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## A Guide to Producing JDN and JTS Documents using $\LaTeX$

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### Abstract

This document gives an introduction into producing CODAS JDN and JTS documents using the UNIX based LaTeX typesetting program. It is intended for non-LaTeX users who may like to find out more about LaTeX and as a quick reference guide for infrequent users.

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### Distribution

CODAS Document Centre, web page [http://w3.jet.efda.org/CODAS/Document\\_Library](http://w3.jet.efda.org/CODAS/Document_Library) .  
CODAS via E-mail

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## Chapter 1 Introduction

This guide has been produced and is maintained so that Jet LaTeX users have an up-to-date reference and new users can pick up how to use LaTeX to produce JDN and JTS documents.

### Note:

Authors should consult “Procedure for Issuing CODAS Documents and Drawings” [JDN/H\(01\)30\[1\]](#) before producing a document. It gives more comprehensive instructions into the official CODAS document procedure.

### 1.1 What is L<sup>A</sup>T<sub>E</sub>X

LaTeX (pronounced lay-tech) enables authors to typeset their work at the highest typographical quality, using a predefined template. A quote from “The Not So Short Introduction to L<sup>A</sup>T<sub>E</sub>X2E”

“Typographical design is a craft. The problem with WYSIWYG<sup>1</sup> word processors, is that often unskilled authors make serious formatting errors by assuming the document design is mostly a question of aesthetics.” [3]

The primary difference between LaTeX and Microsoft Word is that you don’t need to bother about the typography. For LaTeX you supply a text file that has been arranged in a logical order using tags to indicate headings etc, in a similar way to HTML. The text file is “compiled” using LaTeX and an output file is generated. This could be a *.pdf* file for example.

The CODAS JDN and JTS typographical layout has been pre-defined in the `jetdoc.cls` class file. It contains all the typographical information required to set out the JDN or JTS on paper in a standardised format.

### 1.2 A Brief History

L<sup>A</sup>T<sub>E</sub>X was first introduced in 1982 and has seen many changes over its continual development. As a consequence most of Jet’s LaTeX documents differ somewhat. Fortunately for us LaTeX is backward compatible with most items, however some packages used by LaTeX are not fully compatible, a little tweaking here and there normally gets things going again.

LaTeX is available in various flavours, one of which is pdfLaTeX. PdfLaTeX can be used to produce *.pdf* files directly from the text source file, whereas normal LaTeX is generally used to produce *.ps* (Post-Script) files for printing. There are other variants like Rev-TeX that can produce specialised scientific formulae but are not in common use here.

### 1.3 Today at Jet

This document contains information about the most commonly used LaTeX packages that we use or have used at Jet. There are quite a few other packages that can be used with LaTeX and if you would like to delve a little deeper into LaTeX then most are available in the TeTeX distribution we have installed at Jet in this directory `/common/tex`.

---

<sup>1</sup>What You See Is What You Get

## **colophon**

The source and ancillary files of this document are available at:–  
`/work/spc/LaTeX/jdn`

## Chapter 2 Your First L<sup>A</sup>T<sub>E</sub>X JDN

The document source file is created in ASCII text format, therefore we can use a standard text editor, e.g. vi, xemacs or nedit. Note that we can add comments in our source file by proceeding them with the % character.

The document structure is split into 5 sections as follows:–

1. Preamble
2. Title Page
3. Document Start
4. Document Body
5. Postamble

### 2.1 The Preamble

Our preamble<sup>1</sup> should look something like this :–

```
%--document-preamble-----  
  
\documentclass [OPTIONS] {jetdoc}  
\usepackage {makeidx}  
\makeindex  
  
%--end-preamble-----
```

Figure 2.1: The Preamble

The preamble is where the document class is defined, its also where LaTeX packages are included. The preamble has been reduced to these three lines, previously an if/then structure that switched various macros on or off depending on whether you were using LaTeX of pdfLaTeX was used. The if/then structure has now been implemented into the `\documentclass{jetdoc}` class file, and automatically selects the correct macros and standard packages<sup>2</sup> to use. The preamble as seen above would normally consist of `\documentclass [OPTIONS] {jetdoc}` which instructs LaTeX to use the `jetdoc.cls` class file for typographical information. The [OPTIONS] are optional parameters that can be set depending upon your requirements, they are separated by commas and are as follows :–

- [oneside] Right hand pages for printing single sided.
  - [twoside] Right and left pages for duplex printing.
1. [twoside,openany] Chapters start on next available page, left or right.

---

<sup>1</sup>this preamble is part of the Test File in Appendix A.2

<sup>2</sup>Packages are discussed in Chapter 4

2. [twoside,openright] Chapters to start on next right hand page only.

The `\makeindex` command ensures that the index file `myfile.idx` is created when the source file is compiled, see Chapter 9 for more details.

## 2.2 The Title Page

The title page typography as seen in Appendix A.1 is also pre-defined in the `jetdoc.cls` class file, in our source file we have to fill in the required arguments as shown below.

```
%--title-page-----  
  
\jetdoc{JDN/H(00)999}  
\supercedes{JDN/H(95)999}  
\issue{1}  
\date{21st August 2000}  
\title{Your First LaTeX JDN}  
\keywords{SOME,KEYWORDS}  
\abstract{Insert your documents abstract here}  
\author{Your Name}  
\reviewer{Your Reviewer}  
\approver{Your Approver}  
\distribution{  
CODAS~via~E-mail,  
A~Person,  
A~Person,  
A~Person}  
  
%--end-title-----
```

Figure 2.2: The Title Page

### Jetdoc Number

The `\jetdoc{JDN(00)999}` is the reference number of the JDN document you are composing, these can be obtained from the CODAS secretary or from the CODAS documentation centre.

### Supersedes

If your document is to supersede an already listed document, use the `\supercedes` command to specify it.

### Issue and Date

The `\issue...` command will set the issue number, an integer number, and the `\date...` will set the date of issue. The `\date...` command may be omitted if desired, note though that the issue date will change to the date you are compiling on.

## Title, Author, Reviewer, Approver

The `\title...` sets the title of the document and the `\author` sets the author, which can contain any number of authors separated by commas, note the use of the tilde character `~` see Chapter 2.4 for details. The `\reviewer...` would be your manager e.g. group leader or a SSRO etc. whilst `\approver...` would normally be the unit head.

## Keywords

Keywords are entered here in capitals separated by commas. The author selects the keywords from the ELECTRA database, selecting appropriate words that have a relative meaning to the document. In ELECTRA keywords are available from the documentation page (8) from the root menu and (2) from the sub-menu.

## Abstract

In the `\abstract` argument we enter a short description of our JDN, what its purpose is and to whom it maybe useful.

## Distribution List

The `\distribution...` argument will set the distribution list. Normally all of CODAS via E-mail is set, plus anyone outside the CODAS unit.

## 2.3 Document Start

The document start section<sup>3</sup> as seen below contains items such as the table of contents and page numbering details.

```
%--document-start-----  
  
\begin{document}  
\maketitle  
\cleardoublepage  
\pagenumbering{roman}  
\tableofcontents  
\listoftables  
\listoffigures  
\cleardoublepage  
\pagenumbering{arabic}  
  
%--end-start-----
```

Figure 2.3: Document Start

---

<sup>3</sup>this document start section is part of the Test File in Appendix A.2

## Begin Document

The `\begin{document}` must always be present at the start of the document, and its pair `\end{document}` should be the end, see Chapter 2.5 for details.

## The Maketitle Command

The `\maketitle` command compiles the title page using the arguments entered previously in the title section, see Figure 2.2.

## Clearpage and Cleardoublepage

The `\clearpage` and `\cleardoublepage` commands reset L<sup>A</sup>T<sub>E</sub>X to start printing text on next page or new left hand page respectively at the top left.

## Pagenumbering

The `\pagenumbering{roman}` command sets the page numbering to Roman numerals and `\pagenumbering{arabic}` sets them to Arabic 1,2,3 etc.

## Table of Contents

The `\tableofcontents` command makes a table of contents using the `\chapter` `\section` `\subsection` and `\subsubsection` hierarchy order. The Table of Contents maybe omitted if desired.

## List of Tables and Figures

The `\listoftables` and `\listoffigures` commands are optional and when used create a contents page for tables and figures using the `\label{table:xxx}` and `\label{fig:xxx}` labels<sup>4</sup>.

## 2.4 The Document Body

The document body<sup>5</sup> as seen in Figure 2.4 should be set out in a logical hierarchal order. Starting with `\chapter` and `\section` then `\subsection` and even `\subsubsection` divisions. If you do not want the default numbering of sections then add an asterisk after the command like so `\section*{A Section}`.

## Paragraphs

Paragraph input is free-form. You enter the words and separate them with spaces or carriage–returns. It matters not whether you use carriage–returns at the end of the line, new paragraphs will only start if a blank line is left between.

---

<sup>4</sup>for more information on labelling tables and figures, see Chapter 10

<sup>5</sup>this document body is part of the Test File in Appendix A.2

## Punctuation

Typists have a convention whereby a single space is left after a mid sentence comma and two spaces are left after a full-stop. We do not have to worry about things like that, LaTeX takes care of it, just leave at least a single space after the full-stop, exclamation-mark etc. A new line can be forced by using the `\\` double backslash command if necessary.

## Quotation Marks

Quotation marks are entered using two single quotes, e.g. ‘ ‘two singles together ’ ’ produces “double quotes like these”.

## Hyphens

Hyphens can be made using the minus character e.g. - -- --- will produce - — —.

## Ties

Ties can be used to stop LaTeX hyphenating words that you do not want hyphenated. Replace the spaces with tilde characters (`~`). For example “Chapter~10, Appendix~1” etc.

## Itemised Lists

Itemised lists can be created in two ways, either `\begin{itemize}` or `\begin{enumerate}`, followed by `\item` for each item and must end with `\end{itemize}` and `\end{enumerate}`. The `itemize` option produces bullets whilst the `enumerate` option produces numbered lists.

## 2.5 The Postamble

The postamble<sup>6</sup> as seen in Figure 2.5 normally contains instructions for LaTeX to do at the end of the document.

The `\nocite...` is part of the bibliography as well as the `\bibliography...` command, for more on creating the bibliography see Chapter 8.

The `\printindex` command imports the index file into the document, for more on creating an index see Chapter 9.

## 2.6 The Results

The resulting output of “Your First LaTeX JDN” test file including the tables, figures, bibliography and index sections as shown in Chapters 6, 8 and 9 respectively can be seen in Appendix A.1, whilst the complete source file can be seen in Appendix A.2.

---

<sup>6</sup>this postamble is part of the Test File in Appendix A.2

```
%--document-body-----

\chapter{Your First JDN}
This part of Your First JDN is all about the document body.

You dont have to worry about spaces and carrage--returns
when using LaTeX. You just need to
  leave a space
after the full-stop. LaTeX please leave this text together
  if~you~possibly~can~and~I~am~sure~you~can. Now you would not
normally do that so only use the tilda when nessasary.

\section{This is a Section Heading}
A section heading without the numbering would contain an
asterisk after it like this:--

\section*{A Numberless Section}
Here is a numbered list:--

\begin{enumerate}
\item Here is an item for the list
\item This list is numbered
\item Here is another item
\end{enumerate}

\section{Here is another ‘‘Section’’ Heading}
You do not have to leave lines between chapters and sections
but for clarity and ease of use its recommended.

\subsection{Here is a Subsection Heading}
Here is a bulleted list:--

\begin{itemize}
\item Here is an item for the list
\item This list is bulleted
\item[-] Here is another using a minus character
\item[*] And another with an asterisk
\end{itemize}

\subsubsection{A Subsubsection}

Here is some text now and I want to start a new line\\so a
double backslash forces it.

%--document-body-end-----
```

Figure 2.4: The Document Body

```
%--start-postamble-----  
  
\nocite{jdn:98:19}  
  
\bibliography{jdn,jts,my}  
\bibliographystyle{plain}  
  
\printindex  
  
\end{document}  
  
%--end-postamble-----
```

Figure 2.5: The Postamble

## Chapter 3 Pdf $\LaTeX$ or $\LaTeX$

Documents are ultimately published on the EFDA-JET Intranet where anyone with a web browser can have access to them, for this reason the document submitted to the Documentation Centre must be in *.pdf*<sup>1</sup> format.

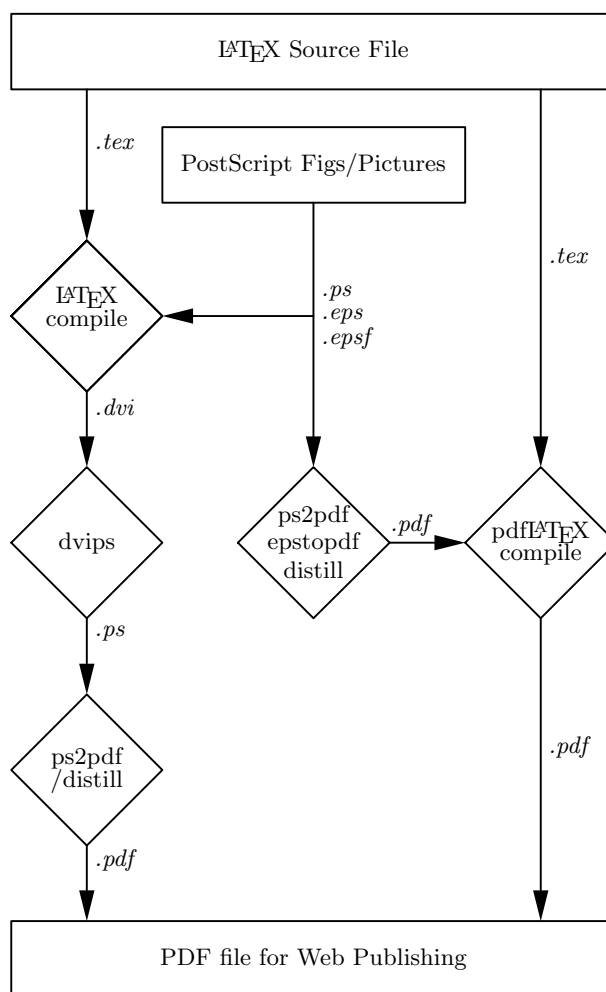


Figure 3.1: Recommended Routes

As can be seen in the above diagram, there are two routes to producing *.pdf* files.

### 3.1 Pdf $\LaTeX$

#### 3.1.1 Advantages

- The submitted document must be *.pdf*. Pdf has many advantages over other formats, one of which is the ability to contain hyperlinks for easy document navigation, this feature is given to us via the hyperref package (see Chapter 4.1).

<sup>1</sup>Portable Data Format

- To generate a *.pdf* file is noticeably quicker when using pdfLaTeX, mainly because it creates the *.pdf* file directly, without any intermediary stages unlike LaTeX.
- If you use LaTeX to create *.dvi*<sup>2</sup> files and then convert the *.dvi* to *.ps*<sup>3</sup> using `dvips` (ref. Chapter 5.4), you then have to `distill` the *.ps* using Adobe Acrobat Distiller (ref. Chapter 5.5) to get *.pdf*. Unfortunately if you are using the `hyperref` package to create hyperlinks and cross document links, very often `distill` will reject the *.ps* file. It is not clear why this happens but it seems that Acrobat Distiller is very fussy about its *.ps* input and does not like some of the *.pdf* tags inserted into the *.ps* file by `hyperref`.

### 3.1.2 Disadvantages

Unfortunately there are some minor disadvantages when using pdfflatex,

- The main disadvantage when using pdfLaTeX is that some packages do not work. This is because pdfLaTeX does not support *.ps* (Post-Script), therefore packages like `changebar` that use *.ps* in their output, can not be used. For more information on the use of packages refer to Chapter 4.
- All figures in your document have to be of *.pdf* file format. This may sound awkward but in fact it is a very simple procedure to convert any *.ps*, *.eps* or *.fig* figures you may have into *.pdf* format, refer to Chapter 5 for details.

## 3.2 L<sup>A</sup>T<sub>E</sub>X

LaTeX does have some advantages and disadvantages over pdfLaTeX and its merits should be weighed up before you create your document. The most important point to note is the use of packages. As LaTeX has been around far longer than pdfLaTeX more packages work with it. You should refer to the Chapter on packages (ref. Chapter 4) and determine your requirements.

### 3.2.1 Advantages

- If you require a *.dvi* or *.ps* file output then LaTeX would be the ideal option.
- Figures can be in *.ps* (Post-Script) file format.
- Most packages work with LaTeX.

### 3.2.2 Disadvantages

- If *.pdf* file format is desired as well as *.dvi* or *.ps*, then some *.ps* files won't work with Adobe Acrobat Distiller. This is only if you are using the `hyperref` package (ref. Chapter 4.1).
- If *.pdf* file format is created without the use of the `hyperref` package then the *.pdf* file will not contain hyperlinks and cross document links.

---

<sup>2</sup>Device Independent Output

<sup>3</sup>Post Script

## Chapter 4 Packages

There are many packages that can be used with LaTeX and pdfLaTeX but this Chapter details only the ones that are commonly used at Jet. There are others like RCS (Revision Control System), terms (Old CODAS Terms style sheet), noweb (retrieves programming notes from source code and compiles into a document), longtable (makes very long tables from one page to another) but these are less commonly used now.

### 4.1 Default Packages

These packages are included by default in the `jetdoc.cls` class file and work with either LaTeX or pdfLaTeX.

#### The `Graphicx` package

The `graphicx` package is used for handling images. It is particularly useful for inserting pictures as figures<sup>1</sup> and supports most formats including Post-Script for use with LaTeX and `.pdf` for use with pdfLaTeX.

#### The `HTML` package

If it is required that the LaTeX document is to be converted to HTML, then use the LaTeX2HTML converter available as a command on UNIX, the package is included by default.

#### The `Hyperref` package

The `hyperref` package `\usepackage[options]{hyperref}` is the package that makes all the active cross document links in `.pdf` files. There are a few options that are set by default as follows:–

<code>pdftex</code> or <code>dvips</code>	the <code>.pdf</code> or <code>.ps</code> driver
<code>bookmarksnumbered</code>	makes numbered bookmarks in left column of <code>.pdf</code>
<code>hyperindex</code>	makes the index entries clickable links
<code>colorlinks</code>	makes the links coloured
<code>urlcolor=blue</code>	use blue as default colour for links
<code>backref</code>	makes the cross document links clickable

The `hyperref` package when used with LaTeX sometimes causes the Acrobat Distiller to crash. It is not sure why this happens but the distiller complains of faulty `.ps` and is partly to do with the `.pdf` tags in the `.ps` file. For this reason it is recommended that pdfLaTeX is used when creating `.pdf` files.

---

<sup>1</sup>for more on figures see Chapter 7

## 4.2 Other Packages

These packages are not included by default and must be present in the document preamble if you wish to use them.

### The Makeidx Package

The `\usepackage{makeidx}` is the `makeindex` package for creation of indexes. See Chapter 9 for details.

### The Verbatim Package

This package is used to import a file into your document as verbatim (word for word exactly the same). The imported text will appear in the typewriter font `courier` and the command is invoked using the following format `\verbatiminput{myfile}`.

### The Thumbpdf Package

One feature of *.pdf* documents is the thumbnail representation of the pages. They are created from the *.pdf* document, so you must make the *.pdf* file from your source file by either the pdfLaTeX or LaTeX/dvips/distill route. You then run from the UNIX prompt:–

```
thumbpdf myfile.pdf
```

After this command has completed you should have a *.png* file for each page in your document. You now need to re-compile your document using the pdfLaTeX or LaTeX/dvips/distill route. Now when you view your *.pdf* document you will have thumbnails in the left hand column.

## 4.3 LaTeX Packages

These packages only work with LaTeX and not with pdfLaTeX.

### The Changebar Package

The `\usepackage[options]{changebar}` package is used to show modifications in a re-issued document by putting a vertical line in the margin next to changes.

The package will only work with LaTeX as it uses the *.ps* driver to draw the lines, and pdfLaTeX does not support dvips.

<b>Options</b>	<code>leftbars</code>	put changebar in left hand margin
	<code>rightbars</code>	put changebar in right hand margin

The paragraphs to be marked are marked using the following syntax:–

```
\cbstart  
A Paragraph of text.  
\cbend
```

Change bars can work across figures, tables and even page breaks.

## Chapter 5 File Format Conversions

When working with LaTeX and pdfLaTeX it is often necessary to convert one type of file format to another. There exists a number of tools available for this purpose that one can use on UNIX.

### 5.1 The ps2pdf Utility

The ps2pdf utility will convert *.ps* files into *.pdf* files, but unless you specify a page size using the `-s` option the *.ps* figure will appear in the middle of a US letter size page. This is because *.ps* normally only holds information about the pagesize e.g. A4 whilst *.eps* has bounding box information which marks out the boundary of the figure. To force ps2pdf to use standard A4 page size use the following :-

```
ps2pdf -sPAPERSIZE=a4 yourfile.ps
```

If you find your converted files are appearing as a black rectangle try using the distiller instead.

### 5.2 The ps2eps Utility

To translate *.ps* into *.eps* we use ps2eps.

Ivan Young has written this utility which utilises ghostscript to make its translation and a copy can be found at `/work/idy/bin` or `/home/spc/bin`.

To use, just type at the UNIX prompt:-

```
ps2eps yourfile.ps
```

To convert a whole directory of *.ps* files type:-

```
ls *.ps | ps2eps
```

To check your newly created *.eps* files you can use either `ghostview` or `gv`.

### 5.3 The epstopdf Utility

The epstopdf utility written in perl, uses ghostscript to translate *.eps* into pdf.

This little program is a real beauty, it comes with the TeTeX distribution and is written by Sebastian Rahtz, it does the same job as the Adobe Acrobat Distiller only a whole lot easier and faster. Granted it does not have all the options that distiller has, but nevertheless it works very well.

To use type at the UNIX prompt:-

```
epstopdf yourfile.eps
```

This program is particularly useful for the conversion of *.eps* figures into pdf. For example, when creating documents with LaTeX, it makes good sense to put your figures in a separate directory from the LaTeX source files. This way you keep your files neat and not overcrowded with similar named files. Then to quickly convert the *.eps* files into pdf, you type at the UNIX prompt:–

```
ls *.eps | xargs -l epstopdf $1.
```

To check the new files have been converted OK, you can view them using either `acroread` (the Adobe Acrobat Reader) or `xpdf`.

## 5.4 The dvips Utility

The `dvips` utility is used to translate *.dvi* file format into *.ps* format.

To use type the following at the UNIX prompt:–

The `-Ppdf` switch tells to use Type 1 scalable fonts as opposed to Type 3 bit-mapped fonts. The fonts are Computer Modern Adobe Type 1 and are embedded in the *.ps* file. The `-o` switch tells to send the *.ps* output to a file rather than the default printer.

## 5.5 Adobe Acrobat Distiller

The Adobe Acrobat Distiller program `distill` is a *.ps* to *.pdf* conversion program. Normally it is used to convert the *.ps* output of `dvips` into a *.pdf* document. To convert a *.ps* document to *.pdf* using this utility, you would normally use the following syntax:–

```
distill -pagesize 8.26 11.69 in myfile.ps
```

This line tells distiller the size of the page you want in inches and the file you want to distill. If you are using the `hyperref` package ref. Chapter 4.1 then you may get an error when distilling. For this reason its probably better to use pdfLaTeX instead of LaTeX to create your *.pdf* file.

## 5.6 The xfig Utility

The `xfig` utility is a drawing package available on UNIX. It can be used to make figures for documents and also has the ability to convert file formats. If your figs are drawn using `xfig` you can export them as *.eps* format as well as a whole plethora of others (unfortunately not *.pdf* though).

## Chapter 6 Creating Tables

Tables created in LaTeX are made using the tabular environment as shown in Figure 6.1

```

%--start-table-----

\section{Table Creation}
\begin{tabular}{rcl}

Right justified text & Centered text & Left justified text \\
Some more & and more & and more again\\
1 & 2 & 3\\
4 & 5 & 6\\

\label{table:a}
\end{tabular}

\begin{table}[htb]
\begin{center}
\begin{tabular}{|l|r|l|r|}\hline

Some text 1234& Some text 1234& Some text 1234& Some text\\ \hline
Some more & Some more & & A gap\\ \hline
And more & And more & & \\ \hline

\end{tabular}
\caption{A Centered Table with Lines and Caption}
\label{tab:b}
\end{center}
\end{table}

%--end-table-----
    
```

Figure 6.1: Creating Tables

In our example<sup>1</sup> the `\begin{tabular}{rcl}` command is telling LaTeX to switch to tabular mode and expect 3 columns with text justification of right, centered and left (rcl). We then enter out data separated by the `&` character and finish the line with the `\\` double backslash command. The end of our table must have the `\end{tabular}` command and we can label it for cross referencing if required.

In the second example in Figure 6.1 we have given our table a caption, which will be entered into the List of Tables. The table must be encased in the `\begin{table}` and `\end{table}` environment. The `[htb]` is telling LaTeX to try and put the table here (h) at the top (t) or at the bottom (b) of the page. To draw lines in our table we add the `|` pipe character between the column identifiers in the `\begin{tabular}...` command and for the vertical lines, and we

<sup>1</sup>this example is part of the Test File in Appendix A.2

add the `hline` at the end of each line to draw the horizontal lines. The output of Figure 6.1 can be seen in Appendix A.1.

## Chapter 7 Creating Figures

Figures are created using the `\begin{figure}` and `\end{figure}` environment as follows<sup>1</sup>:-

```
%--start-figure-----  
  
\section{Figure Creation}  
  
\begin{figure}[ht]  
\begin{center}  
\includegraphics[width=10cm]{pdffig}  
\end{center}  
\caption{A test Figure}  
\label{fig:test}  
\end{figure}  
  
%--end-figure-----
```

Figure 7.1: Creating Figures

The output of this file can be seen in Appendix [A.1](#).

The actual figure does not necessarily have to be a graphics file, if you wanted you could make a piece of text a figure or even a table into a figure by replacing the `\includegraphics` command with your choice.

In Figure [7.1](#) the `[ht]` option of `\begin{figure}` is telling LaTeX to try and put the figure here (h) on this page and at the top (t).

The `\caption...` is optional but the figure will not appear in the List of Figures if it is not used.

The `\label...` command can be added for cross referencing purposes.

The `\includegraphics...` command imports the graphics file, if you leave the file extension off then LaTeX will automatically look for `.ps` or `.eps` files and pdfLaTeX will automatically look for `.pdf` format files.

The `[width=10cm,height=10cm]` option is for scaling the width of your graphics file, LaTeX will automatically scale the figure to the size you specify.

---

<sup>1</sup>this example is part of the Test File in appendix [A.2](#)

## Chapter 8 Creating the Bibliography

A Bibliography can be created using up-to-date information obtained automatically from the ELECTRA database. Also a manual Bibliography can be included.

### 8.1 UNIX Environment

Firstly before you can create a bibliography you must set the bibtex environment variable like so :-

```
BIBINPUTS=./common/tex/bib:/a_path_to_your_bib_file export BIBINPUTS
```

### 8.2 Necessary Commands

The two commands `\bibliography{OPTIONS}` and `\bibliographystyle{plain}` must be entered into the postamble of our document so that the bibliography can be created, see Chapter 2.5 for postamble details. The `OPTIONS` for the bibliography are `jdn,jts,my` where `my` is the filename of your own manually created bibliography, see later in this chapter.

### 8.3 Marking Bibliography Entry's

To mark a bibliographic entry you cite it by using one of the following commands created by Ivan Young.

<code>\cite{jdn:00:32}</code>	Standard cite that gives a single character reference and hyperlink to the bibliography page
<code>\jcite{JDN}{00}{32}</code>	Same as above with additional "PDF" hyperlink to the online JDN or JTS document
<code>\jcubref{YRF/ECU1/0015}</code>	Makes the reference a hyperlink to the online CODAS cubicle file
<code>\jdrawref{4000}</code>	Makes the reference a hyperlink to the online CODAS <i>.pdf</i> drawing
<code>\jsubref{RF}</code>	Makes the reference a hyperlink to the CODAS subsystem home page
<code>\jmanref{grep}</code>	Makes the reference a hyperlink to the online UNIX man pages
<code>\nocite{jdn:00:32}</code>	Creates bibliographic entry without a reference point in the document for a JDN or JTS. Would normally be inserted in the postamble
<code>\nocite{amanual}</code>	Similar to above for a manual (or anything you specify) entry that comes from your own bib file. Would normally be inserted in the postamble.

so to put in context you would normally cite as follows<sup>1</sup>:-

---

<sup>1</sup>this bibliography is part of the Test File in Appendix A.2

## 8.4 My bibliography

```
%--bibliography-cite-----  
  
\section{Examples of Citing the Bibliography Entries}  
A Guide to Producing JDN and JTS Documents using LaTeX  
- JDN/H(00)32\cite{jdn:00:32}.  
  
A Guide to Producing JDN and JTS Documents using LaTeX  
- \jcite{jdn}{00}{32}.  
  
An online cubicle file \jcubref{YRF/ECU1/0015}  
  
An online CODAS drawing \jdrawref{4000}  
  
Subsystem reference \jsubref{RF}  
  
UNIX man page \jmanref{grep}  
  
  
\nocite{jdn:00:32}  
\nocite{amannual}  
\nocite{abook}  
  
%--bibliography-cite-end-----
```

Figure 8.1: The Bibliography Marking Format

## 8.5 Non JDN and JTS Bibliographic Entry's

To cite non JDN and JTS bibliographic entry's you must first create a file with the entry's as shown in Figure 8.2.

This file called `my.bib` is firstly specified in the document preamble as shown in Chapter 2.5 in the line `\bibliography{jdn,jts,my}` and contains the bibliographic details of your references. The words `amannual` and `abook` can be any name you like and are the references you use to cite them as shown in Figure 8.1.

## 8.6 Making the Bibliography

To make the bibliography you must first compile your source by running LaTeX or PdfLaTeX on your source file. This will produce a file with all you cites in `myfile.aux`.

You must then run from the UNIX prompt:-

```
bibtex myfile.
```

```
@Manual{amannual,  
  title = "A Manual Name",  
  author = "Author",  
  note = "Revision 2A"  
}  
  
@book{abook,  
  title = "The Title of the Book",  
  year = "August 2000",  
  author = "An Author",  
  publisher = "Publisher",  
  note = " Ref. 1.1"  
}
```

Figure 8.2: Non JDN and JTS Bibliography Entry's

Then you need to re-compile your source file and the bibliography will be imported into you document.

If you find that some entry's are missing, e.g. a recent JDN, it may be that the bib files are out-of-date. To regenerate the bib files you go to `/common/tex/bib/` directory and follow the instructions in the README file that Ivan has made. Ivan has written a utility to retrieve the data from the ELECTRA database.

## Chapter 9 Index Creation

### 9.1 Necessary Commands

In order to make an index we first have to insert some commands into our LaTeX document.

1. The `\usepackage{makeidx}` and the `\makeindex` commands have to be inserted into the preamble, see Chapter 2.1 for details.
2. The `\printindex` has to be inserted into the postamble, see Chapter 2.5 for details.

### 9.2 Marking Index Entry's

To mark a word for entry into the index use the following format:-

- `\index{colours}` for normal plain entry's
- `\index{colours!green}` for subentry's

So to put in context the previous entry's would be used like this:-

```
%--index-marking-----  
  
\section{Index Marking}  
  
Some of my favorite colours\index{colours} of the rainbow are  
red\index{colours!red}, green\index{colours!green} and  
blue\index{colours!blue}.  
  
%--end-index-marking-----
```

Figure 9.1: The Index Marking Format

This would produce an index entry of colours with subentry's of red, green and blue.

### 9.3 Making the Index

In order to make the index you have to first compile your source by running LaTeX or PdfLaTeX on your source file. This will then produce a `myfile.idx` file. This file holds details of your entry's and their position in the document. You now have to run from the UNIX prompt:-

```
makeindex myfile.idx
```

and a new file is created `myfile.ind`. Now you need to re-compile your source document and when it gets to the `\printindex` command it will import the `myfile.ind` file into your document.

## Chapter 10 Cross Referencing

### Reference Point

In LaTeX cross referencing is fairly simple to implement, you just mark the referenced point with the `\label{xx}` command where xx is a made up word that you specify e.g. `\label{appendixone}`. Now when you point to that reference you use the `\ref{appendixone}` command. LaTeX will automatically number each reference when your source file is compiled.

### Tables and Figures

When cross referencing tables and figures you use the `\label{table:xxx}` and `\label{fig:xxx}` as shown in Figures 6.1 and 7.1 to label. Then use the `\ref{table:xxx}` and `\ref{fig:xxx}` commands to point to those references from within your document.

### Footnotes

To make footnote references use the `\footnote{argument}` command and fill in the actual footnote text into the argument, then when your source file is compiled it will automatically number your reference point and put the footnote at the bottom of the page.

### Compiling

When you compile your source file LaTeX will need to be run a second time so that the cross referencing can be completed.

## Chapter 11 Troubleshooting and F.A.Q's

### Spell Checking

For spell checking your LaTeX document you can use the UNIX `ispell` program. It can be implemented by running `ispell yourfile.tex` at the UNIX command prompt. Pressing the `?` will bring up the help menu, basically you press the spacebar to ignore words it queries, and for words that are misspelled it should give a possibility list. You just press the number next to the word that is the correct one and it replaces it.

### My Paper Size is Wrong

If you have used *ps2pdf* to convert your Post-Script into PDF, you will have to specify `a4` as your paper size, as the default is normally set to the American Letter size. This can be done using the following: `ps2pdf -sPAPERSIZE=a4 filename.ps`. For Adobe Acrobat Distiller (*distill*) you can convert like so `distill -pagesize 8.26 11.69 in filename.ps` and select "3" from the menu.

### My Fonts Display Poorly!

LaTeX defaults to using Computer Modern type 3 (bitmapped) fonts. Bitmapped fonts display poorly in Acroread and often print poorly.

If you are using a reasonably recent installation of LaTeX and have not specified any font packages in your LaTeX source, you can switch to type 1 (outline) fonts by providing the appropriate flag to `dvips`:

```
dvips -f -Pcmz myfile.dvi myfile.ps.
```

Some documents may look slightly better with the `-Ppdf` flag used instead:

```
dvips -f -Ppdf myfile.dvi myfile.ps.
```

The `\usepackage{times}` command can be used to switch to Postscript Times type 1 fonts. Some prefer the look of Times fonts to Computer Modern, some don't.

If you use the `\usepackage{times}` command, math mode text will still be set using Computer Modern. The two don't mix well. There is a bug in `dvips` that makes the `-Ppdf` flag incompatible with the `\usepackage{times}` package. If in doubt, it is safest to use the `-Pcmz` flag to `dvips`.

### My Figures come out Black!

If you have used *ps2pdf* to convert your Post-Script files into *.pdf* files, occasionally a bug appears whereby the pictures render completely black. This can be overcome by using *distill* instead.

## Appendix A

### A.1 The Output Results of “Your First LaTeX JDN”



JDN/H(00)999  
Issue 1 : 21st August 2000

*UNCONTROLLED WHEN PRINTED*

**Your First LaTeX JDN**  
Author: Your Name

**Abstract**  
Insert your documents abstract here

R.O.: Your Name	Reviewer: Your Reviewer	Approver: Your Approver
-----------------	-------------------------	-------------------------

Distribution  
CODAS Document Centre, web page [http://w3.jet.efda.org/CODAS/Document\\_Library](http://w3.jet.efda.org/CODAS/Document_Library) .  
CODAS via E-mail, A Person, A Person, A Person

JDN/H(00)999  
Contents i

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1.3 Examples of Citing the Bibliography Entries . . . . .	2
1.4 Table Creation . . . . .	2
1.5 Figure Creation . . . . .	2
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JDN/H(00)999  
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**List of Figures**

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-----------------------------	---

JDN/H(00)999  
Your First JDN

1

## Chapter 1 Your First JDN

This part of Your First JDN is all about the document body.

You dont have to worry about spaces and carriage-returns when using LaTeX. You just need to leave a space after the full-stop. LaTeX please leave this text together if you possibly can and I am sure you ca  
Now you would not normally do that so only use the tilda when nessasary.

### 1.1 This is a Section Heading

A section heading without the numbering would contain an asterisk after it like this:-

#### A Numberless Section

Here is a numbered list:-

1. Here is an item for the list
2. This list is numbered
3. Here is another item

### 1.2 Here is another "Section" Heading

You do not have to leave lines between chapters and sections but for clarity and ease of use its recommended.

#### 1.2.1 Here is a Subsection Heading

Here is a bulleted list:-

- Here is an item for the list
- This list is bulleted
- Here is another using a minus character
- \* And another with an asterisk

#### A Subsubsection

Here is some text now and I want to start a new line  
so a double backslash forces it.

JDN/H(00)999  
Your First JDN

2

### 1.3 Examples of Citing the Bibliography Entries

A Guide to Producing JDN and JTS Documents using LaTeX - [JDN/H\(00\)32\[1\]](#).  
 A Guide to Producing JDN and JTS Documents using LaTeX - [jdn/H\(00\)32\[1\]](#).  
 An online cubicle file [YRF/ECU1/0015](#)  
 An online CODAS drawing [4000](#)  
 Subsystem reference [RF](#)  
 UNIX man page [grep](#)

### 1.4 Table Creation

Right justified text	Centered text	Left justified text
Some more	and more	and more again
1	2	3
4	5	6

Some text 1234	Some text 1234	Some text 1234	Some text
Some more	Some more		A gap
And more	And more		

Table 1.1: A Centered Table with Lines and Caption

### 1.5 Figure Creation

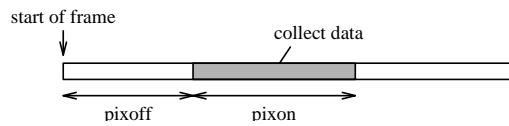


Figure 1.1: A test Figure

### 1.6 Index Marking

Some of my favorite colours of the rainbow are red, green and blue.

JDN/H(00)999  
Bibliography

3

### **Bibliography**

- [1] S. P. Hallworth-Cook. *A Guide to Creating LaTeX JDN and JTS Documentation*, 2nd edition, Sep 2001. Document may be found on-line at:- <http://w3.jet.efda.org/CODAS/Document.Library/JDN/H00-32.pdf> . 1.3
- [2] S. P. Hallworth-Cook V. Chuilon. *The CODAS Documentation Centre*, 2nd edition, Jun 1999. Document may be found on-line at:- <http://w3.jet.efda.org/CODAS/Document.Library/JDN/H98-19.pdf> .

JDN/H(00)999  
Index

4

## **Index**

colours, [2](#)  
  blue, [2](#)  
  green, [2](#)  
  red, [2](#)

## A.2 Test File Source Code

This is the source file used in “My First LaTeX JDN” example test file<sup>1</sup> and the output is shown in Appendix A.1.

```

%--document-preamble-----
\documentclass[OPTIONS]{jetdoc}
\usepackage{makeidx}
\makeindex

%--end-preamble-----

%--title-page-----

\jetdoc{JDN/H(00)999}
%\supercedes{JDN/H(95)999}
\issue{1}
\date{21st August 2000}
\title{Your First LaTeX JDN}
\keywords{SOME,KEYWORDS}
\abstract{Insert your documents abstract here}
\author{Your Name}
\reviewer{Your Reviewer}
\approver{Your Approver}
\distribution{
CODAS~via~E-mail,
A~Person,
A~Person,
A~Person}

%--end-title-----

%--document-start-----

\begin{document}
\maketitle
\cleardoublepage
\pagenumbering{roman}
\tableofcontents
\listoftables
\listoffigures
\cleardoublepage
\pagenumbering{arabic}

%--end-start-----

```

---

<sup>1</sup>see Chapter 2

```

%--document-body-----

\chapter{Your First JDN}
This part of Your First JDN is all about the document body.

You dont have to worry about spaces and carriage--returns
when using LaTeX. You just need to
leave a space
after the full-stop. LaTeX please leave this text together
if~you~possibly~can~and~I~am~sure~you~can. Now you would not
normally do that so only use the tilda when nessasary.

\section{This is a Section Heading}
A section heading without the numbering would contain an
asterisk after it like this:--

\section*{A Numberless Section}
Here is a numbered list:--

\begin{enumerate}
\item Here is an item for the list
\item This list is numbered
\item Here is another item
\end{enumerate}

\section{Here is another ‘‘Section’’ Heading}
You do not have to leave lines between chapters and sections
but for clarity and ease of use its recommended.

\subsection{Here is a Subsection Heading}
Here is a bulleted list:--

\begin{itemize}
\item Here is an item for the list
\item This list is bulleted
\item[-] Here is another using a minus character
\item[*] And another with an asterisk
\end{itemize}

\subsubsection{A Subsubsection}

Here is some text now and I want to start a new line\\so a
double backslash forces it.

%--document-body-end-----

%--start-table-----

\section{Table Creation}

```

```
\begin{tabular}{rcl}
```

```
Right justified text & Centered text & Left justified text \\
Some more & and more & and more again\\
```

```
1 & 2 & 3\\
```

```
4 & 5 & 6\\
```

```
\label{table:a}
```

```
\end{tabular}
```

```
\begin{table}[htb]
```

```
\begin{center}
```

```
\begin{tabular}{|l|r|l|r|}\hline
```

```
Some text 1234& Some text 1234& Some text 1234& Some text\\ \hline
```

```
Some more & Some more & & A gap\\ \hline
```

```
And more & And more & &\\ \hline
```

```
\end{tabular}
```

```
\caption{A Centered Table with Lines and Caption}
```

```
\label{tab:b}
```

```
\end{center}
```

```
\end{table}
```

```
%--end-table-----
```

```
%--start-figure-----
```

```
\section{Figure Creation}
```

```
\begin{figure}[ht]
```

```
\begin{center}
```

```
\includegraphics[width=10cm]{pdffig}
```

```
\end{center}
```

```
\caption{A test Figure}
```

```
\label{fig:test}
```

```
\end{figure}
```

```
%--end-figure-----
```

```
%--bibliography-cite-----
```

```
\section{Examples of Citing the Bibliography Entries}
```

```
A Guide to Producing JDN and JTS Documents using LaTeX
```

```
- JDN/H(00)32\cite{jdn:00:32}.
```

A Guide to Producing JDN and JTS Documents using LaTeX  
 - \jcite{jdn}{00}{32}.

An online cubicle file \jcubref{YRF/ECU1/0015}

An online CODAS drawing \jdrawref{4000}

Subsystem reference \jsubref{RF}

UNIX man page \jmanref{grep}

\nocite{jdn:00:32}

\nocite{amanual}

\nocite{abook}

%--bibliography-cite-end-----

%--index-marking-----

\section{Index Marking}

Some of my favorite colours\index{colours} of the rainbow are  
 red\index{colours!red}, green\index{colours!green} and  
 blue\index{colours!blue}.

%--end-index-marking-----

%--start-postamble-----

\nocite{jdn:98:19}

\bibliography{jdn,jts,my}

\bibliographystyle{plain}

\printindex

\end{document}

%--end-postamble-----

## Bibliography

- [1] K. Fullard. *Procedure for issuing CODAS documents and drawings*, 3rd edition, Oct 2002. Document may be found on-line at:- [http://w3.jet.efda.org/CODAS/Document\\_Library/JDN/H01-30.pdf](http://w3.jet.efda.org/CODAS/Document_Library/JDN/H01-30.pdf) . 1
- [2] Harvey J. Greenberg. *A Simplified Introduction to LaTeX*. University of Colorado, Denver, USA, April 18th 2000.
- [3] Tobias Oetiker. *The Not So Short Introduction to LaTeX2E*. April 2001. Version 3.19. 1.1
- [4] M. S. J. Rainford V. Chuilon. *Preparing a Latex JDN for the Web*, 2nd edition, Jul 1999. Document may be found on-line at:- [http://w3.jet.efda.org/CODAS/Document\\_Library/JDN/H98-24.pdf](http://w3.jet.efda.org/CODAS/Document_Library/JDN/H98-24.pdf) .
- [5] S. P. Hallworth-Cook V. Chuilon. *The CODAS Documentation Centre*, 2nd edition, Jun 1999. Document may be found on-line at:- [http://w3.jet.efda.org/CODAS/Document\\_Library/JDN/H98-19.pdf](http://w3.jet.efda.org/CODAS/Document_Library/JDN/H98-19.pdf) .
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