


**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=11H

## Version

1 and higher

## Brief

FIND FIRST MATCHING FILE USING FCB

## Family API

DosFindFirst

## Input

```
      AH = 11h
      DS:DX -> unopened FCB (see #01345), may contain '?' wildcards
```

## Return

```
AL = status
          00h successful
              [DTA] unopened FCB for first matching file
          FFh no matching filename, or bad FCB
```

## Notes

the type of the returned FCB depends on whether the input FCB was a

```
        normal or an extended FCB
      the data returned in the DTA (disk transfer area) is actually the
```

```
        drive number (or extended FCB header and drive number) followed by
        the file's directory entry (see #01352); this format happens to be
        compatible with an unopened FCB
      for extended FCBs with search attribute 08h, the volume label (if any)
        will be returned even if the current directory is not the root dir.
      DOS 3.0+ also allows the '*' wildcard
      the search FCB at DS:DX must not be modified if AH=12h will be used to
        continue searching; DOS 3.3 has set the following parts of the FCB:
              0Ch    BYTE    ???
              0Dh    WORD    directory entry number of matching file
              0Fh    WORD    cluster number of current directory
              11h  4 BYTEs   ???
              15h    BYTE    drive number (1=A:)
      this function is used by many copy protection schemes to obtain the
        starting cluster of a file
```

BUG: under Windows95, if a .EXE program (“MZ” header) rather than a true

```
        .COM calls this function from a DOS box, the ten bytes of the
        directory entry from 0Ch to 15h may be filled with zeros rather than
        the additional file times
```

Format of DOS directory entry: Offset Size Description (Table 01352) 00h 8 BYTEs blank-padded filename

```
              first character is set to E5h for deleted files (05h for
                pending delete files under Novell DOS / OpenDOS)
```

08h 3 BYTEs blank-padded file extension 0Bh BYTE attributes 0Ch 10 BYTEs (MS-DOS 1.0-6.22) reserved

```
              (DR DOS) used to store file password / owner (see #01354)
                      (see also INT 21/AX=4302h)
              (Novell DOS 7) DELWATCH data (see #01354)
              (MS-DOS 7/Windows95) additional file times (see #01353)
```

16h WORD time of creation or last update (see #01665 at AX=5700h) 18h WORD date of creation or last update (see #01666 at AX=5700h) 1Ah WORD starting cluster number (see also AX=440Dh/CX=0871h)

```
              (may not be set in INT 21/AH=11h return data for FAT32 drives)
```

1Ch DWORD file size SeeAlso: #01355,#02628,#02629

Format of MS-DOS 7/Windows95 additional file times: Offset Size Description (Table 01353) 00h BYTE reserved 01h BYTE 10-millisecond units past creation time below 02h WORD file creation time 04h WORD file creation date 06h WORD last-access date 08h WORD (FAT32) high word of starting cluster number Note: this data is stored beginning at offset 0Ch in a standard directory

```
        entry
```

SeeAlso: #01352

Format of DR DOS 6/Novell DOS 7 additional file information: Offset Size Description (Table 01354) 0Ch BYTE reserved (00h)

```
              (DOSPLUS v1.2) user-defined attributes for CP/M compatibility
                (bit 7 = F1,...,bit 4 = F4, bits 3-0 reserved (0))
```

0Dh BYTE first character of original filename for deleted file 0Eh WORD encrypted file/directory password 10h WORD reserved (00h)

```
              (Novell DOS 7 DELWATCH) original file time
                  cleared when file is undeleted or purged
```

12h WORD (DR DOS 6) file owner ID

```
              (Novell DOS 7 DELWATCH) original file date
                  cleared when file is undeleted or purged
```

14h WORD single/multiuser file/directory access rights (see AX=4302h) —deleted files— 16h WORD (Novell DOS 7 DELWATCH) time of deletion 18h WORD (Novell DOS 7 DELWATCH) date of deletion Note: offsets are within the full directory entry SeeAlso: #01352

Format of MS-DOS 7/Windows95 long-filename directory entry: Offset Size Description (Table 01355) 00h BYTE LFN record sequence and flags

```
              bits 5-0: sequence number
              bit 6: set if last long-filename record for file
              bit 7: set if file deleted
```

01h 10 BYTEs long filename, first part 0Bh BYTE 0Fh (otherwise impossible file attribute, used as signature) 0Ch BYTE reserved??? (00h) 0Dh BYTE checksum for short filename 0Eh 12 BYTEs long filename, second part 1Ah WORD first cluster number (always 0000h for LFN records) 1Ch 4 BYTEs long filename, third part Notes: long-filename entries are always stored in the directory just prior

```
        to the short-name entry for a file
      multiple LFN records are used if the long filename does not fit into
        a single record
      the short-filename checksum byte is computed by adding up the
        eleven bytes of the short filename, rotating the intermediate
        sum right one bit before adding the next character
      the long filename is encoded as 16-bit Unicode characters; for most
        filenames, this appears in the directory as the ASCII character
        followed by 00h
```

SeeAlso: #01352,INT 21/AX=5704h,INT 21/AH=71h

# See also

SeeAlso: AH=12h,AH=1Ah,AH=4Eh,INT 2F/AX=111Bh

# 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 |
| **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 |

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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 |

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

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Last update: **2024/04/27 07:45**