HD15

HP 3000 Computer Systems

# PROCMON/3000

Reference Manual

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# PRINTING HISTORY

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# LIST OF EFFECTIVE PAGES

The List of Effective Pages gives the date of the most recent version of each page in the manual. To verify that your manual contains the most current information, check the dates printed at the bottom of each page with those listed below. The date on the bottom of each page reflects the edition or subsequent update in which that page was printed.

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# PREFACE

This manual documents the HP 3000 Process Monitor - PROCMON.

# CONVENTIONS USED IN THIS MANUAL

| NOTATION | DESCRIPTION |
|---|---|
| `nonitalics` | Words in syntax statements which are not in italics must be entered exactly as shown. Punctuation characters other than brackets, braces and ellipses must also be entered exactly as shown. For example:<br><br>`EXIT;` |
| *italics* | Words in syntax statements which are in italics denote a parameter which must be replaced by a user-supplied variable. For example:<br><br>CLOSE *filename* |
| [ ] | An element inside brackets in a syntax statement is optional. Several elements stacked inside brackets means the user may select any one or none of these elements. For example:<br><br>$\begin{bmatrix}A\\B\end{bmatrix}$ User *may* select A or B or neither. |
| { } | When several elements are stacked within braces in a syntax statement, the user must select one of those elements. For example:<br><br>$\begin{Bmatrix}A\\B\\C\end{Bmatrix}$ User *must* select A or B or C. |
| . . . | A horizontal ellipsis in a syntax statement indicates that a previous element may be repeated. For example:<br><br>[,*itemname*]...;<br><br>In addition, vertical and horizontal ellipses may be used in examples to indicate that portions of the example have been omitted. |
| , | A shaded delimeter preceding a parameter in a syntax statement indicates that the delimeter *must* be supplied whenever (a) that parameter is included or (b) that parameter is omitted and any *other* parameter which follows is included. For example:<br><br>*itema*[,*itemb*][,*itemc*]<br><br>means that the following are allowed:<br><br>*itema*<br>*itema*,*itemb*<br>*itema*,*itemb*,*itemc*<br>*itema*,,*itemc* |

## CONVENTIONS (continued)

| | |
|---|---|
| Δ | When necessary for clarity, the symbol Δ may be used in a syntax statement to indicate a required blank or an exact number of blanks. For example:<br><br>SET[(*modifier*)]Δ(*variable*); |
| $\underline{\text{underlining}}$ | When necessary for clarity in an example, user input may be underlined. For example:<br><br>NEW NAME? $\underline{\text{ALPHA}}$<br><br>In addition, brackets, braces or ellipses appearing in syntax or format statements which must be entered as shown will be underlined. For example:<br><br>$\text{LET } var[\underline{[}subscript\underline{]}] = value$ |
| shading | Shading represents inverse video on the terminal's screen. In addition, it is used to emphasize key portions of an example. |
| $\boxed{\quad\quad}$ | The symbol $\boxed{\quad\quad}$ may be used to indicate a key on the terminal's keyboard. For example, $\boxed{\text{RETURN}}$ indicates the carriage return key. |
| $\boxed{\text{CONTROL}}$*char* | Control characters are indicated by $\boxed{\text{CONTROL}}$ followed by the character. For example, $\boxed{\text{CONTROL}}$Y means the user presses the control key and the character Y simultaneously. |

# OVERVIEW

SECTION 1

The process monitor program, PROCMON, provides users with a friendly, menu-driven, customizable interface for transitions between system functions, user-written applications and MPE commands. PROCMON is designed for all HP3000 users.

PROCMON is easy to use and allows users to tailor menus to match their own needs. Users may have different procedure names for the same functions, organize them in different ways, and set up menus corresponding to tasks to be performed.

Inexperienced users can invoke system functions without being aware of the MPE programs and file structures which support them. Users select from a menu by associated task number, procedure name or command. They can choose by recognition rather than recall.

PROCMON:

- Provides an easy-to-understand interface with MPE.
- Enables users to invoke most system functions with minimal keystrokes.
- Allows users to customize menus.
- Enhances the usability of the system by handling parameter prompting, parameter passing, statement substitution, conditional statement control and procedure nesting.

# INSTALLATION

The process monitor data base and program files will be accessed by all users executing PROCMON/3000. Follow the installation steps, to move all pertinent files to the PUB group of the SYS account.

Steps:

1) Copy the PROCMON files to the "PUB" group of the "SYS" account.

```
FCOPY FROM=PROCMON.PUB.CONV;TO=PROCMON;NEW
FCOPY FROM=PROCDBS.PUB.CONV;TO=PROCDBS;NEW
FCOPY FROM=PROCCAT.PUB.CONV;TO=PROCCAT;NEW
FCOPY FROM=PROCLIB.PUB.CONV;TO=PROCLIB;NEW
```

2) Create the PROCDB data base.

```
FILE DBSTEXT=PROCDBS
RUN DBSCHEMA.PUB.SYS;PARM=1
RUN DBUTIL.PUB.SYS
  >>CREATE PROCDB
  >>RELEASE PROCDB
  >>EXIT
```

3) Execute PROCMON. When PROCMON's inverse video cursor appears, the process monitor is ready for user access.

# CREATING AND EXECUTING PROCEDURES

SECTION 3

A procedure is a set of MPE and/or PROCMON commands that are combined in a single, unnumbered editor file. The editor file is assigned a name and that name is used to reference the procedure.

Several application steps can be combined within one procedure to minimize keystrokes and provide a user-friendly application interface. Instead of a user keying in the same twelve job steps each and every time a job cost report is needed, the job steps are placed in a procedure file and that procedure is executed when the job cost report is requested.

## CREATING A PROCEDURE

The programmer can use EDIT/3000 or TDP/3000 to create a procedure file. Each command is entered on a separate line, with the exception of conditional statements (Section 7) which may be combined on the same line for multiple conditioning.

**NOTE**

Lines are limited to 72 characters. If a line is greater than 72 characters, a "&" continuation character may be used. For example:

```
FILE  INPUT=INPUT.DATA
FILE  OUTPUT=OUTPUT.DATA;DISC=2000;&
 SAVE
RUN  PROGA.PUB
LISTF  @.DATA,1
```

PROCA-procedure file

When the procedure - PROCA is executed, the file statements for INPUT and OUTPUT are set, the PROGA program is executed and a listing of the files located in the DATA group is displayed at the user's terminal.

**NOTE**

File equations set by a procedure are cancelled when the procedure terminates (with the exception of file equations set by the PFILE command which remain active until reset by an RFILE command or the session ends).

## EXECUTING A PROCEDURE

A procedure can be executed from PROCMON in three ways:

- keying in the procedure name
- selecting an option from a menu
- calling a procedure from another procedure

### By keying in the procedure name:

When PROCMON's inverse video cursor appears, enter the procedure command followed by the return key. The procedure command format is:

*procedurename[.group[.account]]*

*procedurename* Name of the editor file containing PROCMON and MPE commands. If the group and account are not specified PROCMON will look for the procedure in the "P" group of the user's logon account.

### By selecting an option from a menu:

When PROCMON's inverse video cursor appears, enter the menu task number followed by the return key. For example:

```
                 TIME CARD MENU

 1) ENTER TIME - WK1    9) ENTER TIME - WK2
 2) ENTER TIME - WK3   10) ENTER TIME - WK4


  3) GOTO PRINT MENU
```

TCMENU - menu file

To enter week2 time cards, the operator enters the number 9 followed by the return key.

### By calling a procedure from another procedure:

One procedure can call another procedure. The procedure called is referenced as the nested procedure. After execution, the nested procedure returns to the calling procedure. For example:

```
FILE  INPUT=INPUT.DATA
FILE  OUTPUT=OUTPUT.DATA;DISC=2000;&
 SAVE
RUN  PROGA.PUB
LISTF  @.DATA,1
 PROCB
RUN  PROGA1.PUB
```

PROCA-calling procedure file

```
FILE  PAYIN=PAY01.DATA
FILE  PAYOUT=PAYOUT.DATA
RUN  PROGB.PUB
```

```
PROCB-nested procedure file
```

A maximum of 255 levels of procedure nesting is allowed.

## PASSING PARAMETERS TO PROCEDURES

Variable information can be passed to procedures by means of positional parameters. These parameters are placed after the procedure name in the procedure command. Commas are used to separate parameters and to indicate their position relative to the other parameters in the procedure call. If a parameter is omitted a comma must still be used to hold the position. A maximum of 64 parameters can be passed to a procedure, each one can have a maximum of 128 characters. The total number of characters passed to a procedure may not exceed 1024. The "@" character may be used to pass all parameters from the current procedure to the called procedure.

Parameters are referenced within the procedure by means of substitution expressions. For more information on these expressions see Section 6.

Parameters may be undelimited or may be enclosed in single or double quotes. Quotes are taken as delimiters if the parameter string has both a beginning and ending quote of the same type, i.e. both single quotes or both double quotes. In all other cases they are taken as part of the string. If the character being used as a delimeter is also to be embedded in the string it must be specified twice. For example if the literal "one o'clock" is being specified as a parameter enclosed in single quotes it must be coded as follows: 'one o''clock'

```
IF DATA-?1?.DATA DELETE ?1?.DATA
FILE OUTPUT=?1?.DATA;DISC=1500;SAVE
RUN PROGC.PUB
```

```
PROCC NEWFILE -Passing parameter 1 value to procedure PROCC
```

# MPE COMMANDS

SECTION 4

The MPE RUN command and all MPE commands that can be executed via the COMMAND intrinsic are accessible from within PROCMON. They may be called from a procedure file or entered from the keyboard after the inverse video cursor appears.

SECTION 5

# PROCMON COMMANDS

In addition to the available MPE commands, PROCMON provides its own powerful command set. These commands can be called from a procedure file or entered from the keyboard after the inverse video cursor appears.

The PROCMON commands are:

ACTIVATE
BLDDFU
BLDKSAM
BLDMENU
BYE
CANCEL
CLEARACTIVE
CONTINUE
COPYFILE
CREATE
DATE
DELETE
DISPLAY
ECHO
ECHOOFF
EDITOR
ESCAPE
EVALUATE
FCOPY
GOTO
JOBQ
KILL
LISTFILE
LOCAL
MENU
MENUOFF
MSG
OFF
OPERATOR
PATH
PAUSE
PFILE
PREP
PROCCONFIG
PROMPT
RENAME
RESETPROC
RETURN
RFILE
RPG
RUN
SECURITY
SETPASS
SHOWACTIVE
SHOWMENU
SWITCH
TAG
TASK
WAIT
WSID

# :ACTIVATE

**ACTIVATE** - Activates a process.

## Syntax

```
ACTIVATE progname
```

## Parameters

| | |
|---|---|
| *progname* | Name of program to be activated, in the following format: *progname*[.*group*[.*account*]] |

## Operation

Activates a process previously created or suspended. Once activated the process runs until it is suspended (using the RPG SUSP operation) or is deleted (using the PROCMON KILL command) or goes to end of job. See Appendix A for more information on CREATE, ACTIVATE and KILL.

## Example

To activate the currently suspended program - PAY001 enter:

ACTIVATE PAY001

# :BLDDFU

**BLDDFU** - Creates and immediately allocates an empty direct file on disc.

## Syntax

```
BLDDFU filename
  [                              [,F]          ]
  |;REC=[recsize],[blockfac][,V][,BINARY]|
  [                              [,U][,ASCII ] ]
       [;CCTL  ]
       [;NOCCTL]
       [;TEMP]
       [;DEV=[dsdevice]#][device]
       [;CODE=[filecode]]
       [;DISC=[numrec][,numext][,initalloc]]
       [ ;RIO   ]
       [ ;NORIO ]
       [ ;MSG   ]
       [ ;CIR   ]
```

## Parameters

| | |
|---|---|
| *filename* | Name of file to be created, in the following format:<br>*filename*[.*group*[.*account*]] |
| *recsize* | Size of record. A positive number indicates words, while negative indicates bytes. Default is 128 words. |
| *blockfac* | Number of logical records per physical block. Default is calculated. |
| F, V or U | File contains F-fixed, V-variable or U-undefined length records. Default is fixed. |
| BINARY | File contains binary-coded records. Default. |
| ASCII | File contains ASCII-coded records. |

| | |
|---|---|
| CCTL | Carriage control characters will be supplied with write requests. |
| NOCCTL | Carriage control characters will not be supplied with write requests. Default. |
| TEMP | File will be created in the job/session temporary file domain. Default is permanent. |
| *device* | Specifies the device on which the file will reside. |
| *filecode* | Code indicating a specially-formatted file. |
| *numrec* | Maximum number of logical records. Default is 1023. |
| *numext* | Maximum number of disc extents. Default is 8. |
| *initalloc* | Number of extents to be initially allocated to the file at the time it is opened. This is a value from 1 to 32. Default is 1. |
| RIO | Relative I/O file is created. |
| NORIO | Non-relative file is created. |
| MSG | Message file is created allowing communication between any set of processes. |
| CIR | Acts as normal sequential file until full, then the first physical block will be deleted when the next record is written, and remaining blocks will be logically shifted to the front of the file. |

## Operation

Creates a direct file on disc and immediately allocates space for it. If ASCII is specified, the the records are initialized to blanks. If BINARY is specified, the records are initialized to zeros.

## Example

To create the direct ASCII file - PAYDATA, with a record length of 130, a blocking factor of 3, enter:

```
BLDDFU PAYDATA;REC=-130,3,F,ASCII
```

# :BLDKSAM

**BLDKSAM** - Creates and immediately allocates an empty KSAM file on disc.

## Syntax

```
BLDKSAM datafile,keyfile,keylocation,keysize

    [;DISC=[numrec][,numext][,initalloc]]

    [;REC=[recsize][,blocfac]]

 [;TYPE=[A]] [;DUPL=[Y]]
 [      [P]] [      [N]]

 [;KEY=akeytype,akeylocation,akeysize[,akeyblocking]]
 [            [,DUPLICATE ]                          ]
 [            [,DUP       ]                          ]
 [            [,RDUPLICATE]                          ]
 [            [,RDUP      ]                          ]
```

## Parameters

| | |
|---|---|
| *datafile* | Actual name of KSAM data file to be created, in the following format:<br>*filename*[.*group*[.*account*]] |
| *keyfile* | Actual name of KSAM key file to be created, in the following format:<br>*filename* |
| *keylocation* | Location of the first character of the primary key within the data record counting from the first character in the record. |
| *keysize* | Length of the primary key in characters. |
| *numrec* | Maximum number of logical records. Default is 1023. |

| | |
|---|---|
| *numext* | Maximum number of disc extents. Default is 8. |
| *initalloc* | Number of extents to be initially allocated to the file at the time it is open. This is a value from 1 to 32. Default is 1. |
| *recsize* | Record size. A positive number indicates words, while negative indicates bytes. Default is 128 words. |
| *blocfac* | Number of logical records per physical block. Default is calculated. |
| A or P | Key type of the primary key. Valid values are A-alphanumeric or P-packed. |
| Y or N | Specifies whether or not duplicate primary keys are permitted. Valid values are Y-duplicate keys are permitted, N-duplicate keys are not permitted. Default is N. |
| KEY | The KEY specification describes an alternate key. There may be up to 15 alternate key descriptions. Refer to the BUILD command, in the KSAMUTIL section of the KSAM/3000 Reference Manual, for a detailed description of parameter values. |
| *akeytype* | Key type of the alternate key. |
| *akeylocation* | Location of the first character of the alternate key within the data record counting from the first character in the record. |
| *akeysize* | Length of the alternate key in characters. |
| *akeyblocking* | Number of alternate keys per block. |
| DUPLICATE or DUP | Duplicate alternate keys are permitted and are to be inserted chronologically in the duplicate key chain. |
| RDUPLICATE or RDUP | Duplicate alternate keys are permitted and are to be inserted randomly in the duplicate key chain. |

## Operation

Creates a KSAM file on disc and immediately allocates space for it.

## Example

To create the permanent KSAM data file - GL01 in the DATA group, with a key file - GL01K, a key beginning in position 15, a key length of 5 and a record length of 250 enter:

```
BLDKSAM GL01.DATA,GL01K,15,5;REC=-250
```

# :BLDMENU

**BLDMENU** - Activates PROCMON's BLDMENU facility.

## Syntax

```
BLDMENU    menuname[,FREEFORM]
```

## Parameters

| | |
|---|---|
| *menuname* | Name of menu to be created, in the following format:<br><br>*menuname*[.*group*[.*account*]]<br><br>If group is not specified PROCMON will build the menu in the "M" group of the user's log-on account. |
| FREEFORM | Free format menu is created. Default is fixed. |

## Operation

Activates PROCMON's BLDMENU facility. The facility creates and updates both fixed and free format menus. For details, please refer to chapter 8.

## Example

To create the free format menu - PAYMNU, enter:

```
BLDMENU PAYMNU,FREEFORM
```

To create the fixed format menu - PAYROL, enter:

```
BLDMENU PAYROL
```

## :BYE

**BYE** - Terminates the process monitor.

### Syntax

```
BYE
```

### Parameters

none

### Operation

Terminates the process monitor.

### Example

To terminate PROCMON and return the user to MPE's control enter:

```
BYE
```

**NOTE**

Entering a 0 and <CR> at PROCMON's prompt has the same effect as the BYE command.

# CANCEL

**CANCEL** - Terminates a procedure.

## Syntax

```
CANCEL
```

### Parameters

none

## Operation

Terminates a procedure and returns to the PROCMON prompt. Typically used on a conditional statement. If the condition is met, then the procedure is terminated.

## Example

To terminate the procedure - PROCA, if the file - INPUT does not exist, enter:

```
IF NOT DATA-INPUT CANCEL
```

portion of a procedure file

```
This command can only be called from a procedure.
```

# :CLEARACTIVE

**CLEARACTIVE** - Removes an "active procedure" entry from the PROCMON data base.

## Syntax

```
CLEARACTIVE {procname}
            {@       }
```

## Parameters

| | |
|---|---|
| *procname* | Name of "active procedure" entry to be removed from the PROCMON data base. |
| @ | All "active procedures" entries are to be removed from the PROCMON data base. This parameter requires system manager capability. |

## Operation

Removes an "active procedure" entry from the PROCMON data base. Invalid "active procedure" entries are often left in the data base when procedures abort abnormally. The CLEARACTIVE command is a housekeeping command.

## Example

To remove all "active procedure" entries from the data base, enter:

```
CLEARACTIVE @
```

To remove the "active procedure" entry - PROCA, from the data base, enter:

```
CLEARACTIVE PROCA
```

# CONTINUE

**CONTINUE** - Overrides a procedure error.

## Syntax

```
    CONTINUE
```

## Parameters

none

## Operation

Permits a procedure to continue even though the next command results in an error. Typically used when anticipating command errors and applies only to the command immediately following the CONTINUE command.

## Example

To continue with the next command after a DELETE command fails, enter:

```
CONTINUE
DELETE  OUTPUT.DATA
```

portion of a procedure file

```
This command can only be called from a procedure.
```

# :COPYFILE

**COPYFILE** -Allows the user to:

- Copy an entire disc file or selected portion of a disc file to a new or existing disc file.
- Create the new file with different file organization.
- Include or exclude selected records.
- Reorganize KSAM files.
- Create the new file with different record size and/or number of logical records.

## Syntax

```
COPYFILE fromfile,tofile[/keyfile][;TEMP][;ADD   ]
                                         [;APPEND]

  [{;INCLUDE} {= } [column],"characters"]
  [{;EXCLUDE} {<>}                      ]
  [           {< }                      ]
  [           {<=}                      ]
  [           {> }                      ]
  [           {>=}                      ]

  [;REC=recsize][;DISC=numrec][;ORG={SAME}]
                              [      {S}  ]
                              [      {I}  ]
                              [      {D}  ]

   [;KEY=keylocation,keysize][;NOREORG]
                             [;REORG  ]

   [;DUPL={Y}] [;MAX=maximum records]
   [      {N}]
```

## Parameters

| | |
|---|---|
| *fromfile* | Name of the file to be copied in the following format: |
| | *fromfile*[.*group*[.*account*]] |

| | |
|---|---|
| *tofile* | Name of the file to receive the data in the following format: *tofile*[.*group*[.*account*]] The file will be created unless the ;ADD or ;APPEND options are used. |
| *keyfile* | Name of the KSAM keyfile to be created. This parameter is optional. If it is not specified when a KSAM file is being created, PROCMON will name the key file. PROCMON's naming convention is as follows: If the data file name is less than 8 characters in length a "K" is appended to it to produce the key file name. If the data file name is 8 characters long the last character of the name is overlayed with a "K" to produce the key file name. |
| TEMP | The *tofile* will be created in the job/session temporary file domain. Default is the permanent domain. |
| ADD or APPEND | Appends records to an existing file. |
| NOREORG | If the file being copied is a KSAM file, the records will be placed in chronological sequence in the new file. Default. |
| REORG | If the file being copied is a KSAM file, the records will placed in key sequence in the new file. |
| INCLUDE or EXCLUDE | Specifies whether or not selected records in the *fromfile* are to be included in or excluded from the *tofile*. Selected records are those which satisfy the column and characters comparison test. |
| = | If the characters in the specified columns of the *fromfile* record are the same as the comparison characters the record will be included in or excluded from the *tofile*. |
| <> | If the characters in the specified columns of the *fromfile* record are not the same as the comparison characters the record will be included in or excluded from the *tofile*. |
| < | If the characters in the specified columns of the *fromfile* record are less than the comparison characters the record will be included in or excluded from the *tofile*. |
| <= | If the characters in the specified columns of the *fromfile* record are less than |

| | |
|---|---|
| | or equal to the comparison characters the record will be included in or excluded from the *tofile*. |
| > | If the characters in the specified columns of the *fromfile* record are greater than the comparison characters the record will be included in or excluded from the *tofile*. |
| >= | If the characters in the specified columns of the *fromfile* record are greater than or equal to the comparison characters the record will be included in or excluded from the *tofile*. |
| *column* | Specifies the location within the record at which character comparison is to begin. If this parameter is not specified, then each location in the record is compared to the comparison characters until the condition is met. |
| *characters* | Specifies the comparison characters. Up to 30 characters may be compared. The character string may be undelimited or may be enclosed in single or double quotes. |
| *recsize* | Record size of the *tofile* record. A positive number indicates words, a negative number indicates bytes. Default is the size of the *fromfile* record. |
| *numrec* | Maximum number of logical records to be allocated to the new file. Default is the number of records in the *fromfile*. |
| SAME | Specifies that the *tofile* is to have the same organization as the *fromfile*. If this parameter is blank SAME is assumed. |
| S | Specifies that the *tofile* is to be a sequential file. |
| I | Specifies that the *tofile* is to be a KSAM file. |
| D | Specifies that the *tofile* is to be a direct file. |
| *keylocation* | Location of the first character of the key within the data record for the KSAM file being created. If a value is not specified the key location of the *fromfile* is assumed. If the *fromfile* is not an indexed file but the *tofile* is this parameter must be specified. |
| *keysize* | Length of the key in characters. If a value is not specified the key length of the *fromfile* is assumed If the *fromfile* is not an indexed file but the *tofile* is this parameter must be specified. |

| | |
|---|---|
| Y or N | Specifies whether or not to allow duplicate keys in the *tofile* when the *tofile* is a KSAM file. Y indicates that duplicate keys are allowed. N indicates that duplicate keys are not allowed. Default is N. |
| *maximum records* | Specifies the total number of records to be copied to the *tofile*. |

## Operation

Allows the user to:

- Copy an entire disc file or selected portion of a disc file to a new or existing disc file.
- Create the new file with different file organization.
- Include or exclude selected records.
- Reorganize KSAM files.
- Create the new file with different record size and/or number of logical records.

If the optional parameters are allowed to default the new file will be built with the same characteristics as the *fromfile* (i.e. KSAM or sequential, record length, number of records,...).

## Example

To make a duplicate copy of the KSAM file - OLDDATA and name the duplicate file - NEWDATA, enter:

```
COPYFILE OLDDATA,NEWDATA
```

(The KSAM key file will be named "NEWDATAK")

To copy the KSAM file - OLDDATA, to the existing file - PAY01 and ignore all records containing a "D" in column 1, enter:

```
COPYFILE OLDDATA,PAY01;ADD;EXCLUDE=1,"D"
```

To copy the MPE file - INPUT to a new KSAM file=OUTPUT including those records containing the characters "ABC" in columns 72-74.

```
COPYFILE INPUT,OUTPUT;INCLUDE=72,"ABC";ORG=I;KEY=2,9
```

# :CREATE

**CREATE** - Creates a process.

## Syntax

```
CREATE progname
```

## Parameters

| | |
|---|---|
| *progname* | Name of program to be created in the following format: *progname*[.*group*[.*account*]] |
| *<empty>* | Displays all existing son processes for the session. |

## Operation

Loads the program, to be run by the new process, into virtual memory, creates the process, initializes it's data stack and returns the Process Identification Number (PIN). The program is then ready to be "ACTIVATED". See Appendix A for more information on CREATE, ACTIVATE and KILL.

## Example

To create the program - PAY001 enter:

CREATE PAY001

# :DATE

**DATE** - Changes session date (RPGUDATE file).

## Syntax

```
      ⎡<empty> ⎤
DATE  ⎢mm/dd/yy⎥
      ⎢mmddyy  ⎥
      ⎣mm-dd-yy⎦
```

## Parameters

| | |
|---|---|
| *mm* | Session month. |
| *dd* | Session day. |
| *yy* | Session year. |
| *<empty>* | Displays current session date. |

## Operation

Loads the specified date into the RPGUDATE file. If the DATE command is not issued, the RPGUDATE file contains the system date. The date will be accessed by the RPG run time library, when an "F" is placed in column 17 of the program's header specification.

## Example

To load the RPGUDATE file with the date - JULY 28, 1956, enter:

DATE 072856 or

DATE 07/28/56 or

DATE 07-28-56

# :DELETE

**DELETE** - Purges a file or fileset from disc.

## Syntax

```
DELETE filename[,TEMP]
       fileset
```

## Parameters

| | |
|---|---|
| *filename* | Name of the file to be purged, in the following format:<br>*filename*[.*group*[.*account*]]<br>The TEMP parameter may be specified to purge a file from the temporary domain. |
| *fileset* | *fileset*[.*group*[.*account*]]<br>The characters @, #, and ? may be used as wildcard characters in the fileset parameter. |
| @ | Specifies zero or more alphanumeric characters |
| # | Specifies one numeric character |
| ? | Specifies one alphanumeric character |

## Operation

Purges a file or fileset from disc. When purging a KSAM file, only the data file name need be specified since PROCMON will automatically purge the associated key file. The TEMP parameter may not be specified with the *fileset* parameter.

## Example

To purge the KSAM data file - GL01 and it's associated key file, enter:

```
DELETE GL01
```

To purge the temporary file - PAYTEMP, enter:

```
DELETE PAYTEMP,TEMP
```

# :DISPLAY

**DISPLAY** - Displays a message at the user's terminal.

## Syntax

```
DISPLAY  [message]
         [MSGmic  ]
```

## Parameters

| | |
|---|---|
| *message* | Message to be displayed at the user's terminal. |
| *mic* | 4 position numeric specifing the catalog entry to be displayed at the user's terminal. |

## Operation

Displays a message at the user's terminal. Typically used to inform the user of the next procedure step or request a response from the user.

## Example

To display the message "The payroll sort is executing", enter:

DISPLAY The payroll sort is executing

To display the catalog message entry number 0004, enter:

DISPLAY MSG0004

# :ECHO

**ECHO** - Displays contents of a procedure, as the procedure is executing.

## Syntax

```
ECHO [CRT][;STEP][;TO=filename][;LIST]
     [;OUTCLASS=[device[,outputpriority][,numcopies]]
```

## Parameters

| | |
|---|---|
| CRT | Each procedure step is echoed to the user's terminal. |
| STEP | Before a procedure step is executed, it is displayed at the terminal. To execute the step in it's current state, the return key is pressed. If modifications are desired the modifications are made on the screen, then the return key is pressed. |
| *filename* | Name of the file to contain the echoed output. |
| LIST | Echoed output is sent to the line printer. |
| *device* | Class name or logical device number to receive listing output. Used in conjunction with the ;LIST parameter. Default is the line printer. |
| *outputpriorityty* | The output priority for the echo list file. Must be a value from 1 (lowest priority) to 13 (highest priority). Default is 8. |
| *numcopies* | Number of copies of the echo list file to be printed. Maximum value is 127. Default is 1. |

## Operation

Displays each procedure step as it is executed. This is often helpful when debugging a sophisticated procedure with parameter passing, substitution and procedure nesting. The echo facility will remain on until the ECHOOFF command is executed.

## Example

To display each procedure step and be given the option of modification before execution, enter:

```
ECHO STEP
```

prior to running the procedure.

To generate a history of each procedure step in a file named - PROCHIST, enter:

```
FILE PROCHIST=PROCHIST;REC=80,,F,ASCII;NEW;SAVE;CIR
ECHO TO=*PROCHIST
```

prior to running the procedure.

To log procedure and commands executed to the line printer and defer the output:

```
ECHO LIST;OUTCLASS=LP,1
```

# :ECHOOFF

**ECHOOFF** - Turns the previous ECHO command display off.

## Syntax

```
ECHOOFF
```

### Parameters

none

## Operation

Turns the previous ECHO command display off.

## Example

To turn off the display from a previous ECHO command, enter:

```
ECHOOFF
```

## :EDITOR

**EDITOR** - Activates the EDIT/3000 subsystem.

### Syntax

```
EDITOR
```

### Parameters

None

### Operation

Activates the EDIT/3000 subsystem. For further information, please refer to the EDIT/3000 reference manual.

### Example

To activate the EDIT/3000 subsystem, enter:

EDITOR

# :ESCAPE

**ESCAPE** - Sends an escape sequence to the terminal.

## Syntax

```
ESCAPE character code[character code......]
```

### Parameters

| | |
|---|---|
| *character* | The escape character. This may be any keyboard character. Each time this character ocurrs in the sequence it is taken as the escape character. |
| *code* | The escape code. Refer to the Display Terminal Reference Manual, for the particular terminal, for a list of escape codes and their functions. |

## Operation

Sends an escape sequence to the terminal.

## Example

To home the cursor and clear the screen on an HP2392A terminal:

```
ESCAPE *H*J
```

To set the RETURN key equal to the ENTER key on an HP2624B terminal:

```
ESCAPE *&q8te1{1R
```

**NOTE**

When selecting a character to represent the escape character be careful not to use one which is also being sent as an escape code.

# :EVALUATE

**EVALUATE**-Allows the user to:

- Assign values to a parameter.
- Perform addition, subtraction, multiplication and division of values.
- Evaluate substitution expressions.
- Set the return code.

## Syntax

```
EVALUATE  [Pn[,length][:startpos]=expression]
          [CD=nnnn                           ]
```

## Parameters

| | |
|---|---|
| P | Signifies that a parameter is being set. |
| *n* | Is the parameter number. This is a value from 1 to 64. |
| *length* | Is the number of characters in the result. This is a value from 1 to 15. |
| *startpos* | Is the position in the expression used as the starting position of the result. |
| CD | Signifies that the return code is being set. |
| *nnnn* | Is the 4-digit return code value. |
| *expression* | Expression can be of several formats: |

1) an alphanumeric string
2) a numeric expression, signed or unsigned
3) an arithmetic expression using
   - *,/,+ and - as operators
   - exponentiation in the formats En, Enn, E+n, E-n,E-nn

- parentheses to indicate order of operations
- integer or real operands

1) Expression as an alphanumeric string

A string may contain letters, digits, and special characters. If the string is to contain only digits and special characters or embedded blanks, it must be enclosed in double quotes. If the value specified for LENGTH is greater than the actual length of the string then the result is padded with blanks on the right. If the value specified for LENGTH is less than the actual length of the string then the result is truncated on the right. If LENGTH exceeds 15 or is not specified the actual length of the string is used. When STARTPOS is specified the result begins at the given position. One is the default starting position. STARTPOS can only be specified for string values.

2) Expression as a numeric value

A numeric value may be signed or unsigned and must be in integer form. Leading zeros can be used but may be truncated in the result. If the value specified for LENGTH is greater than the actual length of the number the result is padded with zeros on the left. If the value specified for length is less than the length of the number the result is truncated on the left. If LENGTH is not specified the actual length of the number is used. STARTPOS may not be specified for numeric values.

3) Expression as an arithmetic expression

An arithmetic expression may contain any of the four operations: *,/,+, or -. (*, /, +, and - denote multiplication, division addition, and subtraction respectively). Multiplication and division operations are performed before addition and subtraction. Parentheses may be used to group operations, operations within parentheses are performed before those outside of parentheses. Multiplication is assumed when a digit appears directly before a left parentheses. Exponents are specified using any of the following formats: En, Enn, E+n, E+nn, E-n, E-nn. Either integer or real operands are allowed. The LENGTH parameter is used in the same way as with numeric expressions - see 2) above.

## Operation

Allows the user to:

- Assign values to a parameter.

- Perform addition, subtraction, multiplication and division of values.

- Evaluate substitution expressions.

- Set the return code.

The *n, length, startpos, nnnn* and *expression* parameters may all be supplied as substitution expressions. Multiple expressions may appear on a line but must be separated by one or more blanks. Expressions are evaluated from left to right.

## Example 1

The following statement assigns a value of 128 to parameter 10:

```
EVALUATE P10,3=54128
```

Because the length of the numeric expression is greater than the specified length the result is truncated on the left.

## Example 2

The following statement assigns a value of "PLEASE WAIT" to parameter 5:

```
EVALUATE P5="PLEASE WAIT"
```

## Example 3

The following statement assigns a value of "YOUR JOB IS EXECUTING" to parameter 1:

```
EVALUATE P1,21:15="PLEASE WAIT - YOUR JOB IS EXECUTING"
```

## Example 4

The following statement assigns a value of 8 to parameter 2:

```
EVALUATE P2=10+-2
```

## Example 5

The following statement assigns a value of 128 to P64

```
EVALUATE P64=4*(12+20)
```

# :FCOPY

**FCOPY** - Activates the FCOPY subsystem.

## Syntax

```
FCOPY  [FROM [= {filename}]]
       [         {*       }]
       [

    ;TO [= {(dfile,kfile)} ] [;optionlist] ]
        [  {filename     } ]               |
        [  {*            } ]               |
        [  {<empty>      } ]               ]
```

## Parameters

For parameter description, please refer to the FCOPY/3000 reference manual.

## Operation

Activates the FCOPY/3000 subsystem. For further information, please refer to the FCOPY/3000 reference manual.

## Example

To create a duplicate copy of the file - GL01 and name it GL02, enter:

FCOPY FROM=GL01;TO=GL02;NEW

## GOTO

**GOTO** - Performs branching within a procedure file.

### Syntax

```
GOTO label
```

### Parameters

| | |
|---|---|
| *label* | Name of tag, procedure will branch to. May be up to 8 characters in length. |

### Operation

Performs branching within a procedure. Typically used on a conditional statement. When the condition is met processing branches to the corresponding TAG command.

### Example

To branch to another portion of PROCA if the file - INPUT does not exist, enter:

```
IF NOT DATA-INPUT GOTO BUILDA     1
FILE INPUT=INPUT.DATA
RUN PROGA.PUB
TAG BUILDA                        2
BUILD INPUT;REC=15,,F,ASCII       3
```

PROCA - procedure file

```
This command can only be called from a procedure.
```

# :JOBQ

**JOBQ** - Executes a procedure file in the DS job queue.

## Syntax

```
JOBQ procname  [parm1[,parm2[,...[,parmN]]]]
                              [@]
      ⎡;USER          ⎤
      ⎢;WSID          ⎥
      ⎣;ID="jobname"  ⎦

      [;username[/userpass].acctname[/acctpass]
      [,groupname[/grouppass]]]

      [;TIME=cpusecs]
              ⎧BS⎫
      [;PRI= ⎨CS⎬]
              ⎪DS⎪
              ⎩ES⎭
      ⎡;HIPRI          ⎤
      ⎣;INPRI=inputpri ⎦
      [;RESTART]
      [;OUTCLASS=[device][,outputpri]
      [,numcopies]]
```

## Parameters

| | |
|---|---|
| *procname* | Name of the procedure to be placed on the job queue. |
| *parmN* | Parameters to be passed to the procedure. A maximum of 64 parameters may be specified. |
| @ | All 64 parameters are to be passed to the specified procedure. |
| USER | Name of the user who launched the procedure will be printed with the procedure output. |
| WSID | Identification number of the terminal the procedure was launched from will be |

| | |
|---|---|
| | printed with the procedure output. |
| *jobname* | User assigned name of the procedure. Name will be printed with the procedure output. |
| *username* | User name which allows you to log on to this account. Must contain 1 to 8 alphanumeric characters beginning with an alphabetic character. Default is user who launched the job. |
| *userpass* | User password. Must contain from 1 to 8 alphanumeric characters beginning with an alphabetic character. |
| *acctname* | Account name. Must be from 1 to 8 alphanumeric characters beginning with an alphabetic character. Default is account from which job was launched. |
| *acctpass* | Account password. Must contain from 1 to 8 alphanumeric characters beginning with an alphabetic character. |
| *groupname* | Group name. Must contain from 1 to 8 alphanumeric characters beginning with an alphabetic character. Default is user's home group. |
| *grouppass* | Group password. Must contain from 1 to 8 alphanumeric characters beginning with an alphabetic character. |
| *cpusecs* | Maximum CPU time allowed in seconds. |
| DS,ES,BS,CS | Execution priority class. |
| *inputpri* | Relative input priority used in checking against access restrictions imposed by jobfence (if one exists). |
| HIPRI | Request for maximum input priority, causingjob to be scheduled regardless of current jobfence or execution limit for jobs. This parameter requires System Manager capability. |
| RESTART | Request or restart a spooled job interrupted by system termination/restart. |
| *device* | Class name or logical device number of device to receive listing. |
| *outputpri* | Output priority for job list file, if destined for spooled line printer or card punch. |
| *numcopies* | Number of copies of job listing to be produced. |

## Operation

A stream file is automatically built to permit execution of the procedure file in the DS job queue. A copy of PROCMON, including the current local data area contents and user switch settings, is launched with the file to control the execution of each procedure step.

If the logon username, acctname and groupname are not specified the job will log on in the same way as the user who launched it. If the account is secured, the SETPASS command (page 5-51) must be executed prior to execution of the JOBQ command.

## Example

To execute the procedure - PROCA in the job que and pass the parameter - 0123 to it, enter:

```
JOBQ PROCA 0123

JOBQ CUSTPRT ABC,DEF;USER.SALESLIB;WSID;ID=CUSPRT
```

E 'MSG / 80

MSG, 1 ~~E~~EY [illegible]

XX

1

# :KILL

**KILL** - Deletes a process.

## Syntax

```
KILL [progname]
     [@       ]
```

## Parameters

| | |
|---|---|
| *progname* | Name of program to be deleted in the following format: *progname*[.*group*[.*account*]] |
| @ | Deletes all previously "created" programs. |

## Operation

Deletes a process previously "created". See Appendix A for more information on CREATE, ACTIVATE and KILL.

## Example

To delete all previously "created" programs associated with the user's session, enter:

KILL @

# :LISTFILE

**LISTFILE** - Allows the user to:

- List the contents of a fileset or portion of a fileset to the line printer or to the user's terminal.

- Include or exclude selected records.

- List portions of records.

- List the hexadecimal representations of characters.

## Syntax

```
LISTFILE fileset[;NEWPAGE][;CRT][;HEX    ]
                                [;PARTHEX]
        [;NOREORG]
        [;REORG  ]

        [{;INCLUDE} {= } [column],"characters"]
        [{;EXCLUDE} {<>}                      ]
        [           {< }                      ]
        [           {<=}                      ]
        [           {> }                      ]
        [           {>=}                      ]

        [;REC=recsize]
        [;SUBSET=0,maximum records]
```

## Parameters

| | |
|---|---|
| *fileset* | Name of the fileset to be listed in the following format;<br>*fileset*[.*group*[.*account*]] |
| NEWPAGE | Page break is generated between files. Default is page break is not generated. |
| CRT | File contents are listed at the user's terminal. Default is the line printer. |
| HEX | Printable characters are printed along with their hexadecimal representations |

| | |
|---|---|
| | plus the hexadecimal representations of the unprintable characters. |
| PARTHEX | Printable characters are printed along with the hexadecimal representations of only the unprintable characters. |
| NOREORG | If the file is a KSAM file, its contents are listed chronologically by position in which the data records occur. Default. |
| REORG | If the file is a KSAM file, its contents are listed sequentially by key. |
| INCLUDE or EXCLUDE | Specifies whether selected records in the *fileset* are to be included in or excluded from the listing. Selected records are those which satisfy the column and characters comparison test. |
| = | If the characters in the specified columns of the *fileset* record are the same as the comparison characters the record will be included in or excluded from the listing. |
| <> | If the characters in the specified columns of the *fileset* record are not the same as the comparison characters the record will be included in or excluded from the listing. |
| < | If the characters in the specified columns of the *fileset* record are less than the comparison characters the record will be included in or excluded from the listing. |
| <= | If the characters in the specified columns of the *fileset* record are less than or equal to the comparison characters the record will be included in or excluded from the listing. |
| > | If the characters in the specified columns of the *fileset* record are greater than the comparison characters the record will be included in or excluded from the listing. |
| >= | If the characters in the specified columns of the *fileset* record are greater than or equal to the comparison characters the record will be included in or excluded from the listing. |
| *column* | Specifies the location within the record at which character comparison is to begin. If this parameter is not specified, then each location in the record is compared to the comparison characters until the condition is met. |

| | |
|---|---|
| *characters* | Specifies the comparison characters. Up to 30 characters may be compared. The character string may be undelimited or may be enclosed in single or double quotes. |
| *recsize* | Record size of the *fileset* record. A positive number indicates words, a negative number indicates bytes. Allows the user to list portions of records. Default is the complete record is listed. |
| *maximum records* | Specifies the total number of records to be listed. Allows the user to list part of a file. Default is the complete file is listed. |

## Operation

Allows the user to:

- List the contents of a fileset or portion of a fileset to the line printer or to the user's terminal.

- Include or exclude selected records.

- List portions of records.

- List the hexadecimal representations of characters.

## Example

To list the contents of all files beginning with "PROC" at the user's terminal, enter:

```
LISTFILE PROC@;CRT
```

:RUN RPGINIT, PUB. SYS, PARM= 3

## :LOCAL

**LOCAL** - Places a string of characters in the local data area, LDA.

### Syntax

```
LOCAL  [offset],"string"[;BLANK={length}]
                        [       {  @   }]

     [;AREA={filename}]
     [      {LDASYS  }]
```

### Parameters

| | |
|---|---|
| *offset* | Specifies the starting position for a string of characters to be placed in the local data area. Can be any value from 1 through maximum size of LDA being referenced. Default is 1. |
| *string* | Specifies the string of characters to be placed in the local data area. The string may be undelimited or may be enclosed in single or double quotes. |
| *length* | Specifies the number of positions to be set to blanks, starting with the position specified by the offset parameter. |
| @ | Specifies that all positions following, and including, the offset position are to be set to blanks. |
| *filename* | Name of the user local data area to be referenced. This must be a temporary or permanent file residing in the user's logon group and account. |
| LDASYS | Specifies that the system local data area is to be used. That is the permanent file LDASYS.PUB.SYS. |

## Operation

Places a string of characters in the local data area (LDA). The LDA is accessable from procedure and program files.

If both a character string and the BLANK keyword are specified on the same LOCAL statement, the LDA is first set to blanks and then the character string is placed in the LDA.

The area specified on the AREA keyword is referenced by the current LOCAL statement and by all subsequent LOCAL statements and LDA substitution expressions, until another AREA keyword on a LOCAL statement is processed. If the AREA keyword is not specified the user local data area is assumed.

The maximum LDA size which can be referenced is dependent upon the the PARM value used on the RUN statement when PROCMON is invoked. This value is a number from 1 through 32 indicating the number of multiples of 256 byte records in the LDA file. For example, if you wished to use an LDA of 1024 bytes the run statement would be:

```
RUN PROCMON.PUB.SYS;PARM=4
```

The default PARM value is 2 indicating a 512 byte LDA.

**NOTE**

Local Data Area files must be built as direct files containing 1 through 32 multiples of 256 byte records. This may be done by running the RPGINIT program or via the BLDDFU command. For more information on RPGINIT see the RPG Utilities Reference Manual.

## Example

To place the value - PAY001, in the local data area beginning at position 12, enter:

```
LOCAL 12,"PAY001"
```

# :MENU

**MENU** - Displays a specified menu at the user's terminal.

## Syntax

```
MENU [menuname]
```

## Parameters

| | |
|---|---|
| *menuname* | Name of menu to be displayed, in the following format:<br><br>*menuname*[.*group*[.*account*]]<br><br>If the group is not specified, PROCMON will look in the user's log-on group for the "menuname". If the menu is not in the log-on group, PROCMON will look in the "M" group of the log-on account.<br><br>Note: A file equation can be used to display a menu immediately following PROCMON initialization. The formal file designator is:<br><br>FILE MENU=*menuname*[.*group*[.*account*]]<br><br>If this parameter is not specified the menu currently stored in memory will be displayed. |

## Operation

Displays a specified menu at the user's terminal.

## Example

To display the menu - PAYMENU, located in the user's log-on group, enter:

MENU PAYMENU

# :MENUOFF

**MENUOFF** - Clears a menu display from the user's terminal.

## Syntax

```
MENUOFF
```

## Parameters

none

## Operation

Clears a menu display from the user's terminal. This can be helpful when the user desires to use the display space for something other than the current menu. Once the MENUOFF command is issued and the current menu display is cleared, a MENU command without paramters will redisplay the previous menu.

## Example

To clear the current menu from the user's terminal, enter:

```
MENUOFF
```

```
This command can not be called from a procedure.
```

# :MSG

**MSG** - Sends a message to a selected terminal. Recalls the user's pending messages.

## Syntax

```
MSG [wsid,msgstring]
    [<empty>       ]
```

## Parameters

| | |
|---|---|
| *wsid* | Two character terminal identifier in the following format: |

```
Logical device 20  Terminal ID B0
               25       .     B5
               40             D0
               45             D5
```

| | |
|---|---|
| *msgstring* | The string of characters to be sent to the terminal identifier (wsid). |
| <empty> | Recalls all messages previously sent to the user's terminal. |

## Operation

Sends a message to a terminal. If the terminal is not currently in session mode, the message is stored in PROCMON's data base, until a user at the specified terminal issues a MSG command to recall all pending messages.

**NOTE**

If a user has pending messages the word "MESSAGE" flashes in the top right hand side of the currently displayed menu.

## Example

To send the message "Please mount payroll tape‼" to logical device 25, enter:

```
MSG B5,Please mount payroll tape ‼
```

To recall the user's pending messages, enter:

```
MSG
```

## :OFF

**OFF** - Terminates the process monitor.

### Syntax

```
OFF
```

### Parameters

none

### Operation

Terminates the process monitor.

### Example

To terminate PROCMON and return the user to MPE's control enter:

OFF

# :OPERATOR

**OPERATOR** - Displays a message at the system console.

## Syntax

```
OPERATOR  [message]
          [MSGmic  ]
```

## Parameters

| | |
|---|---|
| *msgstring* | The message to be displayed at the system console. |
| *mic* | 4 position numeric specifing the catalog entry to be displayed at the system console. |

## Operation

Displays a message at the system console. Typically used to request a response from the operator.

## Example

To prompt the operator to mount the tape - GLTAPE, enter:

OPERATOR Please mount GLTAPE tape!!

# :PATH

**PATH** - Sets and displays the current file search path.

## Syntax

```
PATH  ⎡account1[\account2[\...[\account7]]]⎤
      ⎣<empty>                             ⎦
```

## Parameters

| | |
|---|---|
| *account* | The account to be searched. Up to seven accounts can be designated. |
| <empty> | Displays the current search path. |

## Operation

Sets and displays the current file search path for programs, procedures, and menus. If a file is not found in the specified account, PROCMON will search for it along the defined account path. Only the account name changes, not the group name. The path is initially set to: *Log-on account*,SYS. Data files are excluded from the search. The search path remains active for the duration of the session or until another PATH command is executed.

## Example

To set the search path so that when a procedure is not found in the P group of the PAYROLL account, the P group of the LIBRARY account is searched, enter:

```
PATH PAYROLL,LIBRARY
```

To display the current search path, enter:

```
PATH
```

# :PAUSE

**PAUSE** - Displays a message at the user's terminal and waits for the user to reply.

## Syntax

```
PAUSE  [message]
       [MSGmic  ]
```

## Parameters

| | |
|---|---|
| *message* | The message to be displayed at the user's terminal. |
| *mic* | 4 position numeric specifing the catalog entry to be displayed at the system console. |

## Operation

Displays a message at the user's terminal and waits for the user to reply.

## Example

To display the message "END OF STEP 2 - press any key to continue", enter:

PAUSE End of step2

# :PFILE

**PFILE** - Declares the file attributes to be used at file open time. The declaration is not automatically reset at procedure termination.

## Syntax

```
PFILE
```

## Parameters

For parameter description, please refer to the :FILE command parameter desciption located in the MPE Commands Reference Manual.

## Operation

File equations set by a procedure are canceled when the procedure terminates. The PFILE command allows a programmer to retain a file equation for the duration of a session. PFILE attributes can be temporarily altered by executing an MPE FILE command. When in cursor mode, the previous PFILE attributes are reset when the next procedure terminates. When in a procedure file, the attributes are reset in accordance with the previous PFILE command. PFILE attributes can be permanenetly altered by executing another PFILE command. PFILE attributes can be temporarily canceled by executing an MPE RESET command. When in cursor mode, the previous PFILE attributes are reset when the next procedure terminates. When in a procedure file, the attributes are reset in accordance with the previous PFILE command. PFILE attributes can be permanently canceled by executing an RFILE command (page 5-47).

Four PFILE equations are permitted per session.

## Example

To set the PFILE equation - FILE DATA=PAY1.DATA, enter:

PFILE DATA=PAY1.DATA

# :PREP

**PREP** - Prepares a compiled source program for execution.

## Syntax

```
PREP uslfile,progfile
     [;ZERODB]
     [;PMAP]
     [;MAXDATA=segsize]
     [;STACK=stacksize]
     [;DL=dlsize]
     [;CAP=caplist]
     [;RL=filename]
     [;PATCH=patchsize]
     [;NOSYM]
     [;FPMAP]
     [;NOFPMAP]
     [;CHECKSUM]
```

## Parameters

For parameter description, please refer to the MPE commands reference manual.

## Operation

Prepares a compiled source program for execution. For further information, please refer to the MPE commands reference manual.

## Example

To prepare the USL file - PAYUSL for execution as PAYROLL, enter:

PREP PAYUSL,PAYROLL

# :PROCCONFIG

**PROCCONFIG** - Provides customization of the PROCMON facility.

## Syntax

```
PROCCONFIG [WARN  ]         [;BANNER  ]
           [NOWARN]         [;NOBANNER]

           [;CRRPARM  ]      [;CREATEMSG  ]
           [;NOCRRPARM]      [;NOCREATEMSG]

           [;CRMPARM  ]      [;SUSPMSG  ]
           [;NOCRMPARM]      [;NOSUSPMSG]

           [;JOBMSG  ]       [;KILLMSG  ]
           [;NOJOBMSG]       [;NOKILLMSG]

           [;PAUSEANY ]      [;WAITPROMPT  ]
           [;PAUSEZERO]      [;NOWAITPROMPT]

           [;AIDSMODESON ]   [;UPRPARMON ]
           [;AIDSMODESOFF]   [;UPRPARMOFF]

           [;EXCWAIT  ]      [;UPMPARMON ]
           [;NOEXCWAIT]      [;UPMPARMOFF]

           [;DATE={mdy}]
           [      {dmy}]
           [      {ymd}]
```

## Parameters

| | |
|---|---|
| WARN | Warning messages are displayed at the user's terminal. Default. |
| NOWARN | Warning messages are not displayed at the user's terminal. |
| CRRPARM | Carriage return is allowed for a blank passed as a required parameter. Default. |

| | |
|---|---|
| NOCRRPARM | Space bar and carriage return are allowed for a blank passed as a required parameter. |
| CRMPARM | Carriage return is allowed for a blank passed as a missing parameter. Default. |
| NOCRMPARM | Space bar and carriage return are allowed for a blank passed as a missing parameter. |
| JOBMSG | When a procedure placed on the job que completes, a message is displayed at the user's terminal. Default. |
| NOJOBMSG | When a procedure placed on the job que completes, a message is not displayed at the user's terminal. |
| PAUSEANY | When a procedure executes the PAUSE command, the user can press any key to continue procedure execution. Default. |
| PAUSEZERO | When a procedure executes the PAUSE command, the user can press only the "0" key to continue procedure execution. |
| AIDSMODESON | Aids and Modes keys are enabled. Default. |
| AIDSMODESOFF | Aids and Modes keys are disabled. |
| EXCWAIT | If an exclusive access violation occurs during an attempt by an RPG program to open a file, processing will be suspended for 60 seconds, then the program will be re-RUN. The EXCQUIT option must be specified on the $CONTROL record in the RPG source program. See the RPG Reference Manual for more information on this feature. |
| NOEXCWAIT | If an exclusive access violation occurs during an attempt by an RPG program to open a file, processing will continue with the next command after the RUN statement. Default. |
| BANNER | PROCMON's banner appears on lines 1 and 2 of user's terminal when a menu is displayed. Default. |
| NOBANNER | PROCMON's banner is not displayed along with menus. This is only supported with menus which were compiled with SIGEDIT (i.e. display text source consisted of S & D specs). |

| | |
|---|---|
| CREATEMSG | When a process is created, via the CREATE command. A message is displayed at the user's terminal. Default. |
| NOCREATEMSG | When a process is created, via the CREATE command. A message is not displayed at the user's terminal. |
| SUSPMSG | When a process is suspended, via the RPG operation SUSP, a message is displayed at the user's terminal. Default. |
| NOSUSPMSG | When a process is suspended, via the RPG operation SUSP, a message is not displayed at the user's terminal. |
| KILLMSG | When a process is deleted, via the KILL command or by program termination a message is displayed at the user's terminal. Default. |
| NOKILLMSG | When a process is deleted, via the KILL command or a program termination a message is not displayed at the user's terminal. |
| WAITPROMPT | When a procedure executes an IF FILEOPEN-filename WAIT conditional expression, if the condition is true a prompt is displayed at the user's terminal requesting the user to respond "Y" or "N". Default. |
| NOWAITPROMPT | When a procedure executes an IF FILEOPEN-filename WAIT conditional expression, if the condition is true a prompt is not displayed at the user's terminal and the response defaults to "Y". |
| UPRPARMON | If the user enters the required parameter in lowercase PROCMON will upshift it. |
| UPRPARMOFF | If the user enters the required parameter in lowercase PROCMON will not upshift it. Default. |
| UPMPARMON | If the user enters the missing parameter in lowercase PROCMON will upshift it. |
| UPMPARMOFF | If the user enters the missing parameter in lowercase PROCMON will not upshift it. Default. |
| DATE | The DATE parameter is used to set the format for the RPGUDATE. |

| | |
|---|---|
| *mdy* | Specifies that the RPGUDATE is in month, day, year format. Default. |
| *dmy* | Specifies that the RPGUDATE is in day, month, year format. |
| *ymd* | Specifies that the RPGUDATE is in year, month, day format. |
| none | Procmon default values are set. |

## Operation

Provides customization of the PROCMON facility.

Note: A file equation can be used to execute a procedure file during PROCMON initialization. The formal file designator is:

FILE IPL=*procfile[.group[.account]]*

It is suggested that the PROCCONFIG command be placed within the PROCMON IPL procedure, since the command need only be executed once during a PROCMON session.

## Example

To supress warning messages and allow a carriage return for a blank passed as a required parameter, enter:

```
PROCCONFIG NOWARN;CRRPARM
```

# PROMPT

**PROMPT** - Displays a screen format which prompts for procedure substitution parameters.

## Syntax

```
PROMPT formsfile[.group[.account]],formname
[;START=parameter number][;LENGTH=n,n.....]
```

## Parameters

| | |
|---|---|
| *formsfile* | Name of file containing screen format to be displayed, in the following format: *formsfile*[.*group*[.*account*]] |
| *formname* | Name of the screen format to be displayed. |
| START | Specifies the number of the first positional parameter to be prompted for. |
| *parameter number* | Any value from 1 through 64. Default is 1. |
| LENGTH | Specifies the length in bytes of the parameters being prompted for. |
| *n* | Specifies the length of each parameter being prompted for, starting with the parameter specified by START. n can have a value from 0 through 128. The maximum number of bytes which can be prompted for is 1024. If n is not specified for a particular parameter its length defaults to 8. |

**NOTE**

If the parameter length defined in the screen format differs from that defined by the LENGTH keyword, data truncation may occur.

## Operation

Displays a substitution screen, allowing the user to enter parameters by filling in fields (as opposed to answering prompts). The user's screen entries are passed to the current procedure as substitution values. If both the START and LENGTH parameters are omitted the user will be prompted for 11 parameters, each of 8 bytes in length, starting at parameter 1.

## Example

To display the screen - SCRN01, from the file - PAYROLFM, locatd in the "PUB" group of the log-on account, enter:

```
PROMPT PAYROLFM.PUB,SCRN01
```

> This command can only be called from a procedure.

# :RENAME

**RENAME** - Changes identity (file name or group name) of a disc file.

## Syntax

```
RENAME oldfile,newfile[,newkey]
```

## Parameters

| | |
|---|---|
| *oldfile* | Current name of file, in the following format:<br>*filename*[.*group*] |
| *newfile* | New name of file in the following format:<br>*newfile*[.*group*] |
| *newkey* | New name of the KSAM key file. This parameter is optional. If it is not provided when a KSAM file is being renamed, PROCMON will name the key file. If the data file name is less than 8 characters in length, the key file name will be the data file name with a "K" appended to it. If the data file name is 8 characters long, the key file name will be the data file name with a "K" overlaying the last character. |

## Operation

Changes the system file identification of a permanent disc file. The file can be a sequential or KSAM file. The user must be the creator.

## Example

To rename the file - OLDFILE, to the file - NEWFILE, enter:

```
RENAME OLDDATA,NEWDATA
```

# RESETPROC

**RESETPROC** - Executes a procedure and resets it's nesting level.

## Syntax

```
RESETPROC procname[parm1[,parm2[,...[,parmN]]]]
                  [@]
```

## Parameters

| | |
|---|---|
| *procname* | Name of procedure to be executed. The format is: *procname*[.*group*[.*account*]] |
| *parmN* | Parameters to be passed to the procedure. |
| @ | All parameters being used by the current procedure are to be passed to the specified procedure. |

## Operation

255 levels of procedure nesting are permitted. However, some application tasks can require more. For example, a procedure can need to call itself multiple times to complete a task. The RESETPROC command executes the specified procedure and resets the procedure's nesting level to 1. When the specified procedure completes, control is not returned to the procedure containing the RESETPROC command, it is returned to the user.

## Example

To permit the procedure - PROCA to be executed multiple times, enter:

```
DISPLAY SELECT WEEK1, WEEK2, WEEK3 OR WEEK4
IF ?1R?/FINISH  CANCEL
IF ?1?/WEEK1 WEEK ONE
IF ?1?/WEEK1 RESETPROC PROCA
IF ?1?/WEEK2 WEEK TWO
IF ?1?/WEEK2 RESETPROC PROCA
IF ?1?/WEEK3 WEEK THREE
IF ?1?/WEEK3 RESETPROC PROCA
IF ?1?/WEEK4 WEEK FOUR
IF ?1?/WEEK4 RESETPROC PROCA
DISPLAY INVALID CHOICE, PLEASE RE-ENTER
RESETPROC  PROCA
```

PROCA - procedure file

This command can only be called from a procedure.

## RETURN

**RETURN** - Causes termination of a procedure or a return to the calling procedure.

### Syntax

```
RETURN  [@]
```

### Parameters

| | |
|---|---|
| @ | All parameters being used by the current procedure are to be returned to the calling procedure. |

### Operation

If the RETURN command exists in a first-level procedure, it's execution causes termination of the procedure and the user is returned to the PROCMON cursor. If the command exists in a nested procedure, it's execution causes a return to the calling procedure.

## Example

To return control from procedure - PROCE, to procedure - PROCD, if the file - INPUT does not exist, enter:

```
RUN PAY01.PUB
PROCE
DISPLAY INPUT FILE DOES NOT
DISPLAY EXIST  -  TERMINATE
```

PROCD - procedure file

```
IF NOT DATA-INPUT.DATA RETURN
FILE INPUT=INPUT.DATA
RUN PROGE.PUB
```

PROCE - procedure file

```
This command can only be called from a procedure.
```

# :RFILE

**RFILE** - Removes the file attributes set by the PFILE command.

## Syntax

```
RFILE {filename}
      {@       }
```

## Parameters

| | |
|---|---|
| *filename* | Name of the file equation to be canceled. |
| @ | All PFILE equations are canceled. |

## Operation

File equations set by a procedure are canceled when the procedure terminates. The PFILE command (page 5-37) allows a programmer to retain a file equation for the duration of a session. The RFILE command cancels the PFILE equation.

## Example

To cancel the PFILE equation - FILE DATA=PAY1.DATA, enter:

RFILE DATA

To cancel all PFILE equations, enter:

RFILE @

# :RPG

**RPG** - Compiles an RPG program.

## Syntax

```
RPG [textfile][,uslfile][,[listfile]
    [,[masterfile][,newfile]]]]
```

## Parameters

For parameter description, please refer to the MPE commands reference manual.

## Operation

Compiles an RPG program into a User Subprogram Library (USL) file. For further information, please refer to the MPE commands reference manual.

## Example

To compile the source file - TESTS, into the USL file TESTUSL, enter:

```
RPG TESTS,TESTUSL
```

# :RUN

**RUN** - Executes a prepared program.

## Syntax

```
RUN progfile[,entrypoint]
    [;NOPRIV]
    [;LMAP]
    [;DEBUG]
    [;MAXDATA=segsize]
    [;PARM=parameternum]
    [;STACK=stacksize]
    [;DL=dlsize]
    [        (P)]
    [;LIB=  { G }]
    [        (S)]
    [;NOCB]
    [;INFO=string]
    [         [*formaldesig]]
    [;STDIN=  [fileref     ]]
    [         [$NULL       ]]
    [           [*formaldesig     ]]
    [;STDLIST=  [fileref[,NEW]    ]]
    [           [$NULL            ]]
```

## Parameters

For parameter description, please refer to the MPE commands reference manual.

## Operation

Executes a prepared program. For further information, please refer to the MPE commands reference manual.

## Example

To execute the program file - PAY, enter:

RUN PAY

# :SECURITY

**SECURITY** - provides an extra level of application security.

## Syntax

```
SECURITY
```

## Parameters

None

## Operation

Provides an extra level of application security by allowing the user to select menu item numbers, but only enter the BYE, OFF and MSG commands directly from the keyboard. Typically used to control the user's capabilities, by locking them into an application menu and preventing access to the MPE and PROCMON command sets. To terminate PROCMON, the user can enter BYE, OFF or item number 0.

Note: A file equation can be used to execute a procedure file during PROCMON initialization. The formal file designator is:

FILE IPL=*procfile[.group[.account]]*

It is suggested that the SECURITY command be placed within the PROCMON IPL procedure, since the command need only be executed once during a PROCMON session.

## Example

To turn menu security on, enter:

SECURITY

**NOTE**

The security feature may also be activated by running PROCMON with the "SECURITY" entry point.

```
RUN PROCMON.PUB.SYS,SECURITY
```

# :SETPASS

**SETPASS** - Provides PROCMON with account, user and group passwords.

## Syntax

```
SETPASS  [acctpass[/userpass[/grouppass]]]
         [<empty>                        ]
```

## Parameters

| | |
|---|---|
| *acctpass* | Log-on account password. |
| *userpass* | Log-on user password. |
| *grouppass* | Log-on group password. |
| <empty> | User is prompted for passwords. |

## Operation

When PROCMON executes the JOBQ and TASK commands, a stream file is automatically built to permit execution of a procedure file in the job que. If the account is secured, the SETPASS command must be executed prior to execution of the JOBQ and TASK commands. The SETPASS command provides PROCMON with the passwords required for building a stream file job card.

Note: A file equation can be used to execute a procedure file during PROCMON initialization. The formal file designator is:

FILE IPL=*procfile[.group[.account]]*

It is suggested that the SETPASS command be placed within the PROCMON IPL procedure, since the command need only be executed once during a PROCMON session.

## Example

To provide PROCMON with the account password - MARY, the user password - PAY and the group password - ROLL, enter:

```
SETPASS MARY,PAY,ROLL
```

# :SHOWACTIVE

**SHOWACTIVE** - Displays the "active" status of a procedure file.

## Syntax

```
SHOWACTIVE  ⎡procname1[,procname2[,...[procnameN]]]⎤
            ⎣@                                     ⎦
```

## Parameters

| | |
|---|---|
| *procnameN* | Name of the procedure file. |
| @ | All active procedures are displayed. |

## Operation

Displays the "active" status of a selected procedure file and displays all currently active procedures.

## Example

To display the "active" status of procedure files - PROCA and PROCB, enter:

```
SHOWACTIVE PROCA,PROCB
```

To display all active procedure files, enter:

```
SHOWACTIVE @
```

# :SHOWMENU

**SHOWMENU** - Displays the commands associated with the current menu.

## Syntax

```
SHOWMENU
```

## Parameters

None

## Operation

A menu consists of 2 files, a display text file and a command file. The display text file is displayed at the user's terminal when the MENU command is executed. For every item number in the display text file there is a corresponding command in the command file. The SHOWMENU command displays, at the user's terminal, the commands associated with the current menu display.

## Example

To display the commands associated with the user's current menu, enter:

```
SHOWMENU
```

# :SWITCH

**SWITCH** - Sets one or more of the external indicators.

## Syntax

```
SWITCH indset
```

## Parameters

| | |
|---|---|
| *indset* | Eight position indicator setting. The first, or leftmost character sets indicator U1, the second character sets U2, and so on.<br><br>Character 0 sets the specified indicator off, character 1 sets the indicator on and character X leaves the indicator as is. |

## Operation

Sets one or more of the external indicators. The switch setting remains in effect until one of the following occurs:

- Another switch command is used
- User's session is ended
- User's program changes the external indicators

## Example

To set indicators U1 and U2 off, U3 through U7 on and leave U8 as is, enter:

```
SWITCH 0011111X
```

# TAG

**TAG** - Used with the GOTO command to perform branching within a procedure file.

## Syntax

```
TAG label
```

## Parameters

| | |
|---|---|
| *label* | Name of tag, referenced by GOTO command. May be up to eight characters in length. |

## Operation

Used with the GOTO command to perform branching within a procedure file. The GOTO command is typically used on a conditional statement. When the condition is met, processing branches to the corresponding TAG command.

## Example

To execute another portion of PROCA if the file - INPUT does not exist, enter:

```
IF NOT DATA-INPUT GOTO BUILDA    1
FILE INPUT=INPUT.DATA
RUN PROGA.PUB
TAG BUILDA                       2
BUILD INPUT;REC=15,,F,ASCII      3
```

PROCA - procedure file

> This command can only be called from a procedure.

# :TASK

**TASK** - Executes a procedure file in the CS job queue.

## Syntax

```
TASK procname [parm1[,parm2[,...[,parmN]]]]
                          [@]
       ┌;USER          ┐
       │;WSID          │
       └;ID="jobname"  ┘

       [;username[/userpass].acctname[/acctpass]
       [,groupname[/grouppass]]

       [;TIME=cpusecs]
              ┌BS┐
       [;PRI= │CS│ ]
              │DS│
              └ES┘
       ┌;HIPRI         ┐
       └;INPRI=inputpri┘
       [;RESTART]
       [;OUTCLASS=[device][,outputpri]
       [,numcopies]]
```

## Parameters

| | |
|---|---|
| *procname* | Name of the procedure to be placed on the job queue. |
| *parmN* | Parameters to be passed to the procedure. A maximum of 64 parameters may be specified. |
| @ | All 64 parameters are to be passed to the specified procedure. |
| USER | Name of the user who launched the procedure will be printed with the procedure output. |
| WSID | Identification number of the terminal the procedure was launched from will be printed with the procedure output. |

| | |
|---|---|
| *jobname* | User assigned name of the procedure. Name will be printed with the procedure output. |
| *username* | User name which allows you to log on to this account. Must contain from 1 to 8 alphanumeric characters beginning with an alphabetic charcter. Default is user who launched the job. |
| *userpass* | User password. Must contain from 1 to 8 alphanumeric characters beginning with an alphabetic character. |
| *acctname* | Account name. Must be from 1 to 8 alphanumeric characters beginning with an alphabetic character. Default is account from which job was launched. |
| *acctpass* | Account password. Must contain from 1 to 8 alphanumeric characters beginning with an alphabetic character. |
| *groupname* | Group name. Must contain from 1 to 8 alphanumeric characters beginning with an alphabetic character. Default is user's home group. |
| *grouppass* | Group password. Must contain from 1 to 8 alphanumeric characters beginning with an alphabetic character. |
| *cpusecs* | Maximum CPU time allowed in seconds. |
| CS,DS,ES,BS | Execution priority class. |
| *inputpri* | Relative input priority used in checking against access restrictions imposed by jobfence (if one exists). |
| HIPRI | Request for maximum input priority, causingjob to be scheduled regardless of current jobfence or execution limit for jobs. |
| RESTART | Request or restart a spooled job interrupted by system termination/restart. |
| *device* | Class name or logical device number of device to receive listing. |
| *outputpri* | Output priority for job list file, if destined for spooled line printer or card punch. |
| *numcopies* | Number of copies of job listing to be produced. |

## Operation

A stream file is automatically built to permit execution of the procedure file in the CS job que. A copy of PROCMON, including the current local data area contents and user switch settings, is launched with the file, to control the execution of each procedure step.

If the logon username, acctname and groupname are not specified the job will log on in the same way as the user who launched it. If the account is secured, the SETPASS command (page 5-51) must be executed prior to execution of the TASK command.

## Example

To execute PROCA in the CS job que and pass a single paramter - 0123, enter:

```
TASK PROCA 0123
```

# WAIT

**WAIT** - Causes a procedure to suspend execution.

## Syntax

```
WAIT  ⎡INTERVAL=hhmmss⎤
      ⎣TIME=hhmmss    ⎦
```

## Parameters

| | |
|---|---|
| INTERVAL | Specifies the amount of time that a procedure will wait before it resumes processing. This amount is given in *hhmmss*. |
| TIME | Specifies that the procedure will wait until a specified time of day occurs. This time is given in *hhmmss*.<br><br>For both parameters a 6-digit number must be entered for *hhmmss*. |
| *hh* | *hh* specifies hours. Valid values are in the range 00 to 24. 00 through 12 represents the hours from 12 midnight to 12 noon, and 13 through 24 represents 1p.m. to 12 midnight. Both 000000 and 240000 represent midnight. |
| *mm* | *mm* specifies minutes. Valid values are in the range 00 to 59. |
| *ss* | *ss* specifies seconds. Valid values are in the range 00 to 59.<br><br>240000 is the maximum possible value. if *hh* is 24, *mm* and *ss* must both be 00. |
| none | Procedure will wait 60 seconds before it resumes processing. |

## Operation

Causes a procedure to suspend execution. Typically used on a conditional statement. When used with the IF FILEOPEN-*filename* expression,if the condition is met, the user is given the choice of waiting or terminating. If the user chooses to wait, the condition will again be tested and if it is still true, the user will be asked once again to wait or terminate.

## Example 1

To execute the procedure file - PROCF, only after the procedure file - PROCA has completed execution, enter:

```
IF ACTIVE-PROCA WAIT
FILE INPUT=INPUT.DATA
RUN PROGF.PUB
```

PROCF - procedure file

## Example 2

To run a program PROGA at 6:30p.m. execute the following procedure:

```
WAIT TIME-183000
FILE INPUT=INPUT.DATA
RUN PROGA
```

## Example 3

To wait 5 minutes between program retrys

```
IF ACTIVE-PROCA WAIT INTERVAL-000500
RESETPROC PROCB
RUN PROGB
```

This command can only be called from a procedure.

# :WSID

**WSID** - Changes the user's terminal identification number.

## Syntax

```
WSID wsid
```

## Parameters

*wsid* Two character terminal identifier in the following format:

```
Logical device 20  Terminal ID B0
               25              B5
               40              D0
               45              D5
```

## Operation

Changess the user's terminal identification number.

## Example

To change the user's terminal identification number from D4 to B6, enter:

```
WSID B6
```

# SUBSTITUTION WITHIN PROCEDURES

SECTION 6

## Substitution Expressions

Substitution expressions allow the programmer to insert variable information into a procedure statement, prior to execution of the statement. For example, a programmer can substitute:

- Positional parameters on the procedure command
- Information supplied in response to prompts
- Specified locations in the user's local data area
- Specified message members

## Substitution Expression Formats

Substitution expressions always begin and end with a question mark. A substitution expression begins any time a question mark is followed by a number or one of the following characters: C, D, F, L, M, R, S, U, or W. A question mark followed by any other character is not treated as a substitution expression. Substitution or prompting occurs whenever a valid expression is encountered.

Following are descriptions of the available substitution expressions.

| FORMAT | DESCRIPTION |
|---|---|
| ?*n*? | Substitutes the value of the nth positional parameter.<br><br>FILE INPUT=?2? |
| ?*n*F'*value*'? | Forces a new value to replace the nth positional parameter.<br><br>FILE INPUT=?2F'GL001'?<br>...<br>FILE OUTPUT=?2? |
| ?*n*'*default*'? | Substitues the value of the nth positional parameter; if the parameter is not defined, the default is permanently assigned as the value of the nth positional parameter.<br><br>FILE INPUT=?2'GL001'? |

## SUBSTITUTION WITHIN PROCEDURES

| FORMAT | DESCRIPTION |
|---|---|
| ?*n*T'*default*'? | Substitues the value of the nth positional parameter; if the parameter is not defined, the default is temporarily assigned as the value of the nth positional parameter.<br><br>FILE INPUT=?2T'GL001'?<br>...<br>FILE OUTPUT=?2T'PAY001'? |
| ?*n*R'*cat*'? | Substitutes the value of the nth positional parameter; if the parameter is not defined,the catalog message is displayed and the user enters the value of the nth positional parameter.<br><br>FILE INPUT=?3R'1234'?.DATA |
| ?R'*cat*'? | Catalog message is displayed and the user enters the value to be substituted.<br><br>FILE INPUT=?R'1234'?.DATA |
| ?*n*R? | Substitutes the value of the nth positional parameter; if the nth parameter is not defined, the message "ENTER THE MISSING PARAMETER" is displayed and the user must enter the value of the nth positional parameter.<br><br>FILE INPUT=?nR? |
| ?R? | Displays the message "ENTER THE MISSING PARAMETER" and the user enters the value to be substituted.<br><br>FILE INPUT=?R?FILE |
| ?WS? | Substitutes the 2-character station ID of the user's terminal. The format is as follows: |

```
Ldev 20  Term ID B0
     25          B5
     40          D0
     45          D5
```

```
FILE INPUT=?WS?FILE
```

| FORMAT | DESCRIPTION |
|---|---|
| ?USER? | Substitutes the user's ID. The format is as follows:<br><br>HELLO *userid.group.account*<br>-----<br>FILE INPUT=?USER? |
| ?L'*offset,lng*'? | Substitutes a value from the local data area. The offset specifies the starting location of the value to be substituted. The length (lng) specifies the number of characters to be substituted from the local data area.<br><br>FILE INPUT=?L'12,8'? |
| ?M'*xxxxx,offset,lng*'? | Substitutes a value from a record in the catalog file. The offset specifies the starting location of the value to be substituted. The length (lng) specifies the number of characters to be substituted from the catalog record.<br><br>FILE INPUT=?M'1255,12,8'? |
| ?M*xxxxx*? | Substitutes a value from a record in the catalog file.<br><br>FILE INPUT=?M1255? |
| ?C*n*? | Substitutes the length of the nth positional parameter. |
| ?C'*value*'? | Substitutes the length of the specified value. |
| ?MENU? | Substitutes the menu name of the current menu. |
| ?PROC? | Substitutes the name of the first-level procedure that is running. |
| ?TIME? | Substitutes the current system time in the format HHMMSS. |
| ?GROUP? | Substitutes the name of the logon group. |

FORMAT DESCRIPTION

| | |
|---|---|
| ?CD? | Substitutes a 4-character code returned by the process monitor. The possible return codes are:<br><br>0000 The previous job step terminated normally. 2001- 2024 Command keys 1 through 24 were returned from the PROMPT command. |
| ?CLIB? | Substitutes the name of the account used in the last RUN command.<br><br>FILE INPUT=INPUT.DATA.?CLIB? |
| ?SLIB? | Substitutes the name of the user's log-on account.<br><br>FILE INPUT=INPUT.DATA.?SLIB? |
| ?DATE? | Substitutes the current session date.<br><br>FILE INPUT=DF?DATE? |
| ?F'A,*filename*'? | Substitutes the number of records found in the specified file (filename).<br><br>BUILD INPUT;DISC=?F'A,PAYROLL'? |
| ?F'S,*filename*'? | Substitutes the number of records allocated in the specified file (filename).<br><br>BUILD INPUT;DISC=?F'S,PAYROLL'? |
| ?JCW? | Substitutes the value of the JCW.<br><br>DISPLAY THE JCW IS CURRENTLY SET TO ?JCW? |

## Nested Substitution Expressions

Substitution expressions may be nested. For example:

```
?M'1234,1,23?
```

substitutes the first 23 characters of the catalog message number - 1234. The characters are:

```
FILE DATA=?WS?TEMP.DATA
```

The statement resulting from the first substitution expression contains another substitution expression. Procmon processes the second substitution expression. If the the terminal is logical device 24, then the resulting statement is:

```
FILE DATA=B4TEMP.DATA
```

One substitution expression can be the default for another substitution expression. For example:

```
?1'?2?'?
```

If the first parameter is not specified, PROCMON substitutes the value of the second parameter.

# CONDITION WITHIN PROCEDURES

SECTION 7

Conditional expressions within a procedure, allow the programmer to conditionally generate command statements when the procedure is called. There are two types of conditional statements: IF and ELSE expressions.

## IF Expressions

The IF expression can only be used within a procedure. An IF expression tests for a specified condition; if the condition is true, the corresponding statement is executed.

An IF expression can have one of the following formats:

IF *conditional parameter* (If the condition is true, the corresponding statement is executed)

IF NOT *conditional parameter* (If the condition is false, the corresponding statement is executed)

A conditional parameter must be a string of nonblank characters. A blank indicates the end of the parameter.

Following are descriptions of the available conditional parameters:

| FORMAT | DESCRIPTION |
|---|---|
| ACTIVE-{*procname* / *proc1,...,procn*} | True if the specified procedure is executing on the system.<br><br>IF ACTIVE-PROCA LISTF @.DATA,1 |
| DATA-*filename* | True if the specified file exists. Filename can be qualified. ,TEMP or ,PERM can be used to specify domain. If the domain is not specified, both are checked.<br><br>IF DATA-PAYROLL.DATA PURGE PAYROLL.DATA<br><br>IF DATA-PAY01,TEMP DELETE PAY01,TEMP |
| FILEOPEN-*filename* | True if the specified file is open. Filename can be qualified.<br><br>IF FILEOPEN-PAYROLL WAIT |

| FORMAT | DESCRIPTION |
|---|---|
| JOBQ-YES | True if the called procedure is executed from the JOBQ. IF JOBQ-YES  TELLOP Mount formAA |
| JOBQ-NO | True if the called procedure is not run from the JOBQ. IF JOBQ-NO  TELL ?USER?,Mount formAA |
| LOAD-*progname* | True if the specified file exists. Filename can be qualified. ,TEMP or ,PERM can be used to specify domain. If the domain is not specified, both are checked. IF LOAD-PROGA.PUB  RUN PROGA.PUB |
| PROC-*procname* | True if the specified file exists. Filename can be qualified. ,TEMP or ,PERM can be used to specify domain. If the domain is not specified, both are checked. IF PROC-PROCA.P  PROCA.P |
| SOURCE-*progname* | True if the specified file exists. Filename can be qualified. ,TEMP or ,PERM can be used to specify domain. If the domain is not specified, both are checked. IF SOURCE-PROGA.S  PURGE PROGA.S |
| SWITCH-*indsetting* | True if all external indicators for the user's session are in the state indicated by the indicator setting value (indsetting). |

```
0 - indicator is off
1 - indicator is on
X - indicator is not checked
```

```
IF SWITCH-11110000  RUN PROGB.PUB
```

SWITCH*n-indsetting*

True if the specified indicator is in the state indicated by the indicator setting value (indsetting).

IF SWITCH4-0 DELETE OUTPUT.DATA

IF CONSOLE-YES

True if the specified procedure is running on the system console. Console must be logical device 20.

IF CONSOLE-YES RUN PROGA.PUB

IF CONSOLE-NO

True if th specified procedure is NOT running on the system console. Console must be logical device 20.

IF CONSOLE-NO CANCEL

*string1/string2*

True if string1 is equal to string2. Each character string can be up to 128 characters long.

IF ?2?/YES RUN PROGB.PUB

*string1=string2*

True if string1 is equal to string2. Each character string can be up to 128 characters long.

IF ?4?=123456 DELETE OUTPUT.DATA

*string1<>string2*

True if string1 is not equal to string2. Each character string can be up to 128 characters long.

IF ?4?<>123456 DELETE OUTPUT.DATA

*string1>string2*

True if string1 is greater than string2. Each character string can be up to 128 characters long.

IF ?4?>123456 DELETE OUTPUT.DATA

*string1<string2*

True if string1 is less than string2. Each character string can be up to 128 characters long.

IF ?4?>123456 DELETE OUTPUT.DATA

*string1>=string2*

True if string1 is greater than or equal to string2. Each character string can be up to 128 characters long.

| | |
|---|---|
| | IF ?4?>=123456 DELETE OUTPUT.DATA |
| *string1<=string2* | True if string1 is less than or equal to string2. Each character string can be up to 128 characters long. |
| | IF ?4?>=123456 DELETE OUTPUT.DATA |

String values may be enclosed in single or double quotes and may contain character data or substitution expressions. Numeric data may be either positive or negative, for example +10 or -5. If a sign is not specified the value is taken as positive. If a sign is specified the string must be enclosed in quotes. Alphanumeric strings are left-justified and blank-filled to a length of 128. Numeric strings are right-justified and zero-filled to a length of 128. Comparison is done on a character by character basis beginning with the leftmost character.

## ELSE Expressions

The ELSE expression can be used only in conjunction with the IF expression. The ELSE expression is executed when the IF expression is false. The ELSE expression must begin on the line following the IF expression. The format is as follows:

IF *conditional-parameter*
ELSE *procedure statement*

## BEGINIF, ENDIF, BEGINELSE and ENDELSE statements

It is often desirable to condition several procedure statements on an IF condition. The BEGINIF, ENDIF, BEGINELSE and ENDELSE statements provide a straight forward way of accomplishing this task. The BEGINIF statement marks the beginning of a group of procedure statements to be executed when an IF condition is true. The

```
IF NOT DATA-PAY01.DATA
 BEGINIF
BLDKSAM PAY01.DATA,PAY01K,1,5;REC=-80
RUN PAYFILE.PUB
 ENDIF
```

portion of a procedure file

The BEGINELSE statement marks the beginning of a group of procedure statements to be executed when an IF condition is false. The ENDELSE statement marks the ending of the group. For example:

```
IF DATA-PAY01.DATA RUN PAYFILE.PUB
 BEGINELSE
BLDKSAM  PAY01.DATA,PAY01K,1,5;REC=-80
RUN  PAYFILE.PUB
 ENDELSE
```

portion of a procedure file

## RESETPROC statement

The process monitor allows 255 levels of nesting. The nesting level may be reset by using the RESETPROC statement. When the procedure called by the RESETPROC statement completes, control is not returned to the procedure calling the RESETPROC statement. The procedure called by RESETPROC is considered a first level procedure. The RESETPROC format is:

RESETPROC *procname* $\begin{bmatrix}\textit{parm1,parm2,...parmN} \\ \textit{@}\end{bmatrix}$

## CANCEL statement

The cancel statement cancels the user's procedure. The format is:

CANCEL

## RETURN statement

If a RETURN statement is executed in a first level procedure, control is returned to the user. If a RETURN statement is executed in a nested procedure, control is returned to the calling procedure. The format is:

RETURN [@]

## GOTO and TAG statements

The GOTO and TAG statements allow a programmer to use branching within a procedure. A GOTO statement causes the procedure to branch to the statement following the GOTO's corresponding TAG statement.

GOTO label

...

TAG label

# CREATING, UPDATING AND EXECUTING MENUS

The BLDMENU facility creates and updates both FIXED FORMAT and FREE FORMAT menus.

A FIXED FORMAT menu consists of twenty four menu items, numbered 1 through 24, with twelve items in each column.

A FREE FORMAT menu consists of up to twenty four menu items, numbered 1 through 24, with the layout (display lines 3 through 20) defined by the programmer.

To display a menu, the user executes the PROCMON MENU command (page 5-29) or provides the menu name at PROCMON initialization time (page 9-1). To terminate a menu display, the user executes the PROCMON MENUOFF command (page5-30) or enters a 0 (zero) instead of an item number.

A menu consists of two files: a *command* file and a *display text* file.

The *command* file defines the procedure file or command to be used as input when the user selects an item number. The command file contains a header (always the first line of the file) and a body (the remainder of the file). The header consists of the menu name (maximum of six positions), followed by a "##,2". The body contains up to twenty-four procedure statements. Each procedure statement begins on a new line. The statement consists of the item number in the first four positions, followed by a blank and the procedure name or command.

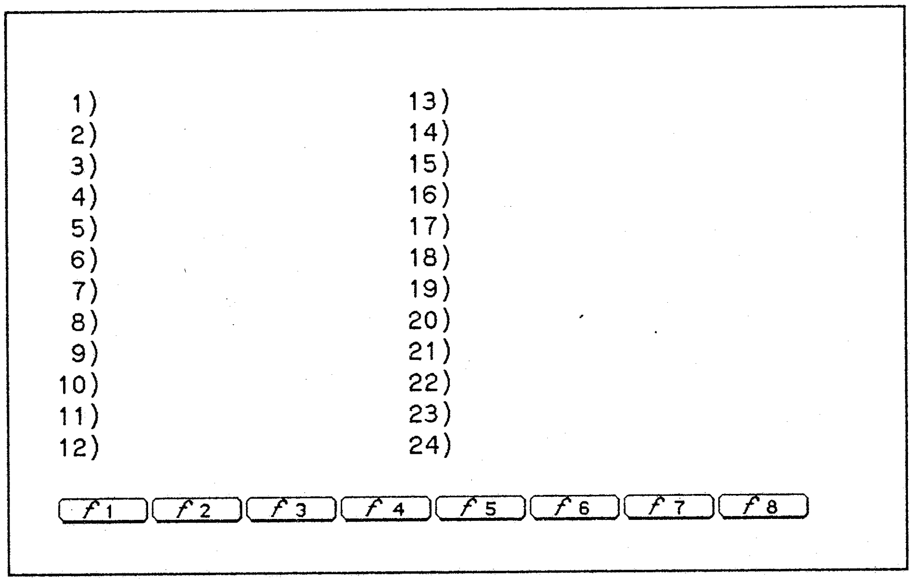
The *display* text file defines the item description to be displayed along with each item number on the menu. It contains a header (always the first line of the file) and a body (the remainder of the file). The header consists of the menu name (maximum of six positions), followed by a "DT,1". The body contains up to twenty-four item descriptions. Each item description must begin on a new line. The description consists of the task number in the first four positions, followed by a blank and the item description.

## CREATING FIXED FORMAT MENUS

To create a FIXED FORMAT menu, execute the PROCMON BLDMENU command (page 5-7). The menu name should not be more than six positions in length.

EXAMPLE: BLDMENU PAYROL

PROCMON will display a screen of twenty four item numbers and eight function key labels.

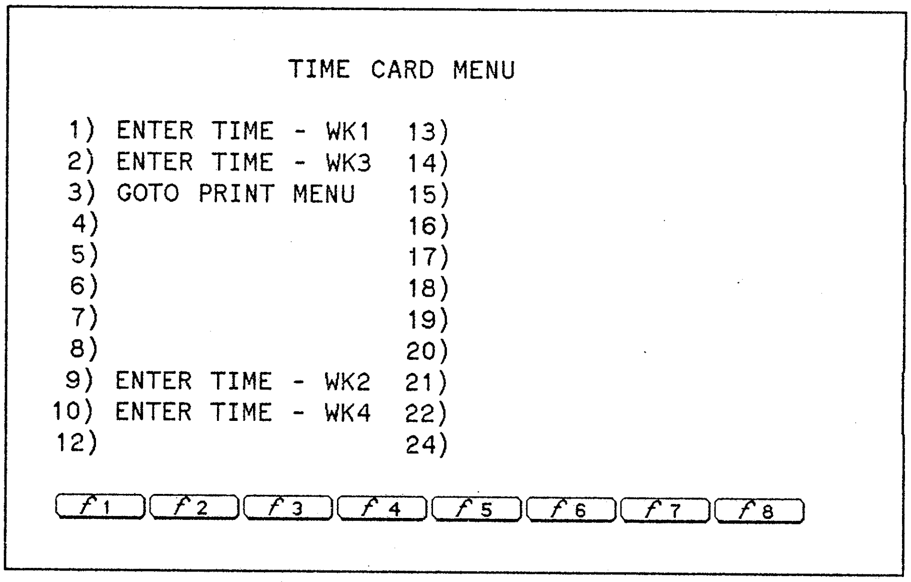


```
  1)                    13)
  2)                    14)
  3)                    15)
  4)                    16)
  5)                    17)
  6)                    18)
  7)                    19)
  8)                    20)
  9)                    21)
 10)                    22)
 11)                    23)
 12)                    24)
```

Enter the item description (text seen by user) to the right of the corresponding item number. TAB, RETURN and cursor control keys can be used to position the cursor for input. After entering the item descriptions, move the cursor to the function key labels and enter a brief item description for each. The eight function keys correspond to the first eight item numbers (1-8). Both item descriptions and function labels are optional.

Once the display is complete, press ENTER. The cursor will automatically move to the lower left portion of the display. PROCMON will prompt for the procedure statement (procedure name or command) associated with each specified item description. When the item number appears, press ENTER, then enter a procedure name or command, press ENTER. Continue until all item numbers have been defined. If an item number does not contain a description, PROCMON will not prompt the programmer for a procedure statement.

After the the last item number has been completed, PROCMON will clear the display and terminate the BLDMENU facility. The user can then call the newly created menu.



```
                  TIME CARD MENU

  1) ENTER TIME - WK1  13)
  2) ENTER TIME - WK3  14)
  3) GOTO PRINT MENU   15)
  4)                   16)
  5)                   17)
  6)                   18)
  7)                   19)
  8)                   20)
  9) ENTER TIME - WK2  21)
 10) ENTER TIME - WK4  22)
 12)                   24)
```

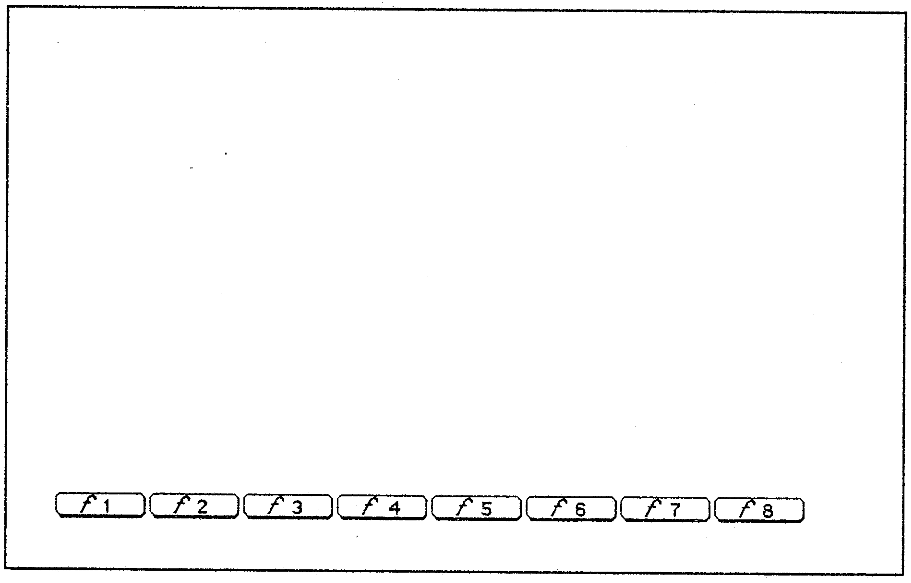
fixed format menu

## CREATING FREE FORMAT MENUS

To create a FREE FORMAT menu, execute the PROCMON BLDMENU command (page 5-7). The menu name should not be more than six positions in length.

EXAMPLE: BLDMENU PAYROL,FREEFORM

PROCMON will display a blank screen and eight function key labels.

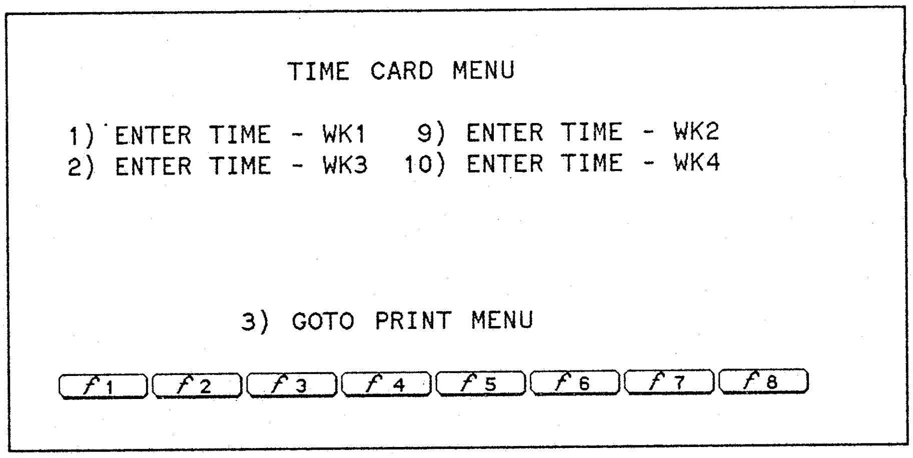


Enter the item number and description anywhere on the screen. TAB, RETURN and cursor control keys can be used to position the cursor for input. After entering the item numbers (1-24) and descriptions, move the cursor to the function key labels and enter a brief item description for each.

The eight function keys correspond to the first eight item numbers (1-8). Both item descriptions and function labels are optional.

Once the display is complete, press ENTER. The cursor will automatically move to the lower left portion of the display. PROCMON will prompt for the procedure statement (procedure name or command) associated with each specified item description. When the item number appears, press ENTER, then enter a procedure name or command, press ENTER. Continue until all item numbers have been defined.

After the the last item number has been completed, PROCMON will clear the display and terminate the BLDMENU facility. The user can then call the newly created menu.



```
                TIME CARD MENU

1) ENTER TIME - WK1    9) ENTER TIME - WK2
2) ENTER TIME - WK3   10) ENTER TIME - WK4



           3) GOTO PRINT MENU
```

free format menu

## UPDATING MENUS

To update an existing menu, execute the PROCMON BLDMENU command. Specify the name of the menu to be modified. PROCMON will display the existing menu.

Modify the item and function key label descriptions. TAB, RETURN and cursor control keys can be used to position the cursor for input.

Once the display is complete, press ENTER. The cursor will automatically move to the lower left portion of the display. PROCMON will prompt for the procedure statement (procedure name or command) associated with each specified item description. When the item number appears, press ENTER, then enter a procedure name or command, press ENTER. Continue until all item numbers have been defined.

After the the last item number has been completed, PROCMON will clear the display and terminate the BLDMENU facility. The user can then call the modified menu.

# ADDITIONAL FEATURES

SECTION 9

## FILE IPL=

A file equation can be used to execute a procedure file during PROCMON initialization. The formal file designator is:

FILE IPL=*procfile[.group[.account]]*

The file equation can be set in the user's log-on UDC. When the user logs-on, his/her personal procedure file is automatically executed.

## FILE MENU=

A file equaton can be used to display a menu immediately following PROCMON initialization. The formal file designator is:

FILE MENU=*menuname[.group[.account]]*

The file equation can be set in the user's log-on UDC. When the user logs-on, his/her personal menu is automatically displayed.

# CREATE, ACTIVATE AND KILL

APPENDIX A

## CREATE - creates a process. (PROCMON command page 5-14)

Loads the program, to be run by the new process, into virtual memory, creates the process, initializes its data stack and returns the Process Identification Number (PIN). The program is then ready to be "activated".

## ACTIVATE - activates a process. (PROCMON command page 5-2)

Activates a process previously created or suspended. Once activated, the program runs until it is suspended (using the RPG SUSP operation) or is deleted (using the PROCMON KILL command) or goes to end of job.

## KILL - deletes a process. (PROCMON command page 5-26)

Deletes a process previously "created".

## SUSP - suspends a program. (RPG operation)

The RPG SUSP operation suspends a program at a specific point in execution, posts the local data area (LDA) and the user switches (U1 to U8), clears the screen and releases the terminal.

When the suspended program is re-activated, via the ACTIVATE command, execution begins at the instruction following the SUSP operation.

To use the operation, enter SUSP in columns 28 through 31 of the RPG calculation specification. Conditioning indicators can be placed in columns 7 through 17. All other columns must be blank.

## POINTS TO REMEMBER WHEN IMPLEMENTING CREATE, ACTIVATE & SUSP

1) The SUSP operation should only be called by a program using random file processing. Record pointers are not reset when a program is suspended. If a file is being processed sequentially when execution is suspended, the program will begin with the next sequential record (rather than the first record in the file) when execution continues.

2) If file locking is active, care should be taken to ensure that files are not left in a locked state when program execution is suspended. Files should be unlocked prior to the SUSP operation, either by forcing a write to the file or by using the UNLCK operation.

3) 16 processes are permitted per session.

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