

UNIVERSITY OF QUEENSLAND  
Prentice Computer Centre

NEWSLETTER

authorization: Director of the Centre

1 IMPORTANT SYSTEM CHANGES FOR TIMESHARING USERS -  
IMPLEMENTATION OF DYNAMIC SOFTWARE LINE ALLOCATION

1.1 General

The PDP-10 monitor retains information relating to all remote terminal lines connected to the system, so that as more terminals are connected, the amount of memory used by the monitor increases.

The monitor, however, need only retain information about the maximum number of terminals which can be simultaneously logged in, and since this is equal to the number of job slots (60) minus the number of active pseudo-teletypes (~10), the monitor need only be aware of 50 'lines'.

These 50 'software lines' can then be dynamically allocated to physical 'hardware' lines as required. This means that there will no longer be a direct relationship between TTY number and hardware line number, i.e. a user logging in on the same terminal a number of times may be given a different TTY number each time (LOGIN has been modified to type out the TTY number allocated and the hardware line number).

The monitor will only recognize TTY numbers and will only refer to them.

1.2 Implications

The following are implications of dynamic software line allocation:

- 1.2.1 In order to be allocated a TTY number, the user should type control-C. Failure to do this will mean that no TTY will be allocated to the terminal and so no response to any other typing will occur.
- 1.2.2 The de-allocation of TTYs will occur for terminals which are not logged in or assigned. The de-allocation mechanism allows a reasonable time lapse between first obtaining a TTY (by typing a control-C) and logging in. If the user exceeds this time delay and the line is de-allocated, control-C should be typed again.

1.2.3 'SYSTAT' knows nothing about hardware lines and will continue to talk about TTYS, e.g. .SYS . <cr> will type out the users current TTY number and associated information. To obtain the relationship between TTYS and hardware lines, another program has been provided -

```
.R TESTAT <cr>
Type /H for help
*
```

The program prompts with an asterisk as above. The user may then type:

- (a) another \* <cr>. This will type out the relationship between all allocated TTYS and their hardware lines.
- (b) TTYm, HDWn, ....etc <cr>. This will type out the relationship for a string of TTY and hardware line numbers,

```
e.g. .R TESTAT
Type /H for help
*TTY3,TTY4,HDW6,HDW13 <cr>

TTY3 = HDW7
TTY4 = HDW35
?HDW6 not in use
HDW13 = TTY20
*
```

This means that TTY3 has been allocated to hardware line 7, TTY4 to hardware line 35, hardware line 6 was not in use at the time (i.e. no TTY allocated to it) and hardware line 13 was allocated TTY20.

Type control-C to get out of TESTAT or more input if it is wished to continue.

1.2.4 To use another terminal for I/O purpose from the users own terminal, the 'slave' must first be allocated a TTY and then assigned.

This is done from the user's main terminal with a program called ALCTTY. e.g. .R ALCTTY <cr>

```
HDW line? (/H for help) #5 <cr>
ALLOCATED TTY4
PLEASE ASSIGN IT IMMEDIATELY!
```

The program requests the hardware line number of the terminal to be assigned, then responds with the TTY number allocated.

The user should then assign the TTY quickly so that it is not de-allocated -

.ASS TTY4:

1.2.5 It is possible that there will be no TTYs left to be allocated when a user wishes to log onto the system. Normally the job capacity will be exceeded before this occurs, however, if a user gets no response from control-C, first check the recorded message service to ensure the system is available (extension 6101), then contact the Computer Centre. It is important when contacting the Centre about problems with a terminal, to give both the hardware line number and the current TTY number (if one exists).

1.2.6 The allocation information about all TTYs is stored in a table in the monitor. This table can be read by user mode programs via a UUO -

(a) TTY TABLE

TTY no	0	8	9	10	11	12	35
0	HDW	NO.	1	1	1	RESERVED	
1							
n							

n = no. of TTYs

The TTY table consists of n 36 bit entries, where n is the number of TTYs (software lines). Each entry is as follows:

- BITS 0 - 8 HDW line number allocated this TTY
- BIT 9 If this bit is set to 1, the TTY is allocated, i.e. HDW line number not cleared when TTY de-allocated, but bit 9 set to 0.
- BIT 10 If this bit is set, the TTY is not to be de-allocated from the HDW line, i.e. fixed allocation.
- BIT 11 If this bit is set, the TTY is allocated to the HDW line for I/O purposes from another terminal.
- BITS 12-35 Reserved.

(b) \$RTAB UUO

This UUO, when given a TTY number, returns the 36 bit entry corresponding to that TTY in the table.

```
RSTAB$ AC          ;(CALLI AC,-12)
error return      ; no such TTY
normal return
```

.  
.
.  
.

(AC used to pass TTY number and return 36 bit table entry).

1.3 Implementation Details

Dynamic software line allocation will commence on TUESDAY, 6 MAY. Anyone requiring further information should contact Bob Christiansen at the Centre (extension 6943).

Whilst a fairly major change in the monitor has been required and there are some important implications to users, the system will result in a significant reduction in the amount of user core taken by the monitor, with a resulting improvement in performance.

2 SPECIFICATION OF RESOURCE CONSTRAINTS

Some users appear to have adopted the habit of specifying a special restraint on a job, not directly, but by the time of day when that particular resource will be available; thus a user who has an SPSS job which requires more than 32K or core quite often will include the switch /AFTER:18:00 because this is the time at which the core limit is normally set to 64K. A better way to specify this constraint is directly, with the switch /CORE:64.

While it is our normal practice to make this particular change at 18:00 on occasions when, for example, we are shutting down early, we have advanced the changeover times by say one or half an hour. We then do not really know whether the time limit is an attempt to ensure the 64K or whether there is some real time constraint.

It makes it very difficult for our operations staff to know whether it is safe to alter the time parameter in order to force the job through before shutdown or whether to leave the job as it stands and disappoint a user who normally might have expected the job to run overnight. Please try to specify such constraints directly; if you have any problems, please see our consultant.

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3 PRIVATE MAGNETIC TAPES

All private magnetic tapes registered at the Computer Centre will be subject to a storage and registration charge of 50 cents per month; any tape de-registered before 29 APRIL 1975 will not be subjected to this charge.

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