ORBiT MPE/iX Pocket Guide

7.0 express 1

Updated for **MPE/iX** 7.0 Express Release 1, and for **BACKUP+/iX** release 6.60

ORBiT Software

Command Syntax:

KEYWORD	Literal keywords
input	User input
[ ]	May select one element
{ }	Must select one element
[...]	Prior element(s) may be repeated
±	'+' or '-'

All keywords and user input are required, unless enclosed within '[]'.

If [] characters are part of the command syntax, they are shown quoted.

Intrinsic Parameters:

I 16 32 64	Signed integer
U 16 32 64	Unsigned integer
R 32 64	Real
@ 32 64	Pointer
B	Boolean (8-bit)
C	Character
PROC	Procedure
REC	Complex record structure
-A	Array (suffix)
*	Type varies
Parm	Required parameter

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Section 1 : ORBiT Products

Data Center Management solutions from ORBiT

BACKUP+/iX provides the fastest stores available for the HP e3000. It also offers advanced data compression and encryption, supports disk-to-disk, appended, networked, and deferred backup, and multiple tape drive support in parallel. The ONLINE BACKUP option eliminates downtime due to backup via its exclusive Zero-DownTime backup capability; no need to exit programs or to log users off for backup.

Delta Backup is an add-on option to BACKUP+/iX. It reduces the amount of time and tape required for partial backups by up to 80% by backing up only the changed records, rather than the entire contents of a file in which the changed record resides. Restores are a snap; simply restore the last full and last Delta backup.

The **Tape Manager and Librarian** (TML) module automates many of the manual functions and eliminates all of the paperwork associated with backup. This includes backup scheduling, tape selection, identification labeling, tape usage and reliability tracking, and scratching of expired tapes. The Restore Wizard eliminates the need to search through SHOW listings and other manual efforts to identify the backups and tapes that contain the files to be restored: simply issue a RESTORE command and the Wizard automatically identifies the appropriate backups, and calls for the required tapes.

OLM - ORBiT Library Manager provides direct support for automated tape libraries and autochangers on the HP e3000 without the use of a third party software package or server.

JMS/3000 - Batch job scheduling system
JMS is a sophisticated, yet easy to use software tool that allows you to automate your batch processing, allowing more effective use of existing personnel while enjoying the benefits of the unattended "Lights Out" data center environment. System Managers and operators spend less time managing basic computer operations resulting in significant cost savings. JMS is available for MPE/iX.

OpCon/xps - For companies requiring enterprise-wide automation, ORBiT offers OpCon/xps, which automates the entire enterprise from a single point of control. It integrates any platforms and any applications, providing transparent cross-platform dependency capabilities, real-time monitoring of all tasks, and central management of multiple data center schedules.

ORBiT Products

Callback/3000 - System down/Job notification
CALLBACK notifies you immediately if any host or remote CPU system fails, or of any adverse environmental conditions. Immediate or delayed notification may be selected for any job abort, any user-defined condition, any job not started or completed on time, and any console REPLY pending. Callback/3000 is available for HP e3000 systems.

UNiBACK is an advanced UNIX backup package that offers greater speed, functionality, reliability, and automation than other UNIX backup tools. Features include network backup, data compression, tape management, and scheduling. UNiBACK is supported on HP9000, and Linux.

NAP (Net Alert Plus) provides around the clock enterprise-wide monitoring with event notification sent to pagers (numeric and text), phones, email addresses, FAX machines, electronic message boards, and loudspeakers. NAP monitors Windows NT, Novell Netware, Unix, Linux, AS/400, and MPE/iX Systems, as well as any system that can run a Java or Perl program.

X-OVER is a utility which copies HPSTORE and TurboSTORE tapes from one media type to another. Use it to copy backups on tapes which are in danger of deterioration, or to transfer backups from obsolete or outmoded media to more modern supported media (e.g. 6250 bpi reel tapes to DLT). It can also be used to "reverse copy" - in case you have to submit tapes to entities which only accept "older" media, such as 1600 or 6250 bpi reel tapes.

Fantasia is one of the most sophisticated laser printing and output management programs available for the HP e3000. More than a simple forms package, it is also able to produce sophisticated reports and dynamic letters including the use of type setting techniques, fonts, logos, graphs and graphics. It can also produce a host of standard barcodes types, as well as convert HP e3000 output into PDF output for emailing and/or posting to websites via the add on OpenPDF product. Fantasia has long been used to replace expensive multipart pre-printed stationary such as invoices, purchase orders and credit notes. Forms can be quickly and simply designed on its easy to use PC front end. Fantasia then merges these forms automatically with MPE/iX spool files with no changes to other applications.

UltraBac for Windows NT - UltraBac offers live backup of open databases with optional agents for SQL and Exchange. UltraBac's unique features include backup to disk or tape, backup of open shared files, SMTP messaging, and the fastest Windows NT backup available (up to 19GB per hour). For disaster recovery this optional module provides several layers of protection including the ability to quickly search and restore a corrupted registry or simply reboot from a static mirror image in the event of a NT server crash. Any disk can be backed up or restored using image technology (sector level backup) to either DISK or TAPE. The Disaster Recovery Module is universal and completely stand alone, and allows recovery without any dependence on Microsoft's WIndows NT installation CD.

About the company
ORBiT was founded in 1983 and currently supports more than 4,500 customers worldwide.

Section 2 : BACKUP+/iX Commands

Reflects BACKUP+/iX syntax as of release 6.60

BACKUP+/iX commands:

COPY	Copy BACKUP tape contents from one tape drive to another
DO	Re-execute the last (or a recent) command
DUMP	Copy data from a disk-to-disk backup fileset to tape, in store format
EXIT	Exit the BACKUP program
FULLBACKUP	Perform a full system backup to tape or disk
HELP	Provide help on BACKUP commands
LISTDIR	List the contents of the file directory of a BACKUP tape or disk-to-disk backup fileset
LISTREDO	List command history
PARTBACKUP	Perform a partial system backup to tape or disk
PURGE	Purge a disk-to-disk backup fileset or store directory file
READALL	Verify the integrity of a tape or disk-to-disk backup
REDO	Re-execute the last (or a recent) command, with optional editing
RESTORE	Restore files from tape or disk that were stored by BACKUP
STORE	Store files to tape or disk

>COPY **tapefile1* TO **tapefile2* [;*copyoption* [;…]]

copyoption: [;BACKUP=*backupspec*]
[;LABEL=*volsetid* [,*expirationdate* [,*comment*]]] [;VOLID=*volidlist*]
[;TOVOLID=*volidlist*]

>DO [[CMD=] ["] *cmdid* ["]] [;[EDIT=] ["] *editstring* ["]]

>DUMP *diskfile*; **tapefile* [;*dumpoption* [;…]]

dumpoption: [;SHOW [= [SHORT | LONG | FILENAME] [,DATES | ,OFFLINE | ,SECURITY | ,DIRECTORY] […]]]
[;APPEND]
[;AUTOREPLY=*ldev*]
[;BACKUP=*backupname*]
[;LABEL=*volsetid* [,*expiredate* [,*comment*]]] [;VOLID=*volid* [,…]]
[;MAXERRORS=*numerrors*]
[;MAXRETRIES=*numretries*]
[;NOLABEL]
[;OLM=[*hostname*:]*library* [,[NO]ANSI]]
[;PROGRESS [=*minutes*]]

Backup+/iX

>E[XIT]

>FULLBACKUP

[**tapefile* | *diskfile*] [,**listfile*] [;*storeoption* [;...]]

>HELP [*helpentry* [,] [ALL | *keyword*]]

>LISTDIR [**tapefile* | *diskfile*] [;*listdiroption* [;...]]

listdiroption: [;SHOW [= [SHORT | LONG | FILENAME] [,DATES | ,OFFLINE | ,SECURITY | ,DIRECTORY] [...]]]
[;AUTOREPLY=*ldev*]
[;BACKUP=*backupspec*]
[;DISKDIR [=*dirfilename*]]
[;ENCRYPT [=*encryptionmethod*, *key*]]
[;LABEL=*volsetid*] [;VOLID=*volid* [,]]
[;OLM=[*hostname*:]*library* [,[NO]ANSI]]

>LISTREDO [[START=]*m*] [[;END=]*n*] [[;OUT=]*outfile*] [;ABS | ;REL | ;UNN]

>PARTBACKUP

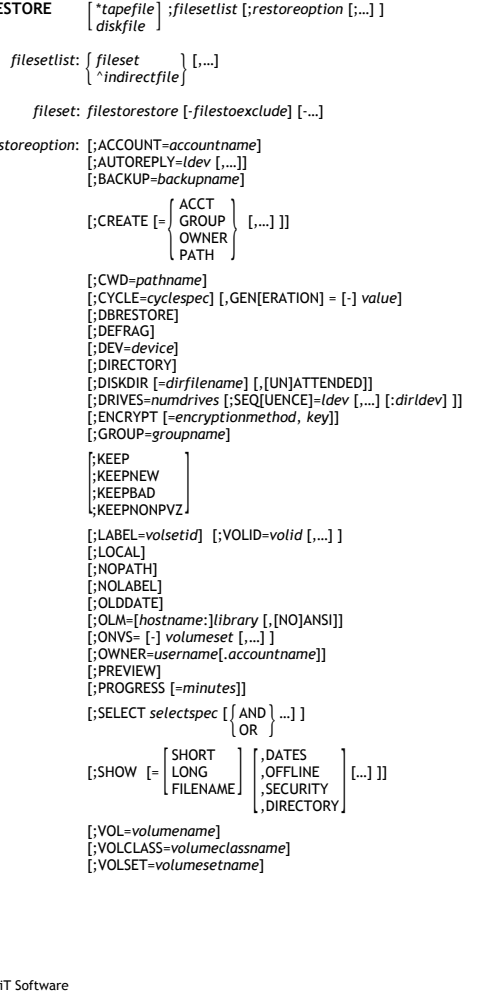
[**tapefile* | *diskfile*] [,**listfile*] [;*storeoption* [;...]]

>PURGE *diskfile*

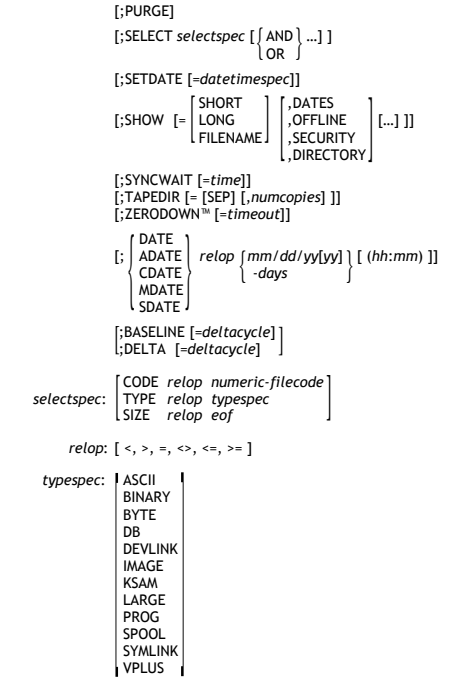
>READALL [**tapefile* | *diskfile*] [;*readalloption* [;...]]

readalloption: [;AUTOREPLY=*ldev* [,...]]
[;DRIVES=*numdrives* [;SEQ[UENCE]=*ldev* [,...] [:*dirldev*]]]
[;ENCRYPT [=*encryptionmethod*, *key*]]
[;LABEL=*volsetid*] [;VOLID=*volid* [,...]]
[;MAXERRORS=*numerrors*]
[;MAXRETRIES=*numretries*]
[;OLM=[*hostname*:]*library* [,[NO]ANSI]]
[;ON ERROR DO '*command*']
[;ON ERROR QUIT]
[;PROGRESS [=*minutes*]]

>REDO [[CMD=] ["] *cmdid* ["]] [;[EDIT=] ["] *editstring* ["]]


>RESTORE
*tapefile
diskfile
;filesetlist [;restoreoption [;...]]
filesetlist:
fileset
^indirectfile
[,...]
fileset: filestorestore [-filestoexclude] [-...]
restoreoption:
[;ACCOUNT=accountname]
[;AUTOREPLY=ldev [,...]]
[;BACKUP=backupname]
[;CREATE [=
ACCT
GROUP
OWNER
PATH
[,...]]]
[;CWD=pathname]
[;CYCLE=cyclespec] [,GEN[ERATION] = [-] value]
[;DBRESTORE]
[;DEFRAG]
[;DEV=device]
[;DIRECTORY]
[;DISKDIR [=dirfilename] [,[UN]ATTENDED]]
[;DRIVES=numdrives [;SEQ[UENCE]=ldev [,...] [:dirldev]]]
[;ENCRYPT [=encryptionmethod, key]]
[;GROUP=groupname]
;KEEP
;KEEPNEW
;KEEPBAD
;KEEPNONPVZ
[;LABEL=volsetid] [;VOLID=volid [,...]]
[;LOCAL]
[;NOPATH]
[;NOLABEL]
[;OLDDATE]
[;OLM=[hostname:]library [,[NO]ANSI]]
[;ONVS= [-] volumeset [,...]]
[;OWNER=username[.accountname]]
[;PREVIEW]
[;PROGRESS [=minutes]]
[;SELECT selectspec [
AND
OR
...]]
[;SHOW [=
SHORT
LONG
FILENAME
,DATES
,OFFLINE
,SECURITY
,DIRECTORY
[...]]]
[;VOL=volumename]
[;VOLCLASS=volumeclassname]
[;VOLSET=volumesetname]

```
                [; { DATE  } relop { mm/dd/yy[yy] } [ (hh:mm) ]]
                   { ADATE }       { -days       }
                   { CDATE }
                   { MDATE }
                   { SDATE }

                [;FIRST [+offset]]
                [;LAST [-offset]]

                [;BASELINE [=deltacycle]]
                [;DELTA  [=deltacycle]]

   selectspec: See STORE command description.

>STORE          filesetlist [; { *tapefile } ] [;storeoption [;...] ]
                               { diskfile  }

   filesetlist: { fileset       }
                { ^indirectfile } [,...]
                { !cyclename    }

      fileset: filestostore [-filestoexclude [-...] ]

   storeoption: [;APPEND]
                [;AUTOREPLY=ldev [,...]]
                [;BACKUP=backupname]
                [;COMPRESS [=compressionmethod]]
                [;DBSTORE]
                [;DIRECTORY]
                [;DISKDEV=device]
                [;DISKDIR [=dirfilename]]
                [;DRIVES=numdrives [,P ] [;SEQ[UENCE]=ldev [,...] ]]
                                   [,S ]
                [;ENCRYPT [=encryptionmethod, key]]
                [;FILEBUFF=numsectors]
                [;GETDATE]
                [;LABEL=volsetid [,expire_date [,comment]]]  [;VOLID=volid [,...]]
                [;MAXBLOCK]
                [;MAXERRORS=numerrors]
                [;MAXRETRIES=numretries]
                [;NOLABEL]
                [;NOLOCK]
                [;OLM=[hostname:]library [,[NO]ANSI]]
                [;ON ERROR QUIT]
                [;ON { ERROR          } DO 'command' ]
                     { FILE=filename  }
                     { SUSPEND        }
                     { RELEASED       }
                     { SYNCPOINT      }
                     { SYNCWAIT       }
                     { VOLUME         }
                [;ONLINE]
                [;ONVS= [-] volumeset [,...] ]
                [;OPTIMIZE [=optimizationfactor]]
                [;PREVIEW]
                [;PROGRESS [=minutes]]
```



TML (Tape Manager & Librarian) commands:

ADD	Add new tapes into tape pools; loads file information for selected generations
CHANGE	Change existing tape attributes
DEFAULT	Set cycle and tape defaults
DELETE	Delete existing tapes from system (when discarding)
LABEL	Print tape identification labels
PREVIEW	Display scheduled backups and specific tapes required
SCRATCH	Scratch generation of a cycle, thereby scratching associated tapes; optionally unload file information for selected generations
SHOW	Report backup attributes, including information about active cycle generations, tapes, and files

>ADD FILE[S]=*cyclespec* [;GEN[ERATION] = [-] *value*]

>ADD TAPE=*volset* [;MED[IA]=*mediatype* ;LEN[GTH]=*measurement* ;SIZ[E]=*classification* ;CYC[LE]=*pool*] [;...]

>CHANGE TAPE=*volset* [;MED[IA]=*mediatype* ;LEN[GTH]=*measurement* ;SIZ[E]=*classification* ;CYC[LE]=*pool*] [;...]

>DEFAULT CYCLE [;KEE[P]=*numgenerations* ;RET[ENTION]=*numdays* ;FRE[QUENCY]=*skipdays* ;DAY[S]=*daymask* ;VOL[UMES]=*required*,*spare* ;SIZ[E]=*classification*] [;...]

>DEFAULT TAPE [;MED[IA]=*mediatype* ;LEN[GTH]=*measurement* ;SIZ[E]=*classification* ;CYC[LE]=*pool*] [;...]

>DELETE CYCLE=*cyclename*

>DELETE TAPE=*volset*

>LABEL CYCLE=*cyclename* [;GEN[ERATION] = [-] *value*]

>LABEL TAPE=*volset*

>PREVIEW CYCLE=*cyclespec* [;MED[IA] = *mediatype*] [;OFFLINE]

>SCRATCH CYCLE=*cyclename* ;GEN[ERATION] = [-] *value*

>SCRATCH FILE[S]=*cyclespec* [;GEN[ERATION] = [-] *value*]

>SHOW CONFIG [;OFFLINE]

>SHOW CYCLE=*cyclespec* [;GEN[ERATION]=[-]*value* [;CREATION ;STA[TS] ;TYP[E] ;MOD[IFIED] ;TAP[ES] ;FIL[ES] ;DIR[ECTORY]] [;OFFLINE]

>SHOW FILE=*filesetlist* [;CYCLE=*cyclespec* [,GEN[ERATION]=[-]*value*] [...] ;BDATE *relop backupdate* (*backuptime*) ;MDATE *relop modifydate* (*modifytime*) [;FIRST [+*offset*] ;LAST [-*offset*] ;ALL] [;OFFLINE]

>SHOW POOL=*cyclespec* [;ALL | ;AVA[ILABLE] | ;EXP[IRED] | ;SCR[ATCHED] | ;PRO[TECTED]] [;OFFLINE]

>SHOW TAPE=*volset* [;USA[GE] | ;ERR[ORS] | ;FIL[ES]] [;OFFLINE]

OLM (ORBiT Library Manager) commands:

ADD	**DELETE**	Track library status in library database
CONNECT		Connect to OLM daemon; display libraries
DEFAULT		Setup library defaults
DIAGNOSE		Perform library diagnostics
EXPORT	**IMPORT**	Move media between mail slot (port) and library slot
LIST		Display library information
LOAD	**UNLOAD**	Move media between library slot and drive
OFFLINE	**ONLINE**	Change library status
RENAME		Rename media, device node, or drive name

>ADD LIBRARY [*hostname*:]*library devicename*

>CONNECT [*hostname*]

>DEFAULT [LIBRARY [*hostname*:]*library*] [SLOT *n*] [PORT *n*] [[DRIVE] *name* | DRIVE *number*]

>DELETE [LIBRARY [*hostname*:]*library*]

>DIAGNOSE [LIBRARY [*hostname*:]*library*] *testnumber*

>EXPORT [LIBRARY [*hostname*:]*library*] [SLOT *n*] [PORT *n*]

>IMPORT [LIBRARY [*hostname*:]*library*] [SLOT *n*] [PORT *n*] [*media-name*]

>LIST [LIBRARY [*hostname*:]*library*] [DRIVE [*n1* [- *n2*]] | SLOT [*n1* [- *n2*]]]

>LOAD [LIBRARY [*hostname*:]*library*] [SLOT *n*] [[DRIVE] *name* | DRIVE *number*]

>OFFLINE [LIBRARY [*hostname*:]*library*]

>ONLINE [LIBRARY [*hostname*:]*library*]

>RENAME [LIBRARY [*hostname*:]*library*] [[[DRIVE] *name* | DRIVE *number*] *drivename* | SLOT *n1* [- *n2*] *media-name*]

>UNLOAD [LIBRARY [*hostname*:]*library*] [[DRIVE] *name* | DRIVE *number*] [SLOT *n*]

CI Commands

Section 3 : CI Commands

Including command-line driven utilities & Posix UDCs

:# [*text*]

:ABORT

:ABORTCON [[PIN=] *pinspec* [VERSION= [ON | OFF]]]

note: Normally implemented as command file in TELESUP account.

=ABORTIO *ldev*

=ABORTJOB { # [J | S] *nnn* | [*jobname*,]*user.acct* }

:ABORTJ[OB] [*jobid* | *userid* [...]] [[- *jobid* | *userid* [-...]]

[;JOBQ=*qname*] [;DEV=*ldev*] [;IP=*n.n.n.n*]

[;EXEC] [;SCHED] [;WAIT] [;SUSP]

jobid: [#] [J | S] *nnn*

userid: @ [J | S] [: [*jobname*,] *username* [.*acctname*]]

notes: Command downloadable from http://jazz.external.hp.com

:ABORTPROC [[PIN=] { *pinspec* | (*pinspec* [,...]) }] [;SYSTEM]

pinspec: [#P] *pin* [.*thread_id*]

:ACCEPT [JOBS | DATA],*ldev*

:ALLOCATE [PROGRAM, | PROCEDURE,] *name*

:ALLOW { FILE=*formaldesignator* [;SHOW] | { @.@ | *user*.@ | @.*acct* | *user.acct* } ;COMMANDS=*command* [,...] }

:ALTACCT *acctname*

[;PASS=[*password*]]
[;FILES=[*filespace*]]
[;CPU=[*cpu*]]
[;CONNECT=[*connect*]]
[;CAP= [[±] *cap* [,...]]]
[;ACCESS=[(*fileaccess* [;...])]]
[;MAXPRI=[*subqueue*]]
[;LOCATTR=[*localattribute*]]
[;ONVS=*volumesetname*]
[;USERPASS= { REQ | OPT }]

cap: { SM, AM, AL, GL, DI, OP, NA, NM, SF, ND, UV, CV, CS, PS, LG, PH, DS, MR, PM, IA, BA }

fileaccess: { R | L | A | W | X } [,...] : { ANY | AC } [,...]

subqueue: { AS, BS, CS, DS, ES }

:ALTFILE [FILE=] *filename*

[[;OWNER=]*owner_name*] [[;GROUPID=]*Posixgroup_name*]

:ALTGROUP *groupname*[.*acctname*]

[;PASS=[*password*]]
[;FILES=[*filespace*]]
[;CPU=[*cpu*]]
[;CONNECT=[*connect*]]
[;CAP= [[±] *cap* [,...]]]
[;ACCESS=[(*fileaccess* [;...])]]
[;ONVS=*volumesetname*]
[;HOMEVS=*volumesetname*]

cap: { PH, DS, MR, PM, IA, BA }

fileaccess: { R | L | A | W | X | S } [,...] : { ANY | AC | GU | AL | GL } [,...]

:ALTJOB [JOB=] # J *nnn*

[[;INPRI=] *inputpriority* | ;HIPRI]

[;JOBQ=*qname*] [[;OUTDEV=] { *ldev* | *devclass* }]

:ALTLOG *logid* [;LOG=*logfile* { ,DISC | ,TAPE }] [;PASS=*password*] [;AUTO | ;NOAUTO]

:ALTPROC
{ [PIN=] { *pinspec* | (*pinspec* [,...]) } | [;JOB=] { *jobspec* | (*jobspec* [,...]) } }
{ [;PRI=] *priority* | [;WG=] { *workgrp* | NATURAL_WG } }
[;TREE | ;NOTREE] [;USER | ;ANYUSER] [;SYSTEM]

pinspec: [#P] *pin*

jobspec: [# { J | S } | *user*[.*account*] | @ [J | S]]

priority: { BS, CS, DS, ES, BM, CM, DM, EM, *nnn* }

:ALTSEC *objectname* [,FILENAME | ,LDEV | ,DEVCLASS]

,[ACCESS=] (*fileaccess* [;...])

[;NEWACD= | ;ADDPAIR= | ;REPPAIR=] { (*acdpair* [;...]) | ^*filereference* }

;REPACD= { (*acdpair* [;...]) | ^*filereference* | *objectname* }

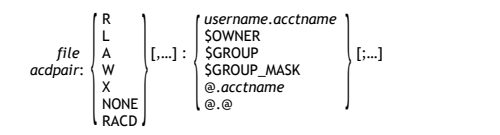
;DELPAIR= { (*userspec* [;...]) | ^*filereference* }

;COPYACD= *objectname* [,FILENAME | ,LDEV]

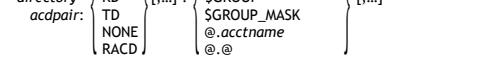
;DELACD

;MASK

fileaccess: { R | L | A | W | X } [,...] : { ANY | AC | GU | AL | GL | CR } [,...]



:ALTSPOOLFILE



:ALTUSER *username*[*.acctname*]

[;PASS= [*password*]]
[;CAP= [[±] *cap* [,...]]]
[;MAXPRI= [*subqueue*]]
[;LOCATTR= [*localattribute*]]
[;HOME= [*homegroupname*]]
[;UID= [*uid*]]

[;USERPASS= { REQ | OPT } [,EXPIRED]]

cap: { SM, AM, AL, GL, DI, OP, NA, NM, SF, ND, UV, CV, CS, PS, LG, PH, DS, MR, PM, IA, BA }

subqueue: [AS, BS, CS, DS, ES]

:ALTWG [WORKGROUP=] *workgrp*

[[;BASE=] *base*]
[[;LIMIT=] *limit*]
[[;MINQUANT=] *min*]
[[;MAXQUANT=] *max*]

[[;BOOST=] { DECAY | OSCILLATE }]

[[;TIMESLICE=] *tslice*]
[[;MINCPUPCT=] *minpercent*]
[[;MAXCPUPCT=] *maxpercent*]

:APPCCONTROL

[START [;TRACEON=*trace_option*] [;TFILENAME=*trace_filename*] [;TFILESIZE=*record_count*] [;PERFON=*perf_option*] [;ERROPT=*error_option*]]

[STOP [;TYPE=*stoptype*]]

[SESSIONS ;STYPE=*session_type_name* ;LIMIT=*new_session_limit*]

[STOPSESSION ;SID=*session_id*]

[STATUS [;STYPE=*session_type_name*]]

[PERFORMANCE [;STYPE=*session_type_name*] [;SID=*session_id*]]

[TRACEON [;TFILENAME=*trace_file_name*] [;TFILESIZE=*record_count*]]

[TRACEOFF]

[PERFORMANCEON]
[PERFORMANCEOFF]
[VERSION]
[DUMP]

:ASSOCIATE *devclass*

:BASIC [*commandfile*] [,[*inputfile*] [,*listfile*]]

:BASICGO [*commandfile*] [,*listfile*]

:BASICOMP [*commandfile*] [,[*uslfile*] [,*listfile*]]

:BASICPREP [*commandfile*] [,[*progfile*] [,*listfile*]]

:BBASIC [*commandfile*] [,[*inputfile*] [,*listfile*]]

:BBASICGO [*infile*] [,*listfile*]

:BBASICOMP [*infile*] [,[*uslfile*] [,*listfile*]]

:BBASICPREP [*infile*] [,[*progfile*] [,*listfile*]]

:BBXL [*textfile*] [,[*inputfile*] [,*listfile*]] [;XL=*xllist*] [;INFO=*quotedstring*]

:BBXLCOMP [*textfile*] [,[*objectfile*] [,*listfile*]] [;INFO=*quotedstring*]

:BBXLGO [*textfile*] [,*listfile*] [;XL=*xllist*] [;INFO=*quotedstring*]

:BBXLLK [*textfile*] [,[*progfile*] [,*listfile*]] [;INFO=*quotedstring*]

:BREAKJOB *# J nnn*

:BUILD *filereference*

[;REC= [*recsize*] [, [*blockfactor*] [, [F | U | V | B] [,BINARY | ,ASCII]]]]

[;CCTL | ;NOCCTL]

[;TEMP]
[;DEV= [[*dsdevice*]#] [*device*]]
[;CODE= *filecode*]
[;DISC= [*numrec*] [,[*numextents*] [,*initialloc*]]]
[;ULABEL= *numlabels*]

[;RIO | ;NORIO]

[;STD | ;MSG | ;CIR | ;KSAMXL | ;KSAM64 | ;SPOOL]

[;KEY= { ^*filereference* | (*keytype*, *keyoffset*, *keysize* [,DUP | ,RDUP] [;...]) }]

[;FIRSTREC=*recnum*] [;REUSE | ;NOREUSE] [;LANG= { *langid* | *langname* }]

[;DEFBLK | ;OPTMBLK]

Maximum file sizes:

File Type	Maximum Bytes
Byte stream record types	2,147,483,647
Standard fixed length record files	137,438,953,472
KSAM64 files	137,438,953,472
All other files	4,294,901,760

:BYE

:CALC *expression*

:CCXL [*textfile*] [,[*objectfile*] [,*listfile*]] [;INFO=*quotedstring*]

:CCXLGO [*textfile*] [,[*listfile*]] [;INFO=*quotedstring*]

:CCXLLK [*textfile*] [,[*progfile*] [,*listfile*]] [;INFO=*quotedstring*]

:CHANGELOG *logid* [;DEV=*device*]

:CHDIR [[DIR=]*dir_name*] [;SHOW | ;NOSHOW]

:CHGROUP [[GROUP=]*groupname*] [/*grouppass*]

:COB74XL [*textfile*] [,[*objectfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]
[;INFO=*quotedstring*] [;WKSP=*workspace*] [;XDB=*xdbfile*]

:COB74XLG [*textfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]
[;INFO=*quotedstring*] [;WKSP=*workspace*] [;XDB=*xdbfile*]

:COB74XLK [*textfile*] [,[*progfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]
[;INFO=*quotedstring*] [;WKSP=*workspace*] [;XDB=*xdbfile*]

:COB85XL [*textfile*] [,[*objectfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]
[;INFO=*quotedstring*] [;WKSP=*workspace*] [;XDB=*xdbfile*]

:COB85XLG [*textfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]
[;INFO=*quotedstring*] [;WKSP=*workspace*] [;XDB=*xdbfile*]

:COB85XLK [*textfile*] [,[*progfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]
[;INFO=*quotedstring*] [;WKSP=*workspace*] [;XDB=*xdbfile*]

:COBOLII [*textfile*] [,[*uslfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]
[;INFO=*quotedstring*] [;WKSP=*workspace*]

:COBOLIIGO [*textfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]
[;INFO=*quotedstring*] [;WKSP=*workspace*]

:COBOLIIPREP [*textfile*] [,[*progfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]
[;INFO=*quotedstring*] [;WKSP=*workspace*]

:COMMENT [*text*]

:CONSOLE [*ldev*]

:CONTINUE

:COPY [FROM=]*sourcefile* [{ ;TO= / , } *targetfile*] [;ASK / ;YES / ;NO]

:CSTM

:DATA [*jsname*,]*username*[/*userpass*].*acctname*[/*acctpass*] [;*filename*]

:DEALLOCATE [PROGRAM, / PROCEDURE,] *name*

:DEBUG [*commands*]

:DELETESPOOLFILE

{ # I *nnn* / # O *nnn* / *ldev* }

:DELETEVAR *varname* [,...]

:DEVCTRL [DEV=] *ldev* [[COMPRESSION=] { ENABLE / DISABLE / NOCHANGE }]

[[EJECT=] { ENABLE / DISABLE / NOCHANGE }] [[LOAD=] { ONLINE / OFFLINE / NOCHANGE }]

note: DEVCTRL command file normally located in MPEXL.TELESUP

:DHCFCONTROL

```
[START       [;NODE=nodename]              ]
[            [;TRACE]                      ]
[            [;TFILESIZE=recordcount]      ]
[            [;COMMENT="reason"]           ]
[            [;ERROPT=erroroption]         ]
[            [;DEBUG=ldev]                 ]
[            [;OVERRIDE]                   ]
[STARTSESS   {;NODE=nodename    }          ]
[            {;LUNAME=hostluname}          ]
[STOP        [;NODE=nodename]              ]
[            [;TYPE=stoptype]              ]
[            [;DUMP]                       ]
[            [;COMMENT="reason"]           ]
[STOPSESS    {;NODE=nodename    }          ]
[            {;LUNAME=hostluname}          ]
[            [;TYPE=stoptype]              ]
[            [;DUMP]                       ]
[            [;COMMENT="reason"]           ]
[TRACEON     [;NODE=nodename]              ]
[            [;TFILESIZE=recordcount]      ]
[            [;COMMENT="reason"]           ]
[TRACEOFF    [;NODE=nodename]
[STATUS      {;NODE=nodename    }          ]
[            {;LUNAME=hostluname}          ]
[DUMP        {;NODE=nodename    }          ]
[            {;LUNAME=hostluname}          ]
[            [;COMMENT="reason"]           ]
[VERSION]
```

:DISALLOW

```
{ FILE=formaldesignator [;SHOW]                        }
{ {user.acct}                                          }
{ {user.@   };COMMANDS=command [,…]                    }
{ {@.acct   }                                          }
```

:DISASSOCIATE

devclass

:DISCFREE ["] [*format*] [,*ldev*] [,*volume-set*] ["]

format:

A	1	HISTOGRAM	Number of blocks grouped by size
B	2	ALLOCATION	Transient & free space (sectors)
C	3	ALLOCATION2	Transient & free space (% of total)
D	4	SUMMARY	Disk allocation summary (sectors)
E	5	SUMMARY2	Disk allocation summary (% of total)

:DISCUSE [[DIR=]*dir_name*] [;TREE | ;NOTREE | ;USENAME]

note: Implemented as UDC (within HPPXUDC.PUB.SYS).

:DISKUSE [[DIR=]*dir_name*] [;TREE | ;NOTREE | ;USENAME]

:DISMOUNT [* | *volumesetname*] [.*groupname*[.*acctname*]]

:DO [[CMD=]*cmdid*] [;[EDIT=]*editstring*]

note: See REDO command for parameter descriptions.

:DOIONOW

note: Reads settings from LOG4ONLN.PUB.SYS script file.

:DOWN *ldev*

:DOWNLOAD *ldev* [, *filename* | , MARGIN=*nn*] [,...]

:DSCOPY [*sourcefile* [*fileloc*] [TO | ;] [*targetfile*] [*fileloc*] [;*option*] [;...]]
[+ [*sfileloc*] [TO | ;] [*fileloc*] [;*option*] [;...]]
[+ *option* [;...]]

fileloc: [: | ,] [*location*]] ["[" [*logon*] "]"] [, | # *device*]

option: [;APP | ;MOVE | ;OVER | ;REP] [;SEQ | ;DIR] [;FIX | ;VAR] [;ASC | ;BIN]
[;CHECKPT=*interval*]
[;CSPEC=[, [*restart_id_file*] [,*record*]]]
[;CLEAR]
[;COMP]
[;FCODE=*filecode*]
[;FSIZE=*filesize*]
[;ICHAR=*char*]
[;INT]
[;QUIET]
[;RESTART=[*restart_id* | *restart_id_file*[,*record*]]]
[;RSIZE=*recsize*]
[;SCHAR=*char*]
[;SDEV=*source_device*]
[;SHOW]
[;STRIP]
[;TDEV=*target_device*]

:DSLINE [*envid* | envid_pattern | [*envid=*] *nodename*] [;*dslineoption*] [;...] | # L *envnum*]

dslineoption: [;QUIET]
[;CLOSE]
[;RESET]
[;SHOW]
[;SERVICES]
[;COMP | ;NOCOMP]
[;PROMPT=["] *promptstring* ["]]
[;LOGON=*logonstring*]
[;TRACE=*traceoptions*]

traceoptions: [[ON] [,*service*] [,*tracefile*] [,*filerecs*] [,*maxdata*] [,TRANS] | [OFF] [,*service*]]

services: { VT, RFA, NFT, PTOP, RPM, ALL }

:DSTAT [*ldev* | ALL]

:DTCCNTRL [FUNC=*function* [;DTC=*dtcname*] [;CARD=*cardnum*] [;FORCED=*yn*]]

function: [DYNCONF, DCSTATUS, AUTOCONF, SHUTDOWN, RESTART, STARTX25, STARTPADSUP, STARTBOTH, STOPX25, STOPPADSUP, STOPBOTH, STATUS]

:ECHO [*message*]

:EDITOR [*listfile*]

:ELSE

:ELSEIF *expression* [THEN]

:ENDIF

:ENDWHILE

:EOD

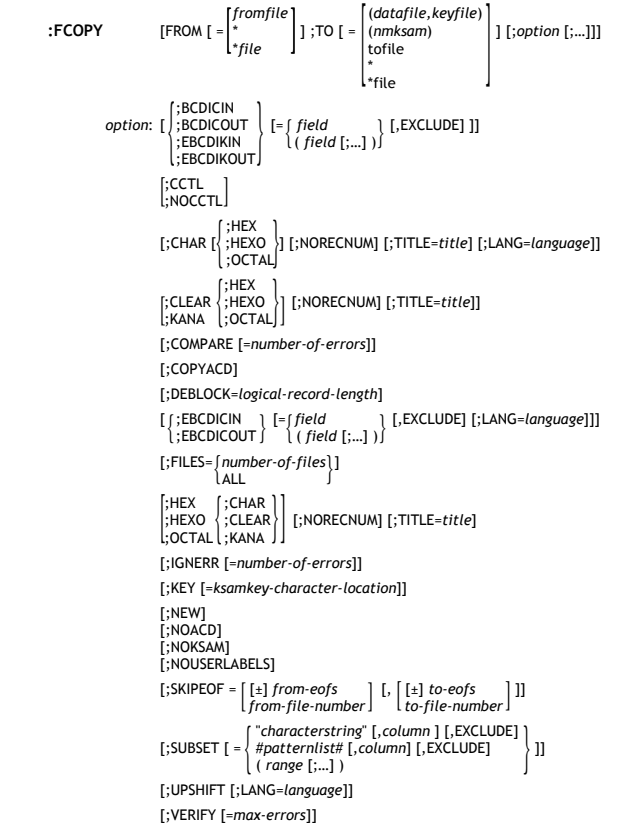
:EOJ

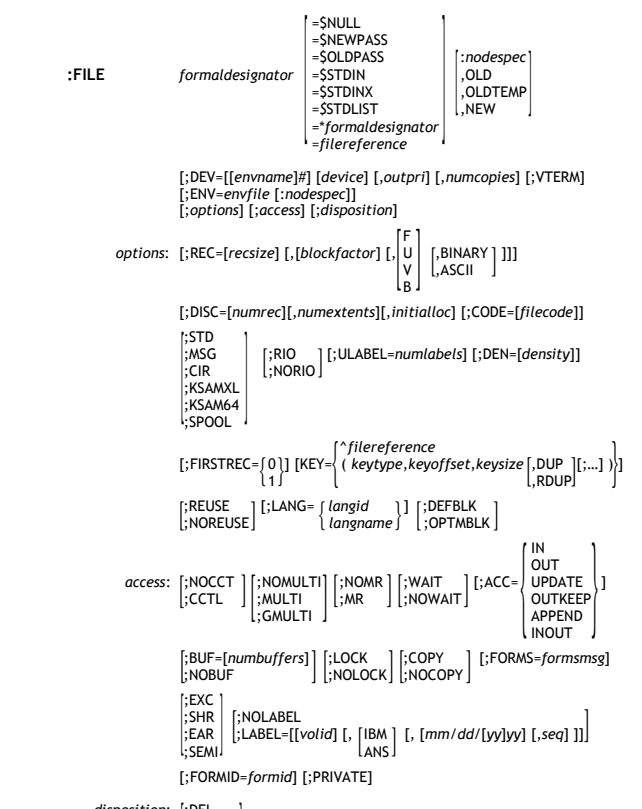
:ERRCLEAR

:ERRDUMP [*errorstackdepth*] [;SYS]

:ESCAPE [[CIERR=] *errnum*]

:EXIT


:FCOPY
[FROM [= fromfile * *file]] ;TO [= (datafile,keyfile) (nmksam) tofile * *file] [;option [;...]]]
option: [;BCDICIN ;BCDICOUT ;EBCDIKIN ;EBCDIKOUT] [= field (field [;...])] [,EXCLUDE]]]
[;CCTL ;NOCCTL]
[;CHAR [;HEX ;HEXO ;OCTAL] [;NORECNUM] [;TITLE=title] [;LANG=language]]
[;CLEAR ;KANA ;HEX ;HEXO ;OCTAL] [;NORECNUM] [;TITLE=title]]
[;COMPARE [=number-of-errors]]
[;COPYACD]
[;DEBLOCK=logical-record-length]
[;EBCDICIN ;EBCDICOUT] [= field (field [;...])] [,EXCLUDE] [;LANG=language]]]
[;FILES= number-of-files ALL]
[;HEX ;HEXO ;OCTAL ;CHAR ;CLEAR ;KANA] [;NORECNUM] [;TITLE=title]
[;IGNERR [=number-of-errors]]
[;KEY [=ksamkey-character-location]]
[;NEW]
[;NOACD]
[;NOKSAM]
[;NOUSERLABELS]
[;SKIPEOF = [[±] from-eofs from-file-number] [, [[±] to-eofs to-file-number]]]
[;SUBSET [= "characterstring" [,column] [,EXCLUDE] #patternlist# [,column] [,EXCLUDE] (range [;...])]]]
[;UPSHIFT [;LANG=language]]
[;VERIFY [=max-errors]]
field: start-col start-col , num-cols start-col : end-col


:FILE
formaldesignator
=$NULL
=$NEWPASS
=$OLDPASS
=$STDIN
=$STDINX
=$STDLIST
=*formaldesignator
=filereference
:nodespec
,OLD
,OLDTEMP
,NEW
[;DEV=[[envname]#] [device] [,outpri] [,numcopies] [;VTERM]
[;ENV=envfile [:nodespec]]
[;options] [;access] [;disposition]
options:
[;REC=[recsize] [,[blockfactor] [,
F
U
V
B
,BINARY
,ASCII
]]]
[;DISC=[numrec][,numextents][,initialloc] [;CODE=[filecode]]
;STD
;MSG
;CIR
;KSAMXL
;KSAM64
;SPOOL
;RIO
;NORIO
[;ULABEL=numlabels] [;DEN=[density]]
[;FIRSTREC=
0
1
] [KEY=
^filereference
(keytype,keyoffset,keysize
,DUP
,RDUP
[;...])
]
;REUSE
;NOREUSE
[;LANG=
langid
langname
] [;DEFBLK
;OPTMBLK
access:
;NOCCT
;CCTL
;NOMULTI
;MULTI
;GMULTI
;NOMR
;MR
;WAIT
;NOWAIT
[;ACC=
IN
OUT
UPDATE
OUTKEEP
APPEND
INOUT
]
[;BUF=[numbuffers]
;NOBUF
[;LOCK
;NOLOCK
[;COPY
;NOCOPY
[;FORMS=formsmsg]
;EXC
;SHR
;EAR
;SEMI
;NOLABEL
;LABEL=[[volid] [,
IBM
ANS
[, [mm/dd/[yy]yy] [,seq]]]
[;FORMID=formid] [;PRIVATE]
disposition:
;DEL
;TEMP
;SAVE
;SPSAVE

:FINDDIR [DIR=]*dirname* [[START=]*start_dir*]

note: Implemented as UDC (within HPPXUDC.PUB.SYS).

:FINDFILE [FILE=]*filename* [[START=]*start_dir*]

note: Implemented as UDC (within HPPXUDC.PUB.SYS).

:FORMSALIGN [DEV=] { *ldev* | *devclass* | *devname* }

[[;DIALOG=] { EACHCHANGE | EACHFILE | EACHCOPY }] [,FORMIDOVERRIDE | ,NOFORMIDOVERRIDE] [;SHOW]

:FORTGO [*textfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]
[;INFO=*quotedstring*]

:FORTPREP [*textfile*] [,[*progfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]
[;INFO=*quotedstring*]

:FORTRAN [*textfile*] [,[*uslfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]
[;INFO=*quotedstring*]

:FREERIN *rin*

:FTN [*textfile*] [,[*uslfile*] [,*listfile*]] [;INFO=*quotedstring*]

:FTNGO [*textfile*] [,*listfile*] [;INFO=*quotedstring*]

:FTNPREP [*textfile*] [,[*progfile*] [,*listfile*]] [;INFO=*quotedstring*]

:FTNXL [*textfile*] [,[*objectfile*] [,*listfile*]] [;INFO=*quotedstring*]

:FTNXLGO [*textfile*] [,*listfile*] [;INFO=*quotedstring*]

:FTNXLK [*textfile*] [,[*progfile*] [,*listfile*] [;INFO=*quotedstring*]

:GENCAT [" *command* [;...] "]

:GETLOG *logid* ;LOG=*logfile* { ,DISC | ,TAPE | ,SDISC | ,CTAPE } [;PASS=*password*] [;AUTO | ;NOAUTO]

:GETRIN *rinpassword*

:HEADOFF *ldev*

:HEADON *ldev*

:HELLO [*session*,]*user*[/*userpass*].*acct*[/*acctpass*][,*group*[/*grouppass*]]

[;TERM= { *termtype* | *termname* }]

[;TIME=*cpusecs*]

[;PRI= { BS | CS | DS | ES }]

[;INPRI=*inputpriority* | ;HIPRI]

[;INFO=*ciinfo*]
[;PARM=*ciparm*]

ciparm:

Value	UDCs	INFO only
-2	No	Yes
-1	No	No
0	Yes	No
1	Yes	Yes
2	Yes	No
3	Yes	Yes
4	Yes	No
5	Yes	Yes

Header	Logon UDCs
No *	No *
No *	No *
Yes	No *
Yes	No *
No *	No *
No *	No *
Yes	Yes
Yes	Yes

* son CI processes only

:HELP { *udcname* | *commandname* [*keyword* | ALL] | *commandfilename* | *errormessage* | *programfilename* | *ci_functionname* | *ci_variablename* | CIERR *number* | CLASS | EXPRESSIONS | FUNCTIONS | HELPSTUDY | OPERATORS | SUMMARY | VARIABLES }

:IF *expression* [THEN]

:INPUT [NAME=]*varname*
[[;PROMPT=]*prompt*] [[;WAIT=]*seconds*] [[;READCNT=]*numchars*]
[[;DEFAULT=]*default_str*] [;CONSOLE]

:IOCONFIG [" *command* "]

:JAVA { [-*option* [-...]] *classname* | -jar [-*option* [-...]] *jarfile* } [*arguments*]

option: [cp | classpath] *directory-or-zip/jar-file* [:...]
D *property-name=value*
verbose[:{class, gc, jni, jit}]
version
?
help
X[*non-standard-option*]

non-standard option: bootclasspath: *directory-or-zip/jar-file* [:...]
noclassgc
ms *initial-heap-size*
mx *maximum-heap-size*
rs
check:jni
runhprof [:help | :*option=value* [,...]]
debug
nocatch
alljit
nojit
deferloop

note: Implemented using PUB.SYS command file; may be renamed.

:JAVAC [-*option* [-...]] *source-file* [...]

option: -g[:{none, lines, vars, source}]
-O
-nowarn
-verbose
-deprecation
-classpath *class-file-pathname*
-sourcepath *source-file-pathname*
-bootclasspath *bootstrap-class-pathname*
-extdirs *extension-directory*
-d *class-directory*
-encoding *source-encoding*
-file *indirect-source-file*
-target *vm-release*

note: Implemented using PUB.SYS command file; may be renamed.

:JOB [*jobname*,]*user*[/*userpass*].*acct*[/*acctpass*][,*group*[/*grouppass*]]

[;TIME=*cpusecs*] [;PRI={ BS | CS | DS | ES } [;INPRI=*inputpriority* | ;HIPRI] [;PRIVATE | ;SPSAVE]

[;OUTCLASS=[*device*] [,*outputpriority* [,*numcopies*]]]

[;TERM=*termtype*] [;RESTART] [;JOBQ=*qname*]

:JOBFENCE *priorityfence*

:JOBPRI [*maxsubq*] [,*defaultsubq*]

maxsubq: { ES, DS, CS, 0 }

defaultsubq: { ES, DS, CS }

:JOBSECURITY [HIGH | LOW] [;PASSEXEMPT= { MAX | NONE | USER | XACCESS }]

:LDISMOUNT [* | *volumesetname*] [.*groupname*[.*acctname*]]

:LIMIT [[±] *max_jobs*] [, [±] *max_sessions*] [;JOBQ=*qname*]]

:LINK [FROM=*file* [,...]] [;TO=*destfile*]

[;RL=*rlfile* [,...]]
[;XL=*xlfile* [,...]]
[;CAP=*cap* [,...]]
[;NMSTACK=*nmstacksize*]
[;NMHEAP=*nmheapsize*]
[;UNSAT=*unsatname*]
[;PARMCHECK=*checklevel*]
[;PRIVLEV=*priv_level*]
[;PRI=*priority_level*]
[;MAXPRI=*max_priority_level*]
[;SHARE]
[;ENTRY=*entryname*]
[;NODEBUG]
[;MAP]
[;SHOW]

cap: { IA, BA, PM, MR, DS, PH }

:LINKCONTROL

[LINKNAME=] { @ | *linkname* }

[[;|,]STATUS= { A[LL] | L[INK[STATE]] | C[ONF[IGURATION | S[TAT[ISTICS]] | D[IAG[STATS] | R[ESET] }]

[;TRACE= { ON | OFF } { ,DATA [,[*buffsize*] [,*tracefilename*]] | ,ALL | ,PARTIAL | ,FULL }]

:LINKEDIT [["] *linkedit-command* ["]]

:LISTACCT [*acctset*] [,*listfile*] [;PASS] [;FORMAT= { SUMMARY | BRIEF | DETAIL }]

:LISTDIR [DIR=]*dirname* [[FORMAT=]*format*]

note: Implemented as UDC (within HPPXUDC.PUB.SYS).

:LISTEQ [*listfile*]

:LISTF [*fileset*] [,*listlevel*] [;*listfile*]

listlevel: See :LISTFILE command *format_opt* numeric formats.

:LISTFILE

```
[ fileset          ]
[ ( fileset [,...] ) ]
```

[[;FORMAT=] *format_opt*]

[[;SELEQ=] { *select_eq* | ^*indirect_file* }] [[;NAME=] *pattern*] [;PASS]

```
[;USENAME ]  [;PERM     ]
[;TREE    ]  [;TEMP     ]
[;NOTREE  ]  [;PERMTEMP ]
```

format_opt:

DATA;PASS	*or*	-5
DETAIL;PASS		-3
ACD		-2
LABEL		-1
FILES		0
SUMMARY		1
DISC		2
DETAIL		3
SECURITY		4
DATA		5
QUALIFY		6
UNIQUE		7
ACCESS		8
LOCKS		9
SUMMARYWIDE		10
DISCWIDE		11

select_eq:

```
'[' FTYPE  = { KSAMXL  } ']'
             { SPOOL   }

'[' OBJECT = { ACCT    }
             { GROUP   }
             { FILE    } ']'
             { DIR     }
             { HFSDIR  }
             { SYMLINK }

'[' CODE   = { mnemonic } ']'
             { number   }
             { PRIV     }

'[' ACCESS = { INUSE     }
             { OPEN      } ']'
             { LOCK[ED]  }
             { EXCL[USIVE] }
```

LISTF[ILE] mode 1 & 2 'TYP' field:

First	Second	Third	Last
Record Type			*File Type*
A Account **B** Byte Stream **F** Fixed **G** Group **H** Hierarchical Directory **U** Undefined **V** Variable	**A** ASCII **B** Binary	**C** CCTL	**D** Directory **K** KSAMXL **L** Symbolic Link **M** Message **O** Circular **R** RIO **S** Spool **d** Device Link **f** FIFO **k** KSAM64 **s** Streams Device

Leading 'c' indicates that file is compressed.

:LISTFTEMP [*fileset*] [,*level*] [;*listfile*]

level: See :LISTFILE command *format_opt* numeric formats.

:LISTGROUP [*groupset*] [,*listfile*] [;PASS] [;FORMAT= { SUMMARY | BRIEF }]

:LISTJOBQ

:LISTLOG [*logid* [;PASS]]

:LISTREDO [[START=]*m*] [[;END=]*n*] [[;OUT=]*outfile*] [;ABS | ;REL | ;UNN]

:LISTSPF [[IDNAME=] { *spoolid* | (*spoolid* [,...]) }]

[[;SELEQ=] { '[' *equation* ']' | ^*indirect_file* }]

[;DETAIL | ;STATUS]

equation: { (*equation*) | (NOT *equation*) | *equation* AND *equation* | *equation* OR *equation* | *parm* { > | >= | < | <= | <> | = } *value* }

parm:

COPIES	= *nnn*
DATE	= *mm/dd/yy*[*yy*]
DEV	= { *ldev* | *devname* | *devclass* }
DISP	= { SPSAVE | PURGE }
FILEDES	= ['] *formaldesignator* [']
FORMID	= ['] *formname* [']
JOBABORT	= { TRUE | FALSE }
JOBNAME	= *jobsessname*
JOBNUM	= [*#*] { J | S } ['] *nnn*
OWNER	= *user*[.*acct*]
PAGES	= *nnn*
PRI	= *outpri*
RECS	= *nnn*
SPOOLID	= [*#* { I | O }] *nnn*
STATE	= { READY, ACTIVE, OPEN, CREATE, PRINT, | PROBLM, DELPND, SPSAVE, DEFER, XFER }

:LISTUSER [*userset*] [,*listfile*] [;PASS] [;FORMAT={ SUMMARY \| BRIEF \| DETAIL }]

:LMOUNT [* \| *volumesetname*] [.*groupname*[.*acctname*]] [;GEN=[*genindex*]]

:LOG *logid* { ,RESTART \| ,START \| ,STOP }

=LOGOFF [*#* { J \| S } *nnn*]

=LOGON

:MAKECAT

note: For Msg catalogs MAKECAT saves INPUT as CATALOG.
For Help catalogs RUN MAKECAT,HELP saves INPUT as HELPCAT.

:MKNOD " *filename* { C \| P } [,*major-number* [,*minor-number* [*linkname*]]] "

:MOUNT [* \| *volumesetname*] [.*groupname*[.*acctname*]] [;GEN=[*genindex*]]

:MSGUTIL [" [*subsystem-number* [,*message-number* [,*time-code*]]] "]

:MSTM

:NETCONTROL [ADDLINK=*linkname*; { NET=*niname* | GATE=*gatehalfname* }]

[DELLINK=*linkname*; { NET=*niname* | GATE=*gatehalfname* }]

[START [;NET=*niname* | ;GATE=*gatehalfname*]]

[STATUS [=ALL] [;NI=*niname* [;PROT=*niprot*] | ;NET=*niname* | ;GATE=*gatehalfname* | ;PROT=*gprot*]]

[STOP [;NET=*niname* | ;GATE=*gatehalfname*]]

[{ TRACEON=*type* [,*options*] | TRACEOFF } [;NI=*niname* [;PROT=*niprot*] | ;NET=*niname* | ;GATE=*gatehalfname* | ;PROT=*gprot*]]

[UPDATE= { INTERNET | MAPPING | NETDIR | X25 | ALL } [;NET=*niname* | ;GATE=*gatehalfname*]]

[VERSION [=MOD]]

gprot:{ TCP, UDP, PXP, IPU }

type: { M, H, D, S, B, N [...] }

options: [DISC] [,[*filename*] [,[*recsize*] [,*filesize*]]]

:NEWACCT *acctname* ,*mgrname*

[;PASS=[*password*]]
[;FILES=[*filespace*]]
[;CPU=[*cpu*]]
[;CONNECT=[*connect*]]
[;CAP=[*cap* [,...]]]
[;ACCESS=[(*fileaccess* [;...])]]
[;MAXPRI=[*subqueue*]]
[;LOCATTR=[*localattribute*]]
[;ONVS=*volumesetname*]
[;GID=*gid*]
[;UID=*uid*]

[;USERPASS= { REQ | OPT }]

cap: { SM, AM, AL, GL, DI, OP, NA, NM, SF, ND, UV, CV, CS, PS, LG, PH, DS, MR, PM, IA, BA }

fileaccess: { R | L | A | W | X } [,...] : { ANY | AC } [,...]

subqueue: { AS, BS, CS, DS, ES }

:NEWCI *progfile* [,["]*entrypoint*["]]

[;PARM=*parameternum*] [;INFO=*quotedstring*]

[;NOPRIV] [;LMAP] [;DEBUG] [;NOCB]

[;MAXDATA=*maxstack*] [;STACK=*stacksize*] [;DL=*dlsize*]

[;NMSTACK=*nmstacksize*] [;NMHEAP=*nmheapsize*]

[;XL="*xl_lib* [,...]"] [;UNSAT=["]*unsatproc*["]] [;PRI=*priority*]

[;STDIN= { **formaldesig* | *fileref* | $NULL }] [;STDLIST= { **formaldesig* | *fileref* [,NEW] | $NULL }] [;LIB={ G | P | S }]

priority: { BS, CS, DS, ES, *nnn* }

:NEWDIR [DIR=]*dir_name*

:NEWGROUP *groupname*[.*acctname*]

[;PASS=[*password*]]
[;FILES=[*filespace*]]
[;CPU=[*cpu*]]
[;CONNECT=[*connect*]]
[;CAP=[*cap* [,...]]]
[;ACCESS=[(*fileaccess* [;...])]]
[;ONVS=*volumesetname*]
[;HOMEVS=*volumesetname*]

cap: { PH, DS, MR, PM, IA, BA }

fileaccess: { R | L | A | W | X | S } [,...] : { ANY | AC | GU | AL | GL } [,...]

:NEWJOBQ *qname* [;LIMIT=*numberjobs*]

:NEWLINK [LINK=]*linkname* [;TO=]*sourceobject* [;SYMBOLIC]

:NEWUSER *username*[.*acctname*]

[;PASS= [*password*]]
[;CAP= [*cap* [,...]]]
[;MAXPRI= [*subqueue*]]
[;LOCATTR= [*localattribute*]]
[;HOME=*homegroupname*]
[;UID=*uid*]

[;USERPASS= { REQ | OPT } [,EXPIRED]]

cap: { SM, AM, AL, GL, DI, OP, NA, NM, SF, ND,
UV, CV, CS, PS, LG, PH, DS, MR, PM, IA, BA }

subqueue: { AS, BS, CS, DS, ES }

:NEWWG [WORKGROUP=] *workgrp*

[;MEMB_LOGON=] (*logon* [,...])
[;MEMB_PROGRAM=] (*program_file* [,...])
[;MEMB_QUEUE=] (*queue_attribute* [,...])
[[;BASE=] *base*]
[[;LIMIT=] *limit*]
[[;MINQUANT=] *min*]
[[;MAXQUANT=] *max*]
[[;BOOST=] { DECAY }]
{ OSCILLATE }

[[;TIMESLICE=] *tslice*]
[[;MINCPUPCT=] *minpercent*]
[[;MAXCPUPCT=] *maxpercent*]
[[;POSITION=] *existingwg*]

:NLIOUTIL [["] *nliout-command* ["]]

:NLUTIL [["] *nlutil-command* ["]]

:NSCONTROL *function* [;...]

function: [START [=*service* [,...]]]

[STOP [=*service* [,...]]]

[ABORT]

[AUTOLOGON [={ ON } [,ALL]]]
{ OFF } [,*service* [,...]]

[DEBUG [=*pin*]]

[KILLSESS = [#] S *nnn*]

[LOADKEYS]

[LOG= { ON } [, { ALL } [,LOW]]]
{ OFF } { RPM } [,HIGH]
{ ENV }
{ DSDAD }
{ DSSERVER }
{ VTSERVER }

[SERVER= { *servername* } [,*minservers* [,*maxservers*]]]
{ ALL }

[STATUS [= { USERS } [,...]]
{ SERVICES }
{ SERVERS }
{ SUMMARY }
{ ALL }

[VERSION [=MOD]]

service: { HPIP, [S]IASQL, NFT[L], NSSTAT[L], PTOP[L],
LOOPBACK, RFA[L], RPM[L], VT[L], VTA, VTR[L], ... }

servername: { HPIPNS, IASQLSVR, LOOPBACK, NSSTATUS,
VTSERVER, NFT, DSSERVER, RASERVER, ... }

:OCTCOMP [*input*] [,[*targetfile*] [,[*list*] [;[INFO=]*quotedstring*]]]

:OPENQ { [DEV=] { *ldev* / *devclass* / *devname* } [;SHOW] / @ }

:OPTION [[NO]LIST] [,[NO]RECURSION]

note: Following keywords also available when used in UDC header:
[,[NO]HELP] [,[NO]LOGON] [,[NO]BREAK] [,[NO]PROGRAM]

:OUTFENCE *outputpriority* [;LDEV=*ldev*] [;DEV= { *ldev* / *devclass* / *devname* }]

:PASCAL [*textfile*] [,[*uslfile*] [,*listfile*]] [;INFO=*quotedstring*]

:PASCALGO [*textfile*] [,*listfile*] [;INFO=*quotedstring*]

:PASCALPREP [*textfile*] [,[*progfile*] [,*listfile*]] [;INFO=*quotedstring*]

:PASSWORD

:PASXL [*textfile*] [,[*objectfile*] [,[*listfile*] [,*libfile*]]] [;INFO=*quotedstring*]

:PASXLGO [*textfile*] [,[*listfile*] [,*libfile*]] [;INFO=*quotedstring*]

:PASXLK [*textfile*] [,[*progfile*] [,[*listfile*] [,*libfile*]]] [;INFO=*quotedstring*]

:PAUSE [*seconds*] [[,JOB=]*jobid*] [[,INTERVAL=]*interval_secs*] [;EXIST / ;WAIT / ;NOTEXIST]

jobid: { [#] { J / S } *nnn* / @ [J / S] / ["] [@ { J / S } :] [[*jobname*],]*user.acct* ["] }

:PLISTF [FILES=]*listfile_fileset* [[,FORMAT=]*format_num*] [[;OUT=]*outfile*]

note: Implemented as UDC (within HPPXUDC.PUB.SYS).

:PREP *uslfile ,progfile*
[;RL=*rlfile*] [;PMAP] [;PATCH=*patchsize*] [;CAP=*cap* [,...]]
[;NOSYM] [;FPMAP / ;NOFPMAP]
[;MAXDATA=*maxstack*] [;STACK=*stacksize*] [;DL=*dlsize*] [;ZERODB]
cap: { IA, BA, PH, DS, MR, PM }

:PREPRUN *uslfile* [,*entrypoint*]

[;RL=*rlfile*] [;PMAP] [;PATCH=*patchsize*] [;CAP=*cap* [,...]]

[;NOSYM] [;FPMAP | ;NOFPMAP]

[;PARM=*parameternum*] [;INFO=*quotedstring*]

[;NOPRIV] [;LMAP] [;DEBUG] [;NOCB]

[;MAXDATA=*maxstack*] [;STACK=*stacksize*] [;DL=*dlsize*] [;ZERODB]

[;PRI=*priority*]

[;STDIN= { **formaldesig* | *fileref* | $NULL }] [;STDLIST= { **formaldesig* | *fileref* [,NEW] | $NULL }] [;LIB= { G | P | S }]

priority: { BS, CS, DS, ES, *nnn* }

cap: { IA, BA, PH, DS, MR, PM }

:PRINT [[FILE=]*filename*] [[;OUT=]*outfile*]

[[;START=]*m*] [[;END=]*n*] [[;PAGE=]*p*] [;UNN | ;NUM] [;NONUM]

:PURGE *filereference* [;TEMP | ,TEMP]

[[;ONERROR=] { CONTINUE | QUIT }] [;AUTOLOCKWORD | ;NOAUTOLOCKWORD]

[;CONFIRM | ;NOCONFIRM | ;CONFIRMALL] [;NOSHOW | ;SHOW] [;SHOWERRORS | ;NOSHOWERRORS]

:PURGEACCT *acctname* [;ONVS=*volumesetname*]

:PURGEDIR [DIR=] *dir_name* [;TREE | ;NOTREE | ;USENAME]

[;CONFIRM | ;NOCONFIRM | ;CONFIRMALL] [;NOSHOW | ;SHOW] [;SHOWERRORS | ;NOSHOWERRORS]

:PURGEGROUP *groupname*[.*acctname*] [;ONVS=*volumesetname*]

:PURGEJOBQ *qname*

:PURGELINK [LINK=]*linkname*

:PURGEUSER *user*[.*acctname*]

:PURGEWG [WORKGROUP=] { *workgrpspec* | (*workgrpspec* [,...]) }

[[;ONERROR=] { CONTINUE | QUIT }] [;PURGESCAN | ;NOPURGESCAN]

[;CONFIRM | ;NOCONFIRM | ;CONFIRMALL] [;NOSHOW | ;SHOW] [;SHOWERRORS | ;NOSHOWERRORS]

:PXUTIL [["] *pxutil-command* ["]]

=RECALL

:REDO [[CMD=] ["] *cmdid* ["]] [;[EDIT=] ["] *editstring* ["]]

cmdid: [*-n* | *m* | *string*]

delete/shift text from current position:

[D | ^ | v] [>] [w | *delim*]

delete/shift backwards from EOL:

> [D | ^ | v] [w | *delim*]

insert/replace from current position:

[I | C | R] *text*

append/insert at EOL:

> [I] *text*

replace backwards from EOL:

>R *text*

undo:

U

delete/change all occurrences of string :

C *delim search-string delim* [*replace-string delim*]

:REFUSE [JOBS, | DATA,] *ldev*

:RELEASE *filereference*

:RELLOG *logid*

:RENAME *oldfilereference* ,*newfilereference* [;TEMP]

=REPLY *pin* ,*reply*

:REPORT [*groupset*] [,*listfile*] [;ONVS=[*volumesetname*]]

:RESET { *formaldesignator* | @ }

:RESETACCT [@ | *acct*] [,CPU | ,CONNECT]

:RESETDUMP

:RESTORE [*restorefile*] [;*filesetlist*] [;*option* [;...]]

filesetlist: { *fileset* | ^*indirectfile* } [,...]

fileset: *filestorestore* [-*filestoexclude*] [-...]

option: [;SHOW [= [SHORT | LONG | NAMESONLY] [,DATES | ,SECURITY | ,PATH | ,OFFLINE] [...]]]

[;ONERR[OR]= { QUIT | SKIP | FULL }]

[;LOCAL | [[;GROUP=*groupname*] [;ACC[OUN]T=*accountname*]]]

[;CREATE= { ACCT | GROUP | CREATOR | PATH }]

[;CREATOR [=*username*]]
[;GID [=*filegroupname*]]

[;KEEP | ;NOKEEP]

[;OLDDATE | ;NEWDATE]

[;COPYACD | ;NOACD]

[;DIRECTORY]
[;LISTDIR]
[;PROGRESS [=*minutes*]]
[;FCRANGE= *filecode* / *filecode* [,...]]
[;FILES=*maxfiles*]
[;DEV=*device*]
[;VOL=*volumename*]
[;VOLCLASS=*volumeclassname*]
[;VOLSET=*volumesetname*]
[;[NO]TREE]
[;STOREDIR[ECTORY] =*directoryname*]
[;PARTI[IAL]DB]
[;RESTORESET= (*device* [,...])]

note: Following available with TurboStore/iX II and TurboStore/iX 7x24 True-Online Backup:

[;RESTORESET=(*device* [,...]) [,(*device* [,...]) [,...]]]

:RESUME

:RESUMEJOB # J *nnn*

:RESUMELOG

:RESUMENMLOG

:RESUMESPOOL

ldev [[{ ;BACK } *nnn* [{ FILES }]]
[{ ;FORWARD } [{ PAGES }]]
[;BEGINNING]

:RETURN

:RPG [*textfile*] [,[*uslfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]

:RPGGO [*textfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]

:RPGPREP [*textfile*] [,[*progfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]

:RPGXL [*textfile*] [,[*objectfile*] [,*listfile*]] [;INFO=*quotedstring*]

:RPGXLGO [*textfile*] [,*listfile*] [;INFO=*quotedstring*]

:RPGXLK [*textfile*] [,[*progfile*] [,*listfile*]] [;INFO=*quotedstring*]

:RUN *progfile* [,["]*entrypoint*["]]
[;PARM=*parameternum*] [;INFO=*quotedstring*]
[;NOPRIV] [;LMAP] [;DEBUG] [;NOCB]
[;MAXDATA=*maxstack*] [;STACK=*stacksize*] [;DL=*dlsize*]
[;NMSTACK=*nmstacksize*] [;NMHEAP=*nmheapsize*]
[;XL="*xl_lib* [,...]"] [;UNSAT=["]*unsatproc*["]] [;PRI=*priority*]
[;STDIN= { **formaldesig* / *fileref* / $NULL }] [;STDLIST= { **formaldesig* / *fileref* [,NEW] / $NULL }] [;LIB={ G / P / S }]

priority: { BS, CS, DS, ES, *nnn* }

note: Implied RUN syntax follows XEQ command syntax.

:SAVE { $OLDPASS, *newfilereference* / *tempfilereference* }

:SDTODIF " *sd_file*, *diff_file*, *domain* "

domain: 1 .. Perm
2 .. Temp

note: Status returned in DIFERROR & DIFWARN jcws.

:SECURE *filereference*

:SEGMENTER [*listfile*]

:SET [STDLIST= { DELETE / SAVE }] [;ECHO= { ON / OFF }] [;MSG= { ON / OFF }]
[;SPEED= { 300 / 1200 / 2400 / 4800 / 9600 / 19200 / 19.2K }]

:SETCATALOG [*udcfile* [,...]]
[;SHOW] [;RESET / ;APPEND / ;DELETE] [;SYSTEM / ;ACCOUNT / ;USER=*user*[.*acct*]]

:SETCLOCK { DATE= *mm*/*dd*/*yy*[*yy*]; TIME= *hh*:*mm*[:*ss*] [;GRADUAL / ;NOW] /
CORRECTION= [±] *correction_seconds* /
TIMEZONE= { W / E } *hh*:*mm* /
;CANCEL }

:SETCOUNTER [COUNTER=] { INSP / OUTSP / JOBNUM / SESSNUM } [;BASE=*num*] [;MAX=*num*] [;SHOW]

:SETDUMP [DB [,ST [,QS]]] [;ASCII] [;DEBUG="*commands*"]

:SETJCW { *jcwname* / @ } *delimiter value* [{±} *value*]

:SETMSG { OFF / ON }

:SETVAR *varname* [, / ;] *expression*

:SH [["] *shell-command* ["]]

note: Implemented as UDC (within HPPXUDC.PUB.SYS).

:SHOWALLOCATE
[STATUS [,*listfile*] /
ALLOCATE [,[*fileset*] [,*listfile*]] /
ALL [,[*fileset*] [,*listfile*]]]

:SHOWALLOW [@.@ / *user*.@ / @.*acct* / *user*.*acct*]

:SHOWCATALOG

[*listfile*] [;USER= *username*[.*acctname*]]

:SHOWCLOCK

:SHOWCONN [JOB=] # J / S *nnn*
[;PIN=] *nnn*

[;SYSTEM / ;NAME / ;HELP / ;SUMMARY / ;VERSION] = ON / OFF] [;...]

note: Normally implemented as command file in TELESUP account.

:SHOWDEV *ldev* / *classname* [;ACD]

:SHOWIN # I *nnn* / STATUS / SP / *item*

item: [DEV=*ldev*] [;JOB= @ J / S / [#] J / S *nnn*] [;ACTIVE / ;OPENED / ;READY

:SHOWJCW [*jcwname*]

:SHOWJOB [#] J / S *nnn* / STATUS / SCHED / *item* [;JOBQ] [;**listfile*]

item: [JOB= @ J / S / [@, *jsname*,] *username.acctname*] [;INTRO / ;EXEC / ;SUSP / ;WAIT [,N / ,D]

:SHOWLOG

:SHOWLOGSTATUS

[*logid*]

:SHOWNMLOG

:SHOWME

:SHOWOUT # O *nnn* / STATUS / SP / *item*

item: [DEV= { *ldev* | *classname* | @ [J \| S] }] [;JOB= [@ | [#] [J \| S] *nnn*]] [;ACTIVE | ;OPENED | ;LOCKED | ;READY [,N \| ,D]]

:SHOWPROC [[[PIN=] { *pinspec* | (*pinspec* [,...]) }] | [[;JOB=] { *jobspec* | (*jobspec* [,...]) }]]

[[;FORMAT=] { SUMMARY | DETAIL | WG }]

[;TREE \| ;NOTREE] [;USER \| ;ANYUSER] [;TRUNC \| ;NOTRUNC] [;SYSTEM]

pinspec: [#P] *pin*

jobspec: [# [J \| S] | *user*[.*account*] | @ [J \| S]]

:SHOWQ [;ACTIVE] [;STATUS]

:SHOWTIME

:SHOWVAR [*varid*] [,...]

[;JOB= [#] {J \| S} *nnn*] [;USER | ;HP | ;ANY]

:SHOWWG [[WORKGROUP=] { *workgrpspec* | (*workgrpspec* [,...]) }]

[[;FORMAT=] { SUMMARY | WGFILE | PROCS | DETAIL }] [;TRUNC \| ;NOTRUNC]

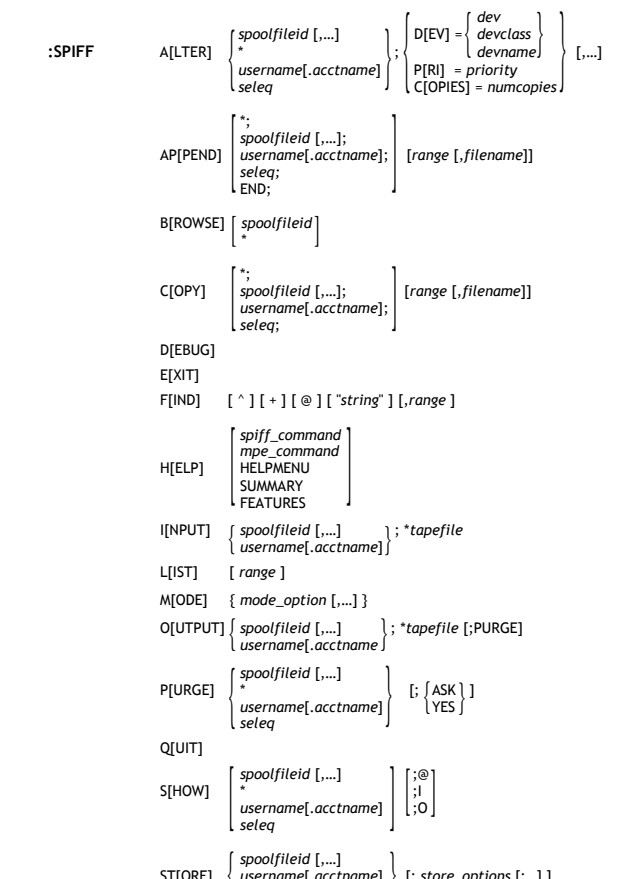
=SHUTDOWN [*reason*]

reason: [SYSTEM, TERMINAL, DTC, TAPE, DISK, NETWORK, OTHER]

:SHUTQ { [DEV=] { *ldev* | *devclass* | *devname* } [;SHOW] | @ }

:SPEED *inspeed*, *outspeed*

note: see SET command for available speeds.


:SPIFF
A[LTER]
spoolfileid [,...]
*
username[.acctname]
seleq
D[EV] = dev devclass devname
P[RI] = priority
C[OPIES] = numcopies
[,...]
AP[PEND]
*;
spoolfileid [,...];
username[.acctname];
seleq;
END;
[range [,filename]]
B[ROWSE]
spoolfileid
*
C[OPY]
*;
spoolfileid [,...];
username[.acctname];
seleq;
[range [,filename]]
D[EBUG]
E[XIT]
F[IND]
[^] [+] [@] ["string"] [,range]
H[ELP]
spiff_command
mpe_command
HELPMENU
SUMMARY
FEATURES
I[NPUT]
spoolfileid [,...]
username[.acctname]
; *tapefile
L[IST]
[range]
M[ODE]
{ mode_option [,...] }
O[UTPUT]
spoolfileid [,...]
username[.acctname]
; *tapefile [;PURGE]
P[URGE]
spoolfileid [,...]
*
username[.acctname]
seleq
[; ASK YES]
Q[UIT]
S[HOW]
spoolfileid [,...]
*
username[.acctname]
seleq
;@
;I
;O
ST[ORE]
spoolfileid [,...]
username[.acctname]
seleq
[; store_options [;...]]
T[EXT]
spoolfileid
*
X[PLAIN]

linespec: [*recnum* | * | FIRST | LAST] [[±] *offset*]

range: [ALL | *linespec*, *count* | *linespec* / *linespec*]

mode_option: [W[IDTH] = { [±] *num* | OFF } | { C[ONTROLS] | @ | ^ | + | D[OTS] } = { ON | OFF }]

seleq: See LISTSPF command for syntax.

spoolfileid: [# O] *nnn*

store_option: Any STORE command keyword.

:SPL [*textfile*] [,[*uslfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]
[;INFO=*quotedstring*]

:SPLGO [*textfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]
[;INFO=*quotedstring*]

:SPLPREP [*textfile*] [,[*progfile*] [,[*listfile*] [,[*masterfile*] [,*newfile*]]]]
[;INFO=*quotedstring*]

:SPOOLER [DEV=] { *ldev* | *devclass* | *devname* } [;*function*] [;OPENQ | ;SHUTQ] [;SHOW]

function: [;START]

[;STOP [;FINISH | ;NOW]]

[;SUSPEND [;FINISH | ;NOW] [;NOKEEP | ;KEEP] [;OFFSET= [±] *page*]]

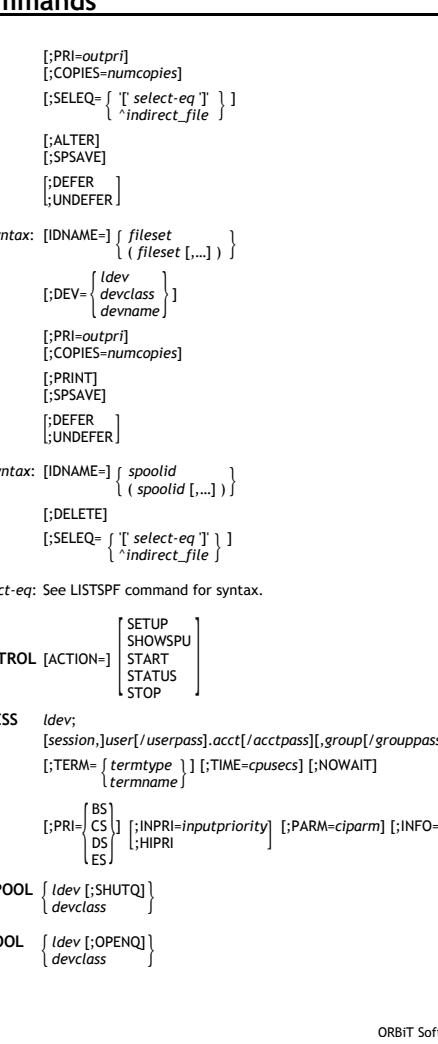
[;RESUME [;OFFSET=[±] *page*]]

[;RELEASE [;OFFSET=[±] *page*]]

:SPOOLF { *alter-syntax* | *print-syntax* | *delete-syntax* } [;SHOW]

alter-syntax: [IDNAME=] { *spoolid* | (*spoolid* [,...]) }

[;DEV= { *ldev* | *devclass* | *devname* }]


[;PRI=outpri]
[;COPIES=numcopies]
[;SELEQ= [' select-eq ']' ^indirect_file]
[;ALTER]
[;SPSAVE]
[;DEFER ;UNDEFER]
print-syntax: [IDNAME=] fileset (fileset [,...])
[;DEV= ldev devclass devname]
[;PRI=outpri]
[;COPIES=numcopies]
[;PRINT]
[;SPSAVE]
[;DEFER ;UNDEFER]
delete-syntax: [IDNAME=] spoolid (spoolid [,...])
[;DELETE]
[;SELEQ= [' select-eq ']' ^indirect_file]
select-eq: See LISTSPF command for syntax.
:SPUCONTROL [ACTION=] SETUP SHOWSPU START STATUS STOP
:STARTSESS ldev;
[session,]user[/userpass].acct[/acctpass][,group[/grouppass]]
[;TERM= termtype termname] [;TIME=cpusecs] [;NOWAIT]
[;PRI= BS CS DS ES] [;INPRI=inputpriority ;HIPRI] [;PARM=ciparm] [;INFO=ciinfo]
:STARTSPOOL ldev [;SHUTQ] devclass
:STOPSPOOL ldev [;OPENQ] devclass

:STORE [*filesetlist*] [;*storefile*] [;*option* [;...]]

filesetlist: { *fileset* | ^*indirectfile* } [,...]

fileset: *filestostore* [-*filestoexclude* [-...]] [=*targetname*]

option:

[;COPYACD | ;NOACD]

[;DATE[S] { <=*accdate* | >=*moddate* }]

[;DIRECTORY]
[;FCOPY]
[;FCRANGE= *filecode* / *filecode* [,...]]
[;FILES= *maxfiles*]
[;INTER]
[;MAXTAPEBUF]
[;NOTIFY]

[;ONERR[OR]={ REDO | QUIT }]

[;ONVS= *volumesetname* [,...]]

[;PART[IAL]DB | ;FULLDB]

[;PROGRESS [=*minutes*]]
[;PURGE]
[;RENAME]

[;SHOW [= { SHORT | LONG | NAMESONLY }] [,DATES | ,SECURITY | ,PATH | ,OFFLINE] [...]]]

[;SPLITVS= *split_setname* [,...]]
[;STATISTICS]

[;STOREDIR[ECTORY]= *directoryname* | ;NOSTOREDIR[ECTORY]]

[;STORESET= (*device* [,...]) [, (*device* [,...]) [,...]]]

[;TRANSPORT [=MPEXL]]

[;TREE | ;NOTREE]

note: Following available with TurboStore/iX II:

[;COMPRESS={ HIGH | LOW }]

note: Following available with TurboStore/iX 7x24 True-Online Backup:

[;ONLINE [={ START | END } [,*time*] [,ASK]]]

[;LOGVOLSET= *volumesetname*]

:STREAM [*filename*] [,*char*]
[;AT=*hh*:*mm*]
[;DAY= { *day-of-week* / *day-of-month* / *days-until-month* }]
[;DATE=*mm*/*dd*/*yy*[*yy*]]
[;IN=[*days* [,[*hours*] [,*minutes*]]]]
[;JOBQ=*qname*]

:STREAMS { *ldev* / OFF }

:SUSPENDSPOOL
ldev [;FINISH]

:SWITCHBACK [FROM=] *altsystem* [[TO=] *homesystem*]

:SWITCHLOG

:SWITCHNMLOG
[UPDATE / *filenumber*]

:SWITCHOVER [FROM=] *homesystem* [[TO=] *altsystem*]

:SYSGEN [*basegroup*] [,*newgroup*] [,*inputfile*] [,*outputfile*]

:TELL { [#] S *nnn* / [*sessionname*,]*username*.*acctname* / @ / @.*acctname* / @S } [;] [*text*]

:TELLOP [*text*]

:THMGR [["] *thmgr-command* ["]]

:TRANXL [*textfile*] [,[*objectfile*] [,*listfile*]] [;INFO=*quotedstring*]

:TRANXLGO [*textfile*] [,*listfile*] [;INFO=*quotedstring*]

:TRANXLK [*textfile*] [,[*progfile*] [,*listfile*]] [;INFO=*quotedstring*]

:TUNE [*minclockcycle*] { ;CQ=*qinfo* / ;DQ=*qinfo* / ;EQ=*qinfo* } [;...]

qinfo: [*base* [,[*limit*] [,[*min*] [,[*max*] [, [DECAY / OSCILLATE] [,*tslice*]]]]]]

:UP *ldev*

:VERSION [["] *fileset* [, *search-string*] ["]]

:VMOUNT { ON [,AUTO] | OFF } [;ALL]

:VSCLOSE *volumesetname* [[;PARTVS=] { USER | BACKUP }] [;NOW | ;SPLIT]

:VSOPEN *volumesetname* [[;PARTVS=] { USER | BACKUP }]

:VSRELEASE [*volumesetname*]

:VSRELEASESYS
volumesetname

:VSRESERVE [*volumesetname*] [;GEN=*genindex*]

:VSRESERVESYS
volumesetname

:VSTORE [*vstorefile*] [;*filesetlist*] [;*option* [;...]]

option: [;COPYACD | ;NOACD]
[;DIRECTORY]
[;NODECOMPRESS]
[;[NO]TREE]
[;ONERR[OR]= { QUIT | SKIP }]
[;PART[IAL]DB]
[;PROGRESS [=*minutes*]]
[;RESTORESET= (*device* [,...])]
[;SHOW [= [SHORT | LONG | NAMESONLY] [,DATES | ,SECURITY | ,PATH | ,OFFLINE] [...]]]
[;STOREDIR[ECTORY]=*directoryname*]

note: Following available with TurboStore/iX II and TurboStore/iX 7x24 True-Online Backup:
[;RESTORESET=(*device* [,...]) [,(*device* [,...]) [,...]]]

:VSUSER [*volumesetname*]

:WARN { @ | [#] { J | S } *nnn* | [*jsname*,]*user.acct* } [[;] *message*]

:WELCOME [*welcome_file*]

:WHILE *expression* [DO]

:XEQ { *command_file* [*parameterlist*] | *program_file* [[;PARM=]*parmvalue*] [[;INFO=]*quotedstring*] }

CI Variables

Section 4 : CI Predefined Variables

Variable	R W	Type	Description
HPACCOUNT	R	string	Logon account name
HPACCTCAP	R	integer	Account capability mask
HPACCTCAPF	R	string	Account capability list
HPAUTOCONT	W	boolean	CI automatic CONTINUE?
HPCIDEPTH	R	integer	Nested CI count
HPCIERR	W	integer	Last CI error/warning number
HPCIERRCOL	W	integer	Error column for last CIERR message
HPCIERRMSG	R	string	Text of last CIERR message
HPCMDNUM	R	integer	CI command sequence number
HPCMDTRACE	W	boolean	User command tracing?
HPCMEVENTLOG	W	integer	Display TOS/REG traps
HPCONNMINS	R	integer	Job/session connect time (minutes)
HPCONNSECS	R	integer	Job/session connect time (seconds)
HPCONSOLE	R	integer	Console LDEV number
HPCONTINUE	R	boolean	CI CONTINUE in effect?
HPCPUMSECS	R	integer	Job/session CPU time (milliseconds)
HPCPUNAME	R	string	System model name
HPCPUSECS	R	integer	Job/session CPU time (seconds)
HPCWD	R	string	Current Working Directory pathname
HPDATE	R	integer	Day of month
HPDATEF	R	string	Date (formatted)
HPDATETIME	R	string	Date/time (YYYYMMDDHHMMSSMMM format)
HPDAY	R	integer	Day of week number (Sunday=1)
HPDOY	R	integer	Day of year number
HPDTCPORTID	R	string	DTC port ID
HPDUPLICATIVE	R	boolean	User input echoed to same device?
HPERRDUMP	W	integer	Total process error stack entries to display (used by :ERRDUMP)
HPERRSTOLIST	W	boolean	Send CI errors and warnings to $STDLIST (true), or $STDERR (false)
HPEXECJOBS	R	integer	Total EXEC jobs & sessions
HPFILE	R	string	Active UDC/command file name
HPFSERR	W	integer	Last CI file system error number
HPGROUP	R	string	Group name
HPGROUPCAP	R	integer	Group capability mask
HPGROUPCAPF	R	string	Group capability list
HPHGROUP	R	string	Home group name
HPHHMMSSMMM	R	string	Time (HHMMSSMMM format)
HPHOUR	R	integer	Hour number (range 0..23)
HPINBREAK	R	boolean	In break?
HPINPRI	R	integer	Job input priority

Variable	R W	Type	Description
HPINTERACTIVE	R	boolean	User prompted for input?
HPINTRODATE	R	string	Job/session logon date (formatted)
HPINTROTIME	R	string	Job/session logon time (formatted)
HPJOBCOUNT	R	integer	Total jobs currently logged on
HPJOBFENCE	R	integer	System job fence
HPJOBLIMIT	R	integer	System job limit
HPJOBNAME	R	string	Job/session logon name
HPJOBNUM	R	integer	Job/session number
HPJOBTYPE	R	string	Job/session type ('J' or 'S')
HPLASTJOB	W	string	Logon ID of last job streamed. HPLASTSPID returns info matching whichever job this variable is set to.
HPLASTSPID	R	string	$STDLIST spoolfile ID for job defined by HPLASTJOB
HPLDEVIN	R	integer	LDEV number of CI's $STDIN
HPLDEVLIST	R	integer	LDEV number of CI's $STDLIST
HPLEAPYEAR	R	boolean	Leapyear?
HPLOCIPADDR	R	string	Remote client IP address
HPLOCPORT	R	integer	Local NS TCP port number
HPMAXPIN	R	integer	Maximum concurrent processes
HPMINUTE	R	integer	Minute number
HPMONTH	R	integer	Month number
HPMSGFENCE	W	integer	CI message display control. Derive by combining: 0 Display errors, warnings, 'skip' and '***' messages 1 Suppress warning messages 2 Suppress errors and warnings 8 Suppress 'skip' messages 16 Suppress 'skip', '***' messages
HPNCOPIES	R	integer	Job $STDLIST number of copies
HPOSVERSION	R	string	MPE/iX full version ID (user modifiable via SYSGEN)
HPOUTCLASS	R	string	Output device class
HPOUTFENCE	R	integer	Output device outfence number
HPPATH	W	string	CI command file & implied RUN search path
HPPIN	R	integer	PIN number of active process
HPPROMPT	W	string	CI interactive prompt string
HPQUIET	R	boolean	Session refuses messages?
HPREDOSIZE	W	integer	Size of CI redo history stack
HPRELVERSION	R	string	MPE/iX full version ID
HPREMIPADDR	R	string	Remote user IP address (formatted)
HPREMPORT	R	integer	Remote node incoming TCP port number
HPRESULT	W	*	Result of last CALC command
HPSCHEDJOBS	R	integer	Total jobs currently scheduled

CI Variables

Variable	R W	Type	Description
HPSESCOUNT	R	integer	Total jobs currently executing
HPSESLIMIT	R	integer	System session limit
HPSPLITYEAR	W	integer	Century split year
HPSPOOLID	R	string	Job $STDLIST spoolfile ID
HPSTDIN	R	string	Job/session $STDIN filename
HPSTDIN_ACCESS_TYPE		string	$STDIN accessor connection type
HPSTDIN_LINK_ADDR		string	Client level-1 address
HPSTDIN_NETWORK_ADDR		string	$STDIN accessor network address
HPSTDIN_NETWORK_NODE		string	$STDIN accessor node name
HPSTDIN_TERMINAL_TYPE		string	$STDIN accessor terminal type
HPSTDIN_TRANSPORT_TYPE		string	$STDIN accessor network transport
HPSTDLIST	R	string	Job/session $STDLIST filename
HPSTREAMEDBY	R	string	Logon ID of user who streamed current job, or STARTSESS'd current session
HPSUSAN	R	integer	System unique serial number
HPSUSPJOBS	R	integer	Total suspended jobs
HPSYSNAME	W	string	System name
HPSYSTIMEOUT	R	integer	System maximum HPTIMEOUT value
HPTIMEF	R	string	Time (formatted)
HPTIMEOUT	W	integer	CI input timeout (minutes)
HPTYPEAHEAD	W	boolean	Input typeahead enabled?
HPUSER	R	string	User name
HPUSERCAP	R	integer	User capability mask
HPUSERCAPF	R	string	User capability list
HPUSERCMDEPTH	R	integer	Nested UDC/command file count
HPUSERCOUNT	R	integer	Total online users (if HPUSERLIMIT<>-1)
HPUSERLIMIT	R	integer	Maximum online users
HPVERSION	R	string	MPE/iX version
HPVT_CLIENT_JOB_NAME		string	Job/session name of remote client originating local VT session
HPVT_CLIENT_JOB_NUM		string	Job/session number of remote user originating local VT session
HPVT_CLIENT_LDEV_NUM		string	LDEV number of remote user originating local VT session
HPVT_CLIENT_MODE		string	Client VT client type
HPVT_CLIENT_OPSYS		string	Client OS name
HPVT_CLIENT_TCP_PORT		string	Client TCP/IP port number
HPVT_CLIENT_VENDOR		string	Client vendor name
HPWAITJOBS	R	integer	Total waiting jobs
HPYEAR	R	integer	2-digit year number
HPYYYY	R	integer	4-digit year number
HPYYYYMMDD	R	string	System date (YYYYMMDD format)

Section 5 : CI Functions

Function	Type	Description/Syntax
ABS	integer	Return absolute value of an integer: ABS (integer)
ALPHA	boolean	Is string alphabetic only? ALPHA (string)
ALPHANUM	boolean	Is string alphabetic and numeric only? ALPHANUM (string)
AND	boolean	Logical And
ANYPARM	string	Treat all characters in argument as single string: ANYPARM (anything)
BAND	integer	Bitwise And
BASENAME	string	Extract filename portion of MPE or Posix name: BASENAME (filename [,suffix])
BNOT	integer	Bitwise Not
BOR	integer	Bitwise Or
BOUND	boolean	Does variable exist? BOUND (variablename)
BXOR	integer	Bitwise Exclusive Or
CHR	string	Interpret ASCII number as a character: CHR (integer)
CSL	integer	Circular shift left
CSR	integer	Circular shift right
DECIMAL	string	Convert integer number to a string: DECIMAL (integer)
DELIMPOS	integer	Return position of nth delimiter in a string: DELIMPOS (str [,delims] [,nth] [,start])
DIRNAME	string	Extract directory components of filename: DIRNAME (filename)
DWNS	string	Shift string to lowercase: DWNS (string)
EDIT	string	Perform full REDO-like editing on a string: EDIT (string, editstr [,start])
FINFO	*	Return file information (options shown below): FINFO (filename, option)
FQUALIFY	string	Qualify filename: FQUALIFY (filename)
FSYNTAX	string	Return filename syntax: FSYNTAX (filename) 'MPE', 'MPE;WILD', 'MPE;LOCK', 'MPE;FEQ', 'MPE;$FILE', 'MPE;REMOTE', 'POSIX', 'POSIX;WILD', 'ERROR=nnn'
HEX	string	Convert integer to hexadecimal string: HEX (integer)
INPUT	string	Accept user input: INPUT ([prompt] [,wait] [,cnt] [,default] [,'console'])

CI Functions

Function	Type	Description/Syntax
JINFO	*	Return job information (options shown below): JINFO (jobID, option [,status_var]) jobID: [#] {J,S} nnn
JOBCNT	integer	Return total qualifying job/sessions: JOBCNT (job_match [,joblist_var]) job_match: { @[J,S] } { [@{J,S}:] [[jobname],]user.acct }
LEN	integer	Return string length: LEN (string)
LFT	string	Left string extraction: LFT (string, length)
LSL	integer	Logical shift left
LSR	integer	Logical shift right
LTRIM	string	Trim left end of string: LTRIM (string, [,trimstr])
MAX	integer	Find largest of several integers: MAX (num [,num] [,...])
MIN	integer	Find smallest of several integers: MIN (num [,num] [,...])
MOD	integer	Modulo of two numbers
NOT	boolean	Logical Not
NUMERIC	boolean	Is string numeric only? NUMERIC (string)
OCTAL	string	Convert integer to octal string: OCTAL (integer)
ODD	boolean	Is integer odd? ODD (integer)
OR	boolean	Logical Or
ORD	integer	Interpret character as ASCII number: ORD (string)
PINFO	*	Return process information (options shown below): PINFO (pinID, item [,status_var]) pinID: [#P] nnn [.tid]
PMATCH	boolean	Search for pattern in string: PMATCH (pattern, string [,start])
POS	integer	Finds the index of one string in another: POS (find-str, source-str [,n])
REPL	string	Replace specified number of occurrences of an old string with a new one: REPL (str, oldstr, newstr [,count] [,start])
RHT	string	Right string extraction: RHT (string, count)
RPT	string	Repeat/reverse string specified number of times: RPT (string, count)
RTRIM	string	Trim right end of string: RTRIM (string, [,trimstr])
SETVAR	*	Return result of an expression; set variable to result: SETVAR (varname, expression)

Function	Type	Description/Syntax
STR	string	General string extraction: STR (string, position, count)
TYPEOF	integer	Return type of variable or expression: TYPEOF (expression). Possible returns: 0 ... Invalid 1 ... Integer 2 ... String 3 ... Boolean
UPS	string	Shift string to uppercase: UPS (string)
WORD	string	General word extraction: WORD (string [,delims] [,nth] [,end_var] [,start])
WORDCNT	integer	Counts tokens within string: WORDCNT (string [,delims] [,start])
XOR	boolean	Logical Exclusive Or
XWORD	string	Extract all but selected word: XWORD (string [,delims] [,nth] [,end_var] [,start])

FINFO function options:

#	Alias	Type	Description
0	**EXISTS**	boolean	File exists?
1	**FULL FILENAME** **FULLFNAME** **FULLY QUALIFIED FILENAME**	string	Qualified file name
-1	**FILENAME ONLY** **FNAME**	string	File name
2	**GROUP** **GROUPNAME**	string	Group name
3	**ACCOUNT** **ACCT** **ACCOUNTNAME**	string	Account name
4	**CREATOR**	string	File creator name
5	**FMTSECURITY** **FORMATTED SECURITY MATRIX**	string	Security access matrix
-5	**SECURITY MATRIX** **INTSECURITY**	integer	Security access matrix
6	**CREATED** **CREATION DATE** **FMTCREATED**	string	File creation date
-6	**CREATION DATE INTEGER** **INTCREATED**	integer	File creation date
7	**ACCESSED** **FMTACCESSED** **LAST ACCESS DATE**	string	Last access date
-7	**LAST ACCESS DATE INTEGER** **INTACCESSED**	integer	Last access date

#	Alias	Type	Description
8	**MODIFIED** **LAST MOD DATE** **FMTMODDATE**	string	Last modification date
-8	**LAST MOD DATE INTEGER** **INTMODDATE**	integer	Last modification date
9	**FILE CODE MNEMONIC** **FMTFCODE**	string	Filecode mnemonic
-9	**FCODE** **FILE CODE** **INTFCODE**	integer	Filecode number
10	**USER LABELS WRITTEN**	integer	Total user labels
11	**USER LABELS AVAIL**	integer	Total available user labels
12	**FILE LIMIT** **LIMIT**	integer	Maximum logical record capacity
13	**FORMATTED FOPTIONS** **FMTFOPT**	string	File options (formatted)
-13	**FOPTIONS** **INTFOPT**	integer	File options
14	**RECORD SIZE** **RECSIZE**	Integer	Record size
15	**BLOCK SIZE** **BLKSIZE**	integer	Block size
16	**MAX EXTENTS** **MAXEXT**	integer	Maximum extents
17	**LAST EXTENT SIZE** **LASTEXTSIZE**	integer	Size of last extent
18	**EXTENT SIZE** **EXTSIZE**	integer	Extent size
19	**END OF FILE** **EOF**	integer	Logical records in file
20	**ALLOC TIME** **FMTALLOCTIME**	string	File allocation time
-20	**ALLOC TIME INTEGER** **INTALLOCTIME**	integer	File allocation time
21	**ALLOC DATE** **FMTALLOCDATE** **ALLOCATED**	string	File allocation date
-21	**ALLOC DATE INTEGER** **INTALLOCDATE**	integer	File allocation date
22	**NUM OPEN CLOSE RECS**	integer	Total MSG open/close records
23	**DEVICE NAME** **DEV NAME**	string	Device name (8 bytes)
24	**FMTMODTIME** **LAST MOD TIME**	string	Last modification time
-24	**INTMODTIME** **LAST MOD TIME INTEGER**	integer	Last modification time
25	**FIRST USER LABEL**	string	First user label (user label 0)

#	Alias	Type	Description
27	**UNIQUE FILE ID** **UFID**	string	Unique file identifier (UFID)
28	**BYTE FILE LIMIT** **BYTELIMIT**	integer	Maximum bytes in file
29	**BYTE DATA OFFSET** **DATASTART**	integer	Start of file offset
30	**BYTE RECORD SIZE** **BYTERECSIZE**	integer	Record size (bytes)
31	**BYTE BLOCK SIZE** **BYTEBLKSIZE**	integer	Block size (bytes)
32	**BYTE EXTENT SIZE** **BYTEEXTSIZE**	integer	Extent size (bytes)
33	**LOCKWORD**	string	Lockword
34	**VOLUME RESTRICTION** **VOLRESTR**	string	Volume restriction
35	**VOLUME SET NAME**	string	Volume set name
36	**LOG SET ID**	integer	Transaction mgr log ID
37	**LDEV** **LOGICAL DEVICE NUMBER**	integer	Logical device number
38	**POSIX FULL FILENAME** **POSIXFULLFNAME**	string	HFS-syntax absolute pathname
39	**NUM HARD LINKS** **NUMHARDLINKS**	integer	Hard link count
40	**ACCESS TIME** **FMTACCESSTIME** **LAST ACCESS TIME**	string	Last file access time
-40	**LAST ACCESS TIME INTEGER** **INTACCESSTIME**	integer	Last access time (CLOCK format)
41	**STATUS CHANGE TIME** **FMTSTATUSCHANGETIME**	string	Last file status change time
-41	**INTSTATUSCHANGETIME** **CHANGE TIME INTEGER**	integer	Status change time integer
42	**STATUS CHANGE DATE** **FMTSTATUSCHANGEDATE**	string	Last file status change date
-42	**CHANGE DATE INTEGER** **INTSTATUSCHANGEDATE**	integer	Last file access status change date (CALENDAR format)
43	**FILE OWNER NAME** **OWNER**	string	Posix owner name
44	**FILE OWNER ID** **UID**	integer	Posix owner ID (UID)
45	**FILE GROUP NAME** **FILEGROUP**	string	Posix group name
46	**FILE GROUP ID** **GID**	integer	Posix group number (GID)
47	**FILE TYPE** **FILETYPE**	string	File type (formatted)
-47	**FILE TYPE INTEGER** **INTFILETYPE**	integer	File type

#	Alias	Type	Description
48	**RECORD TYPE** **RECTYPE**	integer	Record type
49	**BYTE FILE SIZE** **BYTEFILESIZE**	integer	Current file size (bytes)
50	**KSAM VERSION** **KSAMVERS**	integer	KSAM XL file version
51	**KSAM LABEL** **KSAMPARAM**	string	KSAM XL parameters
52	**DEVICE TYPE** **DEVTYPE**	string	MPE/iX device type
-52	**DEVICE TYPE INTEGER** **INTDEVTYPE**	integer	MPE/iX device type
53	**RELEASED**	boolean	Secure/release flag
56	**COMPRESSED**	boolean	HSM compressed flag
57	**MIGRATED**	boolean	HSM migrated flag
58	**SECTORS** **NUM SECTORS**	integer	Number of sectors
59	**EXTENTS** **NUM EXTENTS**	integer	Total extents
60	**CREATETIME** **FMTCREATETIME** **CREATION TIME**	string	File creation time (formatted)
-60	**INTCREATETIME** **CREATION TIME INTEGER**	integer	File creation time
61	**ACCESSORS** **NUM ACCESSORS**	integer	Total accessors

JINFO function options:

Keyword	Type	Description
Account	string	Account name
Cipin	integer	PIN number for job's usermain process
Command	string	Command most recently executed
ConnectMin	integer	Total minutes connected
ConnectSec	integer	Total seconds connected
Copies	integer	Total copies for $STDLIST
CPULimit	integer	CPU limit in seconds (-1 = unlimited)
CPUMillsec	integer	Total CPU milliseconds
CPUSec	integer	Total CPU seconds
Deferred	boolean	Is job inpri <= jobfence?
DegradeMode	boolean	Is system is running in degraded mode?
Executing	boolean	Is job in INTRO, EXEC*, or EXEC state?
Exist **Exists**	boolean	Does target job exist in any state?
FmtIntroDate	string	Formatted date job was introduced
FmtIntroTime	string	Formatted time job was introduced

Keyword	Type	Description
FmtPriority	string	Usermain process current scheduling queue
FmtStreamedByDate	string	Formatted date job/session was submitted
FmtStreamedByTime	string	Formatted time job/session was submitted
Group	string	Logon group name
HomeGroup	string	Home group name
Inpri	integer	Input priority
IntIntroDate **IntroDate**	integer	Date job introduced (YYYYMMDD integer)
IntIntroTime **IntroTime**	integer	Time job introduced (HHMMSS integer)
IntStreamedByDate	integer	Date job/session submitted (YYYMMDD)
IntStreamedByTime	integer	Time job/session submitted (HHMMSS)
IPAddr	string	IP address in dotted form
Job User Account **JobUserAccount**	string	'[jname,]user.acct'
Job User Account Group **JobUserAccountGroup**	string	'[jname,]user.acct,group'
JobName	string	Jobname (optional)
JobNum	string	Unique job identifier (#J|Snnn)
JobQ	string	Job queue name
JobSecurity	string	'LOW' or 'HIGH' (JOBSECURITY setting)
JobState	string	'INTRO', 'SCHED', 'WAIT', 'EXEC*', 'EXEC', 'SUSP'
JobType	string	'J' or 'S'
JSMAINPin	integer	Job JSMAIN process PIN
LdevIn	integer	$STDIN LDEV number
LdevOut	integer	$STDLIST LDEV number (0 for jobs)
LocAttr	integer	User local attributes
Numbered	boolean	Is job $STDIN numbered?
Outclass	string	Job $STDLIST outclass name
Outpri	integer	Output priority
PassExempt	string	System job password exemption policy: 'NONE', 'USER', 'XACCESS', 'MAX'
Priority	integer	Usermain (CI) process priority
Private	boolean	Is job $STDLIST private?
Quiet	boolean	Is :SET MSG=OFF in effect?
RawIntroDate	integer	Date job introduced (CALENDAR format)
RawIntroTime	integer	Time job introduced (CLOCK format)
RawStreamedByDate	integer	Date job/session submitted (CALENDAR format)
RawStreamedByTime	integer	Time job/session submitted (CLOCK format)
Restart	boolean	Does job card specify RESTART?

Keyword	Type	Description
Scheduled	boolean	Is job in SCHED state?
State	string	See 'JobState'
StdinSPID	string	$STDIN spoolfile 'Innn' identifier
StdinSPstate	string	STDIN spoolfile state: 'OPEN', 'ACTIVE', 'READY'
StdlistDelete	boolean	':SET STDLIST=delete' in effect?
StdlistSPID	string	$STDLIST spoolfile 'Onnn' identifier
StdlistSPstate	string	STDLIST spoolfile state: 'CREATE', 'DEFER', 'READY', 'XFER', 'PRINT', 'PROBLM', 'DELPND', 'SPSAVE'
StreamedBy	string	ID of job/session that streamed or initiated the target job
StreamedByDate	integer	See 'IntStreamedByDate'
StreamedByLdev	integer	Job/session LDEV that submitted target job
StreamedByTime	integer	See 'IntStreamedByTime'
Suspended	boolean	Is job in SUSP state?
User	string	User name
User Account **UserAccount**	string	'user.account'
User Account Group **UserAccountGroup**	string	'user.account,group'
Waiting	boolean	Is job in WAIT state?

PINFO function options:

Keyword	Type	Description
Alive	boolean	Is pin alive?
Boosted	boolean	Has pin's priority been boosted?
BoostReason	string	'NO BOOST', 'OWNS PRI SEMA', 'OWNS SIR', 'LONG SYS TRANS', 'BREAK', 'BLOCKED UNPREEMPTABLE', 'IPC SERV CONTENTION', 'LONG USER TRANS', 'OWNS PRI SEMA PORT', 'PRI OSCILLATION'
BoostType	string	'NO BOOST', 'LINEAR', 'DECAY'
Child **ChildPin**	integer	First child process pin
Children **ChildrenPins**	string	Descendant pins list. Format: 'total /pin [...]'
CMask	integer	POSIX file creation security cmask
CMMode	boolean	Is pin currently in CM?
CMProg	boolean	Is program CM?
CPUMilliSec	integer	Total CPU milliseconds
Creator **CreatorPin**	integer	Creator pin (usually parent)

Keyword	Type	Description
CriticalDepth	integer	Critical if > 0 (can't be aborted)
EGID	integer	POSIX Effective Group ID
EUID	integer	POSIX Effective User ID
ExecState	string	'BLOCK MEM MGR', 'BLOCK CB', 'BLOCK MSG', 'READY', 'BLOCK TERM'
Exist **Exists**	boolean	Does pin exist in any state?
FmtCPUMilliSec	string	Formatted CPU time Format: 'MM:SS.sss' or 'HH:MM:SS'
FmtEGID	string	Formatted EGID: 'account'
FmtEUID	string	Formatted EUID: 'user.account'
FmtGID	string	Formatted GID: 'account'
FmtPID	string	MPE Internal Process ID: 'pin reuse_cnt'
FmtUID	string	Formatted UID: 'user.account'
FmtWaitMilliSec	string	Formatted CPU time Format: 'MM:SS.sss' or 'HH:MM:SS'
GID	integer	Posix Group ID
HasSIR	boolean	Does pin own a SIR?
HPEPri	integer	Internal priority
InBreak	boolean	Is pin in Break mode?
Info **InfoString**	string	Info string (lockwords removed)
InitThreadPin	integer	Pin of initial thread, 0 if not a thread
IntProcType	integer	Process type: 0 ... user 1 ... son 2 ... usermain 3 ... task 4 ... system 5 ... detach 6 ... jsmain
IntWaitReason	integer	WaitReason index
IPAddr	string	IP address in dotted format
JobNum	string	Job/Session ID: '#J|Snnn'
JSMAIN **JSMAINPin**	integer	JSMAIN process pin
Linear **LinearPriority**	boolean	Does process priority not decay?
MPECmask	integer	Internal MPE cmask
MPEPri	integer	MPE external 'classic' priority
NumFilesOpen **NumOpenFiles**	integer	Total open files
NumPINs **NumProcesses**	integer	Total descendant processes
Parent **ParentPin**	integer	Parent pin
Parm	integer	Parm value
PendingIOCount **PendingIOs**	integer	Total outstanding IOs for pin
PIN	integer	Pin
PriAfterBoost **UnboostPri**	integer	Pin priority after boost period

Keyword	Type	Description
ProcState	string	'DYING', 'DEAD', ALIVE', 'INITIATE', 'UNBORN'
ProcType	string	'USER', 'SON', 'MAIN', 'TASK', 'SYSTEM', 'DETACH', 'JSMAIN'
Program **ProgramName**	string	Program filename (MPE syntax if possible, else HFS syntax)
PxPID	integer	Posix PID: 16 bit reuse_cnt, 16 bit PIN
Qpri **QueuePriority**	string	'Scheduling queue' + 'MPE priority'
SchedQ **SchedQueue**	string	Scheduling queue: 'AS', 'BS', 'CS', 'DS', 'ES'
SchedState	string	'EXECUTING', 'READY', 'SHORT WAIT', 'LONG WAIT'
SecondaryThreads	string	Secondary threads list. Format: 'total /pin [...]'
SetDump	boolean	Is SETDUMP enabled?
Sibling **SiblingPin**	integer	First sibling pin
SystemDepth	integer	System code depth
ThreadID **TIN**	integer	Thread ID number. 1 if non-thread, >1 if threaded.
ThreadType	string	'NONE', 'INITIAL', 'SECONDARY'
UID	integer	Posix User ID
UnboostPri	integer	See PriAfterBoost
UserAcct	string	'user.account'
UserProcess	boolean	Is pin a user process? (IntProcType=0,1, or 2)
WaitMilliSec	integer	Time pin has been waiting
WaitReason	string	'PAGE FLT NM CODE', 'PAGE FLT NM STK', 'PAGE FLT NM TRANSIENT', 'PAGE FLT FILE', 'PAGE FLT CM CODE', 'PAGE FLT CM STK', 'PAGE FLT CM TRANSIENT', 'TERMINAL READ', 'TERMINAL WRITE', 'DISC IO', 'OTHER IO', 'IPC TRANS COMPLETE', 'SIR', 'RIN', 'MM PREFETCH', 'EXPIRED QUANTUM', 'TIMER', 'PARENT', 'CB', 'CHILD', 'DATA COMM', 'RIT', 'DISP WORK', 'PORT', 'MAIL', 'JUNK', 'MSG', 'IMPEDE', 'BREAK', 'WAIT QUEUE', 'MEM MGR', 'PORT BLOCK', 'FILE BLOCK', 'FILE UNBLOCK', 'STORAGE MGT', 'DEBUG MSG', 'IO CONF', 'PFP REPLY' , 'DBMON', 'FILL DISC', 'HILO', 'FS TERM IO', 'MM POST', 'SIG TIMER', 'PREEMPTION', 'DISC IO PREEMPTION', 'PRI PREEMPTION', 'SQL LOCK', 'SQL LATCH', 'SQL BUFF', 'LONG PAUSE', 'MM FREEZE', 'RELEASE', 'DEFERRED PREEMPT', 'MM PSEUDO IO READ', 'MM PSEUDO IO WRITE', 'OTHER', 'NOT WAITING', 'DEAD PROCESS'
WG **WorkGroup**	string	Workgroup name

Section 6 : Intrinsic Calling Sequences

Only defined CCODE values shown.

I16V I32V I16A
ABORTSESS (**jsid**, **jsnum**, **jsstatus**)

I16V U16V
ACTIVATE (**pin**, susp)

CCE	2	Ok
CCG	0	Ok; called process already active
CCL	1	Illegal request

susp bits:

14:1	Caller expects activation by child
15:1	Caller expects activation by parent

ADJUSTUSLF I16 I16V I16V
uslferror := ADJUSTUSLF (**uslfnum**, **adjustment**)

CCE	2	Ok
CCL	1	Failed

ALMANAC U16V U16A I16 I16 I16 I16
(**date**, **error**, yearnum, monthnum, daynum, weekdaynum)

ALTDSEG U16V I16V I16
(**index**, **increment**, **size**)

CCE	2	Ok
CCG	0	Ok; increment adjusted
CCL	1	Failed: illegal index

ARITRAP U16V (CM)
I32V (NM)
(**trapstate**)

CCE	2	Ok
CCG	0	Ok; some traps already enabled

trapstate:

0	Disable all arithmetic traps
1	Enable all arithmetic traps (except IEEE inexact result trap)

ASCII I16 *16V I16V CA
numchar := **ASCII** (**binvalue**, **base**, **asciieqv**)

base:

8	Octal (zero pad in 6 byte field)
10	Decimal, left justify
-10	Decimal, right justify
16	Hex (zero pad in 4 byte field)

BEGINLOG I32 U16A I16 I16 I16
(**index**, **data**, **length**, **mode**, **logstatus**)

mode:

0	Wait
1	Nowait

BINARY I16 CA I16V
bineqv := **BINARY** (**asciieqv**, **length**)

CCE	2	Ok
CCG	0	Failed: overflow
CCL	1	Failed: illegal character

CALENDAR U16
date := **CALENDAR**

date bits:

0:7	Years since 1900 (range 0:127)
7:9	Day of year

CATCLOSE (**catindex**, **catstatus**)

CATOPEN I32 CA U16A
catindex := **CATOPEN** (**formaldesig**, **catstatus**)

CATREAD I16 I32V I16V I16V
msglen :=**CATREAD** (**catindex**, **setnum**, **msgnum**,
U16A CA I16V CA CA
error, buff, buffersize, parm1, parm2,
CA CA CA I16V
parm3, parm4, parm5, msgdest)

CAUSEBREAK

CCE	2	Ok
CCL	1	Failed: not an interactive session

I32
CCODE ccx := **CCODE**

CCE	2	
CCG	0	
CCL	1	

CLEANUSL I16 I16V CA
filenum := **CLEANUSL** (**uslfnum**, **formaldesig**)

CCE	2	Ok
CCL	1	Failed; filenum contains error number

CLOCK I32
time := **CLOCK**

time bits:

0:8	Hours
8:8	Minutes
16:8	Seconds
24:8	Tenths of seconds

CLOSELOG I32 I16 I16
(**index**, **mode**, **logstatus**)

mode:

0	Wait
1	Nowait

COMMAND CA I16 I16
(**cmdimage**, **error**, **parmnum**)

CCE	2	Ok; error may contain warning
CCG	0	Failed: command terminated in error
CCL	1	Failed: unknown command

cmdimage: CR (%15) terminated.

CREATE CA CA I16 I16V U16V
(**progname**, entryname, **pin**, parm, loadflags,
I16V I16V I16V U16V I16V
stacksize, dlsize, maxdata, priorityclass, rank)

CCE	2	Ok; new process created
CCG	0	Ok
CCL	1	Failed

loadflags format:

0	1 2	3	4	5 6	7 8	9	10 11	12	13	14	15
Reserved		DL to Q flag	Reserved	Stackdump flags	Reserved	NOCB flag	LIB=flags	NOPRIV flag	DEBUG flag	LOADMAP flag	Parent reactivate
0	00	x	0	00 parent 01 on 10 parent 11 off	00	x	00 LIB=S 01 LIB=P 10 LIB=G	x	x	x	x

CREATEPROCESS

I16 I16A I16A (CM)
I32 I16 CA I32A I32A (NM)
(**status**, **pin**, **progname**, itemnums, items)

CCE	2	Ok
CCG	0	Ok; warning detected
CCL	1	Failed

itemnums/items:

Item #	Type	Description
0		End of List
1	@CA	Entry point (blank terminated)
2	I	PARM value
3	U	Load Options (see CREATE)
4	I	STACK value
5	I	DL value
6	I	MAXDATA value
7	@CA	PRI specification
8	@CA	STDIN definition (CR terminated)
9	@CA	STDLIST definition (CR terminated)
10	U	Activate flags (See ACTIVATE)
11	@CA	INFO string
12	I	INFO string length
14	@CA	STDERR definition (CR terminated)
19	@CA	XL list specification
23	@CA	UNSAT specification (blank or CR terminated)
24	I	Length of item 19
26	@CA	NMSTACK value
27	@CA	NMHEAP value

CTRANSLATE I16V CA CA I16V CA
(**transcode**, **inbuffer**, outbuffer, **bufferlength**, table)

CCE	2	Ok
CCL	1	Failed

transcode:

0	User-supplied table
1	Convert EBCDIC to ASCII
2	Convert ASCII to EBCDIC
5	Convert EBCDIK to KANA8 (JIS)
6	Convert KANA8 (JIS) to EBCDIK

DASCII I16 I32V I16V CA
numchar := **DASCII** (**binvalue**, **base**, **asciieqv**)

base:

8	Octal (zero pad in 11 byte field)
10	Decimal, left justify
-10	Decimal, right justify
16	Hex (zero pad in 8 byte field)

DATELINE CA27
(**datebuffer**)

DBINARY I32 CA I16V
dbineqv := **DBINARY** (**dasciieqv**, **length**)

CCE	2	Ok
CCG	0	Failed: overflow
CCL	1	Failed: illegal character

DEBUG

DLSIZE I16 I16V
dldbsize := **DLSIZE** (**size**)

CCE	2	Ok
CCG	0	Requested size reduced to maximum allowable
CCL	1	Failed: illegal size

DMOVIN U16V I16V I16V U16A
(**index**, **displacement**, **number**, **location**)

CCE	2	Ok
CCG	0	Failed: bounds check
CCL	1	Failed: invalid index or number

DMOVOUT U16V I16V I16V U16A
(**index**, **displacement**, **number**, **location**)

CCE	2	Ok
CCG	0	Failed: bounds check
CCL	1	Failed: illegal index or number

I16 CA I16A
DSCOPY (**opt**, **spec**, **result**)

DSCOPYMSG I16A I16 I16
(**result**, **fnum**, **r**)

ENDLOG I32 U16A I16 I16 I16
(**index**, **data**, **length**, **mode**, **logstatus**)

mode:

0	Wait
1	Nowait

EXPANDUSLF
I16 I16V I16V
filenum := **EXPANDUSLF** (**uslfnum**, **increment**)

CCE	2	Ok
CCL	1	Failed; filenum contains error

FATHER I16
pin := **FATHER**

CCE	2	Parent is user process
CCG	0	Parent is job/session main process (CI)
CCL	1	Parent is system process

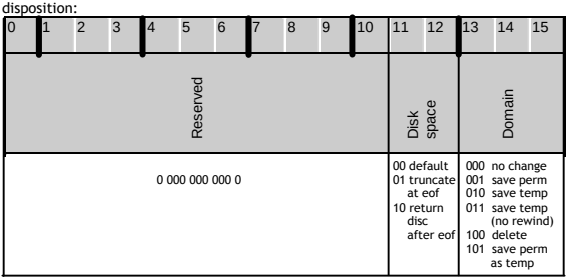
FCHECK I16V I16 I16 I32 I16
(filenum, fserrorcode, translog, blocknum, numrecs)

CCE	2	Ok
CCL	1	Failed: invalid filenum or bounds violation

FCLOSE I16V I16V I16V
(**filenum**, **disposition**, **securitycode**)

CCE	2	Ok
CCL	1	Failed

disposition:



FCONTROL I16V I16V *
(**filenum**, **itemnum**, **item**)

CCE	2	Ok
CCL	1	Failed

itemnum/item pairs:

Item #	Description
0	CCTL
1	Set pre or post-space mode
2	Complete I/O
3	Return device status
4	Set read timeout (seconds)
5	Rewind file
6	Write EOF
7	Space forward to tape mark

Item #	Description
8	Backspace to tape mark
9	Rewind and unload tape
10	Change terminal input speed
11	Change terminal output speed
12	Set echo on
13	Set echo off
14	Disable system break
15	Enable system break
16	Disable subsystem break
17	Enable subsystem break
18	Disable tape option
19	Enable tape option
20	Disable terminal input timer
21	Enable terminal input timer
22	Read terminal input timer
23	Disable parity
24	Enable parity
25	Define additional end-of-record characters
26	Disable binary mode
27	Enable binary mode
28	Disable user block mode
29	Enable user block mode
34	Enable line deletion response
35	Disable line delete response
36	Set parity
37	Set terminal type and speed
38	Set terminal type
39	Read terminal type
40	Read terminal output speed
41	Set unedited terminal mode
43	Abort pending nowait I/O
45	Enable/disable extended wait
46	Enable/disable reading writer ID
47	Nondestructive read
48	Arm/disarm software interrupts
51	Control byte stream append mode
52	Control nonblock flag
53	Close file on exec
54	Perform ioctl operation

FDELETE I16V I32V
(**filenum**, lrecnum)

CCE	2	Ok; inactive record may have been hit
CCG	0	Failed: EOF
CCL	1	Failed: access error

FDEVICECONTROL

I16V REC I16V I16V
(**filenum**, **buffer**, **length**, **controlcode**,

U16V U16V U16
parm1, **parm2**, **fserrorcode**)

CCE	2	Ok
CCL	1	Failed

controlcodes:

Code	Description
128	Select character set
129	Logical page activate/deactivate
130	Move pen relative
131	Move pen absolute
132	Define job characteristics
133	Define physical page
134	Download/delete character set
135	Download/delete form
136	Download logical page table
137	Download multi-copy form overlay table
138	Download/delete VFC
139	Download/delete picture
140	Page control
141	Clear environment
143	Load default environment
144	Print picture
145	End of job
146	Device extended capability mode
148	Enable/disable/return device status
149	Set data block number
150	Start silent run
151	Print standard header/trailer
192	Access terminal config file
193	Record NRJE spool file information

controlcode 192 functions:

Parm1	Description
1	Set terminal or printer type
2	Set read timeout (seconds)
3	Set device line speed
4	Set/reset echo
5	Set/reset system break
6	Set/reset subsystem break
8	Read input timer
9	Set/reset parity checking
10	Set parity checking type
11	Set/reset parity generation
12	Set parity generation type
14	Set line delete response

Parm1	Description
15	Set transparent editing mode
16	Enable/disable XON/XOFF flow control
27	Enable/disable XOFF timer
28	Read supported block mode types
29	Define block mode alert character
30	Read trigger character
32	Read block mode trigger character
36	Define backspace character
37	Define cancel line character
39	Define end of record (EOR) character
40	Define alternate end of record (AEOR) character
41	Define subsystem break character
51	Enable/disable typeahead mode
52	Allow form feed in output data
53	Define form feed replacement character
55	Define backspace response
56	Define data bits per character
57	Read subsystem break character
60	Flush typeahead buffer
61	Bypass typeahead buffer for next read
62	Quiesce I/O
63	Enable/disable typeahead single echo
64	Ignore/report input parity errors

FERRMSG I16 CA I16
(**fserrorcode**, **msgbuffer**, **msglength**)

CCE	2	Ok; new process created
CCG	0	Failed: no message found
CCL	1	Failed: msgbuffer bounds violation

FFILEINFO I16V I16V *
(**filenum** [, itemnum, item] [...])

CCE	2	Ok
CCL	1	Failed

itemnum/item pairs:

Item #	Type	Description
1	CA	File designator
2	U16	File options
3	U16	Access options
4	I16	Record size (+ve words, -ve bytes) (see item 67)
5	I16	Device type/subtype
6	U16	Logical device number (see item 50)
7	U16	Hardware device address (returns 2048)
8	I16	Filecode
9	I32	Logical record pointer
10	I32	EOF
11	I32	File limit

Item #	Type	Description
12	I32	Log count
13	I32	Physical I/O count
14	I16	Block size (+ve words, -ve bytes) (see item 68)
15	I16	Extent size (sectors) (see item 69)
16	U16	Maximum extents
17	I16	User labels
18	CA	Creator (see item 85)
19	I32	Label address (returns 0)
20	I16	Blocking factor
21	I16	Physical block size (words)
22	I16	Data block size (words)
23	I16	Offset to data in blocks (words)
24	I16	Offset of RIO file active record table (words)
25	I16	Size of active record table within block (words)
26	CA	Volume ID (tape label)
27	CA	Volume set ID (tape label)
28	U16	Expiration date (CALENDAR format)
29	I16	File sequence number
30	I16	Reel number
31	I16	Sequence type
32	U16	Creation date (CALENDAR format)
33	I16	Label type
34	I16	Current number of writers
35	I16	Current number of readers
36	U16	File Allocation (restore) date (CALENDAR format)
37	I32	File Allocation (restore) time (CLOCK format)
38	U16	Spoolfile device file number
40	I32	Disk device status (returns 0)
41	I16	Device type
42	I16	Device subtype
43	CA	Environment file name
44	I16	Total disk extents currently allocated
45	CA	File name from labeled tape header record (#1)
46	I16	Tape density
47	I16	DRT number (returns 8)
48	I16	Device unit number (returns 0)
49	U16	Message file software interrupt plabel
50	U16	Real device number
51	I16	Remote environment number
52	I32	Last modification time (CLOCK format)
53	U16	Last modification date (CALENDAR format)
54	U16	File creation date (CALENDAR format)
55	U16	Last access date (CALENDAR format)
56	I32	Total data blocks in variable length file
57	I16	Total user labels written
58	I16	Total accessors with output access (write)
59	I16	Total accessors with input access (read/update)
60	I16	Terminal type
61	CA	NS 3000/XL remote environment ID name

Item #	Type	Description
62	CA	File lockword
63	CA20	Unique file identifier (UFID) string
64	@64	File virtual address
66	@32	Global unique file descriptor (GUFD) virtual addr
67	U32	Record size (bytes)
68	U32	Block size (bytes)
69	U32	Extent size (bytes)
74	@64	File label virtual address
75	CA	Hardware path
76	CA34	Volume restriction
77	U32	Transaction management log set ID
78	U32	Spoolfile device file number
79	I16	Pending disposition
80	string	HFS syntax filename (Pascal string)
81	U32	Total hard links
82	I32	Last file access time (CLOCK format)
83	I32	Last file status change time (CLOCK format)
84	U16	Last file status change date (CALENDAR format)
85	CA	File Owner (user.account)
86	I32	File owner identifier (UID)
87	CA	File Group name
88	I32	File Group identifier (GID)
89	U32	File type
90	U32	Record type
91	I64	Current file size (EOF) (bytes)
92	I32	KSAM XL version
93	U32	Message file interrupt handler NM plabel
94	I32	MPE/iX device type
95	I32	Posix close-on-exec
96	I32	Posix append mode
97	I32	Posix non-block mode
98	I32	Carriage control in effect?
99	I32	Setuid flag
100	I32	Setgid flag
101	I32	Physical record type
102	I32	Disallow file equations?
103	I32	Tape opened labeled?
104	I32	File designator type
105	I32	ASCII/binary flag
106	I32	File domain
107	I32	File compressed flag
108	I32	File migrated flag
109	I64	File limit (bytes)
110	I32	Large file flag (1: limit > 4GB)

FFINDBYKEY I16V CA I16V I16V I16V
(**filenum**, **value**, **location**, **length**, **relop**)

CCE	2	Ok
CCG	0	Failed: requested position before start or after EOF
CCL	1	Failed: I/O error; unsatisfied relop; key not found

FFINDN I16V DV I16V
(**filenum**, **number**, **location**)

CCE	2	Ok
CCG	0	Failed: requested position after EOF
CCL	1	Failed

FGETINFO I16V CA U16 U16
(**filenum**, formaldesig, foption, aoption,
I16 I16 U16 U16 I16
recsize, devtype, ldevnum, hdaddr, filecode,
I32 I32 I32 I32 I32 I16
lrecptr, eof, filelimit, logcount, physcount, blksize,
U16 I16 I16 CA I32
extsize, numextent, userlabels, creatorid, labaddr)

CCE	2	Ok
CCL	1	Failed

FGETKEYINFO
I16V CA CA
(filenum, param, control)

CCE	2	Ok
CCL	1	Failed

FINDJCW CA U16 I16
(**jcwname**, **jcwvalue**, **jcwstatus**)

FINTEXIT U16V
(intstate)

intstate:

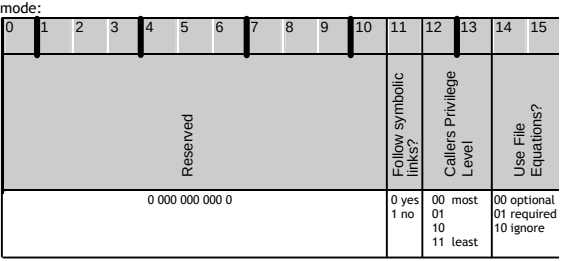
0	Disable software interrupts
1	Enable software interrupts

FINTSTATE U16 U16V
oldstate := **FINTSTATE** (**intstate**)

FLABELINFO CA I16V I16 I16A REC I16A
(**formaldesig**, **mode**, **error**, **itemnum**, **item**, **itemerror**)

CCE	2	Ok
CCL	1	Failed

mode:



itemnum/item pairs:

Item #	Type	Description
1	CA8	File name
2	CA8	Group name
3	CA8	Account name
4	CA8	File creator
5	U32	Security matrix
6	U16	File creation date (CALENDAR format)
7	U16	Last access date (CALENDAR format)
8	U16	Last modification date (CALENDAR format)
9	I16	Filecode
10	U16	User labels written
11	U16	User labels available
12	I32	File limit (logical records)
13	U16	File options
14	I16	Record size (see item 30)
15	I16	Block size (see item 31)
16	I16	Maximum extents
17	I16	Last extent size (sectors)
18	I16	Extent size (sectors) (see item 32)
19	U32	EOF (logical records)
20	U32	File restore time (CLOCK format)
21	U16	File restore data (CALENDAR format)
22	I32	MSG file open/close records
23	CA8	Device name
24	U32	Last modification time (CALENDAR format)
25	CA256	User label 0
27	CA20	UFID
28	U32	File limit (bytes) (see item 62)
29	U32	Start of file offset

Item #	Type	Description
30	U32	Record size (bytes)
31	U32	Block size (bytes)
32	U32	Extent size (bytes)
33	CA8	Lockword
34	CA34	Volume restriction. Last 2 bytes indicate: 0 File is on the specified volume 1 File is on any volume in specified class 2 File is on any volume in specified volumeset
35	CA32	Volume set name
36	U32	Transaction management log set ID
37	U16	Logical device number
38	string	Absolute HFS-syntax pathname (Pascal string)
39	U32	Total hard links
40	I32	Last access time (CLOCK format)
41	I32	Last status change time (CLOCK format)
42	U16	Last status change date (CALENDAR format)
43	CA32	File owner name
44	I32	Posix owner number (UID)
45	CA32	Posix group name
46	I32	Posix group number (GID)
47	U32	File type: 0 Ordinary file 1 KSAM 2 RIO 3 KSAMXL 4 CIR 5 Native Mode Spool File 6 MSG 7 KSAM64 9 Directory 12 Pipe 13 FIFO 14 Symbolic Link 15 Device Link
48	U32	Record type: 0 Fixed 1 Variable 2 Undefined 3 Spool block 4 Root directory 6 Account directory 7 Group directory 9 Byte stream 10 Hierarchical directory
49	I64	Current file size / EOF (bytes)
50	I32	KSAMXL version number: 0 Not a KSAMXL or KSAM64 file 1 KSAMXL file (original version) 2 KSAMXL file (current version) 4 KSAM64 file
51	CA162	KSAMXL parameters

Item #	Type	Description
52	I32	Device type: 0 Disk 1 Tape 2 Terminal 3 Printer 4 Remote 5 Ports 6 Reserved 7 Streams 8 Sockets
53	I16	Secured/released flag
54	I32	SETUID flag
55	I32	SETGID flag
56	I32	Compressed flag
57	I32	Migrated flag
58	I32	Total sectors allocated (see item 63)
59	I32	Total extents
60	I32	File creation time (CLOCK format)
61	I32	Total accessors
62	I64	File limit (bytes)
63	I64	Total sectors allocated
64	I32	Large file flag (1 = limit > 4GB)

FLOCK I16V U16V
(**filenum**, **lockflag**)

CCE	2	Ok
CCG	0	Failed: file locked by another process
CCL	1	Failed: incorrect aoptions or missing MR capability

lockflag:

0	Nowait
1	Wait

FLUSHLOG I32 I16
(**index**, **logstatus**)

FMTCALENDAR

U16V CA17
(**date**, **formatdate**)

FMTCLOCK I32V CA8
(**time**, **formattime**)

FMTDATE U16V I32V CA27
(**date**, **time**, **datetime**)

FOPEN I16 CA U16V U16V I16V
filenum := **FOPEN** (formaldesig, foptions, aoptions, recsize,
CA CA I16V I16V
device, formmsg, userlabels, blockfactor,
I16V I32V I16V I16V I16V
buffers, filesize, extents, initialloc, filecode)

CCE	2	Ok
CCL	1	Failed

foptions:

0	1	2 3 4	5	6	7	8 9	10 11 12	13	14 15
Reserved	Byte Stream	File Type	Disallow :FILE	Labeled Tape	Carriage Control	Record Format	Default Designator	ASCII	Domain
0	0 no 1 yes	000 STD 001 KSAM 010 RIO 011 KSAMXL 100 CIR 101 SPOOL 110 MSG 111 KSAM64	0 no 1 yes	0 no 1 yes	0 no 1 yes	00 Fixed 01 Variable (or BS) 10 Undef	000 filename 001 $STDLIST 010 $NEWPASS 011 $OLDPASS 100 $STDIN 101 $STDINX 110 $NULL	0 no 1 yes	00 New 01 Oldperm 10 Oldtemp 11 Oldany

aoptions:

0 1 2	3	4	5 6	7	8 9	10	11	12 13 14 15
Reserved	Copy Mode	No-Wait I/O	Multi-Access	NOBUF	Exclusive	FLOCK Allowed	Multi-Record	Access Type
000	0 no 1 yes	0 no 1 yes	00 NOMULTI 01 MULTI 10 GMULTI	0 no 1 yes	00 Default 01 EXC 10 Read-Sh 11 Share	0 no 1 yes	0 no 1 yes	0 000 Read 0 001 Write 0 010 Write (save) 0 011 Append 0 100 Read/Write 0 101 Update 0 110 Execute 1 000 Reserved 1 001 Directory Read

FPARSE CA I16A U16A I32A
(**formaldesig**, **result**, item, vector)

item:

0	End of list
1	File name
2	Lockword
3	Group name
4	Account name
5	NS/3000 environment name

FPOINT I16V I32V
(**filenum**, **lrecnum**)

CCE	2	Ok
CCG	0	Failed: requested position beyond EOF
CCL	1	Failed: error

FREAD I16 I16V CA I16V
transfercount := **FREAD** (**filenum**, **target**, **length**)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

FREADBACKWARD
I16 I16V CA I16V
length := **FREADBACKWARD** (**filenum**, **target**, **length**)

CCE	2	Ok
CCG	0	Failed: BOF encountered
CCL	1	Failed: error

FREADBYKEY
I16V I16V CA I16V
length := **FREADBYKEY** (**filenum**, **target**, **tcount**,
CA I16V
keyvalue, **keylocation**)

CCE	2	Ok
CCG	0	Failed: BOF or EOF encountered
CCL	1	Failed: I/O error or missing key

FREADC I16V I16V CA I16V
length := **FREADC** (**filenum**, **target**, **tcount**)

CCE	2	Ok
CCG	0	Failed: BOF or EOF encountered
CCL	1	Failed: error

FREADDIR I16V CA I16V I32V
(**filenum**, **target**, **length**, **lrecnum**)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

FREADLABEL I16V CA I16V I16V
(**filenum**, **target**, length, labelid)

CCE	2	Ok
CCG	0	Failed: end-of-labels encountered
CCL	1	Failed: error

FREADSEEK I16V I32V
(**filenum**, **lrecnum**)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

FREEDSEG U16V U16V
(**index**, **id**)

CCE	2	Ok
CCG	0	Ok; data segment still in use by another process
CCL	1	Failed: error

FREELOCRIN

CCE	2	Ok
CCG	0	Failed: no RINs reserved
CCL	1	Failed: at least one RIN currently locked

FRELATE U16 I16V I16V
flags := **FRELATE** (**infilenum**, **listfilenum**)

CCE	2	Ok
CCG	0	Failed: one/both files are $NULL
CCL	1	Failed: error

flag bits:

15:1	Files form interactive pair
0:1	Files form duplicative pair

FREMOVE I16V
(**filenum**)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

FRENAME I16V CA
(**filenum**, **formaldesig**)

CCE	2	Ok
CCL	1	Failed: error

FSETMODE I16V U16V
(**filenum**, **modeflags**)

CCE	2	Ok
CCL	1	Failed: error

modeflag bits:

12:1	Report automatically recovered tape errors
13:1	Inhibit CR/LF after terminal read
14:1	Block on write
15:1	Serial write queue

FSPACE I16V I16V
(**filenum**, **displacement**)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

FUNLOCK I16V
(**filenum**)

CCE	2	Ok
CCG	0	Failed: file not locked by caller
CCL	1	Failed: invalid filenum, or incorrect aoptions

FUPDATE I16V CA I16V
(**filenum**, **buffer**, **length**)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

FWRITE I16V CA I16V U16V
(**filenum**, **buffer**, **length**, **controlcode**)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

controlcodes:

0		Print with <CR><LF>
%1		First byte of buffer is controlcode
%40	" "	Single space
%53	"+"	No space
%55	"-"	Triple space

%60	"0"	Double space
%61	"1"	Conditional page eject
%62		Skip to one line before top of form
%63		Conditional page eject
%100, %400		Set postspace mode
%101, %401		Set prespace mode
%102, %402		Set single-space option with automatic page eject after 60 lines
%103, %403		Set single-space option without automatic page eject (66 lines)
%2nn		Space nn lines
%300		Skip to top of form
%301		Skip to bottom of form
%302		Single space without auto page eject
%303		Skip to next odd line without auto page eject
%304		Skip to next third line
%305		Skip to next ½ page
%306		Skip to next ¼ page
%307		Skip to next 1/6 page
%310		Skip to bottom of page
%311		Skip to one line before end of form
%312		Skip to one line before top of form
%313		Skip to top of form
%314		Skip to next seventh line
%315		Skip to next sixth line
%316		Skip to next fifth line
%317		Skip to next fourth line
%320		No space, no return

FWRITEDIR I16V CA I16V I32V
(**filenum**, **buffer**, **length**, **lrecnum**)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

FWRITELABEL I16V CA I16V I16V
(**filenum**, **buffer**, **length**, **labelid**)

CCE	2	Ok
CCG	0	Failed: end-of-user-labels encountered
CCL	1	Failed: error

GENMESSAGE

```
I16                           I16V        I16V        I16V
msglen :=GENMESSAGE (filenum, setnum, msgnum,
                              CA      I16V        I16V
                              buffer, buffersize, parmask,
                                *         *         *
                              param1, param2, param3,
                                *         *
                              param4, param5,
                                   I16V,          I16
                              msgdestination, errornum)
```

CCE	2	Ok
CCG	0	Failed: missing or invalid parameter
CCL	1	Failed: file system error

GETDSEG U16 I16 U16V
(**index**, **length**, **id**)

CCE	2	Ok; new XDS created
CCG	0	Ok; XDS already exists
CCL	1	Failed: index contains error

getheap @32 I16 I16
(**regptr**, **regsize**, **ok**)

GETINFO I16 CA I16 I16
result := **GETINFO** (infostring, infolength, parm)

GETJCW U16
jcw := **GETJCW**

GETLOCRIN U16V
(**rincount**)

CCE	2	Ok
CCG	0	Failed: RINs already allocated
CCL	1	Failed: insufficient RINs available

GETORIGIN I16
source := **GETORIGIN**

source:

0	Not activated by either parent or child
1	Activated by parent
2	Activated by a child

GETPRIORITY

I16V U16V I16V
(**pin**, **priorityclass**, rank)

CCE	2	Ok
CCG	0	Failed: inaccessible PIN
CCL	1	Failed: invalid PIN

GETPRIVMODE

CCE	2	Ok
CCG	0	Ok; caller was already in priv mode

GETPROCID

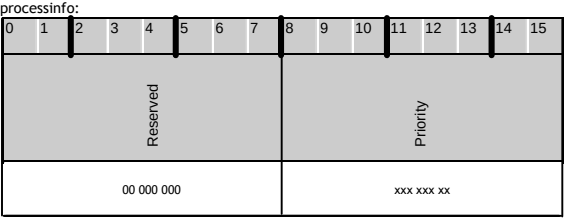
I16 I16V
pin := **GETPROCID** (**numchild**)

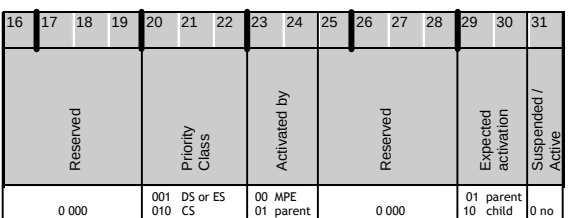
GETPROCINFO

I32 I16V
processinfo := **GETPROCINFO** (**pin**)

CCE	2	Ok
CCG	0	Failed: PIN is terminating
CCL	1	Failed: PIN is illegal or inaccessible

processinfo:





GETUSERMODE

CCE	2	Ok
CCG	0	Ok; caller was already in user mode

HPACDINFO I32 I16V * I16V *
(**status**, **itemnum1**, **item1** [, itemnum2, item2] [,...])

itemnum1/item1 pairs (identifies file):

Item #	Type	Description
1	CA	Target file name (MPE or HFS syntax)
3	CA20	Unique file identifier (UFID)
4	I16	Open file identifier
6	I16	LDEV number
7	CA	LDEV name
15	CA	Target file name

itemnum2/item2 pairs (identifies request):

Item #	Type	Description
20	I16	ACD version number
21	I16	Total ACD entries
22	CA	First ACD user name
30	CA	Identifies user whose ACD info is required
31	CA	ACD modes (ASCII format)
32	I16	ACD modes (bit mask)
33	CA	ACD modes for particular user (ASCII)
34	I16	ACD modes for particular user (bit mask)
35	CA	Next ACD user name

HPACDPUT I32 I16V * I16V *
(**status**, **itemnum1**, **item1**, **itemnum2**, **item2**)

itemnum1/item1 pairs (identifies file):

Item #	Type	Description
1	CA	Target filename
2	CA	Target filename (wildcards ok)
3	REC	UFID
4	I16	Filenum
5	n/a	All configured devices
6	I16	LDEV number
7	CA	LDEV Name
8	CA	Device Class Name
15	CA	Target filename

itemnum2/item2 pairs (identifies operation):

Item #	Type	Description
20	CA	Create new ACD from parm
21	CA	Add ACD pairs from parm
22	CA	Replace ACD pairs from parm
23	CA	Delete ACD pairs from parm
24	n/a	Delete ACD

Item #	Type	Description
25	CA	Create new ACD from filename
26	CA	Copy ACD from filename
27	REC	Copy ACD from UFID
28	I16	Copy ACD from open filenum
29	I16	Copy ACD from LDEV number
30	CA	Copy ACD from LDEV name
31	CA	Add ACD pairs from filename
32	CA	Replace ACD pairs from filename
33	CA	Delete ACD pairs from filename
34	CA	Replace (or create) ACD from filename
35	CA	Replace (or create) ACD from parm
36	I16	Copy ACD from open filenum
37	CA	Copy ACD from filename
50	I32	Calculate Mask

HPCALENDAR

I32
date := **HPCALENDAR**

date bits:		
	0:23	Years since 1900
	23:9	Day of year

HPCICOMMAND

CA I16 I16 I16V
(**cmdimage**, **cmderror**, parmnum, msglevel)

HPCIDELETEVAR

CA I32
(**varname**, status)

HPCIGETVAR CA I32 U32V *
(**varname**, status [, itemnum, item] [...])

itemnum/item pairs:

Item #	Type	Description
1	I32	Integer value
2	CA	String value
3	I32	Boolean value
10	I32	String length
11	I32	Actual length
12	I32	Recursion flag: 0 Do not dereference contents 1 Recursively dereference (default)
13	I32	Variable type: 1 Integer 2 String 3 Boolean

HPCIPUTVAR CA I32 U32V *
(**varname**, status [, itemnum, item] [...])

itemnum/item pairs:

Item #	Type	Description
1	I32	Integer value
2	CA	String value
3	I32	Boolean value
11	I32	String length
14	I32	String interpretation: 0 Inspect string to determine type (default) 1 Type is string

HPDATECONVERT

I32V * I32V *
(**inputcode**, **inputdate**, **outputcode**, **outputdate**,
I32 I32V
status, cutoff)

supported date formats:

Code	Type	Description
1	I64	MPE timestamp: microseconds since 1970/01/01
2	I32	Upper 2 bytes: year Next byte: month Last byte: day of month.
3	I32	Upper 2 bytes: year Lower 2 bytes: day of year
4	I32	HPCALENDAR format: Upper 23 bits: years since 1900 Lower 9 bits: day of year
10	I32	Seconds since 1970/01/01: Posix time() format
14	I16	CALENDAR format: Upper 7 bits: years since 1900 Lower 9 bits: day of year
15	I32	YYMMDD format
16	I32	MMDDYY format
17	I32	DDMMYY format
18	I32	YYYYMMDD format
25	CA6	YYMMDD format
26	CA6	MMDDYY format
27	CA6	DDMMYY format
35	CA6	YYMMDD format, MM3000 YY type
36	CA6	MMDDYY format, MM3000 YY type
37	CA6	DDMMYY format, MM3000 YY type
38	CA8	YYYYMMDD format

special dates:

Date Code	Format	Unknown	Invalid	Never	Needed	Expired	Illegal
4	YYYYDDD	0	367	368	369	370	371
18	YYYYMMDD	0	101	102	103	104	105
38	YYYYMMDD	' '	'00000101'	'00000102'	'00000103'	'00000104'	'00000105'

HPDATEDIFF I32V * * I32
(**datecode**, **firstdate**, **seconddate**, **diff_days**,
I32 I32V
status, cutoff)

HPDATEFORMAT

I32V * CA CA
(**datecode**, **inputdate**, **formatspec**, **fmtdate**,
I32 I32 I32V
fmtdatelen, **status**, cutoff)

formatspec elements:

Element	Description
CC	Century (01..99)
YYYY	Year (0001..9999)
YY	Year of century (00..99)
ZYY	Year of century (0..99); leading zero suppressed
Q	Calendar quarter of year (1..4)
MM	Month of year (01..12)
ZMM	Month of year (1..12); leading zero suppressed
DD	Day of month (01 to 31)
ZDD	Day of month (1..31); leading zero suppressed
DDD	Day of year (001..366).
ZDDD	Day of year (1..366); leading zeros suppressed
D	Day of week (1..7), Sunday is 1
WW	Week of year (01..54)
ZWW	Week of year (1..54); leading zero suppressed
Mon	3-byte ASCII month of year (Jan, Feb, ...)
Day	3-byte ASCII day of week (Sun, Mon, ...)
MON	3-byte ASCII month of year (JAN, FEB, ...)
DAY	3-byte ASCII day of week (SUN, MON, ...)

HPDATEOFFSET

I32V * I32V * I32 I32V
(**datecode**, **inputdate**, **offset**, **outputdate**, **status**, cutoff)

HPDATEVALIDATE

I32 I32V * I32V
result := **HPDATEVALIDATE** (**datecode**, **inputdate**, cutoff)

HPDEBUG I32 CA I32V *
(status, cmdstr [, itemnum, item] [...])

itemnum/item pairs:

Item #	Type	Description
1	I32	Output file number
2	I32	Display welcome banner

HPDEVCONTROL

I32 CA I32V I32
(**status**, **ldev**, **itemnum**, item)

itemnum/item pairs:

Item #	Type	Description
100	I32	Load tape media
101	I32	Place tape device online

HPDEVCREATE CA I32V I32V I32
(**pathname**, path_syntax, path_length, **status**
I32V *
[, itemnum , item] [...])

itemnum/item pairs:

Item #	Type	Description
0		End of list
1	I32	Device file Category: 1 FIFO 2 STREAMS 3 DEVICE Link
2	I32	Device LINK LDEV number
3	I32	STREAMS major number (1..254)
4	I32	STREAMS minor number (0..16777215)
5	CA	STREAMS link name
6	CA	ACD definition (1..279 bytes, CR terminated)

HPENBLTRAP

I32V I32
(**mask**, **oldmask**)

mask bits (on to enable; off to disable):

31	Classic floating-point divide by zero
30	Integer divide by zero
29	Classic floating-point underflow
28	Classic floating-point overflow
27	Integer overflow
26	Classic double-precision floating overflow
25	Classic double-precision floating underflow
24	Classic double-precision floating divide by zero
23	Decimal overflow
22	Invalid ASCII digit

21	Invalid decimal digit
18	Decimal divide by zero
17	IEEE floating point inexact result
16	IEEE floating point underflow
15	IEEE floating point overflow
14	IEEE floating point divide by zero
13	IEEE floating point invalid operation
12	Range error
11	NIL pointer dereference
10	Misaligned ptr or bad long to short ptr conversion
9	Unimplemented condition
8	Paragraph stack overflow
7	Classic packed decimal error
0	Assertion trap

HPERRDEPTH

I32 I32
(**depth**, status)

HPERRMSG I32V I32V I16 I32V
(**displaycode**, depth, errorproc, errornum,
CA I16 I32
buffer, buflength, status)

displaycode:

1	Dump error stack to $STDLIST
2	Display errornum message to $STDLIST
3	Return errornum message in buffer
4	Dump 'depth' stack errors to $STDLIST
5	Display errornum message to $STDLIST; return status
6	Return errornum subsys/error numbers in buffer
7	Return 'depth' stack errors in buffer, CR/LF terminated
8	Return error stack in buffer, CR/LF terminated

HPERRREAD I32V I32 I32 I32
(**depth**, **errornum**, procnum, status)

HPFADDTOPOINTER

@64 I64 @64 I32
(**base_ptr**, **offset**, **return_ptr**, status)

HPFDUPLICATE

I16 I32V I32 I32
filenum:= **HPFDUPLICATE** (**source**, status, target)

HPFFILLDATA

I64 @64 C I32
(**count**, **buffer_ptr**, **fill_char**, status)

HPFIRSTLIBRARY

CA I32 I32 CA
(**formaldesig**, status, length , firstlib,
I32 I32
firstlib_length, firstlib_syntax)

HPFMOVEDATA

I64 @64 @64 I32
(**count**, **source_ptr**, **target_ptr**, status)

HPFMOVEDATALTOR

I64 @64 @64 I32
(**count**, **source_ptr**, **target_ptr**, status)

HPFMOVEDATARTOL

I64 @64 @64 I32
(**count**, **source_ptr**, **target_ptr**, status)

HPFMTCALENDAR

I32V CA17
(**date**, **formatdate**)

HPFOPEN I32 I32 I32V *
(**filenum**, status [, itemnum, item] [...])

itemnum/item pairs:

Item #	Type	Description (including :FILE keywords, where relevant)
2	CA	Formal designator
3	I32	Domain: 0 New 1 Old permanent 2 Old temporary 3 Old permanent or temporary 4 New permanent
5	I32	Designator 0 Other options specify filename 1 $STDLIST 2 $NEWPASS 3 $OLDPASS 4 $STDIN 5 $STDINX 6 $NULL
6	I32	Record format: 0 Fixed-length 1 Variable-length 2 Undefined-length 9 Byte stream 10 Hierarchical directory

Item #	Type	Description (including :FILE keywords, where relevant)
7	I32	CCTL: 0 No carriage-control expected (NOCCTL) 1 Carriage-control expected (CCTL)
8	CA	Tape Label
9	I32	File Equation: 0 Allow file equations 1 Disallow file equations
10	I32	File Type: 0 Standard (STD) 1 KSAM (CM) 2 Relative I/O (RIO) 3 KSAMXL 4 Circular (CIR) file 5 NM spoolfile 6 Message (MSG) file 7 KSAM64 9 Directory
11	I32	Access: 0 Read access 1 Write access 2 Write-save access 3 Append access 4 Read/write (I/O) access 5 Update access 6 Execute access 7 Execute-read 8 No access checks (system code only) 9 Directory read access
12	I32	Dynamic Locking: 0 Disallow dynamic locking/unlocking 1 Allow dynamic locking/unlocking
13	I32	Exclusive: 0 Exclusive, or read-share if open read-only 1 Exclusive (EXC) 2 Read-share (EAR or SEMI for MSG files) 3 Share (SHR)
14	I32	Multiaccess: 0 No multiple access allowed (NOMULTI) 1 Intrajob access allowed (MULTI) 2 Interjob access allowed (GMULTI)
15	I32	Multirecord: 0 Non multirecord mode (NOMR) 1 Multirecord mode (MR)
16	I32	Nowait I/O: 0 Nowait I/O not in effect (WAIT) 1 Nowait I/O in effect (NOWAIT)
17	I32	Copy Mode: 0 Process file as its own file type 1 Process file as a standard file (COPY)
18	@32	Short mapped access
19	I32	Record size (bytes)
20	CA	Device name (non-shareable ldev)

Item #	Type	Description (including :FILE keywords, where relevant)
21	@64	Long mapped access (see item 87)
22	CA	Volume Class name
23	CA	Volume Name / ASCII ldev number
24	I32	Tape density
25	CA	Printer environment filename
26	CA	Remote environment node name
27	I32	Output priority
28	CA48	Spooled message
29	I32	Temporary privileged access: 0 (most privileged) … 3 (least privileged)
30	I32	Tape label type: 0 ANSI standard 1 IBM standard
31	CA	Labeled tape expiration date
32	CA	Labeled tape sequence: 0 Search all volumes until file is found 1..9999 Specify position relative to current file ADDF Add new file at end of volume NEXT Position at next file on the tape
33	I32	Maximum user labels
34	I32	Spooler copies
35	I32	Maximum file size (records or variable file blocks)
36	I32	Initial allocation (records)
37	I32	Filecode
38	I32	File privilege level 0 (most privileged) … 3 (least privileged)
39	I32	Intended access: 0 Sequential 1 Random
40	I32	Blocking factor
41	I32	Name syntax: 0 MPE-escaped semantics 1 MPE-only semantics 2 Posix semantics
42	CA	Device class name (non-shareable ldevs)
43	CA20	UFID
44	I32	Total buffers
45	CA2	Fill character
46	I32	Buffered: 0 Allow normal buffering (BUF) 1 Inhibit buffering (NOBUF)
47	I32	Extents
48	I32	Reverse VT: 0 No reverse VT 1 Reverse VT

Item #	Type	Description (including :FILE keywords, where relevant)
50	I32	Final Disposition: 0 No change 1 Permanent file 2 Temporary file (rewound) 3 Temporary file (not rewound) 4 Delete file 5 Convert permanent file to temporary
51	string	Formal file designator (Pascal string)
52	CA	File equation
53	I32	Data Type: 0 Binary 1 ASCII
54	REC	KSAM parms
56	I32	Object class
64	CA	ACD definition
74	I32	Header/trailer control: 0 Enable header and trailer 1 Disable header 2 Disable trailer 3 Disable header and trailer
77	I32	Data format: 0 Access file using record-oriented view 1 Return privileged info when reading directories 2 Access file as native byte stream
79	I32	Posix non-block mode: 0 Non-Block mode is off 1 Non-Block mode is on
81	I32	Symbolic link traversal: 0 Follow symbolic links 1 Do not follow symbolic links
87	@64	Long mapped access (including large files)

HPFPCONVERT

```
  *          *           I16V     I16V
(source, destination, sformat, dformat,

 I32       I16          I16V
status , exceptions , roundmode)
```

formats:

1	Classic 32-bit
2	Classic 64-bit
3	IEEE 32-bit
4	IEEE 64-bit
5	IEEE 128-bit

roundmode (IEEE modes only):

0	Round to nearest
1	Round to zero
2	Round up
3	Round down

HPGETPROCPLABEL

```
                    CA          U32     I32     CA          B
(symbolname, plabel, status, firstfile, case_sensitive,
        U32V        U32     U32V    U32V    U32V
 symbol_type, data_size, position, search_path, binding)
```

HPLOADCMPROCEDURE

```
U16                                         CA      U16V
plabel := HPLOADCMPROCEDURE (procname, library,
                                            I32
                                          status)
```

HPLOADNMPROC

```
U32                                         CA      I16V
plabel := HPLOADNMPROC (procname, proclen,
                                        CA      I16V
                                    libname, liblen)
```

HPMERGEEND

```
  I32     I32A
(status, statistics)
```

HPMERGEERRORMESS

```
  I32       CA      I32
(status, message, length)
```

HPMERGEINIT

```
  I32     I32A      PROC        I32A        PROC
(status, inputfiles, preprocessor, outputfiles, postprocessor,
   I32V    I32V   I32A   CA      PROC        PROC
 keysonly, numkeys, keys, altseq, keycompare, errorproc,
   I32A    I32V    I32A
 statistics, memsize, charseq)
```

HPMERGEOUTPUT

```
  I32     CA      I32
(status, buffer, length)
```

HPMERGESTAT

```
  I32     I32A
(status, statistics)
```

HPMERGETITLE

I32
(status)

HPMYFILE CA I32 I32
(**formaldesig**, status, length,
CA I32 I32
myfile, myfile_length, myfile_syntax)

HPMYPROGRAM

CA I32 I32
(**formaldesig**, status, length,
CA I32 I32
myprogram, myprogram_length, myprogram_syntax)

HPPIPE I32 I32 I32
(**read_fd**, **write_fd**, **status**)

HPRESETDUMP

I32
(status)

HPSELECT I32 I32V CA CA
numselect := **HPSELECT** (**numfiles**, readmask, writemask,
CA REC I32
exceptionmask, timeout, status)

HPSETCCODE I32V
(**ccodevalue**)

HPSETDUMP I32 CA
(status, cmdstr)

HPSORTEND I32 I32A
(status, statistics)

HPSORTERRORMESS

I32 CA I32
(**status**, **message**, **length**)

HPSORTINIT I32 I32A I32A I32 I32V
(status, inputfiles, outputfiles, outputoption, reclength,
I32V I32V I32A CA PROC PROC
numrecs, numkeys, keys, altseq, keycompare, errorproc,
I32A I32V I32A
statistics, memsize, charseq)

HPSORTINPUT

I32 CA I32V
(status, buffer, length)

HPSORTOUTPUT

I32 CA I32
(status, buffer, length)

HPSORTSTAT I32 I32A
(status, statistics)

HPSORTTITLE I32
(status)

HPSWITCHTOCM

REC I32V I32V RECA
(**proc**, **method**, **numparms**, **parms**,
I32V RECV I16 I32
fretlen, fretval, condcode, status)

HPSWTONMNAME

I32 CA I16V
status:= **HPSWTONMNAME** (**procname**, **proclen**,
CA I16V I16V
libname, **liblen**, **nparms**,
I16 I16 I16V
arglist, **argdesc**, **functype**)

parameter types and corresponding NM/CM sizes:

Call type		Type ID	NM Bits	CM Bits
By value		1	8	8
		2	16	16
		3	32	32
		4	64	64
By reference, short pointer	byte	5	32	16
	word	6	32	16
By reference, long pointer	byte	10	64	16
	word	11	64	16
Optional reference parameters		12	32	16
		13	64	16

HPSWTONMPLABEL

I32 U32V I16V
status:=**HPSWTONMPLABEL** (**proc**, **nparms**,
I16 I16 I16V
arglist, **argdesc**, **functype**)

HPUNLOADCMPROCEDURE

CA U8V I32
(**procname**, **library**, status)

HPVOLINFO I32 I16 * I16V *
(status, volspecifiernum, volspecifier [, itemnum, item] [...])

itemnum/item pairs:

Item #	Type	Description
2	I32	Total volume sets
3	CA	List of volume set names
4	I32	Total volume classes
5	CA	List of volume class names
6	I32	Total member volumes
7	CA	List of member volume names
8	CA	Drive type
9	I32	Drive sector size
10	I32	Volume type
11	CA	Volume name
12	CA	Volume set name
13	I16	Logical device number
14	I64	Volume capacity
15	R64	Volume capacity
16	I64	Total MPE overhead
17	R64	Total MPE overhead
18	I64	MPE transient space overhead
19	R64	MPE transient space overhead
20	I64	Allocated maximum MPE transient space
21	R64	Allocated maximum MPE transient space
24	I64	Directory space overhead
25	R64	Directory space overhead
26	I64	MPE label table overhead
27	R64	MPE label table overhead
28	I64	MPE transaction management overhead
29	R64	MPE transaction management overhead
30	I64	Spool file disc space usage
31	R64	Spool file disc space usage
32	I64	Disc space used by permanent files
33	R64	Disc space used by permanent files
34	I64	Disc space used by temporary files
35	R64	Disc space used by temporary files
36	I64A	Free space distribution array
37	R64A	Free space distribution array
38	I64A	Free space distribution sectors/range
39	R64A	Free space distribution sectors/range
40	I64	Total free space
41	R64	Total free space
42	I64	Largest contiguous free space area
43	R64	Largest contiguous free space area

INITUSLF I16 I16V I16A
uslferror := INITUSLF (uslfnum, record)

CCE	2	Ok
CCL	1	Failed

IODONTWAIT

I16 I16V CA I16 U16
fnum := **IODONTWAIT** (**filenum**, buffer, length, cstation)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

IOWAIT I16 I16V CA I16 U16
fnum := **IOWAIT** (**filenum**, buffer, length, cstation)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

JOBINFO I16V I32 U16A I16V * I16
(**jsind**, **jsnum**, **jsstatus** [, itemnum, item, itemerror] [...])

itemnum/item pairs:

Item #	Type	Description
1	CA26	[jsname,]user.account (I/O)
2	CA8	Session/job name
3	CA8	User name
4	CA8	Group name
5	CA8	Account name
6	CA8	Home group name
7	I32	Job/session Intro time (CLOCK format)
8	U16	Job/session Intro date (CALENDAR format)
9	CA8	Input LDEV/class name
10	CA8	Output LDEV/class name
11	CA	Current job step (238 bytes max) (see item 49)
12	I16	Total active jobs
13	I16	Total active sessions
14	I16	Job input priority
15	I32	Job/session number
16	I16	Jobfence
17	I16	Job output priority
18	I16	Number of copies
19	I16	System job limit
20	I16	System session limit
21	I16	Job deferred flag
22	U16	Job/session main CI PIN
23	U16	Job spooled flag
24	U16	Job restart option flag

Item #	Type	Description
25	U16	Job sequenced flag
26	U16	Terminal type: 0 Regular terminal 1 Regular terminal with special logon
27	U16	CPU limit
28	U16	Job/Session state: 2 Executing 4 Suspended 32 Waiting 48 Initializing 56 Scheduled
29	U32	User local attributes
30	I16	$STDIN spoolfile number (see item 38)
31	I16	$STDIN spoolfile status: 0 Open 1 Active 3 Reserved 4 Reserved
32	I16	$STDLIST spoolfile number (see item 39)
33	I16	$STDLIST spoolfile status: 0 Active 1 Ready 2 Open 3 Reserved
34	I16	Length of item 11
35	U16	Set STDLIST=DELETE flag
36	U16	JIT date segment number
38	I32	$STDIN spoolfile number (replaces item 30)
39	I32	$STDLIST spoolfile number (replaces item 32)
40	U16	Session quiet mode flag
41	I32	Job/session number of job submitter
42	CA8	Job/session name of job submitter
43	CA8	User name of job submitter
44	CA8	Account name of job submitter
45	CA8	LDEV number of job submitter
46	U16	Date STREAM issued by job submitter (CALENDAR format)
47	I32	Time STREAM issued by job submitter (CLOCK format)
48	U16	Job/session type of job submitter
49	CA	Current job step (unlimited length)

KILL I16V
(**pin**)

CCE	2	Ok
CCG	0	Ok; process already terminating
CCL	1	Failed: illegal PIN

LOADPROC I16 CA I16V I16
idnum := **LOADPROC** (**procname**, **lib**, **plabel**)

CCE	2	Ok
CCL	1	Failed: CM loader error returned

lib:

lib	Search Order
0	System SL
1	Logon account SL; system SL
2	Logon group SL; logon account SL; system SL
3	Program file account SL; system SL
4	Program file group SL; program file account SL; system SL

LOCKGLORIN I16V U16 CA
(**rinnum**, **lockflag**, **rinpassword**)

CCE	2	Ok
CCG	0	Failed: RIN in use
CCL	1	Failed: invalid RIN

LOCKLOCRIN I16V U16
(**rinnum**, **lockflag**)

CCE	2	Ok
CCG	0	Failed: RIN in use
CCL	1	Failed: invalid RIN

LOCRINOWNER

I16 I16V
pin := **LOCRINOWNER** (**rinnum**)

CCE	2	Ok
CCG	0	Failed: RIN has no owner
CCL	1	Failed: invalid RIN

LOGINFO I32V I16 I16V *
(**index**, **logstatus** [, itemnum, item] [...])

itemnum/item pairs:

Item #	Type	Description
1	I32	Total records written in current file
2	I32	Current file size
3	I32	Current file space left
4	I16	Number of users
5	I32	Total records written in whole fileset
6	CA34	Current log file name
7	I16	Current log file type (0:Disk, 1:Tape)
8	CA34	Previous log file name
9	I16	Previous log file type
10	U16	CHANGELOG allowed flag

Item #	Type	Description
11	U16	AUTO allowed flag
12	I16	Current file sequence number
13	I16	Log status: 0 Inactive 1 Active 2 Close pending 3 Stop pending
14	I16	Unique log number for logging process

LOGSTATUS I32 U16A I16
(**index**, **loginfo**, **logstatus**)

MAIL U16 I16V I16
mailstatus := **MAIL** (**pin**, **length**)

CCE	2	Ok
CCG	0	Failed: illegal PIN
CCL	1	Failed: illegal length

MERGEEND

CCE	2	Ok
CCL	1	Failed

MERGEERRORMESS

I16V CA I16
(**errorcode**, **message**, **length**)

MERGEINIT I16A PROC I16A PROC
(inputfiles, preprocessor, outputfiles, postprocessor,
I16V I16V I16A I16A PROC PROC
keysonly, numkeys, keys , altseq, keycompare, errorproc,
I16A I16 I16 I16 I16A
statistics, failure, errorparm, spaceallocation, charseq)

CCE	2	Ok
CCL	1	Failed

MERGEOUTPUT

CA I16
(**record**, **length**)

MERGESTAT I16A
(**statistics**)

MERGETITLE

MYCOMMAND I16 CA CA
entrynum :=MYCOMMAND (**cmdimage**, delimiters,
I16V I16
maxparms, **numparms**,
I32A CA @*
parms, dictionary, definition)

CCE	2	Ok
CCG	0	Ok; excess parameters ignored
CCL	1	Failed

NLAPPEND CA I16V U16A
(**formaldesig**, **langnum**, error)

NLCOLLATE CA CA I16V I16
(**buffer1**, **buffer2**, **bufferlength**, **result**,
I16V U16A U16A
langnum, **error**, collseq)

NLCOLLATE2

I32 CA I32V CA I32V
result := **NLCOLLATE2** (**buffer1**, **len1**, **buffer2**, **len2**,
I16V U16A U16A
langnum, **error**, collseq)

NLCONVCLOCK
I32 CA I16V
time := **NLCONVCLOCK** (**buffer**, **bufferlength**,
I16V U16A
langnum, error)

NLCONVCUSTDATE

U16 CA I16V
date := **NLCONVCUSTDATE** (**buffer**, **bufferlength**,
I16V U16A
langnum, **error**)

NLCONVNUM I16V CA I16V CA
(langnum, **instring**, **inlength**, **outstring**,
I16V U16V U16V U16V U16V
outlength, **error**, **numspec**, **fmtmask**, **decimals**)

NLFINDSTR I16 I16V CA I16V
offset := **NLFINDSTR** (**langnum**, **string1**, **length1**,
CA I16V U16A U16A
string2, **length2**, **error**, **charset**)

NLFMTCALENDAR

U16V CA I16V U16A
(**date**, **buffer**, **langnum**, **error**)

NLFMTCLOCK

I32V CA I16V U16A
(**time**, **buffer**, **langnum**, **error**)

NLFMTCUSTDATE

U16V CA I16V U16A
(**date**, **buffer**, **langnum**, **error**)

NLFMTDATE U16V I32V CA I16V U16A
(**date**, **time**, **buffer**, **langnum**, **error**)

NLFMTLONGCAL

U16V CA I16V U16A
(**date**, **string**, **langnum**, **error**)

NLFMTNUM I16V CA I16V CA
(**langnum**, **instring**, **inlength**, **outstring**,
I16V U16A U16A U16V I16V
outlength, **error**, numspec, fmtmask, decimals)

NLGETLANG I16 I16V U16A
langnum := **NLGETLANG** (**langtype**, **error**)

NLINFO I16V * I16 U16A
(**itemnum**, **item**, **langnum**, **error**)

NLJUDGE I16V I16V CA I16V
2bytes := **NLJUDGE** (**langnum**, **instring**, **stringlength**,
CA U16A U16A
flags, **error**, charset)

NLKEYCOMPARE

CA I16V CA I16V
(**generickey**, **length1**, **key**, **length2**,
I16 I16V U16A U16A
result, **langnum**, **error**, collseq)

NLMATCH I16 CA CA I16V
result := **NLMATCH** (**comp_pattern**, **string**, **length**)

NLMATCHINIT

I16 CA U16 I16V
result := **NLMATCHINIT** (**pattern**, **pattern_len**, **langid**,
CA U16
comp_pattern, **comp_bufsize**)

NLNUMSPEC I16V U16A U16A
(**langnum**, **string**, **error**)

NLREPCHAR CA CA I16V
(**inbuffer**, **outbuffer**, **bufferlength**,
CV I16V U16A U16A
replacechar, **langnum**, **error**, charset)

NLSCANMOVE
I16 CA CA U16V
numchar := **NLSCANMOVE** (**inbuffer**, **outbuffer**, **flags**,
I16V I16V
bufferlength, **langnum**,
U16A U16A CA
error, charset, shiftinfo)

NLSUBSTR CA I16V CA I16 I16V
(**instring**, **inlength**, **outstring**, **outlength**, **startposition**,
16V I16V I16V U16A U16A
movelength, **langnum**, **flags**, **error**, charset)

NLSWITCHBUF I16V CA CA
(**langnum**, **instring**, **outstring**,
I16V U16V U16A
stringlength, **left-to-right**, **error**)

NLTRANSLATE I16V CA CA
(**transcode**, **inbuffer**, **outbuffer**,
I16V I16V U16A CA
bufferlength, **langnum**, **error**, transtable)

OPENLOG I32 CA CA I16 I16
(**index**, **logid**, **pass**, **mode**, **logstatus**)

p_getheap @32 I32V I32V B
(**regptr**, **regsize**, **alignment**, **ok**)

alignment:

Value	Alignment
1	Byte
2	Halfword
4	Word
8	Doubleword
16	16-byte
32	32-byte
64	64-byte
2048	Page

p_rtnheap @32 I32V I32V B
(**regptr**, **regsize**, **alignment**, **ok**)

PAUSE R32
(**interval**)

CCE	2	Ok
CCG	0	Failed: insufficient system resources
CCL	1	Failed: -ve interval specified

PRINT CA I16V I16V
(**message**, **length**, **controlcode**)

CCE	2	Ok
CCG	0	Failed: EOF encountered
CCL	1	Failed: error

PRINTFILEINFO
I16V
(**filenum**)

PRINTOP CA I16V I16V
(**message**, **length**, **controlcode**)

CCE	2	Ok
CCL	1	Failed: error

PRINTOPREPLY
I16 CA I16V I16V
length := **PRINTOPREPLY** (**message**, **length**, **zero**,
CA I16V
reply, **maxlength**)

PROCINFO I16 I16 I16V 16V *
(**infoerror1**, **infoerror2**, **pin** [, itemnum, item] [...])

CCE	2	Ok
CCL	1	Failed: error

itemnum/item pairs:

Item #	Type	Description
1	I16	PIN of calling process
2	I16	PIN of parent of item 1
3	I16	Total children of item 1
4	I16	Descendants of item 1
5	I16	Tree levels of item 1
6	I16A	PINs of all children of item 1
7	I16A	PINS of all descendants of item 1
8	I16	Priority number of item 1, see GETPROCINFO bits (0:16)
9	I16	State, activation info of item 1, see GETPROCINFO bits (16:16)
10	CA28	Program name of item 1
12	string	HFS pathname of item 1 program
13	I32	Thread state of item 1: 0 Task has never been multi-threaded 1 PIN was multi-threaded at some point 2 Task is currently multi-threaded
14	I32	Thread type of item 1: 0 PIN has never been multi-threaded 1 PIN is an initial thread 2 PIN is a secondary thread
15	I32	Total threads associated with item 1: 0 PIN has never been multi-threaded 1 PIN was multi-threaded at some point *n* Number of threads currently active
16	I16A	List of PINs for all item 1 task threads

PROCTIME I32
time := **PROCTIME**

PUTJCW CA U16 I16
(**jcwname**, **jcwvalue**, **jcwstatus**)

QUIT I16V
(**num**)

QUITPROG I16V
(**num**)

READD I16 CA I16V
length := **READ** (**message**, **msglength**)

CCE	2	Ok
CCG	0	Failed: EOD encountered
CCL	1	Failed: error

READX I16 CA I16V
length := **READX** (**message**, **msglength**)

CCE	2	Ok
CCG	0	Failed: EOD encountered
CCL	1	Failed: error

RECEIVEMAIL

U16 I16V CA U16V
mailstatus := **RECEIVEMAIL** (**pin**, **location**, **waitflag**)

CCE	2	Ok; mailstatus = 1 or 2
CCG	0	Failed: illegal PIN
CCL	1	Failed: bounds violation or deadlock

RESETCONTROL

CCE	2	Ok
CCL	1	Failed: trap handler not invoked or not armed

RESETDUMP

CCE	2	Ok
CCG	0	Failed: abort stack analysis already disabled

getheap @32 I16V I16
(**regptr**, **regsize**, **ok**)

SEARCH I16 CA I16V CA
entrynum := **SEARCH** (**buffer**, **length**, **dictionary**,

@*
definition)

SENDMAIL U16 I16V I16V CA U16V
status := **SENDMAIL** (**pin**, **length**, **location**, **waitflag**)

CCE	2	Ok; status = 0, 1, or 2
CCG	0	Failed: bad length, PIN, or storage unavailable
CCL	1	Failed: bounds violation or deadlock

SETDUMP I16V
(**flags**)

CCE	2	Ok
CCG	0	Failed: abort stack analysis already enabled

SETJCW U16V
(**jcword**)

SORTEND

CCE	2	Ok
CCL	1	Failed: error

SORTERRORMESS

I16V CA I16
(**errorcode**, **message**, **length**)

SORTINIT I16A I16A I16V I16V I32V
(inputfiles, outputfiles, outputoption, reclength, numrecs,
I16V I16A I16A PROC PROC I16A
numkeys, keys, altseq, keycompare, errorproc, statistics,
I16 I16 I16 I16A
failure, errorparm, spaceallocation, charseq)

CCE	2	Ok
CCL	1	Failed: error

SORTINPUT CA I16V
(**record**, **length**)

CCE	2	Ok
CCL	1	Failed: error

SORTOUTPUT CA I16
(**record**, **length**)

CCE	2	Ok
CCL	1	Failed: error

SORTSTAT I16A
(**statistics**)

SORTTITLE

STACKDUMP CA I16 I16 I32
(formaldesig, idnumber, flags, selec)

CCE	2	Ok
CCG	0	Failed: formaldesign inaccessible
CCL	1	Failed: file system error returned in idnumber

STARTSESS I16V CA I16 I32 I16A
(**ldev**, **logonstring**, **jsid**, **jsnum**, **jsstatus**)

SUSPEND U16V I16V
(**allow**, rin)

CCE	2	Ok
CCL	1	Failed: allow invalid or invalid RIN

allow bits:

14:1	Expect activation by child
15:1	Expect activation by parent

TERMINATE

TIMER I32
count :=TIMER

UNLOADPROC

I16V
(**procid**)

CCE	2	Ok
CCL	1	Failed: invalid procid

UNLOCKGLORIN

I16V
(**rinnum**)

CCE	2	Ok
CCG	0	Failed: RIN not locked by calling process
CCL	1	Failed: RIN not allocated

UNLOCKLOCRIN

I16V
(**rinnum**)

CCE	2	Ok
CCG	0	Failed: RIN not locked by calling process
CCL	1	Failed: RIN not allocated to calling process

WHO U16 I32 I32 CA
(mode, capability, localattr, username,
CA CA CA U16
groupname, acctname, homename, term)

WRITELOG I32 U16A I16 I16 I16
(**index**, **data**, **length**, **mode**, **logstatus**)

XARITRAP I32V I32V I32 I32
(**mask**, **plabel**, **oldmask**, **oldplabel**)

CCE	2	Ok; traps armed
CCG	0	Ok; traps disarmed
CCL	1	Failed: bad plabel

For mask layout see **HPENBLTRAP** description.

XCODETRAP I*V I*
(**plabel**, **oldplabel**)

CCE	2	Ok; trap armed
CCG	0	Ok; trap disabled
CCL	1	Failed: bad plabel

XCONTRAP I*V I*
(**plabel**, **oldplabel**)

CCE	2	Ok; trap enabled
CCG	0	Ok; trap disabled
CCL	1	Failed: illegal plabel or not a session

XLIBTRAP I*V I*
(**plabel**, **oldplabel**)

CCE	2	Ok; trap armed
CCG	0	Ok; trap disabled
CCL	1	Failed: bad plabel

XSYSTRAP I*V I*
(**plabel**, **oldplabel**)

CCE	2	Ok; trap armed
CCG	0	Ok; trap disarmed
CCL	1	Failed: bad plabel

ZSIZE I16 I16V
newsize := **ZSIZE** (**size**)

CCE	2	Ok
CCG	0	Ok; size reduced to maximum available
CCL	1	Failed: illegal size specified

Section 7 : AIF:OS

AIFACCESSOFF REC I32V
(**overall_status**, **user_id**)

AIFACCESSON REC I32V
(**overall_status**, **user_id**)

AIFACCTGET REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA REC I32V
itemstatus_array, directory_name , user_id)

AIFACCTPUT REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA REC I32V
itemstatus_array, directory_name, user_id,
I32A @64A RECA
ver_item_nums, ver_items, ver_item_statuses)

AIFACCTGET/PUT items:

6001	CA16	User name
6002	CA16	User password
6003	I32	User capabilities
6004	I32	Maximum priority
6005	I32	User logon count
6006	CA16	User home group
6007	I32	User UDC index
6008	I32	User local attributes
6009	CA16	User password validation
6010	REC	Home directory
6011	I32	UID
6012	REC	Initial logon program
6013	B	Encrypted
6014	B	User password required
6015	B	User password warning
6016	B	User password expired
6017	B	User password invalid
6018	B	User name invalid
6019	I32	Invalid user logon count
6020	U32	User password aging start date
6021	I32	User password aging minimum days
6022	I32	User password aging maximum days
6023	I32	Password aging warning days
6024	I32	Password aging expiration days
6025	CA16	Encrypted user password

6101	CA16	Group name
6102	CA16	Group password
6103	I32	Group capabilities
6104	I32	Group access/security
6105	I32	Group accumulated space
6106	I32	Group maximum allowed space
6107	I32	Group accumulated CPU time
6108	I32	Group maximum allowed CPU time
6109	I32	Group accumulated connect time
6110	I32	Group maximum allowed connect time
6111	I32	Linkage
6112	CA32	Volume set name
6113	CA16	Group password validation
6114	B	Encrypted
6115	CA16	Encrypted group password
6201	CA16	Account name
6202	CA16	Account password
6203	I32	Account capabilities
6204	I32	Account access/security
6205	I32	Account accumulated space
6206	I32	Account maximum allowed space
6207	I32	Account accumulated CPU time
6208	I32	Account maximum allowed CPU time
6209	I32	Account accumulated connect time
6210	I32	Account maximum allowed connect time
6211	I32	Account maximum priority
6212	I32	Account UDC index
6213	I32	System UDC index
6214	I32	Account local attributes
6215	CA16	Account password validation
6216	I32	GID
6217	B	Encrypted
6218	B	Account user passwords required
6219	CA16	Encrypted account password

AIFCHANGELOGON

REC CA REC I32V
(**overall_status**, logon_cmd, logon_desc, options,
REC I32V
error_status, user_id)

option bits:

0	Don't update global jobname
1	Don't update global user, account names
2	Don't update global group name
3	Don't update allow mask
4	Keep temporary file directory
5	Keep file equations
6	Unused (set zero)
7	Don't validate passwords

AIF:OS

AIFCLOSE REC I16V I16V I16V I32V
(**status**, **file_number**, **disposition**, **sec_code**, user_id)

AIFCONVADDR

REC I32A RECA
(**overall_status**, **mode_array**, **inaddress_array**,

@64A I32A I32V
outaddress_array, **convstatus_array**, user_id)

AIFCONVADDR modes:

1	Stack or XDS DB relative byte address
2	Stack or XDS DB relative word address
3	Stack DB relative byte address
4	Stack DB relative word address
5	Bank 0 relative word address

AIFDEVCLASSGET

REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,

RECA CA16 I32 I32V
itemstatus_array, device_class, device_class_key, user_id)

AIFDEVCLASSGET items:

13501	REC	Device numbers
13502	CA16	User-defined device class name
13503	I32	Device class key
13504	I32	Total devices in class
13505	I32	Device class access type

AIFDEVICEGET

REC I32A I64A
(**overall_status**, **itemnum_array**, **item_array**,

I32A I32 REC I32V
itemstatus_array, ldev, device_key, user_id)

AIFDEVICEPUT

REC I32A I64A
(**overall_status**, **itemnum_array**, **item_array**,

I32A I32 REC I32V
itemstatus_array, ldev, device_key, user_id,

I32A @64A RECA
ver_item_nums, ver_items, ver_item_statuses)

AIFDEVICEGET/PUT generic device items:

13001	I32	LDEV
13003	I32	Device type
13004	I32	Device subtype

13005	I32	JSMAIN PIN
13006	CA16	User defined device name
13007	I32	Alternate owner PIN
13008	B	Auto reply
13009	B	Job accepting
13010	B	Data accepting
13011	B	Duplicative
13012	B	BOT
13013	B	Interactive
13014	I32	Record width
13015	I32	Spool state
13016	I32	Device ownership state
13017	B	Device is up
13018	B	Downed request pending
13019	B	Trailer disable
13020	B	Header disable
13021	B	Spool queues open
13022	B	Special forms mounted
13023	CA8	Formal device file designator
13024	I32	JS key
13025	I32	I/O device class
13026	I32	I/O device subclass
13027	B	Security downed device
13028	I32	Invalid device logon count
13029	B	Terminal password?
13063	REC	Device key

AIFDEVICEGET/PUT terminal device items:

13101	I32	Terminal type
13102	I32	Line speed
13103	B	Parity enable
13104	I32	Parity setting
13105	B	Echo enabled
13108	C	Unedited terminal mode EOR character
13109	C	Unedited terminal mode subsystem break
13111	C	Block mode alert character
13114	I32	Read timeout
13116	I32	Read timer
13117	B	Line delete echo
13118	I32	Data bits
13121	I32	Block mode type
13122	B	Enable/disable typeahead
13123	B	Bypass typeahead
13124	B	Flush typeahead
13127	B	Enable/disable device XON/XOFF
13128	I32	XOFF timer
13129	C	Read trigger character
13130	C	Backspace character
13131	C	Line delete character
13132	C	End of record character

13134	B	Enable/disable form feed character
13135	C	Form feed character
13136	I32	Backspace response
13138	CA26	Terminal type filename

AIFDEVICEGET/PUT printer device items:

13201	I32	Left margin
13202	I32	Lines per inch
13203		Set end of job

AIFDEVICEGET/PUT tape device items:

13301	I32	Fatal error status
13302	I32	Tape density
13303	I32	Tape drive unit number
13304	B	Tape positioned at end of file
13305	B	Tape positioned at beginning of tape
13306	B	Tape positioned at end of tape
13307	B	Tape device in immediate report mode
13308	B	Single track error
13309	B	Tape drive online
13310	B	Tape write-protected
13311	-	Rewind to beginning of tape
13312	-	Rewind and place drive offline
13313	-	Write tape mark
13314	-	Move tape forward to next file mark
13315	-	Move tape backward to prior file mark
13316	-	Move tape forward to next record
13317	-	Move tape backwards to prior record
13318	-	Move tape forward, erase gap
13319	I32	Set tape density
13320	-	Set start/stop mode (7974)
13321	-	Set streaming mode (7974)
13322	B	Enable/disable immediate reporting
13325	B	Enable/disable data compression
13326	-	Remote load tape
13327	-	Remote unload tape, eject
13328	-	Remote online drive
13329	B	Enable/disable automatic eject

AIFDEVICEGET/PUT disk device items:

13401	I32	Return disk size (in pages)

AIFFILEGGET REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA REC REC BV
itemstatus_array, UFID, filename, tempfile,
I32V REC REC
user_id, path_identifier, pathname)

AIFFILEGPUT REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA REC REC BV I32V
itemstatus_array, UFID, filename, tempfile, user_id,
I32A @64A RECA
ver_item_nums, ver_items, ver_item_statuses,
REC REC
path_identifier, pathname)

AIFFILEGGET/PUT items:

5001	REC	MPE file name
5002	REC	UFID
5003	CA16	Creator name
5004	I64	Create timestamp
5005	I64	Last access timestamp
5006	I64	Last modify timestamp
5007	I64	File allocation timestamp
5008	I32	File code
5009	U32	Creator access rights
5010	CA8	Lockword
5012	I32	Foptions
5013	I32	Privileged level
5014	B	Released
5015	B	Temporary
5016	U32	Record size (bytes)
5017	U32	End of file (bytes)
5018	U32	File limit (bytes)
5019	I32	Maximum user labels
5020	I32	Byte offset of end of written user labels
5021	U32	Block size (bytes)
5022	I32	Blocking factor
5023	CA34	Volume restriction
5024	I32	Message file open/close records
5025	I32	Total users
5026	I32	Total readers
5027	I32	Total writers
5028	I32	Total active record pointers
5029	I32	Close disposition
5030	@64	Virtual address
5031	U32	World (any) access rights
5032	U32	Group access rights
5033	U32	Group librarian access rights
5034	U32	Account access rights
5035	U32	Account librarian access rights
5036	REC	Pathname
5037	REC	Path identifier
5038	U32	Running link count
5039	U32	File type
5040	U32	Record type

5041	CA36	File owner name
5042	B	ACD required?
5043	CA16	File Posix group name
5044	I64	State change timestamp
5045	B	Update state change timestamp?
5046	U32	Total hard links
5047	I32	Total extents
5048	I32	Total sectors
5051	B	Follow symbolic links?
5101	I64	End of file
5102	I64	File limit
5103	I64	Total sectors

AIFFILELGET REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA I32V I64V REC I32V
itemstatus_array, **fnum**, PID, UFID, user_id)

AIFFILELPUT REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA I32V I64V REC I32V
itemstatus_array, **fnum**, PID, UFID, user_id,
I32A @64A RECA
ver_item_nums, ver_items, ver_item_statuses)

AIFFILELGET/PUT items:

4001	REC	MPE file name
4002	REC	UFID
4003	I32	File number
4004	I32	File designation
4005	B	NOWAIT IO?
4006	B	Buffered access?
4007	B	Multiple record I/O?
4008	B	Short mapped?
4009	I32	Short mapped count
4010	@64	Record pointer
4011	I32	Record number
4012	I32	Offset within block (bytes)
4013	I32	Open count
4014	I32	Multiaccess type
4015	I32	Total opens sharing record pointer
4016	I32	Exclusive access restrictions
4017	REC	Shared accessors PID and fnum list
4018	I64	Total logical reads
4019	I64	Total logical writes
4020	U32	Total records read
4021	U32	Total records written
4022	I64	Total records transferred

4023	I32	Total bytes transferred in last I/O
4024	B	CM file?
4025	I32	Last file system error status
4026	U32	Access rights
4027	I32	Input privilege level
4028	I32	Output privilege level
4029	I32	Access privilege level
4030	B	I/O outstanding?
4031	B	Device file?
4032	B	Directory object?
4033	U32	File pointer offset
4034	I64	Total bytes read
4035	I64	Total bytes written
4036	REC	Pathname
4037	REC	Path identifier
4038	B	Opened by UFID?
4039	B	Close on exec?
4040	B	Append mode?
4041	B	Non-block mode?
4101	I64	Record pointer offset

AIFGLOBACQ REC I32V I32V I64
(**overall_status**, **user_id**, **size**, **user_cell**)

AIFGLOBGET REC I32V I64
(**overall_status**, **user_id**, **user_cell**)

AIFGLOBINSTALL
REC I32V
(**overall_status**, **user_id**)

AIFGLOBLOCK REC I32V
(**overall_status**, **user_id**)

AIFGLOBPUT REC I32V I64V
(**overall_status**, **user_id**, **user_cell**)

AIFGLOBREL REC I32V
(**overall_status**, **user_id**)

AIFGLOBUNLOCK
REC I32V
(**overall_status**, **user_id**)

AIFJSGET REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA RECV I32V I32V
itemstatus_array, JSNum, JSKey, user_id)

AIFJSPUT REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA RECV I32V I32V
itemstatus_array, JSNum, JSKey, user_id,
I32A @64A RECA
ver_item_nums, ver_items, ver_item_statuses)

AIFJSGET/PUT items:

1001	CA16	Job name
1002	I32	Job state
1003	B	Duplicative?
1004	B	Interactive?
1005	B	Quiet mode?
1006	B	SET STDLIST=DELETE?
1007	I32	Input priority
1008	I32	Output priority
1009	CA16	User name
1010	CA16	Group name
1011	CA16	Account name
1012	I32	Input device
1013	REC	Output device
1014	I32	Start date
1015	I32	Start time
1016	I32	Execution priority
1017	I32	JSMAIN PIN
1018	I32	CI PIN
1019	I32	CPU limit
1020	B	Spooled?
1021	B	Restart?
1022	B	Numbered job?
1023	B	Programmatic session?
1024	I32	Maximum account job priority
1025	I32	Account security
1026	I32	Group security
1027	CA16	Home group name
1028	I32	CPU count (milliseconds)
1029	I32	Directory CPU count (seconds)
1030	I32	Account local attributes
1031	I32	User capabilities
1032	I32	General resource capabilities
1033	I32	Total processes created
1034	BA96	Allow mask
1035	I64	Logon timestamp
1036	I32	CI timeout (minutes)
1037	I32	Job/session number
1038	I32	Job wait index
1039	B	Session?
1040	B	Network services (DSLINE open)?
1041	B	STDLIST PRIVATE?

1042	B	STDLIST SPSAVE?
1043	CA16	HP DTC portid
1044	REC	Job submitter job/session number
1045	CA16	Job submitter job/session name
1046	CA16	Job submitter user name
1047	CA16	Job submitter account name
1048	I32	Job submitter logical device number
1049	I32	Job submitter session/job introduction date
1050	I32	Job submitter session/job introduction time
1051	CA8	Job queue name
1052	I32	Job queue limit
1053	I32	Total jobs executing in queue
1054	I32	Total jobs in queue

AIFKSMCREATE

I32 REC CA I32V
filenum := **AIFKSMCREATE**(**overall_status**, **buffer**, **bytes**,

I32V CA CA
user_id, group_name, acct_name,

CA36 BV I16
creator, old_date, dev_num,

CA CA CA
vol_class, vol_name, vol_set_name,

REC REC
directory, file_name)

AIFKSMREAD

I32 REC I32V CA
length := **AIFKSMREAD** (**overall_status**, **filenum**, **buffer**,

I32V I32V
bytes, user_id)

AIFKSMWRITE

REC I32V CA I32V I32V
(**overall_status**, **filenum**, **buffer**, **bytes**, user_id)

AIFMOALLOCATE

REC I32
(**overall_status**, **ldev**,

I32A @64A RECA I32V
itemnum_array, item_array, itemstatus_array, user_id)

AIFMOALLOCATE items:

17101	I32	PIN of calling process
17102	I32	Input LDEV
17103	REC	Media label

AIFMODEALLOCATE

REC I32V I32A
(**overall_status**, **ldev**, itemnum_array,

@64A RECA I32V
item_array, itemstatus_array, user_id)

AIFMODEALLOCATE items:

17201	I32	PIN of process that allocated drive

AIFMODISMOUNT

REC I32V I32A
(**overall_status**, **ldev**, itemnum_array,

@64A RECA I32V
item_array, itemstatus_array, user_id)

AIFMODISMOUNT items:

17401	I32	PIN of process that allocated drive
17402	I32	Nowait identifier

AIFMOGET REC I32V I32A
(**overall_status**, **ldev**, **itemnum_array**,

@64A RECA I32 I32V
item_array, **itemstatus_array**, pin, user_id)

AIFMOMOUNT

REC I32V REC
(**overall_status**, **ldev**, **media_label**,

I32A @64A RECA I32V
itemnum_array, item_array, itemstatus_array, user_id)

AIFMOMOUNT items:

17301	I32	PIN of process that allocated drive
17302	I32	Prompt for media
17303	CA8	Volume set name
17304	I32	Nowait identifier

AIFMOPUT REC I32V I32A
(**overall_status**, **ldev**, **itemnum_array**,

@64A RECA I32
item_array, **itemstatus_array**, pin,

I32A @64A RECA I32V
ver_item_nums, ver_items, ver_item_statuses, user_id)

AIFMOGET/PUT items:

17001	REC	Media label
17002	CA8	Volume set name
17003	I32	Total storage slots

17004	I32	Total drives
17005	REC	List of drive LDEVs
17006	I32	Total mail slots
17007	REC	List of storage slot information

AIFPORTCLOSE

REC I32 I32V
(**overall_status**, **port_id**, access_mode)

AIFPORTINT REC I32A BA BA
(**overall_status**, **port_list**, **newstates**, oldstates)

AIFPORTOPEN

I32 REC CA16
port_id := **AIFPORTOPEN** (**overall_status**, **port_name**,
CA16 I32V
port_password, **access_mode**,
I32V I32A
user_id, itemnum_array,
@64A RECA
item_array, itemstatus_array)

AIFPORTOPEN items:

11201	I32	Create option
11202	I32	Maximum message size (bytes)
11203	I32	Normal message size (bytes)
11204	I32	Maximum number of normal messages
11205	B	Make permanent?
11206	@32	Handler address
11207	B	Interrupt handler state

AIFPORTRECEIVE

REC I32 CA I32
(**overall_status**, **port_id**, **msg_buffer**, **msg_length**,
I32 I32 I32A @64A
envelope_code, message_id, itemnum_array, item_array,
RECA
itemstatus_array)

AIFPORTRECEIVE items:

11001	I32	Priority mask
11002	I32	Timeout (seconds)
11003	B	Message return?
11004	I32	Sender PID
11005	I32	Sender PIN
11006	I32	Actual priority
11007	B	Message with pending interrupt?

AIFPORTSEND

REC I32 CA I32V
(**overall_status**, **port_id**, **msg_buffer**, **msg_length**,
I32V I32 I32A @64A
envelope_code, message_id, itemnum_array, item_array,
RECA
itemstatus_array)

AIFPORTSEND items:

11101	I32	Timeout (seconds)
11102	I32	Priority
11103	B	Connectionless send?

AIFPROCGET REC I32A
(**overall_status**, **itemnum_array**,
@64A RECA I32V I64V I32V
item_array, **itemstatus_array**, PIN, PID, user_id)

AIFPROCPUT REC I32A
(**overall_status**, **itemnum_array**,
@64A RECA I32V I64V I32V
item_array, **itemstatus_array**, PIN, PID, user_id,
I32A @64A RECA
ver_item_nums, ver_items, ver_item_statuses)

AIFPROCGET/PUT items:

2001	I64	PID
2002	I32	PIN
2003	I64	Parent PID
2004	I32	Parent PIN
2005	I64	Sibling PID
2006	I32	Sibling PIN
2007	I64	Child PID
2008	I32	Child PIN
2009	I64	JSmain PID
2010	I32	JSmain PIN
2011	I64	Last child created PID
2012	I32	Last child created PIN
2013	I64	Creator PID
2014	I32	Creator PIN
2015	I32	Job/session number
2016	I32	Scheduling state
2017	I32	Scheduling queue
2018	B	Degradable priority?
2019	I32	Priority
2020	U32	Reasons for boost
2021	I32	Post boost priority
2022	I32	Process state

2023	I64	Waiting time (ticks)
2024	I64	Waiting time (msecs)
2025	I32	Waiting reason
2026	I32	NM error queue head (last)
2027	I32	NM error queue tail (first)
2028	B	Lost NM error entries?
2029	I32	Total NM errors
2030	I32A	List of NM errors
2031	I32	Outstanding I/O count
2032	I32	Outstanding CM I/O count
2033	U32	Process type
2034	REC	Program name
2035	I32	Program file number
2036	@64	Entry point address
2037	B	CM mode initially?
2038	B	Info string passed?
2039	CA256	Info string
2040	I32	Parm value
2041	I32	SR5 space ID
2042	@64	XRT area base
2043	@64	XRT area limit
2044	@64	CM area base
2045	@64	CM area limit
2046	@64	NM stack base
2047	@64	NM stack limit
2048	@64	Heap area base
2049	@64	Heap area limit
2050	@64	PCBX address
2051	B	Split stack mode?
2052	I32	DB DST number
2053	I32	CM stack DST number
2054	@64	DB pointer
2055	@64	DL pointer
2056	I32	Initial DL
2057	I32	Initial Q
2058	I32	Total XDS's
2059	REC	List of XDS's
2060	I32	LSTT DST number
2061	@64	LSTT address
2062	I32	Total open files
2063	REC	List of open file numbers
2064	REC	List of open file names (MPE syntax)
2065	REC	List of open file UFIDs
2066	REC	Process tree (PIDs)
2067	@64	PCB pointer
2068	I32	Maximum allowed short mapped space
2069	I32	Short-mapped space used (bytes)
2070	U32	General resource capabilities
2071	I32	System code depth
2072	I32	Critical code depth

2073	I32	Total CM intrinsic errors
2074	I32A	List of CM intrinsic errors
2075	I32	Last FOPEN error
2076	I32	Last KOPEN error
2077	B	CM aritraps enabled?
2078	I32	CM aritrap handler plabel
2079	I32	NM aritrap mask
2080	@64	NM aritrap handler address
2081	I32	CM libtrap handler plabel
2082	@64	NM libtrap handler address
2083	I32	CM systrap handler plabel
2084	I32	NM systrap privilege level
2085	@64	NM systrap handler address
2086	I32	UNSAT handler address
2087	CA32	UNSAT handler name
2088	B	Dump armed?
2089	CA256	Debug commands
2090	B	Debug armed?
2091	I64	CPU time (ticks)
2092	I64	CPU time (msecs)
2093	B	SIR holder?
2094	I32	JS Key
2095	I32	User and file access capabilities
2096	I64	Time process on ready queue
2105	@64	NM stack maximum SP
2106	B	CM execution?
2107	I32	CM maxdata
2108	I32	CM TOS (DB relative)
2109	I32	JDT DST number
2110	CA16	Job name
2111	CA16	User name
2112	CA16	Group name
2113	CA16	Account name
2114	I32	Maximum account job priority
2115	I32	Account security
2116	I32	Group security
2117	CA16	Home group
2118	I32	Account local attributes
2119	I32	User capabilities
2120	I32	General resource capabilities
2121	BA96	Allow mask
2122	@64	Pathnames of open files
2123	RECA	Path identifiers of open files
2125	B	Process forked?
2126	I32	UID number
2127	I32	EUID number
2128	I32	GID number
2129	I32	EGID number
2130	U32	Posix CMASK
2131	REC	Program pathname

2132	B	Break request done?
2133	I32	Break request cancel
2134	I32	Break request pending
2135	REC	List of sibling PIDs
2136	REC	List of parent PIDs
2137	I32	Thread type: 0 Regular process 1 Initial thread 2 Secondary thread
2138	I32	Initial Thread PIN
2139	I64	Initial Thread PID
2140	I64A	List of secondary thread PIDs.
2141	I32	TIN (Thread Identification Number)
2142	B	Interactive?
2143	B	Environment nil?
2144	CA256	Workgroup name
2145	B	Artificial workgroup member?
2146	B	Return to natural workgroup?
2147	I32	Execution state
2148	I32	Fixed priority
2149	REC	List of sockets owned by process

AIFREPLYGET REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA I32V I32V
itemstatus_array, **reply_request_id**, user_id)

AIFREPLYGET items:

14001	B	Is entry active?
14002	I32	Process type
14003	I32	Creation time
14004	I32	Job/session number
14005	I32	Reply request ID
14006	CA160	Message text
14007	I32	Message source
14008	I32	Message length
14009	I16	Request message set number
14010	I16	Request message number
14011	CA80	Parameters
14012	REC	Parameter type

AIFSCGET REC I32A
(**overall_status**, **itemnum_array**,
@64A RECA I32V
item_array, **itemstatus_array**, user_id)

AIFSCPUT REC I32A
(**overall_status**, **itemnum_array**,
@64A RECA I32V
item_array, **itemstatus_array**, user_id,
I32A @64A RECA
ver_item_nums, ver_items, ver_item_statuses)

AIFSCGET/PUT items:

3001	I32	Job fence
3002	I32	Job limit
3003	I32	Job count
3004	I32	Session limit
3005	I32	Session count
3006	I32	Next job number
3007	I32	Next session number
3008	I32	Job security
3009	B	Single user mode?
3010	B	Out of logon resources?
3011	B	Out of LDEVs?
3012	B	Low on disk space?
3013	I32	Logical console LDEV number
3014	I32	Physical console LDEV number
3015	BA96	Global allow mask
3016	BA64	System logging mask
3017	I32	Streams LDEV
3018	I32	System outfence
3019	I32	AS queue base
3020	I32	AS queue limit
3021	I32	BS queue base
3022	I32	BS queue limit
3023	I32	CS queue base
3024	I32	CS queue limit
3025	I32	DS queue base
3026	I32	DS queue limit
3027	I32	ES queue base
3028	I32	ES queue limit
3029	I32	CS quantum maximum
3030	I32	CS quantum minimum
3031	I32	DS quantum
3032	I32	ES quantum
3033	I32	CS quantum
3034	I32	Maximum open files
3035	I32	Maximum processes
3036	I32	Maximum jobs/sessions
3037	CA8	MPE/iX version ID
3038	I32	Serial number (HPSUSAN)
3039	I32	Physical memory size (2k byte pages)
3040	I32	Total DST entries
3041	I32	Available DST entries

3042	I32	Rounding factor (timer to tick conversion)
3043	I32	Tick to msec conversion factor
3044	CA8	AIF:MI version ID
3045	CA8	AIF:OS version ID
3046	I32	Cold load ID
3047	I32	Current PIN highwater mark
3048	I32	Maximum LDEV number
3049	I32	CS boost property
3050	I32	CS queue timeslice
3051	I32	DS boost property
3052	I32	DS queue timeslice
3053	I32	ES boost property
3054	I32	ES queue timeslice
3055	I32	Maximum job limit
3056	I32	Maximum session limit
3057	CA8	MPE release VUF
3058	CA8	MPE user VUF
3059	I32	Max number of processors
3060	B	Autoboot toggle
3061	I32	Actual number of processors
3062	CA256	Logon prompt
3063	I32	Default NM stack
3064	I32	Maximum NM stack
3065	I32	Default CM stack
3066	I32	Maximum CM stack
3067	I32	Default heap
3068	I32	Maximum NM heap
3069	I32	Maximum number of AIF ports
3070	I32	Maximum path length
3071	CA80	Machine type
3072	CA256	Network node name
3073	B	Password encryption on?
3074	I32	Minimum password length
3075	I32	Maximum invalid logons per device
3076	B	Password prompt required?
3077	B	UDC failure termination?
3078	B	Minimum assistance logon?
3079	B	Fopen logging extension?
3080	I32	Idle session termination timeout (minutes)
3081	I32	Down device timeout (seconds)
3082	B	Programmatic command disabling warning?
3083	I32	Password expiration interval (days)
3084	U32	Next global password expiration date
3085	I32	Password expiration warning interval (days)
3086	B	Embedded password disallow?
3087	I32	Cross stream restriction and authorization
3088	I32	Stream privilege and authorization
3089	B	Assurance of auditability?
3090	B	Maximum file protection?
3091	I32	Global user password maximum days

3092	I32	Global user password minimum days
3093	I32	Global user password expiration days
3094	I32	Global user password warning days
3095	I32	Maximum invalid user logons
3096	I32	Disabled user timeout (seconds)
3097	B	Security installed?
3099	I32	Total currently configured workgroups
3100	B	Purge scan in progress?
3101	B	System-wide scan pending?
3102	I32	Lower job number limit
3103	I32	Upper job number limit
3104	I32	Lower session number limit
3105	I32	Upper session number limit
3106	I32	Lower input spoolid limit
3107	I32	Next input spoolid
3108	I32	Upper input spoolid limit
3109	I32	Lower output spoolid limit
3110	I32	Next output spoolid
3111	I32	Upper output spoolid limit
3112	I32	Workgroup creation count
3113	B	Workgroup manager purchased?

AIFSPFGET REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA @64 REC I32V
itemstatus_array, spf_addr, spf_id, user_id)

AIFSPFLINK REC REC REC REC
(**overall_status**, **source_spf**, linked_spfid , linked_spf_ufid,
REC I32V I32V I32V I32V
target_device, priority, copies, spsave, defer,
CA I32V
spf_lockword, user_id)

AIFSPFLIST REC REC @64A RECA
(**overall_status**, seleq, spf_addr_array, spf_id_array,
I32 I32V BV
spf_count, user_id, stop_search)

AIFSPFPUT REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA @64 REC I32V
itemstatus_array, spf_addr, spf_id, user_id,
I32A @64A RECA
ver_item_nums, ver_items, ver_item_statuses)

AIFSPFGET/PUT items:

8501	I32	File state
8502	I32	Priority
8503	I32	Restartable?
8504	I32	Disposition?
8505	I32	Private?
8506	I32	Forms message?
8507	I32	Incomplete?
8508	I32	Job or data file?
8509	I32	STDLIST of aborted job?
8510	REC	Spool file ID
8511	I32	Total copies requested
8512	U32	Ready date
8513	U32	Ready time
8514	I32	Total pages
8515	I32	Restart page number
8516	CA32	Creator name (user+account)
8517	U32	Job/session number
8518	CA16	Job name
8519	CA16	File designator
8520	REC	Target device name or class
8521	I32	Device record size
8522	I16	Device type
8523	I16	Device subtype
8524	I32	Total completed copies
8525	CA16	Forms ID
8526	REC	Spool file UFID
8527	REC	Active device name
8528	I32	Total records
8529	I32	Total sectors
8530	CA36	Environment file name
8531	U16	Foptions
8532	U16	Aoptions
8533	I32	File open status
8534	I32	Broadcastable?

AIFSPPGET REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA REC I32V
itemstatus_array, **spooler_device**, user_id)

AIFSPPOPENQ
REC REC I32V
(**overall_status**, **spooler_device**, user_id)

AIFSPPPUT REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA REC I32V
itemstatus_array, **spooler_device**, user_id,
I32A @64A RECA
ver_item_nums, ver_items, ver_item_statuses)

AIFSPPGET/PUT items:

8001	I32	LDEV number
8002	I32	Process PIN
8003	I32	Current spool file ID
8004	I32	Process kind
8005	I32	Process state
8006	I32	Finish strategy
8009	I32	Device outfence
8010	I32	Suspend keep flag

AIFSPPRELEASE
REC REC I32V I32V
(**overall_status**, **spooler_device**, direction, offset,
I32 I32V
q_state, user_id)

AIFSPPRESUME
REC REC I32V I32V
(**overall_status**, **spooler_device**, direction, offset,
I32 I32V
q_state, user_id)

AIFSPPSHUTQ
REC REC I32V
(**overall_status**, **spooler_device**, user_id)

AIFSPPSTART REC REC I32 I32V
(**overall_status**, **spooler_device**, q_state, user_id)

AIFSPPSTOP REC REC I32V I32 I32V
(**overall_status**, **spooler_device**, finish, q_state, user_id)

AIFSPPSUSPEND
REC REC I32 I32 I32V
(**overall_status**, **spooler_device**, finish, keep, direction,
I32V I32 I32V
offset, q_state, user_id)

AIFSYSWIDEGET

REC I32V A A
(**overall_status**, **aif_area**, return_array1, return_array2,
I32 I32A @64A
num_entries, itemnum_array, item_array,
RECA REC I32V @64
itemstatus_array, search_key, user_id, buffer_ptr)

AIFSYSWIDEGET areas:

Area	Information	return_array1	return_array2	search_key
1000	Job/session	Job/session key jskey_type	Job/session num jsnum_type	I32
2000	Process	PID: I64		I32
5000	File	#5001 UFID ufid_type #5036 Path ID path_identifier	File name filename_type Buffer info buffer_info_type	filename_type max_pathname_type
6000	Accounting		Directory name directory_name_type	directory_name_type
8000	Spool file	Spool file address @64	Spool file number spf_id_type	
13000	Device	LDEV number I32	Device key ufid_type	I32
13500	Device class	Device Class CA16	Device Class key I32	I32
14000	Console reply	Reply request ID I32		I32
19000	Workgroup	Workgroup name CA256		key_wg_type

AIFSYSWIDEGET job/session items:

1001	CA16	Job name
1002	I32	Job state
1007	I32	Input priority
1008	I32	Output priority
1009	CA16	User name
1010	CA16	Group name
1011	CA16	Account name
1016	I32	Execution priority
1037	REC	Job/session number
1039	B	Session flag
1043	CA17	DTC port ID
1044	REC	Job submitter job/session number
1045	CA16	Job submitter job/session name
1046	CA16	Job submitter user name
1047	CA16	Job submitter account name

AIFSYSWIDEGET process items:

2015	REC	Job/session number
2016	I32	Scheduling state
2017	I32	Scheduling queue
2019	I32	Priority
2033	I32	Process type
2065	REC	Open file
2070	I32	Capability bits
2137	I32	Thread type
2144	CA256	Workgroup name

AIFSYSWIDEGET file items:

5001	REC	MPE syntax file name
5008	I32	File code
5013	I32	Privilege level
5036	REC	HFS syntax pathname
5039	U32	File type
5040	U32	Record type
5049	I32	Recursion level
5050	B	Ignore non-fatal errors?

AIFSYSWIDEGET accounting items:

6001	CA16	User name
6003	I32	Capability bits
6008	I32	Group local attributes
6101	CA16	Group name
6103	I32	Group capabilities
6201	CA16	Account name
6203	I32	Account capabilities
6214	I32	Account local attributes

AIFSYSWIDEGET spool file items:

8501	I32	File state
8502	I32	Priority
8504	I32	Disposition
8509	I32	STDLIST of aborted job
8511	I32	Copies
8512	I32	Ready date
8514	I32	Total pages
8516	CA32	Owner (user+account)
8517	REC	Job/session number
8518	CA16	Job name
8519	CA16	File designator
8520	REC	Target device
8525	CA16	Forms ID
8528	I32	Total records
8600	I32	Input/output flag

AIFSYSWIDEGET device items:

13001	I32	Logical device number
13002	CA16	User-defined device class name

AIFSYSWIDEGET device class items:

13501	I32	Logical device number
13502	CA16	User-defined device class name

AIFSYSWIDEGET console reply items:

14002	I32	Process type
14003	I32	Creation time
14004	REC	Job/session number
14005	I32	PIN of the request

AIFSYSWIDEGET workgroup items:

19001	CA256	Workgroup name
19003	CA256	Logon/user specification
19004	REC	Program/file name
19005	CA20	Queue name
19006	I32	Queue
19007	I32	Base priority
19008	I32	Limit priority
19009	I32	Minimum quantum
19010	I32	Maximum quantum
19011	I32	Timeslice
19012	I32	Boost property
19013	I32	Minimum CPU percentage
19014	I32	Maximum CPU percentage

AIFTIME REC I64 I64 U32 U16 REC
(**overall_status**, ticks, microsecs, clock, date, date_str,
I32V I64 I64
user_id, ticks_since_1970, microsecs_since_1970)

AIFWGADD REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array,**
RECA CA CA I32V
itemstatus_array, **workgroup_name**, position, user_id)

AIFWGADD items:

19003	CA256	Logon/user specification
19004	REC	Program/filename
19005	CA20	Queue category
19007	I32	Base priority
19008	I32	Limit priority
19009	I32	Minimum quantum
19010	I32	Maximum quantum

19011	I32	Timeslice
19012	I32	Boost property
19013	I32	Maximum CPU percentage
19014	I32	Minimum CPU percentage

AIFWGGET REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA CA I32V
itemstatus_array, **workgroup_name**, user_id)

AIFWGPUT REC I32A @64A
(**overall_status**, **itemnum_array**, **item_array**,
RECA CA I32V
itemstatus_array, **workgroup_name**, user_id,
I32A @64A RECA
ver_item_nums, ver_items, ver_item_statuses)

AIFWGGET/PUT items:

19002	B	Purge pending?
19003	CA256	Logon/user specification
19004	REC	Program/file name
19005	CA20	Queue category
19007	I32	Base priority
19008	I32	Limit priority
19009	I32	Minimum quantum
19010	I32	Maximum quantum
19011	I32	Timeslice
19012	I32	Boost property
19013	I32	Maximum CPU percentage
19014	I32	Minimum CPU percentage
19015	I32	Quantum

AIFWGPURGE
REC CA B I32V
(**overall_status**, **workgroup_name**, purgescan, user_id)

AIFWGREPLACE
REC I32V I32A
(**overall_status**, **file_num**, itemnum_array,
@64A RECA I32V
item_array, itemstatus_array, user_id)

AIFWGREPLACE items:

19501	REC	Output buffer
19502	I32	Error column number
19503	I32	CI error number
19506	B	Validate?

Section 8 : POSIX Commands & Utilities

Command	Description
.	Execute shell file in current environment
:	Do nothing, successfully
alias	Display or create command aliases
ar	Create and maintain library archives
asa	Interpret ASA/FORTRAN carriage control
awk	Data transformation, report generation language
banner	Display text in large font
basename	Display file name component of path name
bc	Arbitrary-precision arithmetic calculation language
bdiff	Compare two text files, show differences
break	Exit from loop in shell script
c	Produce multi-column output
c89	Generic C compiler interface
calendar	Appointment reminder system
callci	Run MPE/iX CI command from the MPE/iX Shell
cancel	Cancel print queue requests
cat	Concatenate and display text files
cd	Change working directory
chgrp	Change the group ownership of files and/or directories
chmod	Change access permissions of a file
chown	Change ownership of files and/or directories
ci	Check in a file under RCS
cksum	Compute file checksum and byte count
cmp	Compare two files
co	Check out a file under RCS
comm	Compare sorted files, show differences
command	Execute a simple command
compress	Lempel-Ziv file compression
continue	Skip to next iteration of shell script loop
cp	Copy files
cpio	Archiver to copy and back up files
csplit	Split a text file, according to criteria
ctags	Produce tags file for ex, more, and vi
cut	Selectively display fields or characters from input
date	Set and display date and time
dc	Arbitrary precision desk calculator
dd	Copy and convert input blocks
diff	Compare two text files, show differences
diff3	Compare three text files
diffb	Compare binary files, show differences
diffh	Compare two text files, show differences
dirname	Display directory components of path name
du	Summarize file space usage
echo	Display arguments
ed	Line-oriented text editor

Posix Commands

Command	Description
egrep	Match patterns in a file
env	Display environment, set environment for process
eval	Evaluate arguments in shell
ex	Text editor
exec	Execute a command in place of the current shell
exit	Exit from the shell
expand	Expand tabs to spaces
export	Mark names for export
expr	Evaluate expression
false	Fail, quietly
fc	Display, fix, edit and re-enter previous commands
fgrep	Match patterns in a file
file	Determine file type
find	Find files within file tree
fmt	Simple text formatter
fold	Break lines into shorter lines
frombyte	Convert a byte stream files to MPE record files
functions	Display or modify shell functions
getconf	Display Posix configuration information
getopt	External command to parse shell file options
getopts	Parse options from shell script command line
grep	Match patterns in a file
hash	Create a tracked alias
head	Display first part of file
help	Display brief command explanations
history	Display command history
id	Display user and group names
ident	Look for keywords in a file
integer	Declare an integer variable
ipcrm	Remove SVID IPC resources
ipcs	Display status of SVID IPC services
jobs	Display status of jobs in current session
join	Join two sorted, textual relational databases
kill	Terminate process
lc	List file system elements in categories
let	Evaluate arithmetic expressions
lex	Lexical analyzer generator
line	Copy one line of standard input
ln	Create a link to an existing file
logname	Display user name
lp	Send files to a printer
lpalt	Alter a print job
lpstat	Show status of print queues
ls	List file and directory names and attributes
mailx	Read electronic mail
make	Maintain program-generated and interdependent files
man	Print sections of the online reference manual
merge	Three-way file merge
mesg	Allow or refuse messages

Command	Description
mkdir	Create a new directory
mkfifo	Create a FIFO special file
mknod	Build a special file
more	Display files on a page-by-page basis
mv	Rename and move files and directories
nice	Run a command at a different priority
nl	Number lines
od	Formatted file dump
pack	Compress files by Huffman encoding
paste	Horizontally concatenate lines
patch	Change file using diff output
pathchk	Check path names
pax	Archiver for data interchange and file backup
pcat	Display Huffman packed files on standard output
pr	Display and format files
print	Display arguments from the shell
printf	Display a formatted string
ps	Display process status
pwd	Display working directory
r	Edit and re-execute previous command
rcs	Change RCS file attributes
rcsclean	Clean up working files
rcsdiff	Compare RCS revisions
rcsmerge	Merge RCS revisions
read	Input a line to the shell
readonly	Mark variable as readonly
red	Line-oriented text editor
renice	Set priorities of running processes
return	Return from shell function or . (dot) script
rev	Reverse character order of input lines
rlog	Display info about RCS files
rm	Remove files
rmdir	Remove directory
rsh	Posix-compliant (Korn) shell and command interpreter
sccs2rcs	SCCS to RCS conversion utility
sed	Stream editor (non-interactive)
set	Set shell flags and positional parameters
sh	Posix-compliant (Korn) shell and command interpreter
shift	Shift positional parameters
sleep	Suspend execution for a specified time
sort	Sort/merge utility
split	Split a file into manageable pieces
strings	Display printable strings in binary files
strip	Remove debug information from executable files
stty	Set or display terminal options
sum	Compute checksum and block count for file
svipc	Modify current SVID IPC configuration limits
tabs	Set terminal tab stops
tail	Display last lines of file

Posix Commands

Command	Description
tar	USTAR-compatible tape archiver to copy and back up files
tee	Clone output stream
test	Test for condition
tic	Compile terminfo source file
time	Display time to execute any command
tobyte	Convert MPE record files to byte stream files
touch	Change file modification date
tput	Change terminal characteristics
tr	Translation filter
trap	Intercept abnormal conditions and interrupts
true	Do nothing, successfully
tsmail	Mail delivery program
tty	Display terminal name
type	Tell how shell interprets name
typeset	Assign attributes and values to variables
umask	Get or set the file mode creation mask
unalias	Remove alias definitions
uname	Display system name information
uncompress	Undo Lempel-Ziv compression of a file
unexpand	Compress spaces into tabs
uniq	Display unique lines of sorted file
unpack	Decode Huffman packed files
unset	Remove shell variable or function
untic	Decompiles terminfo binary file
uudecode	Decode transmitted binary file
uuencode	Encode a file for safe transmission
vi	Display-oriented interactive text editor
wait	Wait for process to complete
wall	Write to all logged in users
wc	Count of newlines, words, bytes, and characters
whence	Tell how shell interprets command name
which	Display path name for executable command
who	Display information about current users
write	Write to another user
xargs	Construct and execute command lines
yacc	Parser generator language
zcat	Uncompress and display data

Section 9 : TurboIMAGE Intrinsics

RUN DBSCHEMA.PUB.SYS; PARM=*parm*

parm: 1 ... use DBSTEXT file equation
2 ... use DBSLIST file equation
3 ... use DBSTEXT and DBSLIST file equations

DBSCHEMA Syntax:

$PAGE	["*string*"] [,...]
$TITLE	["*string*"] [,...]
$CONTROL	[NO]LIST [,ERRORS=*n*] [,LINES=*n*] [,[NO]ROOT] [,BLOCKMAX=*n*] [,[NO]TABLE] [,[NO]JUMBO] [,LARGESET] [,LFDS]

BEGIN
DATABASE *database-name* [,LANGUAGE: *language*];
PASSWORDS: *passwords*; [...;]
ITEMS: [*items*;] [...;]
SETS: [*master-sets*; [...;]]
[*detail-sets*; [...;]]
END.

passwords: *user-class-number* [*password*];

items: *item-name*, [*sub-item-count*] *item-type* [*sub-item-length*]
[(*read-class-list* / *write-class-list*)];

master-sets: N[AME]: *set-name*, { M[ANUAL] / A[UTOMATIC] } [/INDEXED]
[(*read-class-list* / *write-class-list*)] [,*device-class*];
E[NTRY]: *item-name* [(*path-count*)] [,...];
C[APACITY]: *maximum-cap*acity
[(*blocking-factor*)] [,*initial-capacity* [,*increment*]];

detail-sets: N[AME]: *set-name*, D[ETAIL]
[(*read-class-list* / *write-class-list*)] [,*device-class*];
E[NTRY]: *item-name* [([!] *master-set* [(*sort-item*)])],
item-name [(*master-set* [(*sort-item*)])] [,...];
C[APACITY]: *maximum-cap*acity
[(*blocking-factor*)] [,*initial-capacity* [,*increment*]];

item-type: { E, I, J, K, P, R, U, X, Z }

A A I A I
DBBEGIN (**base**, **text**, **mode**, **status**, **textlen**)

modes:

1	Indicates static transaction
3	Multi database transaction, 1 log record per base
4	Multi database transaction, 1 log record

A IA I A
DBCLOSE (**base**, **dset**, **mode**, **status**)

modes:

1	Close base
2	Close and rewind single set, retain locks
3	Rewind single set

A IA I A
DBCONTROL (**base**, **qualifier**, **mode**, **status**)

modes:

1	Enable output deferred
2	Disable output deferred
5	Enable critical item update
6	Disable critical item update
7	Allow base to be included in DMDBX transaction, enable deadlock detection
9	Enable DBPUT HWMPUT
10	Disable DBPUT HWMPUT
13	B-tree index file control
14	Base-wide B-tree control
15	Enable BTREEMODE1, base-wide
16	Disable BTREEMODE1, base-wide
18	Enable XM softlimit message trap
19	Disable XM softlimit message trap
20	Negate DBUTIL OLDINFOLIMITS setting

A IA I A
DBDELETE (**base**, **dset**, **mode**, **status**)

A A I A I
DBEND (**base**, **text**, **mode**, **status**, **textlen**)

modes:

1	End of static transaction
2	Write log buffer to disk, end static transaction
3	End multi database transaction, write multiple log entries
4	End multi database transaction, write one log entry

A A I
DBERROR (**status**, **buffer**, **length**)

A
DBEXPLAIN (**status**)

A IA I A IA A
DBFIND (**base**, **dset**, **mode**, **status**, **item**, **argument**)

modes:

1	Index search, if BTREEMODE1 flag on, use available B-tree index
4	B-tree index search on numeric & ASCII type, returns accurate chain counts
10	Ignore B-tree index and arguments
21	Same as mode 1, without accurate chain counts
24	Same as mode 4, without accurate chain counts

A IA I A A A A or I32
DBGET (**base**, **dset**, **mode**, **status**, **list**, **buffer**, **argument**)

modes:

1	Reread
2	Serial read
3	Backward serial read
4	Directed read
5	Chained read
6	Backward chained read
7	Calculated read
8	Primary calculated read

A IA I A A
DBINFO (**base**, **qualifier**, **mode**, **status**, **buffer**)

modes:

101	Item access
102	Item info
103	List of referenced items within base (*)
104	List of items within set
113	B-tree settings for base
201	Set access
202	Set info
203	List of sets within base (*)
204	List of sets containing specific item (*)
205	Set info: dynamic expansion info
206	Total chunks within set
207	Chunk sizes within set
208	Primary, actual capacity for set
209	B-Tree status for master
301	List of paths defined for set (*)

302	Key or search item within set
401	Logging settings for base
402	ILR settings for base
403	Dynamic rollback settings for base
404	Multi-base transaction log info
406	Base info
501	Subsystem access
502	Critical item update info
8*nn*	Third-party index info
901	Base native language attribute

(*) buffer size may have expanded

A IA I A
DBLOCK (**base**, **qualifier**, **mode**, **status**)

modes:

1	Base level, unconditional
2	Base level, conditional
3	Set level, unconditional
4	Set level, conditional
5	Entry level, unconditional
6	Entry level, conditional

A A I A I
DBMEMO (**base**, **text**, **mode**, **status**, **textlen**)

A A I A
DBOPEN (**base**, **password**, **mode**, **status**)

modes:

Mode	Capabilities	Concurrent Modes
1	Modify, enforced locking	1,5
2	Update	2,6
3	Modify exclusive	None
4	Modify	6
5	Read	1,5
6	Read	6, either 2,4 or 8
7	Read exclusive	None
8	Read	6,8

A IA I A A A
DBPUT (**base**, **dset**, **mode**, **status**, **list**, **buffer**)

A IA I A
DBUNLOCK (**base**, **dset**, **mode**, **status**)

A IA I A A A
DBUPDATE (**base**, **dset**, **mode**, **status**, **list**, **buffer**)

A A I A I
DBXBEGIN (**base**, **text**, **mode**, **status**, **textlen**)

modes:

1	Indicates dynamic transaction spanning one base
3	Dynamic transaction spanning multi databases, one log record per base

A A I A I
DBXEND (**base**, **text**, **mode**, **status**, **textlen**)

modes:

1	End dynamic transaction spanning one base
2	End dynamic transaction spanning one base, started with DBXBEGIN mode 1
3	End DMDBX transaction started with DBXBEGIN mode 3

A A I A I
DBXUNDO (**base**, **text**, **mode**, **status**, **textlen**)

modes:

1	Dynamically rollback calls since matching DBXBEGIN mode 1
3	Dynamically rollback calls inside DMDBX since matching DBXBEGIN mode 3

IMAGE intrinsic exceptional conditions:

Error	Interpretation	Following
10	Beginning of file	DBGET
11	End of file	DBGET
12	Directed beginning of file	DBGET
13	Directed end of file	DBGET
14	Beginning of chain	DBGET
15	End of chain	DBGET
16	Data set full. Can't expand data set. Expansion incomplete. Out of disc space.	DBPUT
17	No master entry. No entry.	DBFIND DBGET, DBUPDATE, DBDELETE
18	Broken chain	DBGET
20	Data base locked or contains locks	DBLOCK modes 2,4,6
22	Data set locked by another process	DBLOCK modes 4,6
23	Entries locked within set	DBLOCK mode 4

Error	Interpretation	Following
24	Item conflict with current locks	DBLOCK mode 6
25	Entries already locked	DBLOCK mode 6
26	Lock not performed (would deadlock)	DBLOCK
41	Attempt to modify critical item. No chain head for path. Full chain for path. Full automatic master for path. Full automatic master synonym chain.	DBUPDATE
42	Read only item	DBUPDATE
43	Duplicate search item value	DBPUT
44	Can't delete master: detail chain present	DBDELETE
49	Illegal buffer address	DBGET, DBINFO
50	Buffer too small	DBGET, DBINFO
51	Insufficient stack for BASIC interface	XDBGET, XDBPUT
52	Invalid parameter for BASIC interface	XDBUPDATE, XDBINFO XDBGET
53	Invalid parameter type for BASIC interface	XDBPUT
54	Status array too small	XDBUPDATE, XDBINFO
60	Base access disabled	DBOPEN
61	Base open over 63 times by same process	DBOPEN
62	DBG controlblock is full	
63	DBG disabled	
64	PCBX data segment area full	DBOPEN
65	Can't grant buffer request	DBCONTROL
66	Rootfile DBG pointer mismatch	
67	DBU disabled	
68	Bad DBB	
69	Bad database	
71	Logging not enabled for user	DBMEMO
72	TURBOLKT table full	DBLOCK
73	Error in TURBOLKT table operation	
1*nn*	Missing chain head	DBPUT
2*nn*	Full chain	
3*nn*	Full auto master	
4*nn*	Full auto master synonym chain	
944	Message catalog unavailable	

Section 10 : ASCII Table (Roman-9)

$	Dec	Octal LHS	Octal RHS	^	Char
00	0	000000	000000	@	NUL
01	1	000400	000001	A	SOH
02	2	001000	000002	B	STX
03	3	001400	000003	C	ETX
04	4	002000	000004	D	EOT
05	5	002400	000005	E	ENQ
06	6	003000	000006	F	ACK
07	7	003400	000007	G	BEL
08	8	004000	000010	H	BS
09	9	004400	000011	I	HT
0A	10	005000	000012	J	LF
0B	11	005400	000013	K	VT
0C	12	006000	000014	L	FF
0D	13	006400	000015	M	CR
0E	14	007000	000016	N	SO
0F	15	007400	000017	O	SI
10	16	010000	000020	P	DLE
11	17	010400	000021	Q	DC1
12	18	011000	000022	R	DC2
13	19	011400	000023	S	DC3
14	20	012000	000024	T	DC4
15	21	012400	000025	U	NAK
16	22	013000	000026	V	SYN
17	23	013400	000027	W	ETB
18	24	014000	000030	X	CAN
19	25	014400	000031	Y	EM
1A	26	015000	000032	Z	SUB
1B	27	015400	000033	[	ESC
1C	28	016000	000034	\	FS
1D	29	016400	000035	]	GS
1E	30	017000	000036	^	RS
1F	31	017400	000037	_	US
20	32	020000	000040		
21	33	020400	000041		!
22	34	021000	000042		"
23	35	021400	000043		#
24	36	022000	000044		$
25	37	022400	000045		%
26	38	023000	000046		&
27	39	023400	000047		'

$	Dec	Octal LHS	Octal RHS	^	Char
28	40	024000	000050		(
29	41	024400	000051		)
2A	42	025000	000052		*
2B	43	025400	000053		+
2C	44	026000	000054		,
2D	45	026400	000055		-
2E	46	027000	000056		.
2F	47	027400	000057		/
30	48	030000	000060		0
31	49	030400	000061		1
32	50	031000	000062		2
33	51	031400	000063		3
34	52	032000	000064		4
35	53	032400	000065		5
36	54	033000	000066		6
37	55	033400	000067		7
38	56	034000	000070		8
39	57	034400	000071		9
3A	58	035000	000072		:
3B	59	035400	000073		;
3C	60	036000	000074		<
3D	61	036400	000075		=
3E	62	037000	000076		>
3F	63	037400	000077		?
40	64	040000	000100		@
41	65	040400	000101		A
42	66	041000	000102		B
43	67	041400	000103		C
44	68	042000	000104		D
45	69	042400	000105		E
46	70	043000	000106		F
47	71	043400	000107		G
48	72	044000	000110		H
49	73	044400	000111		I
4A	74	045000	000112		J
4B	75	045400	000113		K
4C	76	046000	000114		L
4D	77	046400	000115		M
4E	78	047000	000116		N
4F	79	047400	000117		O

ASCII Table

$	Dec	Octal LHS	Octal RHS	^	Char
50	80	050000	000120		P
51	81	050400	000121		Q
52	82	051000	000122		R
53	83	051400	000123		S
54	84	052000	000124		T
55	85	052400	000125		U
56	86	053000	000126		V
57	87	053400	000127		W
58	88	054000	000130		X
59	89	054400	000131		Y
5A	90	055000	000132		Z
5B	91	055400	000133		[
5C	92	056000	000134		\
5D	93	056400	000135		]
5E	94	057000	000136		^
5F	95	057400	000137		_
60	96	060000	000140		`
61	97	060400	000141		a
62	98	061000	000142		b
63	99	061400	000143		c
64	100	062000	000144		d
65	101	062400	000145		e
66	102	063000	000146		f
67	103	063400	000147		g
68	104	064000	000150		h
69	105	064400	000151		i
6A	106	065000	000152		j
6B	107	065400	000153		k
6C	108	066000	000154		l
6D	109	066400	000155		m
6E	110	067000	000156		n
6F	111	067400	000157		o
70	112	070000	000160		p
71	113	070400	000161		q
72	114	071000	000162		r
73	115	071400	000163		s
74	116	072000	000164		t
75	117	072400	000165		u
76	118	073000	000166		v
77	119	073400	000167		w
78	120	074000	000170		x
79	121	074400	000171		y
7A	122	075000	000172		z
7B	123	075400	000173		{

$	Dec	Octal LHS	Octal RHS	^	Char
7C	124	076000	000174		|
7D	125	076400	000175		}
7E	126	077000	000176		~
7F	127	077400	000177		
80	128	100000	000200		
81	129	100400	000201		
82	130	101000	000202		
83	131	101400	000203		
84	132	102000	000204		
85	133	102400	000205		
86	134	103000	000206		
87	135	103400	000207		
88	136	104000	000210		
89	137	104400	000211		
8A	138	105000	000212		
8B	139	105400	000213		
8C	140	106000	000214		
8D	141	106400	000215		
8E	142	107000	000216		
8F	143	107400	000217		
90	144	110000	000220		
91	145	110400	000221		
92	146	111000	000222		
93	147	111400	000223		
94	148	112000	000224		
95	149	112400	000225		
96	150	113000	000226		
97	151	113400	000227		
98	152	114000	000230		
99	153	114400	000231		
9A	154	115000	000232		
9B	155	115400	000233		
9C	156	116000	000234		
9D	157	116400	000235		
9E	158	117000	000236		
9F	159	117400	000237		
A0	160	120000	000240		
A1	161	120400	000241		À
A2	162	121000	000242		Â
A3	163	121400	000243		È
A4	164	122000	000244		Ê
A5	165	122400	000245		Ë
A6	166	123000	000246		Î
A7	167	123400	000247		Ï

$	Dec	Octal LHS	Octal RHS	^	Char
A8	168	124000	000250		´
A9	169	124400	000251		`
AA	170	125000	000252		^
AB	171	125400	000253		¨
AC	172	126000	000254		~
AD	173	126400	000255		Ù
AE	174	127000	000256		Ü
AF	175	127400	000257		£
B0	176	130000	000260		¯
B1	177	130400	000261		Ý
B2	178	131000	000262		ý
B3	179	131400	000263		°
B4	180	132000	000264		Ç
B5	181	132400	000265		ç
B6	182	133000	000266		Ñ
B7	183	133400	000267		ñ
B8	184	134000	000270		¡
B9	185	134400	000271		¿
BA	186	135000	000272		€
BB	187	135400	000273		£
BC	188	136000	000274		¥
BD	189	136400	000275		§
BE	190	137000	000276		ƒ
BF	191	137400	000277		¢
C0	192	140000	000300		â
C1	193	140400	000301		ê
C2	194	141000	000302		ô
C3	195	141400	000303		û
C4	196	142000	000304		á
C5	197	142400	000305		é
C6	198	143000	000306		ó
C7	199	143400	000307		ú
C8	200	144000	000310		à
C9	201	144400	000311		è
CA	202	145000	000312		ò
CB	203	145400	000313		ù
CC	204	146000	000314		ä
CD	205	146400	000315		ë
CE	206	147000	000316		ö
CF	207	147400	000317		ü
D0	208	150000	000320		Å
D1	209	150400	000321		î
D2	210	151000	000322		Ø
D3	211	151400	000323		Æ

$	Dec	Octal LHS	Octal RHS	^	Char
D4	212	152000	000324		å
D5	213	152400	000325		í
D6	214	153000	000326		ø
D7	215	153400	000327		æ
D8	216	154000	000330		Ã
D9	217	154400	000331		ì
DA	218	155000	000332		Õ
DB	219	155400	000333		Ü
DC	220	156000	000334		Ë
DD	221	156400	000335		ï
DE	222	157000	000336		ß
DF	223	157400	000337		Ô
E0	224	160000	000340		Á
E1	225	160400	000341		Ã
E2	226	161000	000342		ã
E3	227	161400	000343		Ð
E4	228	162000	000344		ð
E5	229	162400	000345		Í
E6	230	163000	000346		Ì
E7	231	163400	000347		Ó
E8	232	164000	000350		Ò
E9	233	164400	000351		Õ
EA	234	165000	000352		õ
EB	235	165400	000353		Š
EC	236	166000	000354		š
ED	237	166400	000355		Ú
EE	238	167000	000356		Ÿ
EF	239	167400	000357		ÿ
F0	240	170000	000360		Þ
F1	241	170400	000361		þ
F2	242	171000	000362		·
F3	243	171400	000363		µ
F4	244	172000	000364		¶
F5	245	172400	000365		¾
F6	246	173000	000366		-
F7	247	173400	000367		¼
F8	248	174000	000370		½
F9	249	174400	000371		ª
FA	250	175000	000372		º
FB	251	175400	000373		«
FC	252	176000	000374		
FD	253	176400	000375		»
FE	254	177000	000376		±
FF	255	177400	000377		

HP3000 Relative Performance

HP's relative performance figures have been adjusted to be relative to the 918=10. Figures should only be used as an approximate guide.

917	10	**928**	14	**947**	10	**958**	13	**987**	32
918	10	**930**	1	**948**	11	**960**	15	**988**	39
920	2	**932**	5	**949**	12	**967**	20	**990**	26
922	3	**935**	6	**950**	6	**968**	21	**991**	33
925	3	**937**	10	**955**	10	**977**	26		
927	10	**939KS**	28	**957**	16	**978**	26		

	020	030	100	120	150	200	220	300	320	400	420
929KS	24	41									
939KS	35	41									
959KS			35			62		86		110	
969KS			40	51		71	95	99	134	126	165
987					45	60					

	100	150	200	250	300	350	400	450	500	550	600	650
979KS	61		112		150		188					
989KS	70	85	132	164	188	237	221	271	240	305	255	337

	80	100	200	300	400	500	600	700	800	1000	1200
980		22	37	49	59						
992		35	60	81	100						
995		42	71	98	118	139	160	180	200		
996	38	48	80	107	130	152	173	192	210		
997		58	101	142	182	219	248		300	372	402

	110	140	220	330	440	550
A400-100	17					
A500-100		25				
A500-200		42				
N4000-100			69	100	138	
N4000-200					254	
N4000-300					354	446
N4000-400					438	554

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