



**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=3DH

## Version

2 and higher

## Brief

“OPEN” - OPEN EXISTING FILE

## Family API

[DosOpen](#)

## Input

```
AH = 3Dh
AL = access and sharing modes (see #01402)
DS:DX -> ASCIZ filename
CL = attribute mask of files to look for (server call only)
```

## Return

```
CF clear if successful
    AX = file handle
CF set on error
    AX = error code (01h,02h,03h,04h,05h,0Ch,56h) (see #01680 at
AH=59h)
```

## Notes

file pointer is set to start of file

if SHARE or a network is loaded, the file open may fail if the file is already open, depending on the combination of sharing modes (see #01403, #01404)

file handles which are inherited from a parent also inherit sharing and access restrictions

files may be opened even if given the hidden or system attributes

under the FlashTek X-32 DOS extender, the pointer is in DS:EDX

DR DOS checks the system password or explicitly supplied password at

the end of the filename (following a semicolon) against the reserved

field in the directory entry before allowing access

sharing modes are only effective on local drives if SHARE is loaded

Novell DOS 7 SHARE v1.00 would refuse file access in the cases in #01403 marked with [1] (read-only open of a read-only file which had previously been opened in compatibility mode); this was fixed in SHARE v1.01 of 09/29/94

Bitfields for access and sharing modes:

| Bit(s) | Description                                                                             |
|--------|-----------------------------------------------------------------------------------------|
| 2-0    | access mode                                                                             |
|        | 000 read only                                                                           |
|        | 001 write only                                                                          |
|        | 010 read/write                                                                          |
|        | 011 (DOS 5+ internal) passed to redirector on EXEC to allow case-sensitive filenames    |
| 3      | reserved (0)                                                                            |
| 6-4    | sharing mode (DOS 3.0+) (see #01403)                                                    |
|        | 000 compatibility mode                                                                  |
|        | 001 "DENYALL" prohibit both read and write access by others                             |
|        | 010 "DENYWRITE" prohibit write access by others                                         |
|        | 011 "DENYREAD" prohibit read access by others                                           |
|        | 100 "DENYNONE" allow full access by others                                              |
|        | 111 network FCB (only available during server call)                                     |
| 7      | inheritance                                                                             |
|        | if set, file is private to current process and will not be inherited by child processes |

(Table 01403) Values of DOS 2-6.22 file sharing behavior:

| First Open |    | Second and subsequent Opens |   |    |          |   |    |            |   |    |           |   |    |           |   |    |
|------------|----|-----------------------------|---|----|----------|---|----|------------|---|----|-----------|---|----|-----------|---|----|
|            |    | Compat                      |   |    | Deny All |   |    | Deny Write |   |    | Deny Read |   |    | Deny None |   |    |
|            |    | R                           | W | RW | R        | W | RW | R          | W | RW | R         | W | RW | R         | W | RW |
| Compat     | R  | Y                           | Y | Y  | N        | N | N  | 1          | N | N  | N         | N | N  | 1         | N | N  |
|            | W  | Y                           | Y | Y  | N        | N | N  | N          | N | N  | N         | N | N  | N         | N | N  |
|            | RW | Y                           | Y | Y  | N        | N | N  | N          | N | N  | N         | N | N  | N         | N | N  |

| First Open |    | Second and subsequent Opens |   |    |          |   |    |            |   |    |           |   |    |           |   |    |
|------------|----|-----------------------------|---|----|----------|---|----|------------|---|----|-----------|---|----|-----------|---|----|
|            |    | Compat                      |   |    | Deny All |   |    | Deny Write |   |    | Deny Read |   |    | Deny None |   |    |
|            |    | R                           | W | RW | R        | W | RW | R          | W | RW | R         | W | RW | R         | W | RW |
| Deny All   | R  | C                           | C | C  | N        | N | N  | N          | N | N  | N         | N | N  | N         | N | N  |
|            | W  | C                           | C | C  | N        | N | N  | N          | N | N  | N         | N | N  | N         | N | N  |
|            | RW | C                           | C | C  | N        | N | N  | N          | N | N  | N         | N | N  | N         | N | N  |
| Deny Write | R  | 2                           | C | C  | N        | N | N  | Y          | N | N  | N         | N | N  | Y         | N | N  |
|            | W  | C                           | C | C  | N        | N | N  | N          | N | N  | Y         | N | N  | Y         | N | N  |
|            | RW | C                           | C | C  | N        | N | N  | N          | N | N  | N         | N | N  | Y         | N | N  |
| Deny Read  | R  | C                           | C | C  | N        | N | N  | N          | Y | N  | N         | N | N  | N         | Y | N  |
|            | W  | C                           | C | C  | N        | N | N  | N          | N | N  | N         | Y | N  | N         | Y | N  |
|            | RW | C                           | C | C  | N        | N | N  | N          | N | N  | N         | N | N  | N         | Y | N  |
| Deny None  | R  | 2                           | C | C  | N        | N | N  | Y          | Y | Y  | N         | N | N  | Y         | Y | Y  |
|            | W  | C                           | C | C  | N        | N | N  | N          | N | N  | Y         | Y | Y  | Y         | Y | Y  |
|            | RW | C                           | C | C  | N        | N | N  | N          | N | N  | N         | N | N  | Y         | Y | Y  |

Legend: Y = open succeeds, N = open fails with error code 05h C = open fails, INT 24 generated 1 = open succeeds if file read-only, else fails with error code 2 = open succeeds if file read-only, else fails with INT 24

(Table 01404) Values for DOS 7.x file sharing behavior:

|       |                | Second and subsequent Opens |      |      |      |      |     |       |      |      |    |   |   |   |    |   |   |         |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-------|----------------|-----------------------------|------|------|------|------|-----|-------|------|------|----|---|---|---|----|---|---|---------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| First | Compat         | Deny                        | Deny | Deny | Deny | Open | All | Write | Read | None |    |   |   |   |    |   |   |         |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|       | R              | W                           | RW   | A    | R    | W    | RW  | A     | R    | W    | RW | A | R | W | RW | A | R | W       | RW | A |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| ----- | ----- Compat R |                             |      |      |      |      |     |       |      |      |    |   |   |   |    |   | Y | Y       | Y  | Y | N | N | N | N | Y | N | N | Y | N | N | N | Y | Y | N | N | Y |   |   |
|       | W              |                             | Y    | Y    | Y    | C    |     | N     | N    | N    | N  |   | N | N | N  | N |   | N       | N  | N | Y |   | Y | N | N | Y |   | Y | N | N | Y |   | Y | N | N | Y |   |   |
|       | RW             |                             | Y    | Y    | Y    | C    |     | N     | N    | N    | N  |   | N | N | N  | N |   | N       | N  | N | Y |   | Y | N | N | Y |   | Y | N | N | Y |   | Y | N | N | Y |   |   |
|       | NA             |                             | Y    | C    | C    | Y    |     | N     | N    | N    | N  |   | Y | N | N  | Y |   | N       | N  | N | Y |   | Y | N | N | Y |   | Y | N | N | Y |   | Y | N | N | Y |   |   |
| ----  | Deny R         |                             | C    | C    | C    | C    | N   | N     | N    | N    | N  | N | N | N | N  | N | N | All W   |    | C | C | C | C | N | N | N | N | N | N | N | N | N | N | N | N | N | N |   |
| NN    |                |                             |      |      |      |      |     |       |      |      |    |   |   |   |    |   |   |         |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|       | RW             |                             | C    | C    | C    | C    |     | N     | N    | N    | N  |   | N | N | N  | N |   | N       | N  | N | N |   | N | N | N | N |   | N | N | N | N |   | N | N | N | N |   |   |
|       | NA             |                             | C    | C    | C    | C    |     | N     | N    | N    | N  |   | N | N | N  | N |   | N       | N  | N | N |   | N | N | N | N |   | N | N | N | N |   | N | N | N | N |   |   |
| ----  | Deny R         |                             | Y    | C    | C    | Y    | N   | N     | N    | N    | Y  | N | N | Y | N  | N | Y | Write W |    | C | C | C | C | N | N | N | N | N | N | N | Y | N | N | Y | Y | N | Y |   |
| NN    |                |                             |      |      |      |      |     |       |      |      |    |   |   |   |    |   |   |         |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|       | RW             |                             | C    | C    | C    | C    |     | N     | N    | N    | N  |   | N | N | N  | N |   | N       | N  | N | Y |   | Y | N | N | Y |   | Y | N | N | Y |   | Y | N | N | Y |   |   |
|       | NA             |                             | Y    | C    | C    | Y    |     | N     | N    | N    | N  |   | Y | N | N  | Y |   | N       | N  | N | Y |   | Y | N | N | Y |   | Y | N | N | Y |   | Y | N | N | Y |   |   |
| ----  | Deny R         |                             | C    | C    | C    | C    | N   | N     | N    | N    | N  | Y | N | N | N  | N | N | Read W  |    | C | C | C | C | N | N | N | N | N | N | N | N | Y | N | N | N | Y | N | N |
| YNN   |                |                             |      |      |      |      |     |       |      |      |    |   |   |   |    |   |   |         |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

|    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RW | C | C | C | C | N | N | N | N | N | N | N | N | N | N | N | Y | N | N |
| NA | Y | Y | Y | Y | N | N | N | N | Y | Y | Y | Y | N | N | N | Y | Y | Y |

- - - -| Deny R |Y Y Y Y N N N N Y Y Y Y N N N Y Y Y Y Y None W |C C C C N N N N N N N Y Y Y Y Y Y Y

|    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RW | C | C | C | C | N | N | N | N | N | N | N | N | Y | Y | Y | Y |
| NA | Y | Y | Y | Y | N | N | N | N | Y | Y | Y | Y | N | N | N | Y |

Legend: R → reading, W → writing, RW → both reading & writing,

A/NA -> reading without access time update  
Y = open succeeds, N = open fails with error code 05h  
C = open fails, INT 24 generated

See also

AH=0Fh,AH=3Ch,AX=4301h,AX=5D00h,INT 2F/AX=1116h,INT 2F/AX=1226h

Note

Text based on [Ralf Brown Interrupt List Release 61](#)

| DOS API              |                                                                                                                                                                                                                                                                                                                                                            |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process manager      | INT 20H, <b>INT 21H</b> : 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, <b>INT 21H</b> : 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, <b>INT 21H</b> : 01H, 02H, 03H, 04H, 05H, 06H, 07H, 08H, 09H, 0AH, 0BH, 0AH, 0CH, 5D07H, 5D08H, 5D09H, 5D0AH                                                                                                                                                                                                                                      |
| Signals              | INT 23H, INT 24H, <b>INT 21H</b> : 3300H, 3301H, 3302H                                                                                                                                                                                                                                                                                                     |
| Memory manager       | <b>INT 21H</b> : 48H, 49H, 4AH, 5800H, 5801H, 5802H, 5803H                                                                                                                                                                                                                                                                                                 |
| Date and Time        | <b>INT 21H</b> : 2AH, 2BH, 2CH, 2DH                                                                                                                                                                                                                                                                                                                        |
| Misc                 | <b>INT 21H</b> : 30H, 3306H, 3700H, 3701H, 3702H, 3703H, 59H                                                                                                                                                                                                                                                                                               |
| NLS                  | <b>INT 21H</b> : 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              | <b>INT 21H</b> : 4400H, 4401H, 4402H, 4403H, 4404H, 4405H, 4406H, 4407H, 4408H, 4409H, 440AH, 440BH, 440CH, 440DH, 440EH, 440FH, 4410H, 4411H, 53H                                                                                                                                                                                                         |
| Network              | <b>INT 21H</b> : 5E00H, 5E01H, 5E02H, 5E03H, 5E04H, 5E05H, 5F00H, 5F01H, 5F02H, 5F03H, 5F04H, 5F05H, 5F07H, 5F08H                                                                                                                                                                                                                                          |

## osFree Macro Library

|                |                                                                                                                                                                                                                    |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Video I/O      | @SetMode @SetCurSz @SetCurPos @GetCur @SetPage @ScrollUp @ScrollDn @Scroll @GetChAtr @PutChAtr @PutCh @SetPalet @SetColor @SetDot @GetDot @WrtTTY @VideoState @GetMode @GetDisplay @GetVideoState @GetEGAInfo @Cls |
| 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                                                                                                                                                                                                 |

2022/10/04 14:28 · prokushev · 0 Comments

2018/09/04 17:23 · prokushev · 0 Comments

## 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                                                                                                                                                                                                                                                                                                                        |

2018/08/25 15:05 · prokushev · 0 Comments

Last update: 2021/09/29  
11:46

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