JamPack

Feature Sheet

Metalogic

JAMPACK increases the effective size of a pack, by reducing the impact of checker boarding, and it can eliminate many of the throughput problems associated with 'SECTORS REQUIRED' hangs.

JAMPACK requires no software patches, and has been tested on a wide variety of systems and different MCP levels. It has been run on a system with 110 packs on-line and on a halt-load family with nine members.

Metalogic's SUPERVISOR and FLEX products can be used to further improve automated operation, and pack utilisation.

Why do you need it?

The MCP allocates space on packs in variable sized areas and as the files occupying these areas on a disk are being created, expanded or removed, the numbers and sizes of the available areas on the disk will change considerably over time. This leads to an effect known as **CHECKER BOARDING**, the result of which is very visible on most systems when programs hang with **'SECTORS REQUIRED'** messages, even though there is much more available space than is needed. The problem is that the available space will usually become distributed in small chunks scattered over the entire disk, especially if there are large numbers of small, volatile files on the family.

If nothing is done to alleviate checker boarding, ideally 17% of a pack must be kept un-used to avoid a 'SECTORS REQUIRED' hang.

What does it do?

JAMPACK is an essentially "intelligent" RESERVEDISK, performing multiple ODT RESERVE commands to make the MCP dynamically move file rows to optimise and consolidate the available disk. For fast responses to disk shortage problems, JAMPACK will only move those rows which will release the maximum available space in the shortest time.

Note that JAMPACK can "squash" any family including DISK.

JAMPACK'S greatest short term benefit is its fast and reliable resolution of SECTORS REQUIRED waiting situations, usually within 30 seconds. This helps to eliminate production delays and wasted machine time plus a great deal of operator frustration.

If JAMPACK is used as a prevention mechanism rather than cure; its long term benefits enable even the most heavily occupied pack families to optimise their available disk space by reclaiming areas made useless because of checker boarding effects. As a consequence, JAMPACK can also improve I/O performance by reducing head travel and therefore seek time, by balancing I/O loads between all members of a pack family.

Modes of operation

JAMPACK has various modes of running, allowing responses to immediate disk shortages or revitalising pack families which have severe checker boarding problems. The user can select the following options by changing the parameter passed to JAMPACK.

1. Squash mode

If a pack is not currently in use, JAMPACK can squash all the available space into one contiguous area at the end of the pack. This is quite a long operation as a large proportion of the data on the pack must be moved, so it would normally be done at night or on weekends. This mode is very similar to the Unisys SQUASH ODT command but does not require repeated operator input (you have to input multiple SQUASHes to get the best results). This will eliminate checker boarding completely on disks where no files are in use.

2. Space consolidation

Although a JAMPACK "squash" can completely eliminate checkerboarding, it may be quite time consuming, and often a much smaller contiguous area is sufficient to reduce the likelihood of 'SECTORS REQUIRED' hangs. To cater for this, JAMPACK can create a single large available area on a lightly loaded pack. The run time is typically a few minutes for small pack families but can take longer for larger pack families and, though it is quite practical outside peak periods. The amount of contiguous disk space requested is specified in the parameter, and if that amount cannot be easily created without a full squash, it is reduced to a more economical figure.

3. 'SECTORS REQUIRED' hangs

'SECTORS REQUIRED' is one of the most intractable of operational problems. It can seriously affect the system throughpu**t**. It usually occurs during the busiest periods in the day, and on the most heavily used packs. JAMPACK is engineered to solve 'SECTORS REQUIRED', and to solve it in SECONDS, even on a heavily used pack and even on the halt-load unit.

For example, if the following typical waiting entry is generated from a LIBRARY/ MAINTENANCE job:

#1234:PK45 504 SECTORS REQUIRED ON MYPACK *SYMBOL/MCP

a run of JAMPACK with the parameter

RUN *METALOGIC/JAMPACK("MYPACK 504") MYPACK 504"

will normally solve the problem within 30 seconds. This mode is particularly powerful when used in conjunction with METALOGIC/ SUPERVISOR, so that the **'SECTORS REQUIRED'** is detected within milliseconds, and JAMPACK is run automatically.