SPERRY

PUBLICATIONS UPDATE

Operating System/3 (OS/3)

Release 8.2

System Release Description (SRD)

UP-9280.71-A

This Library Memo announces the release and availability of Updating Package A to "SPERRY® Operating System/3 (OS/3) Release 8.2 System Release Description (SRD)", UP-9280.71.

This update incorporates:

- Additional guidelines in Section 2 for:
  - Screen Format Services
  - Interactive Services
  - Spooling
  - Job Control
  - Data Utilities
  - Information Management System (IMS)
  - ICAM Remote Workstation Support
- Documentation updates for Section 6

LIBRARY MEMO ONLY	LIBRARY MEMO AND ATTACHMENTS	THIS SHEET IS
Mailing Lists BZ, CZ, MZ, 28U, and 29U	Mailing Lists BA6, BA7, BA8, B00, B01, and SBZ (Cover and 56 pages)	Library Memo for UP-9280.71-A
		RELEASE DATE: October, 1984

SPERRY UNIVAC

RELEASE DOCUMENTATION

document
System Release
Description (SRD)

system OS/3 System 80

product level 8.2

issue number UP-9280.71-A

software category 1

date

Product: SPERRY Operating System/3 (OS/3)

distribution

lists:

SPERRY UNIVAC

RELEASE DOCUMENTATION

document

System Release Description (SRD)

system OS/3 System 80

product level 8.2

issue number UP-9280.71

software category 1

date February 1984

Product: SPERRY Operating System/3 (OS/3)

distribution

lists:

PAGE STATUS SUMMARY

ISSUE: Update A – UP-9280.71
RELEASE LEVEL: 8.2 Forward

Part/Section	Page Number	Update Level
UD1-881		A
PSS	1	A
Contents	1	Orig.
	2 thru 4	A
	5, 6	Orig.
	7	A
1	1 thru 15	Orig.
	16	A
	17 thru 22	Orig.
2	1 thru 3	Orig.
	4	A
	4a	A*
	5 thru 7	Orig.
	8	A
	9 thru 11	Orig,
	12	A
	13, 14	A
	14a	A*
	15	Orig,
	16	A
	16a	A*
	17 thru 20	Orig.
	21, 22	A
	22a	A*
	23 thru 26	Orig.
	27, 28	A
	28a	A*
	29, 30	Orig.
	31, 32	A
	32a	A*
	33 thru 36	Orig.
	37 thru 46	A
	46a	A*
	47, 48	A
	49 thru 56	Orig.
	57	A
	58 thru 64	Orig.
	64a	A
	65 thru 67	Orig.
	68	A
	69 thru 83	Orig.
	84	A
	85 thru 112	Orig.
3	1, 2	Orig.
	3, 4	A
4	1 thru 6	Orig.
5	1 thru 7	Orig.
6	1, 2	A
	2a	A*
	3, 4	Orig.
	5	A
	6 thru 9	Orig.
	10	A
	10a	A
	10b, c, d	A*
	11, 12	A
	12a	A*
	13 thru 19	Orig.
	20	A
	20a	A*
	21 thru 24	Orig.
Appendix A	1	Orig.
Appendix B	1 thru 5	Orig.
Appendix C	1	Orig.
Appendix D	1 thru 29	Orig.
Appendix E	1 thru 19	Orig.
Appendix F	1 thru 7	Orig.
Appendix G	1	Orig.
User Comment Form		

Part/Section	Page Number	Update Level

*New pages

Contents

CONTENTS

1.1. RELEASE DESCRIPTION

Operating System/3 (OS/3) Release 8.2 provides support for the new System 80 Model 8 and includes performance and functional enhancements for all System 80 models.

Release 8.2 is based upon Release 8.0 and incorporates:

- Features and functions provided with Release 8.0
- Features and functions provided with the interim Release 8.1
- System enhancements (SEs) to Release 8.1 that were made available subsequent to its Sperry delivery to customer (SDC) date of Sept., 1983
- New features and functions provided as part of Release 8.2

In this SRD, where new features or functions apply only to the System 80 Model 8, they are so identified. All other software applies to all System 80 models.

1.1.1. Release Identification

Library System:	SPERRY Operating System/3 (OS/3)
Release Number:	8.2
Acronym:	OS/3 8.2
SUR Library No.:	8.2
Release Media:	The release system may be ordered for delivery on OS/3 tapes, disk packs, or diskettes as follows:

- System 80 Models 3 through 6

  8420/8422 diskettes, 8419 disk packs, or dump/restore tapes for disk packs

- System 80 Model 8

  8420/8422 diskettes; 8418II, 8430, or 8433 disk packs; or tape

1.1.2. Release Content

1.1.2.1. Release 8.0 Enhancements

ANS'74 COBOL and ANS'74 COBOL Editor
Assembler
Auxiliary Printer Support
Consolidated Data Management
CDM Data Set Label Diskette Compatibility
Control System
Copy Utility
Data Utilities
Dialog Specification Language Translator
Disk Prep Utility
Display Services
Distributed Data Processing
DMS Data Base Restore Utility
Dump Restore Program
Dump Restore to Tape
Dump Restore Streaming Tape Support
EDT
ESCORT
FORTRAN IV
ICAM Auto-Dialing Support
ICAM DDP and Additional Device Support
ICAM IBM 3270 Emulator
ICAM Multinode Global Support
ICAM NORDIC PDN Support
ICAM PDN Support
ICAM Remote Terminal Processor
ICAM UTS Local/Remote Workstation
IMS Additional Device Support
IMS DDP Transaction Processing
IMS Multithread Enhancements
IMS Single-Thread Enhancements
Interactive Program Execution
Interactive Services
Job Control
Library Utility
Menu Processing
Printerless System 80 Support
RPG II and RPG II Editor
Screen Format Services
Software Maintenance Package (SMP)
SORT and SORT3
Spooling - Output Writer and Auxiliary Printer Support
Streaming Tape Support
System Activity Montior (SAM) Enhancements
System Definition Utility (SDU)
System Dump
System/34 Screen and Data Converter
System/34-to-OS/3 Conversion
UTS 30 Terminal Support
Workstation Support

1.1.2.2. Release 8.1 Enhancements

Control System Resident Shared Code Loader
CDM Card/Printer Data Independence
CDM Fast Loader Utility (MILOAD)
CDM File Processing
CDM File Share/User-Controlled Protection
Display Services
DMS Conversational Database Manipulation Language (CDML) Utility
DMS Indexed Location Mode and MAPPER 80 Software Support
ESCORT Programming Language Report System
IMS Multithread Printer Spool File Support
MAPPER 80
System Activity Monitor (SAM)
System Definition Utility (SDU) Ease of Use
Software Maintenance Package (SMP) SMCLOG Display
Transient Work Area

1.1.2.3. Release 8.2 Enhancements

- All Models

CDM/DM/Disk Space Management
: Disk processing

Display Services
: Console/workstation message format

Dump/Restore
: Improved performance

Executive Control
: Main storage consolidation improvements

File Placement Analyzer

ICAM
: Dialog processor SYSGEN support, operator type-ins and console messages

Job Control
: Low priority job queue, unique work file labels, inquire statement, restart/SKIP

Job Control Language Dialog
: New job control statements, improved job stream construction

Librarian
: Correction verification support

Online Diagnostics
: Integrated disk support

Screen Format Coordinator
: Underlines for numeric edited fields, zero suppression for bidirectional fields

Screen Format Generator
: 24-line format display, test for field modifications, transmit beyond cursor

Software Maintenance Package
: Software release level updates in YSDF

Spooling
: Support for console and log output redirection to disk, diskette, or tape; retention and release of print or punch redirected output

SYSGEN
: Separate ICAM generation, spooling, and I/O support

System Activity Monitor
: File placement analyzer support, new statistics and options

System Definition Utility
Interactive screen display, installed hardware information

System Installation
Format module and dialog packaging for separately priced products

- Models 4, 6, and 8 Only

  System software is enhanced to support the 8470 disks.

- Model 8 Only

  System software is enhanced to support the Model 8. These enhancements include:

  48 job slots (47 for user jobs and 1 for interactive services)
  DTF (in mixed mode)
  Additional Model 8 devices and features
  New system generation options
  Additional error logging
  Additional I/O and trace monitoring
  Stand-alone dump/restore support for 8470 disks
  ICAM support for two IOMPs with up to 14 SLCAs on each

1.1.2.4. Software Category Changes

OS/3 is Category I software; products within OS/3 can be Category I, II, or III.

Definitions of the three Software Support Categories are:

- Category I

  Category I software receives the full technical and operational support of the developing organization involved, unless otherwise specified in the Product Software Description. Support includes responses to Requests for Change (RFC), Technical Question (TQ) and user group recommendations, corrections to reported problems, and issuance of periodic stability updates. Enhancements that may be made to the software program will be issued as revisions.

- Category II

  Category II software receives limited support by Sperry. Support is limited to providing corrections to reported critical problems. The issuance of periodic stability updates is at the option of the developing organization.

- Category III

  Category III software receives no Sperry support. Programs assigned to this category generally come from three sources:

  1. User-developed software

  2. Software development tools

  3. Destandardized Category I and Category II software

  Such software may be obtained in the general form and degree of completeness, as available. Software in this category is not necessarily properly or completely documented.

1.1.2.4.1. Release 8.0 Category Changes

- Split-Cylinder Allocation

  This product is discontinued. It receives no support and cannot be ordered.

- OS/3 Release 5.2.1

  Category III beginning May 1, 1982

- Verification System Build (VSB)

  Effective September 30, 1982, the software support level for all Verification System Build (VSB) changes from Category I to Category II.

- User Programmed Physical I/O

  Beginning with Release 8.0, no new user physical I/O programs will be supported. Only systems access physical I/O programs will be upward compatible.

1.1.2.4.2. Release 8.2 Category Changes

- OCL

  This product is discontinued. It receives no support and cannot be ordered.

1.1.2.5. Restrictions Lifted in Release 8.1

The following restrictions (temporary limitations in functions of the software product) were lifted in Release 8.1:

- Menu Generator

  Use of function key 15 is restricted as a response to message MG10 CREATE HELP SCREEN when invalid data has caused the input field to blink. The invalid data should be replaced with valid data as follows:

1. Use function CHARACTER ERASE to erase each erroneous character. (It is not advisable to use the DELETE IN LINE key because it does not move the cursor.)

2. Reposition the cursor to the first input field position.

3. Type in new input, making sure that every field position has a visibly valid input.

4. Position the cursor beyond the last input field before transmitting.

- RPG II Auto Report ERRFIL Parameter

1. When source input to Auto Report is large enough to cause expansion (copy) and generation (*Auto) of more than 1400 statements, Auto Report terminates with the error message INTERNAL ERROR NO EOF (GETPART). This occurs because of a table overflow problem and can be avoided by splitting source into two or more programs.

2. Auto Report does not verify the spelling of Job Control PARAM statement keywords. Auto Report does not diagnose or process misspelled PARAM statements.

- IMS Multithread

1. Multithread IMS users must not generate more than 630 ACTION sections in their IMS configurations. Generating 631 or more ACTION sections could cause IMS to terminate abnormally soon after it is brought up.

2. If a multithread IMS user makes a conflicting choice in configuration (specifying RECOVERY=NO (default option) in the OPTIONS section and TRACE=YES (default option) in the FILES section) for a common storage file, IMS will terminate abnormally.

- ICAM - UTS 40D Local Workstation Auxiliary Printer Support

1. The 0789 printer restriction is removed.

2. The 0425 printer restriction is removed.

- System Activity Monitor (SAM)

1. Histogram reports for CPIO items are invalid.

2. Job name qualifiers must not exceed five characters.

3. I/O trace reports sometimes erroneously prefix command codes (with 1-3F) with the prefix ''80-''.

1.1.2.6. Restrictions Lifted in Release 8.2

The following restrictions (temporary limitations) are lifted in Release 8.2:

- Screen Format Generator

  1. If a format that has special display properties defined for a field is listed or spooled, the CONDITIONAL VALUES screen shows only the lowest and highest precedence display properties for the field.

  2. Use of function key 13 during pass 1 is restricted during CREATE-FROM, MODIFY 1, and MODIFY 7 operations.

  3. If a format that has a nondisplayed constant is listed or spooled, the input/output record displacement displays will not reflect the existence of the nondisplayed constant or its displacement.

  4. When the LIST or SPOOL function is used, a maximum of seven range values are displayed for a particular field, even though more than seven range values may exist.

  5. When generating an output-only numeric edited field, the user should just transmit the Dialog 1 screen that asks if the punctuation should be protected. The entire field is automatically protected if the I/O type is output only.

     Deliberately protecting the punctuation on the Dialog 1 screen for an output-only numeric edited field will cause the format to be generated incorrectly.

  6. During pass 1 for CREATE, CREATE-FROM, MODIFY 1, and MODIFY 7 operations, if XMIT is pressed without moving the cursor, the following message appears:

     ```
     SFG12 NO DATA ENTERED-POSITION CURSOR TO END OF SCREEN, XMIT
     ```

     The user should enter the desired data and transmit.

  7. If using the SFG function CREATE-FROM or MODIFY operation on a format that has function keys defined and the function keys are no longer required, the keys must be explicitly cleared on the FUNCTION/COMMAND KEYS screen.

     For example, when modifying FORMAT01:

     - Display on FORMAT CHARACTERISTICS screen:

       ```
       FUNCTION/COMMAND KEYS TO BE DEFINED (2) YES
        *** DO NOT SPECIFY (1) ***
       ```

- Display on FUNCTION/COMMAND KEYS screen:

  F10 (Y) (002)
  F18 (Y) (000)

- F10 and F18 are no longer needed by FORMAT01; therefore:

  F10 (N) (000)
  F18 (N) (000)

- F10 and F18 have now been cleared.

8. To eliminate an error message field from a format once it has been defined, you must clear the indicator specified on the actual Error Message Screen. To do this, select ERROR MESSAGE FIELD=YES on the characteristics screen; then when the error message screen is displayed, clear the indicator with 'N000'. It is sufficient to eliminate the error message field by clearing the indicator; it is not necessary to reset all of the entries with the original values.

o Editor (EDT)

1. In screen mode, neither the @PRINT command nor the @CHECK directive will display the EDT work-space contents according to the SCRDSPLY parameter on the @SET directive; the output will be in line mode format. As a result, the user cannot update the displayed lines that result from @PRINT or @CHECK and retransmit them to the EDT work space in screen mode. The ROLL function (@ROLL, FK5) can be used to display and update lines in a screen formatted presentation.

2. Errors encountered while using EDT screens will not be reported on the last two lines of the screen. The errors will be reported by clearing the screen and then reporting the error in the normal EDT error reporting manner.

o RPG II

1. Auto Report incorrectly generates end positions of fields used with edit words, asterisk protection, and the floating dollar sign.

2. The INFDS data structure is restricted for Release 8.0.

3. Arrays may not be specified as data structure subfields.

- Data Base Management System (DMS)

  1. In order to use CDML, the start-up JCL for the DBMS must include the following statement:

     SUPPRESS SUB-SCHEMA DATE TIME CHECK

- Information Management System (IMS)

  1. The IMS single-thread (S/T) and multithread (M/T) program products cannot coexist on the same SYSRES.

- Accounting for Interactive User

  1. When responding N to the IS89 CONTINUE WAITING FOR FILE LOCK message while waiting for YSEC from SMU, a system dump will automatically be taken. This is really a DM88 (file share) error and should be treated as such. The system dump should be ignored.

- SYSGEN - Support for New Devices

  1. Interactive Services does not use a password when attaching to the ICAM network identified by ISNETNAME and ISLOCAPID parameters. If the ICAM network is to be used with Interactive Services, the CCA statement must not contain a password specification.

- ICAM

  1. UTS 4040 PDN TRANSPAC support is restricted.

  2. Terminals attached to the DCP Telcon system are restricted for Interactive Services.

- System Definition Utility (SDU)

  1. Access to the System Definition File (SDF) via the device serial number is not permitted.

- BASIC

  1. Division by zero will not consistently produce a machine infinity result.

1.1.2.7. Revised Product Availability

- Application Software:

  These software products are not included on the release media:

  Critical Path Method/30 (CPM 30)
  Linear Programming System/90 (LPS 90)
  Management Control System/90 (MCS 90)

  Order application software products through your Sperry marketing representative.

1.2. RELEASE-TO-RELEASE COMPATIBILITY

The following is a general statement regarding compatibility between major releases. It applies unless superseded by specific restrictions documented in the SRD.

Upward compatibility is supported between consecutive major releases (e.g., 7.0 with 8.0). This support extends to data files, library files, job control streams, and programs compiled on the earlier release. For System 80 Model 8, object code compatibility between Release 6.1.2 and Release 8.2 is supported for Series 90 migration to the Model 8. Product releases that occur between major releases will be upward compatible with the next major release.

Backward compatibility is restricted to those functions supported on both releases.

Backward compatibility between consecutive releases is generally provided for data files and library files where functions being used are provided on both releases.

The most current release supports interfaces of programs from the previous system, but the previous system does not necessarily support interfaces of programs from a more current OS/3 Operating System. Programs compiled on the most current release of the operating system may not be executable on a previous release.

1.3. ASSEMBLER LIMITED CONDITIONS OF USE

For separately priced contracts, this condition applies regarding use of the Assembler:

The Assembler is required for generation of system software. For this restricted use, the Assembler is provided at no charge as part of SCS. Should the customer require use of the Assembler for a purpose beyond this restriction, he is obligated to execute an agreement for the Program Product Assembler (TN 6233-00) at the prevailing price.

1.4. REQUEST PROCEDURE

The entire release, including source code, source information, and object code, is SPERRY proprietary software. The proprietary agreement must be signed before object media are sent to the requesting site.

Separately Priced Products are proprietary program products of the Computer Systems entity of Sperry Corporation. Program Products are licensed to you for a separate charge, including both Applications and Systems Support Software.

1.5. ORDERING PROCEDURE

Software described in release documents can be obtained by completing and forwarding the request form that accompanies each System Release Announcement. Mail requests to either the local Sperry branch office or directly to Software Order Services:

Sperry Corporation
Software Order Services
Township Line & Union Meeting Roads
P.O. Box 500
Blue Bell, PA 19424-0013

Note that the request form requires users to send the proper media (disks, diskettes, or magnetic tape) along with the order form. If desired, users may elect to receive the release on diskettes or magnetic tape provided by Sperry; in this case, a standard fee will be charged for the media.

If the request is made directly to Software Order Services, forward a copy of the request form to the local Sperry branch office.

Orders for separately priced products are made via special order with proper approval. When ordering these products, make certain requests contain the appropriate type number for the items. Direct questions about ordering these products to the local branch office.

NOTE:

The ordering procedure described applies only to U.S. customers. Users outside the United States should check with their local Sperry subsidiary office for distribution procedures.

1.6. ERROR REPORTING PROCEDURE

Users discovering any errors or deficiencies in the software being released are requested to communicate this information to the local Sperry branch office, using a Software User Report (SUR), Form UD1-745, to describe the problem encountered. SURs must be accompanied by appropriate documentation, such as main storage printouts, system console printouts, program listings, and an SMC listing. For language processors, a copy of the source program and data must be supplied on cards or tape together with complete JCL. SURs should also include the release number, along with any additional information that might aid error analysis. The local Sperry personnel, when they have ascertained that the errors in question are adequately documented, should forward these SURs to:

Sperry Corporation
Development Support
Township Line & Union Meeting Roads
P.O. Box 500
Blue Bell, Pa. USA 19424-0013
Attn: SUR Coordinator, C1-SE20

Users discovering any new techniques or considerations in using system software are encouraged to forward this information directly to Sperry at the above address. The information will then be sent to all users via a technical bulletin.

1.7. RELEASE DOCUMENTATION

1.7.1. System Release Description

A copy of this 8.2 SRD (UP-9280.71) is provided with each software order. Additional copies can be ordered through your Sperry representative.

1.7.2. Additional Release-Related Documentation

Certain release-related documents (SRDs, SRAs, etc) have become stock items and can be ordered through your Sperry representative.

Documents for Release 8 have been assigned the base number UP-9280. Each OS/3 release-related document for Release 8 has a UP number incorporating this base number. For example:

Release 8.2 SRA UP-9280.70
Release 8.2 SRD UP-9280.71

Additional release-related documents will be assigned UP numbers, in sequence, according to the date they are issued.

1.8. RELATED PUBLICATIONS

The following Sperry publications are new or current for this release. Either the updating package alone, or the complete manual with the updating package, may be requisitioned by your local Sperry representative.

For example: To receive the updating package alone, order UP-8022 R4-B. To receive the complete manual, order UP-8022 R4.

1.8.1. Software User Manuals

System/Publication	Description/Type of Manual
UP-7503 R1	Fundamentals of COBOL Series Programmer Reference (contents section)
UP-7503.1 R1	Fundamentals of COBOL - Language Programmer Reference
UP-7503.2 R1-A	Fundamentals of COBOL - Table Handling Programmer Reference
UP-7503.3 R1-A	Fundamentals of COBOL - Sorting Programmer Reference
UP-7503.4	Fundamentals of COBOL - Mass Storage Programmer Reference
UP-7503.6	Fundamentals of COBOL - Glossary Programmer Reference
UP-7536 R1-E	Fundamentals of FORTRAN Programmer Reference
UP-8022 R5	Data Base Management System (DMS) Data Description Language User Guide/Programmer Reference
UP-8030 R2	Introduction to the Assembler
UP-8036 R5	Data Base Management System (DMS) Data Manipulation Language User Guide/Programmer Reference
UP-8044 R3-C	Report Program Generator II (RPG II) Programmer Reference
UP-8055 R6	Extended COBOL Summary
UP-8056 R7	Basic COBOL Summary
UP-8057 R2-D	Basic COBOL Programmer Reference
UP-8059 R3-B	Extended COBOL Programmer Reference
UP-8067 R6-C	Report Program Generator II (RPG II) User Guide
UP-8068 R4-D	Data Management User Guide

System/Publication	Description/Type of Manual
UP-8069 R9-B	Data Utilities User Guide/Programmer Reference
UP-8073 R2	Introduction to Sort/Merge
UP-8076 R11	System Messages Programmer/Operator Reference
UP-8227 R1-F	Assembler Programmer Reference
UP-8253 R4	Report Program Generator II (RPG II) Reference Card
UP-8262 R1-C	Extended FORTRAN Programmer Reference
UP-8272 R4-A	Data Base Management System (DMS) System Support Functions User Guide/Programmer Reference
UP-8364 R7-B	Information Management System (IMS) System Support Functions User Guide/Programmer Reference
UP-8379 R4-A	System/3 to OS/3 Transition User Guide/Programmer Reference
UP-8413	Universal Terminal System 400 Text Editor Programmer Reference
UP-8424	Interfacing a Remote Device Handler Programmer Reference
UP-8481 R1	Universal Terminal System 400 COBOL Programmer Reference
UP-8515 R1	OS/4 to OS/3 Communications Conversion Guide User Guide/ Programmer Reference
UP-8516 R1	OS/4 to OS/3 Assembly Program Translator
UP-8549 R4-A	Integrated Communications Access Method (ICAM) Direct Data Interface (DDI) User Guide
UP-8550 R5-B	Integrated Communications Access Method (ICAM) Standard MCP Interface (STDMCP) User Guide
UP-8553 R1	OS/4 to OS/3 Conversion Guide
UP-8589 R1	OS/4 to OS/3 Job Control Conversion Utility
UP-8596 R1	Introduction to OS/4 to OS/3 Conversion
UP-8611-C	UTS 400/UTS 4000-OS/3 Interface User Guide/Programmer Reference
UP-8612 R3-A	1974 American National Standard COBOL Summary
UP-8613 R2-B	1974 American National Standard COBOL Programmer Reference

System/Publication	Description/Type of Manual
UP-8748 R1-B	IMS/DMS Interface User Guide/Programmer Reference
UP-8800 R2	System 80 System Description
UP-8801	Introduction to BASIC
UP-8804	Introduction to 1974 American National Standard COBOL
UP-8805-B	Fundamentals of 1974 American National Standard COBOL
UP-8806-B	Dialog Specification Language User Guide/Programmer Reference
UP-8808	Introduction to the Data Base Management System (DMS)
UP-8811 R2	Distributed Data Processing Concepts and Facilities
UP-8813	Introduction to FORTRAN IV
UP-8814-D	FORTRAN IV Programmer Reference
UP-8815-A	FORTRAN IV Summary
UP-8816	Introduction to the Information Management System (IMS)
UP-8818	Introduction to Report Program Generator II (RPG II)
UP-8819 R2	Independent Sort/Merge User Guide/Programmer Reference
UP-8821	Introduction to Job Control
UP-8824	Introduction to Consolidated Data Management
UP-8827	Introduction to the General File Editor
UP-8830	Introduction to the Supervisor
UP-8831 R1-A	Supervisor Concepts and Facilities
UP-8832-B	Supervisor Macroinstructions User Guide/Programmer Reference
UP-8833-A	Introduction to Data Utilities
UP-8834 R2	Data Utilities User Guide/Programmer Reference
UP-8836 R1-A	SORT3 User Guide/Programmer Reference

System/Publication	Description/Type of Manual
UP-8838	Introduction to System Installation
UP-8839 R4	System Installation User Guide/Programmer Reference
UP-8840	Introduction to the System Service Programs
UP-8841 R3	System Service Programs User Guide
UP-8842 R3	System Service Programs Programmer Reference
UP-8843	Introduction to Distributed Data Processing
UP-8844 R1	Introduction to Interactive Processing
UP-8846 R1	Introduction to the Integrated Communications Access Method (ICAM)
UP-8854 R3	Introduction to ESCORT
UP-8855 R3	ESCORT User Guide/Programmer Reference
UP-8856 R4	ESCORT Summary
UP-8857	Introduction to the Dialog Processor
UP-8858	Dialog Processor User Guide/Programmer Reference
UP-8859 R3	Operations Handbook
UP-8868 R1	Hardware/Software Summary
UP-8870 R1	System Concepts and Facilities
UP-8872	Introduction to System Maintenance Facilities
UP-8873	Introduction to Screen Format Services
UP-8874 R2	System Index and Publications Guide
UP-8913-B	Assembler User Guide
UP-8914-B	Assembler Programmer Reference
UP-8915	Operator Maintenance Guide, System 80 Models 3 through 6
UP-8946-B	Integrated Communications Access Method (ICAM) Message Processor Procedure Specification (MPPS) User Guide
UP-8987	IBM System/32 to System 80 Transition Introduction

System/Publication	Description/Type of Manual
UP-9009 R4	Data Base Management System (DMS) Summary
UP-9072-B	SORT/MERGE Macroinstructions User Guide/Programmer Reference
UP-9076	UTS 400 Edit Processor Programmer Reference
UP-9106	COBOL Editor User Guide/Programmer Reference
UP-9168 R2	BASIC Programmer Reference
UP-9169 R3	BASIC Summary
UP-9205-B	Information Management System (IMS) Concepts and Facilities
UP-9206-B	Information Management System (IMS) Action Programming in Report Program Generator II (RPG II) User Guide
UP-9207-C	Information Management System (IMS) Action Programming in COBOL and Basic Assembly Language (BAL) User Guide
UP-9208-B	Information Management System (IMS) Terminal Users Guide
UP-9209-A	Information Management System (IMS) Data Definition and UNIQUE User Guide
UP-9280.1	Operating System/3 (OS/3) Release 8.0 System Release Announcement
UP-9280.2	Operating System/3 (OS/3) Release 8.0 System Release Description (SRD)
UP-9280.50	Operating System/3 (OS/3) Release 8.1 System Release Announcement (SRA)
UP-9280.51	Operating System/3 (OS/3) Release 8.1 System Release Description (SRD)
UP-9316-A	Introduction to Menu Services
UP-9317	Menu Services Concepts and Facilities
UP-9318	S/80 System/32, 34 to OS/3 Conversion User Guide
UP-9502-A	NTR Utility User Guide
UP-9710	Operator Maintenance Guide, System 80 Model 8

System/Publication	Description/Type of Manual
UP-9731	File Placement Analyzer User Guide/Programmer Reference
UP-9734	MAPPER 80 Run Functions User Guide
UP-9735	MAPPER 80 Manual Functions User Guide
UP-9736	MAPPER 80 Forms Generation and Utilities User Guide
UP-9737	MAPPER 80 Operator and Coordinator User Guide
UP-9743	Series 90 to System 80 Model 8 Migration Guide
UP-9744	Integrated Communications Access Method (ICAM) Concepts and Facilities
UP-9745	Integrated Communications Access Method (ICAM) Network Definition and Operations User Guide
UP-9746	Integrated Communications Access Method (ICAM) Communications Physical Interface (CPI) User Guide
UP-9748	Integrated Communications Access Method (ICAM) Utilities User Guide
UP-9749	Integrated Communications Access Method (ICAM) Programmer Reference
UP-9972	Interactive Services Command and Facilities User Guide/ Programmer Reference
UP-9973	Interactive Services Commands and Facilities Summary
UP-9974	COBOL Editor User Guide/Programmer Reference
UP-9975	Spooling and Job Accounting Concepts and Facilities
UP-9976	General Editor (EDT) User Guide/Programmer Reference
UP-9977	Screen Format Services Concepts and Facilities
UP-9978	Consolidated Data Management Concepts and Facilities
UP-9979	Consolidated Data Management Macroinstructions User Guide/Programmer Reference
UP-9980	Dump Analysis User Guide/Programmer Reference
UP-9981	RPG II Editor User Guide/Programmer Reference
UP-9982	File Cataloging Concepts and Facilities

System/Publication	Description/Type of Manual
UP-9983	System Activity Monitor User Guide/Programmer Reference
UP-9984	Job Control Programmer Reference
UP-9985	System Operations Summary
UP-9986	Job Control User Guide
UP-9994	Profile Management User Guide/Programmer Reference
UP-10003	Installation Verification Procedures User Guide/ Programmer Reference
UP-10047	Remote Terminal Processor (RTP) User Guide

1.8.2. Hardware References

The following manuals are applicable to this release:

Document	Description/Type of Manual
UP-7661	UNISERVO 12/16 Magnetic Tape Subsystem Programmer/Operator Reference
UP-7788 R2-A	UNISCOPE Display Terminal Operator Reference
UP-7807 R2	UNISCOPE Display Terminal Programmer Reference
UP-7882	UNISERVO 12/16 Magnetic Tape Subsystems Operator Reference
UP-7921-B	0716 Card Reader Subsystem Operator Reference
UP-7938 R2-A	0770 Printer Subsystem Operator Reference
UP-7956 R1	UNISERVO 20 Magnetic Tape Subsystem Operator Reference
UP-8016 R1-A	0770 Printer Subsystem Reference
UP-8205	UNISERVO 10 and 14 Magnetic Tape Subsystems Subsystem Reference
UP-8206	UNISERVO 10 and 14 Magnetic Tape Subsystems General Description
UP-8207	UNISERVO 10 and 14 Magnetic Tape Subsystems Operator Reference
UP-8208 R1	UNISERVO Magnetic Tape Subsystems Media and Expendable Supplies
UP-8247 R1-A	Communications Adapter Subsystem Reference (Preliminary)
UP-8250 R3	0776 Printer Subsystem Operator Reference (Model 8 Type 0776-00, 02, 04 Printers)

Document	Description/Type of Manual
UP-8273	Communications Adapter General Description (Preliminary)
UP-8325 R1	8430/8433 Disk Drives General Description
UP-8343 R1	8405/8430/8433 Disk Subsystem Operator Reference
UP-8344-C	8405/8430/8433 Disk Subsystem Subsystem Reference
UP-8354 R3	0776 Printer Subsystem General Description
UP-8357 R1	Universal Terminal System 400 System Description
UP-8358-B	Universal Terminal System 400 Operator's Guide
UP-8359	Universal Terminal System 400 Programmer Reference
UP-8362	8416/8418 Disk Subsystem Operator Reference
UP-8388	0608 Card Punch Subsystem Media
UP-8411 R1	Universal Terminal System 400 Text Editor System Description
UP-8441 R3	0776 Printer Subsystem Reference (Model 8 Type 0776-00, 02, 04 Printers)
UP-8445-A	0776 Printer Subsystem Media and Expendable Supplies
UP-8475	8406 Diskette Subsystem General Description (for UTS 400/DCP)
UP-8476	8406 Diskette Subsystem Operator's Guide (for UTS 400/DCP)
UP-8491	0719 Card Reader Subsystem Operator Reference
UP-8493	0719 Card Reader Subsystem General Description
UP-8609	UNISERVO 10 Type 0871 Magnetic Tape Subsystem Operator Reference
UP-8617-A	0719 Card Reader Subsystem Operator Reference
UP-8619	0719 Card Reader Subsystem General Description
UP-8699 R2	8420/8422 Diskette Subsystem General Description
UP-8871	0798 Printer General Description
UP-8880 R1-A	System 80 Models 3 through 6 Processor Operator Reference
UP-8881 R1-A	System 80 Models 3 and 6 Processor Reference

Document	Description/Type of Manual
UP-8882	0798 Printer Operator Reference
UP-8890 R1	UNISERVO 10 Type 0781 Magnetic Tape Subsystem Reference
UP-8891 R1	UNISERVO 10 Type 0781 Magnetic Tape Subsystem General Description
UP-8894	0608 Card Punch Subsystem General Description
UP-8896-A	0608 Card Punch Subsystem Operator Reference
UP-8897	0789 Printer Subsystem General Description
UP-8902	UNISERVO 22/24 Magnetic Tape Subsystems Subsystem Reference
UP-8903	UNISERVO 22/24 Magnetic Tape Subsystems Operator Reference
UP-8904	UNISERVO 22/24 Magnetic Tape Subsystems General Description
UP-8907	0789 Printer Subsystem General Description
UP-8908	0789 Printer Subsystem Operator Reference
UP-8910	System 80 Workstation Operator Reference
UP-8916 R1	8417 Disk Subsystem General Description
UP-8917 R1-A	8417 Disk Subsystem Operator Reference
UP-8918 R1	8419 Disk Subsystem General Description
UP-8919 R1-A	8419 Disk Subsystem Operator Reference
UP-8920	0798 Printer Media and Expendable Supplies
UP-9159	0797 Printer General Description
UP-9160	0797 Printer Operator Reference
UP-9162	0797 Printer Media and Expendable Supplies
UP-9166	Flexible Double-Sided Diskette Subsystem Media
UP-9167	0789 Printer Subsystem Reference
UP-9381	3782 Streaming Magnetic Tape Operator Reference
UP-9382	3782 Streaming Magnetic Tape General Description
UP-9607	System 80 Model 8 I/O Controllers and Multiplexer of IOP

Document	Description/Type of Manual
UP-9608	System 80 Model 8 Processor Operator Reference
UP-9692	System 80 Model 8 Processor Hardware Programmer Reference
UP-9693	System 80 Models 4 and 6 I/O Controllers Reference (includes Type 0776-99 Printers)
UP-9732	System 80 Model 8 Controllers and Communications Channel of IOMP Hardware Programmer Reference (includes Type 0776-99 Printers)
UP-10002	8470 Disk Drive General Description
UP-10004	8470 Disk Drive Operator Reference
UP-10005	8416/8418 Disk Drives General Description

1.8.3. Online Diagnostic References

The following Diagnostic References are applicable to this release:

Document	Description/Type of Manual
UP-8915	System 80 Models 3-6 Operator Maintenance Guide
UP-9710	System 80 Model 8 Operator Maintenance Guide

1.8.4. Technical Bulletins

The following Technical Bulletins are applicable to this release:

Document	Description/Type of Manual
UP-8605.6-R1	IMS Multithread Concept Guide
UP-8605.7	IRAM User Consideration
UP-8605.10	OS/3 File Cataloging
UP-8605.11	System 80 Diskette Usage
UP-8605.12	ANSI'74 COBOL Communications

2. Product Overview, Restrictions, and Guidelines

This section briefly describes each feature or enhancement contained in Release 8.0, Release 8.1 (including the R8.1 system enhancements), and this new Release 8.2. The descriptions and the related restrictions and guidelines are grouped by product according to the System 80 models they apply to:

- o All System 80 models (2.1)
- o System 80 Model 8 only (2.2)

For breakdown of the enhancements by release level, see 1.1.2. The System Release Announcement, UP-9280.70, also describes the Release 8.2 enhancements and features.

A cross-reference indicating where the feature or enhancement is documented follows beneath the heading for each item or product. This corresponds to the lists of manuals in 1.8, RELATED PUBLICATIONS.

Where applicable, features are identified with a Request for Change (RFC) and User Association (A/UUA/E) number also.

A restriction is defined as a temporary limitation in the functions of the software product. Restrictions are lifted as soon as possible and are documented only in the SRD.

A guideline is special information related to the use of a product. We offer guidelines to call your attention to aspects of a product that may not be readily apparent from the current user manuals. Guidelines are permanently applicable and will be included in subsequent revisions to the user manuals.

2.1. ENHANCEMENTS COMMON TO ALL SYSTEM 80 MODELS

2.1.1. Control System

2.1.1.1. Screen Format Generator

Manual: UP-9977

RFC: 2206, 2423, 2449, 2645, 2666

A/UUA/E: None

- o The Screen Format Generator is enhanced to provide additional options that permit a user to modify or create screen formats from an already existing format without starting from the template mode (pass 1).

The following capabilities are provided:

- Option 2: Modification begins with external display definition (pass 2).

- Option 3: Modification starts with I/O definition (pass 3).

- Option 7: Modification is made to text constants only.

o A user can access multiple format libraries without reloading the Screen Format Generator.

o Screen Format Services is also enhanced to eliminate transmission of blank lines to the screen and to decrease the screen fill time. (RFC 2423, 2449)

o A full-screen read capability of returning data is simulated for output-only and bidirectional fields. This lets an operator transmit the entire screen, no matter where the cursor is located. Previously, the operator had to move the cursor past the last character on the screen before transmitting the entire screen.

o A complete format is transmitted only when:

1. The format is initially selected.

2. The user has declared that fields may conditionally be protected or deselected.

For all other occurrences, only the variables and/or the field attributes are rewritten, if the same format is used.

o The user may declare a field (via the Screen Format Generator) as an error message field, to be conditionally displayed. The value is automatically erased by the Screen Format Coordinator when the next write is issued to the screen.

o The Screen Format Generator is enhanced to use a 24-line format display to provide easier readability. The SFG will display these formats instead of the regular 12-line formats when operating on a workstation or terminal with 24-line capability.

o To permit a user program to test for field modifications, the user can direct the screen format generator to set a response indicator when a field is modified by the operator.

o To ensure that all input entries are received by a user program, the user can direct the screen format generator to transmit all input capable variables on the screen without regard to cursor positioning.

Restrictions:

Lowercase foreign alphabetic keyboard support is restricted.

Guidelines:

- Modify Options 4 and 6 of the SFG are not implemented.
- The Screen Format Generator may not be used to copy formats from one file on a diskette to the same file or another file on that same diskette.
- Certain screen formats containing range check values, nondefault replenish strings, and conditional indicators may not be usable with the MODIFY/CREATE-FROM functions when beginning with modify option 2 (CHANGE TYPE) or modify option 3 (CHANGE I/O). If the Screen Format Generator detects a format that cannot be modified, this system message is displayed:

  UNABLE TO MODIFY THIS FORMAT-PLEASE USE CREATE FUNCTION

  If this message appears, the user should use modify option 1 (CHANGE TEMPLATE) to modify the existing screen format.
- Function key support not available to IMS.

2.1.1.2. Screen Format Coordinator

Manual: UP-9977

RFC: 2645, 2666

A/UUA/E: None

- The Screen Format Coordinator is enhanced to permit underlines in the user's work area for numeric edited fields. This permits user programs to place an initial value that can easily be seen by the operator instead of using all zeros.
- Zeros can be suppressed in bidirectional fields. The suppression character is the replenish character, which is normally the underline. (For output-only fields, the suppression character is still a blank.)

2.1.1.3. Screen Format Services

Manual: UP-9977

RFC: None

A/UUA/E: None

Screen Format Services is enhanced to permit a user, via the Screen Format Generator, to define one or more range checks to be performed by the Screen Format Coordinator when verifying a field. Fields that fail the range check are blinked on the screen.

The range checks for a field are considered in an OR relationship (i.e., if range check 1 or range check 2 is valid, the entry is valid).

Restrictions:

When the screen format services symbiont SL$$VT is waiting for memory, the SE 20 message is displayed, asking whether SL$$VT should continue waiting. You must respond with Y (yes); an N (no) response will cause unpredictable results in all jobs using screen format services.

2.1.1.4. Screen Format Services - Support for System/34 Indicators

Manual: UP-9977

RFC: 2073, 2235, 2356, 2357, 2358, 2359, 2394, 2401, 2404, 2407

A/UUA/E: None

Provisions for the following System/34 capabilities are provided by Screen Format Services:

o Display Intensity Control

- Normal
- Alternate (low intensity/reverse video)*
- Blink
- Nondisplay**
- Underscore***
- Column separator***
- Strike thru***
- Reverse video***
- Low intensity***

* UTS 20 and UTS 20D only
** UTS 400, UTS 40, and UTS 40D only
*** UTS 40 and UTS 40D only

NOTE:

For UTS 20 and UTS 20D, reverse video will work only when set as alternate intensity in the control page. Alternate intensity can be low intensity, normal intensity, or reverse video. Only one will be in effect at any time. Screen formats may control alternate intensity but not reverse video directly.

This capability is provided by:

Static definition at screen generation

Dynamic modification via indicators

- Protected Field

  A field indicated as modifiable may be displayed as protected if the appropriate indicator is set, thereby preventing that field from being modified by the operator.

- Display Field Override

  If the appropriate indicator is set, a field is not displayed.

- Input Constant

  One input constant per format can be returned to a program even though it does not appear on the screen. The input constant can be provided by the program when output or by screen format definition. (RFC 2235)

- Command Key Specification

  Command Keys (Function Keys 1-12) can be defined to the Screen Format Generator as either permitted or disabled. Function keys entered that are not permitted are rejected at run time. (RFC 2407)

- Function Key Specification

  Function Keys (Function Keys 13-22) can be defined in a manner similar to that for command keys. If specified, and the correct function key is pressed, indication is returned to the caller; otherwise, the system processes the key as specified by its function. (RFC 2407)

- Erase Input Fields

  Erase Input Fields (replenish) can conditionally be executed when a user program issues a write to the screen and the appropriate indicator, as specified to the Screen Format Generator, is set.

- Override Operation

  This operation permits fields on the current screen to be modified conditionally without retransmitting the complete screen. An indicator is defined to the Screen Format Generator, and if set at run time, the screen is modified rather than rewritten.

- Retrieve Input from Specific Device (Support of RPG)

  This function permits the user to request data from a specific device, normally to the last one where a write was issued.

- Miscellaneous Screen Format Coordinator (SFC) Enhancements

  - Users may declare two format libraries to be used by SFC.

  - Tab characters are placed to the left of unprotected fields for the U100 and U200 workstations.

  - The screen format is not rewritten if a user does a write to a format already in existence. This reduces the number of characters sent to the workstation.

  - Release 8 screen formats require less space in the format library. Additionally, formats are retrieved in multiples of eight blocks instead of one block at a time.

The utility SFCNVR is available to convert Release 7 formats to Release 8 formats (Appendix B). If this utility is not executed, a performance degradation will occur.

Screen formats created by the Release 8 Screen Format Generator cannot be used in a Release 7 system. Release 7 screen formats that have been converted to Release 8 by the SFCNVR utility cannot be used in a Release 7 System.

Guidelines:

If a field is not displayed, the associated preceding constants will be displayed.

2.1.1.5. Display Services

Manual: UP-8076, UP-8859, UP-9972

RFC: None

A/UUA/E: None

Display services users can operate a remote workstation in one of two modes:

1. Dedicated to System

   System mode, user jobs, and Interactive Services available

2. Shared with Communications User Program (CUP)

   System mode and Interactive Services. Data portion of screen allocated to CUP (i.e., IMS)

- Output processing is now accomplished via a resident module that is capable of receiving simultaneous requests from active jobs and symbionts. A new simplified input and output message format is provided that contains:
  - A 2-character message number from 11-74 (00 for unsolicited messages)
  - A 1-character message type (reply, action, informational)
  - An 8-character job or symbiont identification (an 8-character job name for user jobs, or a 2-character symbiont-ID concatenated with a 6-character job number for a symbiont)
  - 1-60 characters of message text
- Display services supports auxiliary printing for the MAPPER 80 software. MAPPER 80 output may be directed to an auxiliary printer that is connected to a UTS 40D or a remote workstation (with the screen bypass feature), or to a UTS 20D or a terminal not defined as a remote workstation (without the screen bypass feature).

Guidelines:

- Support is limited to one auxiliary printer per workstation.
- When you operate a remote workstation that is generated with dual screen capabilities (the primary/secondary parameter is specified on the TERM statement), you must have an active data mode session, going to an ICAM CUP, on the primary screen before you can establish a data mode session on the secondary screen. If a data mode session is not active on the primary screen, the message SESSION PATH CLOSED will appear on the secondary screen following the sign-on request.

2.1.1.6. Display Services - Workstation Log Recall

Manual: UP-9972

RFC: None

A/UUA/E: None

A new command (RECALL) permits the active workstation log to be reviewed at the screen. The command provides an optional parameter indicating the approximate wall clock time at which the review is to begin. Absence of this parameter indicates review is to begin at the time of logon.

2.1.1.7. Menu Support for User Jobs

Manual: UP-9986

RFC: None

A/UUA/E: None

Menu processing is made available to user jobs in addition to Interactive Services (IS). The MENU command invokes menus for IS; the Job Control Language (JCL) USE statement invokes menus for jobs.

Guidelines:

- When menu processing is initiated from a BAL user program, the following statements are required for the workstation OPEN RIB:

```
WKFM=VARI
WAIT=YES
WORK=YES
PMODE=WSAM
```

- Menus and screens may not be used together within a user program except when the screens are processed directly by the menu processor (i.e., via the SCREEN and DISPLAY menu function commands).

2.1.1.8. Interactive Services

Manual: UP-9972

RFC: 2125, 2178, 2253

A/UUA/E: None

- The Interactive Services STATUS JOBS command now displays the size of the largest free region of main storage in addition to the total free main storage available. (RFC 2125)

- VTOC information for data set label diskettes is now provided.

- The IS REMOVE userid/ALL console keyins now force a logoff in all cases. If the user was connected to a user job, a FREE command will be issued. Outstanding questions at the user workstation are rerouted.

- Tapes with record formats other than variable can be used by specifying the RCFM keyword in the file-parameter string.

- When ICAM is initialized and a DMI LOCAP containing the IAS=(YES...) keyword is present, an automatic REMOTE START will be initiated; the manual console keyin is unnecessary. The keyin is needed only if IS is shut down and must be reinitialized. Extra REMOTE START keyins are ignored.

- Destructive space for UTS 20D and UTS 40D is now a SYSGEN option. (RFC 2253)

Guidelines:

- If an IS REMOVE userid/ALL is attempted against a workstation with an active ICAM session, the results will be unpredictable and may cause ICAM to terminate abnormally.

- The control page of a U400 terminal is not modified when signed on to interactive services (workstation emulation). The transmit and transfer fields of the U400 control page have to be set manually by the operator. The SCREEN command is not effective for U400 terminals.

- Attempts to read from the card reader directly (with the DEV=RDR parameter) may result in a variety of errors, particularly DM44 LINE TRUNCATED.

- When performing an SMU LIST function (FSTATUS), SMU may terminate after completing the LIST function with an IS29 SYSTEM ERROR 000 message. This occurs only after the user presses function key 19 (continue) in the middle of the SMU home screen (where SMU asks the type of operation). At this point, SMU is terminated. If the user desires to continue using SMU, the SMU command must be reentered.

- The CONNECT and FREE commands cannot be issued from a menu action table.

- Interactive services may not be cancelled (via CA IS,S or CA RC$$IS). If a CANCEL command is issued against IS, the system responds with an invalid job name error message. To shut down IS, use the IS SHUTDOWN command.

2.1.1.9. Interactive Downline Loading to Terminals

Manual: UP-8611, UP-9972

RFC: None

A/UUA/E: None

Users of Interactive Services can interactively request (through the DLOAD command) that a program be downline loaded to a terminal. The user specifies, via a parameter, the name of the program (MAC/80, PL/M, or UTS COBOL) to be loaded into terminal storage. When the command finishes loading the program, control transfers to the program.

Guidelines:

The interactive DLOAD command does not support loading to diskette from the host for this release. Therefore, segmented COBOL programs cannot be loaded to the diskette by using the DLOAD function.

This process may be done as in previous releases, using a Communications User Program. (Refer to the UTS 400-OS/3 interface user guide/ programmer reference, UP-8611 (current version).)

2.1.1.10. Interactive Upline Dump

Manual: UP-8611, UP-9972

RFC: None

A/UUA/E: None

An Interactive Services user can use the ULD command to request a storage dump of the contents of his downline loadable terminal. The user specifies a file name in the command, and the contents of the terminal storage are written to that file.

Once the file has been written, the existing system utility program, UPLDMP, can be run to format and print the contents of the dump file.

UPLDMP may also be run by using parameters with the ULD command.

Guidelines:

Upline dump may be used for UTS 400 terminals only.

2.1.1.11. Interactive Program Execution

Manual: UP-9972

RFC: None

A/UUA/E: None

Workstation users can request, via the new interactive command EXECUTE, the execution of a program. These programs may use WSAM, SFS, etc, to access the screen. Before executing a program, the user predefines resources that will be needed via a JCL stream; any program that runs using these resources may then be invoked interactively.

The major advantage of interactive program execution (EXECUTE) over the RUN or SCHEDULE functions is performance; when the command is entered, there is no wait for run-processor or job-scheduler activity. However, there are limitations on the kinds of programs that can be used with this facility.

2.1.1.12. Accounting for Interactive Users

Manual: UP-9972

RFC: None

A/UUA/E: None

Accounting of system resource usage is enhanced to maintain usage statistics for each interactive user.

This information is initialized at logon time and updated continuously during the user's session. When the user logs off, this information is formatted into accounting records and written to the user's workstation log. These records can then be dumped to a file and processed by the customer site via user-created programs.

Statistics recorded for each session include:

- o Duration of the session
- o CPU time used by this session
- o Number of commands issued
- o Number of files accessed
- o I/O counts for each device accessed

Guidelines:

The account-number specification is limited to 4-byte entries to conform to the system LOGON support of four bytes.

2.1.1.13. Spooling

Manual: UP-8839, UP-9975

RFC: 1667, 1710, 1984, 2079, 2100

A/UUA/E: RPQ W-3152

- o Spooling is supported for a printerless System 80. This feature allows an OS/3 system to be configured and used without a physical printer. This system generates printer files for subsequent printing on an OS/3 system that has a physical printer configured.
- o The Input Reader is enhanced to optionally delete spool file input with the same file name prior to creation of the new subfile. This facility is available for both diskette input and card reader input.
- o The BE SPL command is enhanced to accept a new parameter indicating the designated device to which output will be printed/punched after the files have been released from a hold condition.
- o The BE and HO SPQ/ACT commands are updated to produce a terminating message indicating either successful completion or failure.
- o CDM supports spooling of Basic Data Exchange diskettes as follows:

  1. Input Spooling

     Explicit volume serial number specifications can be given via the // VOL JCL statement for all volumes in the file. Also, the SCRATCH operand on a // VOL statement can be used to specify a multivolume file without listing the volume serial numbers of the file.

  2. Output Spooling

     Limited to a maximum of seven output volumes. There is no SCRATCH support for output spooling operations.

Spooling on non-Basic Data Exchange diskettes or Format Label diskettes is not supported.

- Spooling is enhanced to route spool print files to auxiliary printers. The auxiliary printers can be connected to a UTS 40D local workstation or to a UTS 40 remote workstation with two screen memories. (See 2.1.5.19.)

- The BR CN and BR LOG commands are enhanced to accept a parameter that redirects output to a disk, diskette, or tape.

- Spooling is enhanced to accommodate the 8470 disk as a spool device or a redirected file for the output writer (Models 4, 6, and 8).

- Output spooling includes the option to retain redirected print or punch output on disk or diskette after processing. Another option is provided to release this redirected output for printing or punching.

- By using a new Output Writer command, the operator can skip forward or back up a specified number of lines of a log file that is being printed.

Guidelines:

A release pack contains a spool file with 50 cylinders allocated to it. If the user desires a larger spool file, a new spool file must be allocated. Spool file allocation is done only by spool initialization when no spool file exists or when multivolume spool volumes are out of sequence. The customer must scratch the existing spool file and then perform a re-IPL with a supervisor generated to reflect a larger spool file size.

2.1.1.14. Job Control - Save and Restore Symbionts

Manual: UP-9986

RFC: None

A/UUA/E: None

- Enhancements to Save Symbiont (JC$$SV) allow the user to specify, on the // OPTION SAVE or // OPTION NOSCHD JCL (at run time), another library beside YSAVE to store the YRUNJOB file. This could provide password-protected files for saved RUNJOBS if alternate files were cataloged in YCAT. The alternate library FCB would be file cataloged with read and write passwords and checked by JC$$$V for write verification.

- Enhancements to Restore Symbiont (JC$$SC) allow users to restore YRUNJOB files from the alternate libraries the saved jobs were stored in by JC$$SV via the SC or SI restore command. The YCAT catalog file is checked for the alternate file FCB. If the FCB has a read password, it is checked before a restore function (SI) can proceed.

- Alternate libraries for saved YRUNJOB files are MIRAM libraries.

Guidelines:

The run processor (RU/RV commands) and restore processor (SC/SI commands) do not allow any volumes for a multivolume, single-mount file to be RES or RUN packs.

2.1.1.14A. Job Control-DVC Job Control Statement ALT Parameter

Manual: UP-9984, UP-9986

RFC: None

A/UUA/E: None

Guidelines:

The ALT parameter of the DVC job control statement does not work correctly if used more than once in a job stream. A separate drive is allocated for each ALT parameter. If there are insufficient drives for all of the ALT parameters, only one drive is allocated even if two drives are available.

If the ALT function is needed more than once in a job stream, the following job control can be used:

```
// DVC 90 // VOL A

// DVC 91 // VOL B
```

2.1.1.15. JCL USE Statement

Manual: UP-9986

RFC: None

A/UUA/E: None

Screen Format Services (SFS) and Menu Processing are included in the JCL USE statement enhancement. The // USE SFS statement now allows the user to specify two screen format file LFD names. The // USE MENU statement provides menu support for user jobs.

2.1.1.16. ALT JCS Library

Manual: UP-9986

RFC: None

A/UUA/E: None

The enhancements to the alternate JCS Library functionality in the run processor are:

- On the ALTJCS statement, the LUN=nn keyword parameter is added so the user can specify the device type. For example:

```
// ALTJCS MYLABEL, MYPACK, LUN=60
```

- The first eight bytes of the label are used as the DTF name so Data Management error messages will be easier to understand.

- The default device type is disk or diskette.

2.1.1.17. Job Control - Support for Auxiliary and DDP Printers

Manual: UP-9986

RFC: None

A/UUA/E: None

Job Control enhancements to support auxiliary and DDP printers include the following:

- Routing job logs and print and punch output to either user-specified or default devices.
- A new statement, // ROUTE in a DVC-LFD sequence, permits the user to specify a destination: workstation user-id (auxiliary printer), DDP host-id (remote printer and punch) and DDP workstation user-id (remote, auxiliary printer) to which the output is routed. The ROUTE statement is similar to the // DST statement used for routing output to RBP sites.
- The // OPTION statement LOG parameter is enhanced to allow specification of the originator or central only for the log destination:

```
LOG={ORIGINATOR}
    {CENTRAL   }
```

- A new // OPTION statement OUT parameter is supplied that specifies whether (in lieu of a // ROUTE statement) print and/or punch output will go back to the initiator, to central, or to the local printer/punch:

```
OUT={ORIGINATOR}
    {CENTRAL   }
    {user:host }
```

Restrictions:

Multidestination spooled output through the // ROUTE JCL statement is not supported in this release.

Guidelines:

A particular job cannot mix RBP destinations with auxiliary printers or DDP destinations.

2.1.1.18. Job Control - General

Manual: UP-8076, UP-8379, UP-9984, UP-9986

RFC: 1315, 2046, 1204

A/UUA/E: F80007, S79003, S79021, S80004

o Program Status Word (PSW) Information on Abnormal Termination

When a user job terminates abnormally, Job Control displays the interrupt code and the lower four bytes of the current program status word (PSW) and enters them into the job log. This aids the user in diagnosing errors if no dump is received. (RFC 1315, 2046. UUA S79021, S80004)

The PSW is displayed on the system console after an abnormal termination. (RFC 2241)

o Program Switch List Priority

When the step processor has given control to the program, it switches the task to a priority (if any) placed in the preamble by the supervisor. This priority is specified on a new console command option - ''Switch to priority for rest of job''. If this priority is not in the preamble, the priority passed by the RUN processor is used.

The priority passed by the RUN processor is one of the following:

- The one explicitly specified on the EXEC statement
- The one specified on a new RUN PROCESSOR OPTION, OPTION PRI = job priority, which will be applicable from the point of encounter to the end of job or until another such OPTION is encountered in the job stream
- The system default, which currently is taken from a new field in the SIB
- Relative Switch List Priority

  The priority specified on the // EXEC statement is an absolute value: e.g., 3. The user specifies that the priority will change relative to the overall job priority for that job step only (e.g., +3 or -3).

o The RUN processor accepts either hexadecimal or decimal numbers as follows:

```
hex :: = X 'number'
dec :: = D 'number'
```

If numbers are not specified as indicated, the current default is used.

o Low Priority Job Queue

A low (L) priority job queue is now provided, with an L parameter option on the RV, SC, and SI commands. Jobs will continue to default to the normal queue. The scheduler does not examine the low queue when there are any jobs in a higher priority queue that are not on hold.

o Work File Label

Work file labels ($JOB and $SCR) are modified to be unique for the job by inserting a job-id after the first four bytes of the label. This enables all residual work files (for example, work files not scratched when an HPR occurs) to be cleared from disk during IPL.

Refer to 2.1.1.43 for related RFC and UUA enhancements.

Guidelines:

- Within user JCL, work file labels (those starting with $JOB or $SCR) cannot exceed 39 characters.

- Rolled out jobs are no longer identified by an asterisk (*) in a job slot header (Models 3 through 6).

- The ADDR parameter of the DVC job control statement was not designed for tape, disk, or diskette but will function correctly if the specified volume is not premounted on another unit. Also, the specified unit cannot be premounted with any volume specified in the same job stream.

- When the IGNORE parameter is specified in the DVC statement, the logical unit number and the volume specified in the VOL statement must stay the same if repeated in the job stream. The following job control is incorrect:

```
// DVC 90,IGNORE // VOL A // LFD A // EXEC A
// DVC 91 //VOL A // LFD B
```

  DVC 91 should be DVC 90.

- The logical unit number of a DVC statement associated with a VOL SCRATCH statement must be unique in the job stream. A VOL SCRATCH statement cannot be specified as follows:

```
// DVC 90 // VOL X // LFD X // EXEC A
// DVC 90 // VOL SCRATCH // LFD Y
```

  The NOV parameter can be used in place of VOL SCRATCH.

  The following is permitted:

```
// DVC 90 // VOL SCRATCH // LFD X // EXEC A
// DVC 90 // VOL X // LFD Y
```

  Once the unique logical unit number 90 is specified for VOL SCRATCH, 90 can be used in subsequent steps.

- The logical unit number in the DVC statement and the volume in the VOL statement must stay the same if repeated in the job stream. The following job control is incorrect:

```
// DVC 50 // VOL PACK1 // LFD A // EXEC PROGRAM
// DVC 51 // VOL PACK1 // LFD B
```

  This job requires two disk drives to be allocated but the volume PACK1 is declared nonshareable. DVC 51 should be DVC 50.

  In situations where a job sits on the job queue for a long period of time for no apparent reason, the DVC and VOL statements for the job should be checked for the condition shown in the preceding example.

  The job control stream for a job cannot specify more than 44 unit record devices, that is, printers, readers, and punches.

2.1.1.19. Job Control Support of Host-ID

Manual: UP-8811, UP-9986

RFC: None

A/UUA/E: None

Job Control has been changed to handle a DDP host-id specified on command line functions. This includes the job control OPR, PAUSE, and JNOTE statements and also the HO, BE, DE, DI console commands and other functions.

o Host-ID as extension to user-ID

Currently, a user-id is a 6-character string. For example:

GEORGE

Job Control is enhanced to permit the user-id to be prefixed, optionally, with a 4-character host-id. The syntax is:

host-id:: user-id.

If the host-id is not specified, the node on which the program is executing (the local node) is assumed.

The generic host-id of $HOST specifies that the originating host-id, from the job's preamble, is to be used.

For example, assume a job originated from machine B and is executing on machine A:

User-id Request	Machine	Host-id
GEORGE	Executing	A
$HOST::GEORGE	Originating	B
Null	Originating	B
B::GEORGE	Originating	B
A::GEORGE	Executing	A
C::GEORGE		C

This applies to the user-id specified on:

- Run processor statements

  JNOTE

  PAUSE

  OPR

  OPTION MAS = user-id

  OPTION ORI = user-id

- HO, BE, DE, DI commands with UID= specification

o HO, BE, DE, DI Host-id Specification

The HO, BE, DE, and DI console commands are enhanced with a HOST= specification so that the commands only apply to those queued jobs with the specified host-id.

Currently, the DI JBQ command displays three jobs per line. This is unchanged unless the REMOTE option is specified; in which case, two jobs per line are displayed to allow for the host-id on the display line.

2.1.1.20. Job Control - Intercommunication between Programs and DDP

Manual: UP-9986

RFC: None

A/UUA/E: None

Job Control is enhanced to permit intercommunication between programs and DDP.

o Program-to-Program Intercommunication

To support program-to-program intercommunication, a new form of the DVC job control statement is introduced:

```
// DVC PROG [,program-name],HOST=host-id
```

The content of the statement is as follows:

- PROG identifies the declaration as a program-to-program type file.

- The program-name parameter is the name of the program to which the connection is made. If not specified, this program can be started by any other program but cannot initiate a connection itself.

- The host-id parameter is the name of the host that the remote program resides on. If not specified, this program can be started by any other program but cannot initiate a connection itself.

- Program-to-DDP Communication

  The DVC job control statement is used with the HOST keyword to specify that the file is remotely located on disk as follows:

  ```
  // DVC nn,HOST=host-id
  ```

  Only one host can be specified per file. The DVC statement with the HOST keyword is cataloged with a file declaration; but if cataloged, it is overridden by another such statement within the job stream. Also, if a file is cataloged without a DVC statement, one may be supplied in the job stream.

2.1.1.21. SPOOL JPROC

Manual: UP-9986

RFC: None

A/UUA/E: None

- A new jproc, SPOOL, is provided to aid in the use of the SPL job control statement. The SPL statement has many positional parameters; the SPOOL jproc permits specification of these parameters with keywords.

- The SPL job control statement is enhanced to have three additional positional parameters: RETAIN, SECURE, and HOLD. These permit setting the spool output to RETAIN and/or HOLD status independently of the redirection specified in positional parameter 1.

2.1.1.22. Job Control - INQ Statement

Manual: UP-9984, UP-9986

RFC: 2595

A/UUA/E: None

The Run Processor is enhanced so the user can assign set symbol values for certain job and system parameters. This is done by the inquire (INQ) statement, which has the following form:

```
// symbol INQ JOB,keyword
```

or

```
// symbol INQ SYS,keyword
```

The user set symbol is set to the job or system value corresponding to the specified keyword.

o INQ JOB

Keyword	Meaning	Symbol Value
NAME	Job name	8-byte job name
ORI	Workstation user-id of originator	6-byte user-id (YCON if console)
HOST	DDP host-id of originator	4-byte host-id (null if none)
WKS	Workstation initiated	0 - no 1 - yes
DDP	Remote DDP initiated	0 - no 1 - yes

o INQ SYS

Keyword	Meaning	Symbol Value
RES	SYSRES vsn	6-byte VSN
RUN	SYSRUN vsn	6-byte VSN
S80	System 80	0 - no 1 - yes
CDM	Centralized data management support	0 - no 1 - yes
DDP	DDP support	0 - no 1 - yes
WKS	Workstation support	0 - no 1 - yes
DATE	System date	8-byte YY/MM/DD
TIME	System time	8-byte HH.MM.SS

2.1.1.23. Job Control - Restart/SKIP

Manual: UP-9984, UP-9986

RFC: 2298, 2325

A/UUA/E: None

o Restart processing is modified so the user can specify a restart at the start of a job step. Currently, a restart can be done only from a checkpoint file created during the step's program execution.

When the RST job control statement does not contain a checkpoint filename, the step processor skips to the start of the specified step. For example, if the following card is read, job stream MYJOB will be read from library MYLIB and started at step 3.

```
// RST  ,,3,MYJOB:MYLIB
```

- The SKIP statement is enhanced so the user can specify whether a skip will occur if ALL, ANY, or NONE of the specified bits in the UPSI byte are set. The only option currently available, which is the default, is to skip when all bits are set.

  The format for the SKIP statement is:

```
// SKIP label,mask,{ALL}
                   {---}
                   {ANY}
                   {NONE}
```

2.1.1.24. DDP - File and Job Transfer Facility

Manual: UP-8811

RFC: None

A/UUA/E: None

The File and Job Transfer Facility includes the following items:

- Nonstandard MIRAM Library Support

  The ELEMENT_TYPE keyword parameter is expanded to include nonstandard element types acceptable to MIRAM processing.

- Enhanced STATUS Support

  This enhancement provides status for nonlibrary type files.

- System-Generated Job Names

  This enhancement allows DDP to generate unique job names.

- Canceling an In-Progress Work Order

  A user can cancel a DDP command in progress by specifying the work order number.

Guidelines:

- When the SUBMIT FILE command is used to transfer job streams from one host to another host, the transfer is limited to a maximum of 10 job streams in the element file.

- When the POSITION=SOF keyword is used on the DDP COPY command, file initialization does not occur if the destination file is a MIRAM or SAT library file. However, file initialization does occur if the destination file is a MIRAM data file.

- Automatic Recovery from Failure - The console operator has the option to select automatic recovery during system initialization. If selected, DDP automatically recovers all work orders in progress at the time of a system crash or communications line failure. Following either failure, the work orders are held until the destination host is available. When it is available, the recovered work orders are automatically reinitiated.

- CREATE Command - The following keyword parameter are not used in an OS/3 environment to create files:

  DENSITY
  PARITY
  INCREMENT_SIZE
  KEY_N
  RECORD_FORM
  RECORD_SIZE

- STATUS Command - Use of this command for the COMMAND= keyword parameter within an ENTER stream is not logical because work order numbers are not predictable.

- When DDP is used in a multi-host environment where the hosts are using different major software releases (i.e., 7.0/8.0/8.2), a saved job stream (YSAVE) cannot be sent (DDP SUBMIT FILE command) from a system operating at one release level to a system operating at a different release level. Job control errors will occur on the system that attempts to schedule the job. However, it is possible to save (via SAVE) the job on the system where the job is to be run and use the DDP SUBMIT FILE command to start the job.

- Each DDP user is allocated a buffer that contains a log of current activity. It can hold information for no more than 15 DDP commands; therefore, the DDP STATUS USER=user-id command displays the last 15 commands entered by the user.

2.1.1.25. DDP - Program-to-Program Communications

Manual: UP-8811

RFC: None

A/UUA/E: None

This enhancement provides a set of CDM imperatives to perform the following Interprocess Control functions:

ACTIVATE	DEACTIVATE	REPLY
FORK	ENQUEUE	REPLY END
JOIN	DEQUEUE	ABORT

In addition, a dynamic open option, USE=PROG, has been added to initiate the process.

2.1.1.25A. DDP File Access Facility - Remote File Processing

Manual: UP-8811

RFC: None

A/UAA/E: None

Guidelines:

Remote file processing is restricted to MIRAM disk data files. The results are unpredictable if remote file processing is attempted by a user-written program or system-supplied software on non-MIRAM disk data files.

2.1.1.26. System Use of Function Keys

Manual: UP-9972

RFC: None

A/UUA/E: None

A command, DEFKEY, is added to permit a workstation user to define any function key or the message-wait key to issue any system command. When a function key is pressed, the defined command is issued as if the user entered it in system mode.

New system commands permit selected existing function key capabilities to be performed from system mode. For example, there are commands to do WSAM/SFS end-of-file and continue processing.

Guidelines:

Function keys defined for system use are not available for data mode programs. If a user defines a key required for a program, he will not be able to get that key to his program without removing the system definition for that key.

2.1.1.27. Increased Number of Workstations per File

Manual: UP-9978, UP-9979, UP-9986

RFC: None

A/UUA/E: None

This enhancement increases the upper limit on the number of workstations that can connect to a file to 255.

2.1.1.28. CDM Workstation

Manual: UP-9979

RFC: 2021, 2092

A/UUA/E: None

CDM workstation processing is enhanced to provide the following support:

- Return character under the cursor to the user (RFC 2021, 2092)
- Log output and/or input responses to the workstation log (for WSAM mode users other than Interactive Services functions (e.g., EDT))
- Translate output buffer prior to issuance of an I/O (for WSAM mode users only)

This support is provided to the BAL user of CDM via the INCSR, LOG, and OTBL RIB parameters.

2.1.1.29. CDM Card/Printer Data Independence

Manual: UP-9979

RFC: None

A/UUA/E: None

CDM card and printer processing is enhanced to provide variable work-area support. Variable work-area support permits the unit record file user to have a consistent view of data, independent of the way (fixed- or variable-record format) the data was recorded on the medium.

This support is provided to the BAL user of CDM via the WKFM and TRUNC RIB parameters.

2.1.1.30. CDM Performance Improvements

Manual: UP-9978

RFC: None

A/UUA/E: None

CDM has been enhanced to provide improved performance when accessing files from specific programs. Under CDM, there is a shared-code processing module for each file type that is invoked when accessing a file of that particular type. The acceleration is provided by reducing the path length to the processing module.

Data utilities, Sort/SORT3, and MILOAD are prepared to take advantage of CDM acceleration. Programs compiled under the Release 8.0 RPG II, COBOL, or FORTRAN compilers will benefit from the acceleration enhancement. Acceleration is provided when the following conditions are met:

- File types are disk, diskette, tape, card, or printer files.
- Disk files must be shared as EXC (exclusive) or SRDO (shared read only).

- The shared-code processing module must be made resident. (See the current version of the system installation user guide, UP-8839.) If the shared-code module is designated as resident, it is loaded when the operating system is loaded, and is never moved.

  There is no requirement that the modules be made resident in order for CDM to function, only that they provide accelerated access. The following shared-code modules must be made resident to obtain accelerated access for the corresponding file type:

File Type	Module Name
Disk	D3$M1110
Diskette	D3$M1110
Tape	DD$T1110
Card	CD$I0J00
Printer	PR$I0E00

2.1.1.31. CDM File Share/User-Controlled Protection

Manual: UP-9978

RFC: None

A/UUA/E: None

CDM provides a new ACCESS option called user controlled protection (UCP). It permits the user to access the specified file in a read/write mode with no locking restrictions. UCP is compatible with itself or SRD.

In selecting the ACCESS=UCP option, the user accepts responsibility for the data integrity of the file. Block locks are not generated so the potential for lost updates exists in a multiple writer environment. Records added to the file, though, are never lost. This even applies in a multiple adder environment. Records retrieved from the file would always be valid but not necessarily the latest copy. The latest copy could have been lost - (lost update). Inconsistencies between fields within a record would be attributable to a lost update.

2.1.1.32. CDM Fast Loader Utility MILOAD

Manual: UP-8068, UP-9978

RFC: None

A/UUA/E: None

CDM furnishes a utility program, MILOAD, that provides OS/3 users operating in a CDM or mixed mode environment an efficient means for loading large, multikeyed MIRAM files.

The utility can create only MIRAM Characteristic disk files. These files are defined to include one or more of the following file characteristics:

- More than one key
- A key specification that permits duplicates or key change
- A variable record format
- A record control byte (RCB)

2.1.1.33. CDM Support for Remote Disk Files

Manual: UP-9978, UP-9979

RFC: None

A/UUA/E: None

CDM is enhanced to provide support for remote disk files. A remote disk file is one that is physically associated with a processor different from the one on which the job is running. (The processors must be homogeneous, i.e., operating under the same operating system.)

Remote file support is provided via the HOST keyword parameter on the // DVC job control statement as follows:

```
// DVC nn,HOST=host-id
```

Only one host can be specified per file.

The DVC statement with the HOST keyword can be cataloged with a file declaration; however, specifying another host-id within the job stream will override the cataloged host-id. If a file is cataloged without a HOST specification, one may be supplied in the job stream.

2.1.1.34. CDM Data Independence for Tape

Manual: UP-9978, UP-9979

RFC: None

A/UUA/E: None

CDM tape processing is enhanced to provide variable work-area support. Variable work-area support permits the CDM user to have a consistent view of data, independent of how the data is recorded on the particular medium (i.e., independent of whether the record format is fixed or variable). This support is provided to the BAL user of CDM via the WKFM and TRUNC RIB parameters.

2.1.1.35. CDM/Disk Space Management - Fixed Head Area Support

Manual: UP-9978, UP-9984, UP-9986

RFC: None

A/UUA/E: None

Disk space management is enhanced to allow the user to allocate space in the Fixed Head Area (FHA) of disks with fixed heads. This support is provided via the FIX parameter on the // EXT job control statement.

Consolidated Data Management disk processing is enhanced to make optimum use of disk space that is allocated in the fixed head area (FHA) of the 8417 disk.

2.1.1.36. CDM - Diskette Compatibility

Manual: UP-9318, UP-9978, UP-9984, UP-9986

RFC: None

A/UUA/E: None

Consolidated Data Management data set label (DSL) diskette processing is enhanced to provide the following support for compatibility purposes:

- Support of diskette files created by the IBM System/34 utility $COPY. These files are always in type E format and always have a file header record in the first physical record of the file. (The first logical record begins in the second physical record.) This support is provided via the OFFSET parameter on the // DD job control statement, and only consists of reading (i.e., not creating or updating) files with the file header record.

- Support of multivolume files created by the IBM System/34 in type E format. These files have logical record spanning volumes, where appropriate, as opposed to placing the entire record at the beginning of the next volume. This support is automatically provided when the record spanning condition is detected, and consists of only reading (i.e., not creating or updating) files with this record spanning condition.

- Support (reading or writing) of type H format files

2.1.1.37. CDM/DM/Disk Space Management - 8470 Disk Support

Manual: UP-9978, UP-9979

RFC: None

A/UUA/E: None

Consolidated and Basic (Model 8 only) Data Management (CDM/DM) and Disk Space Management are enhanced to support 8470 disks for Models 4, 6 and 8.

Guidelines:

- The maximum key length for ISAM and DAM files is 127 bytes (Model 8 only).
- To accommodate the increased capacity of the 8470 disk, the Format-2 label field that holds the relative track address (RTA) for the 8470 disk must be expanded by 15 bits.

2.1.1.37A. CDM Data Management Buffers

Manual: UP-9979

RFC: None

A/UUA/E: None

Guidelines:

If the symbolic address of a data management buffer (IOA1, KARG, and so on) in a RIB macroinstruction is defined as relative 0 in your program, subsequent RIB processing (OPEN) will assume that no address was specified.

2.1.1.38. Menu Generator

Manual: UP-9317

RFC: None

A/UUA/E: None

The Menu Generator is an interactive routine activated by a call to Interactive Services. The Menu Generator allows the user to create, modify, and display menu modules.

Guidelines:

Within a user program, menus and screens may not be used together unless the screens are processed directly by the Menu Processor, that is, via the SCREEN and DISPLAY menu function commands.

2.1.1.39. Job Accounting

Manual: UP-9975

RFC: 1024, 1419, 1878, 2052, 2230

A/UUA/E: S80035

Job accounting is enhanced by the addition of two new accounting records.

- The new accounting record AC02 is added to describe the hardware and software configuration on which the job was executed. The existing AC01 accounting record has been modified to include the job slot number. (RFC 1024, 1878, 2230)

- The new accounting record AC13 is added to contain the contents of the UPSI byte at the end of each job step. (RFC 1419, 2052. UUAS80035)

2.1.1.40. Support for SHUTDOWN Command

Manual: UP-8859

RFC: None

A/UUA/E: None

A new system command provides the console operator with a method for orderly termination of system activity:

SHUTDOWN [DDP]

Once the command has been entered, the output writer and Job Scheduler will no longer start any new files or jobs. Interactive Services will not start any new sessions and terminates when its current activity ceases. This command is being implemented for IBM System/34 compatibility; RPG II object programs can recognize and react to an indicator set as a result of shutdown processing.

2.1.1.41. Message Origin Identification

Manual: UP-8831, UP-8832

RFC: None

A/UUA/E: None

Unsolicited messages to a job or symbiont can be entered from the console or the workstation that initiated the job or symbiont. This enhancement gives the island code a way of distinguishing the origin of the message.

2.1.1.42. Date Verification at IPL

Manual: UP-8859, UP-9985

RFC: None

A/UUA/E: S79003

When an IPL is performed for OS/3, the date the operator enters at the date/time screen is now compared to the date keyed in at the last boot from the same SYSRES. If the date is less than or 6 days greater than that of the last boot, the message DATE QUESTIONABLE appears. If the date entered is correct, press XMIT and the date is accepted. Otherwise, key in the correct date and press XMIT.

2.1.1.43. Job Step Processor Priority Change

Manual: UP-8859, UP-9985

RFC: 2234

A/UUA/E: F80007, S79033

The Job Step Processor is changed to execute at symbiont priority. (RFC 2234. UUA F80007)

2.1.1.44. Workstation Disconnect Request

Manual: UP-8076, UP-9317

RFC: None

A/UUA/E: None

If an autoconnect to a workstation is required and that workstation is already allocated to some task, this enhancement causes the scheduler to display a message to that workstation's command line requesting that the user disconnect so the next job can start.

Therefore, when using menu processing to initiate a job using the same workstation, the user will be requested to terminate menu processing.

2.1.1.45. Transient Work Area

Manual: UP-8839, UP-8859

RFC: None

A/UUA/E: None

The transient work area feature is an enhancement that increases system performance by storing the most heavily used transients in main storage, thereby reducing loading time for transients and reducing the number of I/O operations performed by the system. For release 8.1, the transient work area is 65K bytes if the SYSGEN option is YES. After IPL, the TW command can be invoked to create the transient work area (if not generated) or to modify the transient work area.

Guidelines:

The range of values for the SZ= keyword parameter is 32 to 99; specifications outside this range result in an INVALID PARAMETER message and the transient work area terminates.

2.1.1.46. Executive Control - Main Storage Consolidation

Manual: None

RFC: None

A/UUA/E: None

Main storage consolidation is enhanced to reduce main storage fragmentation and increase throughput by allowing more jobs to run at the same time.

All jobs are compacted together at the end of available main storage. Whenever a job terminates and free space is created, existing movable jobs at lower addresses are consolidated at the highest possible address.

2.1.1.47. PIOCS

Manual: UP-8076, UP-8859

RFC: None

A/UUA/E: None

PIOCS is modified to support the new 8470 disks for Models 4, 6, and 8.

Guidelines:

- The 8470 disk is not supported as IMPL/IPL device for Models 4 and 6; however, it can be used as a SYSRES device (see 5.5).
- For 0776 printers, the class parameter should be used if a unique logical unit number is required.

2.1.1.48. PIOCS - Reduced Operator Intervention on I/O Errors

Manual: UP-8839

RFC: None

A/UUA/E: None

PIOCS is enhanced to require operator responses only when absolutely necessary. Only those messages requiring operator intervention require a response; these messages are answered internally by the operating system if an operator does not respond within a period of time (up to 30 minutes) to the message. The number of minutes is specified during SYSGEN; the default is 0 minutes.

2.1.1.49. Support of Exigent Machine Check

Manual: None

RFC: None

A/UUA/E: None

Support is provided to accept exigent machine checks indicating main storage errors and reconfigure around the failing main storage area. If the failing main storage location is within a job region, the job is terminated and the main storage area is marked as not usable. The system continues to run; if the failing main storage location is within the supervisor area, the system halts.

2.1.1.50. Lowercase Letters Support for Workstations and Consoles

Manual: None

RFC: None

A/UUA/E: None

Lowercase letters can be displayed on MOD 4/6 consoles and workstations by applying SMC C821700.

If this SMC is applied to a MOD 8 system, lowercase letters can be displayed on the workstations only. This SMC causes blanks to appear in place of lowercase letters on the console.

2.1.1.51. Supervisor Fast Load Capability

Manual: None

RFC: None

A/UAA/E: None

The fast load capability has been added to the supervisor. It builds a table in main storage and YFDY to facilitate a dictionary type search of YLOD. To use this capability, YFDY must be placed next to YLOD on the release disk.

2.1.2. Support Programs

2.1.2.1. Disk Copy Execution from a Workstation

Manual: UP-8841

RFC: None

A/UUA/E: None

An interactive interface enhancement allows the execution of Copy Utilities (SU$C16, SU$CSL, and SU$C19) from a workstation. A set of screens guides the user in defining the scope of the copy program he wishes to execute. A corresponding set of help screens assists the user with the program features.

2.1.2.2. Copy Utilities Expiration Date Validation

Manual: UP-8841

RFC: None

A/UUA/E: None

The Copy Utilities are enhanced to check the expiration date for all output volume files. The expiration date is compared to the System date and if the file has expired, then the next file is checked. A message is presented on the workstation for the user if the file has not expired. The message allows the user to ignore the check or cancel the program.

The program verifies the presence of a System date and if one did not exist, a date is requested from the user.

2.1.2.3. Disk Prep

Manual: UP-8841

RFC: 1123

A/UUA/E: None

o Expiration Date Validation

  The Disk Prep program (DSKPRP) is enhanced to handle the expiration date for all files on the volume being prepped. The expiration date for each file is compared with the system date, and if the file has not expired, a message is presented on the workstation screen. The message allows the user to ignore the check and continue or to cancel the prep entirely.

The program verifies the presence of a system date and if one did not exist, a date is requested from the user.

- o Diskette DATA File Option (for 8420 and 8422 Disk Subsystems)

  The Disk Prep program for diskette is enhanced to make the allocation of the file DATA an option. When this new option is invoked, the space on the diskette is available for any allocation.

- o Diskette FAST Prep

  The program is also enhanced to allow a FAST prep of a diskette. This prep would only initialize the Data Set Labels on the index track or the VOL1 and VTOC. (RFC 1123)

Guidelines:

- o The FDATA parameter is not supported with Format Label Diskettes.

- o For Models 3-6 only, DKSPRP is now capable of producing a diskette with loadable IMPL microcode of all types. The new parameter IMPNM is used to specify the DBUS, CPU (the parameter default), IOMP, IDC, or IDCU microcode module. DSKPRP builds the diskette with the specified microcode module. The IMPNM parameter can only be used when ILOPT=Y.

2.1.2.4. Disk Prep - Assign Alternate Track

Manual: UP-8841

RFC: None

A/UUA/E: None

The Disk Prep program is enhanced to support all Assign Alternate Track (AAT) functions for all disks. The AAT functions allow the conditional and unconditional assignment of an alternate track without prepping the entire disk. This support also includes the recovery of data from a track, if possible, and movement of this data to an alternate.

2.1.2.5. Disk Prep - 8470 Disk Support

Manual: UP-8839, UP-8841

RFC: None

A/UUA/E: None

The Disk Prep program (DSKPRP) is enhanced to support the 8470 disks for Models 4, 6, and 8. This support includes disk formatting, defect skipping, surface analysis, and Assign Alternate Track (AAT) functions.

2.1.2.6. Dump/Restore - Expiration Date Validation

Manual: UP-8841

RFC: None

A/UUA/E: S77057, S79084

The Dump/Restore program is enhanced to support the handling of the file expiration date. The expiration date for all files that would be processed by DMPRST is compared to the System date. The user is queried whenever a file has not expired. The user may override the expiration check or cancel the program.

The program verifies the presence of a System date and, if one did not exist, a date is requested from the user.

The program checks files that reside on the output disk pack only. All files are checked when a Restore or Copy-by-volume is processed. When a Restore or Copy-by-file is processed, only files being copied are checked.

2.1.2.7. Dump/Restore - Execution from a Workstation

Manual: UP-8841

RFC: None

A/UUA/E: None

This interactive interface enhancement allows the execution of Dump/Restore from a workstation. A set of screens guides the user in defining the parameters needed to produce the program output desired. Each screen has a corresponding set of help screens to further explain the options.

2.1.2.8. Dump/Restore - File Processing by Prefix

Manual: UP-8841

RFC: 1910, 2476

A/UUA/E: None

The Dump/Restore program is enhanced to dump/copy all files on a specified input volume whose names begin with a particular set of characters and to restore a contiguous set of files whose names begin with a particular set of characters if the input is from an intermediate file (tape, diskette, or sequential disk).

Guidelines:

- o Dump/restore by prefix is limited to the following:
  - Dumping a disk, by file
  - Copying a disk, by file
  - Restoring a contiguous set of files
- o A new file name cannot be specified.

2.1.2.9. Dump/Restore - Restart Function

Manual: UP-8841

RFC: None

A/UUA/E: None

The Dump/Restore program supports the restarting of a multivolume diskette dump or restore. The program is restarted with any diskette volume other than the first. This support adds the capability to begin a dump or restore with a particular file on a specified diskette.

2.1.2.10. Dump/Restore - File Locking

Manual: UP-8841

RFC: 2064

A/UUA/E: None

The Dump/Restore program locks disk files during their processing by Dump/Restore. An input file is locked for read-only processing, while output files are locked for exclusive use.

The Dump/Restore program does not support the relocation of files that have never been opened by Data Management.

A DR17 error is reported if this operation is attempted. The files that were not processed have to be allocated on the disk that was the output device of the Dump/Restore program. The Restore/Copy operation of all other files (if any) is not affected by this error.

2.1.2.11. Dump/Restore - Performance

Manual: None

RFC: None

A/UUA/E: None

The Dump/Restore program is enhanced to increase performance when reading and writing diskette volumes.

Guidelines:

Diskettes generated by dump/restore under R8.2 cannot be restored under a prior release; however, diskettes generated under a prior release can be restored under R8.2

2.1.2.12. Dump/Restore - 8470 Disk Support

Manual: UP-8839, UP-8841

RFC: None

A/UUA/E: None

The Dump/Restore program (DMPRST) is enhanced to support the 8470 disks for Models 4, 6, and 8.

Guidelines:

This guideline applies to all disks.

When the user responds with a U to an unrecoverable error that occurred while writing to a disk, a message is printed that specifies a cylinder number and head number. This cylinder and head number address signifies the track that has not been written. The user must determine the location of this track in relation to any valid files and take the appropriate action.

2.1.2.13. Dump/Restore - Streaming Tape Support

Manual: UP-8841

RFC: None

A/UUA/E: None

The Dump/Restore program is enhanced to support a streaming tape device for input and output. This enhancement provides a fast method of backing up disk information on System 80 Models 4, 6, and 8.

Guidelines:

- The dumping of an 8417 disk device with the fixed-disk feature by volume is not supported; this type of dump must be done by file. This is true regardless of the media used.

- The streaming tape may be set to run in a nondedicated environment at 25 ips (slow mode) by adding a PARAM command parameter to define tape input and output. For example, the command

```
// PARAM IN=TAPE,SLOW
```

  sets this option for streaming tape input in a nondedicated environment.

  Streaming at 100 ips is guaranteed in a dedicated environment.

2.1.2.14. System Definition Utility (SDU)

Manual: UP-8839

RFC: None

A/UUA/E: None

- Display capability (replacing SDF$DSP)

- Update capability

- Print capability

- Improved interactivity

- The Screen Format Coordinator is used to display a more interactive type of screen. Each screen displays a complete entry from the System Definition File (YSDF), and additions or updates to the entry are validated.

- The YSDF entries contain additional detailed information about the installed hardware.

Users upgrading to Release 8 from Release 7 and requiring changes in device microcode will be assisted.

Guidelines:

SDU must be initiated from a workstation.

2.1.2.15. System Utility (SU)

Manual: UP-8859

RFC: None

A/UUA/E: None

The System Utility is enhanced to support the 8470 disks for Models 4, 6, and 8.

Guidelines:

The TRL and DID functions are not available.

2.1.2.16. Data Utilities

Manual: UP-8834

RFC: None

A/UUA/E: S80040

Data Utilities is enhanced to allow embedded card input data in addition to embedded UIO parameters.

Guidelines:

- The data utility program does not process files via remote file access.
- Interactive execution of data utilities does not allow multivolume indexed file processing.
- The PARAM DTF=OUTPUT statement may be specified when a DTF interface is more efficient for the specific data execution. This statement does not change the physical characteristics of your files.
- Data utilities checks whether input and output file assignments are the same physical file. If duplicate input and output file assignments are specified, data utilities disallows them.

  The following parameter may be used to override this validity check:

  PARAM FILES={SAME / DIFFERENT}

  where:

  SAME
  Specifies that the input and output file are the same physical file. The validity check is ignored.

  DIFFERENT
  Specifies that the input and output files are different physical files. This is the default.

- When using DATA to copy files, duplicate input and output file assignments are strongly discouraged. If duplicate names are used, the results are unpredictable.

- When you use Interactive Data Utilities (I@DATA) to copy variable MIRAM disk or diskette files, the interactive phase requests three sizes for the output file. The first request is for the minimum record size of the output variable record. The default is the record size from the input file labels. The second request is for the output buffer size. The default is the buffer size from the input file lables. The third request is for the maximum output record size. The default is the size specified for the output buffer. If you do not overwrite the output buffer size on the second request, the maximum record size defaults to the buffer size from the input file labels.

2.1.2.17. System Dump

Manual: UP-9980

RFC: None

A/UUA/E: None

- The system dump is enhanced to display and interpret the new structures, devices, and features of the control system:
  - Main storage keys are displayed.
  - Supervisor structures that changed in this release are properly dumped.
  - System dump (SYSDUMP) by job name is supported.
  - System dump (SYSDUMP) omitting print of shared code modules is supported.
  - SMCLST job step defaults to the condensed listing format. For a full listing, the FMT keyword has been added to the SYSDUMP/SYSDUMPO canned job streams. The format is:

    RV SYSDUMPO,,FMT={C / F}

where:

FMT=C provides a condensed listing.
FMT=F provides a full listing.

- When prompting for selective dumps, potential keywords are displayed.

o Additional system dump enhancements include:

- Customer name and brief problem description are requested during a SAVE function.
- Record compression and decompression is used during a SAVE/RESTORE function.
- SYSDUMP0 is automatically called at IPL if the previous session ended with a CORWRITE.
- File space is dyanmically allocated for an OPTION SYSDUMP function (like OPTION JOBDUMP); the YDUMP file is no longer used for this purpose.
- More display selections are provided.
- Supervisor CSECTs are retained during a SAVE/RESTORE function. This allows a proper display when the dump is printed from an alternate processor.

2.1.2.18. SYSGEN - Supervisor, Spooling, and I/O Support

Manual: UP-8839

RFC: None

A/UUA/E: None

SYSGEN is enhanced to support new I/O devices, supervisor, and spooling options; and to separate ICAM generation from the SYSGEN dialog, as follows:

- o During SUPGEN, the SYSGEN dialog accepts new keywords to support the new supervisor options.
- o During I/OGEN, the SYSGEN dialog accepts new device definition keywords for the new devices supported.
- o SYSGEN job streams and JPROCS support all model types.
- o A new SYSGEN parameter (PRINT=DK) lets a user direct spooled output to a format label diskette. A corresponding spooling option lets the user retain redirected output after processing (2.1.1.21). This enhancement can be used for reprinting the various system generations for SUR documentation.
- o The SYSGEN load module (SGCNFG) does not support ICAM generations. The ICAM portion of the SYSGEN dialog is removed from SYSGEN and initiated separately using an RV IC$BLD command. (To generate ICAM using SYSGEN (instead of the Dialog Processor), execute RU SG$PARAM,[,ICAM=Y]. See the Communications subsection, 2.1.5., for a description of Release 8.2 ICAM generation using the Dialog Processor)

Restrictions:

During I/OGEN, the ADDR= parameter for 3561 workstations should only specify the addresses for one controller.

For example:

```
WORKSTATION  TYPE=3561     ADDR=41-48,51
```

Should be:

```
WORKSTATION  TYPE=3561     ADDR=41-48
WORKSTATION  TYPE=3561     ADDR=51
```

2.1.2.19. Library Utility - Search by Proc Name

Manual: UP-9972

RFC: None

A/UUA/E: S79100

This enhancement allows users to reference a proc, macro, or jproc through Interactive Services by specifying the module type as PN. The first proc or macro encountered with that name will be processed.

2.1.2.20. Library Services - Process Source Modules

Manual: UP-9986

RFC: 1255, 1856

A/UUA/E: None

This enhancement allows source modules to be accessed as sequential files, only in CDM data management systems. Specifically, a source module can be created as a substitute for creating a sequential output file. A source module can also be used as a substitute for a sequential input file.

2.1.2.21. Job Control Language Dialog

Manual: UP-9986

RFC: None

A/UUA/E: None

The Job Control Language (JCL) dialog includes new JCL statements, JCL statements not previously covered by the JCL dialog, and changes to existing statements. The JCL dialog also supports new job control statements and logically helps a user construct a job stream, as follows:

- New job control statements and optional HELP screens are provided to the user.
- The JCL dialog takes the user through logical steps of a job stream. Each aspect of the job stream is presented tutorially, allowing the user to decide on the proper job stream construction.

2.1.2.22. Sort

Manual: UP-8819, UP-9072

RFC: 1743, 1770, 2300

A/UUA/E: F79015, S79001, S80009

Sort enhancements include the following:

- The message A186 RECORDS IN nnnnnnn RECORDS DELETED nnnnnnn has been edited to remove leading zeros from the record counts. (RFC 1770)
- The Sort output file is automatically extended. In previous releases, the user had to specify the UOS parameter in the OUTFIL control statement. (RFC 1734, 2154. UUA S79001E)
- The VTOC is used to estimate the input file size. (S80009)
- IRAM/MIRAM (CDI) file handling is optimized.
- Improved error reporting for input files is provided. (F79015)
- Printing of VOL and LBL information (instead of LFD information) is provided.

2.1.2.23. SORT3

Manual: UP-8836

RFC: 2300

A/UUA/E: None

SORT3 enhancements include the following:

- Messages are displayed at workstations as well as on the printer.
- The Record Specification is enhanced to provide for keyword specifications of UDATE, UMONTH, UDAY, and UYEAR.
- The capability is provided to print LBL information instead of LFD information. (RFC 2300)
- The overflow field length maximum size has been expanded from 16 to 256.
- IRAM/MIRAM file handling has been optimized.

2.1.2.24. Sort/SORT3 - 8470 Disk Support

Manual: UP-8819, UP-8836, UP-9072

RFC: None

A/UUA/E: None

Sort and SORT3 are enhanced to support the 8470 disks for Models 4, 6, and 8.

2.1.2.25. Linkage Editor

Manual: UP-8841

RFC: 2207

A/UUA/E: None

Linkage Editor enhancements include the following:

- Display of VOL, LBL, and LFD information is provided.
- The Linkage Editor sets the UPSI byte when external references (EXTRNS) are left unresolved.

2.1.2.26. Librarian

Manual: UP-8841

RFC: 1660, 1698, 1709, 1764, 1981, 2010, 2111, 2432, 1885, 2103, 2300, 2552, 1827, 2559

A/UUA/E: S80056, F80008

Librarian enhancements are as follows:

- Elimination of Null ENDLIB Indicators

  When a new module is copied to a library, the old ENDLIB record is overwritten with the new header, rather than nullifying it. (RFC 1660)

- PAGE Command

  This new Librarian command allows for page ejection and for specification of a header line. (UUA S80056. RFC 1698, 1709)

- Display of File without Copying It

  The Librarian can produce a listing of all modules in a library without the need to copy them into another file. (RFC 1764)

- SEQ Increment of Zero

  Zero is a valid increment for the SEQ command. When specified, the initial sequence field is not modified from record to record. (RFC 1981)

- Ability to Halt Execution on Errors

  A new Librarian parameter causes the Librarian to halt on any error. It sets the UPSI byte and goes to the end of the job step, bypassing the remaining commands. (UUA F80008. RFC 2010)

- Multiblock Accesses

  A blocking factor of up to 15 kilobytes is used by the Librarian, when extra main storage is available, to access all library files, including disk, diskette, and tape files. (RFC 2111)

- MIRAM Librarian Large Block Access to MIRAM Files

  A facility is provided to allow MIRAM library modules, e.g., screen formats, to be accessed in 2-kilobyte blocks. (RFC 2432)

- Print Actual File Labels

  The actual disk volume name and library name, as well as the logical file name, are displayed on the LIB printout. (RFC 1885, 2103, 2300, 2552)

- Enhanced Correction Facilities

  New options on the correction cards, which follow the COR function, allow for the use of phase-relative addresses and base addresses. (RFC 1827)

- Multifile Tape Support

  A new parameter (TAPEFILES=MULTI) on the PARAM statement allows creation of multiple library files on a single tape volume. (RFC 2559)

Guidelines:

Users of the ESC librarian command should not allocate more than 36,864 bytes (9000 hex.) to the job region if the TP or DK option is used with a buffer size larger than 1024.

2.1.2.27. Librarian - Correction Verification Support

Manual: UP-8841

RFC: None

A/UUA/E: F81015

The following Librarian enhancements support correction verification:

- A module version number is assigned for each SAT library module. The user can specify this version number on a COR statement to ensure the proper version is corrected. The original version number is 0/0/0; it is updated each time the module is corrected. A new Librarian parameter can also be used to change the version number.

- The contents of a field being corrected in a SAT library object or load module can be printed as an option. When the previous contents of the module are also specified, the Librarian checks the contents and generates an error if they don't match.

2.1.2.28. Librarian - 8470 Disk Support

Manual: UP-8841

RFC: None

A/UUA/E: None

The Librarian is enhanced to support the 8470 disks for Models 4, 6, and 8.

2.1.2.29. System/34 Screen and Data Converter

Manual: UP-8987

RFC: None

A/UUA/E: None

This new product is a batch converter that accepts System/34 screen and data descriptors as input for noninteractive screen format generation. The converter is implemented as an overlay to the existing SFGEN product, which is modified to call the converter based on the JCL stream. Where equivalent functionality does not exist on OS/3, the descriptors are either ignored or translated to the closest equivalent OS/3 facility. The user receives messages detailing what has been done with each descriptor.

Guidelines:

Translation can be accomplished only so far as OS/3 supports the same facilities as the System/34.

2.1.2.30. System Installation

Manual: UP-8839

RFC: None

A/UUA/E: None

System installation tools are enhanced to support the following:

- New separately priced products
  - IMS Multithread
  - COBOL Editor

- DDP Transfer Facility
- DDP File Access
- DATAPAC PDN
- DDX-P PDN
- Menu Services
- IMS-DDP Transaction Processing
- IBM 3270 Emulator
- Nordic PDN
- DATEX-P PDN (UTS 4040)
- PDN via PSS (UTS 4040)
- Remote Terminal Processor (RTP)

o Packaging System Control Software (SCS) and selected program products to disk through execution of one job stream

o Job stream SG$DMPDT has been enhanced to dump from a fixed head disk to tape. SG$DMPDT issues the following query:

IS THE INPUT DISK A FIXED HEAD DEVICE (N,Y)

N is the default to an invalid response.

o Format module and dialog packaging for products selected

Guidelines:

It is recommended that the SYSGEN parameter ROLLOUT be specified as ROLLOUT=YES (default value). Rollout is used to move jobs that are classified as immovable jobs. The immovable jobs are DMPRST, GUST, ICAM, IMS, and SORT, which use DMEM without specifying ROLLOUT=YES. If this is done, the users can experience long wait times when the JOBS BEING MOVED message is displayed.

2.1.2.31. Installation Verification Procedure

Manual: UP-8820

RFC: None

A/UUA/E: None

The IVPEDT procedure has been altered to also verify the correct installation of the error file processor. The following Installation Verification Procedures have been added:

IVPCED	COBOL Editor
IVPDCA	ICAM DCA Termination System
IVPRTP	Remote Terminal Processor
IVPEI3	IBM 3270 BSC Emulation

IVPDFA	DDP File Access
IVPMUG	Menu Generator
IVPTPC	TRANSPAC PDN Support Facility
IVPDTP	DATAPAC PDN Support Facility
IVPDDX	DDX-P PDN Support Facility
IVPDTX	DATEX-P PDN Support Activity
IVPSAM	System Activity Monitor
IVPPSS	PSS PDN Support Activity
IVPX21	X21 Circuit Switched PDN
IVPDAT	DATEX-L PDN Support Facility
IVPTSF	Terminal Support Facility
IVPDIM	IMS Distributed Data Processing
IVP327	IBM 3270 Remote Terminal Support Facility
IVPFPA	File Placement Analyzer (FIPLAN)

Guidelines:

If you use a 48-character business print band to print the IVP, the colons (:) in the RV statements are not printed.

2.1.2.32. PACKRES Canned Job Stream

Manual: UP-8841

RFC: None

A/UUA/E: None

The PACKRES canned job stream has been enhanced to pack additional files, including the Shared Code Load Library (YSCLOD) and several MIRAM libraries such as the system Screen Format File (YFMT), the Security File (YSEC), and the Help File (YHELP). These enhancements result in the following user guidelines:

- When all system files are being packed (PACKRES with no options), the system must be empty of all other work, including interactive users. A series of informational messages will be displayed by the PACKRES job to warn the user. The user should ensure (via an MI DA command) that nothing else is running (or even queued) and then allow the PACKRES job to continue. No system commands (not even STATUS command) should be attempted while PACKRES is executing.

- o MIRAM libraries are packed by:
  - copying the information from the subject file to another file created by the PACKRES job on the RUN disk;
  - reinitializing the file; and
  - copying the information back.

  During this process, a file is created named Yxxx, where xxx is the name of the original file. For example, the file created for YFMT would be YFMT. If no problems are encountered in this pack process, the Yxxx file will be scratched automatically. If a problem is detected, the PACKRES job stream informs the user which file has the valid information:

  PACK FAILED, LIBRARY IS Yxxx

  or

  PACK FAILED, LIBRARY IS ?Y?xxx

  If Yxxx is the valid file, then it is not scratched. The user can use it to reconstruct the original file. After informing the user of the valid file, PACKRES continues on to the next file.

2.1.2.33. File Placement Analyzer (FIPLAN)

Manual: UP-9731

RFC: None

A/UUA/E: None

The File Placement Analyzer (FIPLAN) provides an easy-to-use mechanism for improving system performance by projecting optimum file allocations. For the specific configuration evaluated, FIPLAN:

- o uses SAM disk cylinder accessing frequencies and VTOC information as input;
- o analyzes and sorts this input; and
- o projects an optimum file allocation scheme to balance disk I/Os across devices and minimize seek time.

Restrictions:

For observed file access distribution reports, access counts to the resident volume are included for reference only and are excluded all other reports.

Guidelines:

- Disk volumes should not be changed during data collection with SAM. FIPLAN analyzes only those volumes that are online when SAM is initialized.

- FIPLAN projections are based on the contents of the volume's VTOC at the time SAM is intialized. Dynamic file extensions and new files created during the monitor session are not analyzed.

- FIPLAN file allocation projections do not consider defective tracks on the new volume. Therefore, the FIPLAN allocation mapping should be altered manually to avoid bad tracks.

- The total number of accesses projected in the volume performance summary report can be less than the total number observed. This may occur because access to $VTOC, $IMPL, $IPL, and temporary work files are not projected as follows:

  Total access projected = total access observed
  minus total accesses to work files
  minus total accesses to $VTOC files
  minus total accesses to $IPL/$IMPL files

- The allocation recommended by FIPLAN involves the relocation of user files across volume boundaries to achieve optimal load balancing on the new configuration. It sometimes happens that two or more files with the same name, although originally on different volumes in the old configuration, may be placed together on one new volume. Duplicate file names on the same volume are incompatible with OS/3 file management philosophy.

  If this condition occurs, the FIPLAN user is alerted by the D code in the right-most column (headed NOTES) of the PROJECTED FILE ACCESS DISTRIBUTION report for each new volume.

  The user should preferentially substitue new file names, as required, to resolve this problem. A less attractive solution with regard to performance is to permanently place some of the files on their original volumes.

2.1.3. Languages

2.1.3.1. Assembler

Manual: UP-8913

RFC: 1649, 2123, 2173

A/UUA/E: S78004E

- The Assembler is modified to add two new instructions to the System 80 instruction repertoire (RFC 2173):

  PRB (PUT IORB)

  GRB (GET IORB)

- A warning message is included for any macro that has a continuation indication in column 72 but is lacking a comma after the last operand. (RFC 2123)

- The final error statement message is displayed on the console or master workstation. (RFC 1649)

- The UPSI byte is set to X'20' for any diagnostic error. (UUA S78004E)

- The Assembler now includes STXIT island code to provide for an orderly dump and shutdown in the event of a program check. This, in combination with the UPSI byte setting, provides continuation to the next job step instead of job stream termination.

Restrictions:

The use of a negative duplication factor in a define constant (DC) causes the Assembler to incorrectly generate a very large number of constants. The Assembler may appear to be in an infinite loop.

2.1.3.2. ANSI'74 COBOL

Manual: UP-8613

RFC: 2151, 2300, 2410, 2435, 2468

A/UUA/E: S81048

- COBL74 supports multiworkstation files through the ACCEPT and DISPLAY statements. The COBOL program may accept input from any workstation or from a specific workstation and may display output to the most recently accessed workstation or to any specific workstation. In addition, function keys, indicator bytes, and error status checking are supported.

- COBL74 programs have the argument list for the CALL ... USING statement generated at compile time. Previously, the argument list was generated dynamically by object program code. (RFC 2151)

- The Compilation Summary Listing (immediately preceding the diagnostic listing) shows the VOL, LBL, and LFD information associated with all library files accessed by the compiler. Previously, only the LFD information was displayed. (RFC 2300)

- The COBL74 compiler supports an ERRFIL parameter, which causes compiler diagnostics to be written to a module in a file. This module may be accessed by the error file processor facility of the EDITOR (@EFP command).

- The COBL74 compiler supports a CDMIO parameter, which gives the user control over the object program file interfaces (i.e., DTF or CDI control blocks). This parameter is used on Series 90 systems, which support both DTF and CDM interfaces. The options are CDMIO=YES/NO/MI. CDMIO=YES, which is the default, directs the compiler to generate CDM interface for all Data Management Accesses except SAM disk and ISAM. CDMIO=NO directs the compiler to generate DTF interfaces for all Data Management accesses except workstations. CDMIO=MI directs the compiler to generate CDM interfaces for MIRAM disk and workstations and DTF interfaces for everything else. (RFC 2410)

- A new format of the LINAGE clause is supported (''LINAGE IS SYSTEM LINES''), which provides a means of using the Virtual Format Buffer (VFB) to define the bounds of a logical tape. In addition, the skip-to-home-paper command, which begins all COBL 74 printer files, is issued at the time of the first WRITE statement execution (formerly issued at OPEN statement execution time).

  If the first WRITE statement specifies a blank page (either by the AFTER PAGE option or by a blank print line with the BEFORE PAGE option), then the blank page is not written to the spool file since its function is accomplished by the initial skip-to-home-paper command. (RFC 2435, 2468. UUA S81048)

Guidelines:

Object modules created by the Release 8.2 COBL74 compiler must be linked with the Release 8.2 level run-time routines (YOBJ library); they cannot be linked with Release 8.0 or earlier routines. However, object modules created by the Release 8.0 COBL74 compiler (or earlier levels) can be linked to either the Release 8.0 or 8.2 run-time routines.

2.1.3.3. ANSI'74 COBOL Editor

Manual: UP-8805, UP-9974

RFC: None

A/UUA/E: None

This processor aids COBOL users in the creation and/or maintenance of ANSI'74 COBOL source statements by:

- Providing COBOL statement prompt screens to be displayed at the workstations and completed by the user
- Creating COBOL source statements and transmitting them to the general purpose editor (EDT) for addition to the source file in EDT work space
- Providing procedure verb syntax to be displayed at the workstations
- Ensuring that all Procedure Division statements begin with a valid verb
- Allowing full access to the General Purpose Editor and its commands
- Displaying messages describing errors encountered in user-entered data and indicating the erroneous data by blinking on the screen

2.1.3.4. Dialog Specification Language Translator (DSLT)

Manual: UP-8806

RFC: 2300

A/UUA/E: None

- DSLT produces the file identifier (LBL) along with the file name (LFD) when it prints the // PARAM cards in the output listing.
- DSLT allows a COPY file to contain a COPY command, i.e., a nested COPY. COPY commands can be nested to one level while referencing files from a maximum of two libraries.
- Dynamic tables have been added to DSLT. The user can allocate additional main storage to run large jobs.

Guidelines:

The CDI Data Management OPEN command uses the file name (LFD) in the CDIB. To access more than one module in the same file (which would require another OPEN to be issued to an opened file), the user must generate another device assignment set (DVC through LFD sequence) with a unique LFD in his control stream.

If the user is processing a module from one copy library (COP in the example), the nested copy module must come from the other copy library (SOURCE). For example:

```
// JOB DSLTST,,12000,,,,,J219
// DVC 20  // LFD PRNTR
// DVC 50  // VOL D01906  // LBL DPSRC  // LFD SOURCE
// DVC 50  // VOL D01906  // LBL PMTRANS  // LFD DSLTOUT
// DVC 50  // VOL D01906  // LBL DPSRC  // LFD SRC
// DVC 50  // VOL D01906  // LBL DPSRC  // LFD COP
// WORK1
// EXEC DSLT
// PARAM IN=CFILE1/SRC
// PARAM OUT=DSLTOUT
// PARAM COPY=COP/SOURCE
/&
```

2.1.3.5. Editor (EDT)

Manual: UP-9976

RFC: 2144

A/UUA/E: None

The Editor (EDT) is enhanced to provide a consistent interface to provide an easy-to-use source entry capability. To accomplish this, the following changes have been made:

- Source entry with syntax checking for the RPG and COBOL languages is available through the RPGEDT and COBEDT products, which are entered through EDT.
- Screen mode processing capability is provided for source and data input.
- Source entry without syntax checking is available directly through EDT Screen Mode.
- Screen commands are provided to perform the following functions:
  - Entering multiple commands and data (@BLOCK) (FK4)
  - Requesting help with EDT error messages (@HELP) (FK6)
  - Viewing and updating the EDT environment parameters (@PARAMS) (FK3)

- Displaying the EDT commands and their HELP screens (@PROMPT) (FK13)
- Returning to the EDT session from a screen command (@RESTORE) (FK14)
- Viewing and updating lines (@ROLL) (FK5)

o EDT supports an error file processor (EFP) for interactively correcting source code errors.

Restrictions:

When the @FSTAT command is specified with the @SEQ command on the same line, DM14, DM36, or DM65 errors may occur. To avoid the error, specify @FSTAT and @SEQ as separate commands.

2.1.3.6. ESCORT Programming Language

Manual: UP-8855

RFC: 2526

A/UUA/E: None

o Users may specify read and write passwords for ESCORT data files.

o File names of up to 44 characters may be used in program menu mode and in tutorial mode. Previously, 44-character file names were allowed only in free-form programs.

o The structure processor is enhanced to allow insertions and deletions within a structure without having to reenter the entire structure.

o Program names, job names, and structure names may be printed, displayed, or deleted through options on ESCORT screens. Previously, these functions were performed by issuing Interactive Services commands.

o The tutorial processor is enhanced to:

- Allow HELP screens to be requested at any point in the tutorial session
- Use default menu choices for each screen
- Allow the full ESCORT set of string relational operators (e.g., CONTAINS, STARTS WITH)
- Create more than one program in a single tutorial session
- Save programs without exiting from tutorial mode

Additional enhancements to the ESCORT language include the ESCORT report system, a report system utility program, and extensive new functionality.

- The ESCORT report system is used with the report system utility to provide users with the capability of creating, modifying, displaying, and printing reports. The ESCORT report system functions are used to create and modify the content of the report (data); the report system utility processes the format and headers of the report.

  The report functions provided with ESCORT report system are:

  - Multiple lines per screen
  - Multiple formats for displaying data records
  - Search and search/update functions
  - Remove function
  - Update function
  - Entering and saving data
  - Scrolling/shifting
  - User-defined headers and title
  - Totaling/subtotaling averaging
  - Arithmetic computations (+, -, *, /, move, fill) on each line
  - Printed reports

- New functionality includes the following:

  - Alphanumeric fields can be used on both sides of a character relational operator.
  - Master files can be used with an input file without specifying matching criteria.
  - A new clause INPUT FROM that allows:

    a. additional data to be entered from a workstation; and
    b. data to be retrieved from a nonkeyed file with the input cycle controlled by the user.

  - Descending sorts.
  - A new clause allows only selected records to be changed (updating from a workstation).

- Duplicate keyed records can be accessed on a master file during master/input key match processing.

- The FIRSTIME and ENDOFILE qualifiers can be used with other IF conditions that involve and/or connectors.

- ESCORT language can be called from a menu with the screen input coming from the menu action table.

- Jobs and programs can be initiated from the ESCORT call. These interfaces bypass the nonruntime screens in ESCORT processing.

- Cancelling ESCORT programs that are locked in a loop, via the FUNCTION key and F4 key with return to the command selection menu.

- Displaying multiple records on a workstation in column format via a new LIST clause.

- Support for the USING and UPDATING clauses by the ENTER verb.

- Creating and accessing files that are not cataloged. File characteristics (VSN, passwords, specification of no duplications or changes allowed on keys, etc) are entered on a new ESCORT file-attribute screen.

- Files using the EXTENDING clause can also be referenced in a USING clause in the same program. A test for duplicate records can be made before executing the EXTENDING clause.

- The CHANGE verb is modified when autoformat is used with a structure on workstation input as follows:

  a. Fields on the workstation structure having the same names as fields in the master file structure are not automatically moved from the workstation to the master record.

  b. Fields in the master record can be changed only when the entire record is shown on the workstation.

  c. The automatic move occurs when input is from a file, not a workstation.

- Forms can be used on the master file and the input file for the CHANGE verb. For example:

```
CHANGE DATA OF MASTER  (MASTER,FORM1)
    FROM WS (STRUC1,PROMPT)
```

  In this example, the form used to prompt the user for the key (PROMPT) is different from the form used to display the record (FORM1).

- Addition of the BY FIELDNAME clause allows the user to select the reference key in a multikey file.

- $LINE processing is enhanced to use the number of lines in a form that is returned by Screen Format Services (SFS).

Guidelines:

- When the ESCORT library file ESC$ESCORT.LIBRARY.FILES is being cataloged, there must be no other ESCORT users on the system at that time. If a catalog attempt is made when any ESCORT user is on the system and another user attempts to enter ESCORT, a system error 2E1 occurs.

- When a UTS 200 terminal is used, the terminal must have the protect feature. If a UTS 400 terminal is used, the PROTECT-FCC toggle switch must be set to FCC, and the control values for XFER and XMIT must be changed from ALL to VAR. Control values can be changed as follows:

  1. Press the CONTROL PAGE key.

  2. Tab to the word ALL, in parentheses, after XFER, and type in VAR in place of ALL.

  3. Tab to the word ALL, in parentheses, after XMIT, and type in VAR in place of ALL.

  4. Press the CONTROL PAGE key to restore the screen.

     Without this support on these devices, ESCORT software will not be functional.

- For a workstation with a packed data key field defined as the key of reference, the key matching function uses signs of F and D in testing for keys. Key fields created with positive signs of C return a NOT FOUND condition when tested against the workstation input.

- It is the user's responsibility to ensure that a form created with SCREEN FORMAT SERVICES matches the associated ESCORT structure on a field-to-field basis with regard to field type and field size.

- Passwords can be specified for data files only. ESCORT does not allow you to specify passwords for library files or session files.

2.1.3.7. FORTRAN IV - Listing Error Files via Workstation

Manual: UP-8814

RFC: 2300

A/UUA/E: None

The FORTRAN IV product generates a specially formatted error file module for the interactive error file processor.

A new parameter enables the user to optionally produce the error file module and to specify the library file and element name to which it will be written. The module is accessed by the error file processor.

The FORTRAN IV source listing shows the VOL, LBL, and LFD information associated with all library files accessed by the computer.

Guidelines:

When FDIAGNOS=YES is specified for a workstation, a fixed-length record size greater than 100 bytes must be specified. When record size is greater than 101 bytes, extra characters may be displayed at the end of a message. FLINCNTL=YES cannot be specified when the workstation is being used as a diagnostic unit.

2.1.3.8. RPG II

Manual: UP-8044, UP-8067, UP-8253

RFC: 2101, 2199, 2045, 2100, 2124

A/UUA/E: S79064

- MIRAM Multikey Support (CDM)

  Multikey MIRAM (CDM) files are now supported. There are two ways to specify the keys. To specify the key for a single key file, enter the key length, location, and type on the File Description Specification. To specify the key structure for a multikey file, enter the key descriptions on the File Description Specification continuation statements.

- Interactive Data Entry

  The workstation provides prompts for data fields described on Input Format Specifications. The file device on the File Description Specification is CONSOLE. A parameter statement (// PARAM) is used to differentiate this type of file from a system console file. The RPG II compiler generates batch screen format (S & D) statements that are processed separately by the batch screen format processor.

- Katakana Support - Japanese Currency Sign (RFC 2101)

  The currency sign (Japanese or other types) used in place of the dollar ($) sign in edit words is specified on the Control Specification.

- Error File Access

  The RPG II compiler is modified to optionally write error diagnostic messages to a module that will be accessed by the Editor's error file processor.

- Accepted RFC and UUA Requests

  - Display Array Index Value in RPG004 Error Message (UUA S79064)

    The error message RPG004 will be modified to include the invalid array index value.

- Parameter to Override Default ACCESS=EXC (RFC 2199)

  The ACCESS File Description Specification continuation statement allows the programmer to specify the degree of file sharing for MIRAM files.

o SHTDN Operation Code

  The SHTDN operation code is supported by the RPG II compiler and is used to determine if a system shutdown has been requested. If it has, the RESULTING INDICATOR (columns 54-55) is set on.

o NEXT Operation Code

  The NEXT operation code is supported by the RPG II compiler. This operation code is used to force input from a particular workstation of a multiple workstation file.

o /EJECT, /SPACE, and /TITLE Directives (RFC 2124)

  The /EJECT, /SPACE, and /TITLE directives are supported in the compiler to control the appearance of compiler listings.

o Support of Indicators for SFS and Support of Function/Command keys (RFC 2045, 2100)

  The compiler-generated object code is modified to pass the address of the RPG II indicator table to Screen Format Services (SFS) so that SFS can test the indicators and act on them as defined in the screen formats.

  Also, indicators are added to the RPG II language that will be set on when the workstation function keys are pressed.

o Record Control Byte (RCB) for MIRAM Files

  The RCB File Description Specification continuation statement supports record control bytes for MIRAM files.

o Removal of Primary or Secondary File Requirements

  The RPG II compiler will now support programs with no primary or secondary files.

o Enhancements for System/34 Conversion

  - Data Structures

    Data Structures allow multiple definitions of internal data, subdivision of data fields, and grouping of fields.

- Workstation File Continuation Line

  The following special workstation File Description Specifications continuation statements provide for handling multiple workstations and workstation error processing.

  NUM specifies the maximum number of workstations that can be connected to the file.

  IND specifies a number of indicators that are unique for each workstation.

  SAVDS specifies a data structure that is unique for each workstation.

  INFSR specifies the name of a user-written error-handling calculation subroutine.

  INFDS specifies a data structure that contains workstation file status information.

Guidelines:

- When Data Structures are used, if an internal area is defined more than once and both the alphanumeric and numeric data formats are present, care must be used in controlling the format of the data and the operations performed since both formats cannot coexist. The format is either alphanumeric (unpacked) or numeric (packed), but not both.

  NOTE:

  This is an incompatibility with the IBM System/34.

- Error Diagnostic Files are not generated when LST=M, N, or S is specified. LST=K permits generation of the error file.

- The results of an RPG II program that uses array elements are unpredictable if:

  - the array element is indexed by a literal; and

  - (literal index number) x (length of the array element) is greater than 4095.

- Numeric subfields of RPG II data structures may not be subdivided.

- Multikey MIRAM files are not supported for RPG II IMS action programs.

2.1.3.9. RPG II Editor

Manual: UP-9981

RFC: None

A/UUA/E: None

The RPG II Editor accepts and processes the following types of source statements.

- Auto Report statements
- Multikey File Description Specification statement
- Workstation File Description Specification continuation statements
- Currency sign on Control Specification statement
- Data structure statements
- /EJECT, /SPACE, and /TITLE statements
- SHTDN operation code
- NEXT operation code

Guidelines:

To enter the copy modifier option &, you must use EDT. No validation will be done because the statement is created/updated through EDT and not RPGEDT.

2.1.3.10. RPG II Auto Report

Manual: UP-8044, UP-8067

RFC: None

A/UUA/E: None

The RPG II Auto Report program supports the ERRFIL parameter to create an error file module during its process. This module is then accessible to the interactive workstation through the Editor's error file processor.

2.1.3.11. BASIC

Manual: UP-9109, UP-9168, UP-9169

RFC: None

A/UUA/E: None

- A message is output to the workstation when BASIC terminates normally.

- A message is output to the spool file when BASIC is executed from an ENTER stream and an end-of-data condition is encountered.

Guidelines:

- No array should be generated that contains more than 8126 items, including the zero order items. Generation of larger arrays causes BASIC to loop when trying to load a program.
- The BASIC statement OPTION BASE is supported.
- BASIC error messages BA089 through BA108, BA111, BA114, and BA117 contain a two-character error code from data management. To determine the cause of the error (for example, BA090 is expanded to be BA090 xx *FATAL WORK SPACE FILE DOPEN ERROR), the user should use the system command HELP DMxx or look up the error code DMxx in the System Messages manual, UP-8076.

2.1.4. Applications Support

2.1.4.1. Information Management System (IMS) - Both Single-Thread (ST - Models 3 through 6) and Multithread (MT)

2.1.4.1.1. Miscellaneous Enhancements

Manual: UP-8364, UP-9208

RFC: 1137, 2093, 2095, 1983, 824, M103, 835, 924, 1068, 1109, 1517, 1717, 1735

A/UUA/E: S80019, F79021, S78034, S78049, S78074, F78002, S79034

- Dynamic Main Storage Allocation for Action Programs

  IMS online is enhanced to provide dynamic main storage allocation at action scheduling time. This enhancement allows the user to modify the size of the initial action program of an action without requiring a reconfiguration of his application. Action scheduling uses the larger of the configured program size and the actual program size when allocating memory for an action.

- Physical Deletion of NAMEREC Records

  The offline component responsible for maintaining the NAMEREC file for IMS is modified to allow physical deletion of password and data definition records. This modification allows users to maintain better control over their applications with respect to the growth of their NAMEREC file.

- Scheduling of Designated Action Program to Process Undefined Transactions

  This enhancement enables the IMS user to optionally specify, at configuration time, the name of an action program that receives control when an undefined transaction code is entered at the terminal.

- Display of Status Message on Configurable Line Number

  This enhancement allows the user to specify certain options at configuration time concerning placement of IMS-generated output messages. These options are:

  - Display IMS messages at the top or bottom of the screen.
  - When displaying the message, clear the screen of unprotected data only, clear the entire screen (protected and unprotected), or leave the screen as is.

- IMS-TCI Performance Improvements

  This enhancement provides performance improvements in the interface between IMS and the Transaction Control Interface (TCI) of ICAM.

- Online Configuration Table Modification/Display

  A new IMS-supplied action program is added that gives the user the ability to display or change configuration-supplied tables while executing online. This action program allows the Terminal Operator to display or the Master Terminal Operator to change information contained in the ACT and PCT. The effect of changes made through this facility are only for the duration of the current session. Fields that can be changed in the ACT deal with area sizes and files used. The only field in the PCT that can be modified is the program TYPE specification.

- New Editing Feature

  If EDIT=FCCDICE is specified in the ACTION section of the configurator, IMS provides the following:

  - DICE sequences are removed from the input message text.
  - DICE sequences for carriage return are replaced by blanks (X'40').
  - FCC sequences are removed.
  - Repeated blanks are not suppressed.

- Extended Shutdown

  IMS is enhanced to accept a time parameter on the ZZSHD command as follows:

  ```
  ZZSHD  nn
  ```

where nn specifies the number of minutes the ongoing transactions are permitted to continue processing. Time is specified in decimal, and the maximum allowable time is 99 minutes.

o Screen Format Services (SFS)/IMS Performance Improvements

Screen Format interface enhancements for IMS include:

- The ability for the user to specify the maximum number of screen formats to remain resident in main storage
- Modifications to the interface to connect (instead of open) each terminal class
- The ability to reinitialize the variables on the terminal screen without rebuilding the entire screen.
- The ability to build formatted screens in dynamic main storage. This eliminates the need to calculate output message sizes when using SFS.
- Support of System/34 Indicators through the existing user interface.
- Modifications to the interface to support RPG II Indicators as System/34 Indicators.
- Elimination of the REBLD Action Program for blinking erroneous input fields.

The multithread version of IMS, which interfaces to SFS for the first time, provides the same functional level of screen formatting capability as the single-thread version.

Guidelines:

o IMS supports the LOCK KEYBOARD choice of the screen disposition only after READ specification; i.e., screens will not be erased, and subsequent input will be disregarded until output is sent to the terminal (screen replenish is supported by the new CALL REBUILD request).

o Function keys F15 and F16 are not supported as ''end of input data'' and ''input data cannot be entered properly'' as stated in the SFC documentation. Instead, they will be passed to the action program.

o If dynamic main storage is used to output a formatted message in multi-thread environment, ZZRSD will not resend the last formatted message to the terminal but will send a NO MSG IN QUEUE message instead.

o An action program that terminates with the LOCK-ROLLBACK INDICATOR set to 0 cannot also output a screen format containing input fields. The format will be displayed on the terminal screen, but input entered at the terminal will not be formatted by SFS.

As an alternative, terminate with the LOCK-ROLLBACK-INDICATOR set to 0 and the TERMINATION-INDICATOR set to D or E. The successor action program may then do a CALL BUILD and output a screen format with input fields.

- You should avoid using the SET DATE console command to set the system IPL date backwards during an IMS run for the following reasons:
  - OFFLINE recovery assumes that the TRACE-DATE-TIME in the TRACE file is always in ascending sequence. The TRCFILE=CLOSE option of the ZC#TRC routine closes the file by recording the EOD pointer as soon as it detects the DATE-TIME of the current trace record lower than that of the preceeding record.
  - If the TRCFILE=CLOSE option is not used, the existence of record in the TRACE file that are not in ascending sequence may have adverse effects on normal operation of OFFLINE recovery.
- The UNLOCK function cannot be used with a file that is in undedicated sequential mode. This includes any ISAM, IRAM, or MIRAM file that was placed in sequential mode following a SETL or SETK function. Any attempt to issue the UNLOCK function while a file is in undedicated mode causes an INVALID FUNCTION error (0307) to be posted in the PIB status bytes.

2.1.4.1.2. IMS - Katakana Support/UNIQUE Lexicon Support

Manual: UP-8364

RFC: 2173

A/UUA/E: F78065

IMS is enhanced to provide Katakana support. Both the preonline and online IMS components have been enhanced to accept Katakana input.

A new repeatable section, called the LANGUAGE section, has been added to the configurator, which allows the user to define lexicons for use with UNIQUE. Non-English language commands, abbreviated commands, or a more business-related command set can be defined by using the LANGUAGE section of the configurator and can be supported through UNIQUE.

Guidelines:

The configurator parameters applicable to this enhancement do not apply to messages generated by IMS-supplied action programs (UNIQUE, ZSTAT, DLOAD, DLMSG).

2.1.4.1.3. IMS - System Console/Master Terminal Support

Manual: UP-8364, UP-9208

RFC: 1259, 1270, 1556, 1656, 1839, 1843, 1973

A/UUA/E: S79034, S79032, S80020, F79009

This enhancement enables IMS users to schedule action programs at the system console and to switch messages between the console and other terminals. When the console is configured as the master terminal, this feature is automatically included. When the console is not configured as the master terminal, the feature is optional and can be included at configuration time if so desired. This enhancement applies to both the single-thread and multithread environment.

Guidelines:

- The master terminal commands ZZUP, ZZDWN, and ZZTST are not allowed to be issued by the console when the console is the output device. The standard terminal commands ZZHLD, ZZRDY, and ZZRSD are also not available from the console.
- Output messages to the console require some special considerations due to OS/3 control system limitations. Lowercase characters and unprintable characters (including DICE and FCCs) appear as blanks on the system console. IMS performs lowercase-to-uppercase translation for all output messages to the console but performs no other translation or text editing.
- Messages greater than 120 characters (2 console lines) will be truncated at 120 characters. Also, console output messages must not have a dollar sign (X'5B') as the first character in the text. This is due to OS/3 interpretation of a '$' in the first byte as a stored message indicator.

2.1.4.1.4. IMS - Statistical Reporting Phase II

Manual: UP-8364, UP-9208

RFC: 877, 989, 1518, 1873

A/UUA/E: S78020E, S78001, S80004E

IMS provides new statistical functions and new features in the existing online ZSTAT statistical reporting transaction. The statistics are:

- The number of input and output messages per transaction
- The total number of file accesses on a transaction basis
- Terminal statistics on an IMS session basis
- The total number of input and output characters processed per terminal per IMS session
- Count of characters appearing in the largest input and output messages during an IMS session and the terminals on which these occurred

The features are:

- Statistics written to a data file
- Statistics written to a data file automatically at IMS shutdown

An offline print utility also is provided to print statistics gathered on the data file.

Guidelines:

Due to the size limitation of the count fields, ZSTAT should be used for short IMS sessions only.

2.1.4.1.5. IMS - Additional Terminal-Type Support

Manual: UP-9206, UP-9207

RFC: None

A/UUA/E: None

IMS provides the user-written action program with more information about the terminal from which the input message was sent. The additional information, passed to the action program in the Program Information Block (PIB), includes the terminal type (available in previous releases, but expanded to include several new terminals) and the terminal attributes (not previously available).

In addition, IMS-written action programs are enhanced to take advantage of the new information available to them.

2.1.4.1.6. IMS - MIRAM Multikey/Duplicate Key/Physical Record Delete Support

Manual: UP-8364, UP-9206, UP-9207

RFC: 2191

A/UUA/E: F79028

IMS-MIRAM supports multikey, duplicate key, and key change features during operation in the CDM environment. Physical deletion of records through data management RCB is also provided for MIRAM files containing either single (configurator option) or multikey records. The purpose of the multikey enhancement is to provide the user with a means of retrieving records from an indexed MIRAM file by using any key of reference while permitting adds or updates by using only the primary key of reference as defined by the user during the configuration process. Additional action program function requests have been added to support these capabilities.

2.1.4.1.7. IMS - CDM/MIRAM Support of Common Storage Area

Manual: UP-8364

RFC: None

A/UUA/E: F80016

IMS (CDM mode only) loads (optional by file) fixed and variable MIRAM files into a common storage area during start-up so that disk reads and writes (optional by file) are eliminated whenever action programs access records in these files. Configuration parameter CAFILE=YES makes a file resident, CUPDATE=NO eliminates writing to disk for updates, TRACE=NO eliminates writing to the trace file for offline recovery, and LOCK=UP eliminates writing to the audit file for online recovery. CAFILE and CUPDATE are new. When CAFILE=YES and CUPDATE=NO are both specified, the file is written back to the disk during shutdown.

Guidelines:

The use of common storage area files with defined record management is not supported.

2.1.4.1.8. IMS - Initiating Background Batch Jobs

Manual: UP-9207, UP-9208

RFC: None

A/UUA/E: S78058

IMS initiates background batch jobs from an IMS terminal or action program. The format of the command (RV) to initiate a batch job is identical in format to the existing console command. All the options on the console RV commands are supported. A new function request is also supported, which allows IMS action programs to initiate background batch jobs. The parameters passed are the same as those required by the RV command.

Users are able to initiate background batch jobs from YJCS or their own file. Jobs initiated for background batch do not communicate with IMS once they have been initiated.

2.1.4.2. Multithread (MT) Only

2.1.4.2.1. Miscellaneous Enhancements

Manual: UP-8364, UP-9208

RFC: None

A/UUA/E: S81058, S81072, S81070, S8076

- o 240-File Support

  Online access to 240 user files is now provided. This significantly increases the number of files the user can define and access in a single IMS session.

- o Reuse of LDPFILE

  The multithread version of IMS is enhanced to reuse the LDPFILE, if the fast loader option has been selected, during RESTART processing of the IMS start-up phase. This reduces the time necessary to bring IMS up after an orderly shutdown of the system.

- o Start-up Performance Improvement

  Start-up performs several functions in an overlapped environment. This enhancement allows file initialization processing and communications network initialization to occur concurrently.

- o Staging Buffer Size

  The configurator is enhanced to allow the multithread user to specify a staging buffer size greater than 32,670 bytes.

- o Configuring STATFIL

  The configuration of the STATFIL file for ZSTAT is optional.

Guidelines:

ACCESS=SADD or ACCESS=UCP is not supported for IMS multithread; use of either will yield unpredictable results. IMS is not responsible for the integrity or recovery of any files where ACCESS=SADD or UCP is used.

2.1.4.2.2. IMS-DDP Transaction Processing

Manual: UP-8364, UP-9205, UP-9206, UP-9207

RFC: None

A/UUA/E: None

This multithread IMS enhancement provides a set of distributed data processing (DDP) transaction facilities to give the user a high degree of flexibility in the design of distributed applications. These facilities include transaction directory routing, transaction program routing, and transaction operator routing.

- Transaction Directory Routing

  Transaction directory routing provides for the automatic routing of transactions initiated from a terminal/workstation to a remote system for processing. This routing is supported in a homogeneous (OS/3-to-OS/3) environment and is performed via a directory scan on the transaction code. The directory is predefined to the configurator by the user. After the routed input message is processed by the remote system, the response is returned to the originating terminal. Transaction directory routing supports dialog as well as simple transactions.

- Transaction Program Routing

  Transaction program routing is the ability for an action program to issue a function call that routes a simple transaction (formulated by the action program) to a remote system. After the transaction is processed by the remote system, the response is returned to the successor of the action program that issued the call ACTIVATE. The designated successor can be another action program or the orginating action program.

- Transaction Operator Routing

  Transaction operator routing is supported in a homogeneous environment and is the ability for a terminal/workstation operator to route a transaction to a remote system. By prefixing a route character and a period to a transaction code, the terminal operator will override the transaction ID directory search and route the transaction to the remote system, which was defined by this route character in the configuration. Transaction operator routing also supports dialog as well as simple transactions.

Guidelines:

- AUX device fields and continuous O/P fields must not be filled in when processing a transaction on behalf of a remote system.

- Dialog-type transactions are not permitted in the transaction program routing environment; i.e., an action program that has been scheduled at a secondary node due to transaction program routing cannot terminate with external succession.

- The IMS-supplied transaction codes BRKPT, DLOAD, and SWTCH can only be processed locally.
- HANGUP must be specified only as a successor for local transactions.
- Unsolicited output can only be sent to local terminals.
- A user action program may not place an 0 in the lock-rollback-indicator in the program information block (PIB) when issuing a CALL ACTIVATE. If this occurs, the transaction will be cancelled with an output message error (status code = 6, detailed status code = 4).
- An urgent character is not processed when it is in a routed transaction message. It is passed to the remote system as part of the transaction code.
- Coordinated data base and data file recovery is not supported in a transaction program routing environment where updates are being performed by the paired hosts.
- When an output error message shows the status code = 6 and the detailed status code = 9, an action scheduled for program routing has terminated with E succession at the secondary node.

2.1.4.2.3. IMS Access to DMS in CDM Mode

Manual: UP-8364, UP-8748

RFC: None

A/UUA/E: S79080

IMS (CDM mode) is enhanced so that action programs can access records in a DMS data base, and both UNIQUE and user-written action programs can access defined files that derive from DMS data base records.

Guidelines:

UNIQUE/DRM cannot access DMS index location mode records.

2.1.4.2.4. CDM Support

Manual: UP-8364

RFC: None

A/UUA/E: None

CDM support is provided. During operation in a CDM environment, IMS employs the MIRAM access method to access user data files and the NAMEREC file. A MIRAM file can be used for sequential, direct, or indexed file processing. Audit file, Condata file, and Trace file will continue to be SAT files.

2.1.4.2.5. IMS Multithread Printer Spool File Support

Manual: UP-8364, UP-9208

RFC: None

A/UUA/E: None

The multithread version of IMS provides processing for user-defined printer files in either a DTF or CDM environment. These files may be either nonspooled or spooled and use all of the printer and spooling facilities offered by job control. The features include:

- Printing character strings of any specified length
- Printer carriage control
- Forms overflow notification
- Breakpointing
- File locking and unlocking

2.1.4.3. Data Base Management System (DMS)

Manual: UP-8036, UP-8272, UP-8748, UP-9009

RFC: 968, 1872, 2166, 2033

A/UUA/E: None

- DMS supports the new MAPPER 80 software.
- The DMS shutdown command is enhanced to permit shutdown of DBMS when IMS is the only job active against the DBMS, but not accessing the data base.
- Multiple IMS jobs (single thread/multithread) are now permitted to access the DBMS concurrently.
- Contingency processing is improved for abnormal termination.
- New error messages have been added to the message file.
- The zero updating run-unit specification allows for read-only data base access to those areas for which quick-before-looks are specified.
- DMS support of IMS in CDM environment is provided.
- Performance improvements have been incorporated in the schema and subschema processors.
- Performance is improved for user data base applications that update sorted sets.

- The DBRES utility is enhanced to allow a data base to be restored by using a dump file that was created from a different data base via device media control language (DMCL).

  The RESTORE FROM command has been modified to allow the specification of the DMCL name contained in the dump file as follows:

  ```
  USING DMCL dmcl-name
  ```

  When the USING clause is specified, DBRES verifies the given dmcl-name with that contained in the dump file header record and during the actual restore process changes the dmcl-name in each data base page header to that specified in the DMCL IS command. This allows the user to dump a production data base and restore it to a test data base with a minimum of effort.

- The record location modes are expanded to include index sequential. Index location mode reduces user dependence on large sorted sets, thereby improving data base access and modification performance in many applications. The DMS utilities, such as CDML and DBPAG, are also enhanced to support index location mode.

- Journal checkpoints for retrieval-only run units may be suppressed as an option.

- Disk write verification may be suppressed as an option.

- Error handling is enhanced for data related errors that are fatal to only one concurrent run unit.

- The DBPAG utility supports both printing and correcting the contents of the space inventory pages.

- The DML preprocessor validation now performs subschema error checking. Certain errors that were previously not detected until execution are identified during compilation.

- Sub-schema loading performance is enhanced to allow you to block the sub-schema load module by using the BLK statement of LIBS. When the sub-schema load module is blocked, it is loaded much faster.

- For quick recovery file allocation, the partitioning of the QBL file is used to avoid the possibility of wasted space.

- New unsolicited DBMS commands, SNAP and CAN, allow easier trapping of particular run-time errors. These commands are supplied primarily for use by Sperry support personnel.

- Miscellaneous Enhancements

  - The DBPAG utility prints empty data base pages having CALC chains pointing outside of the page.

  - DMLP adds an 88-level DMS-STAT-OK field to the DMCA. The field is inserted into the user's program.

- DMLP reports errors in the INVOKE statement in more detail.

- The DBREC and DBRES utilities no longer require the QBL files to be physically scratched.

Guidelines:

o When the DBMS option to allow IMS access has not been specified and the IMS access is attempted, the request is rejected by the DBMS. However, the IMS access is registered to the DBMS, and a subsequent attempt to shut down the DBMS is not honored until after the IMS job is not resident in the system.

o JFFIX does not work when executed against an empty journal file.

o The DMCLP compiler calculates the wrong value for the number of pages (blocks) to allocate to each data base file. The figure shown in the output listing is the sum of the allocated pages for all the data base areas residing in the file, plus one. The additional one is intended to be an allowance for the internal space inventory pages. The actual allowance for space inventory pages for the data base file is found by the formula:

space inventory pages = number of allocated pages in file/(page size/2)

If the result is not a whole number, increase it to the next whole number.

o The DBDUM utility sometimes shows an incorrect value for the space used in the data base if the data base contains deferred-deleted records. This mainly happens after delete operations involving sets without prior pointers. This problem is limited to the printed statistics only and does not affect the backup file.

o The DMS DBMS job must be run at a higher task switching priority (which is specified with a lower number) than any of its application jobs, including IMS. The task switching priority is specified in the EXEC job control statement.

o In the FIND/FETCH verb format 7B, the CURRENT option cannot be used to hold a given point in one index and return to it after activity has taken place in another index. This is because any retrieval of an indexed record establishes new currency in all the indexes. To return to a point in one index in this case, it is necessary for the application program to save either the data base key of the desired occurrence (for use with format 1) or its logical key (for format 7A).

2.1.4.4. DMS Conversational Data Base Manipulation Language (CDML)

Manual: UP-8272, UP-9009

RFC: None

A/UUA/E: None

CDML assists the DMS user in all phases of data base and DML application program design. The primary functions of CDML allow DMS users to exercise the DML verbs and to access a data base interactively without going through the preprocessing, compiling, and linking steps normally associated with a DML application program. If the user chooses the edited data display option, data base records can be viewed in edited, readable format along with the data item names that are defined in the source schema. Also, with this option, the user can search for data base records that meet a specified condition.

All DML verbs can be excerised with CDML for the purpose of either verifying a DML verb sequence or viewing/modifying a data base. The DML verbs are entered to CDML one at a time, with the input command syntax and format verified (additional checks for the DML rules are performed during the DBMS run time). The result of each DML execution is returned to the user for the FIND, FETCH, DELETE, STORE, MODIFY, IF, and MOVE STATUS verbs.

Guidelines:

A CDML program check may occur if the memory allocated for the job is insufficient. This problem may happen during execution of the IMPART verb, especially if the edited data display option is selected.

2.1.4.5. MAPPER 80 Software

Manual: UP-9734, UP-9735, UP-9736, UP-9737

RFC: None

A/UUA/E: None

MAPPER 80 software enables you to define and maintain your data in the form of reports without requiring the services of an experienced programmer. Most data access is interactive from a workstation. Many easy-to-use functions enable you to select and sort your report data in a variety of ways. Common sequences of MAPPER 80 functions can be stored as a run and invoked with a single command.

Printed output can be directed to a local workstation printer, the main system printer, or an auxiliary printer. (See 2.1.1.5.)

MAPPER 80 software uses a DMS data base for its data. This data can only be accessed by MAPPER 80 software. However, MAPPER 80 utilities capture MAPPER 80 data from external OS/3 files (spool file or other OS/3 data file) and transfer report data to external files.

Restrictions:

Do not attempt to connect the MAPPER 80 job when it is in its initialization process. During this time, a connect may hang the workstation permanently without first issuing a warning message.

Guidelines:

- The total variable work space available to a run is limited to 4K.
- MAPPER 80 software cannot use the UID job control statement to establish its connection between the workstation/terminal and the MAPPER 80 job. You must use the interactive CONNECT command.
- Use function key F4 to cancel a MAPPER 80 run only when the special run cancellation message is displayed at the top of the screen.
- The spacing parameter of the PR function is limited to 1, 2, or 3.
- When you use the binary function in a run, the reserved word STAT1 is not set to 2 if all lines are blank.
- Edit code 2 in form generation is not implemented.
- The following guidelines apply when the @SFS command in the RUN program processes a user screen defined by SFG.
  - Signed numeric fields are not supported because MAPPER 80 software cannot handle packed decimal, zoned decimal, or binary data.
  - The following options cannot be used:

    Erasing and unlocking options

    Error message field option

    Display retention option

    MAPPER 80 softwre periodically outputs a RUN logo on the terminal after input ext is transmitted. As a result, the screen previously displayed by @SFS is no longer valid.
- The following guidelines apply when using the SFG utility to make a screen for use with the @SFS run function. Please refer to the screen format services user guide, UP-8802, for the following items.

- Editing of fields (paragraph 2.3)

	AV/NA (Note 1)		Example
Alphabetic/alphanumeric			
! editing	AV		XX!99!AA
B, 0 editing	AV		99BBX0AA
Numeric fields			
! editing	AV		999!99!9999
Simple insertion	AV		9,999
(B, 0, comma)	AV		9BB99900
Fixed insertion	AV		$9,999.99 (Note 3)
($, +, -, CR, DB,	NA	(Note 2)	+9.99
comma, period)	NA		9,999.99CR
Floating insertion	AV		$$$9.99
($, +, -)	NA		++999
Suppression/	AV		ZZ,ZZ9
replacement editing	AV		$Z,ZZ9.99
(Z, *)	AV		**9.99

NOTES:

1. AV = available; NA = not available

2. Signed numeric fields must be specified as alphanumeric fields.

3. Comma editing is available. However, MAPPER 80 software does not have an assumed decimal point in numeric handling; a user's RUN program must handle the position of a decimal point in a numeric.

   Example:

```
@SFS U100  /V1I6 .... 1
     .
     .
     .
@IF V1 = 1000   .... 2
     .
     .
     .
@CHG V1  V1 + 345 .... 3
     .
     .
     .
```

If the input field corresponding with the first statement is specified as 9999.99 by SFG, the second statement means that V1 is compared with 10.00, and the third statement means that 3.45 is added into V1.

- Characteristics screen (paragraph 3.3)

Lowercase translation	AV
Alphabet	AV
Original and overlay formats	AV
Erasing and unlocking options:	
None	AV
Replenish screen	NA
Erase screen	NA
Unlock keyboard	NA
Conditional indicator in user program	NA
Error retry counts	AV
Special editing characters	AV
Special display control	AV
Error message field	NA
Display retention	NA
Nondisplayed field	AV

- Optional screens (paragraph 3.4)

Conditional erase/replenish screen	NA
Edit screen (specifying CR or DB is meaningless)	AV
Special display screen	AV
Error message screen	NA
Display retention screen	NA
Nondisplay screen	AV

- Dialog screens (paragraph 3.5)

Dialog screen 1 (general field characteristics)

Field use of dialog screen 1	AV
Internal usage	
Display	AV
Packed	NA
Binary	NA
Zoned	NA
Characteristics	
Conditional display	AV
Special display properties	AV
Conditional retention	NA
Conditional protection	NA
Range checking	AV
Replace !'s	AV
Dialog screen 2 (input field response, default, and replenishing)	AV
Dialog screen 3 (conditional field display)	AV
Dialog screen 4 (special field display)	AV
Dialog screen 5 (conditional field retention)	NA
Dialog screen 6 (conditional field protection)	NA
Dialog screen 7 (input field range checking)	AV

- The MAPPER 80 and DMS load modules should be in the same load library to avoid confusion with the MAPPER 80 DMCL and subschema modules.
- The MAPPER 80 software requires the R8.2 version of DMS.
- The data base page size for MAPPER 80 must be 2K.
- MAPPER 80 commands and data may be entered in either uppercase or lowercase; however, MAPPER 80 software translates everything to uppercase. Therefore, lowercase data cannot be stored in MAPPER 80 reports.
- Run names are not checked to make sure that they begin with an alphabetic character.
- For terminals (not workstations) you must declare the printer defined on the ICAM TERM statement as the first auxiliary device.
- If you intend to write user own code modules for the MAPLOD and MAPLST utilities or to use the MAPDMS utility, MAPPER 80 requires that COBOL be installed.

- The MAPPER 80 operator and coordinator user guide, UP-9737 (current version), suggests several data base backup methods in Section 5. It is advisable to run any of these methods only when the MAPPER 80 data base is not in use, either by interactive users or by a MAPPER 80 utility. This ensures that the data base is copied in a known and consistent state.

- The DMCL module supplied in 4.3.2 of the MAPPER 80 operator and coordinator user guide, UP-9737 (current version), includes expandable clauses on each of the four MAPPER 80 data base areas. The allocated pages and expandable pages add up to 100,000 for each area. The user should maintain this relationship; that is, when the number of allocated pages is increased, the number of expandable pages should be decreased by the same amount. Adding the expandable clause does not increase the number of pages actually in use, it merely adjusts the internal page numbering. If you do not follow this recommendation, you will not be able to use the KEY CHECK feature of MAPRES when you restore the saved contents of your old, smaller data base to your new, larger data base, as described in subsection 4.3.9. This means that you may have problems with the BF function when using the new data base.

- Although MAPPER 80 reports have a maximum line length of 132 characters, you may notice that RIDs in type B of modes 996 and 998 (system modes) have a line length of 256. This is normal.

- When creating MAPPER 80 runs, we recommend that character strings ending in a dollar sign ($) be enclosed in apostrophes so that these character strings are not mistaken for reserved words. This will also prevent any conflict with reserved words added in future releases.

- The MAPPER 80 screen formats are supplied in a special library, MAPPER$FMTE. For best performance, they should remain by themselves and not be added to the system's YFMT file. Since the screens are accessed quite frequently during interactive MAPPER 80 operation, you may wish to move them to some disk volume other than the SYSRES volume. An MLIB job stream to do this is:

```
// JOB MOVEFMTE
// DVC 20 // LFD PRNTR
// DVC RES // LBL MAPPER$FMTE // LFD LIBIN
// DVC 50 // VOL MAPPER
// EXT MI,C,100,BLKS(256,7000)
// LBL MAPPER$FMTE // LFD LIBOUT
// EXEC MLIB
/$
 FIL F1=LIBIN
 FIL F2=LIBOUT
 COP F1,,,F2
/*
/&
```

  If you decide to move the screen format file, its volume specification must also be changed in the MAPPER 80 job(s).

- Because all MAPPER 80 users are accessing one central data base, data inconsistencies could occur if two or more users were allowed to update the same report at the same time. MAPPER 80 prevents this by means of an internal system of locks. Two or more users are allowed to look at the same report simultaneously, but you can only update a report if no one else is accessing it. If someone else is using it when you attempt an update, you will receive a lockout message. This is normal in a shared data base environment. Retry your operation in a few minutes. If such usage lockout occurs frequently, ask your MAPPER 80 coordinator to coordinate your site's use of the reports in question.

- When sorting a report on fields defined as edit code 1 (numeric), be sure to specify the N option. Otherwise, the binary find function will not work on these fields.

- The FGEN function is not valid for modes 994, 996, and 998. The TGEN function is not valid for modes 996 and 998; it may be used in mode 994 to generate type A (common cabinet) only. MAPGEN already generates the common cabinet, with a line length of 132 characters. You may use TDEL and TGEN to regenerate the common cabinet to a shorter line length; however, you must use the line update function to generate the RID 0 of type A because FGEN is not valid for mode 994.

- To sign on as the coordinator with the training data base, the password CORDNT is required.

- Include @DSP and @BRK statements when first debugging a new run to avoid looping conditions.

- In the DBMS job (MAPPERDB), you may need to specify additional lock space. If a MAPPER 80 job terminates with error MP898 and DBMS job log shows the presence of a QW10 error (insufficient lock space), add the following statement to the DBMS job stream:

  ```
  ALLOCATE 30 KEEP LOCKS.
  ```

  This statement goes in the DMCL section. Increase the specification in multiples of 30 until the QW10 errors are eliminated.

- An auxiliary printer may have up to 28 files queued to it at any one time. If this number is exceeded, the initiating workstation will recieve error 867.

- The KEY CHECK parameter of MAPRES (described in the MAPPER 80 operator and coordinator user guide, UP-9737) can only be used after the data base has been freshly initialized. This means that if you want to restore your data base using MAPRES, first execute DBINT and MAPDMY as shown in Section 4 (UP-9737) for system installation. Following this complete rebuild, run MAPGEN, also described in Section 4.

- The KEY CHECK parameter cannot be used when restoring a single mode using MAPRES.

- MAPPER 80 recognizes a user-id as a coordinator under one of these conditions:

  1. if the user-id is registered in the user-id list for department 1 (mode 998, RID 1B); or

  2. if the user-id is registered in the user-id list for some other department, but the default mode for the user-id is 998.

- The following guidelines apply when the V option is specified in the TOT run function:
  - The V option must be enclosed in apostrophes when it is the only option specified.
  - The V option must not be the first option when it is specified in combination with other options and the combination is not enclosed in apostrophes.
  - When options are combined and enclosed in apostrophes, the V option may be placed anywhere in the combination; it does not have to be first.

2.1.5. Communications

General ICAM guidelines:

- CCA network-names starting with LD or LT cannot be used because they cause Run Processor errors during SG$COMMK; these prefixes have special meaning in MCP SYSGEN processing.
- In a disk-queueing network, the first DISCFILE macroinstruction must follow at least one PRCS, TERM, VLINE, or PDN macroinstruction.
- In a TCI network, the DISCFILE macroinstruction must follow the last TERM macroinstruction.
- For peripheral devices on a UTS 4040 Cluster Controller, an aux device condition (e.g., down or out of forms) causes Lost Status (auxiliary device status 0) to be reported. The reporting of the status persists until the device condition is corrected.

2.1.5.1. ICAM - Remote Batch Processing

Manual: UP-9745

RFC: 1925, 1966, 1753, 1902

A/UUA/E: None

The TERM proc is enhanced to allow the user to specify the input size for DCT 1000 (batch), DCT 2000, 1004, 9200 and 9300 (REM1), and IBM 2780 terminals. (RFC 1902, 1753)

The TERM proc also allows the user to specify if the STX control character is to be inserted with the 2780 terminal. (RFC 1966)

Support for the RETAIN parameter is now provided for remote terminals if specified on the // DATA job control statement. (RFC 1925)

2.1.5.2. ICAM - Termination Option

Manual: UP-9745

RFC: 1948

A/UUA/E: None

This enhancement provides for a user option either to terminate ICAM when the last ICAM user leaves the system (default) or to terminate ICAM only when canceled by the operator. ICAM, in both cases, is removed if it encounters an unrecoverable error condition. The default option reflects the way ICAM worked in previous releases.

2.1.5.3. ICAM - Channel Error Reporting

Manual: UP-8076

RFC: 2225

A/UUA/E: None

ICAM Channel Error reporting provides individual console messages for each type of Channel Error.

2.1.5.4. ICAM - Remote Workstation Support

Manual: UP-9745

RFC: None

A/UUA/E: None

Remote Workstation support is added to the ICAM DCA TS. This enhancement supports the UTS 20 (UTS 40) terminal operating as a workstation. The user of this device has all the Local Workstation capabilities (i.e., the terminal can communicate with Interactive Services and be used by an ICAM user program) plus the added capability of the device being remotely attached (i.e., on a communication line). The remote workstation can be used as a workstation connected to the OS/3 operating system or as a workstation connected to the OS/3 operating system and a terminal connected to an ICAM end user.

The workstation is not supported as a multinode or a terminal-to-terminal connection. Static sessions are also not supported.

Guidelines:

You can use MPPS to journalize remote workstation input. Output message journaling is not supported.

2.1.5.5. ICAM - System Interface for DDP

Manual: None

RFC: None

A/UUA/E: None

This is a system interface for Interactive Services (IS) and DDP and is transparent to the user.

The Demand Mode Interface (DMI) is modified to provide improved network status reporting, completion threshold processing, and the capability to stage both input and output messages in more than one buffer (data chaining).

2.1.5.6. ICAM - Scan-for-Output Modification

Manual: None

RFC: None

A/UUA/E: None

The CNC module is modified to reduce the scanning for output. Changes to the Terminal Control Table (TCT) include a half-word counter of the number of messages on queue. This counter reflects the number of messages queued to the terminal. This enhancement reduces the time ICAM spends in the CNC module.

2.1.5.7. ICAM - Distributed Communications Architecture (DCA) Global Network

Manual: UP-9744, UP-9745

RFC: None

A/UUA/E: None

This enhancement provides a DCA TS interface for multinode terminal and CUP support. ICAM supports interactive terminals connected locally to an OS/3 host establishing a session and communicating to another terminal that is connected locally to an adjacent OS/3 host or to an STDMCP user program or to IMS that is in an adjacent OS/3 host. Terminals are not supported multinode for Interactive Services.

ICAM supports the DCP/40(20) running Telcon 3R1C as a remote DCA Termination System. Thus, the ICAM user can connect to a Telcon local network that is controlled by a host other than the OS/3 host. The DCP/40(20) can function as an intermediate node between two OS/3 hosts or between an OS/3 host and another host. The terminals connected to the DCP/40(20) can communicate with ICAM user programs in an OS/3 host that is directly connected to the DCP/40(20). ICAM supports both interactive and batch terminals, interfacing with the user through the ICAM STDMCP interface, IMS interface, or Interactive Services.

To achieve this objective, the existing communications software (ICAM) is expanded to provide the new functionality, at the same time maintaining the current user interfaces. The majority of this new functionality is internal to ICAM, and the user impact is minimized.

Guidelines:

- Terminals are not supported in multinode for Interactive Services.
- Support for multinode OS/3 Host-to-OS/3 Host, through the DCP Telcon system, is not available.

- Certain labels and parameters of the Telcon configuration statements must be included in the ICAM network definition using the same values. The labels and parameters referred to are:

Statement	Telcon Parameter or Label	Macro-instruction	ICAM Operand or Label
STATION	MODE=ABM LSA=(loc-statn-addr) RSA=(rem-statn-addr)	VLINE	DEVICE=(ABM) CMDADDR=n RSPADDR=n
DEVICE	TYPE=dev-type ADR=(dev-adr1, dev-adr2)	TERM	AUXn=(dev-type,did)
PRCSR	dcp-name	LPORT TERM	REMOTE=destination-node REMOTE=(node-id)
SESSN	TS1=log-subchn-no	LPORT	PORT=port-number
SESSN	sessn-name	LPORT LOCAP	EU1=local-user-label program-name
TERM	term-name(8 characters)	TERM LOCAP	term-name (4 characters) program-name(4 characters)
TERM	TYPE=(term-type) ADR=(rid,sid)	TERM	FEATURES=term-type ADDR=(rid,sid)

The naming conventions for batch terminals connected to Telcon and communicating to ICAM are:

nnnnmmmm for a supervisory session
nnnnDEV1 for a printer
nnnnDEV2 for a card reader
nnnnDEV3 for a card punch

where:

nnnn
Is label of the corresponding ICAM TERM statement.

mmmm
Is label of the corresponding ICAM LOCAP statement.

Refer to the current version of the VS/9 Telcon network user guide, UP-8867 if the DCP/40 (20) is to be loaded and dumped from VS/9.

Refer to the current versions of the Series 1100 Telcon installation guide, RIG-424 and Telcon primary mode operator reference, RRD-B424 if the DCP/40 (20) is to be loaded and dumped from OS/1100.

2.1.5.8. ICAM - Message Segmentation

Manual: UP-8550

RFC: None

A/UUA/E: None

ICAM Presentation Services provides segmentation of messages for the ICAM Remote Workstation. This enhancement allows ICAM to make better use of its resources (link buffers and User Data Unit Control Table (UDUCTs)).

This enhancement is used by the Interactive Services user when using the remote workstation. It also is used by the STDMCP and IMS users when using the remote workstation as a terminal.

2.1.5.9. ICAM - Packet Switching Network Interface

Manual: UP-8811

RFC: None

A/UUA/E: None

An interface to packet switching networks (DATAPAC, DDX, PSS, TRANSPAC, and DATEX-P) is provided. This support is in accordance with the CCITT recommendation X.25, as well as those specified by the supported networks. Both permanent and switched virtual circuits are supported.

This enhancement allows ICAM users to establish sessions and transfer data between end users in different hosts. The types of sessions supported are:

- Local user program to remote user program
- Local terminal to remote user program
- Local user program to remote terminal

Multinode PDN support provides the capability for a Standard Interface (STDMCP) or IMS user program in a System 80 host to establish/disestablish a session with an STDMCP or IMS user program in another System 80 or Series 90 host or to establish/disestablish a session or sessions with a terminal or or terminals that are locally attached to another System 80 or Series 90 host.

The PDN functions supported include restart, reset, packet retransmission, sequence numbering mod 128 and mod 8, M-bit support, remote test, time-out error recovery, packet sizes of 128 or 256 bytes, reverse charge, and multitrunks.

Guidelines:

- Sessions between a local and a remote terminal and sessions to remote process files are not supported.
- Local terminals cannot establish sessions to a remote Interactive Services LOCAP.
- When a virtual circuit is terminated, sessions assigned to that circuit terminate abnormally.

2.1.5.10. ICAM - RFC/AUUA Enhancements

Manual: UP-9748

RFC: 1753, 1902, 1925, 1966, 2024, 2118, 2308, 2349, 2361, 2370, 2417, 2418, 2539

A/UUA/E: F80006, S81078

Enhancements are provided as a result of RFCs and AUUA requests. These enhancements:

- Provide RBP support of 80-, 96-, or 128-character input records (RFC 1753, 1902, 2417)
- Allow a user to specify the type of UTS 400 terminal (RFC 2024, F80006)
- Allow a user to specify no STX in a BSC multirecord output message (RFC 1966)
- Mark a UTS 400 bypass terminal as UP upon receipt of input from any terminal in the same poll group (RFC 2539)
- Accept a replacement phone number that does not exceed the generated size of the original phone number (RFC 2308, S81078)
- Permit RBP retention of an input record file via selection of the RETAIN parameter on the // DATA JCL record (RFC 1925, 2370)
- Provide line/terminal/network status via ICAM Edit Dump (RFC 2118)
- Prevent the assignment of data mode to ICAM when a line request is initiated for a workstation that utilizes dynamic sessions (RFC 2361)
- Improve PDN and GUST messages as follows (RFC 2349):
  - MC#212 through MC#218 are more explicit.
  - MC#202 and MC#204 are displayed on the console.
  - MC#420 no longer requires operator response.

- MC#433 now appears as follows:

  MC#433 UNRECOGNIZED ERROR CODE FOR: name

  An invalid error code was received for CCA for line name given after a NETREQ or LNEREQ during gust initialization. This condition should not occur. Take a SYSDUMP when message MC#439 or MC#421 appears.

2.1.5.11. ICAM - Trace Facility

Manual: UP-9748

RFC: None

A/UUA/E: None

The ICAM Trace Facility:

- o Gives the user run-time control over the ICAM event recording mechanism
- o Reduces the amount of main storage permanently dedicated to tracing
- o Increases the number of events being traced
- o Provides a single-trace recording for ICAM

The user can initiate the ICAM Trace Facility through the console, define the items to be traced, and specify the number of events to be traced before trace area wraps.

2.1.5.12. ICAM - Additional Terminal-Type Support

Manual: UP-9745

RFC: None

A/UUA/E: None

ICAM allows more definitive terminal information via new operands on the TERM macroinstruction. This includes new terminal types (UTS 20 and UTS 40), screen bypass - cluster controller (primary or secondary), and their definition as single stations (in which case time-fill is needed for editing functions) or as a cluster.

Guidelines:

- o The UTS 30 is supported for both ICAM and IMS as if it were a UTS 40 single station. The UTS 30 must be specified as an ICAM terminal at generation time. To use the UTS 30, specify U40 in the TERM macro when generating ICAM configurations. The corresponding LINE macroinstruction must specify DEVICE=(UNISCOPE).
- o The UTS 4020 and 4040 terminals require that CC be specified for the FEATURES keyword on each TERM macro on the line.

2.1.5.13. ICAM - Dynamic Buffer Pool Expansion

Manual: UP-8839, UP-9745

RFC: None

A/UUA/E: None

ICAM now supports dynamic expansion of a buffer pool. When a buffer pool reaches its specified threshold and dynamic main storage management has been configured into the OS/3 Operating System, the buffer pool automatically is expanded. The main storage is returned when those buffers are no longer in use. This is an ICAM SYSGEN option; the default is buffer pool expansion.

2.1.5.14. ICAM - IBM 3270 Emulator

Manual: UP-8550, UP-9745

RFC: None

A/UUA/E: None

This enhancement provides support for an IBM 3270 Emulator, which functions like a 3271 control unit. The IBM 3270 Emulator allows an OS/3 processor to function as an IBM 3270 Information Display System attached by a remote BSC communications link to an IBM host processor. Communication is half duplex using BSC with EBCDIC in a point-to-point or multipoint polled environment.

The IBM 3270 Emulator provides support for two types of user interfaces:

1. A communications user program (CUP) using the ICAM STDMCP interface may communicate with an IBM host via the emulator. ICAM dedicated or global network facilities may be used; however, global networks are recommended since dedicated networks cause a loss of functionality.

   The control characteristics, commands, and orders embedded in the text are optionally passed, stripped, or converted to UTS 4000 local workstation formats.

2. A local workstation functions as a 3277 model 2 (24X80=1920 screen) display station with uppercase/lowercase capability. Supported facilities include formatted and unformatted screens, protected fields, field attributes, function keys, and screen format control. The local workstation functionality is provided under the global network ICAM capability using dynamic (terminal-to-terminal) sessions.

   A maximum of 32 local workstation/CUP sessions are supported on each line. Each session is associated with an IBM terminal.

Guidelines:

The IBM 3270 Emulator is modified to make transmission of changed data on a screen easier. Function key 22 provides the same function as the ENTER (XMIT) key; however, it transmits all changed data on the screen without regard to the cursor position.

2.1.5.15. ICAM - Remote Terminal Processor

Manual: UP-10047

RFC: None

A/UUA/E: None

The Remote Terminal Processor (RTP) product operates on an OS/3 host processor as a remote job entry system to an IBM central site host system. It provides support for card readers, diskettes, card punches, line printers, and tapes and communicates with multiple IBM central site host processors by using BSC communication lines.

RTP supports IBM host processors operating under the following software systems:

- IBM HASP (Houston Automatic Spooling Program)
- IBM JES II (Job Entry System)

Remote/host tape-to-tape file operations require the Bank of Montreal central utility program or equivalent user functionality at the IBM site. (Refer to the remote terminal processor user guide, UP-8990 (current version), for information on equivalent user functionality.)

RTP functionality includes communication data compression/expansion, multileaving of job streams, interleaving of data and acknowledgment messages, EBCDIC transparent and ASCII modes, use of OS/3 spooling facilities and individual activation/deactivation, and control of the BSC communications links.

NOTE:

RTP generation is modified for Release 8.2. Users of previous releases must modify GNOPT and GNVCT, as described in the current version of the remote terminal processor user guide, UP-10047.

Guidelines:

- The RETAIN feature of RT$SPL is not available.
- Unlabeled tape and 7-track tape are not supported.

2.1.5.16. ICAM - UTS 4040 (via DATEX-P PDN) Support

Manual: UP-8550

RFC: None

A/UUA/E: None

DATEX-P Public Data Network (PDN) Support, using Operating System/3 (OS/3), connects a System 80 system to the German DATEX-P packet-switched public data network using the CCITT X.25 recommendation. The level 1 physical interface is either X.21 bis without the test loop commands or X.21.

2.1.5.17. ICAM - UTS 4040 UNISCOPE Support

Manual: UP-8550

RFC: None

A/UUA/E: None

The UTS 4040 is now supported in UNISCOPE mode.

2.1.5.18. ICAM - UTS 4040 PDN (via TRANSPAC or PSS) Support

Manual: UP-8550

RFC: None

A/UUA/E: None

TRANSPAC Public Data Network (PDN) support provides the capability to connect a System 80 system using Operating System/3 (OS/3) to the French TRANSPAC packet-switched public data network using the CCITT X.25 recommendation.

PSS Public Data Network (PDN) support provides the capability to connect a System 80 system using OS/3 to the British PSS packet-switched public data network using the CCITT X.25 recommendation.

2.1.5.19. ICAM - UTS Local/Remote Workstation Enhancements

Manual: UP-8811, UP-9744, UP-9745, UP-9972, UP-9975

RFC: None

A/UUA/E: None

o UTS Local and Remote Workstation Auxiliary Printer Spooling Support

  Support is now provided for routing (via ICAM) spool print files to auxiliary printers connected to UTS 40, UTS 40D, or UTS 20 (with screen bypass feature) workstations. By using job control and screen commands, the user can also:

- direct printout to any model 2 workstation auxiliary printer or to any system printer via job control;

- interactively direct printout to a system printer or to a model 2 workstation auxiliary printer by using new parameters on the SCREEN command; and

- use the model 2 workstation auxiliary printer as an offline device.

This enhancement supports the 0791, 0797, and 0798 auxiliary printers on the local workstation. It also provides ICAM support for the model 2 workstation. The ICAM user can now access the local workstation auxiliary printer in the same way he accesses system printers.

For remote workstations (the UTS 40 or the UTS 20 with screen bypass feature F3575-02), the 0425, 0789, 0791, and 0798 printers are supported.

o UTS 40 Remote Workstation Downline Load Capability and UTS 40D Local Workstation Downline Load Capability (System 80 Models 4 and 6)

The downline load capability includes loading the UTS 40 program products and nonsegmented user programs into local and remote workstations via the DLOAD and UNLOAD commands.

NOTE:

To downline load a remote workstation, you may use either the DLOAD command or an ICAM CUP (communications user program); however, ICAM must be configured, regardless of the method used. The DLOAD command eliminates the requirement to use ICAM for downline loading a local workstation.

o Printing Mode Specification on SCREEN command

Two new parameters have been added to the SCREEN command - CONTINUOUS and PAGE. You use these parameters to specify the printing mode of the output directed to all connected 0791 printers.

o 0789 and 0425 Auxiliary Printer Support

Provides support for the 0789 and 0425 auxiliary printers on the model 2 workstation (UTS 40D).

o OPTION OUT=ORIGINATOR

The JCL statement OPTION OUT now supports OUT=ORIGINATOR, which is used to redirect output to an auxiliary printer connected to a UTS 40/40D.

Restrictions:

When you are defining a UTS 40 single station, the ICAM dialog processor may omit a comma between the screen size and the primary feature or, if used, the secondary feature. For example, (U40, 1920, Primary) may be generated instead of (U40, 1920,,Primary). SG$PARAM will flag the parameter and default it to (U40, 1920,,Primary). If a secondary terminal is being defined, the source file created by the dialogs must be updated accordingly.

Guidelines:

- When the UTS 40 single station or UTS 40 CP/M (with the current prom cartridge) is being used as a UTS 40 remote workstation and auxiliary output is flowing, the terminal must not be placed in system mode. System mode would cause an error condition; the auxiliary output would never complete.

- The UTS 30 is not supported as a remote workstation.

- Because of ICAM/EXEC (PUB allocation/deallocation) interdependencies, an IS REMOVE must not be done for a user-id logged on at any remote workstation or any local workstation that is signed onto an ICAM CUP.

- If the 0791 printer is attached to the remote workstation, the printer status must be cleared after power up of the workstation or printer before printing is attempted. This is accomplished by the following procedure:

  a. Enter control page.

  b. Insert P1 in the control page print field.

  c. Position the cursor over the 1 in P1.

  d. Press the status key twice. The status P1 000 should be presented. If not, correct the designated error condition and repeat until the valid status appears.

- The console operator should not enter an unsolicited message to a remote printer output writer that is printing on an auxiliary device. Failure to comply with this procedure will result in:

  - an output display produced on the workstation (assuming the workstation is still logged on); or

  - an output-only message sent to the console and the spool subfile being closed.

- Overprinting is not supported via spooled output for workstation-connected auxiliary printers.

2.1.5.20. ICAM - Auto-Dialing Support

Manual: UP-9745

RFC: 2136

A/UUA/E: None

Auto-Dialing is supported via an SLCA. One SLCA AUTODIALER can serve three ACUs and three associated data links.

2.1.5.21. ICAM - SLCA-1/SLCA-5 NTR

Manual: UP-9745

RFC: None

A/UUA/E: None

NTR protocol is supported at transmission rates up to 56 kB. Transmission rates up to 9.6 kB are provided via SLCA-1, RS232 I/F, and rates up to 56 kB are provided via SLCA-5, V35 I/F.

2.1.5.22. ICAM - Circuit Switching Support

Manual: UP-9744, UP-9745

RFC: None

A/UUA/E: None

Circuit switching also supports the auto-dialing capability of the SLCA. Through the use of the auto dialer adapter, circuit switching support is available for DATEX-L.

Guidelines:

Only the UNISCOPE protocol is available for circuit switching.

2.1.5.23. ICAM - Nordic PDN/X.21 Support

Manual: UP-8820

RFC: None

A/UUA/E: None

Nordic Public Data Network (PDN) Support connects System 80 processors operating under Operating System/3 (OS/3) to the Nordic circuit-switched PDN using the CCITT X.21 recommendation.

The Nordic PDN provides digital circuit-switched service to the four Nordic countries - Denmark, Finland, Norway, and Sweden.

Guidelines:

- The Charge advice facility is not available.
- Packet switching and circuit switching are not supported in the same ICAM load module.

- Only one circuit-switched link can be used between the System 80 processors.

2.1.5.24. ICAM - Dialog Processor SYSGEN Support

Manual: UP-8839

RFC: None

A/UUA/E: None

The ICAM generation process, using the Dialog Processor to interactively generate ICAM CCA parameters, is modified to reflect Release 8.2 support of 2 IOMPs and the Model 8 hardware.

- The IORBPOL macro is no longer required in the MCP section of the ICAM generation. Specification is automatic in the SUPGEN process.
- A new keyword parameter for the Model 8 (CHAN= channel number), is specified on the LINE macro and CACH macro.
- A cluster controller operand (CC) in the FEATURES statement on the TERM macro is expanded to include UTS 400 terminals.
- When a Public Data Network (PDN) is generated, a packet size of 128 or 256 is accepted if CARRIER=PSS is specified. When CARRIER=PSS, support of VCGROUP is provided.
- ICAM generation is no longer an integral part of system generation using the Dialog Processor. It is separately called by using RV IC$BLD, (instead of SG$BLD).

2.1.5.25. ICAM - Operator Type-ins and Console Messages

Manual: UP-9744, UP-9745, UP-9746, UP-9749

RFC: None

A/UUA/E: None

ICAM is enhanced to accomodate the increased number of job slots and two IOMPs supported under Release 8.2. ICAM operator type-ins and console messages are modified as follows:

- Unsolicited operator type-ins to the ICAM symbiont must contain the name of the network to be modified. The operator enters the network name in the type-in location previously used to identify the communications user program job slot number that owns the network. All type-ins to the ICAM symbiont, except for remote batch processor type-ins, are changed in this manner.

- ICAM informational messages (MC# messages) specify the network name to which the message applies, instead of the job slot number of the communications user program that owns the network.

- To support up to two channels that service communications lines, ICAM MC# messages that contain an SLCA port number also identify the particular channel on which the port is located.

- The unsolicited type-in to mark a port up or down is enhanced to include, as an option, the channel number on which the port is located. Both the port number and channel number must be specified as 2 digits. A default channel number (02 for Models 3 through 6, 13 for Model 8) is supplied when the operator does not specify the number.

- ICAM diagnosis of type-in errors is improved to be more accurate and descriptive.

2.1.6. Programming Aids

2.1.6.1. System Activity Monitor (SAM)

Manual: UP-9983

RFC: 2428

A/UUA/E: None

The System Activity Monitor (SAM) is a measurement tool that provides a general OS/3 performance analysis capability for System 80 systems. SAM is enhanced to provide the following:

- Trace mode feature, which provides I/O requests by device, command code, and job and disk accesses by cylinder by device

  The most significant benefit of this feature is the user's ability to optimize his file allocation based on the reference patterns available from SAM. (See FIPLAN 2.1.2.35.)

- Optional elimination of the mutually exclusive class mode restriction (RFC #2428)

- Support for 116 devices in the I/O class (increased from 72)

- Added statistics for:

  CPU - I/O overlap time
  COM - number of polls, by line
  COM - number of bytes transmitted, by line
  I/O - System 80 device queueing
  I/O - byte transfer count, traced by device
  MEM - largest contiguous available main storage block
  MEM - amount of main storage allocated to:

    Jobs
    Symbionts
    Buffer pools
    Shared code
    Disk cache

  MEM - number of workstation logons and logoffs
  MEM - cache hit rate
  LST - DVC parameter to print configuration information
  TRACE - disk trace DVC parameter to accept up to 12 device-ids. (increased from 4)

- New ease-of-use default for extending disk files so that the default has been changed from initialize to extend unless otherwise specified

- Improved precision and histogram capability for interrupt rates

- Added status command option (STA, C), which displays the active classes being monitored

- A new option (HI) has been added to the SAMRPT HIS = parameter. This option allows changing the histogram plot scale for INTR and SVCR items from the standard 100/sec to 500/sec. It is intended to accommodate plotting these items when they have a high frequency. The new syntax is:

  HIS = [INTR / SVCR [,no.]] [,HI]

Guidelines:

- For a System 80 with active disk cache, the byte transfer count for disk devices is biased low. The count that is reported is the number of bytes requested at the offset of the I/O. It is not the number of bytes physically read into cache memory as a result of the larger transfer sizes used to load cache memory.

- All disk PUBs must be within the first 116 PUBs if the DSK class is active; otherwise, a SAM ABEND 5 error may occur.

- The SAM collects device statistics (both I/O and DSK class) based on the device's position in the PUB tables generated at I/O generation time. If a device is beyond the 116th PUB, statistics are not collected for it. It is advisable to place all virtual devices/PUBs at the end of the I/O generation.

- The job size to specify for SAMRPT is 19000 hexadecimal.

- The data file structure for the Release 8.2 version of SAM is not compatible with previous release levels. A SAM data file created prior to Release 8.2 cannot be reused with the XT (extend file) option in R8.2.

- The SAMRPT reduction program will execute under Release 8.2 to reduce data files created under Release 8.0 and 8.1. If you are going to produce reports from R8.0/8.1 data files you should save the R8.0/8.1 SAMRPT load modules. The following procedures suggest how to save and execute these load modules.

  - To save the load module:

```
                .
                .
                .
// DVC 50 // VOL REL081 // LBL $Y$LOD // LFD OLD
// DVC 51 // VOL REL082 // EXT ST,C,,CYL,1
// LBL SAMR81LOD // LFD NEW,,INIT
// EXEC LIBS
/$
    FIL D1=OLD,D2=NEW
    COP D1,L,SAMRPT,D2
    COP D1,L,SAMRP8,D2
    COP D1,L,SAMRP9,D2
/*
                .
                .
                .
```

  - To execute the saved version:

```
                .
                .
                .
// DVC 50 // VOL REL082 // SAMR81LOD // LFD LOD
// EXEC SAMRPT,LOD
                .
                .
                .
```

2.1.7. Software Maintenance Package (SMP)

2.1.7.1. SMPQP and SMCBLD Programs

Manual: UP-8839

RFC: None

A/UUA/E: None

- SMC/SMP Query Program SMPQP

  The SMPQP program is enhanced to use Screen Format Services to display informational screens, in a menu format, for selection of SMC/SMP processing options. Options that were previously selected by use of parameters included on the RUN command are provided for in the query program. The only parameter used with the RUN command is the INPUT= parameter, which is used to specify where the SMC/SMP medium is mounted.

  A new query (menu selection item) is also included to provide the capability to apply only selected SMCs from an SMC medium.

- SMC Build Dialog SMCBLD

  The SMCBLD program currently lets a user enter SMCs from a card reader or the system console. Card input is in the form of complete SMC decks (decks that include NOP cards). Console input queries the user for information and builds the NOP cards and then solicits the actual patch cards.

  Console input is enhanced to optionally read the SMC cards from a card reader.

  The SMCBLD program is enhanced to support a workstation (or a System 80 Model 3 through 6 console in workstation mode) as an input device. Workstation input uses screen formats of the NOP cards; the user simply fills in the blanks. When the program has built the NOP cards, the user enters the SMC cards in free form or optionally directs the program to read the SMC deck from the card reader.

  A new parameter value INPUT=WS and JCL that defines a workstation and screen format library are provided for the SMC canned job stream.

Guidelines:

SMP/SMC does not automatically regenerate supervisors and ICAM symbionts based upon prefixes.

2.1.7.2. SMCLOG Display

Manual: UP-8839, UP-8841

RFC: None

A/UUA/E: None

The condensed format (SMC=C) of the SMCLOG display routine SMCLIST, sorted by SMC number, has been changed to include all SMCs and to mark any SMCs that:

- have been backed out;
- have been replaced; or
- indicate an ERROR during installation.

A full SMCLOG listing (SMC=F) can be requested when additional information regarding SMCs is required. Output is sorted by component number and then SMC number.

2.1.7.3. SMC/SMP - SMCUPD Program

Manual: UP-8839

RFC: None

A/UUA/E: None

- SMCUPD updates the System Definition File (YSDF) to contain the current SMP level of the SYSRES, the latest SMP applied, and a list of all system enhancements that have been installed.
- SMCUPD verifies the version number of the modules being corrected. If the correction number does not match the version number of the module on SYSRES, the SMC is not applied.

2.1.8. Hardware Diagnostics

2.1.8.1. Online Diagnostics - Remote Printer Support (ONRPNT)

Manual: UP-8915

RFC: None

A/UUA/E: None

The ONRPNT program provides diagnostic support for the 0798 Remote Printer subsystem (Models 3 through 6).

2.1.8.2. Online Utility Error Reporting Log (ONELAN)

Manual: UP-8915, UP-9710

RFC: None

A/UUA/E: None

This enhancement provides additional analysis of the system error log. Summary of the error log data is provided in graph form for the purpose of:

- Plotting equipment deviation
- Capturing equipment trends and performance
- Displaying significant error counts
- Notifying the user of equipment with serious error problems

2.1.8.3. Online Diagnostics - Remote Workstation (ONCOM2)

Manual: UP-8915, UP-9710

RFC: None

A/UUA/E: None

ONCOM2 incorporates the Remote Terminal Test name of REMWS to provide functional testing of the Model 1 and Model 2 Remote Workstations. ONCOM2 provides operator interfaces and controls test module loading and execution.

2.1.8.4. Online Diagnostics - SLCA-5 Program

Manual: UP-8915, UP-9710

RFC: None

A/UUA/E: None

ONCOM2 incorporates the Remote Terminal Test name of NTR5 to verify the functionality of the high-speed Single Line Communications Adapter (SLCA-5).

2.1.8.5. Online Diagnostics - 7-Track Tape (ONSTPE)

Manual: UP-8915, UP-9710

RFC: None

A/UUA/E: None

ONSTPE incorporates diagnostic tests to support 7-track UNISERVO 10 Tape Subsystems.

2.1.8.6. Online Maintenance - Streaming Tape Program (ON3774)

Manual: UP-8915, UP-9710

RFC: None

A/UUA/E: None

The new Online Maintenance (OLM) program (ON3774) tests the electrical and mechanical operation of the Streaming Tape Subsystem attached to the Integrated Tape Control Unit (F3774). The program executes under control of OS/3 and is divided into functional tests and verification tests.

2.1.8.7. Online Maintenance - Error Log Edit (ONUERL)

Manual: UP-8915, UP-9710

RFC: None

A/UUA/E: None

- Error summaries to TRACE have been reformatted to a line length of 60 characters.
- Error counts in summaries to TRACE have been separated into two types: recoverable and unrecoverable.
- Recoverable error thresholds can now be altered through a program option (Option 5).
- Main storage error information is provided to TRACE.
- I/O count overflow records are processed.
- Channel log out errors from ICAM are reported.
- EMCIC errors are reported.
- New device summaries are provided for the 8470 disk (Models 4, 6, and 8).

2.1.8.8. Online Diagnostics - Integrated Disk Support (ONDCU)

Manual: UP-8915, UP-9710

RFC: None

A/UUA/E: None

This new diagnostic program (ONDCU) tests and verifies 8470 (Models 4, 6, and 8) and 8416/8418 disk subsystem functions in conjunction with the OS/3 Operating System.

2.2. ENHANCEMENTS APPLICABLE TO SYSTEM 80 MODEL 8 ONLY

2.2.1. Control System

2.2.1.1. Interactive Services

Manual: None

RFC: None

A/UUA/E: None

Interactive Services (IS) supports 48 job slots (47 for user jobs and 1 for IS) on the Model 8 hardware.

2.2.1.2. Job Control

Manual: None

RFC: None

A/UUA/E: None

Job Control supports 48 job slots (47 for user jobs and 1 for IS) on the Model 8 hardware. This change is compatible with prior releases except for those infrequent instances where a user program examines the pubs. Those user programs would require coding changes.

2.2.1.3. Executive Control

Manual: UP-8859

RFC: None

A/UUA/E: None

The OS/3 Supervisor is enhanced to accomodate the Model 8 hardware. This support includes:

- Model-independent method of accessing the PSW and key fields
- Increased number of relocation registers
- Increased reserved storage size
- Identification of new device types in the LCB/VFB table
- Increased number of job slots (47 for user jobs and 1 for IS)
- Modified date/time message processing during IPL

2.2.1.4. PIOCS

Manual: UP-8076, UP-8859

RFC: None

A/UUA/E: None

PIOCS supports the Model 8 hardware in the following areas:

- o IPL
- o Disk cache
- o Error logging
- o Tape block numbering
- o Channels, control units, and devices for Model 8; including channel assignments, device type codes, initialization, scheduling, and error recovery.

Guidelines:

- o No dump is provided in stand-alone IPL.
- o Because Model 8 disk control units need loadable microcode, IPL must be loaded via the same control unit that contains the SYSRES devices.
- o Main storage disk cache is supported via software, however, the software is included in the system microcode file (YMIC) and called via the system definition file (YSDF) to maintain consistency between all System 80 models.
- o The 8416, 8418, and 8470 disks use loadable control units and, as such, require entries in YSDF and loadable code in YMIC. These disks can be loaded in two ways:

  1. Loading during IPL

     If the disk is prepped as an IMPL/IPL device, the control unit loads itself from the disk prior to completing the IPL process.

  2. Loading during system initialization

     If the control unit is not used in the IMPL/IPL load path, it is down-line loaded from the processor during system initialization.

- o 8416 disks will be configured as 8418 low density disks. Some message may say 8418 instead of 8416. Logical unit numbers for 8418 low density should be used.

- For 8430/8433 disks, the default value for the SELACC SYSGEN parameter has been changed to 33 because of higher full track I/O use. If you are using a smaller size, it is recommended that you increase it to at least 33.

- For 0776 printers, the class parameter should be used (to specify high, medium, or low speed) if a unique logical unit number is required.

2.2.1.5. CDM/DM/DU/Disk Space Management/Checkpoint-Restart

Manual: UP-8069, UP-8834, UP-9978, UP-9979

RFC: None

A/UUA/E: None

Consolidated and Basic Data Management (CDM/DM), Data Utilities (DU), Disk Space Management, and Checkpoint-Restart, support the Model 8 hardware in the following areas:

- Increased number of job slots (47 for user jobs and 1 for IS)

- Residual work files with variable length labels

- Modified PSW and key fields

- PIOCS

- DTF (Mixed Mode)

2.2.2. Support Programs

2.2.2.1. Copy Utilities

Manual: UP-8841, UP-8842

RFC: None

A/UUA/E: None

- The disk copy utility SU$CSL supports 8430/8433 disks on the Model 8. The program copies from one to six volumes with the option to verify the data copied.

- The disk copy utility SU$C16 supports 8416/8418 disks on the Model 8.

2.2.2.2. Disk Prep

Manual: UP-8841, UP-8842

RFC: None

A/UUA/E: None

- The stand-alone Disk Prep program (SU@PRP) supports 8470 disks on the Model 8. SU@PRP is used during system installation for disk formatting with defect skipping and surface analysis. SU@PRP creates a volume label for the prepped disk.

- The Disk Prep program (DSKPRP) supports the 8416/8418 and 8430/8433 disks on the Model 8. This support includes disk formatting surface analysis, Assign Alternate Track (AAT) functions, and IMPL/IPL processing.

- DSKPRP preps a single-sided, single-density diskette without bad tracks, and writes the System 80 Model 8 processor microcode onto it.

Guidelines:

- A new question is presented to the SU@PRP user to ask whether the control unit of the disk to be prepped must be loaded with microcode. The microcode is on a diskette that would be read by SU@PRP and loaded into the control unit.

- The default setting for the ILOPT parameter is changed from N to Y for Model 8 only. The ILOPT and IPLDK parameter settings must be the same.

- When DSKPRP is used to prep a diskette, the parameter CUADR=CD0 must be specified if the ILOPT parameter is set to Y. The CUADR parameter specifies the control unit address to be used for finding the appropriate microcode and loading it into the control unit.

2.2.2.3. Dump/Restore

Manual: UP-8841, UP-8842

RFC: None

A/UUA/E: None

- The stand-alone Dump/Restore program (SU@RST) supports 8470 disks on the Model 8. SU@RST is used during system installation to read diskettes created in file mode by the standard Dump/Restore program, and write tracks of data to 8470 disks. The program also copies the VTOC when requested by the user.

- The Dump/Restore program (DMPRST) supports the Model 8 disk and tape subsystems.

Restrictions:

The loading of the 8470 IDCU microcode during stand-alone restore is only necessary if it was not already loaded by stand-alone prep. When the microcode must be downline loaded by stand-alone restore, a second manual diskette drive is used for mounting the microcode diskette. To continue processing, specify the device address to the stand-alone restore program and mount the diskette, as defined in the system installation user guide.

When a second diskette drive is not available and the microcode must be loaded, take the IPL diskette out of the drive and mount the 8470 IDCU microcode diskette. Answer the downline load microcode request question with a Y and then supply the device address. The microcode is loaded and this recoverable error message is displayed:

?IPL14 DEVICE=___ STATUS=____ SENSE____ RUxx

Remount the IPL diskette and answer the error with an R. Normal processing is now continued.

Guidelines:

- A new question is presented to the SU@RST user to ask whether the control unit of the disk to be processed must be loaded with microcode. The microcode is on a diskette that would be read by SU@RST and loaded into the control unit.
- Tapes generated from 8430/8433 disks by Dump/Restore under R8.2 cannot be restored under a prior release. However, tapes generated from 8430/8433 disks under a prior release can be restored under R8.2.

2.2.2.4. System Dump (SYSDUMP)

Manual: UP-9980

RFC: None

A/UUA/E: None

- SYSDUMP is enhanced to include the devices, tables, and features supported for the Model 8.
- SYSDUMP0 now prints the hardware error log along with normal SYSDUMP data.

2.2.2.5. Sort/SORT3

Manual: UP-8819, UP-8836, UP-9072

RFC: None

A/UUA/E: None

Sort and SORT3 support the UNISERVO 22 tape subsystems.

Guidelines:

- The FILTYPE parameter is ignored when the system is generated to support only CDM mode file access.
- If the system supports both CDM and DTF file access, the FILTYPE parameter may be used to specify the file type as

  IRAM (for MIRAM),
  NI, or
  SAM.

  If the FILTYPE parameter is not specified, the output file type will be the same as the input file type. Or, if an input file is not specified, the output file type will be MIRAM.

2.2.3. ANSI-1968 COBOL (Basic and Extended)

Manual: UP-8057, UP-8059

RFC: None

A/UUA/E: None

ANSI-1968 COBOL (basic and extended) support is provided for Model 8 hardware.

Guidelines:

CDM, MIRAM files, and workstations are not supported under basic and extended ANSI-1968 COBOL.

2.2.4. Information Management System (IMS)

Manual: UP-8364
RFC: None

A/UUA/E: None

IMS supports the Model 8 hardware. OS/3 user action programs can execute on the Model 8 without any changes.

Guidelines:

For Model 8, IMS multithread can be configured to support CDM or DTF. The default for the CDM generation statement is YES.

2.2.5. Applications Support - Data Management System (DMS)

Manual: UP-8272, UP-9009

RFC: None

A/UUA/E: None

DMS supports the Model 8 hardware. The DBMS modules that interface with the supervisor and access tables in low order memory are modified to support 48 job slots (47 for user jobs and 1 for IS) and the new Model 8 hardware.

Guidelines:

To shut down DBMS, the user must enter the DBMS job name instead of the job number.

2.2.6. Communications - ICAM

Manual: UP-9744, UP-9745,
UP-9746, UP-9749

RFC: None

A/UUA/E: None

ICAM support of Model 8 communications is provided. ICAM is enhanced to support 2 IOMPs with up to 14 SLCAs (lines) each, by using the DMUX adapter interface.

To provide this support, new parameters are added to executive generation and ICAM generation. During executive generation, additional parameters specify two IOMP configurations and IORB pool sizes. ICAM generation parameters are expanded to include a channel number when LINE or CACH are specified.

2.2.7. Programming Aids - System Activity Monitor

Manual: UP-9983

RFC: None

A/UUA/E: None

The System Activity Monitor (SAM) supports the Model 8 hardware, including:

- o CPU time measurement by key is expanded to support 48 PSW keys.
- o I/O and trace monitoring is expanded to support the additional channel and devices.

Restrictions:

Co-channel statistics by channel or device are not supported. All accesses to a device are reported by the primary device-id or by the primary channel. Any statistics for a channel or device that serve as a secondary path should be considered invalid (i.e., the statistics might be biased high).

2.2.8. Hardware Diagnostics

2.2.8.1. Online Diagnostics - Integrated Disk Support (ON5039)

Manual: UP-9710

RFC: None

A/UUA/E: None

This new diagnostic program (ON5039) tests and verifies 8430/8433 disk subsystem functions in conjunction with the OS/3 Operating System.

2.2.8.2. Online Diagnostics - Card Reader Support (ONREAD)

Manual: UP-9710

RFC: None

A/UUA/E: None

The new online card reader diagnostic program (ONREAD) tests and verifies 0716 card reader subsystem functions in conjunction with the OS/3 Operating System.

2.2.8.3. Online Diagnostics - Tape Drive Support (ONSRVO)

Manual: UP-9710

RFC: None

A/UUA/E: None

This new diagnostic program (ONSRVO) supports the T5017, T5034 and T5045 tape control units and their corresponding tape drives (UNISERVO 12/16, UNISERVO 12/16/20, and UNISERVO 10/14).

2.2.8.4. Online Diagnostics - Error Log Edit (ONUERL)

Manual: UP-9710

RFC: None

A/UUA/E: None

The Error Log Edit program, ONUERL, provides the following support for the Model 8:

- o TRACE summary output goes to the FDD1 diskette instead of online to TRACE.
- o New device summaries are provided for the 8430/8433 and 8470 disks.
- o Machine check summary output goes to the FDD1 diskette.
- o Channel log out errors from ICAM are reported.
- o I/O count overflow records are processed.

3. Supported Software

3.1. SYSTEM CONTROL SOFTWARE (SCS)

Sperry provides the user with System Control Software (SCS), the system programs that make operation of the hardware possible. These programs are also necessary for system installation, generation, and software maintenance.

The user may select an optional SCS Support Services agreement to have Sperry provide technical assistance with SCS software at an additional charge.

Sperry installs the SCS for the user initially and makes sure that the system is ready for use. New releases of the SCS are provided without additional charge, but must be installed by each user.

Sperry provides a software correction service for the SCS without additional charge. Under this service, we will resolve problems the user brings to our attention. For the service to be effective, the user must fully define the problem and prepare a SUR if necessary.

The following list indicates software that is supported for the System 80 Models 3 through 6 and Model 8.

Software	Models 3 - 6 Type Number	Model 8 Type Number
System Control S/W (SCS)	6210-01	6210-99
Supervisor	X	X
Job Control	X	X
System Access Methods	X	X
Interactive CMD I/Fs and Dialogs	X	X
Interactive SYSGEN Prep	X	X
Interactive JCL Prep	X	X
Command Language	X	X
Dialog Processor	X	X
Workstation Mgr	X	X
Screen Format Coordinator	X	X
System Librarian (LIBS)	X	X
Linkage Editor (LNKEDT)	X	X
Error Logging	X	X
System Generation (SG)	X	X
Dump/Restore (DMPRST)	X	X
System Dump (SYSDUMP)	X	X

Software	Models 3 - 6 Type Number	Model 8 Type Number
Job Step Dump (JOBDUMP)	X	X
Tape Prep (TPREP)	X	X
Disk/Diskette Prep (DSKPRP)	X	X
Catalog Manipulation Utility (JC$CAT)	X	X
IDA Copy (SU$CIG)	X	X
System Utility	X	X
Job Scheduler	X	X
Print Correction List Table (SMPLMU)	X	X
Assembler (ASM)	X	X
Usage is limited to system generation. (See 1.3.)		
Integrated Communications Access Method (ICAM)	X	X
Installation Verification Procedures (IVP)	X	X
Run Processor	X	X
Centralized File Management (CDM MIRAM)	X	X
SMP/SMC	X	X
Diskette Utility	X	X
Selector Copy (SU$JCL)	X	X
Disk Cache	N/A	X

3.2. PROGRAM PRODUCTS

Program Products (by type number) are SPERRY proprietary programs that are licensed to the customer for a separate charge.

Software	Models 3 - 6 Type Number	Model 8 Type Number
Extended System Software (ESS)	6211-99	6211-97
Data Utility	6211-00	6211-00
SORT	6212-00	6212-00
SORT3	6213-00	6213-00
Spool/JA/SYSLOG/JOBLOG	6216-00	6216-00
Screen Format Generator (SFG)	6214-00	6214-00
Dialog Spec Language (DSLT)	6215-00	6215-00
Screen Format Generator (SFG) (CDI)	6214-00	6214-00
Dialog Spec Language (DSLT) (CDI)	6215-00	6215-00
IMS-ST	6217-00	N/A
IMS-MT	6232-00	6232-00
DMS	6218-00	6218-00
RPG Group	6219-99	6219-98
RPG II	6219-00	6219-00
RPG EDIT (CDI)	6220-00	6220-00
RPG Auto Report (CDI)	6221-00	6221-00

Software	Models 3 - 6 Type Number	Model 8 Type Number
COBOL-74	6222-00	6222-00
COBOL 68-74 Transition	N/A	6222-97
COBOL 68 Extended (DTF)	N/A	6236-00
COBOL 74	N/A	6222-00
COBOL EDITOR	6222-01	6222-01
FORTRAN IV	6223-00	6223-00
BASIC (CDI)	6224-00	6224-00
ESCORT Programming Language (CDI)	6225-00	6225-00
EDITOR (EDT) (CDI)	6226-00	6226-00
ASSEMBLER (ASM)	6233-00	6233-00
SORT	6212-00	6212-00
SORT3	6213-00	6213-00
ICAM-TSF	6231-00	6231-00
ICAM IBM 3270 RTH	6247-00	6247-00
DATEX-L PDN Support	6248-00	6248-00
DATAPAC PDN	6248-03	6248-03
DDX-P PDN	6248-05	6248-05
Menu Generator	6254-00	6254-00
NTR	6230-00	6230-00
DDP Transfer Facility	6229-01	6229-01
DDP File ACCESS	6229-02	6229-02
IMS-DDP Transaction Processing	6229-03	6229-03
IBM 3270 Emulator	6247-01	6247-01
NORDIC PDN	6248-06	6248-06
DATEX-P PDN (UTS 4040)	6248-01	6248-01
PSS PDN (UTS 4040)	6248-07	6248-07
TRANSPAC PDN (UTS 4040)	6248-02	6248-02
Remote Terminal Processor (HASP)	6247-02	6247-02
UTS 400 Load/Dump Terminal Pkge	6228-00	6228-00
UTS 400 COBOL	6130-05	6130-05
UTS 400 EDIT Processor	6201-03	6201-03
UTS 4000 COBOL	6130-08	6130-08
DCA Termination Systems	6255-00	6255-00
MAPPER 80 Software	6752-00	6752-00
File Placement Analyzer	6759-00	6759-00

3.3. PROGRAMMING AIDS

Programming aids (PA) help the user debug the system for system errors, monitor the activity of the system, verify that all software is functional, and convert from one operating system to another.

These items are provided at no additional charge over equipment price.

Programming Aids	Models 3-6 Type Number	Model 8 Type Number
UTS 400 Software PL/M SMS 400 MAC 80 Utilities	N/A	X600-03
92/9300 Conversion Aids Unload Data Transcriber	N/A	X600-70
OS/4 Conversion Aids DCON 4 Disk Data Converter ASMTRN Assembly Transcriber JCON1 JCL Converter Copy 94 Librarian File Converter	X600-80	X600-80
360/20 Conversion Aids Unload Data Transcriber	N/A	X600-90
IBM System 3/32/34 Conversion Aids Copy S3 Source and PROC Transcriber	X600-60	X600-60
Disk CACHE	X460-00	(Included with SCS)
OLM Diagnostics	X600-10	X600-10
System Activity Monitor (SAM) (Note 1)	X600-20	X600-20
COBTRN303 (Note 2)	N/A	PA512-08

NOTES:

1. SAM is automatically sent (without a specific order request) whenever SCS is distributed.

2. The COBTRN 303 diskette is included with the COBOL 68-74 Transition group (type number 6222-97). Please refer to the current versions of the program product specification (PPS) (UP-9265.49) and the Series 90 to Model 8 Migration Guide (UP-9743) for futher information.

6. System Publication Updates

This section contains system publication update information for Release 8.2 UP- documentation that became available after the publication cutoff date. The affected UP- documents are listed in the order of their UP- numbers. The page, subsection, etc, where the change is to be made is listed along with the updated information.

The information in this section will be included in the next scheduled update of the UP- manuals.

- UP-8036 Data Base Management System (DMS) Data Manipulation Language User Guide/Programmer Reference

  - Subsection 3.5.3

    Change rule 3 to read as follows:

    > The area from which the record is deleted, as well as any areas that may potentially be updated by the deletion (based on schema path), must be open for an update usage mode before the DELETE statement can be executed.

  - Subsection 3.5.9

    Change the second bulleted item to read as follows:

    > Loads the requested subschema load module (if not not already loaded).

o UP-8067 Report Generator II (RPGII) User Guide

Subsection 13.12.1

Change the third paragraph to read as follows:

If the table is to apply to one or all files in your program, the format of the translation table record is:

Add the following to the entry for Position 1-8:

Enter the file name if the translation table applies to one file in your program.

o UP-8076 OS/3 System Messages Programmer/Operator Reference

Section 2. Alphabetically Prefixed Messages

Add the following messages:

FPA00 OS/3 FILE PLACEMENT ANALYZER 1.0 STARTED
Informational message, no action needed.

FPA01 ''command'' NOT A FIPLAN COMMAND
The listed command is not a valid input command. Correct the command and re-enter.

FPA02 ''parameter'' NOT A VALID COMMAND PARAMETER
The listed parameter is not valid for the current command. Correct the parameter and re-enter.

FPA03 SAM INPUT FILE OPEN ERR: 'code'
The specified input file could not be opened. Check your JCL for proper DVC-LFD sequence. 'code' to be supplied.

FPA04 SUBFILE# n OPENED - DATA FROM OS/3 - xx ON
Informational message denoting current opened subfile with creation date and time. See SRP08 of UP-8076.

FPA05 SUBFILE# n OPEN ERR: 'code'
See SRP07 of UP-8076.

FPA06 NO SUBFILE n EXISTS - ONLY m SUBFILES CREATED
The requsted subfile does not exist in the specified input file. Correct your inputs, JCL or subfile number and rerun.

FPA07 INVALID TIME RANGE FOR SUBFILE# n
Check the time limits of the subfile against the requested time interval.

FPA08 continued
See SRP02 message of UP-8076.

FPA09 SAM CLOSE ERROR: 'code'
To be supplied

FPA10 LOAD BALANCE PHASE STARTED
Informational message

FPA11 SEEK REDUCTION PHASE STARTED
Informational message

FPA12 SPACE LIMITED ON NEW VOLUME: new-vol-serial-number
FIPLAN will allocate files to a given volume until that volume is approximately 80 percent full. If a volume's allocation reaches this threshold, this message is generated.

FPA13 FIX PARAMETER FOR old-filename, old-vsn IGNORED
This message is generated if inconsistencies are detected in your input commands. For example, this message is displayed if you try to fix a file to a vsn it is not originally on, or if you try to fix files to an old vsn that is redefined in the new configuration as a device type without the capacity to accommodate all fixed files.

FPA14 MAP PARAMETER FOR old-filename, old-vsn IGNORED
The requested MAP specification could not be honored due to inconsistencies as with the FIX command.

FPA98 FIPLAN PROCESS ERROR: xy
This is a general error message where:

x
Is a unique module/phase identifier.

y
Is the error code.

x/y
Is to be supplied.

FPA99 FILE PLACEMENT ANALYSIS COMPLETED
Informational message

IS356 EITHER VOLUME OR DEVICE_CLASS MUST BE SPECIFIED
The parameters specified on the CREATE_FILE_DEFINITION or the ALTER_FILE_DEFINITION commands are not sufficient to correctly define the file. The volume must be specified on disk, diskette, and tape files. The device class must be specified on all but disk or diskette files. Reissue the command with the appropriate parameters.

Update the following messages to read:

MC#12 ____ IS AN RBP NETWORK. UP/DO OF LINE/TERM PROHIBITED
NNNN

The UP and DO commands may not be used to change the status of a line or terminal in an RBP network.

MC#16 NNNN CA CCPP LLLL TTTT LINE DOWN. NO HARDWARE STATUS

The designated line is down, but no hardware status is available. The handler will automatically attempt to take the line up (UP). If this problem recurs, the user should take an ICAM memory dump and report the error to his SPERRY representative.

MC#29

Replace the error code, explanation, and action descriptions with the following:

ERROR CODE	EXPLANATION	ACTION
channel err	IOMP hardware error	A
command reject program alert ram record err ram sequence err checksum err overall checksum err memory addr err bus-in check ram parity err bus-out check read mem seq err	SLCA hardware error	A
CPIOCP timeout CPIOCP format err	invalid device add	B
subsystem err	invalid SDF or, SLCA hardware error	C

Action A - Repeat LNEREQ. If error persists, contact your Sperry representative.
Action B - Verify proper SLCA ID in ICAM generation.
Action C - Verify proper SDF information. If SDF is correct, proceed as in action A.

Section 4. Symbolically Prefixed Messages

Add the message:

◹NAK-TERM BSY◹

The LOGON command is not accepted. This message is displayed when a user tries to log onto a terminal that is already logged on or to the system console in console mode. (Note that logging onto the console in workstation mode is still permitted.)

Section 5. Unprefixed Messages

Add the message:

WKSTN ERROR DEV={CCCC-TTTT / LLL} UNAVAIL.UID={user-id / REMOTE / TERM / LOGOFF} SENSE=SBSBSBSB

This message may be displayed on the system console when a workstation error occurs, where:

CCCC
Is the Communications Control Area name (CCA) in the ICAM generation.

TTTT
Is the terminal name in the ICAM generation.

LLL
Is the local workstation device address.

user-id
Is the LOGON identification.

REMOTE
Specifies the device is generated as a remote workstation (no active user logged on).

TERM
Specifies the device is generated as a terminal (no active user logged on).

LOGOFF
Specifies the local workstation and no one is logged on.

SBSBSBSB
Specifies sense byte information. Pattern of '40400000' is expected when line is set down.

Appendix D. HPR Stop Codes

Add the HPR code and meaning to the Initial Program Load (IPL) Routine section:

HPR Code	Meaning
99CC00FF	The system encountered a problem while attempting to read from the SVP diskette.
H/S	Verify that the L-mux is on line, and retry the IPL. (System 80 Model 8 only)

- UP-8364 Information Management System (IMS) System Support Functions User Guide

  Subsection 4.3.3.6

  Add the following after the third paragraph:

  When the INTLIST access number is reached and another action is waiting to access the same defined file, LIST processing is interrupted and the accumulated results are output to the terminal. The terminal operator can cancel the current transaction or enter some other command. To continue LIST generation, the terminal operator transmits the MORE LIST command. The terminal operator can repeat this process until conditional LIST requirements are satisfied or until a new transaction is entered.

  If no other ACTION is attempting to the same defined field when the INTLIST access number is reached, the LIST continues to process without any outward indication that the internal check is occurring. The number of accesses is checked repeatedly for the length of the file.

- UP-8550 Integrated Communications Access Method (ICAM) Standard MCP Interface (STDMCP) User Guide

  Table 2-1. Output Delivery Notice Status Codes

  Add note 1 to device status 2, note 2 to device status 3, and note 3 to device status 4:

  NOTE 1:

  An out-of-paper condition on an Aux device will be reported as a status 3 on a UTS 20 or UTS 40.

NOTE 2:

Status 3 will also be reported for Aux devices on a UTS 20 or UTS 40 if the lid of a printer is raised or a printer is powered off during a print operation.

NOTE 3:

Status 4 is also reported for Aux devices on a UTS 20 or UTS 40 when a printer is offline or end of tape occurs on a TCS.

o UP-8811 Distributed Data Processing Concepts and Facilities

Subsection 8.5.1.1. DDP STATUS Command Information Summary

Add the following:

The DDP STATUS HOST=hhhh command displays the following information:

1. SYS-SIZE = _____ FREE-MEM= _____ LARGEST= _____

   displays the current size of installed memory, the amount of free memory, and the size of the largest free region.

2. INTERACTIVE= ____ ENTER= ____ BACKGROUND= ____ BATCH-JOBS= ____

   displays the number of current interactive tasks, enter tasks, background tasks, and the number of active batch jobs.

3. CURRENT INTERACTIVE USERS:

4. dddd-uuuuuu.dddd-uuuuuu dddd-uuuuuu

   displays the device-id and user-id for every interactive user currently logged onto the system.

5. CURRENT ACTIVE BATCH JOBS:

6. jjjjjjjj jjjjjjjj jjjjjjjj

   displays the names of all currently active batch jobs.

7. REMOTE DDP SESSION ACTIVITY:

8. REMOTE HOST= ___ INPUT SESSIONS = ___ OUTPUT SESSIONS= ___

   displays the name of each remote host connected to the host for which status is being returned, as well as the number of input sessions to that host and the number of ouput sessions from that host.

In addition, if no interactive users are logged on, messages 3 and 4 are replaced by the following message:

NO INTERACTIVE USERS CURRENTLY LOGGED-ON

If there are no batch jobs currently active, message 5 and 6 are replaced by the following message:

NO BATCH JOBS CURRENTLY ACTIVE

If there is no DDP session activity, message 8 is replaced by:

NO DDP SESSIONS ACTIVE AT THIS TIME

- UP-8831 Supervisor Concepts and Facilities

  Subsection 4.2.6. Job Management Parameters

  Add the keyword parameter:

  JOBACCTREQ Keyword Parameter:

  JOBACCTREQ={NO / YES}

  Specifies whether a user must have an account number to log onto the system. If you specify YES, all users must enter an account number when they log on. To use this feature, you must also configure logon security by specifying ISLOGONSC = YES. However, you can configure logon security without specifying the JOBACCTREQ feature.

- UP-8834 Data Utilities User Guide

  Add the following note to steps 12 and 13 on page 3-8:

  NOTE:

  The default values for this parameter are not the same as for the DATA routine in batch mode. In batch mode, this parameter defaults to the values of the input file; in interactive mode, the default values are as shown.

- UP-8839 System Installation User Guide/Programmer Reference

  Subsection 1.5. How Do You Order OS/3?

  In the table under Media Type:

  Change FORMAT to DATA SET

  In the table under Models 3, 4, 5, and 6, add:

  NOTE:

  For 8470 dump/restore format tape users (Models 4 and 6 only), Release 8.2 must already be installed.

Insert in subsection 2.2.1.1 in 8.e between steps 1 and 2:

When SU@PRP requests WHAT DISK VOL SERIAL NUMBER DO YOU WANT? (xxxxxx), key in the six-character alphanumeric name you want written in the volume label on your disk and press the XMIT key.

Subsection 2.2.2.1. Installing Standard Release Software From Diskettes to the Model 8:

In step 7, change SUP@PRP to SU@PRP.

Insert in 8 between steps a and b:

When SU@PRP requests WHAT DISK VOL SERIAL NUMBER DO YOU WANT? (xxxxxx), key in the six-character alphanumeric name you want written in the volume label on your disk and press the XMIT key.

Subsection 2.3.1. Updating the System Definition File:

Change YSDK to YSDF

Change XSIU to XSDU

Subsection 2.3.3. Creating an IMPL Diskette:

Remove RV IMPLDSKT

Add the following format and description:

For Models 3-6:

RV IMPLDSKT,,IM=[CPU / DBUS / IOMP / IDC / IDCU],V=[IMDSKT / vol-serial-no.]

where:

IM=CPU
Is the default; the CPU microcode is written.

=DBUS
IOMP
IDC
IDCU
Specifies the type of microcode (DBUS, IOMP, IDC, of IDCU) to be written.

V=IMDSKT
Is the default; the IMDSKT vsn is written to the diskette in the VOL1 label.

=vol-serial-no.
Specifies a volume serial number to be written to the diskette in the VOL1 label.

For Model 8:

RV IMPLDSKT,,.IM=IDCU.,CU=aaa,V={ID7ODP / ID16DP}

where:

IM=IDCU
Is the default; the IDCU microcode is written to the diskette.

CU=aaa
Is the control unit address for the IDCU disk. Specify the base address; for example, use 290 not 293. This parameter is required; if not specified, the diskette prep terminates with errors.

V=ID7ODP
Specifies the vsn of the 8470 IDCU disk is written to the diskette in the VOL1 label.

=ID16DP
Specifies the vsn of the 8416/8418 IDCU disk is written to the diskette in the VOL1 label.

The V= parameter must be specified for later use with online diagnostic routines.

Subsection 3.3.6.1. Using a Removable Disk For Your Backup SYSRES

In step 7, add to NOTE;

For Model 3-6 users only

Subsection 3.3.6.2.1. Building Your Backup SYSRES

Add the NOTE:

Model 3-6 users:
If you build your SYSRES on an 8470 disk, you cannot use diskettes as backup media.

Model 8 users:
You can use diskettes as backup media only if you use an 8470 disk as the SYSRES.

Subsection 4.5. Running the SMC Installation Program

Add the following to the NOTE in step 4 part d:

When you enter SMC numbers, you must separate each number with either a space or a comma.

Appendix B. SYSGEN Keyword Parameters

- Page 6-2

  Change the default value of the TRANS parameter to 4.

- Page B-4

  Delete the following parameters and their descriptions:

  SYMBMEM
  INTMEM
  JOBMEM
  MAXJOBS
  MAXWSJOBS

- Page B-5

  Delete the MAXRUNSYMBS parameter and description.

- Page B-8

  Delete the OS/3I parameter and description.

- Page B-16

  Delete the following parameters and their descriptions:

  DDPMAXUSERS
  DDPMAXHOSTS
  IPCBUFSZ
  IPCTIMEOUT
  IPCMAXSESS

- Page B-17

  Delete the following parameters and their descriptions:

  SUPVPROTECT
  PASSWORD
  SECLOG
  SECURITY

- Page B-18

  Delete the TERMWAIT parameter and description.

- Page B-20

  Change the default value of the RESMOD parameter to SM$LOD.

- Page B-29

  Delete the DESPACE parameter and description.

  Change the SCRENMEM parameter format to read as follows:

  [SCRENMEM={1 | 2}]

- Page B-39

  Delete the DESPACE parameter and description under REMWORKSTATION.

- Page B-40

  Change the SCRENMEM parameter format to read as follows:

  [SCRENMEM={1 / 2}]

o UP-8841 System Service Programs User Guide
  UP-8842 System Service Programs Programmer Reference

  Insert this note under the FIL statement description of both the SAT and MIRAM libraries:

  > You cannot assign two or more logical file designators to unique LFD names that define the same file.

Section 9. DSKPRP Routine

Add this chart showing estimates of expected disk prep time for System 80 devices:

System Model	Prep Type	Time hh:mm:ss	Device Type 8416	8417	8418	8419	8430	8433	8470
S/80 3-6	Format Only	Wall	**	–	**	00:34:53	**	**	–
		CPU		–		00:08:44			–
	Fast Analysis	Wall	**	00:11:03	**	00:04:13	**	**	–
		CPU		00:00:53		00:00:38			–
	Complete Prep	Wall	**	00:34:49	**	00:30:41	**	**	–
		CPU		00:11:29		00:08:05			–
S/80 Mod 8	Format Only	Wall	–	–	–	–	–	*	00:11:14
		CPU	–	–	–	–	–	*	00:01:28
	Fast Analysis	Wall	00:01:13	–	00:02:30	–	–	00:21:48	00:05:43
		CPU	00:00:10	–	00:00:12	–	–	00:02:51	00:02:05
	Complete Prep	Wall	00:18:42	–	00:32:56	–	–	00:47:38	03:04:04
		CPU	00:01:20	–	00:02:49	–	–	00:09:02	00:24:19

* Program structure does not allow separation of formatting from analysis

** Configuration not applicable to this model

Use the disk prep times listed above for estimating purposes.

Add these guidelines to the description of the SU$CPY diskette copy routine:

- The input and output diskettes must contain similar labels. They must be either data set labels or format labels; they cannot be mixed.
- For format label diskettes, the VTOC must be located on the same cylinder and track on both the input and output diskettes.

Appendix B. Code Set Components

- Table B-4

Change Table B-4 as follows:

Byte Position	Field	Contents	
2,3	Unused	00_{16}	
4	Flag	Bit 0	Set to indicate module has been corrected
		Bit 1	Reserved
		Bit 2	Module is deleted.

- Table B-7

Change Table B-7 as follows:

Byte Position	Field	Contents	
4	Flag	Bit 0	Set to indicate that the module has been patched
		Bit 1	Reserved
		Bit 2	Module is deleted.
		Bit 3-6	Not used
		Bit 7	Set to indicate that the module is reentrant

- Table B-17

Change Table B-17 as follows:

Byte Position	Field	Contents	
3,4	Flag	Byte 4	
		Bit 0	Set to indicate that the module has been patched
		Bit 1	Reserved
		Bit 2	Module is deleted.
		Bits 3-7	Not used

- Table B-23

Change Table B-23 as follows:

Byte Position	Field	Contents	
3,4	Flag	Byte 3	
		Bit 0	Set in root phase header to indicate clear module partition as defined in bytes 27-30
		Bit 1	Set to indicate that the load module calls reentrant code
		Bit 2	Set to identify the load module as reentrant
		Bit 3	Set to identify the load module as base 0 shared code
		Bit 4	Set to identify the load module as key 0 shared code
		Bits 5-7	Reserved

Byte 4

Bit 0	Set to indicate that module has been patched
Bit 1	Reserved
Bit 2	Module is deleted.
Bits 3-7	Not used

- UP-8859 Operations Handbook

  In subsection 4.2.6.4, change Integrate to Integrated.

  In subsection 4.4.2, change example 3.

  from: DVC UP AVL SHR USERS

  to: DVC UP AVL SHR JOB#

  In subsection 6.3.2, SY$STD description:

  Change YSTD to SY$STD.

  In subsection 8.5.7.4, paragraph three:

  Change update to updated.

- UP-9209 IMS Data Definition and UNIQUE User Guide

  Subsection 3.21

  Change the first bulleted item in the data-name-1 description to read as follows:

  - A record described with the FROM or FROM CONTROL BREAK format of the FROM clause, data-name-1 must be part of that record's primary key only.

  Add the following note to subsection 7.8 after the Embedded NEXT command subject:

  NOTE:

  Do not attempt to update a common storage area file via UNIQUE. UNIQUE can access a common storage area file through defined record management, but only through a supplement definition. You must not specify ASSUMES CONTROLLED ROLE IN UPDATE in the supplement definition.

- UP-9317 Menu Services Concepts and Facilities

  Subsection 2.4

  Change the DISPLAY menu function command description to:

  This command displays the screen format, specified by format-name, purely for informational purposes. This screen may or may not have input fields. Screens that contain output or bidirectional fields cause an error and are not displayed.

- UP-9734 MAPPER 80 Run Functions User Guide

  Subsections 5.1.6 and 5.1.18

  Add the following:

  > Be careful when using leading or embedded blanks in your target string. The space character is the default transparent character; therefore, it will match anything and can produce unwanted results. If your target string must include spaces, use the T option to assign the transparent character to some other character value.

  Subsection 5.1.35

  Add the following:

  > The fields in the user-defined screens may be any of the basic character types (A, 9, X). However, the editing characters (such as sign, comma, and period in a numeric field) are not supported.

- UP-9735 MAPPER 80 Manual Functions User Guide

  Subsection 6.2.1

  The serial number in the first line of the report should be 436767 (the report should be shown before the change).

  Figure 7-1 (screen 5430)

  Change the allowable types to A-I and the number of lines to 1-999.

  Subsection 7.5.5.4

  The keyin to display the search function mask should be S B (space between the S and B).

  Page 7-40

  In the second to last sentence, change receiving report to result.

  Subsection 7.7

  Add the following:

  > Be careful when using leading or embedded blanks in your target string. The space character is the default transparent character; therefore, it will match anything and can produce unwanted results. If your target string must include spaces, use the T option to assign the transparent character to some other character value.

Page 8-10

The minus sign in parentheses in the third to last line should be a plus sign (+).

Page 8-17

In the sentence before the example, change thousandth to thousand and transpose the 24 and 24000.

Page A-4

The first N option should be specified for the search and search update functions only, and the second N option should be specified for the match/match update function only.

- UP-9736 MAPPER 80 Forms Generation and Utilities User Guide

  In Section 6, MAPDMS utility description, delete the word data-field and replace it with data-area on the following pages:

  Page 6-12, lines 2, 11, and 15
  Page 6-14, line 9
  Page 6-15, line 7

Figure 6-2, MAPDMS example

Change the LINE-LENGTH in the DATA-AREA from COMP-3(packed) to COMP(binary). Be sure to specify LINE-LENGTH correctly and set it to the proper value before making a MAPDMS call. MAPDMS does not check that your value falls within reasonable limits and an incorrect specification can cause unpredicatable results.

Subsection 3.2.4

Replace the explanation of the MAPLOD password as follows:

> Specifies a password. If the mode you are accessing is the default mode for the user-id, the password is not used. Otherwise, if the mode has a password, the correct password must be specified.

Subsection 3.4.4

The examples of MAPLOD job streams should specify a job memory size of 18,000 (hexadecimal). Whenever you use own code with MAPLOD, you must specify the memory size. The exact size needed is the sum of MAPLOD plus your linked own code size.

o UP-9737 MAPPER 80 Operator and Coordinator User Guide

Subsection 2.1

This paragraph should also describe the control parameters and memory requirements for the DBMS (MAPPERDB) job. The number of DBMS run units should be set to the highest number of DMS batch application programs running concurrently against the DBMS. The MAPPER 80 utilities run as DMS batch applications. The number of IMS threads should be set to the total number of MAPPER 80 workstations and auxiliary printers. If there are to be multiple MAPPER 80 jobs running (each MAPPER 80 job can support up to eight workstations and eight auxiliary printers), the number of IMS threads is the sum of all of them. The number of IMS terminals should be set to the same number as the IMS threads.

For sizing purposes, each additional DBMS run unit specified adds 492 bytes to the DBMS job requirement, while each IMS thread adds 3564 bytes and each IMS terminal adds 92 bytes.

The DBMS job also must allow space for a subschema module for each batch application run unit and for each IMS thread. The three MAPPER 80 subschemas are:

Subschema	Size	Use
DLDSCH	1044 bytes	MAPDMY utility
UTLSCH	2772 bytes	Other MAPPER 80 utilities
MPDSCH	8028 bytes	Main MAPPER 80 (interactive) job

A separate copy of the MPDSCH subschema is required for each MAPPER 80 workstation and auxiliary printer. The memory allocation map printed by the DBMS job shows the total memory space allocated for subschemas. The DBMS determines this size by assigning all the leftover space in its job region to the subschema pool. You adjust the size of this pool by increasing or decreasing the memory size specified for the DBMS job. The correct size for the pool is determined from the size and number of the subschemas discussed above.

In summary, for each MAPPER 80 workstation and auxiliary printer, you need

3564 + 92 + 8028 = 11,684 bytes

added to the DBMS (MAPPERDB) job size.

Subsection 2.1.1

Change the maximum number of auxiliary printers from nine to eight.

Subsection 2.2.1. Unsolicited Operator Commands

Change the command format as follows:

The format for MAPPER 80 unsolicited operator commands is changed from

NO command

to

UNS jobname command

Example:

The unsolicited command

UNS MAPPER SHUTDOWN

shuts the MAPPER 80 job down.

Subsection 2.3

Add the message MPDINT. The MPDINT message may be output from the MAPPER 80 utilities. The status codes displayed with the message are for internal use and are not meaningful to the MAPPER 80 user. When a MAPPER 80 job terminates with the MPDINT error message, check one of the following three areas:

1. The number of IMS threads specified in the DBMS job is too small.

2. Not enough data base pages have been allocated to the WRK-CNT-AREA of the data base.

3. A DBMS QWNN message has been printed in the DBMS job log. Look up this message in the OS/3 system messages manual, UP-8076 (current version).

Section 3

In the first note, delete the words ''and training modes''.

Table 3-1

In item 2, delete the nine spaces following the ALL. In item 12, delete the 12 spaces and the word ALL; specifying A in the first column of the field enables access to all modes.

Subsections 4.2.5 and 4.2.6 should be transposed. MAPGEN should be run at the end of the installation sequence after MAPRES.

Subsection 4.3.3

Add the following to Sizing Considerations:

> When an auxiliary operation is finished using a result report, the result is copied into a temporary RID in mode 996. These RIDs are queued to the specified auxiliary printer. The formula given for the CAB-IMG-AREA does not allow for these auxiliary queues, so you may need to increase the size of this area. The auxiliary queued reports take up the same amount of space as a regular report (for the time they are queued).

Subsections 4.3.8 and 4.3.9 should be transposed.

Figure 4-10

Add the following note to Figure 4-10:

> NOTE:
>
> The name specified in the LOADM statement must be MPDB.

Subsection 5.3

Add the following:

> DMS offline recovery must not be used if the data base is restored using MAPRES. The procedure describing DBREC is consistent only with the DBDUM and DMRST backup methods.
>
> DBINT and MAPDMY must be run for the work/result areas of the data base whenever the MAPPER job terminates in any way other than normal shutdown. This includes a job cancellation by the operator.

Subsection 5.3.1

Under Control Statement #MODE add:

> #MODE xxx(yyy)
> Restores the contents of a mode to a different mode number than the one from which it was originally dumped.

Add the following example to the list of examples:

#MODE 102(500)	Restores the contents of the original mode 102 to mode 500.

o UP-9743 Series 90 to Model 8 Migration Guide

Subsection 1.3. Model 8 Environment

Add to the list of access methods:

NI (nonindexed sequential access method)

Subsection 1.4. Migration Paths

Add this information:

To copy the system catalog file (YCAT) from your previous release SYSRES to your Release 8.2 SYSRES:

- IPL the R8.2 SYSRES
- Run the JC$CAT canned job stream that performs the copy operation.

Add the following performance guidelines:

Conversion of DTF based applications to a CDM-MIRAM environment requires a complete analysis of file characteristics to ensure that the transition does not impact performance.

When files are converted from a DTF access method to CDM-MIRAM, modifications to I/O buffer size may be required to retain equivalent performance. Performance is directly related to the way MIRAM and DTF access methods map their data records across the disk surface, and specifically to the number of data records transmitted to and from the disk on each access.

DTF access methods (such as SAM) use a record-size/blocksize relationship to control the unit of data transmitted to and from the disk. Each block in the file is the same length, and for fixed-length records, each block will contain the same number of records.

MIRAM files are created as a contiguous string of data bytes across the disk surface. Data records are transmitted to and from the device in terms of the buffer size within the application program. A minimum buffer size is based on record size, and the buffer may be increased in increments of 256 bytes (disk sector size). Altering the buffer size will also alter the number of data records accessed on each I/O to the device.

When converting a DTF file to MIRAM, a direct translation of DTF block size to MIRAM buffer size may result in decreased performance and may require that the buffer size be increased.

Both the basic and consolidated data management user guides contain the formulas to calculate minimum buffer size based on a given record size. Once the minimum buffer size has been calculated, these guidelines should be applied:

1. If the record size is an even multiple of 256 or divides evenly into 256, then the DTF block size (rounded up to a multiple of 256) may be used for MIRAM buffer size.

2. If the record size is not a multiple of 256 and does not divide evenly into 256, then the formula listed below should be used to approximate the buffer size required to maintain performance when using MIRAM.

   BFSZ= BKSZ + RCSZ - 1 (rounded up to a multiple of 256)

   where:

   BFSZ
   Is the I/O buffer size to be used for MIRAM.

   BKSZ
   Is the DTF file block size.

   RCSZ
   Is the DTF file record size.

The following chart lists several examples of record sizes, block sizes, and buffer sizes calculated with these formulas. The suggested buffer size column defines the MIRAM buffer required to process the same number of logical records for each access to the device.

DTF to CDM-MIRAM Buffer Size Conversion Comparison

DTF File Characteristics			Records per I/O	MIRAM File Characteristics	
RCSZ	BKSZ	SECTORS (256)		MIN. BFSZ	SUGGESTED BFSZ
64	256	1	4	256	256
101	505	2	5	512	768
150	300	2	2	512	512
200	600	3	3	512	1024
255	765	3	3	512	1024
260	1560	7	6	768	2048
300	3000	12	10	768	3328
1150	2300	9	2	1536	3584
2100	8400	33	4	2560	10752

Subsection 2.6. Disk File Sharing

Add to the FILELOCK=YES description:

This value is supported only in a BDM environment.

Add this value to step 2.a after the statement DD ACCESS=:

SRDO

Add to the ACCESS=SADD and ACCESS=UCP descriptions:

This value is not supported by BDM.

Subsection 3.6. RPG II

In paragraph two, change executes to compiles.

o UP-9975 Spooling and Job Accounting Concepts and Facilities

Add the Output Writer enhancement and related operator command:

By using a new Output Writer command, the operator can skip forward or back up a specified number of lines of a log file that is being printed.

The format of this command is:

$$\begin{Bmatrix} SK \\ RE \end{Bmatrix} \begin{Bmatrix} ,nnn \\ ,LI,nnn \end{Bmatrix}$$

where:

,nnn
Specifies that the Output Writer should skip or restart nnn lines from the current position.

,LI,nnn
Specifies the Output Writer should skip to or restart at the line number indicated by nnn.

o UP-9977 Screen Format Services Concepts and Facilities

Subsection A.1. The USE SFS Statement

Remove this paragraph:

If your program interfaces with both the Menu Processor and Screen Format Services you need only supply the // USE statement specifying the MENU option. Refer to menu services concepts and facilities, UP-9317 (current version). The SFS option for the // USE statement is not necessary for the dual interface, provided you perform screen selection within the program.

Add:

Menus and screens may not be used together except when the screens are processed directly by the menu processor (i.e., via the SCREEN and DISPLAY menu function commands).

Add the following new subsection:

A.3. Spooling Screen Formats in a Batch Environment

The following job stream spools screen formats in a batch environment:

```
{RU}BFGSPL,[,SAVE={Y}][,FI={input-file-name}]
{RV}          {N}     {$Y$FMT}

[,VI={vsn}][,FMT={XXXXXXXX}]
      {RES}      {XXXXXXX }
                 {*       }
```

where:

SAVE=Y
: Saves the RUN environment exactly as built for this execution by job control. At a later time this environment may be activated by the schedule (SC) command. The advantage of SC over RUN (RV) is that less processing time is required.

=N
: Is the default; nothing is saved.

FI=input-file-name
: Is the name of the user input file.

=YFMT
: Is the default file.

VI=vsn
: Is the vsn of the user input file.

=RES
: Is the default vsn.

FMT=XXXXXXXX
: Spools only a specific screen format, where XXXXXXXX is the format name.

=XXXXXXX
: Spools formats by prefix, where XXXXXXX is the desired prefix.

=*
: Is the default; spools all formats in the library.

Examples:

1. RV BFGSPL,,FI=MYFILE,VI=D01234

   Spools all formats that reside in a file named MYFILE located on volume D01234.

2. RV BFGSPL,,FI=MYFILE,FMT=PAY.

   Spools all formats that have a name beginning with ``PAY'' which reside in a file named MYFILE located on RES.

o UP-9978 Consolidated Data Management Concepts and Facilities

Replace the 8470 disk subsystem characteristics in Table A-4 with the following:

Characteristics	8470 Disk Subsystem
Data capacity (8-bit bytes)	491 million
Number of disk units	1 to 8
Disk/diskette speed (rpm)	3600
Rotation period (ms/rotation)	16.7
Data bit rate (MHz)	16.8 x 106
Bit density (ppi)	11,134
Track density (tracks/inch)	630
Track capacity (bytes/track)	24,576
Number of tracks	1250 + 10 spares
Number of surfaces per disk unit	16
Positioning time (seek time)	
Minimum (ms)	4
Average (ms)	23
Maximum (ms)	46
Transfer rate (kilobytes/second)	2097

- UP-9979 Consolidated Data Management Macroinstructions User Guide/ Programmer Reference

  Paragraph 2.3.1.

  Delete the following under the description of the keyword parameter WORK:

  > The work area and the I/O area can be the same buffer if all of the following conditions are met:
  >
  > - you are performing unkeyed operations only;
  > - RCB=NO; and
  > - the record size = the buffer size.

o UP-9986 Job Control User Guide

Section 6

Change the description for the DATE parameter to read:

The DATE and PRE parameters are only used for disk files. When you use the DATE parameter, all files on the disk column that have an expiration date earlier than the current system date are scratched. If you want to use a date other than the current system date, include the yyddd parameter as part of your specification (where yy is the year and ddd is the day - leading zeros must be specified). When you specify a date, all the files on the disk volume dated earlier than the date specified are scratched.

Change the description for the second SCR example to read:

.....DSP028 that have an expiration date earlier than the second day of the year 76.....

Replace the 8470 disk subsystem characteristics in Table B-2 with the following:

Characteristics	8470 Disk Subsystem
Data capacity (8-bit bytes)	491 million
Number of disk units	1 to 8
Disk/diskette speed (rpm)	3600
Rotation period (ms/rotation)	16.7
Data bit rate (MHz)	16.8 X 10^6
Bit density (ppi)	11,134
Track density (tracks/inch)	630
Track capacity (bytes/track)	24,576
Number of tracks	1250 + 10 spares
Number of surfaces per disk unit	16
Positioning time (seek time)	
Minimum (ms)	4
Average (ms)	23
Maximum (ms)	46
Transfer rate (kilobytes/second)	2097

o UP-10003 Installation Verification Procedures User Guide/Programmer Reference

Add the following procedure:

X. IVPMAP: MAPPER 80

This IVP verifies the availability of the MAPPER 80 modules.

X.1. EXECUTION REQUIREMENTS

o Run Time: 20 minutes

o Hardware: Any System 80 environment

o Software:

Subsection 4.3.3

Add the following to Sizing Considerations:

When an auxiliary operation is finished using a result report, the result is copied into a temporary RID in mode 996. These RIDs are queued to the specified auxiliary printer. The formula given for the CAB-IMG-AREA does not allow for these auxiliary queues, so you may need to increase the size of this area. The auxiliary queued reports take up the same amount of space as a regular report (for the time they are queued).

Subsections 4.3.8 and 4.3.9 should be transposed.

Add the following note to Figure 4-10:

NOTE:

The name specified in the LOADM statement must be MPDB.

Subsection 5.3.1

Under Control Statement #MODE add the following:

#MODE xxx(yyy)
Restores the contents of a mode to a different mode number than the one from which it was originally dumped.

Add the following example to the list of examples:

#MODE 102(500) Restores the contents of the original mode 102 to mode 500.

The following software is required to run this IVP:

- OS/3 system software (release 8.1)

- DMS (SE E8L version)

- MAPPER 80

X.2. OPERATING INSTRUCTIONS

Enter at the system console:

```
RV IVPMAP:IVPLIB          (transmit)
```

A series of messages appear at the console and verify that IVP is running:

```
*     BEGIN MAPPER 80 MODULE CHECK *
***   PHASE 1:  LOAD MODULES CHECK ***
***   PHASE 2:  OBJECT MODULES CHECK ***
***   PHASE 3:  SOURCE MODULES CHECK ***
***   PHASE 4:  SCREEN MODULES CHECK ***
***   PHASE 5:  SHARED CODE MODULES CHECK ***
***   PHASE 6:  JOB CONTROL MODULES CHECK ***
***   PHASE 7:  DMS MODULES CHECK ***
```

When the following message appears, IVPMAP has terminated normally with no errors:

```
***   IVPMAP TERMINATED NORMALLY! ***
***   ALL MODULES FOUND! ***
```

If IVP terminates abnormally, the following message will appear among the preceding messages:

```
***   TOTAL LIBS ERRORS 0OON UPSI SETTING X'40' ***
```

When IVP terminates abnormally, the following messages appear:

```
***   IVPMAP TERMINATED ABNORMALLY ***
***   REQUIRED MODULES NOT FOUND! ***
***   SEE LISTINGS FOR MISSING MODULES ***
```

Read through the IVPMAP listing to identify the missing modules.

Subsection 1.1

Change the first two paragraphs to:

> Each IVP has two phases. Phase 1 first conveys the configuration of your system to the procedure. If you change your supervisor or system configuration (i.e., availability of configured devices) in any way between the procedures or between the steps in a procedure, you may receive the message:
>
> I@03 CURRENT VALUES REDEFINED. PLEASE RE-ENTER RUN COMMAND.
>
> This is a normal part of the procedure and simply requires you to enter again the run command that you last issued. (See A.1.2.)

Section 48

Change paragraph one:

```
from:  ...(IVPSAMFILE)...
to:    ...(IVDSAMFILE)
```

Delete the dialog:

```
(OUT)
===BEGIN SAM DIALOG===
```

Change the dialogs:

```
from:  (IN)
       SAM I=S30,1,O=D,did,IVDSAMFILE,GO

to:    (IN)
       SAM I=S30,1,O=D,did,IVDSAMFILE,GO

from:  (OUT)
       SAM00 LOADED
       SAM 12 SFL#1 OPENED
       SAM01 ACTIVE (1)

to:    (OUT)
       SAM00 LOADED
       SAM 10 SFL#1 OPENED
       SAM01 ACTIVE (1)

from:  (IN)
       ij IVPSAM

to:    (IN)
       ij
```

Change the NOTE:

```
from:  The SAM report appears here...(SAMI=S30,1,...).

to:    The SAM report appears here...(SAM I=S30.1,...).
```

Change the dialog:

```
from:  (IN)
       ij IVPSAM

to:    (IN)
       ij
```

Subsection A.1.2

Change the first paragraph to:

I@03 CURRENT VALUES REDEFINED. PLEASE RE-ENTER RUN COMMAND

You have changed your supervisor or system configuration (i.e., availability of configured devices) in some way since the last time you ran an IVP or an IVP step. The IVP has detected this problem and is now reset to the proper configuration. However, it cannot continue until you enter the run command again.

Appendix A. Macro/Module Description Listing

A canned jobstream, MODLST, is available on the release disk to provide the OS/3 macro/module listing. This job stream provides an alphanumerically ordered listing of the contents of each of the 11 system libraries, including the description and size of each module. The job may be executed by entering the following system command:

```
RU MODLST[,,VSN=xxxxxx]
```

where:

xxxxxx
Is the VSN of an optional work disk. If this parameter is omitted, the work space for the job is allocated on the disk containing the RUN library. Disk work-space requirements for MODLST are as follows:

8416/8418 (Model 8)	30 cylinders
8430 (Model 8)	10 cylinders
8433 (Model 8)	10 cylinders
8417 (Models 4 and 6)	15 cylinders
8419 (Models 4 and 6)	30 cylinders
8470 (Models 4, 6, and 8)	4 cylinders

The job stream executes in three steps as follows:

1. Program DMENVR is used to determine if CDI data management is available and sets on UPSI bit accordingly. Otherwise, DTF data management versions are used.

2. Either MODXTR (DTF mode) or CMDSTR (CDI mode) is used to extract data from each module in the system libraries to an output file for step 3.

3. The output file from step 2 is submitted as input to the MODLST (DTF mode) or CMDLST (CDI mode) program, which sorts the input and then produces the macro/module listing.

Appendix B. SFCNVR Conversion Utility

B.1. DESCRIPTION AND USE

The Screen Format Conversion Utility (SFCNVR) is a batch-oriented program that converts all Release 7 Formats (type F records) in a library to a form required by the Release 8 Screen Format Coordinator. Screen Format Generator clump records (type FC records) do not require conversion and are automatically excluded from the conversion process. (FC default).

SFCNVR provides a means of modifying a complete format library without any need to know which formats reside in a library. If the user directs the output of the conversion to be rewritten to the input file, a MIRAM Librarian job should be executed to realign the library to reclaim space from deleted records. If the user directs the output of the conversion program to be written to a new file, the FC elements should be copied to this new file (FC=Y).

The conversion program is initiated with parameters entered interactively or through a statement, using keywords to provide the parameters.

After each format is converted, a message is written to the job log indicating the format name, number of sectors that the format previously occupied, and the number of sectors that the converted format occupies. The amount of space required for the converted format is generally smaller than the Release 7 format.

B.2. KEYWORD PARAMETER METHOD

The following command invokes the Screen Format Conversion Utility, accepting defaults for all the parameters:

```
RUN SFCVR
```

The defaults are:

Old formats are located in YFMT.

New formats are located in YFMT.

YFMT is on SYSRES.

The complete syntax for the RUN SFCVR statement is:

```
RUN SFCVR  ⎧ ⎡,VO=⎧RES        ⎫⎤ ⎡,VI=⎧RES        ⎫⎤ ⎫
   or      ⎪ ⎢    ⎨vol-ser-no ⎬⎥ ⎢    ⎨vol-ser-no ⎬⎥ ⎪
RV SFCVR   ⎪ ⎣    ⎩X          ⎭⎦ ⎣    ⎩X          ⎭⎦ ⎬
           ⎪ ⎡,V=⎧RES        ⎫⎤                      ⎪
           ⎪ ⎢   ⎨vol=ser-no ⎬⎥                      ⎪
           ⎩ ⎣   ⎩X          ⎭⎦                      ⎭

           ⎧[,FO=filename] [,FI=filename] ⎡,A=⎧Y        ⎫⎤⎫ ⎡FC=⎧N⎫⎤
           ⎨                              ⎢   ⎨N        ⎬⎥⎬ ⎣   ⎩Y⎭⎦
           ⎪                              ⎣   ⎩# of cyl ⎭⎦⎪
           ⎩[,F=filename]                                 ⎭
```

Parameters that can be supplied are:

filename
File names for the old and new format names.

VSN
Volume serial numbers for the old and new file names.

Allocation information (if the output file is new):

V=
Volume to be used for input and output libraries. V=RES is default unless VO or VI is specified.

VO=
Volume to be used for output library when not the same as input. V must not be specified. VO=RES is default.

VI=
Volume to be used for input library when not the same as output. V must not be specified. VI=RES is default.

NOTE:

When V is specified, VO and VI are ignored.

If V, VO, or VI is specified as X (e.g., VO=X), the following JCL is generated:

```
// DVC 50  // VOL   X(NOV)
```

This enables specification of one alternate SYSRES volume.

NOTE:

Normally, input and output libraries should be the same, unless a user format file is specified. In this case, the user may choose to separate old formats from new by using VO and VI and/or FO and FI.

File specification uses the following keywords:

F=
The file name to be used for both input and output libraries.

FO=
File name used for output library when not the same as the input file. F must not be specified.

FI=
File name used for input library when not the same as the output file. F must not be specified.

For allocation, the following applies:

A=N
This is the default. Do not allocate space for the library. The output library exists.

A=Y
Allocate two cylinders to a new output library. The file is initialized.

A=nn
Allocate the number of cylinders (must be specified as 2).

FC records (clump records)

FC=N
This is the default; FC records are not to be copied.

FC=Y
FC records are to be copied from the input file to the output file if the files are different.

Examples:

1. RUN SFCVR
2. RV SFCVR,,V=D01234
3. RV SFCVR,,FO=MYFMT,A=Y
4. RV SFCVR,,VO=X,FO=MYFMT
5. RV SFCVR,,V=X,F=MYFMT

1. All defaults are taken. The input and output libraries are YFMT on the RES volume. Output library already exists. No debug snaps.

2. The input and output libraries are YFMT on volume D01234.

3. The input library is YFMT on the RES volume, and the output library is a new file MYFMT, also on RES.

4. The input library is YFMT on RES. The output library is an old file MYFMT on another volume that has a duplicate VSN. Operator interaction is necessary to ensure proper allocation.

5. Both input and output libraries are MYFMT (existing) on a volume with a duplicate VSN.

B.3. INTERACTIVE PARAMETER PROMPTING METHOD

Enter the following to initiate the RUN processor in the interactive mode:

```
RUN SFCVR,,I=Y
```

Any of the following parameters may be changed from their default values:

Parameter	Default	Options
Output library file (LBL)	YFMT	YFMT or user file LBL name
Volume serial no. for output library	RES	RES or vsn
Alternate library file (LBL) used for old format input	YFMT	YFMT or user file LBL name
Volume serial no. for alternate library	RES	RES or vsn

In addition, one of the following two questions will be asked:

1. IS OUTPUT FILE NEW (REPLY Y, N, OR # OF CYL.)

   The default value is no (N). This causes an existing file to be allocated. If yes (Y) is selected, a new file will be allocated with two cylinders of storage. If the number of cylinders is selected, yes is implied and that amount of storage (2 or more) cylinders will be allocated to the file (e.g., 2, 12, Y are acceptable replies).

2. IS AN ALTERNATE FILE TO BE USED FOR INPUT FORMATS (Y OR N)

   The default value is no (N). Normally the same library file should be used for both old and new format access (both input and output accesses). If this default is selected, the user will be prompted only for the file (LBL) name and volume serial number for one file.

If the user wishes to access new and old formats in separate libraries, he may select yes (Y). If that is the choice, then prompts will take place for both libraries, soliciting file (LBL) names and the corresponding volume serial numbers.

The following example illustrates an interactive session:

```
RV SFCVR,,I=Y
26 RV0011   IS OUTPUT FILE NEW? (REPL): Y, N, OR # OF CYL.)
27?RV0011   JOB=SFCVR    SYMBOL=A        VALUE=N            *ENTER VALUE
27 Y
28 RV0011   IS AN ALTERNATE FILE TO BE USED FOR INPUT FORMATS? (Y OR N)
29?RV0011   JOB=SFCVR    SYMBOL=ALT      VALUE=N            *ENTER VALUE
29 Y
30 RV0011   PLEASE ENTER FILE LABEL (LBL) FOR INPUT FORMAT LIBRARY
31?RV0011   JOB=SFCVR    SYMBOL=FI       VALUE=$Y$FMT       *ENTER VALUE
31 CNFORMAT
32 RV0011   ENTER VOLUME SERIAL # (OR RES) FOR THIS INPUT LIBRARY
33?RV0011   JOB=SFCVR    SYMBOL=V]       VALUE=RES          *ENTER VALUE
33
34 RV0011   ENTER FILE LABEL  (LBL) FOR ALL OTHER FUNCTIONS
35?RV0011   JOB=SFCVR    SYMBOL=F0       VALUE=$Y$FMT       *ENTER VALUE
35 CHRISFMT
36 RVC011   ENTER VOLUME SERIAL # (CR RES) FOR ALL OTHER FUNCTIONS
37?RRV0011  JOB=SFCVR    SYMBOL=V0       VALUE=RES          *ENTER VALUE
37
38 RV0011   SHOULD THE FC ELEMENTS BE COPIED TO THE NEW FILE?(Y OR N)
39?RV0011   JOB=SFCVR    SYMBOL=F0       VALUE=N            *ENTER VALUE
39 Y
```

This example shows the following:

1. User overrides the default (N) for the first question (line 27).

2. User types in the same value (N) as default for second question (line 29).

3. User overrides default file LBL of the input by entering CNFORMAT (line 31).

4. User accepts the default value (RES) for volume (line 33).

5. User overrides default file LBL of the output by entering CHRISFMT (line 35).

6. User accepts the default value (RES) for volume (line 37).

7. User overrides default value (N) for FC elements (line 39).

Appendix C. SUR Reference

SOFTWARE USER REPORTS (SURs)

Inquiries to SURs corrected by this release of the software should be directed to the local Sperry branch office.

Appendix D. Main Storage Estimator

This appendix contains information that can be used to estimate the main storage needs of System 80 for Release 8.2. Included are storage estimates for the various components of the operating system, a chart to aid in calculating the total amount of main storage required, and a list of the main storage capacities available with System 80 systems.

D.1. MAIN STORAGE COMPONENTS

The main storage estimates of the OS/3 Operating System software are listed by the following categories:

Main storage
Supervisor size
Shared Data Management code
DTF sizes
Job prologue
Space for user programs
Integrated Communications Access Method (ICAM)
Information Management System (IMS)
Data base Management System (DMS)
MAPPER 80 Software
Data Utilities
Other system software
Emulation
OS/3 disk requirements
Interactive Command Processor
MENU Generator
Screen Format Services

D.2. CALCULATING MAIN STORAGE REQUIREMENTS

The Main Storage Estimator Chart (Figure D-1) provides a convenient checklist for constructing a software system from the individual software components.

Main storage requirements can be calculated as follows:

1. Determine which software components are to be used.

2. Calculate the amount of main storage required for each component, using the appropriate subsection (D.3 through D.9) in Figure D-1. The value (in bytes) in subsections D.3 through D.9 is indicated in parentheses.

3. List each program to be run and calculate total main storage required (D.10 through D.12).

4. Total all the entries made in Figure D-1 to arrive at the main storage requirements.

   NOTE:

   The total obtained in step 4 may be reduced by:

   - Reducing the number of programs to be run
   - Modifying the size/type of programs to be run
   - Eliminating certain software components that are not used regularly and not required to be in main storage all the time

5. Select the main storage size (Figure D-1) closest to (but greater than) the total in Figure D-1 to determine the size needed.

SUPERVISOR (D.3) _____
ICAM (D.4) _____
IMS (D.5) _____
DMS (D.6) _____
SYSTEM SOFTWARE (D.7) _____
DATA UTILITIES (D.8) _____
EMULATION (D.9) _____
SUBTOTALS _____

PROGRAM SIZES (D.10)

(Models 3 through 8)		(Model 8 only)		(Model 8 only)	
#1	_____	#15	_____	#32	_____
#2	_____	#16	_____	#33	_____
#3	_____	#17	_____	#34	_____
#4	_____	#18	_____	#35	_____
#5	_____	#19	_____	#36	_____
#6	_____	#20	_____	#37	_____
#7	_____	#21	_____	#38	_____
#8	_____	#22	_____	#39	_____
#9	_____	#23	_____	#40	_____
#10	_____	#24	_____	#41	_____
#11	_____	#25	_____	#42	_____
#12	_____	#26	_____	#43	_____
#13	_____	#27	_____	#44	_____
#14	_____	#28	_____	#45	_____
		#29	_____	#46	_____
		#30	_____	#47	_____
		#31	_____	#48	_____

CONCURRENT SYMBIONTS (D.11) _____
SHARED D.M. (D.12) _____

SUBTOTALS _____

Totals - ESTIMATED MAIN STORAGE REQUIREMENTS _____

MAIN STORAGE SIZE RECOMMENDATIONS: Select size closest to (but greater than) your estimated main storage requirements.

524,288
1,572,864*
2,097,152*
2,621,440*
3,145,728*
3,670,016*
4,194,304*

* Systems with Main Storage Expansion

Figure D-1. Main Storage Estimator Chart

D.3. SUPERVISOR SIZE

1. Minimum requirements for a supervisor

   The minimum requirements for a supervisor include:

   a. One job slot
   b. One task switching priority
   c. Multitasking
   d. Interrupt handling
   e. Storage protect
   f. One transient area
   g. Transient loader
   h. Console control facilities
   i. Support for peripherals
      - o Printer
      - o Two disk drives
      - o One diskette drive
   j. ECC (error correction code) for IDA
   k. AVR
   l. System Access Technique (SAT) required for disk data management and system software
   m. Resident Loader

2. Supervisor options (can be added to minimum supervisor):

3. Supervisor functions (available through transients) that can optionally be made resident:

a.	SM$LOCK - Resident system lock feature	(900) _____
b.	SM$ATCH - Resident multitasking (ATTACH macro)	(1200) _____
c.	SM$TASK - Resident multitasking (AWAKE, TYIELD, CHAP, WAITM, and POST macros)	(1100) _____
d.	SM$STXIT - Resident island code control (STXIT and EXIT macros with island code activation)	(1400) _____
e.	SMG$GTPUT - Resident information passing (GETCOM, PUTCOM, and GETINF macros)	(760) _____
f.	SM$DBS - Resident DBS	(300) _____

4. Sum of items 1, 2, and 3 - round to 1024 or multiples of 1024

5. Basic supervisor

o Models 3 through 6	13,735	_____
o Model 8	14,277	_____

This is the starting point for all other features. The basic supervisor includes:

a. One to 14 job slots (Models 3 through 6), one to 24 job slots (Model 8) (Refer to 6a.)
b. Integrated communications access method (ICAM) interface
c. One to 60 task switching priorities (Refer to 6c.)
d. Capability to add selector and multiplexer channel devices
e. Error logging interface
f. Minimum timer services for I/O clock (Refer to 6h.)
g. Items 1c through 1l (minimum supervisor)

6. Additional supervisor options

a. Multijobbing (4 bytes x number of job slots x number of I/O data paths). Note that the 0605 Punch with read feature is one data path.		_____
b. Printer/punch/reader/RBP/system log/ spooling (Table D-1)		_____
c. Multipriorities (4 bytes x number of execution priorities)		_____
d. Job accounting	(350)	_____
e. Memory consolidation (dynamic relocation)	(500)	_____
f. SYSDUMP	(1384)	_____
g. Online diagnostics	(1400)	_____
h. Clock support		
GETTIME macro support	(150)	_____
SETTIME macro support	(200)	_____
i. Additional transient areas 1200 bytes each; 15 maximum. One transient area is included in Basic Supervisor.		_____
j. Console logging		
Console log dispatcher	(450)	_____
Console log spool control table	(228)	_____
Console log buffer:		
Minimum	(304)	_____
Normal	(560)	_____
Maximum	(1072)	_____
k. Shared code directory (40 bytes x number of shared code directory slots)		_____
l. Interactive command processing table	(64)	_____
m. System activity monitor (SAM)	(344)	_____
n. Add total of supervisor options in item 3		_____
o. Shared code directory index (16 x number of modules in the Shared code load library)	(5328)	_____

7. Sum of items 5 and 6; round to 1024 or multiples of 1024 _____

D.3.1. PIOCS Sizes

o Models 3 through 6

PIOCS Resident -	12,755	
448 x number of DMA disks	(____)	
304 x number of diskettes	(____)	
636 x number of local workstations	(____)	
264 x number of printers	(____)	
264 x number of readers and punches	(____)	
304 x number of tapes	(____)	
If 8470 disks are configured: 1396 + 448 x number of 8470 disks	(____)	
If tape block numbering is configured: Add 1640	(____)	
Sum of PIOCS sizes		_____

o Model 8

PIOCS Resident -	19,222	
(Includes 1 LMUX, 1 USEL, and 1 DMUX channel; plus support for 8418 or 8470 disk at 1374 fixed size)		
256 x number of additional channels	(____)	
92 x number of additional USEL channels	(____)	
448 x number of disks	(____)	
304 x number of diskettes	(____)	
636 x number of local workstations	(____)	
264 x number of printers, readers, and punches	(____)	
304 x number of tapes	(____)	
If 8430/8433 disks are configured: Add 2028	(____)	
If tape block numbering is configured: Add 1640	(____)	
Sum of PIOCS sizes		_____

D.3.2. Interactive Command Processor Size

The interactive command processor consists of resident code and shared code modules. The resident code remains in main storage as long as one workstation is logged on or commands are being entered from the console. Shared code modules remain in main storage until they are unused and their main storage is needed for some other purpose.

1. Basic interactive services symbiont (including 1024 prologue) (8192) _____

2. DDP support (See note 1.) (8192) _____

3. Remote workstation support (See note 2.) (11264) _____

4. ICAM support (See note 3). (1024) _____

5. Dynamic open file table (26 x number of users configured) _____

6. Workstation control table (56 per logged-on workstation) _____

7. Thread control packet (392 x number of commands running) _____

8. Shared code command modules

a.	COMMAND PROCESSOR	3440	+ (200 x number of users)	_____
b.	COPY, PRINT, PUNCH	1704	+ (312 x number of users)	_____
c.	FSTAT, VTOC	1856	+ (408 x number of users)	_____
d.	COMMENT	584	+ (208 x number of users)	_____
e.	RECOVER	1472	+ (304 x number of users)	_____
f.	ALLOCATE	240	+ (56 x number of users)	_____
g.	ERASE	688	+ (360 x number of users)	_____
h.	ENTER	856	+ (320 x number of users)	_____
i.	LOGON	3800	+ (1000 x number of users)	_____

NOTES:

1. DDP support is included only if the DDP product is separately purchased by the customer, as evidenced by the presence of the load module DD$ICM in YLOD.

2. Remote workstation support is included only if remote workstations are configured in the supervisor and load modules WS$WKS and WS$TRM are present in YLOD.

3. ICAM support is included only if needed, i.e., if DDP or remote workstations are supported.

4. The size of the I/S symbiont is determined dynamically when RC$$IS is initially loaded.

5. On Releases 7.0 and 7.1, the modules required to support remote workstations and ICAM were separately loaded elsewhere in main storage, not bound into the I/S symbiont. The change was made to reduce memory fragmentation.

j.	LOGOFF	(624)		
k.	SMU	5370	+ (960 x number of users)	_____
l.	SDU	1900	+ (436 x number of users)	_____
m.	HELP	264	+ (152 x number of users)	_____
n.	SCREEN	1008	+ (40 x number of users)	_____
o.	STATUS	1384	+ (88 x number of users)	_____

7. Dynamic file management

a.	Dynamic open			
	Root	(264 + 240 x number of users)		
	Phase I	(3176 + 184 x number of users)		
	Phase II	(3296 + 664 x number of users)		
	Phase III	(376 + 56 x number of users)		
	Minimum open	(3280 + 906 x number of users)		
b.	Dynamic close	(712 + 304 x number of users)		_____
c.	Spool file access		(2104)	_____
d.	VTOC access		(1944)	_____
e.	Workstation system mode access		(976)	_____

8. Library utilities _____

Table D-1. Spooling Size Estimates

Component	Options			
	Output Print/Punch	Input Read/ Print Punch	RBP Print/ Punch/Read/ JCS	
Spooler	5900	5900	5900	5900
System Spool Control Tables (Single VOLUME)	728	728	728	728
Directories	72	96	168	

Virtual PUBS:

Reader	Default is 32 x number of job slots or user-specified number x 32.	_____
Printer	Default is 64 x number of job slots or user-specified number x 32.	_____
Punch	Default is 32 x number of job slots or user-specified number x 32.	_____
Bit Map	Default is 256 bytes or user-specified size x 4 bytes.	_____
	TOTAL	_____

D.3.3. MENU Generator

The MENU generator requires the following main storage:

Root and I/O	(6074)
Buffers	(15,328)
CREATE functionality	(41,744)
or	
MODIFY functionality	(45,568)
or	
DISPLAY functionality	(26,224)

NOTE:

Execution also requires the MENU processor, screen format services, and library utilities.

D.3.4. Screen Format Services

Screen format services requires the following main storage:

Screen format generator	(50,000)
Screen format coordinator	(19,000)
Input virtualizer	(6144)
Output virtualizer	(6000)
VT symbiont	(1600)

D.4. INTEGRATED COMMUNICATIONS ACCESS METHOD (ICAM)

There are five different interface levels: CPI, DDI, TCI, RBP, and STDMCP. Storage estimates for an ICAM generation are calculated as follows:

1. Job prologue

Preamble	(304) _____
TCBs	
a. Primary TCB for all configurations	(320) _____
b. ICAM overlays (all configurations except CPI)	(320) _____
c. TCB for each DISCFIL Macro	(320) _____
d. TCB for each JRNFILE Macro	(320) _____
e. TCB for RBP interface	(320) _____
f. TCB for a CCA with TYPE=(GBL)	(320) _____
g. Open file table 4 + (20 x number of total DISCFIL and JRNFILE macros in all CCAs)	_____
h. Phase load table	(136) _____
i. TCB for SCLA load (if TSF desired)	(320) _____
j. TCB for TSF	(320) _____

2. Code present for all configurations

Timer services	(500) _____
General information table (Table D-2)	_____
Activity control	(4500) _____
Software monitor	(600) _____
Internal stack control	(1000) _____

3. Terminal support facility (TSF)

Basic	(19,300) _____
If ICAM configured for CPI users only add:	(1100) _____

4. Code present for all non-CPI configurations

Common subroutines	(700) _____
Buffer pool control	(1100) _____
Message control interface	(1200) _____
Overlay control and total overlay area size	(3200) _____
Communications control area (Table D-3)	
Remote device handlers:	
o Common subroutines - 1-time requirement	(1300) _____
o If any remote batch terminals	(600) _____
o U100/U200 - interactive mode	(5800)
o The following elements are optional as add ons to UTS 100/200 interactive mode:	
a. COP and/or 800 terminal printer	(1600)
b. Tape cassette and/or diskette	(900)
c. DCT 1000 - interactive mode	(800)
d. DCT 1000 - batch mode	(1200) _____

NOTES:

1. If more than one device is desired, choose device with the largest size. This logic will support the other devices.

2. The add-on size for tape cassette and/or diskette support presupposes COP and/or terminal printer support. The add-on size for cassette/diskette without printer support is 2000.

e.	UTS 400 native mode and UTS 4000	(800)
f.	Katakana support on UTS 400 and UTS 4000	(1400)
o	DCT 500 SERIES/TTY (nonaddressed and ASCII mode)	(3100) _____
a.	TTY - baudot mode	(100) _____
b.	Address mode and/or auxiliary device processing	(1800) _____
	NOTE: When both a and b are selected, add an additional 600.	(600) _____
o	BSC - Generalized mode	(3300) _____
a.	2780 Mode	(300) _____
b.	Line buffer toggling	(100) _____
o	DCT 2000 - Standard	(2300) _____
a.	Punch capability	(300) _____
b.	DCT 2000 emulation mode	(200) _____
o	U1004/9200/9300	(2500) _____
o	NTR - full duplex	(2200) _____
o	Local workstation support (does not require TSF)	(6000) _____
o	IBM 3270 real terminal handler	(7300) _____
o	DATEX-L public data network (Germany)	(4200) _____
o	Remote workstation support (common subroutine; not required for this RDH)	(2700) _____
o	IBM 3270 emulator	(19,900) _____

5. Code optional for all configurations

Fast overlay loading	(1100) _____
GAWAKE processing	(1800) _____
Operator communication (required for RBP)	(1400) _____
Trace table	(16,600 max) _____
Buffer pool expansion	(1300) _____

6. Code optional for STDMCP or TCI configurations only

Format edit processing	(1700)	_____
MPPS processing	(5000 max)	_____
History journaling and checkpoint	(3000)	_____
Distribution list (DLIST) processing	(700)	_____

7. User interface code

a. Global network support in ICAM

- Minimum code	(15,100)	_____
- Add if DCA=YES specified on CCA	(23,700)	_____
- Add if PROTYP=INIT-1 on TERM	(4700)	_____
- Add if PROTYP=RB-2 on TERM	(2600)	_____
- Add if DEVICE=(ABM) on VLINE	(2100)	_____
- Add if type=packet for PDN proc	(24,500)	_____
- Add if type=packet and carrier=DATAPAC or TRANSPAC or DATEX or PSS	(14,200)	_____
- Add if type=packet and carrier=DDX	(18,900)	_____
- Add if catp=E out for SUB proc	(24,500)	_____
- Add if catp=11 for SUB proc	(16,400)	_____
- Add if locap type=(STDMCP) in CCA	(0)	_____
- Add if locap type=(DMI) in CCA	(9300)	_____
- Add if locap type=(TCI) in CCA	(1100)	_____
Add to ICAM if JOBINIT: specified on LOCAP macro for COBOL communications user program	(800)	_____

b. Dedicated and/or global CCA support in ICAM

COBOL message control system (CMCS), add to user program	(3200)	_____
CPI	(3100)	_____
STDMCP	(0)	_____
TCI	(5700)	_____
DDI	(1300 max)	_____

RBP Refer to UP-9748 section on minimum RBP sizing (DDI interface is required for RBP).

8. Code required for STDMCP, TCI, or global network configurations

MUST processing	(5500 max)	_____
Main storage queueing	(3000 max)	_____
or		
Main storage and/or disk queueing	(7400 max)	_____
Communication network control (CNC)	(3300 max)	_____
Session control subroutine	(3100)	_____

9. For total ICAM symbiont size, add all applicable items from items 1 through 8 _____

10. The only interface supported through transient ICAM is TCI, and its total size, including prologue, is (9700) _____

11. Refer to Table D-4 for ICAM utilization of dynamic main storage. _____

12. For the size of ICAM utility programs, refer to the respective UP- manual. These utilities are executed as programs and handle the following functions:

- Journal file data reduction program (JUST)	(UP-9748)	_____
- ICAM device emulation system (IDES)	(UP-9748)	_____
- Global user service task (GUST)	(UP-9745)	_____
- SLCA dump utility (TSF, optional)	(UP-9748)	_____
- Remote terminal processor (RTP)	(UP-8841)	_____
- Nine thousand remote (NTR)	(UP-9748)	_____
- ICAM trace facility (ITF)	(UP-9748)	_____
- ICAM EDIT dump (IED)	(UP-9748)	_____

Table D-2. General Information Table Size Calculation

SIZE=1500 (if TSF desired) + 3800 + (20 x (total no. of configured CCAs)) + (490 x (total no. of SCLAs))

Table D-3. Communication Control Area Size Calculations

Macro	Decimal Size (Bytes) for Each Occurrence of Macro
CCA* (DEDICATED)	512
CCA (GLOBAL-NONDCA)	724
CCA (GLOBAL-DCA)	2811
BUFFERS (ARP)	140 + 56 x number of ARPS
BUFFERS (NETWORK BUFFERS)	140 + size of buffer x number of buffers
BUFFERS (LNKPAK)	140 + size of buffer x number of buffers
BUFFERS (UDUCT)	140 + 96 x number of UDUCTs
BUFFERS (STATS)	4 x number of ARPS + 4 x number of network buffers + 4 x no. of UDUCTs + 4 x no. of LNKPAKs
LINE (MINIMUM AMT.)	204
LINE (LINE BUFFERS)	Refer to UP-9745 (current version).
PGROUP (Remote W.S. only)	56
TERM	152 + size of each message queue
DLIST	4 + 4 x number of destinations in list
EUP	228
LOCAP	172 + size of each message queue
NODE	116
SESSION (LOCAL)	60
SESSION (REMOTE) NONDCA)	116
SESSION (REMOTE) DCA)	0
PDN	76
TRUNK	66 + (no. of PUCs x 104) + (no. of SVCs x 104)
VLINE	204
SUB	40
VLINE (X25)	204 + size of packet buffer pool + 30
VLINE (ABM)	204
MESSAGE QUEUE	CORE=36 DISK=64
LPORT	88
PRCS	52 + size of each message QUEUE
DISCFILE (TCI)	500
DISCFILE (DISK QUEUED)	700
JRNFILE	450 + number of staging buffers x size of staging buffer
TRANSLATE TABLES	384 x number of device types + total size of all user-supplied translate tables
ENDCCA	36 + 8 x number of end users**
MPPS	Average is 8 per macro + ERRMSG sizes.

*Size of communications control area is 0 for a CPI user.

**In this context, an end user is a terminal, line, LOCAP, PRCS, or MPPS.

Table D-4. Dynamic Main Storage Utilization by ICAM

Session Control Table Sizes for Dynamic Session*		
Dynamic sessions	Per local session:	120 bytes
	Per remote session:	236 bytes
	plus	120 bytes
	(for each 60 dynamic sessions)	
	plus	128 bytes
	(for each CUP to remote CUP session)	
	plus	104 bytes
	(for each session in PDN network)	
Dynamic buffer pool	per expansion pool:	144 bytes
Expansion	plus expansion factor, as a percentage, x (number of buffers x (size in bytes + 4))	
ILR macro Implementation Language	Per task control block:	400 bytes
ICAM trace facility	per event traced: (as specified in the event keyword, E=)	32 bytes
	plus (header)	50 bytes

*To calculate the total dynamic main storage required by ICAM for dynamic session establishment, multiply the maximum number of current sessions by the sizes of the session control table.

D.5. INFORMATION MANAGEMENT SYSTEM (IMS)

The main storage requirements for both single-thread and multithread IMS can be found in the OS/3 IMS system support functions user guide, UP-8364 (current version).

D.6. DMS MAIN STORAGE REQUIREMENTS

The DMS system consists of a DBMS run-time component, which executes as a privileged job; language processors, which execute from separate jobs but require the DBMS job to be active; and stand-alone utilities, which do not require the DBMS job to be active. Explicit main storage specification on the // JOB statement is required for the DBMS job and to execute DMS utilities.

Main storage space requirements are as follows:

DBMS Job

Load module		67,072 bytes
Each thread-control block:	Batch	492 bytes
	IMS	3,564 bytes
Maximum IMS-terminals (IX84)		_____ bytes
DMCL load module		_____ bytes
File DTFs and tables (K x 160)		_____ bytes
Data buffer control entries (N x 32)		_____ bytes
Data base buffers (N x page size)		_____ bytes
Space buffer control entries (M x 24)		_____ bytes
Space inventory buffers (M x page size)		_____ bytes
Lock space		_____ bytes
CALC routine 2		_____ bytes
Subschema pool 3		_____ bytes
Total		_____ bytes

1. The lock space calculation is based on the KEEP lock requirement. This is the maximum number of record currency locks that may be required for the total schema. For each DMCL, the calculation is:

   24 [U(1+A+3C)+3K]

   where:

   U is the maximum number of run units for the DMCL.
   A is the number of area types in the schema.
   C is the maximum number of currency locks derived from the following rule: If a record type is not a member in any set type (excluding CALC) then it will have one locked occurrence; otherwise, it will have one locked occurrence for each set membership.
   K is the KEEP lock specification from START-UP.

2. CALC00 is 536 bytes.
   CALC01 is 240 bytes.

3. Space remaining from the main storage specification on the // JOB statement is assigned to the subschema pool. This space must be large enough to fit all subschema load modules that will be active concurrently (+28 bytes per subschema +4.)

DMS language processors:

Schema	(SCHMAP)	86,276 bytes
Subschema	(SUBSP)	75,212 bytes
DMCL	(DMCLP)	69,700 bytes
DML	(DMLP)	86,460 bytes
Conversational DML	(CDML)	58,158 bytes

DMS utility load module sizes:

Initialization	(DBINT)	32,640 bytes	(Notes 1,2,3,4)
Page dump and alter	(DBPAG)	54,162 bytes	(Notes 1,2,4,5)
Security dump	(DBDUM)	56,376 bytes	(Notes 1,2,4,6)
Security restore	(DBRES)	43,128 bytes	(Notes 1,2,3,4)
Recovery	(DBREC)	61,008 bytes	(Notes 1,2,3)
Journal audit	(JFAUD)	66,256 bytes	(Notes 1,2,3)
Journal fix	(JFFIX)	19,036 bytes	(Notes 1,2,3)

NOTES:

1. Add DMCL load module size.
2. Add data base buffers.
3. Add space inventory buffers.
4. Add DTF and tables (160 per file).
5. Add CALC routine (if required).
6. Add request/header space (2000 - 4000).

See DMS SSF, UP-8272 (current version) for detailed information.

D.7. MAPPER 80 SOFTWARE MAIN STORAGE REQUIREMENTS

1.	Main MAPPER 80 job	(97,280)	
	Plus (65,536 x number of workstations)	_____	
	Plus (27,648 x number of aux printers)	_____	
			_____
2.	MAPDMY utility	(23,136)	_____
3.	MAPGEN utility	(56,760)	_____
4.	MAPLOD utility (57,720 + optional user own code)		_____
5.	MAPLST utility (54,816 + optional user own code)		_____
6.	MAPDMS utility (48,186 + user code)		_____
7.	MAPRAD utility	(56,984)	_____
8.	MAPDUM utility	(40,176)	_____
9.	MAPRES utility	(41,488)	_____

D.8. SYSTEM SOFTWARE REQUIREMENTS

System software main storage requirements are calculated by using the following values:

1. Language processors:

a.	Assembler	(20,480)* _____
b.	RPG II	(29,626)* _____
c.	COBOL	
	o Basic (ANSI-1968) (Model 8 only)	(22,528)* _____
	o Extended (ANSI-1968) (Model 8 only)	(45,056)* _____
	o ANSI-1974	(57,344)* _____
d.	FORTRAN	
	o Basic (Model 8 only)	(23,552)* _____
	o FORTRAN IV	Small(67,584)* _____
		Large(102,400)* _____
e.	PL/M	(143,000)* _____
f.	MAC80	(102,400)* _____
g.	BASIC	
	o Sharable load module and control System memory	(41,563)* _____
	o Stack frames, dynamic buffers, etc	(9216 x number of users) _____
	o Source text, tables, interpretive code, etc	(Estimate 1024 for every 5 to 7 lines BASIC source program) _____
h.	EDT	
	o Sharable load module and control system memory	(46,000)* _____
	o Stack frames, dynamic buffers, etc	(1500 x number of users) _____
i.	EFP	
	o Sharable local module (Note EDT is required.)	(3134)* _____
	o Stack frames, dynamic buffers, etc	(5192 x number of users) _____
j.	ESCORT Programming Language (approximate)	
	o Basic first user	(39,000)** _____
	plus	(20,000) for each additional user
	o Structure processor	(21,000) _____
	o Tutorial	(15,000) _____
	plus	(1500) for each additional user
	o Program/job mode	(20,000) _____
	plus	(3000) for each additional user
	o Compiler I	(22,000) _____
	plus	(6000) for each additional user
	o Compiler II	(42,000) _____
	plus	(27,000) for each additional user
	o Run time	(36,000) _____
	o Report system	(50,144) _____
	plus	(8000) for each additional user
	o Report system utility	(16,264) _____

k.	RPG II auto report	(51,200)*	_____
l.	Dialog specification language translator	(67,000)	_____
m.	Dialog processor	(74,000)	_____
	o Audit file processing	(25,000)	_____
	o Job control dialog processing	(60,000)	_____
	o System generation dialog processing	(115,200)	_____
n.	RPG II editor ***		
	Sharable load module	(16,917)*	_____
	Stack frames, buffers, etc (2950 x no. of users)		_____
o.	COBOL Editor***		
	Sharable load module	(53,500)	_____
	Stack frames, buffers, etc (9192 x no. of users)		_____

*Size listed does not include the job prologue size.

**The system provides an additional 76,000 bytes (approx.) for the screen format generator, utilities, etc.

***RPGEDT and COBEDT run with EDT and screen format services; their sizes must also be considered.

2. Linkage editor (17,516)* _____

   a. The linkage editor requires an additional buffer to develop reference table entries. (7060)* _____

   Total size (24,577)* _____

3. Librarian (23,316)* _____

   a. Librarian: if you are using the librarian escape (ESC) operation, make the following memory allocations:

o SAM tape	34,048 + BLK SIZE + 4
o SAM diskette	34,048 + BLK SIZE + 4
o SAM disk	34,048 + BLK SIZE + 4
o LIBRARIAN disk	34,048 + BLK SIZE + 4
o MULTI BLK TAPE	34,048 + 2048 + (15,392 x number of tapes)

4. File utility
   (See specific figures in D.9.) _____

5. Sort/Merge

   a. SORT/MERGE subroutine logical code (added to user processor code) (12,400) _____

   Sort function:

   If record size greater than 100, add 5x record size to total.

b. Independent SORT/MERGE (16,784)* _____

Merge function:

For merge function, add 2x block size for each additional file beyond first file.

c. SORT3 (16,384)* _____

6. JOBLOG report program (23,500)* _____

7. System activity monitor report program (SAMRPT) (without prologue) (102,400)* _____

8. Nine thousand remote (NTR)

o The module size of a basic NTR system (which supports the console, one card reader, one card punch, and one printer) is 33,180 bytes. This is composed of the following modules:

Basic NTR modules (includes console)	(23,250)
NTR global tables	(4,300)
Card reader	(750)
Printer	(3,900)
Card punch	(980)
Total basic NTR	(33,180)

In addition, the following information should be considered in determining NTR size:

General ICAM buffer and console support (5 x BLOCKIN size)	(7,300) Note 1
Add for each card punch/printer (2 x BLOCKIN size)	(5,840) Note 2
Add for each card reader (2 x BLOCKOUT size)	(1,024) Note 3
Subtotal additional items	(14,164)
Total basic NTR plus additional items	47,344

NOTES:

1. Based on BLOCKIN size of 1460
2. Based on BLOCKIN size of 1460 (1 card punch/1 printer)
3. Based on BLOCKOUT size of 512 (1 card reader)

o Add for each additional card reader

2 x BLOCKOUT size (1460)	(2920)
720 bytes DTF/DCA/image buffers	(720)
	(3640)

_____ _____

o Add for each additional printer

2 x BLOCKOUT size (1460)	(2920)	
2560 bytes DTF/DCA/VFB/image buffers	(2560)	
	(5480)	

NOTE:

The // JOB job control card should not specify a MIN/MAX size. The NTR load module will be generated with the proper size.

9. DDP	(194,560)	
10. File placement analyzer (FIPLAN)	(203,448)	

D.9. DATA UTILITIES REQUIREMENTS

Most data utility executions (batch and conversational) will run in 32K bytes of main storage. If a more accurate size is required (larger or smaller), the following formula may be used:

M = maximum of (43500,B)

where:

M
Is the minimum amount of main storage required to run this job.

B
Is the total size of the required functional routines, DTFs, IOCS modules, and data management buffers. B can be determined by using the following formula:

B = (29200 + FT + IOT + C + D + E + F + G + H + I + J)

where:

FT
Is the total size of the functional routines required by this job. The sizes of the functional routines are specified in Table D-5 along with the parameters that specify the function.

IOT
Is the size of all DTFs and I/O routine modules for all files used in this job. The printer DTF and I/O routine module are included in the printer routine (noted in the routine size table, Table D-5); therefore, printer files are not included in this value. Use Table D-6 for running job in a mixed or CDI-only environment.

C
Is the maximum INPUT1 record size for ISAM or NI files as specified in the INPUT1 VTOC entry.

D

Is the INPUT1 block/buffer size as specified in the second entry of the A=( ) parameter. If the INPUT1 file is a disk file (other than IRAM/MIRAM), then the block size is taken from the disk file format labels.

E

Is the maximum record size for the ISAM OUTPUT1 or NI OUTPUT1/INPUT2 file. For NI INPUT2 files, this value is taken from the file format labels.

F

Is the OUTPUT1/INPUT2 block/buffer size as specified in the second entry of the B=( ) parameter. If this is a compare (K2), then the INPUT2 block size is taken from the INPUT2 file format labels for disk files (other then IRAM/MIRAM).

G

This variable is for ISAM INPUT1 files only. It is the disk file key length and is taken from the disk file format labels.

H

This variable is for ISAM OUTPUT1/INPUT2 files only. It is the record key length as specified in the V=() parameter. If this is a compare (K2), then the key length is taken from the disk file format labels.

I

This variable is for IRAM and MIRAM INPUT1 disk files only. It is the index buffer size and is taken from the disk file format labels.

J

This variable is for IRAM and MIRAM OUTPUT1/INPUT2 files only. It represents the disk file index buffer size and it is calculated by multiplying the second entry in the OR=(I,n) or the OM=(I,n) parameter by 256 decimal. If this is a compare (K2) then this value is taken from the disk file format labels.

Table D-5. Functional Routine Sizes

Function	Invoking Parameter	Size (decimal)
Correction	COR statement	5250 (See note 2.)
Select/delete	SEL/DEL statement	1450
Field selection	FS statement Note 1	2650 (See note 3.)
Sequence checking	X=( ) parameter	700
Compare	K2 parameter	4050
Print routine	UCP, UTP, UDP, or DP	3700

NOTES:

1. This routine is also invoked for operations involving variable DAM files and/or variable NI files with keys and whenever the output record length is greater than the input record length.

2. Add the maximum INPUT1 file record size to this figure.

3. Add the maximum OUTPUT1/INPUT2 file record size to this figure.

Table D-6. I/O Routine Sizes for Mixed or CDI only

Type	Input 1	Input 2	Output 1	Output 2
8413/card	475	475	485	565
Tape	1350	1225	1225	
SAM disk	890	780	675	
ISAM disk	1000	840	1025	
DAM disk	800	790	725	
NI disk	1450	1355	1355	
IRAM disk	900	900	1000	
MIRAM disk	1025	785	1225	
DCON4 TP.	775			
Diskette	1025	775	1225	

D.10. PROGRAM SIZES

The program sizes are calculated as follows: up to 14 job slots are supported for Models 3 through 6; up to 47 job slots plus 1 job slot reserved for IS are supported for Model 8.

(Use for batch or real-time programs)

Job Number	1	2	3	4	5	6	-14 (Models 3-6) -47 (Model 8)
1. Job prologue (D.10.1)							
2. DM control structures (D.10.2.)							
3. I/O buffers							
4. User-coded logic							
5. Estimated user program sizes (Round up to a multiple of 1024 bytes - minimum job size is 8192 bytes.)	a.	b.	c.	d.	e.	f.	g.

D.10.1. Job Prologue Size

Determine the job prologue size for each job in the system. The prologue size can be estimated as follows:

1. Job preamble (288) _____

2. TCBs (task control blocks)
   One for each task - a minimum of one is required (224 if floating point is configured; otherwise, 192.) _____

3. Job accounting table
   56 + (4 x number of unique devices used by the user job) _____

4. Open file table
   4 + (20 x number of possible active files) _____

5. Extents
   56 + (8 x number of logical extents x number of possible active files) _____

6. Phase load table (136) _____
   Included in jobs with:
   // OPTION JOBDUMP or
   // OPTION ABRDUMP

7. Spool tables (136) _____

8. Spool tables
   o Job log spool control table (228) _____

   o Spool device buffers (1104) _____
   (The size of buffers is preset to
   1104 bytes; this value can be
   modified via SYSGEN or JCL.)

   Spool device buffers=
   16+n[32+m(256)]

   where:

   n=2 if RUN processor detects
   spooler reader, printer or
   punch. Otherwise, n=1.
   m is defined at SYSGEN.
   (default=2)

   The user can change n and m by specifying different
   values in positional parameter 9
   of the // JOB card.

   Spool control table= _____
   228 x number of active
   unit record devices

   Spool control table=
   228 x (number of spooled readers)
   +228 x (number of spooled punches)
   +(2p + 230 for each spooled printer)

   where:

   p=number of skip codes for this
   printer (from the // SPL or
   // VFB card. Default=7)

   o Line control table (16) _____
   2 x number of skip codes (default=8
   codes); x=number of printer files.
   User may use the // SPL statement
   to modify the number of skip codes for
   a print file.

o Optional dedicated buffers _____

Each spool file in a job may request dedicated buffers. This is only advisable for jobs that require a large amount of printed output.

Optional dedicated buffers=
16+n[32+m(256)]

where:

n = the n specified in the // SPL statement.
m = the m specified in the // SPL statement.

9. Data management interface routines (28) _____

D.10.2. Data Management Control Structure Sizes

For each control structure (DTF, CDIB, or RIB) included in the user program, multiply the number of bytes in the table by the number of Control Structures. Enter the results in the appropriate spaces on the user program estimator, D.10, item 3.

Device	DTF element (bytes/file)	
1. SAM - low-speed devices:		
a. Card reader	(116)	_____
b. Card punch	(120)	_____
c. Punch with automatic retry	(812)	_____
d. Printer	(92)	_____
2. SAM - high-speed devices:		
a. Tape	(242)	_____
b. Disk	(242)	_____
3. DAM - relative address	(242)	_____
4. ISAM		
a. Add/retrieve	(396)	_____
b. Retrieve	(372)	_____
c. Add	(396)	_____
d. Load	(332)	_____

Device	DTF element (bytes/file)
5. IRAM	
a. Indexed	(387) _____
b. Nonindexed	(240) _____
6. MIRAM	(388) _____
7. CDIB	(44) _____
8. RIB*	(n) _____
9. Total of items 1 through 6	_____

*The Resource Information Block (RIB) varies in size, depending on the number and type of parameters specified. To approximate the size of the RIB (n), use the expression:

n= 4 + [(3 x number of numeric parameters specified) + (5 x number of symbolic or indirect parameters specified)]

D.11. CONTROL SYSTEM SYMBIONTS

The following control system symbionts are temporarily loaded into main storage on behalf of user jobs. The user should reserve sufficient main storage so that these symbionts may be loaded as required. (These symbionts relinquish their main storage following termination of their function.)

Symbiont	Storage Requirement	
	Hex.	Decimal
Run processor (RU,RV,RB)		
Min	5D00	23808
Max	B700	46848
File processor	2400	9216
Output Writer*		
(printer and punch) 5400 + (SPOOLOWBUFR-2) x 256		
Input reader		4200
System utility		
SU		26000
TU		48000
Output writer (diskette)*		7500
Spool		
Min		20500
System activity monitor (standard size)	4200	
(extended size)	5200	
Save processor	3800	14,338
SC processor (restore)	3000	12,288

*Size does not include prologue (preamble + TCB + 16)

D.12. SHARED DATA MANAGEMENT

All data management is shared - no data management routines are included in user programs.

1. Low-speed devices

a.	Sam (sequential access method) card (reader/punch/combined)	2972
b.	SAM printer	1316
c.	SAM diskette (8413)	4432
d.	WSAM (workstation access method)	8240

2. High-speed devices

a.	SAM tape	4006
b.	SAM/DAM (sequential direct access method) disk	3794
c.	ISAM (index sequential access method) disk	4266
d.	IRAM (indexed random access method) disk	2736
e.	MIRAM (multindexed random access method) disk	10,110

D.13. SHARED CODE MODULE NAME CROSS-REFERENCE

The following listing contains cross-references to shared code module names.

```
 LINE   SOURCE STATEMENT                                          OS/3 ASM 83/11/21
A2445+MS$STLNK EQU   44 SAT SUBR. LENGTH                                    P$S06890
A2446+MS$CLSAD EQU   MS$SCLNK-20 CLOSEALL START ADDR                        P$S06900
A2447+         SHAREQU                                                      P$S06920
B2448+*                                                                     P$S00030
B2449+*    EQUATES FOR KEY 0 SHARED CODE ID'S                               P$S00040
B2450+*                                                                     P$S00050
B2451+*                                                                     P$S00060
B2452+*   START OF DTF MODE SHARED CODE ID'S                                P$S00070
B2453+*                                                                     P$S00080
B2454+SC$STDTF EQU   X'10' START OF DTF MODE ID'S                           P$S00090
B2455+SC$MIRAM EQU   X'10' (D3$M1110)     MIRAM DISK DATA MGMT             P$S00100
B2456+SC$TAPE  EQU   X'11' (DD$T1110)     MAG TAPE DATA MGMT               P$S00110
B2457+SC$PRINT EQU   X'12' (PR$IOE00)     PRINTER DATA MGMT                P$S00120
B2458+SC$CARD  EQU   X'13' (CD$IOJ00)     CARD READER/PUNCH DATA MGMT      P$S00130
B2459+SC$NI    EQU   X'14' (DD$N1110)     SAM/DAM/NI DISK DATA MGMT        P$S00140
B2460+SC$ISAM  EQU   X'15' (IS$13130)     ISAM DISK DATA MGMT              P$S00150
B2461+SC$IRAM  EQU   X'16' (D3$I1110)     IRAM DISK DATA MGMT              P$S00160
B2462+SC$SAT   EQU   X'17' (SAT93  )      SAT DISK DATA MANAGEMENT         P$S00170
B2463+SC$STAPE EQU   X'18' (ST$11100)     TAPE/UR SAT MODULE               P$S00180
B2464+SC$CARDD EQU   X'19' (CD$IODJ0)     CARD/DISKETTE MODULE             P$S00190
B2465+SC$QCFM  EQU   X'1A' (LU$QCFMO)     LIBRARY UTILITY OPEN             P$S00200
B2466+SC$DME13 EQU   X'1B' (DM$DME13)     UNOPEN FILE PROCESSING           P$S00210
B2467+*                                                                     P$S00220
B2468+*   END OF DTF MODE SHARED CODE ID'S                                  P$S00230
B2469+*                                                                     P$S00240
B2470+SC$EDDTF EQU   X'1E' END OF DTF MODE IDS                              P$S00250
B2471+*                                                                     P$S00260
```

```
B2472+*   START OF CDI MODE SHARED CODE ID'S                          P$S00270
B2473+*                                                               P$S00280
B2474+SC$STCDI EQU   X'1E' START OF CDI MODE IDS                      P$S00290
B2475+SC$CNVRT EQU   X'1F' (SF$CNVRT)     FORMAT CONVERSION (R7 TO R8) P$S00300
B2476+SC$INT20 EQU   X'20' (SF$INT20)     INT-2 OUTPUT CONVERTER      P$S00310
B2477+SC$INT2P EQU   X'21' (SF$INT2P)     INT-2 PRINTER OUTPUT CONVERTER P$S00320
B2478+SC$IPC   EQU   X'22' (IPC$PROG)     CDI INTERPROCESS CONTROL    P$S00330
B2479+SC$PRCR  EQU   X'23' (MN$PRCR0)     IS MENU PROCESSOR           P$S00340
B2480+SC$CTLI  EQU   X'24' (SFC$CTLI)     SCREEN FORMAT COORD INIT/TERM P$S00350
B2481+SC$FSP   EQU   X'25' (DM$FSP00)     D.M. FILE SHARE PROCESSOR   P$S00360
B2482+SC$INT2I EQU   X'26' (SF$INT2I)     INT-2 INPUT VIRTUALIZER     P$S00370
B2483+SC$OPEN  EQU   X'27' (SC$OPEN0)     OPEN INTERFACE FOR SUBFILES P$S00360
B2484+SC$CLOSE EQU   X'28' (SC$CLOSE)     CLOSE INTERFACE FOR SUBFILES P$S00390
B2485+SC$RCCMD EQU   X'29' (RC$CMD00)     RC COMMAND PROCESSOR        P$S00400
B2486+SC$LKUP  EQU   X'2A' (RC$LKUP0)     RC COMMAND LOOKUP ROUTINE   P$S00410
B2487+SC$DNOP3 EQU   X'2B' (RC$DNOP3)     DISTRIB DATA PROC MODULE    P$S00420
B2488+SC$REDIN EQU   X'2C' (RED$IN00)     RPG EDT INPUT CONTROL MODULE P$S00430
B2489+SC$REDOT EQU   X'2D' (RED$OUT0)     RPG EDT OUTPUT CONTROL MODULE P$S00440
B2490+SC$REDVR EQU   X'2E' (RED$VER0)     RPG EDT VERIFY CALL MODULE  P$S00450
B2491+SC$CFM   EQU   X'2F' (DM$CFM00)     CENTRALIZED FILE MANAGER    P$S00460
32492+SC$OTRAN EQU   X'30' (SF$INT10)     OUTPUT INT-1 DCI CONVERTER  P$S00470
B2493+SC$CTLR  EQU   X'31' (SFC$CTLR)     SCREEN FORMAT SERVICES CONTROL P$S00480
B2494+SC$DPOPN EQU   X'32' (DP$OPN00)     DIALOG PROC OPEN MODULE     P$S00490
B2495+SC$DPB   EQU   X'33' (DP$000D0)     DIALOG PROCESSOR INTERPRETER P$S00500
B2496+SC$ITRAN EQU   X'34' (SF$INT11)     INPUT INT-1 DCI CONVERTER   P$S00510
B2497+SC$WSAM  EQU   X'35' (DM$WI110)     WORK STATION IOCS MODULE    P$S00520
B2498+SC$OPR01 EQU   X'36' (RC$OPR01)     RC CONSOLE ACCESS           P$S00530
B2499+SC$RCAM  EQU   X'37' (RC$RCAM0)     REMOTE CONTROLLER ACCESS METHOD P$S00540
B2500+SC$DNCLS EQU   X'38' (RC$DNCLS)     DYNAMIC CLOSE               P$S00550
B2501+SC$DNOP2 EQU   X'39' (RC$DNOP2)     DYNAMIC OPEN - OVERLAY II   P$S00560
B2502+SC$DNOP1 EQU   X'3A' (RC$DNOP1)     DYNAMIC OPEN - OVERLAY I    P$S00570
B2503+SC$DNOPN EQU   X'3B' (RC$DNOPN)     DYNAMIC OPEN - OVERLAY I    P$S00580
B2504+SC$SPXFR EQU   X'3C' (RC$SPXFR)     SPOOL FILE ACCESS           P$S00590
B2505+SC$MIAQ  EQU   X'3D' (DM$MIAQ0)     MIRAM APPLY/QUERY PROCESSOR P$S00600
B2506+SC$DROUT EQU   X'3E' (LU$DROUT)     SAT LIBRARY UTILITIES       P$S00610
B2507+SC$MROUT EQU   X'3F' (LU$MROUT)     MIRAM LIBRARY UTILITIES     P$S00620
B2508+SC$APQY  EQU   X'40' (WS$APQY0)     WORKSTATION APPLY/QUERRY    P$S00630
B2509+SC$VTOC  EQU   X'41' (RC$VTOC0)     VTOC ACCESS MODULE          P$S00640
B2510+SC$FMAPY EQU   X'42' (SF$FMAPY)     SFS APPLY/QUERY             P$S00650
B2511+SC$DPAQ  EQU   X'43' (DP$000D0)     DIALOG PROCESSOR APPLY/QUERY P$S00660
B2512+SC$GTMSG EQU   X'44' (RC$GTMSG)     RC GETMSG ROUTINE FOR CDI   P$S00670
B2513+SC$RFP   EQU   X'46' (DM$RFP00)     D.M. REMOTE FILE PROCESSOR  P$S00680
B2514+SC$PDSCL EQU   X'47' (SC$PDSCL)     PADS ACTIVATION MODULE      P$S00690
B2515+SC$OVRFY EQU   X'48' (SF$OVRFY)     SFS OUTPUT VERIFICATION     P$S00700
B2516+SC$CBESN EQU   X'49' (COBEDTSN)     COBOL EDITOR SCREEN MODULE  P$S00710
B2517+SC$CBEAB EQU   X'4A' (COBEDTAB)     COBOL EDITOR ABBREVIATION MOD P$S00720
B2518+SC$CBERT EQU   X'4B' (COBEDTRT)     COBOL EDITOR ROOT MODULE    P$S00730
B2519+SC$GETCS EQU   X'4C' (CLGETCS0)     GETCS/SETCS FOR ICS         P$S00740
B2520+SC$ADTST EQU   X'4D' (ADSCFM00)     ACTIVE DICT SERVICES INTERFACE P$S00750
B2521+SC$SERV  EQU   X'4E' (DM$SERV0)     DATA MGNT SERVICE MODULE    P$S00760
B2522+*                                                               P$S00770
B2523+*   END OF CDI MODE SHARED CODE ID'S                            P$S00780
```

Appendix E. Disk Space Requirements

This appendix helps determine the disk space requirements for OS/3 software on a user-generated SYSRES volume. A definition of the OS/3 SYSRES files and sizes is provided in addition to SYSGEN information for controlling the presence or absence of the files.

Three of the files may vary considerably for combinations of the components to be deleted. Consequently, detailed definitions for each of these files are provided in a similar fashion.

OS/3 also requires disk space for run libraries for each job and for scratch files for some of its components during execution. The amount of space used for those temporary files is much more difficult to estimate.

E.1. SYSRES FILE DEFINITIONS

The name, together with the use or content of each of the OS/3 SYSRES files, is listed in alphabetic order as follows:

File	Description
IVPLIB	This file is the installation verification program (IVP) library.
SG$JCS	This librarian file contains job control procedures used in the SYSGEN process.
SG$LOD	This librarian file contains load modules used in the SYSGEN process.
SG$MAC	This librarian file contains macros used in the SYSGEN process.
SG$OBJ	This librarian file contains object modules and subroutines used in the SYSGEN process.
SG$XXX	This area is used to store variables when loading unbundled products to the user's disk.
SMCAUDIT	This is an audit trail of the SMC application process.
SMCBSAT	This librarian file is used to store copies of modules that have been changed by SMCs.

File	Description
SMCFILE	This file contains all software maintenance corrections (SMCs) processed for the system.
VTOC	This area of disk contains the volume table of contents (VTOC), which OS/3 uses to allocate and deallocate space on the SYSRES volume.
$IMPL	This file contains the initial microprogram load that is provided for loading of microcode into the CPU control storage.
$IPL	This file contains the initial program load and provides the initiation of processing.
YCAT	This file is used by job control to record the cataloged files made by the customer.
YDIALOG	This MIRAM file contains system dialogs for SYSGEN and JCL.
YDUMP	This is a storage area used by SYSDUMP processing. An image of main storage is written into this file and then read during the dump analysis processing.
YELOG	This is a storage area that the supervisor uses to record the I/O error history.
YESUM	This file contains the error log summary.
YFMT	This file contains the system screen formats and system menus.
YHELP	This MIRAM file contains help screen modules.
YJCS	This librarian file houses stored job control streams and job control procedures.
YLOD	This librarian file holds the load modules for the system.
YOBJ	This librarian file contains the object module subroutines for data management and the run-time library for each compiler. These object modules are included by the linkage editor for subsequent program execution.
YMAC	This librarian file holds the interface procedures and macros for the components that may be referenced from assembled code.
YMIC	This file contains all microcode levels for peripherals and the CPU.

File	Description
YSAVE	This file contains the saved run-library modules.
YSCLOD	This is the shared code load library file.
YSDF	This file contains the directory of microcode levels that will be downline loaded to each peripheral and the CPU from the YMIC file.
YSEC	This file contains user-ids and passwords when LOGON security is configured.
YSHR	This file holds information about files that are currently OPEN in the system and their ability to be shared.
YSJF	This file logs data that is used to determine system stability when log stability data is configured.
YSMCLOG	This file is the software maintenance correction log.
YSRC	This librarian file contains the source and copy modules provided.
YSYSTEM TABLES	This file contains tables for the system.
YTRAN	This file holds the OS/3 transient modules and the canned messages for console and printed display.
YTRANA	This file holds exactly what YTRAN holds. When the Supervisor has an error accessing YTRAN, it recovers by trying to access YTRANA.

E.2. INDIVIDUAL FILE REQUIREMENTS

The disk space requirements for files are shown in type-number sequence in Tables. All cylinder values are shown in decimal.

Cylinder values are based on the following:

Type	Blocks per Cylinder
8430, 8433 (Model 8)	627
8417 (Models 3 through 6)	840
8419 (Models 3 through 6)	350
8416 (Model 8)	280
8418 (Model 8)	280
8470 (Models 4, 6, and 8)	3072

where a block is a 256-byte record or sector.

NOTE:

In the tables, the contents of the columns are as follows:

Column 1	Indicates the item or file.
Column 2	Indicates the number of 256-byte blocks of disk space required by the item.
Columns 3-7	Indicate the block size (in cylinders) for each type of SYSRES volume.

The last line of each table indicates the total number of blocks required for that particular product.

6210-00 SYSTEM SOFTWARE

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	1862	6.78	3.02	0.61	2.26	5.42
YLOD	14352	52.28	23.34	4.76	17.42	41.82
YMAC	10986	40.02	17.87	3.64	13.34	32.01
YMIC	3926	14.30	6.38	1.30	4.76	11.44
YOBJ	538	1.95	0.87	0.17	0.65	1.56
YSCLOD	1616	5.88	2.62	0.53	1.96	4.70
YSRC	140	0.51	0.22	0.04	0.17	0.40
IVPLI8	2971	10.82	4.83	0.98	3.60	8.65
SG$JCS	1952	7.11	3.17	0.64	2.37	5.68
SG$LOD	1036	3.77	1.68	0.34	1.25	3.01
SG$MAC	5119	18.64	8.32	1.69	6.21	14.91
SG$OBJ	4836	17.61	7.86	1.60	5.87	14.09
6210-00	49334	179.71	80.25	16.38	59.90	143.77

6130-05 UTS4000 COBOL

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	1155	4.20	1.87	0.38	1.40	3.36
YSRC	269	0.97	0.43	0.08	0.32	0.78
6130-05	1424	5.18	2.31	0.47	1.72	4.14

6201-03 UTS400 EDIT

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	1619	5.89	2.63	0.53	1.96	4.71
6201-03	1619	5.89	2.63	0.53	1.96	4.71

6211-00 DATA UTILITIES

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	5	0.01	0.00	0.00	0.00	0.01
YLOD	917	3.34	1.49	0.30	1.11	2.67
6211-00	922	3.35	1.49	0.30	1.11	2.68

6212-00 SORT MERGE

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	147	0.53	0.23	0.04	0.17	0.42
6212-00	147	0.53	0.23	0.04	0.17	0.42

6213-00 SORT3

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	135	0.49	0.21	0.04	0.16	0.39
6213-00	135	0.49	0.21	0.04	0.16	0.39

6214-00 SCREEN FMT GENERATOR

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	59	0.21	0.09	0.01	0.07	0.17
YLOD	639	2.32	1.03	0.21	0.77	1.86
6214-00	698	2.54	1.13	0.23	0.84	2.03

6215-00 DIALOG SPEC LANGUAGE

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	200	0.72	0.32	0.06	0.24	0.58
6215-00	200	0.72	0.32	0.06	0.24	0.58

6216-00 SPOOLER

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	29	0.10	0.04	0.00	0.03	0.08
YLOD	689	2.50	1.12	0.22	0.83	2.00
6216-00	718	2.61	1.16	0.23	0.87	2.09

6217-00 IMS - S/T

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	198	0.72	0.32	0.06	0.24	0.57
YMAC	111	0.40	0.18	0.03	0.13	0.32
YOBJ	728	2.65	1.18	0.24	0.88	2.12
YSRC	23	0.08	0.03	0.00	0.02	0.06
YLOD	1879	6.84	3.05	0.62	2.28	5.47
SG$MAC	63	0.22	0.10	0.02	0.07	0.18
6217-00	3002	10.93	4.88	0.99	3.64	8.74

6218-00 DMS

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	55	0.20	0.08	0.01	0.06	0.16
YLOD	4102	14.94	6.67	1.36	4.98	11.95
YOBJ	16	0.05	0.02	0.00	0.01	0.04
YSRC	145	0.52	0.23	0.04	0.17	0.42
6218-00	4318	15.72	7.02	1.43	5.24	12.58

6219-00 RPGII

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YOBJ	166	0.60	0.27	0.05	0.20	0.48
YLOD	1090	3.97	1.77	0.36	1.32	3.17
6219-00	1256	4.57	2.04	0.41	1.52	3.66

6220-00 RPG EDIT

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YSCLOD	237	0.86	0.38	0.07	0.28	0.69
6220-00	237	0.86	0.38	0.07	0.28	0.69

6221-00 RPG AUTO REPORT

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	367	1.33	0.59	0.12	0.44	1.06
6221-00	367	1.33	0.59	0.12	0.44	1.06

6222-00 COBOL 74

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	1682	6.12	2.73	0.55	2.04	4.90
YOBJ	210	0.76	0.34	0.06	0.25	0.61
6222-00	1892	6.89	3.07	0.62	2.29	5.51

6222-01 COBOL EDITOR

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YSCLOD	344	1.25	0.55	0.11	0.41	1.00
6222-01	344	1.25	0.55	0.11	0.41	1.00

6223-00 FORTRAN IV

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	2229	8.11	3.62	0.74	2.70	6.49
YMAC	887	3.23	1.44	0.29	1.07	2.58
YOBJ	651	2.37	1.05	0.21	0.79	1.89
6223-00	3767	13.72	6.12	1.25	4.57	10.97

6224-00 BASIC

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YSCLOD	196	0.71	0.31	0.06	0.23	0.57
6224-00	196	0.71	0.31	0.06	0.23	0.57

6225-00 ESCORT

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YSCLOD	1181	4.30	1.92	0.39	1.43	3.44
6225-00	1181	4.30	1.92	0.39	1.43	3.44

6226-00 EDITOR

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YSCLOD	267	0.97	0.43	0.08	0.32	0.77
6226-00	267	0.97	0.43	0.08	0.32	0.77

6228-00 UTS400 LOAD/DUMP

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	32	0.11	0.05	0.01	0.03	0.09
YLOD	167	0.60	0.27	0.05	0.20	0.48
6228-00	199	0.72	0.32	0.06	0.24	0.57

6229-01 DDP TRANSFER FACILITY

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
YSCLOD	968	3.52	1.57	0.32	1.17	2.82
6229-01	968	3.52	1.57	0.32	1.17	2.82

6229-02 DDP FILE ACCESS

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
YSCLOD	917	3.34	1.49	0.30	1.11	2.67
6229-02	917	3.34	1.49	0.30	1.11	2.67

6229-03 DDP IMS TRANSFER FACILITY

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
YOBJ	194	0.70	0.31	0.06	0.23	0.56
6229-03	194	0.70	0.31	0.06	0.23	0.56

6230-00 NTR

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YSRC	17	0.06	0.02	0.00	0.02	0.04
SG$MAC	292	1.06	0.47	0.09	0.35	0.85
SG$OBJ	147	0.53	0.23	0.04	0.17	0.42
6230-00	456	1.66	0.74	0.15	0.55	1.32

6231-00 ICAM - TSF

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	84	0.30	0.13	0.02	0.10	0.24
6231-00	84	0.30	0.13	0.02	0.10	0.24

6232-00 IMS - M/T

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	198	0.72	0.32	0.06	0.24	0.57
YLOD	1882	6.85	3.06	0.62	2.28	5.48
YMAC	191	0.69	0.31	0.06	0.23	0.55
YOBJ	797	2.90	1.29	0.26	0.96	2.32
YSRC	23	0.08	0.03	0.00	0.02	0.06
6232-00	3091	11.26	5.02	1.02	3.75	9.00

6233-00 ASSEMBLER

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	540	1.96	0.87	0.17	0.65	1.57
6233-00	540	1.96	0.87	0.17	0.65	1.57

6236-00 COBOL EXTENDED

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	1064	3.87	1.73	0.35	1.29	3.10
YOBJ	132	0.48	0.21	0.04	0.16	0.38
6236-00	1196	4.35	1.94	0.39	1.45	3.48

6247-00 3270 RTH

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	31	0.11	0.05	0.01	0.03	0.09
6247-00	31	0.11	0.05	0.01	0.03	0.09

6247-01 3270 EMULATOR

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	92	0.33	0.14	0.03	0.11	0.26
6247-01	92	0.33	0.14	0.03	0.11	0.26

6247-02 RTP (HASP)

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	48	0.17	0.07	0.01	0.05	0.13
SG$MAC	667	2.42	1.08	0.22	0.80	1.94
SG$OBJ	284	1.03	0.46	0.09	0.34	0.82
6247-02	999	3.63	1.62	0.33	1.21	2.91

6248-00 DATEX-L PDN

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	21	0.07	0.03	0.00	0.02	0.06
6248-00	21	0.07	0.03	0.00	0.02	0.06

6248-01 DATEX-P PDN

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	101	0.36	0.16	0.03	0.12	0.29
6248-01	101	0.36	0.16	0.03	0.12	0.29

6248-02 TRANSPAC PDN

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	101	0.36	0.16	0.03	0.12	0.29
6248-02	101	0.36	0.16	0.03	0.12	0.29

6248-03 DATAPAC PDN

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	101	0.36	0.16	0.03	0.12	0.29
6248-03	101	0.36	0.16	0.03	0.12	0.29

6248-05 DDX-P PDN

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	98	0.35	0.15	0.03	0.11	0.28
6248-05	98	0.35	0.15	0.03	0.11	0.28

6248-06 NORDIC PDN

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	35	0.12	0.05	0.01	0.04	0.10
6248-06	35	0.12	0.05	0.01	0.04	0.10

6248-07 PSS PUB DATA NETWORK

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	101	0.36	0.16	0.03	0.12	0.29
6248-07	101	0.36	0.16	0.03	0.12	0.29

6254-00 MENU SERVICES

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
YSCLOD	306	1.11	0.49	0.10	0.37	0.89
6254-00	306	1.11	0.49	0.10	0.37	0.89

6255-00 DCA TERMINATION

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
SG$OBJ	25	0.09	0.04	0.00	0.03	0.07
6255-00	25	0.09	0.04	0.00	0.03	0.07

6752-00 MAPPER 80

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	25	0.09	0.04	0.00	0.03	0.07
YLOD	2255	8.21	3.66	0.74	2.73	6.57
YOBJ	8	0.02	0.01	0.00	0.00	0.02
YSCLOD	183	0.66	0.29	0.06	0.22	0.53
YSRC	9	0.03	0.01	0.00	0.01	0.02
6752-00	2480	9.03	4.03	0.82	3.01	7.22

6759-00 FILE PLACEMENT ANALYZER

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	2	0.00	0.00	0.00	0.00	0.00
YLOD	578	2.10	0.94	0.19	0.70	1.68
6759-00	580	2.11	0.94	0.19	0.70	1.69

X460-00 DISK CACHE

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YMIC	21	0.07	0.03	0.00	0.02	0.06
X460-00	21	0.07	0.03	0.00	0.02	0.06

X600-10 ON-LINE DIAG (OLM)

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	35	0.12	0.05	0.01	0.04	0.10
YLOD	11565	42.12	18.81	3.83	14.04	33.70
X600-10	11600	42.25	18.87	3.85	14.08	33.80

X600-20 SYSTEM ACTIVITY MONITOR

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	4	0.01	0.00	0.00	0.00	0.01
YLOD	469	1.70	0.76	0.15	0.56	1.36
X600-20	473	1.72	0.76	0.15	0.57	1.37

X600-60 SYSTEM 3/32/34 CONVERSION AIDS

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS 8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	45	0.16	0.07	0.01	0.05	0.13
X600-60	45	0.16	0.07	0.01	0.05	0.13

X600-70 92/9300

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	8	0.02	0.01	0.00	0.00	0.02
YLOD	0	0.00	0.00	0.00	0.00	0.00
YSRC	965	3.51	1.56	0.32	1.17	2.81
X600-70	973	3.54	1.58	0.32	1.18	2.83

X600-80 OS/4 CONVERSION AIDS

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YLOD	363	1.32	0.59	0.12	0.44	1.05
X600-80	363	1.32	0.59	0.12	0.44	1.05

X600-90 360/20

FILE	NUMBER OF BLOCKS	NUMBER OF CYLINDERS				
		8416 / 8418	8430 / 8433	8470	8417	8419
YJCS	0	0.00	0.00	0.00	0.00	0.00
YLOD	0	0.00	0.00	0.00	0.00	0.00
X600-90	0	0.00	0.00	0.00	0.00	0.00

Appendix F. System 80 All Models Data Management Comparison - General Guidelines

Data management operation of System 80 systems may be in these environments:

- Mixed (DTF and CDI) - Model 8 only

  DTF interfaces are provided for all supported file types except WSAM (which is CDI only). Supported file types include SAM, DAM, ISAM, NI, IRAM, and MIRAM disk files.

  In addition CDI interfaces are provided for all file types. Note that MIRAM is the only disk processing method that is accessible through CDI.

- CDI-only - all Models

  All data management interfaces are through CDI except for SAT-Disk and SAT-Tape, which are DTF. MIRAM and SAT are the only disk processing methods. Components that do not support the CDI interface cannot run in this environment.

As users in the mixed mode convert their processing interfaces to CDI and their disk files to MIRAM, they become eligible, on a file at a time basis, for the benefit of media independence, the CDM level of the file sharing, and distributed data processing. They do not have to convert their entire installation to achieve these benefits.

As indicated previously, all software components offered on all models support the CDI interface. CDI interfaces are used for all files except SAT-Disk or SAT-Tape, which retain DTF interfaces. Components that support MIRAM operate with CDI interfaces to allow the user to have the benefits of consolidated data management.

Compilers generate data management interfaces according to the setting of the mode indicator. The mode in which the compiler is running is defined to be the mode in which the object code is to run. Also, the type of data management interface can be selectively controlled by file (see the applicable COBOL, FORTRAN, or RPG II user guide for details.)

Data management will be provided only in a shared form; object and procedure (source) modules will not be provided as they are in Release 6. Specific inclusion of subset modules (either shared or not) in line assembly of data management code will not be supported. Instead, a single shared module that supports all functional capabilities will be supplied for each access method.

IRAM support is replaced by MIRAM in all components. MIRAM supports the existing IRAM file format.

In the mixed mode, disk files provided by the user as input to a software component or expected as output must be able to be specified in their current form (e.g., SAM, ISAM) to allow continued operation in a hybrid environment.

Assuming no changes have been made in their access method specification, programs compiled under Release 8.2 on the Model 8 are to receive the same access methods as under Release 8.1 on a Series 90 System with mixed mode. Specifically the user controls when MIRAM is substituted for the existing disk access methods on an individual file basis to permit the gradual conversion of interlocking applications.

The following chart illustrates the component operation for all models (CDM) and Model 8 only (mixed); numbers in the columns refer to notes following the chart.

Component	All Models CDM	Model 8 only Mixed
Data management		
MIRAM	Yes 2	Yes 1, 2
SAT	Yes 1	Yes 1
Unit record	Yes 2	Yes 1, 2
Tape	Yes 2	Yes 1, 2
SAM/DAM/NI	No	Yes 1
ISAM	No	Yes 1
IRAM 3	No	Yes 1
Screen format generator	Yes	Yes
NTR utility	No	Yes
Interactive services		
EDIT (includes RSP)	Yes	Yes
RPG EDIT	Yes	Yes
BASIC	Yes	Yes

Component	All Models CDM	Model 8 only Mixed
Dialog specification language processor	Yes	Yes
Dialog processor	Yes	Yes
System generation	Yes	Yes
Linker	Yes	Yes
Librarian	Yes	Yes
Library subroutines	Yes	Yes
Disk prep	Yes	Yes
Dump restore	Yes	Yes
Copy utilities	Yes	Yes
SYSDUMP/JOBDUMP	Yes	Yes
Data utility	Yes	Yes
Gang punch	Yes	Yes
Library conversion	Yes	Yes

Component	All Models CDM	Model 8 only Mixed
Program conversion	Yes	Yes
JCON1 (OS/4 conversion)	No	Yes
COPY94 (OS/4 conversion)	No	Yes
Emulation 360/20	No	Yes
Emulation 92/9300	No	Yes
IMS		
Single-thread	Yes	Yes 5
Multithread	Yes	Yes 6
Single-thread DMS 7	Yes	Yes 4, 5
Multithread DMS	No	No
Configurator	Yes	Yes
Data definition PROC.	Yes	Yes
Numeric file utility	Yes	Yes
Edit file generator	Yes	Yes
Tape copy utility	Yes	Yes
DMS	Yes	Yes
Assembler	Yes	Yes
ASMTRAN (OS/4 conversion)	No	Yes

Component	All Models CDM	Model 8 only Mixed
SCAN (not ASM level conv.)	No	Yes
RPG II 8	Yes	Yes
Sort/Merge	Yes	Yes
SORT3	Yes	Yes
FORT (basic)	No	Yes
FOR 4 (FORTRAN IV)	Yes	Yes
COBOL '68	No	Yes
COBOL '74	Yes	Yes
U400 PLM	No	Yes
U400 MAC80	No	Yes
ICAM	Yes	Yes

NOTES:

1. DTF interface to access method is supported.

2. CDI interface to access method is supported.

3. The IRAM file format is supported under MIRAM.

4. DTF MIRAM is not supported in any mode of operation.
5. IMS can be configured for either DTF or CDM operation but not both.
6. Notes relate to processing files outside the DMS data base.
7. MIRAM and workstations are not supported on DTF-only systems.

Appendix G. Release 8.2 Documentation Summary

The Release 8.2 Documentation Summary is a history of current published release documentation items.

Item names are abbreviated as follows:

SRA - System Release Announcement. New designation for the Software Release Announcement to facilitate announcement of both Software and Hardware availability.

SRD - System Release Description. New designation for Software Release Description. Document accompanying newly available software release describing contents, guidelines, and restrictions on use of a new release.

Release-related documents with Release 8.2 are stock items and are assigned UP numbers for identification and ordering purposes. The base UP number for Release 8 is UP-9280.

The following summarizes the Release 8.2 documentation:

Issue/ UP NO.	Date	Level	Item and Description
UP-9280.70		8.2	SRA (Release ordering information for Release 8.2)
UP-9280.71	Feb. 1984	8.2	SRD-Rev. 1 (A base release document giving details on installing and using Release 8.2 along with guidelines and restrictions.)

CUT

SPERRY

USER COMMENT SHEET

We will use your comments to improve subsequent editions.

NOTE: Please do not use this form as an order blank.

_____

(Document Title)

_____ _____ _____

(Document No.) *(Revision No.)* *(Update No.)*

Comments:

From:

_____

(Name of User)

_____

(Business Address)

Fold on dotted lines, and mail. (No postage stamp is necessary if mailed in the U.S.A.)
Thank you for your cooperation

CUT

FOLD

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 21 BLUE BELL, PA.

POSTAGE WILL BE PAID BY ADDRESSEE

SPERRY CORPORATION

ATTN.: SOFTWARE SYSTEMS PUBLICATIONS

P.O. BOX 500
BLUE BELL, PENNSYLVANIA 19424

FOLD

CUT

SPERRY

USER COMMENT SHEET

We will use your comments to improve subsequent editions.

NOTE: Please do not use this form as an order blank.

_____

(Document Title)

_____ _____ _____

(Document No.) *(Revision No.)* *(Update No.)*

Comments:

From:

_____

(Name of User)

_____

(Business Address)

Fold on dotted lines, and mail. (No postage stamp is necessary if mailed in the U.S.A.)
Thank you for your cooperation

CUT

FOLD

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 21 BLUE BELL, PA.

POSTAGE WILL BE PAID BY ADDRESSEE

SPERRY CORPORATION

ATTN.: SOFTWARE SYSTEMS PUBLICATIONS

P.O. BOX 500
BLUE BELL, PENNSYLVANIA 19424

FOLD