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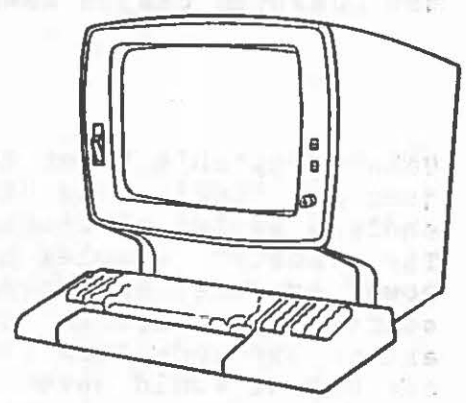
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GOINGS-ON IN THE CENTER

The Winter Quarter which has just finished was another busy one in the Center. Over the Christmas break we installed the IBM 3033 Model S and completed the final integration of the

Uninterruptible Power Supplies (UPS) system - the latter task, just in time! The UPS has been well tested by the apparently endless series of storms and has come through with flying colors. The computer complex has not suffered an outage as a result of power or other environmental factors. Several times during the quarter the computer system was switched to the battery back-up and on two occasions the diesel generator was started up. Without UPS we would have suffered considerable down-time like other computer systems on the Peninsula. After a shaky start to the year the expanded system has proved to be very reliable. Since the beginning of February the weekly system availability has varied between 99.0% and 99.8%. In the last six weeks we have had a total of 4 hours of unscheduled down-time of which 2 hours 45 minutes were caused by hardware problems. The 3033 Model S passed its formal 30-day acceptance test at the 100% effectiveness level.

Installed two years ago, the IBM 3033AP system consists of two processors, a 3033 Central Processor Unit and a 3042 Attached Processor Unit tightly-coupled, sharing 16 megabytes of processor storage. The 12 I/O channels and all devices are attached to the 3033 CPU. One of these channels is now dedicated to communication with the 3033 Model S. The Model S with 8 megabytes and six I/O channels shares access to all the auxiliary storage and I/O devices in the computer room.

The 3033AP system continues to run VM/SP as the primary operating system supporting all interactive CMS users and a single batch-processing system, MVS/JES3. The 3033 Model S also is running MVS as the 'local' processor under the 'global' control of the Mod AP. MVS jobs are selected from a single job queue to be run on the Model AP (SY1) or S (SY2). Perceptive users will already have noticed that their JCL output now shows the processor (SY1 or SY2) on which a job was run. Unless the processor is specified by the user jobs will be run on either system. Users should be aware that the Model S is half the speed of the AP.

* * *

USER SERVICES TALKS FOR SPRING QUARTER

The User Services Group will give sixteen talks at the beginning of this quarter to help familiarize users with the various facilities of the VM/CMS timesharing and MVS batch systems available on the IBM 3033 Computer.

The following seven talks will be given in the In-122 Auditorium. Signup for these sessions is not required.

Introduction to VM/CMS (offered three times)

1310	Thursday	7 April	Speaker: Neil Harvey
1410	Monday	11 April	Speaker: Larry Frazier
1210	Monday	18 April	Speaker: Larry Frazier

This talk assumes no prior knowledge of the NPS Computer. Topics to be covered include the use of the 3278 terminal, how to logon and logoff, use of the function keys, the HELP facility, and various general-purpose commands. It is strongly recommended for all new users of the Center, and covers information which may not be provided in an introductory programming class. Be sure to bring a copy of Technical Note VM-01, Users Guide to VM/CMS at NPS. (This publication is included in the Computer Center User's Manual.)

Introduction to XEDIT (offered three times)

1310	Friday	8 April	Speaker: June Favorite
1210	Friday	15 April	Speaker: June Favorite
1410	Monday	25 April	Speaker: June Favorite

This talk provides elementary information about the XEDIT full screen editor. The main emphasis is on methods for creating and changing programs and other files. Use of the PF keys and HELP facility in XEDIT are mentioned. This talk assumes little or no familiarity with XEDIT, but prior attendance at 'Introduction to VM/CMS' is recommended.

Introduction to DISSPLA

1210	Monday	11 April	Speaker: Jerry Norton
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Note: This talk also offered on Monday, 18 April in In-119. See below.

DISSPLA is a device-independent graphics package for use by Fortran programmers. It allows convenient generation of a large

variety of graphs, charts, text, etc. It may be used at NPS both on MVS (batch) and CMS (timesharing). This talk provides a general introduction and some examples of usage.

All other talks which are described below will be given in In-119. Those interested in attending should sign up in the Consulting Office, In-146, to reserve a seat.

Introduction to SAS

1210 Monday 11 April Speaker: Dennis Mar

SAS, the Statistical Analysis System, is a flexible batch program for handling all phases of data analysis: retrieval, data management, statistical analysis, and report writing. It has excellent features for merging and subsetting data sets. The speaker will describe the required data formats, SAS control cards, and necessary job control language (JCL). This talk is intended for new users of SAS.

Intermediate Topics in VM/CMS (two parts)

1510 Tuesday 12 April Speaker: Roger Hilleary
1510 Tuesday 19 April Speaker: Roger Hilleary

These talks introduce more advanced features of the time-sharing systems. They assume basic familiarity with VM/CMS. The talks are independent; you may sign up for either one or both. The first talk concerns spool files. It will discuss how to control your printed output and how to send files to another user. The second talk covers a variety of topics, including the FILEDEF command, packed files, and creating load modules.

Intermediate Topics in XEDIT (offered twice)

1210 Wednesday 13 April Speaker: Dennis Mar
1210 Monday 25 April Speaker: Dennis Mar

This talk is intended for the VM/CMS user who is familiar with the XEDIT editor and is looking for ways to make editing easier. Topics covered include extended usage of PF keys, exploring XEDIT subcommand options (such as SET and QUERY), creating a profile XEDIT file, customizing your XEDIT screen and editing multiple files.

Introduction to DISSPLA

(Also offered in In-122 on 11 April.)

See above for description

1210 Monday 18 April Speaker: Jerry Norton

Intermediate Topics in DISSPLA

1410 Friday 22 April Speaker: Jerry Norton

This talk is intended for the person who is familiar with the NPS Computer Center operating systems and is interested in more advanced use of the DISSPLA graphics package. Some common problems and their possible solution will be discussed. In addition, examples will be given using the contouring, 3-D and mapping features of DISSPLA. Escape functions and the DISSPOP feature will also be discussed.

Introduction to EXEC 2

1510 Tuesday 26 April Speaker: Roger Hilleary

The EXEC capability enables a CMS user to create special commands which involve complicated sequences or argument lists. These can be stored and invoked wherever needed. This talk will familiarize the user with EXEC files. Prior knowledge of elementary CMS usage is assumed.

Introduction to SPSS-X

1210 Wednesday 27 April Speaker: Dennis Mar

SPSS-Extended (SPSS-X) is a new version of the Statistical Package for the Social Sciences. SPSS programs written for previous releases will not run under SPSS-X without modification because

the control language has changed. This talk will introduce new SPSS-X features and discuss the changes required to run old SPSS programs under SPSS-X. This talk is intended for previous users of SPSS.

* * *

GET-TOGETHER FOR DISSPLA USERS

The Computer Center announces its first lunchtime gabfest on April 20th, 1210-1300, in the VIP Room in the basement of Herrmann Hall. This occasion will be an informal meeting for DISSPLA users. Staff members will make a short presentation about the ISSCO users' conference which was held in San Diego in late March.

However, the real purpose of this gathering is to give users the opportunity to meet other plotters and to exchange ideas, problems, and solutions about DISSPLA graphics. Bring both your dazzling plots and your baffling questions.

* * *

A NEW VERSION OF SPSS

The latest release from SPSS Inc., SPSS-Extended (SPSS-X), is now available on the MVS ("batch") system. SPSS Inc. says that "SPSS-X represents a significant evolutionary change" to their software package.

SPSS-X features enhanced capabilities for data definition, file management, data modification, and statistical computation. The new features will solve two particularly bothersome limitations of previous releases. First, capabilities for file management now include the ability to split data files or to match and merge multiple files. Second, character variables may contain up to 255 characters instead of the old limit of 4.

The SPSS command language has been modified. SPSS programs written for previous releases will require modification before they can run under SPSS-X. Introductory talks about SPSS-X and hand-outs will not be available until the summer quarter. However, a talk for experienced SPSS users will be given this quarter. See the schedule of Computer Center public lectures in this

newsletter for the time and place.

SPSS-X will not be actively supported by the Computer Center during the spring quarter. Users who acquire the new manuals are invited to use SPSS-X on their own. The following job control language is required to access SPSS-X.

```
// (standard job card)
// EXEC SPSSX
//SYSIN DD *
```

SPSS-X User's Guide (ISBN 0-07-046550-9) is the basic documentation for SPSS-X. This manual is available from McGraw-Hill for \$28.95.

The previous version of SPSS, release 9.1, will remain on the system. There is no change in the method for accessing this version:

```
// (standard job card)
// EXEC SPSS
//SYSIN DD *
```

* * *

SIMSCRIPT II.5 RELEASE 9.1

SIMSCRIPT II.5 Release 9.1 has been installed and tested on the MVS (batch) side of the NPS system. This latest release is a major revision of both the language and its implementation.

Release 9.1 is generally upward compatible with Release 8 on the source code level. However, it is not compatible with the previous Release 8 distribution at the object code level. All SIMSCRIPT II.5 source code must be recompiled in changing to the Release 9.1 compiler. SIMSCRIPT II.5 Release 8H compilers and libraries have not been withdrawn from service and will continue to coexist with Release 9.1 until further notice.

Major Improvements

The following major improvements have been included in SIMSCRIPT II.5 Release 9.1:

The TEXT Mode of Simscript II.5. This collection of operations provides for convenient handling of arbitrary strings of characters. The programming system handles details to allow application developers to concentrate on their primary modelling objective.

Enhancements to the PROCESS and RESOURCE features. It is now possible to effectively use Process Suspension operations in subprograms called by Processes. This facilitates development of generalized resource arbitration strategies in a "problem-oriented" manner, for instance.

Improved Error Checking. New error tests check for bad pointer values, out-of-range subscripts, and overflow of packed values. Enhanced validation is provided for process and resource interactions, bad arguments, and other frequent errors. Tracebacks print names and variables in a format that helps model-building development.

Virtual Memory Utilization. Large scale simulation techniques are available through the Entity-Attribute-Set world view of SIMSCRIPT II.5 running in a multi-megabyte virtual memory environment.

Implementation Differences

Differences between Release 9.1 and prior releases of SIMSCRIPT may be broadly classified as

Language Enhancements. New language features have been introduced to add to the power and flexibility of SIMSCRIPT.

Language Differences. A number of small differences in the language have been introduced within Release 9.1 to provide compatibility with implementations on other computers and to provide improved reliability and integrity of the language.

Release 9 Specific Features. These are specific features or differences peculiar to IBM implementation requirements.

Cataloged Procedures

Four cataloged procedures have been added to SYS3.PROCLIB:

SIM91C -- compile only.

SIM91CL -- compile and link edit only (no go)

SIM91CLG -- compile, load and go. (Note: this procedure uses the Loader rather than the Linkage Editor)

SIM91LG -- link edit and go.

Existing job control procedures for Release 3H will continue to reside in SYS3.PROCLIB but will not be maintained or upgraded.

Reference Materials

The SIMSCRIPT II.5 Release 9.1 Reference Handbook and User's Manual are available for reference in the Computer Center Library in

Ingersoll 162. Questions and problems with system implementation and job control procedures may be referred to Mr. Steve Lamont in Ingersoll 103 (x2696). Specific questions regarding language usage and syntax should be taken up with the appropriate faculty member.

* * *

READJOB EXEC ANNOUNCED

Due to recent modifications in the operating system, an irritating "feature" of JES3/Networking is its "blocksize sensitivity" in returning output files from a batch job to a CMS user's virtual reader. This results in one job producing several output files, usually the system messages (JES Messages) and JCL returning in one file, compiler and linkage editor output in another file and possibly program output in another file. Until the introduction of the READJOB EXEC, the only way to concatenate the OUTPUT files was to read each file individually using RDR or DEPRINT and copy them together into one continuous file using the COPYFILE command.

It is now possible to read several files output by the same job into one continuous file in one operation.

The READJOB EXEC reads printer files from JES3/NJE RSCS. All PRT files on the virtual reader with a specific filename and the filetype of OUTPUT are read and concatenated into a continuous file.

PUN files are not read but their filetypes are changed to DECK.

Note that files are concatenated by MVS_JOBNAME

Hence, it is important to name each job differently if you are planning on submitting several jobs at once and expect the output to be available at approximately the same time for all jobs.

Syntax is as follows:

```
(EXEC) READJOB ((((<fn>) (<ft>)) (<fm>)) (REPLACE))
```

where:

EXEC required only if invoked from inside another EXEC.

<fn>, <ft>, & <fm> are standard CMS FILENAME, FILETYPE and FILEMODE definitions. FILENAME must correspond to the MVS JOBNAME, or be omitted. (See below)

REPLACE denotes that the file described by the above is to be replaced by the contents of the reader files selected.

Parentheses indicate optional parameters.

Example

Consider the following files in your virtual reader:

```
NET8026  A PRT  00000080  001  NONE 02/21  09:25:34  JOBNAME
OUTPUT NET$$
```

```
NET8027  A PRT  00002356  001  NONE 02/21  09:25:34  JOBNAME
OUTPUT NET$$
```

Options are:

- 1) Read a specific job by name

Examples:

```
(EXEC) READJOB JOBNAME
```

will concatenate virtual reader files named JOBNAME OUTPUT onto the A disk as JOBNAME LISTING A1.

```
(EXEC) READJOB JOBNAME OUTLIST B REPLACE
```

will concatenate virtual reader files named JOBNAME OUTPUT onto the B disk as JOBNAME OUTLIST B1 replacing any pre-existing file with the same name.

- 2) Read ALL jobs on the virtual reader (default)

Example:

```
(EXEC) READJOB
```

If no parameters are specified, the default is to read all OUTPUT files resident on the virtual reader. One file for each JOBNAME will result. This is the most typical way READJOB will be used.

Default FILETYPE is LISTING. Default FILEMODE is A1. There is no default FILENAME. If a file with the same FILENAME, FILETYPE and FILEMODE as specified already exists and REPLACE is not specified in the invoking call, the EXEC will query disposition of the file. A negative reply to this query will abort the reading of that file only if the FILENAME, etc. are omitted on invocation.

For more information on usage of READJOB contact Mr. Steve Lamont in In-103 (x2696).

* * *

WHAT TO DO WHEN YOUR DISK IS FULL WHEN YOU FILE

DISK 'A (0191)' IS FULL. SET NEW FILEMODE OR CLEAR SOME SPACE.

On occasion XEDIT returns this error message when you attempt to FILE or SAVE. What it means is that your disk space has been filled while trying to write the new copy of the file onto it. "But," you say, "the file should fit on my disk. I've only changed a few lines and I haven't made the file any larger." When you issue a FILE or a SAVE from XEDIT, it writes the file into a temporary disk file. If this file is successfully written, XEDIT then erases the old disk copy of the file you are editing, and renames the temporary file to the correct filename and filetype. Thus if you have a 400-block file, and have only 300 blocks of empty space on your disk, you will get the DISK FULL message when you try to save or file. This is a good argument for keeping your files as small as possible. You are not as likely to have this problem and it is more efficient for editing purposes.

To clear some space while still in XEDIT, enter CMS SUBSET by issuing the XEDIT command CMS and then issue a LISTFILE command (or alternately, FLIST) to see what files you have. Erase those you don't want by issuing the ERASE command. (More information on these commands can be obtained by issuing the commands HELP CMS, HELP LISTFILE, and HELP ERASE.) When you are finished erasing files and want to return to XEDIT from CMS SUBSET, issue the command RETURN. Now you should be able to FILE or SAVE as originally intended.

Another solution is to enter CMS SUBSET via the XEDIT command CMS, and send yourself the disk copy of the file you want to save. The commands CP SPOOL PUN * and DISK DUMP (filename) (filetype) will allow you to do this. You can then erase the file from your disk, enter RETURN to return to XEDIT, FILE the file, and then purge the "sent" copy from your reader, if all is O.K.

A less safe method is simply to issue ERASE (fn) (ft) followed immediately by FILE or SAVE. However, you will lose your file completely if the system were to crash between the ERASE and FILE commands.

The best way to solve the DISK FULL problem is to avoid it by cleaning up your disk regularly. It is good practice, at the end of a session, to issue the command FLIST and then use PF key 9 or 21 (sort by date) to find out what files were created that day, and erase those that are not needed.

* * *

MORE INFORMATION ON IMSL 9.0

In the last issue of the Newsletter we announced installation of Release 9.0 of the International Mathematical and Statistical Library. This is the comprehensive general-purpose subroutine library available at the Center on both operating systems. More detailed information on changes from Release 3.1 are given below.

Basic Statistics

Two new routines for frequency tabulations have been added to Chapter B of the library. One, BDFAB, tabulates counts for multivariate data; the other, BDTWT, forms two-way tables and computes the Pearson chi-squared statistic. Three other routines perform computations of statistics such as means, variances, covariances, skewness and kurtosis coefficients, and confidence limits. These new routines allow differential weighting of the observations; hence, the new routine for bivariate statistics, BECOVW, will simplify the computations for weighted regression, using the routines of Chapter R. These routines also allow specification of missing values and provide user options for handling observations with missing values. There are three new easy-to-use routines for producing histograms and a new routine for producing probability plots for normal, lognormal, half-normal, exponential, Weibull, and extreme value distributions.

Other Statistical Procedures

A new routine in Chapter C is provided for life table analysis. The routine will produce the usual statistics for either a current life table or a cohort table. Friedman's tests and nonparametric multiple comparisons in a randomized complete block design are performed by a new routine in Chapter N. Some of the routines in Chapter F for time series analysis have been replaced by routines which are more stable in computing preliminary maximum likelihood estimates.

Differential Equations, Quadrature, and Differentiation

A subroutine to solve a partial differential equation system of the form $u = f(x, t, u, u_x, u_{xx})$ using a collocation method combined with the method of lines (a modified version of DGEAR is used to solve the stiff ODEs) has been added. A boundary value problem solver, based on IMSL Advisor Victor Pereyr's work, which uses finite differences with deferred corrections and a Gaussian integration routine designed for integrating multivariate functions over hyperrectangles are also featured additions. Other new subroutines integrate a bivariate function over nonrectangular regions and calculate derivatives of a user-supplied function.

DGEAR has also been modified to handle banded Jacobians such as frequently arise in solving partial differential equations.

Eigensystem Analysis

A new subroutine has been added to solve the generalized eigenvalue problem $Ax = \lambda Bx$, when A and B are symmetric and B is positive definite. This situation arises frequently in differential equation calculations.

Random Number Generation

There are new routines for generating variates from a von Mises distribution, a random correlation matrix, and a random contingency table with given row and column totals. This latter routine may be useful in estimation of probabilities of various table configurations.

In our next issue we shall conclude this outline of the features of Release 9.0

The Newsletter appears semiquarterly and is written by members of the staff, W. R. Church Computer Center (Code 0141), Naval Postgraduate School, Monterey, California 93940. Requests for further information or suggestions for articles for the Newsletter may be addressed to the User Services Manager, Code 0141 (In-133), ext. 2752 (or ext. 2573 for messages).

The Center operates a multiprocessor configuration consisting of an IBM 3033 Attached Processor System (16 Megabytes) loosely coupled with an IBM 3033 Model S (8 Megabytes). Interactive computing is provided under VM/SP CMS and batch-processing service under MVS with JES3 Networking.

Distribution:

List 3, plus: 1-A5, 250-B2, 3-B3, 1-B13, 6-F3, 1-F4, 1-F5, 1-F6, 1-Code 49, 125-Student Mail Center (Lobby)