SYSTAT

A System Status Program

The SYSTAT program is run using the `SYSTAT` command. The `SYSTAT` command is a foreign command of the form:

```
$ SY*STAT == "$dev:[dir]SYSTAT.EXE"
```

It may be installed with WORLD privilege.

Command syntax:

```
         Qualifiers and Parameters:    Defaults:          Min. Abbr:
$ SYSTAT [/NODE[=nodename]]            /NODE=ADMIN*       /N[=]
         [/IMAGE[=imagename]]          /IMAGE=*           /I[=]
         [/[NO]RIGHTS]                 /NORIGHTS          /RI  /NOR
         [/[NO]IO]                     /NOIO              /IO  /NOIO
         [/[NO]PROCESS_NAME[=prcnam]]  /NOPROCESS_NAME    /PR  /NOP
         [/PRIORITY]                                      /PRI
         [/[NO]INTERACTIVE]            /INTERACTIVE       /IN  /NOI
         [/[NO]BATCH]                  /BATCH             /BA  /NOB
         [/[NO]NETWORK]                /NONETWORK         /NE  /NON
         [/[NO]OTHER]                  /NOOTHER           /OT  /NOO
         [/[NO]ALL]                    /INT/BATCH         /A   /NOA
         [username]                    (all)
```

`/NODE` may be used to specify the node name. If it is omitted, the first five characters of the current nodename with an asterisk appended is used as the default. If it is specified with no value, only the current node is used. If a username is specified, the default changes to all nodes. Only nodes which are members of the same cluster as the system on which the command is given are valid.

`/IMAGE` may be used to include only processes running that image. If no value is given, processes with no image (running the CLI) will be included. Wildcards may be used. The default is to show processes regardless of the image they are running.

`/RIGHTS` includes currently enabled process rights for each process. This is the only qualifier which will result in greater than 80 column output. The display is designed so that a wrap at column 80 will show the first line of rights information starting in column 2. Certain "usual" rights are filtered from the list: Interactive, Batch, Network, Local, and the UIC identifier if it matches the username. Other process rights that the system automatically adds remain. These include Dialup and Remote. `/NORIGHTS` is the default.

`/IO` may be used to substitute the buffered and direct IO counts for the global and total memory in use information. `/NOIO` is the default.

`/PROCESS_NAME` may be used to substitute the process name for the time information. Both the elapsed and CPU time will be replaced by the process name. In addition, a value may be specified. This will be compared against a compressed and uppercased version of the process name. Wildcards may be used. `/NOPROCESS_NAME` is the default.

`/PRIORITY` may be used to substitute the base and current priorities for the global and total memory in use information.

`/INTERACTIVE` includes mode interactive processes. `/INTERACTIVE` is the default.

`/BATCH` includes mode batch processes. `/BATCH` is the default.

`/NETWORK` includes mode network processes. `/NONETWORK` is the default.

`/OTHER` includes mode other (detached) processes. `/NOOTHER` is the default.

`/ALL` includes processes in all modes.

`username` includes only processes for this user. You may use wildcards ("*" or "%"). Note that if a username is specified, the default for `/NODE` is changed to `/NODE=*`. Thus, `$ SYSTAT *` is not equivalent to `$ SYSTAT`, but to `$ SYSTAT/NODE=*`.[1] Also note that there is no implicit wildcard at the end; "SMITH" will match "SMITH" but not "SMITHJ" as `SHOW USERS` would.[2] Also, unlike `SHOW USERS`, wildcards work for any part of the username.

An example:

```
$ SYSTAT
-------- System Status on Node(s) ADMIN* at 02:33 PM, 09-Apr-91 --------

  PID    Username Elapsed-Time  CPU-Time  State M   Gbl/Mem   Image
20C00348 CHARLIE       0 06:27 0 00:01:07 CUR   I   111/462   TYPE
20C00349 CHARLIE       0 06:27 0 00:00:34 HIB  sI  1362/3945  TPU
20C00504 LINUS         0 00:17 0 00:00:06 LEF   I    80/367
20C0047E LUCY          0 01:59 0 00:00:25 CUR   I   189/1270  SYSTAT
20C004F7 SNOOPY        0 00:19 0 00:00:06 HIB   I   123/406
20C004F9 SNOOPY        0 00:19 0 00:00:11 LEF  sI  1064/2593  TPU
20E001BF WOODSTOCK     1 22:36 0 00:02:44 LEF   I   155/467
20C003EF ZASUPITTS     0 04:04 0 00:00:33 LEF   I   290/1154  CSWING
20C004EA ZASUPITTS     0 00:32 0 00:00:08 HIB  sI  1098/2393  TPU

-----  9 records:  9 Interactive  0 Batch  0 Network  0 Other  -----
```

[1] Actually, it's not quite this, either, because the swapper process has no username, and will not match a username wildcard. It will show up when `/OTHER` is specified with no username to match.

[2] I consider this a feature. It would be easy to make the program work the other way, but then you couldn't limit to a specific username if there were others that started with that name. I prefer "`SYSTAT SMITH*`" to match all usernames starting with "SMITH".

Processes are sorted by username, mode, and elapsed time such that the oldest interactive process for a user is shown first. Most items are self-explanatory. Elapsed time is in `d hh:mm` format, and CPU time is `d hh:mm:ss`. A small "s" before the process mode indicates that the process is a subprocess. The modes are `I` for interactive, `B` for batch, `N` for network, and `O` for other (detached). The numbers under "`Gbl`" are the number of pages of global (shared) memory mapped by that process's working set. The numbers under "`Mem`" are the total number of pages (including global) in the process's working set. If IO statistics are selected, the memory is replaced by "`BIO`" for the buffered IO count and "`DIO`" for the direct IO count. The IO counts are since process creation. If the image is blank, the CLI (usually DCL) is running. Blanks in other fields indicates that the information was not available at the time it was requested. A table of possible process states follows.[3]

State	Description
CEF	Common event flag wait
COM	Computable (waiting to run)
COMO	Computable, outswapped
CUR	Current (running)
COLPG	Collided page wait
FPG	Free page wait
HIB	Hibernate wait
HIBO	Hibernate wait, outswapped
LEF	Local event flag wait (normal I/O wait)
LEFO	Local event flag wait, outswapped
MUTEX	Mutex wait
MWAIT	Miscellaneous resource wait
PFW	Page fault wait
RWAST	AST wait (also catch-all for MWAIT)
RWCLU	Cluster transition wait
RWCAP	CPU capability wait
RWCSV	Cluster server process wait
RWQUO	Job pooled quota
RWMBX	Mailbox full wait
RWMPB	Modified page writer busy wait
RWMPE	Modified page list empty wait
RWNPG	Nonpaged dynamic memory wait
RWPAG	Paged dynamic memory wait
RWSCS	Distributed lock manager wait
SUSP	Suspended
SUSPO	Suspended, outswapped

[3] Actually, "MUTEX" and all the ones beginning with "RW" are not process states, but types of the "MWAIT" state. I have replaced the generic "MWAIT" state with the type of wait as `SHOW SYSTEM` also does.