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USING CERN'S IBM DATA PROCESSING CENTRE
AS A TEXT PROCESSOR

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Summary

This note describes how we have implemented various schemes on the CERN IBM central computers to handle our CERN-written documentation plus an Electronic Mail scheme to publish the minutes of different series of meetings to an audience which is spread over a large geographical area and whose numbers may vary as experiments start and finish on the CERN Accelerators. We shall not describe in any real detail the actual Word Processing functions used (the reader can obtain more details in Reference 5) but only the way in which they are used in the overall system.

Keywords: Text Processing, Electronic Mail, Office Automation

Introduction

The CERN central computing facility is equipped with some 5 large mainframes including 3 large CDC systems and an IBM 370/168 and an IBM 3032. The software described in this note runs only on the IBM systems. Attached to these IBM systems are numerous disk drives, tape drives, a Mass Storage Unit, a Laser printer and so on. Access to them is available from over six hundred terminals distributed about the two CERN laboratory sites and connected to the centre via a digital "telephone exchange" system called INDEX. The total area covered measures 3 kilometres by 10 kilometres.

Many of the users of this system throughout the two sites also have in common the fact that they are experimental physicists or programmers using one of 3 standard minicomputers to control their data-taking at experiments on one of the CERN accelerators. Each of these 3 minicomputers (Digital PDP-11s, Hewlett Packard 1000s and Norsk Data ND 10s and 100s) runs standard data-acquisition software supplied by one of the three corresponding sections of the Online Computer Support (OC) Group in the CERN Data Division.

We in the DEC section were faced with the problem of supporting some 20 installations (more than 30 computers) with the same basic software but slight local additions to take care of particular local requirements such as special hardware, multi-computer configurations and so on.

The problem of common software was solved by using a central file base on the IBM and distribution via the
CERNET Network (Ref.1) [For an example of this, see ref.2.] An equally important problem was that of common documentation and the general dissemination of information to a large number of users many of whom were frequently only visiting CERN during short periods over the life of their experiments.

The solution chosen was to use the terminal system of the IBM Centre. At CERN we have adopted the WYLBUR access system developed at the Stanford Linear Accelerator Center (SLAC) in California (Ref. 3). Since its introduction at CERN this has proved very popular and versions of the WYLBUR editor now also run on several of CERN's minicomputers. However, apart from its editing features, the version of WYLBUR used at CERN allows the interactive execution at the terminal of command procedures called EXEC files (Ref.4) and it is via these EXEC files that we implemented our documentation system.

Manuals, Program Descriptions, Notes

For our PDP data acquisition system we required several reference manuals including a library manual, operator guide, programmers guide and an on-line system manual. The last one was complicated by the fact that each installation had to tailor it for any special "local features". All the manuals were prepared using the SCRIPT documentation facility from the University of Waterloo (Ref. 5) and they total some 10 Mbytes of IBM storage. In addition there exist a large number of short program descriptions or general notes for specialised use.

All these are available under WYLBUR by typing a single command --

EXEC FROM $D4.RSX.LIB#MANUAL

where $D4.RSX.LIB#MANUAL is the name of the data-set containing an EXEC file which asks questions to the user regarding the document required, which part of it (manuals can be output in sections if required), to which delivery point to route it, what print form is desired and how many copies.

The EXEC file functions by reading a standard disk file with one entry for each document in the format --

KEYWORD DESCRIPTION LOCATION PROCESSING-CODE

On execution, the user can type in directly the keyword of the required document if known or ask for a list.
which case the EXEC file displays a list of the keywords and descriptions (only) of the documents. Thus the user need never know where the document is stored nor whether it exists as a simple text with or without carriage control or whether it must be processed by the SCRIPT program.

An example of the list which the user might see would be --

PASCAL  PASCAL User Manual
RSXGUIDE RSX Programmer's Guide
RSXLIB  Description of program library RSXLIB

Simple text documents can also be listed directly at the terminal as an option. For the larger manuals, the user is given the option of selecting only one section rather than the whole manual. To do this, there exists a standard Partitioned Data-set or PDS (a library of files) with one member for each manual whose name corresponds with the keyword of that manual. When such a manual is chosen, the user is asked to select a given section or ALL or <CR>. The meaning of these is as follows --

<CR> - the user does not know the name of the section he/she wants, so the EXEC file lists the contents of the corresponding member of the standard PDS. The format of this list is as follows --

<table>
<thead>
<tr>
<th>SECTION CODE</th>
<th>DESCRIPTION OF SECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typically the file will look like --</td>
<td></td>
</tr>
<tr>
<td>SECT8</td>
<td>Chapter 8 - Graphics routines</td>
</tr>
<tr>
<td>SECT81</td>
<td>Section 8.1 - draw a point</td>
</tr>
<tr>
<td>SECT82</td>
<td>Section 8.2 - draw a line</td>
</tr>
<tr>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>and so on.</td>
<td></td>
</tr>
</tbody>
</table>

Selecting SECT81 will choose one section, selecting SECT8 will choose the whole chapter.

ALL - selects all sections -- i.e. the whole manual

SECTION CODE - selects a particular section.

From the above, the EXEC file allows the experienced user to go straight to the document he/she wants while the new user can ask for help at any stage.

Thus we can maintain our manuals centrally (with the obvious advantages such as central maintenance, backup, security) and have them easily available at short notice on request (the time to run and print a short job).
News Notes and Meeting Minutes

In an organisation of the size of CERN there are inevitably many liaison meetings between various groups. It would be impossible (and extremely tedious) to try to attend all the meetings which might be of interest concerning one's work. Equally it would be most inefficient to distribute the minutes of such meetings to absolutely everyone who might be interested. This applies equally to the sort of "news" announcement of a new piece of software or a bug fix which should be applied to one's system as soon as possible. There exists a CERN On-line Computer Newsletter but it appears only every 3 or 4 months and is inadequate for such "topical" announcements.

All such News notes and meeting minutes are typed into the IBM file base. For each set of News notes (currently 2) and each series of minutes (currently 12) we provide a standard EXEC file which the author uses to catalogue the note/minutes. In addition to saving and cataloguing the item, the EXEC file will automatically update a marker entry in a central data set of the form --

```
SERIES-NAME   N
```

where N goes from 1, 2, 3,...

The EXEC files for the News notes are public, allowing anyone to insert a note as required; those for the meeting minutes are assigned to the secretary of that series of meetings.

When a user logs on to WYLBUR on the IBM a file from his/her private account called LIB#LOGON is automatically executed to set various terminal characteristics, display the system message of the day and so on. Each user who wishes to read any of our News notes and/or minutes schemes must have a file called LIB#OCMARK which has entries in the format --

```
SERIES-NAME   M
```

where Series-name is the keyword of the scheme desired

and M is the index number of the last item which he/she has seen in that scheme. When the user "joins" a scheme this value is initialised to 0 (for a new scheme) or to the number at which he/she wishes to begin. Thereafter this number need never be altered by the user. It is updated automatically by the EXEC file UPDATE (see below).

- 4 -
Having set up LIB#OCMARK, the user then adds to the LIB#LOGON EXEC file the command --

EXEC FROM $D4/pub.OCNEWS.UPDATE

Thereafter, the user need make no further changes to either the LOGON or the OCMARK file unless to add or remove entries in the latter to change the selection of notes/minutes to be viewed.

This Update EXEC file compares the contents of the user's LIB#OCMARK with the central marker file mentioned earlier and for each News note or set of minutes not yet seen, they are listed (in the case of minutes optionally listed) at the terminal and the user is asked if he/she wishes to print them. Finally OCMARK is updated so that the user will not see the same note on the next login.

By this scheme we have reduced to a minimum our mailing lists inside CERN and simply encourage users to publicise via the News scheme notes which they may otherwise not have issued because of the "overhead" of mailing or the difficulty of deciding whom to mail to. (We believe in the principle of too much information rather than too little because with the above scheme it costs little.) Full details of how to join this scheme are given in Reference 6.

For each News scheme we also provide a public EXEC file to allow the user to look through back-numbers and to list all or part of a range of notes either at the display or on a line printer.

**Planned Enhancements and Other Utilities**

Among the improvements we have planned for our various EXEC files are the following.

- The automation of minutes and News notes means that they accumulate on the main disc storage. Already we have a means of archiving "old" News notes such that they are normally on secondary storage but can be recalled automatically when anyone requests them. We shall expand this to old minutes.

- Often one wants to scan old News notes on a particular subject. We shall automatically save the title lines in another file and alter the lister file to allow a user to scan on a keyword string in the title or author fields.
Sometimes the Logon sequence can be quite lengthy for people who have (or want) to check through many minute schemes, especially when WYLBUR is heavily used. We shall implement a method allowing a user to identify certain schemes which are to be scanned through only the first time he or she logs in that day, with an override mechanism.

Similarly, logging in for the first time after a long absence (holidays, for example) can be rather long. We shall provide a special EXEC file to allow the user to skip and/or simply list all of the new News notes and minutes which he/she has missed.

Under WYLBUR at CERN there is a general HELP command to aid users. In addition we have produced a HELP EXEC file to offer assistance to our users in their particular environment. Via this EXEC file, the user can quickly list at the terminal the procedure for calling for a CERN or Digital engineer, for finding the telephone number of his/her OC group contact person; from the HELP EXEC file he/she can execute the general manual EXEC file or call upon the EXEC file to insert or list News notes; and so on. Thus, by remembering the data set name of this one EXEC file, the user can easily access any and all of the OC Group/DEC section (and gradually other parts of OC group) system documentation.

Acknowledgements

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References


2) F. Gagliardi, "A Transportable RSX-11M System"

4) WYLBUR EXEC File Tutorial, CERN DD/US/31 and SLAC User Notes 60 and 85

