LaTeX新字體資訊的描述檔
.dvi	(Device Independent File. This is the main result of a LaTeX compile run with <i>latex</i> . You can look at its content with a DVI previewer program or you can send it to a printer with dvips or a similar application.
.pdf	Portable Document Format. This is the main result of a LaTeX compile run with <i>pdflatex</i> . You can look at its content or print it with any PDF viewer.
.log	Gives a detailed account of what happened during the last compiler run.
.toc	Stores all your section headers. It gets read in for the next compiler run and is used to produce the table of contents.
.lof	This is like .toc but for the list of figures.
.lot	And again the same for the list of tables.
.idx	If your document contains an index. LaTeX stores all the words that go into the index in this file. Process this file with makeindex.
.ind	The processed .idx file, ready for inclusion into your document on the next compile cycle.
.ilg	Logfile telling what makeindex did.
.sty	LaTeX Macro package. This is a file you can load into your LaTeX document using the \usepackage command.
.tex	LaTeX or TeX input file. It can be compiled with latex.

大型計畫

在進行大型文件編寫時，你可能會想要把檔案分成數個部份。LaTeX有三種指令在建立文件時引入另外一個檔案。

最簡單的是\input指令：

\input{filename}

\input會插入另外一個檔案的內容，叫做`filename.tex`；注意.tex副檔名是被省略的。For all practical purposes, \input is no more than a simple, automated cut-and-paste of the source code in `filename.tex`.

The other main inclusion command is \include:

`\include{filename}`

The `\include` command is different from `\input` in that it's the output that is added instead of the commands from the other files. Therefore a new page will be created at every `\include` command, which makes it appropriate to use it for large entities such as book chapters.

Very large documents (that usually include many files) take a very long time to compile, and most users find it convenient to test their last changes by including only the files they have been working on. One option is to hunt down all `\include` commands in the inclusion hierarchy and to comment them out:

```
%\include{filename1}      \include{filename2}      \include{filename3}  
%\include{filename4}
```

In this case, the user wants to include only *filename2.tex* and *filename3.tex*. If the inclusion hierarchy is intricate, commenting can become error-prone: page numbering will change, and any cross references won't work. A better alternative is to retain the include calls and use the `\includeonly` command *in the preamble*:

`\includeonly{filename2,filename3}`

This way, only `\include` commands for the specified files will be executed, and inclusion will be handled in only one place. Note that there must be no spaces between the filenames and the commas.

Remember that the input file should omit all the commands referring to the main document structure, which should be kept in the original document file. This includes lines containing `usepackages`, document class, and everything but the code strictly referring to the section that is to be included. In this way you'll avoid finding characters of your code in the output document, or worse, not finding anything after the included file, in case you forget to erase the

`\end{document}`

line of your included file.

選擇適合檔名

Never, ever use directories (folders) or file names that contain spaces. Although your operating system probably supports them, some don't, and they will only cause grief and tears with TeX. Make filenames as short or as long as you wish, but strictly avoid spaces. Stick to lower-case letters without accents (a-z), the digits 0-9, the hyphen (-), and the full point or period (.), (similar to the conventions for a Web URL): it will let you refer to TeX files over the Web more easily and make your files more portable. Some operating systems do not distinguish between upper-case and lower-case letters, others do. Therefore it's best not to mix them.

團隊合作

See chapter [LaTeX/Collaborative Writing of LaTeX Documents/](#).

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