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SMALL PROGRAMS WITH VERY LARGE :PROG FILES

THE DUMP <name> command in NRL sometimes produces :PROG files which are far too large for the program. Usually these files are 59 pages long. This does not affect the program when running but it uses up the filestore, which is in short supply, and takes a very long time for the program to be dumped or loaded. The problem has been traced to programs with COMMONs which are initialised by DATA statements. The reason is as follows: - NRL places instructions from the bottom of the virtual store (usually after the loader i.e. the 6th page) upwards, and COMMONs from the top downwards. The :PROG file contains contiguous memory. If COMMONs are not used or are not initialised, they are not saved on the :PROG file and hence the file corresponds to the program size. If the COMMONs are initialised, they have to be saved hence the whole virtual store (except for the loader itself) is saved which results in an enormous :PROG file.

The solution is to lower the top COMMON address so that the wasted gap between instructions and commons is reduced to less than one page. The command UPPER-LIMIT <address> does this. The address should be on a page boundary to optimise filestore use. The value of <address> has to be determined by trying! See the following example.

(using default settings)

```

@NRL
EN-UN
FREE: 013665-177777
LOAD EXAMPLE,FTNLIB
FREE: 026537-177633
DUMP 'EXAMPLE'
EXIT

```

EXAMPLE:PROG is 59 pages long !!

(using upper limit)

```

@NRL
UPPER-LIMIT 027777
EN-UN
FREE: 026537-027777
LOAD EXAMPLE,FTNLIB
FREE: 026537-027633
DUMP 'EXAMPLE'
EXIT

```

EXAMPLE:PROG is now 7 pages !!

If your program is subsequently increased in size so that the program and commons overlap, the address supplied to UPPER-LIMIT should be raised.

OTHER NRL INFORMATION

If you set the NRL message LOADER TABLE OVERFLOW this is due to more entries (subroutines) than it can handle. The table size can be increased by the SIZE command (see manual) and then repeat load sequence.

Since the loader resides in the first 6 pages of the virtual store, program and data space is normally limited to 59 pages. If you really need the last 6 pages the IMAGE-FILE 100 command can be used to force the loader to link the program on a file before bringing it back into memory with RUN or DUMP. Since the disc is used instead of memory, the time taken to perform a load sequence is increased.

PRINTING TEXT FILES CREATED BY A FORTRAN PROGRAM

When a FORTRAN program writes to a file using format statements, the control characters are stored in the file. If this is sent to the printer via the COPY command the control characters would appear on the output instead of being spaced. To overcome this problem the PRINT-FILE program should be used to read the file and send it to the output device.

