This call notifies OS/2 of a handler for a signal. It may also be used to ignore a signal or install a default action for a signal.

**Syntax**

DosSetSigHandler (Routine, PrevAddress, PrevAction, Action, SigNumber)

**Parameters**

;Routine (PFNSIGHANDLER) - input : Address of the entry point of routine that receives control when a signal equal to SigNumber is received. ;PrevAddress (PFNSIGHANDLER FAR *) - output: Address of the previous signal handler. This operand may be coded as null (= 0), then it is ignored. ;PrevAction (PUSHORT) - output : Address of the previous signal action. Only values 0 to 3 are returned. This operand may be coded as null (= 0), then it is ignored. ;Action (USHORT) - input : Indicates what action to take when the specified signal is received: `'Value Definition'` 0 The system default action is installed for the signal. 1 The signal is to be ignored. 2 The routine receives control when the SigNumber occurs. 3 It is an error for any program to signal this SigNumber to this process. 4 The current signal is reset without affecting the disposition of the signal. ; SigNumber (USHORT) - input : Signal number to be intercepted by this signal handler. The signal numbers defined are: `'Value Definition'` 1 Ctrl-C (SIGINTR) 3 Program terminated (SIGTERM) 4 Ctrl-Break (SIGBREAK) 5 Process flag A (SIGPFA) 6 Process flag B (SIGPFB) 7 Process flag C (SIGPFC) `'Note:'` Presentation Manager applications may not establish signal handlers for Ctrl-C and Ctrl-Break. Establishing a signal handler for Ctrl-C and Ctrl-Break is supported for VIO-Windowable and full-screen applications.

The following chart indicates what signal to specify to cause the signal handler to get control for the CTRL-C and CTRL-Break key sequences in each of the keyboard modes (ASCII and Binary): {|class="wikitable" ! ||ASCII Mode||BINARY Mode

| | |
|---|---|
| CTRL-C | SIGINTR |
| CTRL-Break | SIGINTR |

**Return Code**

;rc (USHORT) - return:Return code descriptions are: * 0 NO_ERROR * ERROR_INVALID_FUNCTION * 209 ERROR_INVALID_SIGNAL_NUMBER * 210 ERROR_THREAD_1_INACTIVE

**Remarks**

When the signal indicated by SigNumber occurs, the signal handling routine receives control with: (SS:SP) Far return address (SS:SP+4) SigNumber being processed (SS:SP+6) SigArg furnished on the DosFlagProcess request, if appropriate. Other than SS, SP, CS, IP and flags, all registers contain the same values they contained at the time the signal was received. The handler may exit by executing an intersegment return instruction, or by manually setting the stack frame to some known state and jumping to some known location. If the former option is selected, execution resumes where it was interrupted, and all registers are restored to their values at the time of the interruption.

The signal handler is given control under the first thread of a process, not a thread created by the

DosCreateThread system request. It is invalid to issue this system call when thread 1 has terminated. If thread 1 terminates with other threads still active, all signals are reset to the default action.

To return from the signal, the handler must remove the signal number and signal argument passed as parameters. For handlers written in most high-level languages, this is done automatically. A handler written in assembler language must execute a Far RET 4 instruction or its equivalent, to return to the caller. The signal handler may also reset the stack pointer to some previous valid stack frame and jump to some other part of the program.

The values returned in PrevAddress and PrevAction are to be used for restoring the previous signal handler when the current process no longer wishes to intercept this signal. For Action = 4, no values are returned for PrevAddress or PrevAction.

When a signal is issued from the base keyboard device driver in response to a Ctrl-C or Ctrl-Break key press, the default action terminates the process if the application did not install a signal handler for any signal numbers 1-4.

For signals of type SIGINTR or SIGBREAK, a call to DosSetSigHandler also determines which process within the current session is signalled as a result of a device driver call to Device Helper Services for the SendEvent function and CTRL-C (or CTRL-BREAK) event type. (See the IBM Operating System/2 Version 1.2 I/O Subsystems And Device Support Volume 1, Device Helper Services discussion). This process is known as the `signal focus“ for SIGINTR (or SIGBREAK) within its session. The signal focus for SIGINTR need not be the same process as the signal focus for SIGBREAK. The determination for signal focus follows.

Initially, a session has no signal focus for SIGINTR (or SIGBREAK). A process becomes the signal focus for SIGINTR ( or SIGBREAK) within its session if it calls DosSetSigHandler with ActionCode equal to 1, 2, or 3. A process remains the signal focus until: * The process terminates. * The process calls DosSetSigHandler with ActionCode equal to zero. * Another process calls DosSetSigHandler with ActionCode equal to 1, 2, or 3.

In the first two cases, the parent or its closest related ancestor process that has a handler installed for the appropriate signal becomes the focus. If no eligible process exists, the session ceases to have a signal focus for that signal.

If a device driver makes a SendEvent call for CTRL-C or CTRL-BREAK and the current session has no focus for the corresponding signal, all processes in the session are signaled with SIGTERM to terminate.

**Family API Considerations**

Some options operate differently in the DOS mode than in OS/2 mode. Therefore, the following restriction applies to DosSetSigHandler when coding in DOS mode: * The only signals recognized in DOS are SIGINTR (Ctrl-C) and SIGBREAK. * The option Action=3 generates an “invalid signal number” error. * If SigNumber is any value other than SIGINTR or SIGBREAK, then an “invalid signal number” error is generated.

SIGINTR is fully supported, and SIGBREAK is related to SIGINTR. Therefore, if SIGINTR is specified, both SIGINTR and SIGBREAK are transferred to the SIGINTR handler. SIGBREAK is permitted as a coded value, but the request to set SIGBREAK is ignored. To be compatible in all environments,

SIGBREAK and SIGINTR should be considered together in all cases.

### C Binding

<PRE> #define INCL_DOSSIGNALS

USHORT rc = DosSetSigHandler(Routine, PrevAddress, PrevAction, Action,

```
                                SigNumber);
```

PFNSIGHANDLER Routine; /* Signal handler */ PFNSIGHANDLER FAR * PrevAddress; /* Previous handler (returned) */ PUSHORT PrevAction; /* Previous action (returned) */ USHORT Action; /* Indicate request type */ USHORT SigNumber; /* Signal number of interest */

USHORT rc; /* return code */ </PRE>

#### Example

The following example illustrates the use of a user-defined flag to signal time-critical events. The main thread installs a routine, named FlagA_Handler(), as the signal handler for user-defined Flag A. It then creates a thread and blocks on a reserved RAM semaphore; this thread obtains its process ID and signals the main thread via Flag A. The main thread responds by executing the signal handler. <PRE> #define INCL_DOSPROCESS #define INCL_DOSSIGNALS #define INCL_DOSERRORS

#include <os2.h>

#define TIMEOUT 5000L

TID ThreadID; BYTE ThreadStack[4000];

VOID APIENTRY FlagA_Handler(arg1, arg2) /* Define signal handler */

```
USHORT      arg1;
USHORT      arg2;
```

{

```
printf("Handler for Flag A now running.\n");
return;
```

}

VOID APIENTRY Thread_A() {

```
PIDINFO     PidInfo;
USHORT      FlagArg;
USHORT      rc;
```

```
DosGetPID(&PidInfo);
```

```
printf("Process ID is %d\n", PidInfo.pid);
if(!(rc = DosFlagProcess(PidInfo.pid,
                         FLGP_PID,
                         PFLG_A,
                         FlagArg)))
  printf("FlagA signal sent from ThreadA to main thread.\n");
else
  printf("FlagProcess rc is %d\n", rc)/* Error processing on rc */;
DosExit(EXIT_THREAD,                 /* Action Code */
        RETURN_CODE);                /* Result Code */
```

}

main() {

```
ULONG            RamSem = 0L;
ULONG far        *RamSemHandle = &RamSem;
USHORT           rc;
```

```
if(!(rc=DosSetSigHandler((PFNSIGHANDLER) FlagA_Handler,
                         NULL,
                         NULL,
                         SIGA_ACCEPT,
                         SIG_PFLG_A)))
  printf("Main thread has set FlagA handler.\n");
else
  /* Error processing on rc */;
if(!(rc=DosSemRequest(RamSemHandle,
                      TIMEOUT)))
  printf("Semaphore obtained.\n");
if(!(DosCreateThread((PFNTHREAD) Thread_A,
                      &ThreadID,
                      &ThreadStack[3999])))
  printf("ThreadA created.\n");
printf("Main thread will now wait on a Ramsem for a while.\n");
if((rc=DosSemRequest(RamSemHandle,
                     TIMEOUT))
     == ERROR_INTERRUPT)
printf("Main thread interrupted while waiting, rc is %d.\n", rc);
```

} </PRE>

**MASM Binding**

<PRE> EXTRN DosSetSigHandler:FAR INCL_DOSSIGNALS EQU 1

PUSH@ DWORD Routine ;Signal handler PUSH@ DWORD PrevAddress ;Previous handler (returned) PUSH@ WORD PrevAction ;Previous action (returned) PUSH WORD Action ;Indicate request type PUSH WORD SigNumber ;Signal number of interest CALL DosSetSigHandler

Returns WORD </PRE>

# Note

Text based on http://www.edm2.com/index.php/DosSetSigHandler

| **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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