

Published: 06/11/68

Identification

Archive Command
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Purpose

The archive command allows a user to have an archive segment in a designated directory. An archive segment is the concatenation of several segments, with each prefaced by a header. The user references individual segments in an archive segment only with the archive command. Individual segments in the archive segment may be deleted, extracted and replaced (or newly placed) in the archive segment. Following are two possible uses of an archive segment:

- a) To combine segments which are not frequently used so that the single archive file occupies fewer tracks than the many smaller segments.
- b) To combine segments in order to reduce the number of directory entries, thus facilitating movement of a set of segments.

Usage

archive key name (seg1...segN)

name is the name of the archive segment and may be a pathname relative to the root or to the working directory. each segment of the list, seg1...segN is the entry name of a segment in the archive segment name.

SegI (a member of the list seg1...segN) may not be a pathname and is assumed to be in the same directory (or to be placed in the same directory) as name.

key indicates what action archive should take and may be one of d,r, or x.

Key=d: delete segments seg1...segN from the archive segment name. This involves creating a new archive segment which does not contain seg1...segN and deleting the old archive segment.

Key=r: replace old segments seg1...segN from the archive segment name by the new segments seg1...segN. If segI does not exist in the archive segment name, segI is added at the end of the archive segment. If name does not exist, the archive segment name is created and seg1...segN are combined into the newly created archive segment.

Key=x: extract segments seq1...seqN from the archive segment name and copy them into the directory containing name. The segment name is unchanged. The copies are named seq1...seqN and any old copies are deleted (providing the user has appropriate access to the directory).

Errors

Six messages are typed to the user for the following reasons.

- 1) "key is not one of (d,r,x)" if the key is wrong.
- 2) "segment name doesn't exist" if the user tries to extract or delete from an archive segment which is not found.
- 3) "segment name is not an archive segment" if the segment name is found but does not have the characteristics of an archive segment. (See implementation below.)
- 4) "seqI not found" if seqI isn't found either in the archive segment (key="x" or "d") or in the directory (key="r").
- 5) "Archive segment name is not created" if the key is "r", if the segment name doesn't already exist, and if none of the segments seq1...seqN are found.
- 6) "Cannot move the segment segname" if a completed segment cannot be placed in the designated segment. This may occur because a non-empty entry of the same name already exists in the designated directory and cannot be deleted. Alternatively, it may occur because such an entry does not exist and the user does not have access which allows him to create the necessary entry. If the user is extracting segments, archive continues to the next. Otherwise, archive returns to command level after reporting the failure.

Discussion

Each entry in the archive segment consists of a header followed by a copy of the segment. Each header is 25 ASCII words long. The format is as follows:

BT NL NL NL -1st word

BRS BRS BRS BRS -2nd word

CC -char count in ascii of the name of the archived segment
name -(52 characters)

Time -including time zone, that the segment was archived

BBBBBBB - (7 chars) the ascii value of the bit count of
the segment

BRS BRS BRS BRS

NL NL NL NL

Implementation

Delete: A call to `working_segs$init` (BY.2.11) creates in the process directory a segment with a unique name, and enables the modes "read", "write" and "append". Archive copies headers and segments that are not to be deleted from the archive segment name into the new archive segment.

Finally `working_segs$finish` is called to move the segment it created to the target directory as name and delete the process directory branch. The target directory is the directory specified by name, or if none appears, it is the working directory.

Replace: Like delete, replace copies into a new archive segment created by `working_segs$init`, changing the segments that are to be replaced or adding a segment if it does not currently exist in the archive. At the end `working_segs$finish` is called.

Extract: For each segment segI that is to be extracted from the archive segment name, a call to `working_segs$init` is made and a segment is created with a temporary name consisting of a unique character string. SegI from the archive segment is then moved to the newly created segment. SegI is also left in the archive segment. A call to `working_segs$finish` moves the new segment to the target directory and deletes the process directory branch.