



Family API

Family API (FAPI) is a subset of [Control Program API](#) which can be used to write binary portable applications. Such applications can be run as on OS/2 as on DOS system without any modifications. It is known 2 versions of original Family API 1.00 and 1.10.

Dual OS applications

It is possible to write programs which will run on OS/2, DOS and Windows NT from one binary. Moreover, same source code can be used without any `#ifdef` and other preprocessor statements. Such portability achieved via Family API. Family API is OS/2 API emulation layer on top of DOS. OS/2 executable file is in NE (New Executable) file format. NE file consist of two parts:

1. Legacy DOS MZ EXE format part;
2. NE EXE part.

Using Family API MZ part of file used to provide loading and dynamic linking mechanism to load and link NE. Also Family API file contains emulation library which translates OS/2 API calls to DOS interrupt calls. So, same file can be executed as in OS/2 as in DOS. Windows NT contains OS2 Subsystem (`os2ss.exe`) which provides OS/2 API layer on top of Windows NT kernel. So, Family API allows to support 3 OSes using one binary file.

For current time only 16-bit Family API supported.

Writing portable tools

As example of dual mode program lets clone EXEHDR tools from OS/2 and Windows SDK/Toolkit. First of all consider we writing program for OS/2. Other things will be done later to make dual mode program.

```
#include <os2.h>
#include <newexe.h>

exe_hdr mz_hdr;
new_exe ne_hdr;

void main(void)
{
    DosOpen(FileHandle);
    DosRead(FileHandle, mz_hdr);
    DumpMZ(mz_hdr);
}
```

```

if (is_extended_exe(mz_hdr))
{
    DosRead(FileHandle, buffer);
    if (is_NE(buffer)) DumpNE((new_exe)buffer);
}
DosClose(FileHandle);
}

```

Function Calls

OS/2 1.0 introduced 93(?) function calls that could be used in FAPI programs.

Name	Description	Module (OS/2)	Library (DOS)	Status (OS/2)	Status (DOS)	FAPI Version
BadDynLink		-	API/FAPI	-		1.00
DosBeep	Generates sound from the speaker	DOSCALLS	API/FAPI		Done	1.00
DosBufReset	Flushes a file cache buffers	DOSCALLS	API/FAPI	Done	Done	1.10
DosChDir	Defines the current directory for the requesting process	DOSCALLS	API/FAPI	Done	Done	1.00
DosChgFilePtr	Moves the read/write pointer	DOSCALLS	API/FAPI	Done	Done	1.00
DosClose	Closes a handle to a file, pipe, or device	DOSCALLS	API/FAPI	Done	Done	1.00
DosCreateCSAlias	Create CS alias from data segment	DOSCALLS	API/FAPI		Done	1.00
DosDelete	Removes a directory entry associated with a file name	DOSCALLS	API/FAPI	Done	Done	1.00
DosDevConfig	Return device configuration	DOSCALLS	API/FAPI		Done	1.00
DosDupHandle	Returns a new file handle for an open file	DOSCALLS	API/FAPI	Done	Done	1.00
DosFreeSeg	Deallocates a memory segment	DOSCALLS	API/FAPI		Done	1.00
DosGetDateTime	Get the current date and time	DOSCALLS	API/FAPI		Done	1.00
DosGetEnv	Return the address of the process environment string for the current process	DOSCALLS	API/FAPI		Done	1.00

Name	Description	Module (OS/2)	Library (DOS)	Status (OS/2)	Status (DOS)	FAPI Version
DosGetHugeShift	Return a shift count used to derive the selectors that address memory allocated with DosAllocHuge	DOSCALLS	API/FAPI		Done	1.00
DosGetMachineMode	Returns the current mode of the processor	DOSCALLS	API/FAPI	Done	Done	1.00
DosGetMessage		DOSCALLS	API/FAPI			1.00
DosGetVersion	Returns the OS version number	DOSCALLS	API/FAPI	Done	Done	1.00
DosInsMessage		DOSCALLS	API/FAPI			1.00
DosMkDir	Creates a subdirectory	DOSCALLS	API/FAPI	Done	Done	1.00
DosMove	Moves a file object to another location and changes its name	DOSCALLS	API/FAPI		Done	1.00
DosNewSize	Changes the size of a file	DOSCALLS	API/FAPI		Done	1.00
DosPutMessage		DOSCALLS	API/FAPI			1.00
DosQCurDir	Returns the full path name of the current directory	DOSCALLS	API/FAPI		Done	1.00
DosQCurDisk	Determines the current default drive for the requesting process	DOSCALLS	API/FAPI		Done	1.00
DosQFileMode	Queries the mode (attribute) of the specified file	DOSCALLS	API/FAPI		Done	1.00
DosQFSInfo	Query file system info	DOSCALLS	API/FAPI		Done	1.00
DosQVerify	Returns the value of the verify flag	DOSCALLS	API/FAPI	Done	Done	1.00
DosRmDir	Removes a subdirectory from the specified disk	DOSCALLS	API/FAPI	Done	Done	1.00
DosSelectDisk	Selects the drive specified as the default drive	DOSCALLS	API/FAPI	Done	Done	1.00
DosSetDateTime		DOSCALLS	API/FAPI			1.00
DosSetFileInfo	Set attribute and extended attribute information for a file	DOSCALLS	API/FAPI		Done	1.00
DosSetFileMode		DOSCALLS	API/FAPI			1.00
DosSetVerify	Sets write verification	DOSCALLS	API/FAPI	Done	Done	1.00

Name	Description	Module (OS/2)	Library (DOS)	Status (OS/2)	Status (DOS)	FAPI Version
DosSleep	Suspend the current thread for a specified time	DOSCALLS	API/FAPI		Done	1.00
DosSubAlloc		DOSCALLS	API/FAPI			1.00
DosSubFree		DOSCALLS	API/FAPI			1.00
DosSubSet		DOSCALLS	API/FAPI			1.00
DosWrite	Write buffer to file	DOSCALLS	API/FAPI		Done	1.00
DosAllocHuge	Allocate multiple segments as a huge block of memory	DOSCALLS	API/FAPI		Done	1.00
DosAllocSeg	Allocate a data segment up to 64KB in size	DOSCALLS	API/FAPI		Done	1.00
DosCaseMap		DOSCALLS	API/FAPI			1.10
DosDevIOCtl		DOSCALLS	API/FAPI			1.00
DosError		DOSCALLS	API/FAPI			1.00
DosErrClass		DOSCALLS	API/FAPI			1.10
DosExecPgm		DOSCALLS	API/FAPI			1.00
DosExit		DOSCALLS	API/FAPI			1.00
DosFileLocks		DOSCALLS	API/FAPI			1.00
DosFindClose		DOSCALLS	API/FAPI			1.00
DosFindFirst		DOSCALLS	API/FAPI			1.00
DosFindNext		DOSCALLS	API/FAPI			1.00
DosGetCtryInfo		DOSCALLS	API/FAPI			1.10
DosGetDBCSEv		DOSCALLS	API/FAPI			1.10
DosGetCP		DOSCALLS	API/FAPI			1.10
DosSetCP		DOSCALLS	API/FAPI			1.10
DosGetCollate		DOSCALLS	API/FAPI			1.10
DosHoldSignal		DOSCALLS	API/FAPI			1.00
DosOpen		DOSCALLS	API/FAPI			1.00
DosQFileInfo		DOSCALLS	API/FAPI			1.00
DosRead		DOSCALLS	API/FAPI			1.00
DosReallocHuge		DOSCALLS	API/FAPI			1.00
DosReallocSeg		DOSCALLS	API/FAPI			1.00
DosSetCtryCode		DOSCALLS	API/FAPI			1.00
DosSetFHandState		DOSCALLS	API/FAPI			1.00
DosSetSigHandler		DOSCALLS	API/FAPI			1.00
KbdCharIn		KBDCALLS	API/FAPI			1.00
KbdFlushBuffer		KBDCALLS	API/FAPI			1.00
KbdGetStatus		KBDCALLS	API/FAPI			1.00
KbdSetStatus		KBDCALLS	API/FAPI			1.00
KbdStringIn		KBDCALLS	API/FAPI			1.00
KbdPeek		KBDCALLS	API/FAPI			1.00
VioGetBuf		VIOCALLS	API/FAPI			1.00
VioGetCurPos		VIOCALLS	API/FAPI			1.00

Name	Description	Module (OS/2)	Library (DOS)	Status (OS/2)	Status (DOS)	FAPI Version
VioGetCurType		VIOCALLS	API/FAPI			1.00
VioGetPhysBuf		VIOCALLS	API/FAPI			1.00
VioReadCellStr		VIOCALLS	API/FAPI			1.00
VioReadCharStr		VIOCALLS	API/FAPI			1.00
VioScrollDn		VIOCALLS	API/FAPI			1.00
VioScrollLf		VIOCALLS	API/FAPI			1.00
VioScrollRt		VIOCALLS	API/FAPI			1.00
VioScrUnLock		VIOCALLS	API/FAPI			1.00
VioSetCurPos		VIOCALLS	API/FAPI			1.00
VioSetCurType		VIOCALLS	API/FAPI			1.00
VioSetMode		VIOCALLS	API/FAPI			1.00
VioShowBuf		VIOCALLS	API/FAPI			1.00
VioWrtCellStr		VIOCALLS	API/FAPI			1.00
VioWrtCharStr		VIOCALLS	API/FAPI			1.00
VioWrtCharStrAtt		VIOCALLS	API/FAPI			1.00
VioWrtNAttr		VIOCALLS	API/FAPI			1.00
VioWrtNCell		VIOCALLS	API/FAPI			1.00
VioWrtNChar		VIOCALLS	API/FAPI			1.00
VioWrtTTY		VIOCALLS	API/FAPI			1.00
VioScrLock		VIOCALLS	API/FAPI			1.00

Limitations

DOS Real Mode

- max. 640K memory
- no virtual address space
- no multitasking
- no undocumented OS services
- If the filename of an executable produced by BIND is changed, then it will not run under DOS 2.1.

OS/2 16-bit Protected Mode

- 16 MB memory
- 1GB virtual address space

Notes

This text based on http://www.edm2.com/index.php/Family_API

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