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Standard Labeling Procedure for the IBM 1311 Disk Storage Drive

This bulletin describes the conventions used in labeling files on the pack for the IBM 1311. It also outlines the format specifications for standard labels. A detailed description of the processing of labels will be made available at a later date.

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STANDARD LABELING PROCEDURE FOR THE IBM 1311 DISK STORAGE DRIVE

The removable pack feature of the IBM 1311 Disk Storage Drive may, depending on the specific application, require a method of insuring that the proper data file is on-line before processing begins. One method of providing this insurance is to associate a label with the file and to check this label before processing the file. This label serves as an identification tag for the file. This label is analogous to the header label used for identifying tape files.

Files can be easily processed on the 1311 in a sequential, as well as random, order. While random files are easily defined by the disk-storage address limits, it is necessary to have another method of defining the location of sequential files. The lower limit can be defined by a starting address. However, the upper limit, due to additional room left for file expansion, may not be equal to the upper address of the file. The upper limit can be defined by the use of a label. This label is recognized by the program to be the last record of the file. This label is analogous to the trailer label used with tape files.

LABELING CONVENTIONS

The following labeling conventions are followed for IBM 1311 disk storage.

Unlabeled packs (that is, packs with no header labels) and packs using the standard labels described in this bulletin are processed.

Label processing handles single-file packs, multi-file packs, and multi-pack files.

Header Labels

If labeling is used, each section of every file on a pack must have a header label. Each header label occupies one sector of a track, and all header labels are recorded on the first 19 sectors of the last track. Thus, up to 19 files can be written on one pack. Figure 1 illustrates the header labels for various file configuration.

Note: header labels are always written in the move mode on the IBM 1440, 1401, and 1410.

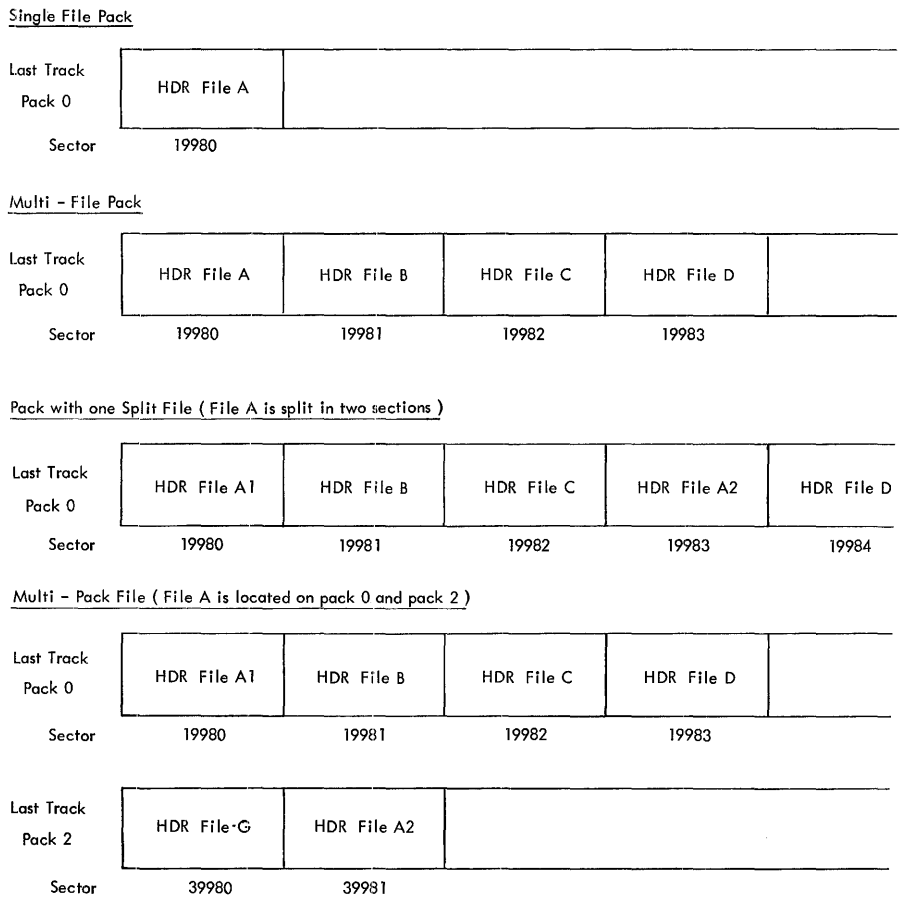

Figure 1. Header Labels for Various File Configurations

Trailer Labels

If labeling is used, both the sequential and random processing of files require the use of header labels. However, trailer labels are required only when sequential processing is done. Trailer labels are required for all sequential files, even though they may not have header labels.

There are two types of trailer labels:

1. End of Records in Section—This denotes the end of one section of a file and indicates that there are subsequent sections in this pack or other packs.
2. End of File—This denotes the end of the last section of a file.

The conventions for using these trailer labels are:

The end-of-records label is placed as the last record in the last data block for that section of the file (Figure 2).

The end-of-file label is placed as the record immediately following the last data record for the entire file (Figure 3).

All trailer labels are of the same length and in the same mode as the last data record with which they are associated.

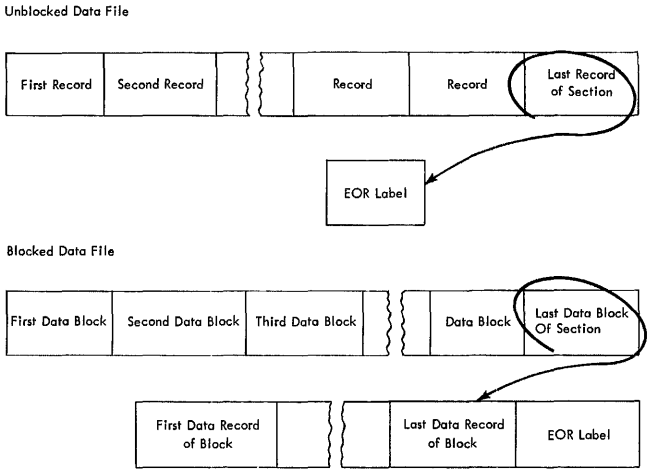

Figure 2. EOR Trailer Labels

DISK LABEL FORMAT

Figure 4 shows the standard format for IBM 1311 disk header labels. Some of the fields indicated are not applicable to all systems that use the 1311. Some are provided to allow compatibility between systems where a pack is created on one system and processed on another. All trailer labels consist of only the first field.

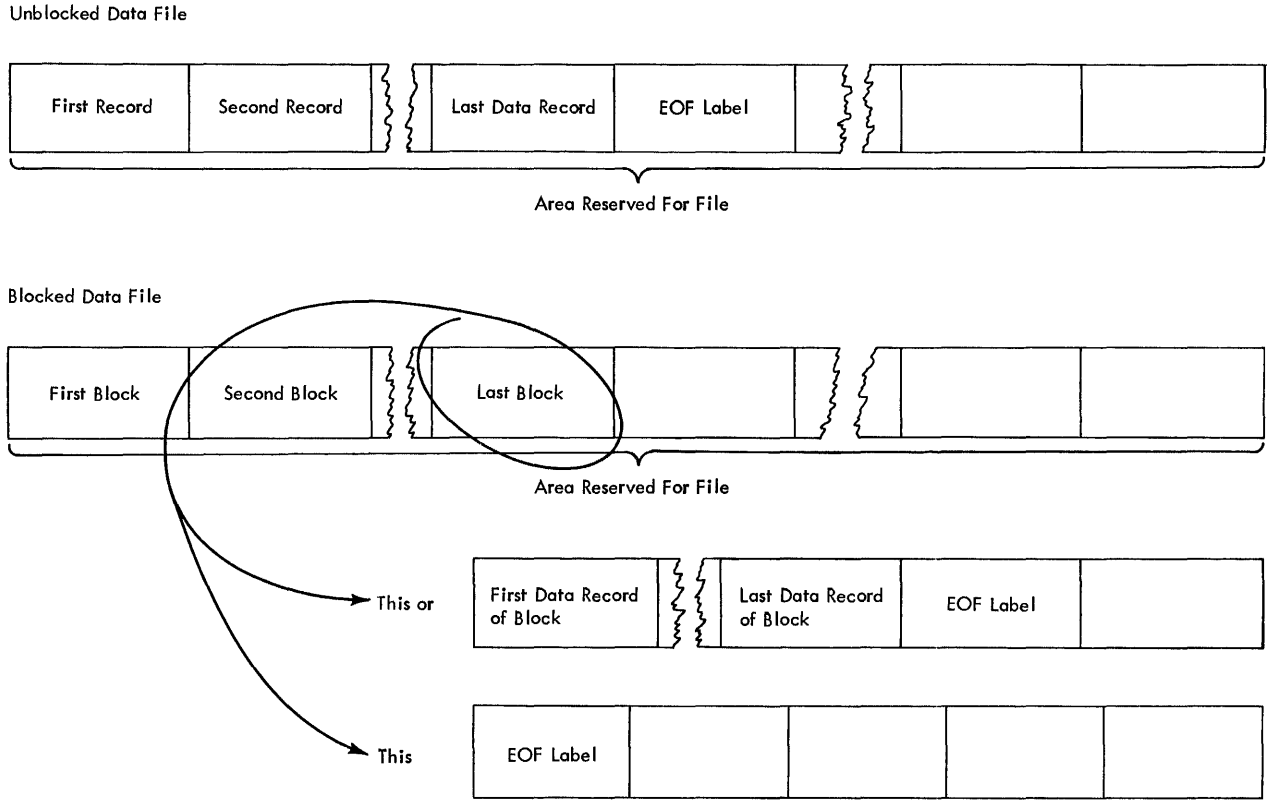

Figure 3. EOF Trailer Labels

Field Number	Position(s)	Field Name
1	1-5	Label Identifier
	6	blank
2	7-10	File Retention Period
3	11-15	File Creation Date
4	16-25	File Identification
5	26-30	File Serial Number
6	31-35	Pack Serial Number
	36	blank
7	37-40	File Sequence Number
	41,42	blanks
8	43-45	Reserve
9	46	Checksum Indicator
10	47	Block Sequence Indicator
11	48-49	Reserve
	50	blank
12	51-54	Creating System
13	55	Record Format
14	56-60	Record Length
15	61-65	Block Size
16	66	Reserve
17	67-72	Reserve
18	73-74	Reserve
19	75-79	Lower Limit
20	80	Reserve
21	81-85	Upper Limit
22	86-100	Reserve

Field Number	Field Identifier	Description
1	Label Identifier	This field identifies the type of label as follows: First Five Characters — Type of Label 1HDRb — Header label--identifies all labeled files or file sections 1EORb — Trailer Label--identifies the end of records in each section of a sequential file 1EOFb — Trailer Label--identifies the end of a sequential file Note: The fields that follow are applicable to the Header Label only. Trailer Labels contain only field 1 and are the same length as the last record in the data file. A temporary header label written upon receipt of the pack will contain only fields 1 and 6.
2	File Retention Period	Number of days (0001-9999) this file is to be retained after the creation date. Should be 9999 for files where expiration date is not applicable; e.g. a random file in which master records are continually updated in the same location.
3	File Creation Date	The year and day of the year the file was created. The year occupies the first two positions (00-99), and the day of the year (001-366) occupies the last three positions (e.g. January 31, 1962 would be entered as 62031)
4	File Identification	A distinct or unique alphanumeric field identifying the entire file.
5	File Serial Number	A five-digit number which is the same as the Pack Serial Number of the first or only pack containing the file.
6	Pack Serial Number	A five-digit number that is assigned to the pack when it enters the system. This number normally also appears on the outer surface of the pack for visual identification.
7	File Sequence Number	A four-digit number (0001-9999), which gives the order of the sections of a file on a pack or packs.
8	Reserve	Reserved for IBM Programming Systems usage.
9	Checksum Indicator	Indicates the presence or absence of checksums. 0 Not applicable or no checksum is used. 1-9 will be used as required for various types of checksums.
10	Block Sequence Indicator	Indicates the presence or absence of block sequencing. 0 Not applicable or no block sequence field is used. 1-9 will be used as required by various types of block sequence fields.
11	Reserve	Reserved for IBM Programming Systems usage.
12	Creating System	Identifies the system that created the file.
13	Record Format	Identifies the record format of this file. F fixed V variable
14	Record Length	For fixed-length records, this field gives the number of characters per logical data record. For variable-length records, this field gives the number of characters for the largest possible logical data record of this file.
15	* Block Size	For fixed-length records, this field gives the number of logical data records within each block. For variable-length records, this field denotes the number of characters for the largest possible block of the file.
16	Reserve	Reserved for IBM Programming Systems usage.
17	Reserve	Reserved for IBM Programming Systems usage.
18	Reserve	Reserved for IBM Programming Systems usage.
19	Lower Limit	Indicates the starting address of the file, or section of the file, identified by this label.
20	Reserve	Reserved for IBM Programming Systems usage.
21	Upper Limit	Indicates the ending address of the area reserved for the file, or section of the file, identified by this label.
21	Reserve	Reserved for IBM Programming Systems usage.

* Note: Block is defined as that information read or written in one operation. (The length in characters must be a multiple of the length of the sector as processed by the using system, e.g. 90 or 100 for the 1440.)

Figure 4. Label Format

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