# IBM

## Systems Reference Library

## IBM Standard Tape Label

This publication describes the format of the IBM
standard tape label and the conventions for its use.
The publication for any program that implements the
standard label will indicate that the program does so.

The standard label was designed for use on tapes for
the following tape units:

1.  IBM 729 II, III, IV, V, and VI Magnetic Tape Units

2.  IBM 7330 Magnetic Tape Units

3.  IBM 7340 Hypertape Drives

The IBM standard tape label contains 120 alphameric
positions and serves as both a header label and a trailer
label.  There are two types of trailer labels:
end-of-file (EOF) trailer labels and end-of-reel (EOR)
trailer labels.

## TAPE FORMATS AND LABELING

Figure 1 illustrates the use of the standard label in the basic tape data formats and on data tapes containing physical tape records (blocks) of checkpoint data. The various tape formats are described below.

### Single-Reel File

A single-reel file is a single file contained on a single reel of tape. The first block is the standard label; this is followed by a tape mark. The data blocks come next; the last data block is followed by a tape mark. This tape mark is followed by an EOF trailer label and then another tape mark.

### Multi-File Reel

A multi-file reel is a single reel of tape containing two or more files. Each of these files is identical to a single-reel file.

### Multi-Reel File

A multi-reel file is a single file contained on two or more reels of tape. Each reel of a multi-reel file is identical in format to a single-reel file except that all reels but the last one have EOR trailer labels. The last reel of the file has an EOF trailer label instead of an EOR trailer label.

### Checkpoint Blocks on Data Tapes

The manner in which checkpoint blocks are recorded on data tapes is specified in Field 19 of the standard label.

### HEADER LABELS

When a tape is entered into a system of labeled tapes, the new tape should have a header label followed by a tape mark. The header label should contain information in the Label Identifier and Reel Serial Number fields only (see the format description below).

### TRAILER LABELS

On 729 II, III, IV, V, and VI tapes and 7330 tapes, only the Label Identifier and Block Count fields are written in the trailer label. 7340 tapes contain the above two fields in the trailer label and, in addition, may contain any other trailer label fields because of the ability of the 7340 to read backward.

No trailer label field on any tape, other than the field entitled "For Optional Usage", is available to the user for additonal label information; this is true even if the field is not being used in the label.

## RECORDING METHOD

All header and trailer labels must be written in binary coded decimal (even parity) regardless of the recording method used for the data in the body of the file.

## MODE (7340)LABELS

On 7340 tapes, both header and trailer labels must be written in the unpacked mode, regardless of the mode in which the data records are written.

## NOTES ON STANDARD LABEL FORMAT

1. Decimal notation is to be used in all label fields containing numerical data.

2. Positions 6, 36, and 41 of the standard label are not to be used. The user is not to assume that these positions will remain blank at all times.

## STANDARD LABEL FORMAT

### Field 1: Label Identifier
### Positions: 1-5

The contents of this field identify the type of label as follows:

| Code | Meaning |
|------|---------|
| 1HDRb | Header label |
| 1EOFb | End-of-file trailer label |
| 1EORb | End-of-reel trailer label |

Additional codes will be assigned by IBM as required.

### Field 2: Retention Period
### Positions: 7-10

The contents of this field indicate the number of days (0001-9998) the file is to be retained after the creation date. The field should contain 9999 for files to which an expiration date is not applicable.

### Field 3: Creation Date
### Positions: 11-15

The contents of this field indicate the year and day of the year the file was created. The year (00-99) occupies the first two positions of the field, and the day of the year (001-366) occupies the last three positions of the field (e. g. , January 31, 1962 would be be entered as 62031).

Field 4: File Identification
Positions: 16-25

The contents of this field are assigned by the user and are unique to the file; this field identifies the entire file. Field 4 contains ten alphameric characters, including blanks.

Field 5: File Serial Number
Positions: 26-30

The contents of this field are identical to the contents of Field 6 of the first or only reel of the file. This field contains five alphameric characters, including blanks.

Field 6: Reel Serial Number
Positions: 31-35

The contents of this field are assigned to the reel when it enters the system. The field contains five alphameric characters, including blanks. The reel serial number normally is also written on the physical label of the reel for visual identification.

Field 7: Reel Sequence Number
Positions: 37-40

This is a four-digit field whose contents (0001-9999) indicate the order of the reel within a given file.

Field 8: Reserve
Positions: 42-44

This field is reserved for future use to indicate the file number in a multifile reel. This file number will be 1 in the label(s) associated with the first file on the reel, and will be increased by 1 for each succeeding file on the reel.

Field 9: Density Indicator
Position: 45

The contents of this field give the density of the file as indicated by the programmed set density instruction. (Density does not refer to packed and unpacked data.)

| Code | Meaning |
| --- | --- |
| 0 | Not applicable |
| 1 | Low density |
| 2 | High density |

Field 10: Checksum Indicator
Position: 46

The contents of this field indicate the presence of or absence of checksums.

| Code | Meaning |
| --- | --- |
| 0 | Not applicable or no checksum present |
| 1-9 | Will be assigned by IBM for various types of checksums |

Field 11: Block Sequence Indicator
Position: 47

The contents of this field indicate the presence or absence of block sequencing.

| Code | Meaning |
| --- | --- |
| 0 | Not applicable or no block sequence field used |
| 1-9 | Will be assigned by IBM for various types of block sequence fields |

Field 12: Tape Checking/Interpreting Indicator
Position: 48

The contents of this field indicate how bits are written on the tape to provide a means of verifying and/or interpreting the data read from the tape.

| Code | 7030 | Others |
| --- | --- | --- |
| 1 | Single odd parity without Error Correction Code | Binary |
| 2 | Single even parity without Error Correction Code | BCD |
| 3 | Single odd parity with Error Correction Code | Not applicable |

Field 13: Tape Data Recording Technique Indicator
Position: 49

The contents of this field indicate the maximum number of bits (not including check bits) that may be recorded as a unit (byte) on the tape.

| Code | Meaning |
| --- | --- |
| 6 | 729 or 7330 |
| 8 | Hypertape |

IBM will provide additional codes as they are required.

Field 14: Tape Data Processing Technique Indicator
Position: 50

The contents of this field indicate the number of bits (not including check bits) out of a byte that are to be treated as a unit in processing. The Hypertape codes are:

| Code | Meaning |
|------|---------|
| 4 | Each unit of data consists of four bits (packed data). |
| 6 | Each unit of data consists of six bits (unpacked data). |

Field 15: Creating System
Positions: 51-54

The contents of this field denote the system that created the file, e.g., 7074.

Field 16: Record Format
Position: 55

The contents of this field indicate the record format of the file.
Codes will be provided by IBM as they are required.

Field 17: Record Length
Positions: 56-60

For fixed-length records, the contents of this field give the number of characters per logical data record; for variable-length records, the contents of this field give the number of characters in the largest possible logical data record of the file.

Field 18: Blocking Factor/Size
Positions: 61-65

For fixed-length records, the contents of this field indicate the number of logical data records within each tape block; for variable-length records, the contents of this field indicate the number of characters in the largest possible tape block record of the file.

Field 19: Checkpoint Indicator
Position: 66

The contents of this field indicate (1) the presence and type or (2) the absence of checkpoint blocks.

| Code | Meaning |
|------|---------|
| 0 | Not applicable or no checkpoint block |
| 1 | Checkpoint blocks immediately follow the tape mark that comes after the header label. The checkpoint blocks are followed by a tape mark and then the next data block. |

| Code | Meaning |
|------|---------|
| 2 | Checkpoint blocks are interspersed with data blocks. |
| 3 | Checkpoint blocks are written as consecutive blocks. No data blocks are written. |
| 4-9 | Will be assigned by IBM if required to indicate additional ways of recording checkpoint blocks. |

Field 20: Block Count
Positions: 67-72

This field is used in trailer labels only. Its contents indicate the number of physical tape records (blocks) in the file that are used to record data. The block count does not include header and trailer labels, tape marks, segment marks, checkpoint records, or other records not containing file data.

Field 21: Reserve
Positions: 73-74

This field is reserved for future use by IBM.

Field 22: For Disk Usage
Positions: 75-79

This field is not to be used in tape labels.

Field 23: Reserve
Position: 80

This field is reserved for future use by IBM.

Field 24: For Disk Usage
Positions: 81-85

This field is not to be used in tape labels.

Field 25: Reserve
Positions: 86-91

This field is reserved for future use as a field containing cycle information.

Field 26: Reserve
Positions: 92-100

This field is reserved for future use by IBM.

Field 27: For Optional Usage
Positions: 101-120

This field may, at the user's option, contain additional label data.

## ALPHABETIC LISTING OF LABEL FIELDS

The label positions occupied by each field are given
in parentheses following the field number.

| Field Name | Field Number & Label Positions | Field Name | Field Number & Label Positions |
|---|---|---|---|
| Block Count | 20 (67-72) | Reel Serial Number | 6 (31-35) |
| Block Sequence Indicator | 11 (47) | Reserve | 8 (42-44) |
| Blocking Factor/Size | 18 (61-65) | Reserve | 21 (73-74) |
| Checkpoint Indicator | 19 (66) | Reserve | 23 (80) |
| Checksum Indicator | 10 (46) | Reserve | 25 (86-90) |
| Creating System | 15 (51-54) | Reserve | 26 (91-100) |
| Creation Date | 3 (11-15) | Retention Period | 2 (7-10) |
| Density Indicator | 9 (45) | Tape Checking/Interpreting | |
| File Identification | 4 (16-25) | Technique Indicator | 12 (48) |
| File Serial Number | 5 (26-30) | Tape Data Processing Technique | |
| For Disk Usage | 22 (75-79) | Indicator | 14 (50) |
| For Disk Usage | 24 (81-85) | Tape Data Recording Technique | |
| For Optional Usage | 27 (101-120) | Indicator | 13 (49) |
| Label Identifier | 1 (1-5) | | |
| Record Format | 16 (55) | Note: Positions 6, 36, and 41 of the standard label | |
| Record Length | 17 (56-60) | are blank. | |
| Reel Sequence Number | 7 (37-40) | | |

1-SINGLE FILE REEL

| H D R | T M | DATA TAPE BLOCKS | T M | E O F | T M |
|---|---|---|---|---|---|

2-MULTI-FILE REEL

| H D R | T M | FILE 1 | T M | E O F | T M | H D R | T M | FILE 2 | T M | E O F | T M |
|---|---|---|---|---|---|---|---|---|---|---|---|

3-MULTI-REEL FILE
Reel 1 of 2

| H D R | T M | FIRST PART OF FILE N | T M | E O R | T M |
|---|---|---|---|---|---|

Reel 2 of 2

| H D R | T M | LAST PART OF FILE N | T M | E O F | T M |
|---|---|---|---|---|---|

4-CHECK POINTS ON DATA TAPES*

| H D R | T M | CHECK-POINT BLOCK | T M | FILE N | T M | EOF OR EOR | T M |
|---|---|---|---|---|---|---|---|

*Must be used when files are to be interchanged between data processing systems.

Figure 1.

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