ATLAS NOTE

16th October 2014

Users guide to the ATLAS LaTeX package

Ian C. Brock

University of Bonn

Abstract

The usage of the ATLAS LaTeX templates and style files is documented here. The options that are available are given, as well as the packages that can be loaded using these files. Information on the setups used to test the packages is given and some help with the conversion of the document to the LaTeX format needed for journal submission is being added.

This document was generated using version 01-03-05 of the ATLAS LaTeX package.

Contents

1 Introduction

This collection of ATLAS LaTeX templates, style files and documentation can be used for papers, pre-prints and notes. All necessary files are collected in a single package called `atlaslatex`. The package is available from the web pages of the Publication Committee [1] and from SVN [2].

The collection replaces and hopefully improves on the previous packages. In particular it supersedes:

- `atlasnote-00-04-05`
- `atlascover-00-00-11`
- `atlaspreprint-00-00-05`
- `atlasbib-00-00-04`

Section 10 summarises the changes that have been made and how you can adapt your documents to use the new package. Section 11 summarises the changes to the cover macros.

The package includes the `atlasdoc` class, useful style files and documentation of the package. The documentation is provided as both PDF files and LaTeX documents that should provide examples of how to use the package and how to write good LaTeX.

The design principle is that you have a main document and the style files and `atlasdoc` class are in a subdirectory `latex`. This subdirectory can of course be a link to a centrally maintained `latex` directory. See Section 6 for the changes that have to be made if you want to install the package in a central place.

The usual procedure is that for each document that you create, you first unpack the latest version of `atlaslatex` and then create your main document in the top-level directory. This structure means that it is easier to update the style files if a new version of `atlaslatex` is released. Each document can then be independent of the `atlaslatex` release.

To create a new document you can issue the commands:

```
make new BASENAME=mydocument
```

This command copies `atlas-document.tex` and `atlas-document-metadata.tex` to `mydocument.tex` and `mydocument-metadata.tex`. It also creates empty files `mydocument-defs.sty` and `mydocument.bib`.

In the `Makefile` you should change the `BASENAME` to the name of your document. You can then compile your document with the command: `make`.

Note that you have to specify the language of your document as an option in the `\documentclass` command. Typical settings are

- UKenglish (or british)

- USenglish (or american)

2 Title, author and document numbers

An ATLAS document usually collects a series of labels over time. These include the reference code of the analysis, e.g. `BPHY-2013-04`, the ATLAS note number and the CERN preprint number. In addition the abstract and title are needed on the front page of the document and also on various cover pages. The editors of the document, the editorial board members and the contributors to the analysis also need to be specified at some point.

While all this information can be collected in the main file of the document, it is probably better to put it all in a separate document. By default this file is called `mydocument-metadata.tex`.

2.1 Authors and Contributors

The supporting documentation for an ATLAS note should contain a list of the contributors to the analysis. A style file `atlascontribute.sty` has been written to help with the creation of such a list. The macros in the style file can also build the author list at the same time. Two basic macros are used to add names to the author list and list of contributions: `\AtlasContributor` and `\AtlasAuthorContributor`. The first macro adds a person to the list of contributors, while the second one also adds the person to the author list. I assume that in almost all cases you will want to use `\AtlasAuthorContributor`. Typical commands are:

```
\AtlasAuthorContributor{Joe Student}{a}{fake background estimate.}
\AtlasAuthorContributor{Jane Student}{b}{top background estimate.}
\AtlasAuthorContributor{John Postdoc}{a}{editor of internal note.}
\AtlasContributor{Jo Helper}{useful contributions in a few places.}
\affil[a]{University of Nowhere}
\affil[b]{University of Somewhere}
```

If a person should be added to the author list, you also need to add an appropriate affiliation using the macro `\affil`. The optional argument is a letter or number that should also be given as the second argument to `\AtlasAuthorContributor`.

You can keep the list of authors and contributors separate by using `\author` for the authors and `\AtlasContribute` for the contributors. You print the list of contributors by giving the command `\PrintAtlasContribute`. Note that `\PrintAtlasContribute` has na argument that gives the fraction of the line width to be used for the name of the person. The list should either be printed before the table of contents or after the conclusions (i.e. where the Acknowledgements appear in a paper).

Note that `authblk` assumes that you will also have affiliations for each author. You can avoid them by using the syntax `\author{[ ]{Author Name}}`. Note that a space is needed in the optional argument. This means that a space appears between the author name and the comma after it, which is not so nice. Alternatively you can make the author list using the syntax:
`\author{Joe Student \and Jane Student \and John Postdoc}` and avoid the use of the `authblk` package by giving the option authblk=false to `atlascontribute`.

Note that the `atlascontribute` package requires that the packages `array` and `booktabs` be installed. If the list of contributors is very long, it may spread over more than one page. The `tabular` environment does not like this. Add the option xtab to use `xtab` instead.

2.2 Special author lists

Sometimes a PUB note has a special author list. Hence a link to this list should be added to the front page. This can be achieved with the following code snippet that should be used for the author:

```
\usepackage[marginal,hang]{footmisc}
\setlength{\footnotemargin}{0.5em}
\usepackage{authblk}
\author{The ATLAS Collaboration%
\thanks{The full author list can be found at:\\
  \url{https://atlas.web.cern.ch/Atlas/PUBNOTES/ATL-PHYS-PUB-2014-YYY/authorlist.pdf}
  \vspace*{1.0ex}}%
}
```

Note that `atlasdoc` has to be loaded with the option `nomaketitle` and `\maketitle` should be added after `\begin{document}`.

2.3 Metadata commands

The standard list of metadata commands are given below. More are available for the draft cover page when a paper, CONF note or PUB note draft is circulated to the collaboration.
See `template/atlas-document-metadata.tex` for more details.

- `\AtlasTitle{<Title>}` typesets the paper title. If not given, you get either an error or a dummy title will be produced.

- `\author{<Author>}` typesets the paper author. If not explicitly given, *The ATLAS Collaborations* will be used by default. Note that the `\author{}` command is pretty limited in case you want to display multiple author names and multiple affiliations. For this use case the `authblk.sty` package is provided; this is a typical example of its use:

  ```
  \usepackage{authblk}
  \renewcommand\Authands{, } % avoid ``. and'' for last author
  \renewcommand\Affilfont{\itshape\small} % affiliation formatting

  \author[a]{First Author}
  \author[a]{Second Author}
  \author[b]{Third Author}

  \affil[a]{One Institution}
  \affil[b]{Another Institution}
  ```

  See also Section 2.1 if you want to combine the creation of a list of authors and contributors.

- `\AtlasAbstract{<The abstract text>}` typesets the abstract on the front page and cover page.

- `\date{<Date>}` typesets the paper date. If not explicitly given, the current date (`\today`) will be used.

- `\AtlasVersion{<Draft Version>}` displays the draft version on the front page, a DRAFT banner on all the other page headings, and adds line numbers to all text to easy commenting and reviewing. Can be omitted.

- `\AtlasJournal{<Journal Name>}` displays the phrase *to be submitted to Journal Name* at the bottom of the front page and on the cover page. Can be omitted.

- `\AtlasRefCode{<Reference code>}` displays the ATLAS standard reference code, e.g. `BPHY-2014-03`, on the front page and the cover page. Not shown on the front page if the note number is given.

- `\AtlasNote{<Note number>}` displays the note number for a CONF, PUB, INT or COM note, e.g. `ATLAS-CONF-2014-23`, on the front page and cover page. If the note number is given, the reference code is not shown.

- `\PreprintIdNumber{<Preprint number>}` displays the CERN preprint number on the front page.

- `\arXivId{<arXiv identifier>}` displays the arXiv reference on the front page.

- `\skipbeforetitle{<length>}` sets the distance between the title page header and the note title. The default value should be fine for most notes, but in case you have a long list of authors or a lengthy abstract you can use this command to buy some extra space. Note that `<length>` can also be negative (use it at your own risk!).

`template/atlas-document.tex` contains a basic skeleton that can be used to start typing a new note using the `atlasdoc` class. Many of the custom commands described above are used in this example file, in order to demonstrate their use.

Links to supporting documentation should also be included on the cover page of draft papers circulated to ATLAS. They can be included using `\AtlasCoverSupportingNote{Short title}{CDS link}`. It is also possible to give a TWiki page instead, but this is deprecated. As mentioned above, see `template/atlas-document-metadata.tex` for more details.

3 The `atlasdoc` class

This document has been typeset using the `atlasdoc.cls` class.

The `atlasdoc` class can use either the standard LaTeX `article` class as its basis or the KOMA-Script `sctartcl` class. All the usual commands and options you usually use with `article` or `scrartcl` should work with it. You turn on the use of KOMA-Script with the option koma. For instance, this document has been produced using this very simple preamble:

```
\documentclass[koma,UKenglish]{latex/atlasdoc}
\usepackage{latex/atlaspackage}
\usepackage{latex/atlasphysics}
\graphicspath{{../../logos/}{figures/}}
```

Note that the document language must be specified, otherwise `babel` will complain.

The LaTeX packages that are used in the document are mostly specified in `latex/atlaspackage.sty`.

The style file `latex/atlasphysics.sty` defines a lot of useful macros for particles and more. See the separate document `atlas-physics.pdf` [3] for details.

If you want to use `\biblatex` you need to add the option biblatex when you include `atlaspackage`. Have a look at the `latex/atlaspackage.sty` to see how biblatex is included. In your main document you use `\addbibresource` in the preamble to include your `.bib` files.

As mentioned above, you have to specify the document language as an option to `atlasdoc`. Several more options can be set:

a4paper Set paper size to A4 (default);

letter Set paper size to letter;

coverpage Include an ATLAS draft cover page;

preprint Make the front page for a CERN preprint;

CONF The document is a CONF note;

PUB The document is an PUB note;

nomaketitle Do not create a title page; to make it yourself give the command `\maketitle` after `\begin{document}`

koma Use the KOMA-Script base class `scrartcl` instead of `article`. Note that some tuning of the KOMA-Script options still needs to be done.

Note that the options CONF and PUB get passed to `atlascover.sty` as they only influence the cover pages.

3.1 Dependencies and `atlaspackage`

The `atlasdoc` class depends on these packages, whose presence in your system is required:

- `xcolor`: add colours to LaTeX;
- `babel`: become language aware;
- `graphicx`: include graphics in the document;
- `lineno`: add line numbers to documents;
- `txfonts`: the standard ATLAS document font;
- `fancyhdr`: defines header for draft mode;
- `scrdate, scrtime`: Current date and time for use in the header.

These should be installed in any modern LaTeX installation. Note that under Ubuntu, `lineno` can be found in the `texlive-humanities` package! If you cannot find it, it is also included in `latex/other`. Copy it to you main directory, or to `${HOME}/texmf/tex/latex` in order to make it centrally available.

All style files, `atlascover`, `atlascontribute`, `atlaspackage` and `atlasphysics`, need the package `kvoptions` so that they can process options where a value for an option should be set.

`atlascover` also needs `hyperref`. Have a look at `templates/atlas-draft-cover.tex` to see how to include it by hand. You can also simply use `atlaspackage.sty`

The style file `atlaspackage.sty` includes further packages. You can steer how many by using the option minimal, default or full. The minimal set is:

- `amsmath`: extra useful maths environments;
- `inputenc`: allow ä, ö, ø, ß, etc. to be input directly;
- `fontenc`: output font encoding;
- `hyperref`: add hyperlinks and ability to click on cross-references;
- `savesym`: needed to avoid errors, as `txfonts` and `amsmath` define the same symbols.

The default set adds in addition:

- `booktabs`: nicer tables. Use `\toprule`, `\midrule` and `\bottomrule` instead of `\hline`;
- `footmisc`: extra footnote options;
- `mhchem`: chemical elements and molecules;
- `siunitx`: units package with extra functionality for tables;
- `subfig`: more than one plot in a figure;
- `tocloft`: extra options for typesetting table of contents etc.

Finally the full set includes further packages that may be useful:

- `csquotes` automatic quoting, which obeys language options;
- `xtab` newer version of supertabular, which allows tabular environments to go over more than one page;
- `rotating` rotate figures, tables, etc.;
- `xfrac` nicer fractions.

Further options are:

biblatex=true|false (false) Turn on/off use of `biblatex` and `biber`.
hyperref=true|false (true) Turn on/off use of `hyperref`.
siunitx=true|false (true) Do not include the `siunitx` package.
subfigure=true|false (false) Use `subfigure` instead of `subfig`.
texlive=2009 Set if you use and older version of TEX Live like 2009. The only value that has an effect is 2009, which this uses old (Version 1) option names for `siunitx`.

`lineno.sty` and `authblk.sty` are also provided in `latex/other`. They should be part of a standard LATEX installation though.

There used to be a problem using the `tikz` package with `atlasnote`. With `atlasdoc` this problem seems to have gone away. `tikz` is not included in `atlaspackage`. If you want to use it, just add the usual \usepackage{tikz} to your preamble.

3.2 Cover pages

The package also provides cover pages for the circulations of ATLAS drafts and for the front page for the CERN preprint version of an ATLAS paper. A further cover page is provided for a document containing auxiliary material associated with a preprint/paper. The style can be found in `latex/atlascover.sty`.

If you wish to use the `atlascover` package with the `atlasdoc` class, you should usually use the `coverpage` option of the class:

```
\documentclass[coverpage,UKenglish]{latex/atlasdoc}
```

instead of the the usual `usepackage` command: this will ensure that the cover page is produced before the note title page.

You can include `atlascover` with \usepackage if you prefer. In this case you need the option `nomaketitle` in the `atlasdoc` class (if you are using it) and you include the \maketitle command after \begin{document}.

The following options can be passed on to the `atlascover` package:

CONF the document is a CONF note;

PUB the document is an PUB note;

preprint the front page should be in the form of a CERN preprint;

auxmat the front page for a document containing auxiliary material from a paper;

twocolumn use this option if your document is formatted in two columns;

atlasdoc this option is set by `atlasdoc` and is not usually needed by the user.

Some journal styles, especially JHEP, produce an ATLAS draft cover page that is offset. You can use the options hoffset and voffset to move the text around. JHEP needs `hoffset=1in, voffset=1in`. revtex (APS journals) looks better with `hoffset=-0.25in, voffset=-0.25in`.

3.3 ATLAS notes

If you include the macro `\AtlasNote` in your preamble, the note number will be printed under "ATLAS NOTE" at the top of your document. This can be used for any sort of ATLAS note, including CONF, PUB and INT notes.

3.4 Auxiliary material

Some papers have many pages of extra tables and plots that are mainly of use to theorists who need extra information. Such material can be collected in a separate document. The front page for this document is formatted using the `auxmat` option. If you use this option you should specify the arXiv preprint identifier using the macro `\arXivId` and the HepData record using the macro `\HepDataRecord`. This information is then included on the cover page in the form of clickable links.

Use of this option also adds the arXiv preprint identifier to the top of every page of the document.

4 Symbols in `atlasphysics.sty`

Many useful symbols are defined in `atlasphysics.sty`. While this used to be a very long file, it has now been split into several smaller files, which can be included or not using options. The definitions can be found in a separate document `atlas-physics.pdf`.

5 Platforms and LaTeX Versions

The `atlasdoc` class works both with LaTeX and PDFLaTeX. I recommend to use PDFLaTeX and this is now the default.

I would expect everything to work with TeX Live 2012 or later. Before that some option names for `siunitx` were different, and `biblatex` and `biber` were not really stable.

If you have TeX Live 2009, include the package `atlaspackage` with the option texlive=2009. This will then include `siunitx` with the correct options for Version 1.

The `atlaslatex` package should work under Linux, MacOSX and Windows. The following sections give some details on the installations that I use for testing things.

5.1 Ubuntu 14.04

I test things using Xubuntu 14.04. I start with the standard TeX Live installation (package `texlive`). The following extra packages had to be installed:

- `texlive-latex-extra` (footmisc);
- `texlive-humanities` (lineno);
- `texlive-science` (siunitx)
- `texlive-bibtex-extra` and `biber` (biblatex and biber).

5.2 Ubuntu 12.04

I also did some tests with Xubuntu 12.04. By default this has TeX Live 2009 installed. You need to include `atlaspackage` with the option texlive=2009. The following extra packages had to be installed:

- `texlive-latex-extra` (footmisc);

- `texlive-humanities` (lineno);
- `texlive-science` (siunitx)
- `biblatex` (biblatex and biber).

5.3 lxplus

It works out of the box, if you modify your `PATH` to use a recent version of TEX Live. Set your `PATH` as follows:

```
export PATH=/afs/cern.ch/sw/XML/texlive/latest/bin/x86_64-linux:$PATH
```

5.4 Fedora 20

Fedora 20 is an RPM-based distribution that is the version of Red Hat made for normal users.

I started with a fairly basic setup. As I tested things with a virtual machine, I had to install the "Guest Additions", which also need things like the header files. I then installed the following:

- `texlive`: basic TEX Live installation;
- `texlive-lineno` (lineno);
- `texlive-savesym` (savesym);
- `texlive-placeins` (placeins).
- `texlive-tocloft` (tocloft);
- `texlive-siunitx` (siunitx);
- `texlive-preprint` (authblk);
- `texlive-biblatex` (biblatex);
- `texlive-booktabs` (booktabs);
- `texlive-xtab` (xtab);

Finally, in order to use `biber` rather than BIBTEX, I had to download the appropriate binary from SourceForge: http://biblatex-biber.sourceforge.net. In order to choose which binary you want you have to go to http://sourceforge.net/projects/biblatex-biber/ and click your way through. The 1.8 version of `biber` seems to work fine.

An alternative (and probably better) way to install `biber` is to follow the instructions that can be found on http://copr.fedoraproject.org/coprs/cbm/Biber/. You have to add a new repository to `yum` and then you can install `biber` like any other package.

In order to download the `atlaslatex` package, I had to install `svn`.

5.5 CentOS 7

CentOS is an RPM-based distribution that is supposed to form the basis of future release of Scientific Linux.

I started with a fairly basic setup that included tools for development. I then installed the "Technical Writing" collection. In addition I needed

- `texlive-booktabs` (booktabs);
- `texlive-preprint` (authblk);
- `texlive-tocloft` (tocloft);
- `texlive-xtab` (xtab);
- `texlive-placeins` (placeins).

However, I still got complaints about `lineno.sty`, `siunitx.sty`, `biblatex.sty` and `logreq.sty`. I was not able to find these in the standard RPM repositories. You can either get and install them from CTAN (`lineno.sty` is also available in `latex/other`), or install your own TeX Live distribution.

Finally, in order to use `biber` rather than BibTeX, I had to download the appropriate binary from SourceForge: http://biblatex-biber.sourceforge.net. In order to choose which binary you want you have to go to http://sourceforge.net/projects/biblatex-biber/ and click your way through. The 1.9 version of `biber` seems to work fine. This makes sense, as `biblatex` from CTAN is also a recent version.

5.6 Windows 7

MikTeX 2.9 (http://miktex.org) and TeXstudio 2.8.2 (http://texstudio.sourceforge.net). MikTeX has the advantage that it installs missing packages, provided you activated that option. However, I had to install `babel-english` before I could compile any of the documents.

If you want to compile the documentation under Windows you have to do some gymnastics, because I use links to find the style files. Windows 7 support symbolic links, but you have to create them. Hence the first step if to remove any `latex` directory links. These can be found in the directories: `journal`, `doc/atlas-bibtex`, `doc/atlas-latex`, `doc/atlas-paper`, `doc/atlas-physics`, `doc/atlas-rounding`. To create the link you use the `mklink` command. You run this in a `cmd` window, which you start as an Administrator. Here is what I did in the directory `doc/atlas-bibtex`:

```
mklink /D \
  "C:\Users\brock\Documents\atlas\latex\atlaslatex\doc\atlas-bibtex\latex" \
  "C:\Users\brock\Documents\atlas\latex\atlaslatex\latex"
```

This information I found under http://www.howtogeek.com/howto/16226/complete-guide-to-symbolic-links-symlinks-on-windows-or-linux/

5.7 MacOSX 10.9

I do all my development with MacOSX. Hence I would not expect any problems here, provided again you have a fairly recent installation of MacTeX. I use MacTeX (which I download from http://www.tug.org/mactex) and TeXstudio 2.8.2.

6 Installation of `atlaslatex` in `texmf` tree

As mentioned in the introduction, the `atlasdoc` class and the style files can all be found in the `latex` subdirectory. The template documents are set up to pick up the style files from there.

If you want to install the package in a central area do the following:

- Unpack the tarball;

- Copy the style directory to `${HOME}/texmf/tex/latex/atlaslatex`;

- Copy the contents of the `bibtex/bst` and `bibtex/bib` directories to `${HOME}/texmf/bibtex/bst` and `${HOME}/texmf/bibtex/bst`, respectively.

You can also checkout the two directory trees from SVN:

```
cd ~/texmf/tex/latex
svn co svn+ssh://svn.cern.ch/reps/atlasgroups/pubcom/latex/atlaslatex/trunk/latex atlaslatex
cd ~/texmf
svn co svn+ssh://svn.cern.ch/reps/atlasgroups/pubcom/latex/atlaslatex/trunk/bibtex
```

The advantage of using SVN is that you can keep the package up to date, by just giving the command `svn update` in the two directories. If you already have a `bibtex` directory, first move it out of the way, then checkout from SVN and then move the contents of the old directory back into the `bibtex` tree.

In the template files, you have to change

From	To
\documentclass{latex/atlasdoc}	\documentclass{atlasdoc}
\usepackage{latex/atlaspackage}	\usepackage{atlaspackage}
\usepackage{latex/atlasphysics}	\usepackage{atlasphysics}
\usepackage{latex/atlasconribute}	\usepackage{atlascontribute}

If you are using BibTEX you also have to change
`\bibliographystyle{bibtex/bst/atlasBibStyleWoTitle}` to
`\bibliographystyle{atlasBibStyleWoTitle}`

7 Journal templates

This section collects information on where the LATEX templates for the different journals can be found and how to use them. The directory `journal` contains a very basic paper outline with the preamble needed for different journals. So far the `atlaslatex` package has been tested with the classes for Elsevier and APS journals and the style file used for JHEP and JINST.

Elsevier Elsevier uses the `elsarticle` class which should be already installed if you have a standard TEX Live distribution. It can also be found at http://www.elsevier.com/locate/latex.

APS APS journals use REVTEX. This is also usually installed. It can also be found at https://journals.aps.org/revtex. Note that you have to specify the author after `\begin{document}` with this class. Hence you should comment out the definition in your metadata file, e.g. `mydocument-metadata.tex`. If you want line numbers in a document typeset using REVTEX, it is best to use the class option linenumbers. In addition you should include `atlaspackage` with the option lineno=false.

JHEP The package can be downloaded from http://jhep.sissa.it/jhep/help/JHEP_TeXclass.jsp. It contains a style file `jheppub.sty` as well as a BibTEX style file `JHEP.bst`.

8 Miscellaneous LATEX tips

8.1 Graphics

Use the `graphicx` package to include your plots and figures. The use of older packages like `espfig` is deprecated. Since the `graphicx` package is required by the `atlasdoc` class, it is automatically loaded when using it, and there is no need to explicitly included it in the document preamble.

Always include your graphics file without giving the file extension. For instance, if you want to include the `figure.eps` file, you should use a syntax like this:

`\includegraphics[width=\textwidth]{figure}`

This will allow you to compile your document using either LaTeX or pdfLaTeX without changing your source file: you can in fact have both `figure.eps` and `figure.pdf` in your working directory, and the proper one will be picked up according to the processing method you choose.

It is a good habit to keep your graphics files in a separate sub-directory (e.g. in `figures/`. In this case you can include them by mentioning it explicitly every time:

`\includegraphics[width=\textwidth]{figures/figure}`

or by telling the `graphicx` package where to look for them, by using this command:

`\graphicspath{{figures/}}`

8.2 Definitions

You can use `\ensuremath` in definitions, so that they will work in both text mode and math mode, e.g. `\newcommand{\UoneS}{\ensuremath{\Upsilon(\mathrm{1S})}\xspace}` to get $\Upsilon(1S)$ in either mode (`\UoneS{}` or `$\UoneS$`).

I highly recommend that you also terminate every definition with `\xspace`, as then you can use the definitions without having to terminate them with "`\`" or "`{}`".

9 Remarks on units and symbols

As discussed in the ATLAS Paper Template [4], it is highly recommended to use a units package to format your units properly. The package `siunitx` works very well and is the package of choice. Alternatives include `units` and `hepunits`, which is based on `SIunits`.

The basic command to use in `siunitx` is `\SI{20}{\GeV}` to get $20\,\text{GeV}$. There are also several other useful commands for specifying ranges: `\numrange` for a range of numbers and `SIrange` for a range of numbers with a unit. Options exist for specifying how they are formatted. The options can be set for an individual command or for the whole document. For example, in this document I have specified the options:
`\sisetup{separate-uncertainty, range-units=repeat, detect-family=true}` and
`\sisetup{group-digits=integer, group-minimum-digits=4}`.

In addition several extra units are defined:

- `\micron` for μm;

- `\mrad` for mrad;

- `\nb` for nb;

- `\pb` for pb;

- `\fb` for fb.

Use the syntax `\SI{20.3}{\per\fb}` to get $20.3\,\text{fb}^{-1}$.

Some things to note about using `siunitx`:

- It tries to isolate itself from other packages. If you just want to write GeV in your text, then you must write `\si{\GeV}`.

- It also contains two new column specifiers for tables "S" and "s", which are extremely useful for formatting tables properly.

The option names are somewhat different for TeX Live 2009, as this contained `siunitx` Version 1. You can use the older options by including `atlaspackage` with the option texlive=2009.

9.1 p_T or E_T – that is the question

Bold math should be automatically invoked in titles. This short section tests whether that works properly. It is of course good if things like p_T and E_T are automatically in bold face in a header and normal font in the text (and table of contents).

With the current setup, this works OK. However, if you use the option koma, which then typesets titles using a sans serif font, the p and E are typeset with a serif font and T is typeset with a sans serif font, which is probably not what one wants! Work is still ongoing to find the optimal set of options – search for `detect` in the `siunitx` manual, to see the complete set of possibilities.

9.2 Line numbers

Line numbers can be printed using the `lineno` package, which is included by default.

In order to avoid line numbers going slightly wrong around figures and tables, separate the `figure` and `table` environment from the rest of the text using blank lines.

If you use AMS Math LaTeX environments such as `align` line numbering may be interrupted around the environment. Enclose the environment in a `linenomath` environment to fix this problem:

```
\begin{linenomath}
\begin{equation*}
  E = m c^{2}
\end{equation*}
\end{linenomath}
```

9.3 Positions of figures and tables

In an ATLAS paper, all figures and tables should be printed before the conclusions. You can achieve this by using the macro `\FloatBarrier` from the `placeins` package.

In general, as mentioned above, you should separate the figure and table environments from the text by blank lines. This helps the line numbers. The standard options to use for the placement are [htbp].

10 From `atlasnote` to `atlasdoc`

The `atlasdoc` class replaces and supersedes `atlasnote`. The decision was taken to give the class a new name, as it is supposed to be able to be used for (almost) all ATLAS documents. Some small changes in the user setup are necessary to use the new class, style files and templates.

All style files are collected in the `latex` subdirectory. It is assumed that this directory is a direct subdirectory of you main LaTeX file. If you want to keep the style files in a central place you can either

put them in `${HOME}/texmf/tex/latex` or create a link from your main directory to the location of your `latex` directory.

The main changes the user has to make are:

- Change the class name from `atlasnote` to `latex/atlasdoc`;

- Specify the document language as an option: UKenglish or USenglish;

- Add `\usepackage{latex/atlaspackage}` at the beginning of the document;

- Change `\usepackage{atlasphysics}` to `\usepackage{latex/atlasphysics}`;

- Use the macro `\AtlasTitle` instead of `\title`.

The language specification means that dates etc. are also formatted according to the document language. If you use the package `\csquotes`, quotation symbols are also consistently and properly set when you use `\enquote`.

All the documentation now uses `biblatex` and `biber` instead of BibTeX. The templates provide information on how to make the change in your own document.

As of `atlaslatex-01-00-00` the same macro names are used in both `atlasdoc` and `atlascover` so that title, journal, version number and abstract only need to be specified once. This means that if you start from an old preamble the following changes should be made:

Old	New
\title	\AtlasTitle
\draftversion	\AtlasVersion
\atlasnote	\AtlasNote
\journal	\AtlasJournal
\abstracttext	\AtlasAbstract

If you use the old macro names `\draftversion`, `\journal`, `\abstracttext`, they will continue to work in the document itself, but not on the cover page.

The class and style files have been cleaned up and things that were thought to no longer be necessary have been removed. These pieces have been collected in `latex/atlasnote-obsolete.sty` in case they are needed. If something important has got lost, please let me know.

The `subfigure` package has been replaced with `subfig`, as `subfigure` is now deprecated. If you use `subfig`, then you have to use `\subfloat` instead of `\subfigure`. If you want to continue to use `subfigure` include `atlaspackage` with the option subfigure=true. Similarly, if you do not want to include `siunitx` set the option siunitx=false.

11 Changes in `atlascover-01-00-00`

As of `atlascover-01-00-00` the same macro names are used in both `atlasdoc` and `atlascover` so that title, journal and version number only need to be specified once. This means that if you start from an old cover page the following changes have to be made:

Old	New
\AtlasCoverPaperTitle	\AtlasTitle
\AtlasCoverNumber	\AtlasRefCode
\AtlasCoverPaperVersion	\AtlasVersion
\AtlasCoverJournal	\AtlasJournal
\AtlasCoverAbstract	\AtlasAbstract

Note that `atlaspreprint` is integrated into `atlascover` and not maintained as a separate style file. To get the CERN preprint front page, you have to include the option preprint when you invoke `atlasdoc`. If you start from an old preprint front page the following changes have to be made:

Old	New
\PreprintCoverPaperTitle	\AtlasTitle
\PreprintJournalName	\AtlasJournal
\PreprintCoverAbstract	\AtlasAbstract

The following changes are needed for the macros:

- The macro \AtlasCoverEdBoardMember only has one argument, as a generic email list now exists for every EdBoard.

History

Quite a lot of people have contributed to the ATLAS LaTeX templates over time. Marco Delmastro set them up in the first place and added a number of improvements over time. Mike Vetterli implemented several changes to the cover pages, including switching to two pages. Cristina Oropeza, Vasia Mitsou, Chris Hays and Mike Vetterli all made contributions to the preprint cover page.

Sven Menke provided the code so that bold math works in titles correctly.

References

[1] *Publication Templates*.
URL: http://twiki.cern.ch/twiki/pub/AtlasProtected/PubComTemplates.

[2] *Publication Templates in SVN*.
URL: https://svnweb.cern.ch/trac/atlasgroups/browser/pubcom/latex.

[3] *Symbols defined in* `atlasphysics.sty`.
URL: https://twiki.cern.ch/twiki/pub/AtlasProtected/PubComTemplates/atlas-physics.pdf.

[4] *A template for ATLAS papers*. URL: http://twiki.cern.ch/twiki/pub/AtlasProtected/PubComTemplates/atlas-paper.pdf.