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W. R. CHURCH

Computer Center
NEWSLETTER

1 October 1970
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TSS TO REPLACE CP/CMS ON 12 OCTOBER 1970

Since July the Center has been running two time-sharing operating systems, viz., CP/CMS and TSS/360. This period has allowed the Center to shake-down, develop and evaluate TSS and also provided users the chance to gain familiarity with the system. TSS/360 is a general-purpose time-sharing system which will be run at NPS to support both batch-processing and terminal-access computing. Thus TSS users can choose to do their computing in batch-only, terminal-only, or mixed, mode. Central to the system is the concept of on-line storage of users' datasets (i.e., programs, files) which can be referenced easily from the card readers or remote terminals.

The CP/CMS service will be discontinued on 12 October 1970.

Until then it will be available for 2 hours per day (1601-1800) to give users additional time to transfer their files to TSS or complete any short-range work. The transition should not be difficult for CP users. (See item on CP/CMS below.)

Professors who anticipate problems in introducing TSS in their classes or who need help with conversion problems should contact Roger Hilleary, Manager, User Services (ext. 2752).

BASIC OPERATING SCHEDULE FOR QUARTER II, 1970

This is the basic schedule; variations are expected during the quarter. The weekly schedule is posted in the Output Room, In-141.

<u>Day</u>	<u>Period</u>	<u>Type(s) of Service</u>	
		<u>Batch</u>	<u>Time-Sharing</u>
Monday-Friday	0001 - 0700	OS	-
	0701 - 0900 ¹		NO SERVICE
	0901 - 1200	OS	
	1201 - 1600	TSS	TSS
	1601 - 1800 ²	OS	CP
	1801 - 2400	OS	-
Saturday	0800 - 1630	OS	-
	1630 - 2030	TSS	-
Sunday	1200 - 2000	OS	-

- Notes 1. On Monday, Wednesday and Friday the period is scheduled for preventive maintenance (hardware).
On Tuesday and Thursday it is scheduled for systems maintenance (software).
Should this period not be required for the scheduled purpose, additional batch service will be provided under OS.
2. After 12 October 1970, CP will be replaced by TSS, i.e., TSS will run for 6 hours per day (1201-1800) and OS for 16 hours per day. TSS will be available on 27 simultaneous communication lines compared with the present limit of 16 under CP/CMS.

FACILITIES AVAILABLE UNDER TSS

The present NPS version of TSS/360 includes the following facilities:

Command Language:	Extensive repertoire of commands for file manipulation; editing, execution and debugging of programs
Programming Systems:	FORTRAN IV, Assembler, PL/1 (Version 5), BASIC, SNOBOL4, GPSS, CSMP, ECAP, WATFOR (Batch only)
Debugging Aids:	PCS (Program Control System)
Libraries:	SSP, NPS routines
Other Facilities	REDIT (like CP/EDIT) TYPESET/RUNOFF (like CP/SCRIPT) Plotting

Almost all these facilities are available under both batch as well as terminal operation.

HOW TO JOIN THE TSS SYSTEM

If you intend to use TSS from a remote terminal (IBM 2741) or batch-processing mode, there are certain requirements which must be met prior to your being able to log on.

You must obtain a TSS User Identification number and specify your password and primary project number. Computer resources utilized during any TSS session will be charged against the primary project number unless the fourth parameter of the 'logon' command is specified.

Please visit the Information Services Office, In-147, to be joined to the system and pick up locally-written documentation.

TSS/360 DOCUMENTATION

There are two separate kinds of TSS documentation: manuals from the IBM/360 System Reference Library and a set of Computer Center supplementary documentation.

The following manuals are published by IBM. The flagged (*) manuals are recommended for new TSS users who are familiar with FORTRAN IV.

a. IBM Manuals

Manual Number

GENERAL INTEREST

Introducing...TSS/360	C28-2048*
TSS Concepts and Facilities	C28-2003
Command System User's Guide	C28-2001*
Terminal User's Guide	C28-2017
TSS/360 Quick Guide	X28-6400
Data Management Facilities	C28-2056
Master Index	C28-2023

FORTRAN

FORTRAN IV Language Specifications	C28-2007*
FORTRAN IV Programmer's Guide	C28-2025*
FORTRAN IV Supplied Subroutines	C28-2026*

ASSEMBLER

Assembler Language Specifications	C28-2000
Assembler Programmer's Guide	C28-2032
Assembler User Macro Instructions	C28-2004

SYSTEMS PROGRAMMING

Linkage Editor	C28-2005
System Programmer's Guide	C28-2008
System Generation and Maintenance	C28-2010
Command System for Managers and Administrators	C28-2024
Operator's Guide	C28-2033
Time Sharing Support System	C28-2006
Independent Utilities	C28-2038
System Messages	C28-2037
Quick Guide for System Programmers	X28-6401

PL/1

PL/1 Reference Manual	C28-2045
PL/1 Library Computational Subroutines	C28-2046
PL/1 Programmer's Guide	C28-2049

Individual copies of these manuals may be purchased from IBM. Information on prices, etc., can be obtained from the Administrative Assistant's Office, In-130. As the need arises, the Computer Center will produce supplementary documentation on TSS/360. At present, the supplementary manuals in addition to IBM publications are:

b. Computer Center Manuals

Introduction to TSS/360 at the Naval Postgraduate School (NB. This is the basic guide for local users.)
TSS/360 ECAP Operating Instructions
TSS/360 GPSS Operating Instructions
Continuous System Modeling Program on TSS
User's Guide to the Editor, REDIT (The Research Context Editor)
BASIC Language on TSS

There is a working set of TSS/360 manuals for your reference use in Room 149, Ingersoll Hall. Locally-written manuals may be obtained from the Information Services Office, Room 147, Ingersoll Hall or the Administrative Assistant's Office, In-130. Announcements will be made when new manuals are available for distribution.

SUBROUTINE LIBRARIES AVAILABLE UNDER TSS

Two libraries of subprograms are made available to the user when he joins TSS. They are called NPSLIB and SSPLIB. SSPLIB contains selected subprograms from the IBM Scientific Subroutine Package (SSP) and NPSLIB contains subprograms primarily written at our installation.

To obtain a directory of the available subprograms, the user should issue the command LIBDIR. The System will respond with the messages:

```
TERMINATED: STOP  
PRINT BSN=XXXX
```

The listing is printed on the high-speed printer and is assigned the batch sequence number XXXX.

The following batch job (non-conversational) can also be submitted to obtain the same results:

```
LOGON 'USERID'  
LIBDIR  
LOGOFF
```

where each command is punched starting in Column 3 of the card.

Reference copies of write-ups of routines available in NPSLIB and SSPLIB may be consulted in the Programming Consultant's Room, In-146, and in the Computer Center Reference Library, In-162.

OS/TSS FORTRAN DIFFERENCES

FORTRAN programmers will find a few differences between FORTRAN IV for OS or CP/CMS and that implemented under TSS. Those contemplating conversion of their programs for use on TSS should carefully consult the following list of these differences.

1. Under TSS the direct access input/output statements (e.g., DEFINE FILE) are not available. This means that users whose programs use random access techniques must run under OS.

2. TSS does not allow generalized subscripts; that is, any generalized subscripts other than the following forms will produce warnings and/or errors during compilation:

Form:	v	Example:	A(I)
	c		A(2)
	v+c		A(I+2)
	v-c		A(I-2)
	c*v		A(2*I)
	c*v+c'		A(2*I+3)
	c*v-c'		A(2*I-3)

where v represents an unsigned, nonsubscripted integer variable and c and c' represent unsigned integer constants.

3. TSS allows literals as arguments in a function reference; OS does not. Valid example in TSS:

```
a = label ('here')
```

4. TSS does not allow adjustable dimensions as implicit arguments in COMMON; OS does. Invalid example in TSS:

```
SUBROUTINE COM (M,N)
COMMON A(M,N)
```

5. Under TSS the name of a FUNCTION subprogram must be used to return the value of the function, even though entry was made through an entry statement. Under OS, the ENTRY name may be used to return the value of the function.

Example:

```
ftn ret
0000100 function one(a,b)
0000200 one=a-b
0000300 return
0000400 entry two(a,b)
0000500 two=a+b
0000500 E *** TWO IS CLASSIFIED AS ENTRY POINT
0000500 TWO=A+B
#500, one=a+b
#
0000600 return
0000700 end
A053          MODIFICATIONS? ENTER Y OR N.
n
B01G          LP FOUND NO ERRORS.
```

CP/CMS USERS: Conversion to TSS

1. Build your files under TSS from source modules on cards. Please note that under TSS each subroutine must be inserted as a separate dataset whose name cannot be the same as the name of the subroutine. See the manual "Introduction to TSS/360 at NPS;" copies are available in In-147.

2. How to punch out FORTRAN source modules from CP/CMS:

a. For each module issue the command:

```
offline punchcc 'program name' fortran -- or,
```

b. If you have a large number of files, you can use the following procedure (machine responses are in upper case):

```
edit off exec
INPUT
offline punchcc &1 &2
(blank line) (hit carriage return)
EDIT
file
listf * fortran (exec)
closio punch off
exec cms exec off
closio punch on
```

This will punch out all your FORTRAN-type files.

3. Users who experience any trouble in transferring to TSS or want help, please see the duty consultant.

STATLIB PROGRAMS UNDER TSS

The programs currently included in STATLIB under OS are being converted for use under TSS. As in OS, the user will not have direct access to the programs. They will be compiled, link edited, and filed under separate job libraries under the pseudo-user NPSSLIB. These libraries can be shared by all users. The priority system for including STATLIB routines will be based primarily on the demand for the individual programs and the ease with which they can be set up. Please contact Jerry Learmonth, In-102, with any recommendations.

Information on sharing the STATLIB routines will be available shortly. The status of those programs which have been set up will be posted at the dispatch counter and will be announced in future newsletters.

USER PROJECT NUMBERS

All users of the OS/MVT system are required to have the correct project number in the accounting field of every job submission. Users attending computer-oriented classes will be advised by the instructor concerning the

the proper project numbers for the class. All other users must be assigned individual project numbers. These are obtained in In-147, the Information Services Office. Project numbers for the period prior to 1 July 1970 expired on that date.

USER'S MANUAL UPDATE

On 11 August 1970, Update I to the Computer Center User's Manual was distributed via mail to all registered holders of the publication. If you didn't receive a copy of the change packet, please pick one up in In-147.

To those who did receive the change we request your cooperation in correctly posting all the new pages. Please place the cover sheet of the update package at the end of your Manual after you update it.

Any user who has never received a copy of the Manual should obtain one at the Information Services Office, In-147.

WATFOR/WATFIV NOTES

A correction has been made to the draw-checking routine DRWCHW in the SYS1.WATLIB library for WATFOR. This should eliminate the error informing you that X and Y data arrays in the subroutine DRWCHW exceed the space provided by the calling argument.

It has recently come to light that the conventions for matrix dimensioning used in the IBM Scientific Subroutine Package make such routines incompatible with the diagnostic algorithms of WATFIV. Therefore, many of the routines in WATFIV are currently in the process of revision.

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