SMSTC (2007/08)

Using the `smstc.sty` style file

Penny J Davies, University of Strathclyde[a]

`www.smstc.ac.uk`

Contents

Notes on using the LaTeX style file `smstc.sty` to produce printed notes for $\mathcal{SMSTC}$ streams. This file and all associated material is available for download from

`http://www.maths.strath.ac.uk/~aas96109/latex/`

Section 1 is aimed at stream leaders and raises some of the issues which need to be sorted out at "stream level". Information on using the `smstc.sty` file is given in Section 2.

The listed $\mathcal{SMSTC}$ web site `www.smstc.ac.uk` is not live yet.

---

[a]`penny@maths.strath.ac.uk`

```
SMSTC (2007/08)
Using the smstc.sty style file
Section 1: For stream leaders

www.smstc.ac.uk
```

Contents

1.1   Requirements for $\mathcal{SMSTC}$ printed notes

1–1. Notation should be used consistently within a stream. (And achieving this may not be easy.)

1–2. You will need to decide what to use as a "logical unit" throughout the notes — i.e. does each individual contribution count as one "unit", no matter how many lectures it covers, or is a "unit" the material for one lecture?

1–3. Each contribution to a stream should "look" the same — `smstc.sty` does this automatically.

1–4. It must be possible to combine contributions into one file at a later date without much effort. (The file `smstc.sty` does this, but you will also need a sensible policy on how to define new macros.)

1.2   Essential settings

You need to define some variables in a LaTeX document which uses the `smstc.sty` style file. One of these is `\Unitname`, the name given to your "logical unit" (such as "Lecture" or "Chapter"). The same name should be used throughout the stream.

1.3   Electronic notes

The electronic notes you produce from your LaTeX file(s) should be in PDF format. They will be hosted on a (password protected) website for staff and registered students to download. The first page of the output produced by `smstc.sty` just contains a "Table of Contents" (TOC). So if you are producing one PDF file per unit (rather than compiling a lot of units into one file) it would be sensible to suppress printing this TOC file when you produce the PDF.

Contents

2.1   Files to download

The file `smstc.sty` and all associated material is available for download from

`http://www.maths.strath.ac.uk/~aas96109/latex/`

The files are listed below, together with a brief description

File name	Description
`Readme.pdf`	this file
`smstc.sty`	the $\mathcal{SMSTC}$ style file
`pjdone.tex`	LaTeX file showing how to use `smstc.sty` to produce one "unit"
`pjdtwo.tex`	LaTeX file showing how to use `smstc.sty` to produce two or more "units" in one document
`figure.eps`	Figure file used by `pjdone.tex` and `pjdtwo.tex`
`pjdbib.bib`	Sample .bib file to show how to use BibTeX with `pjdone.tex` and `pjdtwo.tex`
`pjdone.pdf`	PDF output from `pjdone.tex`
`pjdtwo.pdf`	PDF output from `pjdtwo.tex`

2.2   Quick start: one unit in the document

The `smstc.sty` style file loads a number of packages, all of which are part of the standard LaTeX2e implementation. If you get an error saying that LaTeX cannot find a particular package (`.sty` file), then you will need to contact your system administrator. **Note:** `smstc.sty` uses the `report` class.

Using `smstc.sty` to create a single "unit" is straightforward. A sample file `pjdone.tex` is available and you should download this and the figure file `figure.eps`. Running the command `latex pjdone` (three times) should produce the file `pjdone.dvi` which looks the same as `pjdone.pdf`. It will probably be helpful to print out both the LaTeX file `pjdone.tex` and its "output" `pjdone.pdf`.

You need to make three definitions before the `\begin{document}` command: the name of your stream, the generic name for an individual unit, and the academic year that the notes will be used in. So for

example, if the Algebra stream has decided to use the generic name "Chapter" for a unit, then the correct definitions are:

```
\Streamname{Algebra}
\Unitname{Chapter}
\Thisyear{2007/08}
```

You also need to define the unit's author(s), using either the `\Author` or `\AuthorFt` commands. The `\AuthorFt` command gives an email address for each author as a footnote, and this is defined using the `\Email` command (once per author in the correct order). Examples are provided in `pjdone.tex`. These commands need to be inserted before the `\begin{unit}` command (they can come before or after `\begin{document}`).

Your document needs to begin with the two lines:

```
\begin{document}
\initdoc
```

(The command `\initdoc` is needed to initialize the `minitoc` package — see Section 2.4 below.)

To begin the unit you need to specify what number it is and its title. For example, if you are producing material for the third unit, and the title of your contribution is "Finite element methods" then you start the unit with the line:

```
\begin{unit}{3}{Finite element methods}
```

Then input your contribution. The file `pjdone.tex` gives details on Sections, Theorems, Figures, References, etc. End your contribution with the lines

```
\end{unit}
\end{document}
```

2.3   Producing more than one "unit" in one document

The style file `smstc.sty` uses the `report` class, and a `unit` is basically a `chapter` with a different heading and bibliography style. This makes it easy to write multiple units in one document, and the file `pjdtwo.tex` is an example.

Each unit is started with a separate `\begin{unit}` command (and the unit number has to be explicitly included each time). If the author(s) of unit $N + 1$ are different from those of unit N, then new author(s) should be defined (using `\Author` or `\AuthorFt` and `\Email`) **before** the `\begin{unit}{N+1}{}` command. Be careful to use the correct number of `\Email` commands if new authors are defined with `\AuthorFt`.

2.4   Tables of contents

The style file `smstc.sty` uses the `minitoc` package, and this produces a global table of contents (TOC) at the start of the document (on page (i), (ii), . . .). Each unit also contains its own 'mini' table of contents. The format of this appears to be hardwired into the package, and does not change if e.g. the array row spacing or rule width are altered.

The 'global' TOC is useful if the document has many units, but not if it just consists of one unit. In this latter case it is probably best not to include the first page in the unit's PDF file.

2.5   References: manually or with BibTeX

The files `pjdone.tex` and `pjdtwo.tex` show the style that should be used for manual references (i.e. those input in a `thebibliography` environment). It is straightforward to use BibTeX for references (using the `siam` bibliography style) when there is only one unit in the document, but a bit messy when there is more than one unit (see `pjdtwo.tex` for a description of what to do). Other options would be to use e.g. the `chapterbib` package, which allows a separate bibliography for each included file. (I have not tried this package out.)

Note that a different reference label should be used for occurrences of the same reference in different units — see `pjdtwo.tex`.

2.6 Producing PDF output

Convert your LaTeX file to PDF in the usual way, but note that you may wish to ignore the first page (the global TOC) if your file just contains one unit (see Section 2.4). You should run LaTeX **three** times before creating a PDF file to ensure that all the TOC links are correct.

2.7 When things go wrong

Here are a few things to watch out for.

- Remember to use the `report` class at the start of your LaTeX document.

- Remember to define a unit's author(s) **before** the `\begin{unit}` command. This is done using either the `\Author` or `\AuthorFt` commands (`\AuthorFt` also requires one `\Email` command per author).

- If there is more than one unit in your document and the author information changes, then be careful to use the correct number of `\Email` commands if new authors are defined with `\AuthorFt`.

- If you start to use the `hyperref` package then you should delete the `.aux` and `.toc` files before using it (not doing so can cause some weird errors).

- Note also that the `hyperref` package is known to mess up the page layout by increasing the top margin. If this happens, then redefine the margin to make it smaller than the settings given in `smstc.sty` — e.g. to make the top margin 2cm less than that in `smstc.sty` use

  `\topmargin = -3.47cm`

- Run LaTeX **three** times before creating a PDF file to ensure that all the TOC links are correct.