To: MTB Distribution

From: T. Casey

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Subject: New list command.

A new list command is proposed, to replace the present list, list_names, and list_totals commands. A draft MPM writeup is attached, and the differences between the current commands and the proposed new command are summarized below.

Certain changes have been previously proposed (in MTB-042) and approved by the MCRB. Installation of those changes has been postponed to avoid two closely spaced changes to the user interface. Those changes are noted in the following summary.

1.   list_names and list_totals are eliminated, and replaced by the -name and -total control arguments of the list command.

2.   The -brief control argument (approved but not installed) to suppress printing of header lines is replaced by -no_header.

3.   The default order of listing of entry types is changed from segs, dirs, msfs, links, to segs, msfs, dirs, links. That order may be varied by the user, by typing the entry type control arguments in the desired order.

4.   The specification of what is to be printed and whether or not to sort is separated. For example, it is possible to sort on one of the dates without its being printed, and vice versa. The -sort control argument specifies sorting. If it is given, the item to sort on may be specified explicitly, or it may be allowed to default to one of the items being printed.

5.   Sorting can be done on names (approved but not installed) or on records used, in addition to date-time modified and date-time used.

6.   All items to be printed may be specified explicitly by control arguments (-name, -record, -mode, -dtm, and -dtu), or various default combinations may be specified by a single control argument. It is possible to have both -dtu and -dtm printed.

7.   The -reverse control argument does not imply sorting by -dtu, as it did in the old list. It only reverses the order in which the list would otherwise have been printed.

8.   The -short control argument (approved but not installed) eliminates extra white space during printing of link pathnames. The pathnames are printed starting immediately after the entry names instead of being aligned in column 35.

9.   The -primary control argument (approved but not installed) specifies that additional names should not be printed (just the primary name).

10.   The -count control argument specifies that, for multiply-named entries, the number of names should be printed.

11.   The control arguments -segment, -file, -link, -total, -name, and -record will be accepted in both the singular and plural form, although they will be documented only in the singular. This is a convenience to current users, who may be confused by the facts that:

      1)   in the old list command, -segment, -link, but -files were the accepted spellings, and the command names were list_names and list_totals;

      2)   there presently exist control arguments -name and -total;

      3)   although most standard control arguments are singular, there are the following exceptions: -arguments, -files, -ring_brackets, and -symbols.

12.   The new messages printed for empty directory, starname not found, and no entries of specified type, will be as described in MTB-042.

13.   The two problems mentioned in MTB-042 (regarding use of starnames), solutions of which were postponed, will now be fixed:

      1)   An entry will no longer be listed more than once when more than one of the given starnames matches a name on the entry.

      2)   All names on an entry will be printed (unless -primary is given). (The current list command just prints those that match one of the given starnames.)

      These problems are caused by deficiencies in hcs_$star_list_. They will be solved, initially, by using the starname "**" in the call to that procedure, and doing the star matching in an internal procedure. An external user-ring star matching procedure is under consideration, but the interface needs more design work, and will be the subject of a future MTB.

NAME: list, ls

The list command prints information about entries in one or more directories. Arguments allow the user to specify the directories to be listed, the entry types and entry names for which information is to be printed, the amount of information to be printed for each entry, and the order in which the information is to be printed.

The default, when no arguments are given, is to list files (segments and multi-segment files) of all names, in the working directory. For each entry, the mode, records used, primary name, and any additional names, will be printed. The two entry types will be listed in the order: segments, multi-segment files; within each entry type, entries will be printed in the reverse of the order in which they were created (most recently created first). Preceding the listing of each entry type will be a line giving the total number of entries of that type and the total records used.

USAGE: list -entry_names- -control_arguments-

1) entry_names   are the (optional) names of entries to be listed. If entry names are given, only entries having at least one name matching one of the entry names will be listed. The star convention may be used in the entry names. Except for the -pathname control argument, the positions of the entry names (before, after, or among the control arguments) have no significance.

2) control_arguments may be chosen from the following:

    -pathname dir_path
    -pn dir_path   causes the directory dir_path to be searched for any entry names that follow dir_path on the command line. If no entry names follow, then the default of ** (all entry names) will be used to list the directory dir_path. This argument may be given more than once. Any entry names preceeding its first occurrence refer to the working directory. (However, ** is not used by default to list the working directory when this argument is given.)

The following control arguments are used to specify the entry types to be listed:

    -segment, -sm   print information about segments.

    -multisegment_file,
    -msf   print information about multi-segment files.

-file, -f   print information about files (i.e., segments and multi-segment files, in that order). This is the default.

=directory, =dr   print information about directories.

-branch, -br   print information about~ branches (i.e., segments, multi-segment files, and directories, in that order).

-link, -lk   print information about links.

-all, -a   print information about all entry types (segments, multi-segment files, directories, and links, in that order).

When several entry type arguments are given, the entry types will be listed in the order in which their corresponding control arguments are given.

The following control arguments are used to specify the amount of information to be printed:

-total, -tt   print only the heading lines giving total entries and total records used, for each entry type specified.

-no_header, -nh   omit the heading lines.

-name, -nm   print the heading lines, followed by the primary name and any additional names, for all selected entries.

-record, -rec   print records used, plus all information printed when -name is given.

-mode   print mode, plus all information printed when -record is given. This is the default.

-date_time_used,
-dtu   print date and time last used, plus all information printed when -mode is given.

-date_time_modified,
-dtm   print date and time last modified, plus all information printed when -mode is given.

If both -dtm and -dtu are given, both will be printed (dtm first), plus all information printed when -mode is given.

-primary, -pri   do not print the additional names on multiply-named entries.

-count, -ct   for multiply-named entries, print the total
                     number of names, after the primary name, on
                     the same line.

-brief, -bf   This argument is used to decrease the amount
                     of infomation printed. Its exact effect
                     depends on which other arguments are given.
                     If -total is given, then -brief will cause
                     the totals information for all selected entry
                     types to be abbreviated and printed on a
                     single line. Otherwise, it will suppress the
                     printing of records or mode when those items
                     are implied but not specifically named in
                     control arguments. For example, list -dtu
                     -brief will cause names and date_time_used,
                     but not mode and records, to be printed.

-short, -sh   print link pathnames starting immediately
                     after the entry names, instead of aligning
                     them in column 35.

The items mode, records, and date_time_used have no meaning for
links, and there is an additional item, link_path, associated
with each link. There is no control argument to specify that
link_path should be printed. It will be printed in all cases
except the following:

1)   when -total is given;

2)   when -name is given;

3)   when -dtm -brief is given; (a link has a date_time_modified,
     which can be sorted on and printed).

The following control arguments specify the order in which
entries will be printed, within each entry type:

-sort   sort entries according to either name,
                     records,   date_time_used,   or
                     date_time_modified, as specifed by the
                     control argument immediately following -sort
                     (or by the default described below).

-name, -nm   sort entries by primary name.

-record, -rec   sort entries by records used (largest first).

-date_time_used,
-dtu   sort entries by date_time_used (most recent
                     first).

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-date_time_modified,
-dtm                sort  entries  by  date_time_modified   (most
                    recent first).
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If one of the above four control arguments immediately follows -sort, it specifies the item to be sorted on, and does not cause the corresponding item to be printed. If none of these four arguments immediately follows -sort, then sorting will be done on the first item from the following list which is being printed: date_time_modified, date_time_used, records, names. (For example, list -dtm -sort is equivalent to list -dtm -sort -dtm.) This has the effect of having the list sorted on the item in the leftmost column (except for mode, which is never sorted on).

If -sort is not given, entres will be printed in the reverse of the order in which they were created (most recently created first).

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-reverse, -rv     This argument is used to reverse the order in
                  which entries are printed.  If -sort is  also
                  given,  the  sort will be reversed. Otherwise
                  entries will be printed in the order in which
                  they were created (oldest first).
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