subj. **Changes in Monitor Release 8.0**

New Monitor Procedure: Set CPA Register

The CPA register is used to hold the top address of the core area in which the internal process may only read.

When a process is created the CPA register is set to the parent's CPA value. The parent may then set the register of its child to a lower value.

The CPA register should not be set lower than the top address of the monitor tables, allowing the process to read from the process and area descriptions and the message buffers in the monitor.

If a process allows its children to read directly in the parent's core area, the CPA register must not be set lower than the addresses delivered to the children.

SOS uses this method when it hands over the addresses of primary input and output to the file processor (FP).

s uses the method when the I and O commands are used.

        SET CPA, 126

Set CPA register of child (name address, CPA-parameter, result)

w0 result   (return)
w1 CPA   (call)
w2
w3 name address (call)

jd 1<11+126
name address: process name (call)
CPA: CPA value or 0 or 1   (call)

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Sets the CPA register of an internal process.
The process must be a child of the calling process and in the
state: "waiting for start by parent".
The process must not have any children itself.
The CPA value should fulfil the following conditions:

$$8 \leq \text{CPA value} \leq \text{initial CPA value (child)}$$

If CPA = 0 the CPA calue will be set to the last word of the last
monitor table + 2.

If CPA = 1 the CPA value will be set equal to the initial CPA
value of the child.

result = 0 CPA register set

    2 state of process not "waiting for start by parent"
      process has children

    3 process does not exist
      process not a child of calling process
      process not an internal process

    4 illegal CPA value

Use of CPA and Base Register under Operating System s

CPA Register

When s creates a process it will set CPA to the top address of the
process, allowing the process to read in the whole primary storage
below its own top address.

By the command "CPA <CPA value>" it is possible to change the CPA
register when the process is created.

If the s commands I and O are used, the CPA register should not be
set lower than the first address of the first process created by
s, hereafter called "first free address".

Base Register

If the core size is greater than 1,000,000 halfwords, s will as
default relocate all its children to "first free address".

The default relocation is controlled by the privileged command
"autorel". A process which lets its children refer to addresses
inside its own core area should not be relocated, as the addresses
delivered by the parent will be logical addresses in the parent's
process but will be referred to as physical addresses by the
children.

The relocation of a process is controlled by the command:
"relocate".

Use of the Base and CPA Register when Creating SOS and TEM

SOS Version 3.0 and Previous Releases

SOS should not be relocated, as primary input and output are
pointed out by addresses inside SOS's own core area. The default
CPA value can be used.

TEM Version 2.2 and Previous Releases

TEM should not be relocated and should be created with CPA equal
to top of core (i.e. s command: CPA 1).

COMMAND SYNTAX

CPA <SHORT INTEGER>

Sets the console parameter CPA in the console buffer to the value
given in the call. If the value equals 0 the CPA register of the

internal process will be set to the top address of the last monitor table.

If the value equals 1 the CPA register will be set to the top address of the primary storage.

YES
AUTOREL <FIRST LOGIC ADDRESS>
NO

Privileged command

Controls the default relocation of all the processes under s.
AUTOREL YES causes s to set "first logic address" to "first free address". All processes hereafter created by s will be relocated to "first logic address".

YES
RELOCATE <FIRST LOGIC ADDRESS>
NO

The console parameter "first logic address" is set to the value given in the call.

RELOCATE YES causes s to set "first logic address" to "first free address".

If RELOCATE NO the process will not be relocated, independent of a previous use of the AUTOREL command.

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s and FP-commands in the same File

It is now possible to have both s and FP-commands in the same
file, provided the following rules are followed:

The file must have maximum bases (-8388607, 8388605).

All lines with s-commands must start with an "*".

All s-commands must precede all FP-commands.

Example:

A file named file on system scope could have the following con-
tents:

```
* new pip    ;  first all commands to s
* I.4. file  ;  tells FP to read commands from this file
* run        ;
* unstack    ;  important: tells s to stop reading from this file

lookup a     ;  start of FP-commands
i fileone    ;
   .
   .
   .
```