

DCR NEWSLETTER

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USER & PROJECT IDS~ PROPOSALS TO OVERCOME DEFICIENCIES

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Dr P.J. Claringbold, Assistant Chief, DCR.

User divisions are defined by the first three characters of the account code, e.g. CCRAAA could be an account code used by DCR. The other three characters are assigned by user divisions in various ways. In an attempt to provide user identification (ID), project identification or sometimes a mixture of both. Some of the deficiencies inherent in the current practice are outlined in the following paragraphs.

(1) Problem jobs

Unfortunately it is possible by accident, by living dangerously or by intent, to construct a job which crashes the system. To make it worse these jobs may rerun when the system comes up, resulting in another crash. On one occasion a user submitted more than ten incarnations of such a job with disastrous results for everybody. The system is effectively down until the offending jobs are removed and further copies prevented from entering. It is essential that operations staff are able to identify and contact owners of offending jobs. Presently this is not possible since 25% of account codes are shared.

(2) Workspace identification

The file editor on the Cyber provides for the recovery of user workspaces after a system crash. This is not a very useful concept unless the workspaces are uniquely associated with users. The problem can be overcome if each user has a unique user ID. In the past system overheads in the 3600 have precluded unique user IDs, or more complex schemes. With the Cyber however much more is possible.

(3) Audit of Permanent Files

The present permanent file audit procedures are very unsatisfactory. It is possible for files to be lost in the system, and still incur the daily storage charge if an erroneous permanent file ID is forgotten by the user. Audit by owner, which has connotations of project ID, is not possible. A complete audit is unavailable to users.

(4) Cross Charging

It is reasonable for a user, e.g. a DCR consultant, to be authorized to charge computing work to a project external to his Division. At present he just uses the other division's account code. User ID is lost. The authorization is not checked by the system. Auditors object to such a free and easy approach.

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(5) Passwording

A password does not achieve the desired objective, that is, the prevention of unauthorised access or expenditure, if more than two persons know it. Since many users may have access to a project ID, little protection is provided by passwording it. On the other hand only one person need know the password on a user ID, hence the responsibility cannot be shifted to others.

(6) Dial-up Access

With a completely leased network, some protection against unauthorised use is provided by the location of terminals in controlled areas. Dial-up terminals can, of course, be used from any telephone. This opens the way to piracy. Obviously it is necessary that anyone authorised to use dial-up ports must be required to employ user ID and password.

(7) User Attributes

At present, since users are imperfectly identified or not identified at all, it is impossible to take into account individual requirements. The need for individual treatment was recognised in the case of the charge code where the first two characters define a 'home node'. The implementation of a set of user defined attributes would simplify the parallel working of old and new facilities. Instead of universal cut-over day (on which many things may stop working) each user could set his own time by changing an attribute.

The above weaknesses have been apparent for a number of years--both to DCR, and to CSIRO Head Office. On the grounds that staff resources should not be used to grossly modify the DAD system when SCOPE required so much additional effort, DCR was permitted to defer corrective measures. We have, however, given an undertaking to improve protection against unauthorised access and use, during the period of changeover of the remaining systems from the 3600 to the Cyber. In other words, the new routes of access to the Cyber will be more secure.

It is well understood that changes to user IDs, and the official introduction of project IDs, is a very sensitive subject, a minefield to cross. Individual users may, or may not, be subject to a change in what is presently termed the account code, but divisional managements will be faced with new administrative procedures. No sudden changes are imminent. Nevertheless, user groups should give immediate consideration to these proposals. We are probably not aware of all implications on the internal practices of various groups. The author would be pleased to receive written submissions on this subject before 30 September 1976. To the extent that some communality is conveyed, and within the limits imposed by very limited resources for system development, the submissions will form the basis of further development proposals.

The basic proposals to overcome the deficiencies in current practice are discussed below.

(1) User IDs

The term 'delegate' is used to define the officer delegated to authorise payment of a division's computing charges. For present purposes it is assumed that the delegate will authorise the application for user IDs, project IDs and other authorizations which may be granted. It would be required that DCR be supplied with the name, affiliation, official address and telephone number of each authorised user of the system. Subject to the requirement for unique identification, the user would be assigned a single user ID consisting of six characters in the same format as the present account code, i.e. first three characters would continue to designate a division. It is noted that more than 75% of account codes are really user IDs. In order to avoid a sudden change in the invoicing program (which uses character four of the account code to control pagination and sub-totalling), any new user ID issued would still be 'project oriented' on the fourth character.

(2) Project IDs

The delegate would be required to provide an acceptable list of project IDs, and for each project ID a list of user IDs authorized to use it. It is noted that a user from a different division may be authorised to use project IDs of the delegate's division. The project ID also consists of six characters in the same format as the present account code, i.e. the first three characters would continue to designate a division. Again, in order to simplify transition, a restriction is imposed. No project ID can be identical to any user ID unless only one user is authorised to use the project. In this way the 75% of account codes, which are essentially user IDs, but also may be project IDs owing to character four usages, are largely unaffected. The project ID will then be taken to be the user ID until the delegate implements project accounting conforming to a standard yet to be agreed on.

(3) Invoicing

All system accounting records would include both user ID and project ID. In the long run, monthly invoices could show dissection by project, and by user within project. At present this would generate a mountain of paper since there are an enormous number of 'projects'. In the long term we must continue to avoid a mountain of invoices--perhaps it would be sufficient to invoice by projects and supply a list of user IDs incurring charges on each project for the month. The delegate may use CYACC to make random or systematic checks on usage.

(4) Permanent Files

The ownership of permanent files will ultimately be restricted to project IDs. The permanent file ID will be permitted to be (i) a special string of six characters, e.g. PUBLIC, TRYLIB, etc., (ii) unspecified implying PUBLIC, (iii) a user ID or (iv) a project ID. The audit of any set with permanent file ID or permanent file name specified, shall remain unchanged. Where both parameters are not

specified, audit will list files belonging to the division which is specified by the first three characters of the project ID of the running job. Set managers will be provided with a password, and if an audit with the aforesaid parameters not specified is carried out, all files on the set are listed. If, however, the set manager does not require protection, a blank password is used.

Impact on Divisions

The major impact of these proposals will be on divisions that have already instituted project oriented account codes, especially those divisions that use the last three characters of the account code for project identification. Perhaps these groups could apply for additional account codes to ensure uniqueness, but continue to rely on the fourth character for pagination and subtotalling. The withdrawal of pure project account codes, and of multiple account codes for individual users, should certainly be considered immediately.

Impact on Proposals

While the basic proposals are well defined, detailed administrative procedures and system implementation are quite fluid. It is essential that the author receive submissions on these proposals before 30 September 1976. After due consideration, our present 'Application for Account Code' form will be redesigned to make provision for collecting the additional information required.

Print-File Limits To Be Reduced

As foreshadowed in the article "Decentralization of Network Facilities" (*DCR Newsletter*, no. 125), the maximum size of file permitted for disposal to network printers, beginning 1 October 1976, will be 1000 sectors. This limit does not however apply to size of files for cataloguing purposes.

The development of a system facility that enables segmentation of the print file into manageable segments is near completion. This facility will be described in the next issue of *Cybarite*, the September *Newsletter* and the forthcoming edition 2 of the *CSIRO Users' Manual*.

FOCAL

Workspace Increased

In response to a user request, the workspace of FOCAL was significantly increased on 1 June 1976, to 2013 words (previously 519).

The draft documentation on the Cyber FOCAL invited users to contact their Duty Consultant if the workspace was not large enough, as increases may be readily made. This offer still stands.

Line-Printer Plot of Computing Expenditure vs. Budget

E.W. Radoslovich, Division of Soils

From the point of view of a Divisional Administration, it is useful to have the total Divisional expenditure on computing plotted at monthly intervals against a linear pro-rata plot of the Division's computing budget for the current financial year. From this plot the Chief or the Divisional Administrative Officer can see at a glance whether there is a trend towards significant overspending or underspending by the Division as a whole. In either event a more detailed analysis by CYACC or COMPUCOS or some other method may then be made, as a step towards adjusting expenditure.

Divisional computing expenditures, chargecode by chargecode, item by item, are accessible via CSIRONET within the first few days of each month. A very simple program COMPLIT allows us to plot this Division's ongoing costs monthly on the local lineprinter, and at the same time produce punched cards of the detailed expenditures ready for analysis as required by COMPUCOS.

For further information on this program write to the author of this article, care of Division of Soils, Adelaide, (Telephone 796911).

STAFF NEWS

Mr B.P. McDowall relinquishes his position as Officer-in-Charge of the Sydney Branch on 9 August 1976, in order to participate in detailed forward planning for the central facility in Canberra. Initially, he will carry out a detailed investigation into the properties of large-scale mass storage systems.

Mr D.L. Beechey has been appointed Acting Officer-in-Charge, Sydney Branch, for a period of six months beginning 9 August 1976.

DCR Publications

Copies of the following publication are available from the Publications Assistant, DCR, Canberra.

Library Accession List no 112, June/July 1976.

LETTER FROM A USER

PREPARATION OF DATA

FOR PUBLICATIONS

A perusal of past issues of the *Newsletter* reveals that information-flow via this medium is strictly one-way, i.e. from DCR to users of CSIRONET. Despite an invitation prominently displayed on the front page of every issue, there is a complete absence of any material from anyone other than DCR staff. I can only assume that the readers of the *Newsletter* are a lazy lot, while DCR staff are hounded by the editor for a copy.

DCR is therefore prevented from providing users with the information that they desire, and is reduced to providing what it thinks they should read or would like to read. One device which might help to overcome this problem would be a question-and-answer service.

For example, being interested in data base management, I have asked DCR staff what support can be expected from them in this area in the future. Verbally I have been assured that both FORDATA and INFOL will be supported in the future. It would be much better if this query were raised in the *Newsletter* and answered there so that other users and potential users of these systems also know what DCR's intentions are.

In the event that you agree to the question-and-answer suggestion, may I start the ball rolling with a query concerning future developments in preparation of data for publication. In particular, what roles are envisaged for the COM unit, apart from reducing the deluge of paper pouring out of CSIRONET? The rumoured development of a 'typesetting' package that accepts data as the ASCII 96-character set plus commands, and outputs it via the COM unit in virtually any format required, suggests that DCR has probably consulted with the CSIRO Publications Unit in this particular area of data handling.

But there is an increasing amount of publications being done 'in-house' by Divisions themselves and the input of data in this instance largely depends upon typists. At present, for all practical purposes it is impossible to interface typewriters with CSIRONET because of both physical and software incompatibilities. Is DCR aware of these problems? Does it believe they are within its ambit? Does it see a need to provide an environment in which typists feel comfortable while they interface with CSIRONET? Or is there a need for a new breed of human 'word processors' who are at home in a computing environment?

These and many other questions which I'm sure exercise the minds of many CSIRO staff could perhaps be answered if DCR would define what it sees as its responsibility in this area.

Alan W. Moore
Officer-in Charge
Queensland Branch
Division of Soils

Note from Editor

We publish below a reply to some of the questions raised in Dr Moore's letter, from the Director of Technical Services, DCR.

While we will make every attempt to answer queries raised by users, we regret that limited resources will not permit us at the present time, to publish a regular question-and-answer column as suggested by Dr Moore.

Publication Aids

J.J. Russell, Director of Technical Services

The letter from Dr Moore, published in this issue of the *Newsletter* raises some interesting and challenging points, most of which, unfortunately, cannot be explored fully at this time. In particular, the prognosis for typesetting publications through COM cannot be made with confidence because of the large number of unknowns, at least from our point of view.

Typesetting is quite a skilled science, or art as the case may be, and layout and presentation would vary with the type of publication. The presentation of a weekly newsheet may be different from that of an article published in a learned journal, mathematical typesetting requirements will differ markedly from those of standard English text, and so on.

The rumours of availability of typesetting packages are true, and we hope to acquire or develop one suitable for presentation of a range of text. Later we hope to be able to provide a similar facility for mathematical typesetting.

That is just the beginning of the story however. It follows that whoever wants to use such a package must learn how to. Presumably, documentation on how to mark typesetting instructions on text, specific to the publication package acquired, will be available, the text being stored in the computing system. Presumably education can be provided to explain what that means. However, it is doubtful if we would ever expect to employ experts in typesetting or those who will tell you how to go about preparing your own publications. That expertise might have to come from somewhere else—perhaps from the CSIRO Publications Unit (who haven't been consulted about this article). Perhaps 'do-it-yourself' typesetting will result in an amateur job, sometimes satisfactory and sometimes not.

In any case, no progress can be made with using COM for type setting until text can be entered into the system easily, and by normal keyboard staff—typists, data-punch operators and so on. We have been very pleased with the success achieved in this Division in entering text through terminals by such staff. A small amount of training has been necessary, but the major problem was overcoming the natural apprehensions

about an unfamiliar keyboard. After an understandable initial reluctance to use terminals instead of typewriters, we have had large amounts of text entered into the system by typists and data-processing operators. Notable examples are our own publications. We have not progressed greatly with editing of the documents by typists because these are new skills and the programming tools have not been adapted for use by them. However, we believe that the initial breakthrough has been very successful, and the typists are justly proud of their prowess. They have found that the most satisfactory keyboards of the terminals available are those of the Decwriter, the TI 733, and the CDC 713.

Trials with an IBM 2741 which offers some limited scope for varying fonts, have been less satisfactory, due, among other things, to incompatibilities with CSIRONET protocol. Other devices more suitable for the purpose are beginning to appear on the market, and will be evaluated when opportunity offers.

A Computing Note titled 'Document Entry for Beginners' is included in the 'DCR Manuals, Computing Notes, and Services Notes' microfiche that accompanies this *Newsletter*. If you have not received a copy of this microfiche and would like one, please contact the Publications Assistant, DCR, Canberra. The Computing Note referred to would be particularly useful to typists who have no programming knowledge but would like to use ASCII TED to enter documents into the system. Hard copies of this publication should shortly be available on request from the Publications Assistant.

Although we are aware of the availability of magnetic cartridge typewriters and typewriters attached to minicomputer systems, as well as of typists' text editing packages on other computing systems, we have little direct experience and would prefer not to comment, and certainly not prognosticate on their future. We must restrict ourselves to what we think might be possible under our own systems, which is what has been attempted in this article. We regret that it is impractical, at the present time, to examine the subject in more depth. It is apparent that some progress is being made.

CONTROL DATA MANUALS

We would like to draw your attention again to what we said in our last *Newsletter* regarding Control Data manuals. Though the latest revisions to Control Data manuals carry a disclaimer that they are no longer applicable to SCOPE 2.1, it is advisable not to order the new manuals that will replace them until you know what alternatives are available. The form (printed version, microfiche) of the manuals and the scheme of distribution are now under consideration and we hope to have this information for you well in advance so that you may order your copies of the manuals in time for the implementation of SCOPE 2.1.4. The implementation of SCOPE 2.1.4 on our system is not likely to occur before the end of the year.

For those interested in knowing what the new manuals are, we give below a list of those already known. There may be others. Please note that this list does NOT reflect the current state of the system. Manuals applicable to the current system are those shown in the *Users' Guide*, Appendix I.

Number	Name	SCOPE 2.1.3 manual to be replaced
60497800B	<i>Fortran Extended Reference Manual</i> — Version 4	60305601J & 60305600H
60449900A	<i>UPDATE Reference Manual</i>	60342500F
60497500B*	<i>SORT/MERGE Reference Manual</i> — Versions 1 & 4	60343900H
60498000A	<i>Fortran Extended DEBUG Users' Guide</i> Version 4	60329400B
60498200B	<i>Fortran Common Library Mathematical Routines Reference Manual</i>	—
60495700B	<i>Cyber Record Manager 7000 Record Manager Reference Manual</i> —Version 1	60307300H
60429800B	<i>Loader Reference Manual</i> —Version 1	60344200G

* The differences between this manual and the one it replaces appear to affect only those installations using NOS and NOSBE. The current manual will therefore be valid for SCOPE 2.1.4 until updates are issued by Control Data, when it will have to be replaced.

FORDATA Sub-Schemas Query Facility

H. Mackenzie, J.L. Smith

A facility which will enable the user to define subsets of his schema for use with different applications programs has been implemented in FORDATA. This has necessitated several changes to the internal representation of the translated schema.

The versions of the PUBLIC FORDATA system files incorporating these changes will become operative late on Friday September 3, and thus users will need to retranslate their schemas before using FORDATA after Monday September 6. Existing databases will not need to be recreated, and existing programs will not be affected.

The Query Language announced in the June 1976 *Newsletter* can be used to retrieve tree structured data. The retrieved data is presented in normalised form, with each output record generated by the RETRIEVE or REPORT commands being one data path instead of what may be a variably repeating structure.

Documentation for both these additions may be obtained by using the following control statements:

```
DISPOSE(B,ST=DADtt,*PE)
ATTACH(A,FORDOC)
COPY(A,B)
```

where *tt* is the mnemonic of the node for output.

Incorrect Specification of Stationery

Lineprinter requests accompanied by special stationery specifications can cause trouble if

- (a) the special stationery is not available at the node nominated for output;
- (b) an illegal forms code is specified.

For example,

```
DISPOSE(TAPE61,*PR=CME)
```

will cause a request for special paper type 'ME' which does not exist. Here the user is probably trying to dispose the output to the Melbourne node (MEB), in which case the control statement should read:

```
DISPOSE(TAPE61,*PR,ST=DADME)
```

If requests for special stationery arise and the type of stationery requested is unavailable, operations staff will, in future, start the output on single part paper and then terminate it. A Job Irregularity Report will then be forwarded with the terminated output, to the user.

PHOTO
FEATURE
*

Through the ages, artists and craftsmen have drawn their inspiration from their environment. DCR Computer Operator in Townsville, Marilyn Keys, is no exception. Her screen-printed CSIRONET T-shirts are not only eye catching but quite the "in-thing" with many of DCR's "with-it" staff.



Jeanette Whitfield: Canberra Operator shows form.

Photo: Peter D. Sherrington, DCR Canberra



Marilyn Keys: Designer sports the product.

Photo: Allan Finnigan, D.O.T. Townsville