16 bit

Note: This API call is for DOS and Win16 personality only. Use Family API for portability.

2018/09/07 05:04 · prokushev · 0 Comments

Int 21H, AH=26H

Version

1 and higher

Brief

CREATE NEW PROGRAM SEGMENT PREFIX

Family API

Input

```
      AH = 26h
      DX = segment at which to create PSP (see #01378)
```

Return

Return: AL destroyed

Notes

new PSP is updated with memory size information; INTs 22h, 23h, 24h taken from interrupt vector table; the parent PSP field is set to 0

(DOS 2+) DOS assumes that the caller's CS is the segment of the PSP to copy

BUG: DR DOS 6.0 original releases 05/1991 & 08/1991 had a problem where the segment from which the PSP was copied was incorrect so that the PSP was not filled correctly and did not contain the command tail. The DR DOS 6.0 BDOS patch “PAT312” English (1992/01/07, XDIR /C: A0C6h) and later “full” rebuilds fix this problem (see INT 21/AX=4452h).

Format of Program Segment Prefix (PSP):

Offset	Size	Description
00h	2 BYTEs	INT 20 instruction for CP/M CALL 0 program termination the CDh 20h here is often used as a signature for a valid PSP
02h	WORD	segment of first byte beyond memory allocated to program
04h	BYTE	(DOS) unused filler, (OS/2) count of fake DOS version returns
05h	BYTE	CP/M CALL 5 service request (FAR CALL to absolute 000C0h) BUG: (DOS 2+ DEBUG) PSPs created by DEBUG point at 000BEh
06h	WORD	CP/M compatibility–size of first segment for .COM files
08h	2 BYTEs	remainder of FAR JMP at 05h
0Ah	DWORD	stored INT 22 termination address
0Eh	DWORD	stored INT 23 control-Break handler address
12h	DWORD	DOS 1.1+ stored INT 24 critical error handler address
16h	WORD	segment of parent PSP
18h	20 BYTEs	DOS 2+ Job File Table, one byte per file handle, FFh = closed
2Ch	WORD	DOS 2+ segment of environment for process (see #01379)
2Eh	DWORD	DOS 2+ process's SS:SP on entry to last INT 21 call
32h	WORD	DOS 3+ number of entries in JFT (default 20)
34h	DWORD	DOS 3+ pointer to JFT (default PSP:0018h)
38h	DWORD	DOS 3+ pointer to previous PSP (default FFFFFFFFh in 3.x) used by SHARE in DOS 3.3
3Ch	BYTE	DOS 4+ (DBCS) interim console flag (see AX=6301h) Novell DOS 7 DBCS interim flag as set with AX=6301h (possibly also used by Far East MS-DOS 3.2-3.3)
3Dh	BYTE	(APPEND) TrueName flag (see INT 2F/AX=B711h)
3Eh	BYTE	(Novell NetWare) flag: next byte initialized if CEh (OS/2) capabilities flag
3Fh	BYTE	(Novell NetWare) Novell task number if previous byte is CEh
40h	2 BYTEs	DOS 5+ version to return on INT 21/AH=30h
42h	WORD	(MSWindows3) selector of next PSP (PDB) in linked list Windows keeps a linked list of Windows programs only
44h	WORD	(MSWindows3) “PDB_Partition”
46h	WORD	(MSWindows3) “PDB_NextPDB”
48h	BYTE	(MSWindows3) bit 0 set if non-Windows application (WINOLDAP)
49h	BYTE	unused by DOS versions ⇐ 6.00
4Ch	WORD	(MSWindows3) “PDB_EntryStack”
4Eh	2 BYTEs	unused by DOS versions ⇐ 6.00
50h	3 BYTEs	DOS 2+ service request (INT 21/RETF instructions)
53h	2 BYTEs	unused in DOS versions ⇐ 6.00
55h	7 BYTEs	unused in DOS versions ⇐ 6.00; can be used to make first FCB into an extended FCB
5Ch	16 BYTEs	first default FCB, filled in from first commandline argument overwrites second FCB if opened
6Ch	16 BYTEs	second default FCB, filled in from second commandline argument overwrites beginning of commandline if opened
7Ch	4 BYTEs	unused
80h	128 BYTEs	commandline / default DTA. command tail is BYTE for length of tail, N BYTEs for the tail, followed by a BYTE containing 0Dh

Notes: in DOS v3+, the limit on simultaneously open files may be increased by allocating memory for a new open file table, filling it with FFh, copying the first 20 bytes from the default table, and adjusting the pointer and count at 34h and 32h. However, DOS will only copy the first 20 file handles into a child PSP (including the one created on EXEC).

in an OS/2 DOS box, values of D0h-FEh in the open file table indicate device drivers

network redirectors based on the original MS-Net implementation use values of 80h-FEh in the open file table to indicate remote files; Novell NetWare also uses values from FEh down to 80h or one more than FILES= (whichever is greater) to indicate remote files (except on OS/2, where is uses CFh down to 80h)

MS-DOS 5.00 incorrectly fills the FCB fields when loading a program high; the first FCB is empty and the second contains the first parameter

some DOS extenders place protected-mode values in various PSP fields such as the “parent” field, which can confuse PSP walkers. Always check either for the CDh 20h signature or that the suspected PSP is at the beginning of a memory block which owns itself (the preceding paragraph should be a valid MCB with “owner” the same as the suspected PSP).

Novell NetWare updates the fields at offsets 3Eh and 3Fh without checking that a legal PSP segment is current; see AH=50h for further discussion

for 4DOS and Windows95, the command tail may be more than 126 characters; in that case, the length byte will be set to 7Fh (with an 0Dh in the 127th position at offset FFh), and the first 126 characters will be stored in the PSP, with the entire command line in the environment variable CMDLINE; under at least some versions of 4DOS, the byte at offset FFh is *not* set to 0Dh, so there is no terminating carriage return in the PSP's command tail.

BUG: When shelling out from the Borland Pascal 7.00 IDE, overly-long command lines will not be delimited by a 0Dh character, and the length byte is set to 80h! A workaround is to always patch in a 0Dh at the last position of the command line buffer before scanning the command line.

Format of environment block:

Offset	Size	Description
00h	N BYTEs	first environment variable, ASCIZ string of form “var=value”
	N BYTEs	
	…	
	N BYTEs	last environment variable, ASCIZ string of form “var=value”
	BYTE	00h
—DOS 3.0+ —		
…	WORD	number of strings following environment (normally 1)
	N BYTEs	ASCIZ full pathname of program owning this environment other strings may follow

AH=4Bh,AH=50h,AH=51h,AH=55h,AH=62h,AH=67h

Note

Text based on Ralf Brown Interrupt List Release 61

DOS API	
Process manager	INT 20H, **INT 21H**: 00H, 25H, 26H, 31H, 34H, 35H, 4BH, 4CH, 4DH, 50H, 51H, 52H, 55H, 62H, INT 22H, INT 27H, INT 28H
File manager	INT 25H, INT 26H, **INT 21H**: 0DH, 0EH, 0FH, 10H, 11H, 12H, 13H, 14H, 15H, 16H, 17H, 19H, 1AH, 1BH, 1CH, 21H, 22H, 23H, 24H, 27H, 28H, 29H, 2EH, 2FH, 32H, 3305H, 36H, 39H, 3AH, 3BH, 3CH, 3DH, 3EH, 3FH, 40H, 41H, 42H, 4300H, 4301H, 45H, 45H, 46H, 4EH, 4FH, 54H, 56H, 5700H, 5701H, 5AH, 5BH, 5c00H, 5c01H, 60H, 67H, 68H, 6900H, 6901H, 6AH, 6CH
Character Device I/O	INT 29H, **INT 21H**: 01H, 02H, 03H, 04H, 05H, 06H, 07H, 08H, 09H, 0AH, 0BH, 0AH, 0CH, 5D07H, 5D08H, 5D09H, 5D0AH
Signals	INT 23H, INT 24H, **INT 21H**: 3300H, 3301H, 3302H
Memory manager	**INT 21H**: 48H, 49H, 4AH, 5800H, 5801H, 5802H, 5803H
Date and Time	**INT 21H**: 2AH, 2BH, 2CH, 2DH
Misc	**INT 21H**: 30H, 3306H, 3700H, 3701H, 3702H, 3703H, 59H
NLS	**INT 21H**: 3303H, 3304H, 3800H, 3801H, 6300H, 6301H, 6301H, 6500H, 6501H, 6502H, 6503H, 6504H, 6505H, 6506H, 6507H, 6520H, 6521H, 6522H, 6523H, 65A0H, 65A1H, 65A2H, 6601H, 6602H
Devices	**INT 21H**: 4400H, 4401H, 4402H, 4403H, 4404H, 4405H, 4406H, 4407H, 4408H, 4409H, 440AH, 440BH, 440CH, 440DH, 440EH, 440FH, 4410H, 4411H, 53H
Network	**INT 21H**: 5E00H, 5E01H, 5E02H, 5E03H, 5E04H, 5E05H, 5F00H, 5F01H, 5F02H, 5F03H, 5F04H, 5F05H, 5F07H, 5F08H

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Hardware info	@Equipment @MemSize
Serial I/O	@AuxInit @AuxSendChar @AuxRecieveChar @AuxStatus
Tape I/O	@TapeOn @TapeOff @TapeRead @TapeWrite
Keyboard I/O	@KbdStatus @CharIn @CharPeek
Printer I/O	@PrnPrint @PrnInit @PrnStatus
Disk I/O	@DskReset @DskStatus @DskRead @DskWrite @DskVerify @DskFormat
Date and Time	@SetTime @GetTime
Mouse	@MouInit @MouShowPointer @MouStatus @MouSetPos @MouSetMickey @MouRegion
Memory manager	@ModBlok SET_BLOCK

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Family API		
DOS	Process Manager	DosBeep DosExit DosSleep DosExecPgm
	File Manager	DosChDir DosChgFilePtr DosClose DosDelete DosDupHandle DosMkDir DosMove DosQCurDir DosQCurDisk DosSetFileMode DosOpen DosQFileInfo DosRead DosQFileMode DosQFSInfo DosQVerify DosRmDir DosSelectDisk DosFindClose DosFindFirst DosFindNext DosSetFileInfo DosSetVerify DosWrite DosFileLocks DosSetFHandState DosNewSize DosBufReset DosQFHandState DosSetFSinfo DosShutdown
	Memory Manager	DosFreeSeg DosSubAlloc DosSubFree DosSubSet DosAllocHuge DosAllocSeg DosReallocHuge DosReallocSeg DosGetHugeShift DosCreateCSAlias
	NLS	DosCaseMap DosGetCtryInfo DosGetDBCSEv DosSetCtryCode DosGetCollate DosGetMessage DosInsMessage DosPutMessage
	Date and Time	DosSetDateTime DosGetDateTime
	Devices	DosDevConfig DosDevIOCtl DosDevIOCtl2
	Signals	DosHoldSignal DosSetSigHandler
	Misc	BadDynLink DosGetEnv DosGetMachineMode DosGetVersion DosError DosErrClass DosSetVec
KBD		KbdCharIn KbdFlushBuffer KbdGetStatus KbdSetStatus KbdStringIn KbdPeek
VIO		VioGetBuf VioGetConfig VioGetCurPos VioGetCurType VioGetPhysBuf VioReadCellStr VioReadCharStr VioScrollUp VioScrollDn VioScrollLf VioScrollRt VioScrUnLock VioSetCurPos VioSetCurType VioSetMode VioGetMode VioShowBuf VioWrtCellStr VioWrtCharStr VioWrtCharStrAtt VioWrtNAttr VioWrtNCell VioWrtNChar VioWrtTTY VioScrLock VioPopUp
Tools		BIND
Modules		DOSCALLS.DLL VIOCALLS.DLL KBDCALLS.DLL MSG.DLL
Libraries		API.LIB OS2386.LIB FAPI.LIB DOSCALLS.LIB SUBCALLS.LIB

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