

# CancelIoEx can cancel synchronous I/O, which is kind of nice

---

 [devblogs.microsoft.com/oldnewthing/20170928-00](https://devblogs.microsoft.com/oldnewthing/20170928-00)

September 28, 2017



Raymond Chen

The `CancelIoEx` function can be used to cancel synchronous I/O.

This is handy if you have a program that processes a file in large chunks and you want to give it a Cancel button. Without `CancelIoEx`, you would either have to accept that the program won't respond to the Cancel button until the large I/O is complete, or you would have to change your program so it processed the file in small chunks, which is less efficient.

But with `CancelIoEx`, you can do your large chunk processing and still let the user cancel it immediately.

```

#define STRICT
#include <windows.h>
#include <stdio.h>

#define FILESIZE (200*1024*1024)

DWORD CALLBACK ThreadProc(void* h)
{
    void* buffer = VirtualAlloc(0, FILESIZE, MEM_COMMIT, PAGE_READWRITE);
    DWORD actual;
    auto result = ReadFile(h, buffer, FILESIZE, &actual, 0);
    auto lastError = GetLastError();
    printf("ReadFile -> %d, GetLastError = %d\n", result, lastError);
    return 0;
}

int __cdecl main(int, char**)
{
    auto h = CreateFile("D:\\setup.exe", GENERIC_READ, 0, 0,
        OPEN_EXISTING, FILE_ATTRIBUTE_NORMAL |
        FILE_FLAG_NO_BUFFERING, 0);

    DWORD id;
    auto thread = CreateThread(0, 0, ThreadProc, h, 0, &id);
    Sleep(1000);
    CancelIoEx(h, nullptr);
    WaitForSingleObject(thread, INFINITE);
    return 0;
}

```

This program reads **200MB** of data from a file that I hard-coded, which on my machine happens to be on a CD-ROM. One thread reads the beginning portion of the file into memory, and the other thread calls `CancelIoEx` to cancel the large I/O operation.

```
ReadFile -> 0, GetLastError = 995
```

Error 995 is

```
C:\> NET_HELPMSG 995
```

The I/O operation has been aborted because of either a thread exit or an application request.

which corresponds to `ERROR_OPERATION_ABORTED`, just like the documentation says.

**Related reading:** [CancelIoEx can cancel I/O on console input, which is kind of nice.](#)

[Raymond Chen](#)

**Follow**



