

TO: Multics Performance Log  
 FROM: J. H. Saltzer  
 DATE: August 6, 1969  
 SUBJECT: Summary of Performance Improvements from installation of mini-shell

1. Number of unwired pages touched upon execution of the "nothing" command (not including first-time linking) is 26. A precise measurement of pre-minishell environment is not available, but was estimated to be over 40 from ready message experience.
2. CPU time in process creation is changed from approximately  
     7.4 sec. non page time + 1.7 sec. paging to  
     3.7 sec. non page time + 1.0 sec. paging.
3. Time required to type out a line is changed from:  
     21 ms + 0.5 ms/char                      (write\_out under full shell)  
     to    9 ms + 0.5 ms/char                   (tio\$write\_string under mini-shell)
4. Time required to execute "FORTRAN Prime" Script from PDP-8 users simulator has changed as follows:

	before	after	change
	mini-shell	mini-shell	
non-page time per interaction	775 ms	675 ms	-100 ms
page time per interaction	565 ms	475 ms	-90 ms
total cpu time for Script	89 sec.	75 sec.	-13 sec.
total page faults	~5000	~4200	~800
page faults per interaction	70-75	62-63	~10