Legac-E Education

Cartridge Standard Labels

If the LABEL parameter is omitted from a DD statement referencing a disk or cartridge data set the default is assumed to be LABEL=(1,SL). As it happens disks can only be labelled as Standard, but cartridge data sets are allowed alternative specifications which are not reviewed here. The question is what does Standard Label mean? As it happens the answer is different for z/OS and z/VSE. In their own way, each of the columns in the table below represents Standard Label cartridges, in EBCDIC (rather than ASCII), and with no User Labels present.

Multi-File Cartridge
VOL1
HDR1
HDR2
Tape Mark (TM)
Data Set
Tape Mark (TM)
EOF1
EOF2
Tape Mark (TM)
HDR1
HDR2
Tape Mark (TM)
Data Set
Tape Mark (TM)
EOF1
EOF2
Tape Mark (TM)
Tape Mark (TM)

Multi-Cartridge File
VOL1
HDR1
HDR2
Tape Mark (TM)
Data Set
Tape Mark (TM)
EOV1
EOV2
Tape Mark (TM)

Non-z/OS Cartridge i.e z/VSE
VOL1
HDR1
Tape Mark (TM)
Data Set
Tape Mark (TM)
EOF1
Tape Mark (TM)
Tape Mark (TM)

All label records are 80-byte images. The Tape Mark is an industry standard code produced by the hardware to indicate the end of a collection of records.

Cartridges from z/VSE systems can be processed on z/OS as Standard Label as they match the criteria in the third column, however the absence of a HDR2 means

Cartridge Standard Labels

that file attributes; BLKSIZE, LRECL, and RECFM should be coded on the DD statement, if not already supplied within the program.

VOL1

This is the VOLUME label with the first four bytes of the record contain the characters VOL1 and the next six bytes of the record being the volume serial number of the volume. Any cartridge with a VOL1 label cannot be processed using LABEL=(,NL).

A VOL1 label is written to a cartridge as part of its initialization process. This is done with a utility program such as IEHINITT or EDGINERS (part of DFSMSrmm). Initialization writes both a VOL1, and a dummy HDR1 label.

HDR1

This is the first HEADER label with the first four bytes of the record contain the characters HDR1 and the next **seventeen bytes of the record contain the last seventeen characters of the data set name.** (Note it only contains the full data set name if the name is less than 18 characters.

Other important information held in the HDR1 label includes things such as file creation date, retention period or expiry date.

HDR2

This is the second HEADER label which begins HDR2 and describes the physical attributes of the data set, i.e. BLKSIZE, LRECL, and RECFM. HDR2 is not created on z/VSE systems.

If User Header Labels are present, they will follow the HDR2.

EOF1

This is the first End-of-File label with the first four bytes of the record containing the characters EOF1 and the contents being broadly similar to the contents of HDR1 except that it includes a block count for subsequent use on read operations to ensure that the same amount of data is read, as was written.

This label will always be the first in the set marking the end of a Standard Label data set, except when the data set is continued onto another volume in which case EOV1 is substituted.

Cartridge Standard Labels

EOF2

This is the second End-of-File label with the first four bytes of the record contain the characters EOF2 and the contents of this label are broadly similar to that of HDR2. EOF2 is not created on z/VSE systems. For multi-volume files, EOV2 will be used instead of EOF1.

If User Trailer Labels are present, they will follow this label.

EOV1

This is the first End-of-Volume label with the first four bytes of the record contain the characters EOV1 and the contents of this label record being broadly similar to the content of HDR1 except that it includes a block count for subsequent use on read operations to ensure that the same amount of data is read, as was written.

This label will always be the first in each of the label sets marking the end of a Standard Label data set volume. The last volume in the sequence will have the more usual EOF1 followed by two tape marks.

EOV2

This is the second End-of-Volume label with the first four bytes of the record contain the characters EOV2 and the remaining contents being broadly similar to that of HDR2. EOV2 is not created on z/VSE systems.

If User Trailer Labels are present, they will follow this label.