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OS/3 TECHNICAL BULLETIN

This Bulletin contains information on:

SYSTEM 80 DISKETTE USAGE

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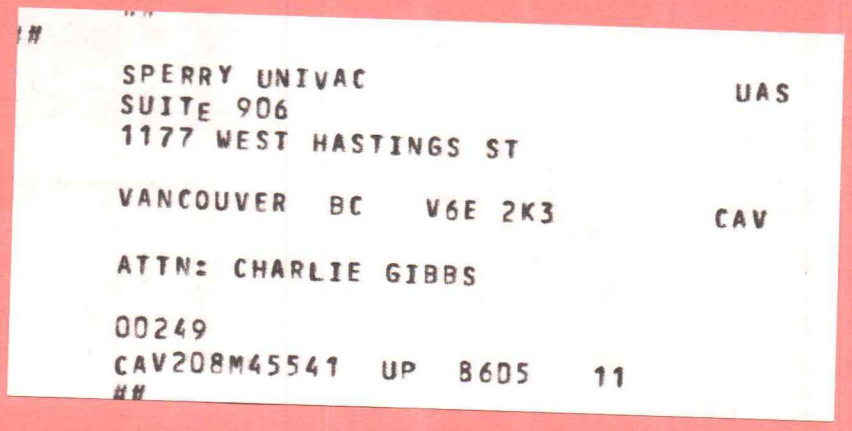
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The following Technical Bulletins are published for the OS/3 system. Current items are identified with an "*" in column 1.

SYSTEM	REL.#	DATE	ORDER#	ITEM and DESCRIPTION
*OS/3	ALL	12/78	UP-8605.6	OS/3 Technical Bulletin #6 (This document contains information on the use of IMS 90 Multi-Thread.)
*OS/3	ALL	3/78	UP-8605.7	OS/3 Technical Bulletin #7 (This document contains information concerning techniques for processing unordered IRAM files.)
*OS/3	5.2/5.2.1 6.0	5/79	UP-8605.9	OS/3 Technical Bulletin #9 (This document contains information on the use of the IBM 3741 MEDIA COMPATIBILITY UTILITY for the UTS 400; this utility is available with Releases 5.2/5.2.1 and 6.0.)
*OS/3	ALL	7/79	UP-8605.10	OS/3 Technical Bulletin #10 (This document contains information concerning OS/3 FILE CATALOGING.)
*OS/3	7.0.1	8/81	UP-8605.11	OS/3 Technical Bulletin #11 (This document contains information concerning diskette usage on System 80.)

NOTE: Technical Bulletins are issued as they become available, and may or may not be issued in sequential order.

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DISKETTE GUIDELINES

FOR

SYSTEM 80

1. DISKETTE OVERVIEW

System 80 supports two physically different types of diskettes:

- o Single-sided diskette

  Information is recorded on only one side of the diskette.

- o Double-sided diskette

  Information is recorded on both sides of the diskette.

The label on a diskette tells you which type it is: ''1'' or ''1D'' for a single-sided diskette; ''2'' or ''2D'' for a double-sided diskette.

For each type of diskette, the System 80 can record data at one of two different densities:

- o Single density

  Information is recorded as a standard number of bytes on a given track.

- o Double density

  Twice as much information is recorded on a given track as for a single-density diskette.

System 80 supports two different diskette formats: format label (FML) diskettes and data set label (DSL) diskettes. Single- or double-sided diskettes recorded at single or double density can be used as DSL diskettes, but only double-sided/double-density diskettes can be used as FML diskettes.

FML diskettes simulate disks. Just as with disks, you can allocate either SAT or MIRAM program library files or MIRAM data files (keyed or unkeyed) on them. The FML format is the diskette format recommended for use in System 80. However, you must use the DSL option for certain operations, such as:

- o intermediate storage media when using the DUMP/RESTORE program;
- o compatibility when transferring data from the SPERRY UNIVAC Series 90 System, IBM System/3, IBM System/32, or IBM System/34; or
- o for use by the MIRAM and SAT librarians when processed as a tape file.

One other diskette option is available to you: manual-load or autoload drives. Either handles single- or double-sided diskettes in DSL or FML format. The difference is in how the operator loads diskettes, especially when processing a multivolume diskette file:

- Manual-load diskette drives accept one diskette at a time. When job control specifies a multivolume file, therefore, the operator mounts each diskette volume, by hand, as it is needed.

- Autoload diskette drives contain a hopper, the drive itself, and a stacker. The operator can put up to 20 diskette volumes in the hopper. To change volumes, the drive automatically unloads a diskette to the stacker and then loads the next waiting diskette from the hopper. This way, up to 20 diskettes can be loaded as needed without operator intervention.

For more information about diskette drive operation, see the processor operator reference, UP-8880 (current version).

2. DISKETTE PREPPING CONSIDERATIONS

To be prepped for single-sided use, a diskette must be single sided; for double-sided use, it must be double sided. You have no option here because the diskette prep automatically senses how many sides a diskette uses and preps it accordingly. You do, however, have the option of specifying diskette density, format, and physical sector size. The following description gives you all the options in terms of the two available formats, DSL and FML diskettes.

The format label prep divides the diskette into 256-byte sectors, checks the recording surface of each track, and allocates space for a volume table of contents. Note, when using the FML prep option, you must use double-sided/double-density diskettes. Table 2-1 lists the format characteristics of an FML diskette.

Table 2-1. FML Diskette Characteristics

Diskette Type	Physical Sector Size in Bytes	Sectors per Track	Sectors per Cylinder	Sectors per Volume	Maximum Bytes per Volume	Maximum Cylinders per Volume
Double sided/ double density	256	26	52	3796	971,776	73

When using the DSL option, the prep routine allocates the entire diskette for one file and names that file DATA. If you want to allocate multiple files or use a different file name, you must scratch the DATA file and then define your new files after the prep operation is finished. Scratching the file can be done via the interactive services, ERASE command, or the // SCR job control statement. Defining new files can be done via the interactive services, ALLOCATE command, or a job control device assignment set (// DVC, // VOL, //EXT, // LBL, // LFD). This bulletin describes the use of the ERASE and ALLOCATE commands. The // SCR and device assignment set job control statements are explained in the job control user guide, UP-8065 (current version).

Table 2-2 lists the format characteristics of diskettes prepped in DSL format.

Table 2-2. DSL Diskette Characteristics

Diskette Type	Physical Sector Size in Bytes (prep option)	Sectors per Track	Maximum Number of Allocatable Sectors (blocks) per Volume	Maximum Number of Data Bytes per Volume	Maximum Number of Files per Volume
Single sided/ single density	128	26	1898* or 1924	242,944* or 246,272	19
	256	15	1110	284,160	19
	512	8	592	303,104	19
Single sided/ double density	256	26	1924	492,544	19
	512	15	1110	568,320	19
Double sided/ single density	128	26	3848	492,544	
	256	15	2220	568,320	
	512	8	1184	606,208	
Double sided/ double density	256	26	3848	985,088	
	512	15	2220	1,136,640	

*Applies to files written in basic data exchange (BDE) mode - IBM System/3 and SPERRY UNIVAC Series 90 compatibility. The number of sectors available for BDE files is reduced to have compatibility between systems.

DSL files can be either single-volume or multivolume files. Multivolume files, however, can be processed only with one volume online at a time.

3. ALLOCATING AND SCRATCHING FILES ON DISKETTES

As previously mentioned, you can allocate and scratch files either interactively (via interactive services) or by using cards (via job control). This bulletin discusses only the interactive method. (The current version of the job control user guide, UP-8065, describes the procedure using job control.)

o Allocating Files

You allocate files on either DSL or FML diskettes via the ALLOCATE command.

When allocating data files on a DSL diskette, use the following format:

```
ALLOCATE MI,FILENAME= { filename      } [,RDPASS=password] [,WRPASS=password]
                      { 'filename'    }
                      { ''filename''  }

[,VSN=volume] [ ,INC= { 1 } ],SIZE=no of blocks
              [       { n } ]
```

NOTES:

1. Before you can allocate a file on a DSL diskette, you must first scratch the file called DATA, which is automatically allocated via the diskette prep routine. (See Section 2 for prepping considerations.)
2. To write information in basic data exchange (BDE) mode, you must allocate the file by using a job control device assignment set. BDE is used primarily for compatibility purposes. The ALLOCATE command allocates files in nonbasic data exchange (NDE) mode.

When allocating files on an FML diskette, use the following format:

```
ALLOCATE { MI } ,FILENAME= { filename      } [,RDPASS=password] [,WRPASS=password]
         { ST }            { 'filename'    }
                           { ''filename''  }

[,VSN=volume] [ ,CONTIG= { YES } ][ ,INC= { 1 } ],SIZE=no of cylinders
              [          { NO  } ][       { n } ]
```

o Scratching Files

You scratch previously allocated diskette files via the ERASE command. The command format, which is the same for both DSL and FML diskettes, is:

```
ERASE FILENAME= { filename      } [,WRPASS=password] [,VSN=volume]
               { 'filename'    }
               { ''filename''  }
```

NOTES:

1. The ERASE command removes only the file name from the VTOC. For SAT files, you compress the information (text) via the librarian PAC control statement.
2. Details on allocating and scratching files are in the interactive services commands and facilities user guide, UP-8845 (current version).

4. DISKETTE USAGE GUIDELINES

Diskettes are handled differently among the various system components. For your convenience and reference, we have listed those components that use diskettes and given some guidelines on how you should prep and use the diskettes in the component environment.

- Job Control

  Job control treats the data on a DSL diskette as card image data. To be executed, the job control streams must reside in separate files. Therefore, the number of job control streams that can be stored on a DSL diskette is limited to the number of files that can be allocated on the diskette (Table 2-1).

  When you run job control streams from an FML diskette, the number of job control streams you can store on an FML diskette is limited only by the physical size of the diskette. However, when you allocate files for this purpose, they must be SAT files.

- Data Utilities

  The data utilities component processes both DSL and FML diskettes as MIRAM sequential files. In addition, keyed MIRAM files on FML diskettes can be processed as keyed MIRAM disk files.

- SAT Librarian

  The SAT librarian processes a DSL diskette as a tape file. Therefore, you must specify Tn on the FIL control statement when processing DSL diskettes. For FML diskettes, the librarian processes the diskette files as disk files. Here, you specify Dn on the FIL control statement.

- MIRAM Librarian

  The MIRAM librarian processes DSL diskettes as tape files and FML diskette files as disk files. For both diskette types, you specify Fn on the FIL control statement.

- Language Compilers

  All source modules must reside on FML diskette SAT files to be compiled. However, they can reside on DSL diskettes for storage or updating via the general editor.

- Screen Format Services

  Screen format services modules (type F and type FC) can reside on FML diskettes in MIRAM files for storage and maintainability via either the MIRAM librarian or the general editor. However, the modules can be created and executed from MIRAM disk files only.

- RPG II Editor

  Both DSL and FML diskettes are supported. However, RPG II source modules must reside on FML diskette SAT files to be compiled.

- General Editor

  Both DSL and FML diskettes are supported. Any combination of reading or writing between the diskettes is supported.

- Interactive Services

  Both DSL and FML diskettes are supported.

- Sort/Merge and Sort 3

  Both DSL and FML diskettes are supported. However, you should not use diskettes as sort work files because they increase the time required to perform the sort operation. Use disk work files for maximum efficiency.

- Dump/Restore

  Use only DSL diskettes in 128-/256-byte blocks. The 256-byte block is recommended.

5. RESTRICTIONS

Currently, the following diskette restrictions exist:

- o System jprocs cannot access any modules residing on diskette.
- o Screen format modules must reside on disk files to be executed.
- o Canned job control streams must reside on disk files to be executed.
- o The ALLOCATE command cannot allocate files in BDE mode; these files must be allocated by using a job control device assignment set.
- o ASCII or combined file processing is not supported by DSL diskettes.
- o Sequentially or alternately relocated records are not supported by DSL diskettes.
- o Having two or more files open at the same time on FML and DSL diskettes is not supported.
- o Autoloader diskette processing does not eject the last volume of a multivolume FML file.

6. IBM CONVERSION

You can use diskettes to move program and data files from some IBM systems to a System 80. These systems, which include the System/3, System/32, and the System/34, have utility programs with which you dump program (RPG and OCL) or data files to DSL diskettes. You then use these diskettes as input to programs supplied by Sperry Univac. These programs re-create the files on a System 80 for system use. Table 6-1 lists the available conversion options.

Table 6-1. Diskette Use when Moving IBM Files to System 80

IBM System	File Type	Maximum Record Size	Diskette Type*	IBM Program	SPERRY UNIVAC Program
System/32	Program	128 bytes	Both	$MAINT	COPY$3
System/34	Program	128 bytes	Both	$MAINT	COPY$3
System/3	Program	128 bytes	Single	$MAINT	COPY$3
System/32	Data	256 bytes	Both	$TRANSFER	Data utilities
System/34	Data	256 bytes	Both	$TRANSFER	Data utilities
System/3	Data	128 bytes	Single	$COPY, $KCOPY	Data utilities

*
Both Double-sided or single-sided diskette
Single Single-sided diskette only

7. RELATED DOCUMENTATION

For more information on diskette use, refer to the current versions of these manuals:

- 8420 and 8422 diskette subsystems general description, UP-8699

  Describes the functions and operation of the integrated diskette drives available with the System 80.

- System 80 processor operator reference, UP-8880

  Describes the operation of the diskette drives.

- Consolidated data management concepts and facilities, UP-8825

  Gives an overview of diskette files on System 80, including record formats, space requirements, and other considerations for using these files with your programs.

- Consolidated data management macroinstructions user guide/programmer reference, UP-8826

  Gives detailed information on using diskette files in basic assembly language (BAL) programs.

- System service programs user guide, UP-8841

  Discusses the diskette prep program.

- Job control user guide, UP-8065

  Discusses the use of job control to link diskette files and user programs.

- Interactive services commands and facilities user guide, UP-8845

  Describes the interactive commands ALLOCATE and ERASE.

- System/3 to OS/3 transition user guide/programmer reference, UP-8379

  Describes in detail how to move program and data files from IBM System/3 to an OS/3 system.

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