TO: Distribution

FROM: Gary C. Dixon

DATE: October 29, 1973

SUBJECT: truncate_, a proposed new subroutine.

        Attached is a proposal for a new subroutine, truncate_. I
would appreciate receiving any comments you may have on this new
subroutine before I submit an MCP. Written comments should be
sent by IPC Courier to:

        GDixon's bin, Bldg 39

or sent by MIT Interdepartmental mail to:

        Gary Dixon, MIT Room 39-584

or sent with the following Multics mail command:

        mail comment GDixon PDO

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SUMMARY:

     Install a new subroutine call, truncate_. This subroutine
will truncate (single-segment or multi-segment) files to a
specified bit length.

REASONS:

     When a program wishes to write output into an empty file
(using ios_ and the file_ IOSIM), there is currently no easy way
for the program to see if the file already exists, and if so, to
truncate the file. Truncation is preferable to deletion of the
existing file because it preserves the names, ACL, safety switch
setting and other attributes of the file.

DETAILED PROPOSAL:

     truncate_ will perform the following steps:

1)   If the specified bit length is less than or equal to
     sys_info$max_seg_size * 36, then
     a)   convert the specified bit length to a word length.
     b)   call hcs_$truncate_file with that word length.
     c)   if a zero error code is returned, call hcs_$set_bc with
          the specified bit length, and return with its error
          code.
     d)   if error_table_$dirseg is returned,
          i)   call msf_manager_$open to open the file. If a
               non-zero error code is returned, return with that
               code.
          ii) call msf_manager_$adjust to truncate the MSF to a
               single segment file, to truncate that
               single-segment file, and to set its bit count.
          iii) call msf_manager_$close to close the file.
     e)   if any other error code is returned by
          hcs_$truncate_file, return with that error code.

2)   For bit lengths larger than sys_info$max_seg_size * 36,
     a)   call msf_manager_$open to open the file. If a non-zero
          error code is returned, return with that code.
     b)   compute how many segments the MSF must have to contain
          the specified number of bits, according to the formula:
               #segs = (bit_count/(sys_info$max_seg_size * 36)) + 1
     c)   call msf_manager_$get_ptr for each component segment to
          create it, if it doesn't already exist.

d)   call msf_manager_$adjust to delete any unnecessary
      component segments, to truncate the last of the
      remaining components to the appropriate word length,
      and to adjust the bit counts on all of the remaining
      segments.
e)   call msf_manager_$close to close the MSF.

Specifications for the external interface of the subroutine
appear on the next page.

Subroutine Call
10/09/73

Name: truncate_

     This   subroutine   truncates   a   (single-segment   or   a
multi-segment) file to a specified bit length.   A multi-segment
file   will   be   converted   to a single-segment file, if necessary.
If the file is already shorter than the specified length, then it
will not be truncated, but the bit count will be adjusted to the
specified length.

Usage

        declare truncate_ entry (char(*), char(*), fixed bin(35),
            fixed bin(35)):

        call truncate_ (directory, entry, length, code):

1) directory   is the directory portion of the file to be
                       truncated. (Input)

2) entry   is the entry portion of the file to be
                       truncated. (Input)

3) length   is the length to which the file is to be
                       truncated, in bits. (Input)

4) code   is a status code.   It may be any code
                       returned by hcs_$truncate_file, hcs_$set_bc,
                       msf_manager_$open, msf_manager_$get_ptr, or
                       msf_manager_$adjust. (Output)