SUMMARY OF THE 'TRAINING AND SOFTWARE ISSUES' SESSION, WEDNESDAY, 1st DECEMBER '99

D. Bulfone, Sincrotrone Trieste, S.S. 14 - Km 163.5, 34012 Basovizza, Trieste, Italy

Abstract

The 'Training and Software Issues' session was divided in two parts. The first part was dedicated to the subject of authors and processing staff education. The second one dealt with issues related to the use of the LaTeX and Microsoft Word software packages. C. Eyeberg (ANL), M. Goossens (CERN), M. Comyn (TRIUMF) and Yong Ho Chin (KEK) contributed to the session.

1 INTRODUCTION

Providing authors and paper processing staff with effective instructions and tools is not an easy task. However, these are probably the strongest underlying issues in the whole process of electronic publication. Current procedures were reviewed and suggestions for the future given.

LaTeX and Microsoft (MS) Word are the two text processing systems supported at the JACoW conferences. After providing a recipe for the installation of LaTeX, the most frequent problems experienced when processing papers created with these two software packages were discussed.

2 AUTHOR EDUCATION

Author education [1] is a key point for a quick and successful processing of the conference papers. Authors started getting trained for electronic publication of papers about five years ago with PAC'95. Since then the quality of the documentation and the number of the available tools have been improving from conference to conference.

Among these, templates are the most appreciated by the authors. Due to the number of platforms (Macintosh and PC), paper format (A4 and US letter), software (LaTeX and MS Word) and versions supported by the JACoW (Joint Accelerator Conference Website) conferences, a total number of ten templates has been developed. The text of the templates itself contains instructions for the preparation of the papers. Templates used to differ in some details in the past. Upgraded template versions, with a unified format, are now downloadable from the JACoW web site at http://www.cern.ch/accelconf/templates.html.

The experience gained in the past years has been condensed in a list of critical items to be cross-checked by authors before submitting the paper. Authors can also take advantage of a 'Frequently Asked Question' list, which has been recently introduced for PAC'99 and is being incrementally developed. General information on preparing papers for electronic publication including how to use LaTeX and MS Word, how to deal with illustrations, graphics, scanners and a number of links to helpful software is also being made available on the JACoW web site.

Beside paper preparation, submission procedures and their associated tools have been rapidly evolving. In particular, the most recent conferences have set up an Acrobat Distiller watched folder on their ftp server which allows authors to remotely distill and view the final .pdf (portable document format) file of their paper prior to final submission.

Useful statistics showing the most frequent errors done by authors have been taken in the past. A recent one, from EPAC'98 [2], has been normalized to the total number of defective papers and is shown in table 1.

Table 1: Statistics of the most frequent error types

Error Type	**%**
Fonts, formatting (section numbering, bolding, margins,…)	45
PostScript missing or badly generated	15
Figures (Illustrator EPS, jpg files, fonts in figures)	10
Others	30

On the basis of the statistics above and of the most common difficulties reported by authors, it was recommended to improve the quality of the templates, by making them more robust with respect to author's cutting and pasting, by continuing testing on different platforms and by adding features like a full-width section and an area for writing a support statement at the bottom of the first column.

3 STAFF EDUCATION

The overall procedure to be followed by the staff for the processing of the submitted papers [3] is quite well defined and positively adopted at the different conferences. A group of well experienced people has been developing in the last years and many conferences are taking advantage of that. Nevertheless, the number of experienced people is usually not enough to cover the man power requirements of the processing office during the period of the conference where on-line processing of the papers is necessary, and the time spent by these people to help the less-experienced ones has to be minimized. The adequacy of the current training practices and of the tools available

at the conference for the less-experienced personnel must be therefore carefully considered. Instructions should be as clear and unequivocal as possible, avoiding loosely defined statements like *'file size should not be too large and display in a reasonable amount of time'* which just says nothing to an un-experienced person. A check/action list has proven to be very useful and should be kept up to date as new tools become available. It was eventually suggested to collect all of the available documentation and store it in the JACoW web site.

A training course where computers and software tools in their final configuration can be used is essential. A few hours of teaching organized three or four weeks before the conference date could be enough for people coming from an institute's secretariat. People must be specifically trained on the basis of the task they will be assigned at the conference: paper reception, database update, paper processing.

The paper's file size issue was eventually raised. Whereas file size should normally not exceed a few hundreds kilobytes, some of them are compressed to fit within the capacity of a diskette. No compression software is defined by the JACoW standards. Re-submission by ftp is recommended in this case.

4 LATEX INSTALLATION

Special care has to be given to the installation of LaTeX on the processing office computers. Past installations of some LaTeX public domain packages have often caused problems, especially with respect to the availability of PostScript Type 1 Computer Modern fonts (see next paragraph).

In order to get rid of such uncertainties and have a unified installation at the different conferences, it was recommended to use TeXLive, a complete, standard and fully proved LaTeX system which is distributed yearly on a ready-to-run CD-ROM by the TeX Users Group [4]. A standard installation procedure is provided which can also be easily customized [5].

TeXLive runs on different Unix systems (DEC Alpha OSF, HP-UX, Linux, SGI IRIX, IBM AIX, Sun Sparc Solaris), Amiga, NeXT and Windows 95/NT. It includes:

- TeX and METAFONT as its basic text-processing engine
- the latest version of LaTeX2e [6] [7], the standardized LaTeX which unified the different version 2.09 dialects
- *dvips*, a driver which converts the .dvi (device independent) TeX output file into PostScript. The TeXLive distribution does not include any bitmap font images, and PostScript Type 1 fonts will be used by default by *dvips*
- a number of useful auxiliary programs like *xdvi* to visualize .dvi files on a X Window System, *pdfTeX* which can directly produce .pdf files
- font families
- extensive documentation.

TeXLive Version 5 is now being developed and will be available around Easter 2000. The CD-ROM also contains CMacTeX, a packaged TeX system for the Macintosh.

5 LATEX PREPARED DOCUMENTS

The main difficulties experienced in the processing of LaTeX prepared documents were reviewed [8].

A major problem is the use of Type 3 bitmap fonts in the created PostScript file. These 300 dpi fixed resolution fonts make the resulting .pdf document almost illegible when viewed on the screen. Printing quality is also very poor. By adopting the TeXLive package and by sticking to the PostScript Type 1 Computing Modern fonts, these kind of problems should be avoided in the future.

Errors associated with the use of old template versions and/or incorrect document class files (.cls), defining the available logical commands and environments, are quite frequent. Private class files and macros are also used in some cases. It was, however, noted that the LaTeX templates and document class files currently adopted at the different conferences need to be upgraded and unified in JACoW.

Cross platform problems, due to the different linebreak conventions between UNIX, PC and Macintosh, can be seen when a paper's .tex source file is submitted in binary rather than ASCII format. Perl scripts are used to fix this.

Care must be taken when correcting errors with Encapsulated PostScript (EPS) figures that are referenced to in the .tex file. While most modern graphic applications produce standard EPS files that can be used without difficulties by LaTeX, some of them still contain bad PostScript code or information. Some typical cases are:

- a figure file created with parameters set for a specific PostScript printer, which contains explicit printer setup commands and results in a wrong EPS format. A generic PostScript driver should be used and is available at http://www.adobe.com/products/printerdrivers.
- a figure file containing wrong values of the 'bounding box' parameters used by LaTeX to determine the space occupied by the picture. The *ps2epsi* utility, included in the Ghostscript package, can be run to find the right parameter values.

The correction of more subtle errors may require the editing of the PostScript code itself.

The use of PostScript viewers like Ghostview and Ghostscript is recommended as it allows to detect in advance problems which would always result in bad .pdf files.

6 MICROSOFT WORD PREPARED DOCUMENTS

MS Word is the most popular word processor used by authors. The main difficulties in processing MS Word papers have been due to the different platforms, languages and versions adopted [9].

Apart from the reproducibility of some layout features, like for example line spacing, cross-platform and cross-version problems are almost completely solved by the most recent software versions.

MS Word packages in different languages, especially in the case of MacOS, used to be incompatible with each other (for example, documents prepared with the Japanese MS Word 6 were not readable with the English MS Word 6). Even if these problems are being solved with the introduction of the Unicode system there are still some incompatibilities in the layout.

MS Word document formatting parameters are quite easy to access and consequently authors often enlarge their paper layout size or reduce the line spacing size to gain more space for writing. Whereas the document layout can be easily checked, line spacing can be more difficult to verify.

Problems with fonts is another important point. Fonts other than Times, Symbol and Zapf Dingbats are often included in figures. Times New Roman fonts, which can be erroneously used by authors instead of Times, are typically replaced by Courier fonts when distilled by Acrobat on Macintoshes. When writing a paper with Asian or Cyrillic versions of MS Word, 'exotic' fonts are sometimes included (consider, for example, that Mincho is the default font in Japanese MS Word) and can be very difficult to identify when hidden in blank characters or mathematical symbols. The availability of Asian PC's at the conference processing office was eventually recommended.

As a last resource, most of problems with MS Word papers can be solved by copying and pasting the paragraph contents into a brand-new template.

7 CONCLUSIONS

Authors start realizing that the Editorial Teams of the major particle accelerator conferences are joining the JACoW group to standardize instructions for the preparation of papers, making electronic publication easier and faster and keep procedures up to date with technology.

This convergence effort was appreciated by authors also at ICALEPCS '99, the last conference that joined the group.

ACKNOWLEDGEMENTS

I am grateful to Christine and John for their continuous effort in expanding the JACoW community and know-how, and to the BNL staff for hosting this event. Thank you to Cathy, Martin, Michel and Yong Ho for having contributed with much interesting material to the 'Training and Software Issues' session.

REFERENCES

[1] C. Eyberger, "Author Education", these Proceedings.
[2] L. Liljeby, J. Poole, "Post Mortem of the Electronic Publication of the EPAC'98 Proceedings", SL-Note-99-015 DI, CERN, Geneva, 1999.
[3] C. Eyberger, "Conference Staff Education", these Proceedings.
[4] TeX Users Group (International), P.O. Box 869, Santa Barbara, CA 93102-0869 USA, Email: tug@tug.org.
[5] M. Goossens, "LaTeX Installation", these Proceedings.
[6] L. Lamport, "LaTeX - A Document Preparation System - User's Guide and Reference Manual", 2nd edition, Addison-Wesley, Reading, 1994.
[7] M. Goossens, F. Mittelbach, A. Samarin, "The LaTeX Companion", Addison-Wesley, Reading, 1994.
[8] M. Comyn, "LaTeX2e Prepared Documents", these Proceedings.
[9] Y. Ho Chin, "Problems with Word Prepared Documents and Cures", these Proceedings.