

Graphics

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27. September 2012

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1 Basic

`LATEX`include a package to simplify the insertion of graphics in your document. All you have to do is make sure the graphics you have are in the right format.

We'll be only covering the process using the `pdflatex` driver, which has been recommended from the start.

All you need to do in order to start playing with graphics in `LATEX`, is to include `\usepackage{graphicx}` in the preamble.

1.1 Graphics path

Latex will always look for your pictures in your document's directory, and sometimes it's good enough.

However sometimes it's desirable to have the picture in a sub-folder to keep things organized, specially if you intend to include several pictures.

There is only one pragmatic and practical way to accomplish this in `LATEX`: The `\graphicspath` command.

This is considered as obsolete according to the `l2tabu` document, but the arguments seem to be coming from a non-pragmatic point of view, with no viable alternative solution for people who just want to include graphics.

We recommend however to keep your picture folders relative to your working directory.

Here in this document, we'll be storing pictures in the sub-folder `pics` so the command becomes `\graphicspath{{pics/}}`. The extra curly braces is because

you might want to include several graphics path, and so to avoid ambiguity, you have to enclose paths in curly braces.

In future documents you might have pictures and figures to include in your documents, and you might want to keep them in two different sub-folders like *pics* and *figures*, the command would then be: `\graphicspath{{pics/}{figures/}}`

1.2 Inserting the first picture



That's all it take to insert a picture! The name of the picture without the extension. \LaTeX will look for a picture with the name `lonely-tree`, in the current directory or the path specified by `\graphicspath`, in the formats supported by `pdflatex` in our case.

For reference purposes those formats are: `jpg`, `png`, `pdf` and `eps`.

Not all tex installations can handle filenames with spaces. So it's better to avoid them.

Notice that latex doesn't resize the picture to fit the document's size, and that is not what you want most of the time, however the `graphicx` package has some tools we'll cover in the next section to remedy that problem.

2 Advanced

2.1 Scaling, resizing, rotating and trimming!

2.1.1 Scaling



You have the possibility to scale an image by a desired scale factor. Here we multiply the dimensions by a factor of 0.2, or $\frac{1}{5}$, effectively reducing the size by 5.

2.1.2 Resizing



There might be a time you might want to scale a picture to a specific size, but not necessarily know the factor by which you would have to multiply for scaling. The solution here is using the *width* and *height* options of the `\includegraphics` command.

The above examples here set either the width or the height, and the picture is scaled down to that size, respecting the aspect ratio.



However, if both height and width are set, the image will be scaled according to both height and width, and in case your original aspect ratio, is different from the one specified through the *width* and *height* option, the picture will distort.

If that behavior is undesirable, it's possible to use the *keepaspectratio=true* option in order to scale the picture according to both width and height, and still keep the aspect ratio of the picture.

2.1.3 Rotating



The *angle* option specifies by how much to rotate the image in degrees counted **counter-clockwise**.

And as you can see, you can accumulate the scaling and rotating options.

2.1.4 Trimming



The *trim=l b r t* option specifies by how much to trim on each side of your picture, and the *clip* option applies the trimming, effectively cropping your picture.

This option will crop the included image by the lengths specified: **l** from the *left*, **b** from the *bottom*, **r** from the *right*, and **t** from the *top*.

Note that the order for trimming is always counter-clockwise, starting on the left.

You can accumulate scaling, rotating, and trimming, but notice that every time while using those options, it applies to the original picture's state.

2.2 Picture border



The concept of boxes will be studied later, but right now, in order to have a border around our picture, we'll be using a **framebox**, also shortened as **fbox**.

To set a border around a picture simply use the `\framebox` command, passing your `\includegraphics` command as an argument like in the example.

There are two aspects of a framebox we can adjust:

- The margin between the content and the frame (or border), set in `\fboxsep`, setting this to 0pts, will snap the border on the picture.
- The frame or border thickness, set in `\fboxrule`.

Those aspects can be both set and modified using the `\setlength` command like in the examples above.

Using graphics \LaTeX can be fun but also tricky. For more information concerning the graphics in \LaTeX , you should have a look in the <http://www.ctan.org/tex-archive/macros/latex/required/graphics/grfguide.pdf>.