

```
alegrand@courslinux:LAS 03 exemples$ lastrace.sh ./exemple6
entier envoye par mon pere: 7
Traced syscalls and signals on ./exemple6:
[PID=3009379] execve("./exemple6", ["./exemple6"], 0x7ffda2c88328 /* 23 vars */) = 0
[PID=3009379] openat(AT FDCWD, "/etc/ld.so.cache", O RDONLY|O CLOEXEC) = 3
[PID=3009379] close(3) = 0
[PID=3009379] openat(AT FDCWD, "/lib/x86 64-linux-qnu/libc.so.6", 0 RDONLY 0 CLOEXEC) = 3
[PID=3009379] close(3) = 0
[PID=3009379] pipe2([3, 4], 0) = 0
[PID=3009379] clone(child stack=NULL, flags=CLONE CHILD CLEARTID|CLONE CHILD SETTID|SIGCHLD, child tid
ptr=0x7f590c1a4a10) = 3009380
[PID=3009379] close(3) = 0
[PID=3009379] write(4, "\7\0\0\, 4) = 4
[PID=3009379] close(4 <unfinished ...>
[PID=3009380] close(4 <unfinished ...>
[PID=3009379] < \dots close resumed>) = 0
[PID=3009380] < \dots close resumed>) = 0
[PID=3009380] read(3, "10\00", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
[PID=3009380] close(3) = 0
[PID=3009380] +++ exited with 0 +++
```

Lancement de
./exemple6
(PID = 3009379)
par le script *lastrace.sh* 

```
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[PID=3009379] openat(AT FDCWD, "/lib/x86 64-linux-qnu/libc.so.6", O RDONLY O CLOEXEC) = 3
[PTD=30093791 close(3) =
[PID=3009379] pipe2([3, 4], 0) = 0
[PID=3009379] clone(child stack=NULL, flags=CLONE CHILD CLEARTID|CLONE CHILD SETTID|SIGCHLD, child tid -> pipefd = [3,4]
ptr=0x7f590c1a4a10) = 3009380
[PID=3009379] close(3) = 0
[PID=3009379] write(4, "\7\0\0\, 4) = 4
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[PID=3009380] close(4 <unfinished ...>
[PID=3009379] < \dots close resumed>) = 0
[PID=3009380] < \dots close resumed>) = 0
[PID=3009380] read(3, "\sqrt{7}\sqrt{0}\sqrt{0}", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
[PID=3009380] close(3) = 0
[PID=3009380] +++ exited with 0 +++
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**PÈRE:** création d'un pipe

```
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[PID=3009379] close(3) = 0
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[PID=3009380] close(4 <unfinished ...>
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[PID=3009380] < \dots close resumed>) = 0
[PID=3009380] read(3, "\sqrt{7}\sqrt{0}\sqrt{0}", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
[PID=3009380] close(3) = 0
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```

## PÈRE: création du processus fils → PID = 3009380

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Traced syscalls and signals on ./exemple6:
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[PID=3009379] close(3) = 0
[PID=3009379] openat(AT FDCWD, "/lib/x86 64-linux-gnu/libc.so.6", 0 RDONLY | 0 CLOEXEC) = 3
[PID=3009379] close(3) = 0
[PID=3009379] pipe2([3, 4], 0) = 0
[PID=3009379] clone(child stack=NULL, flags=CLONE CHILD CLEARTID|CLONE CHILD SETTID|SIGCHLD, child_tid_PÈRE:
ptr=0x7f590c1a4a10) = 3009380
[PID=3009379] close(3) = 0
[PID=3009379] write(4, "\7\0\0\0", 4) = 4
[PID=3009379] close(4 <unfinished ...>
[PID=3009380] close(4 <unfinished ...>
[PID=3009379] < \dots close resumed>) = 0
[PID=3009380] < \dots close resumed>) = 0
[PID=3009380] read(3, "\sqrt{7}\sqrt{0}\sqrt{0}", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
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```

le père ferme l'extrémité de lecture (sortie) du pipe (3)

```
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[PID=3009379] close(3) = 0
[PID=3009379] pipe2([3, 4], 0) = 0
[PID=3009379] clone(child stack=NULL, flags=CLONE CHILD CLEARTID|CLONE CHILD SETTID|SIGCHLD, child tid
ptr=0x7f590c1a4a10) = 3009380
[PTD=30093791 close(3) = 0
[PID=3009379] write (4, "\7\0\0, 0, 4) = 4
[PID=3009379] close(4 <unfinished ...>
[PID=3009380] close(4 <unfinished ...>
[PID=3009379] < \dots close resumed>) = 0
[PID=3009380] < \dots close resumed>) = 0
[PID=3009380] read(3, "\sqrt{7}\sqrt{0}\sqrt{0}", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
[PID=3009380] close(3) = 0
[PID=3009380] +++ exited with 0 +++
```

### PÈRE:

le père écrit un entier dans l'entrée (extrémité d'écriture) du pipe (4) → 4 bytes écrits

```
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[PID=3009379] close(3) = 0
[PTD=3009379] write (4 \text{ "}\7\0\0\0) (4) = 4
[PID=3009379] close(4 <unfinished ...>
[PID=3009380] close(4 <unfinished ...>
[PID=3009379] < \dots close resumed>) = 0
[PID=3009380] < \dots close resumed>) = 0
[PID=3009380] read(3, "\sqrt{7}\sqrt{0}\sqrt{0}", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
[PID=3009380] close(3) = 0
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```

#### PÈRE:

le père ferme l'extrémité d'écriture du pipe

```
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[PID=3009379] close(3) = 0
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ptr=0x7f590c1a4a10) = 3009380
[PID=3009379] close(3) = 0
[PID=3009379] write (4, "\7\0\0", 4) = 4
[PTD=3009379] close(4 <unfinished ...>
[PID=3009380] close(4 <unfinished ...>
[PID=3009379] < \dots close resumed>) = 0
[PID=3009380] < \dots close resumed>) = 0
[PID=3009380] read(3, "\sqrt{7}\sqrt{0}\sqrt{0}", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
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FILS: le fils ferme l'extrémité d'écriture du pipe (4)

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Traced syscalls and signals on ./exemple6:
[PID=3009379] execve("./exemple6", ["./exemple6"], 0x7ffda2c88328 /* 23 vars */) = 0
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[PID=3009379] openat(AT FDCWD, "/lib/x86 64-linux-qnu/libc.so.6", O RDONLY O CLOEXEC) = 3
[PID=3009379] close(3) = 0
[PID=3009379] pipe2([3, 4], 0) = 0
[PID=3009379] clone(child stack=NULL, flags=CLONE CHILD CLEARTID|CLONE CHILD SETTID|SIGCHLD, child tid
ptr=0x7f590c1a4a10) = 3009380
[PID=3009379] close(3) = 0
[PID=3009379] write (4, "\7\0\0", 4) = 4
[PID=3009379] close(4 <unfinished ...>
[PID=3009380] close(4 <unfinished ...>
[PID=3009379] < \dots close resumed>) = 0
[PTD=30093801 < ... close resumed>) = 0
[PID=3009380] read(3, "7\0\0", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
[PID=3009380] close(3) = 0
[PID=3009380] +++ exited with 0 +++
```

# FILS: le fils lit un entier sur l'extrémité de lecture du pipe (3) → 4 bytes lus

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[PID=3009379] close(3) = 0
[PID=3009379] write(4, "\7\0\0\0", 4) = 4
[PID=3009379] close(4 <unfinished ...>
[PID=3009380] close(4 <unfinished ...>
[PID=3009379] < \dots close resumed>) = 0
[PID=3009380] < \dots close resumed>) = 0
                                                                                                 PÈRE:
[PTD=30093801 \text{ read}(3 "\7\0\0\0" 4) =
                                                                                                 le père se termine
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
                                                                                                 (PID = 3009379)
[PID=3009380] close(3) = 0
                                                                                                 avec un exit code = 0
[PID=3009380] +++ exited with 0 +++
```

```
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[PID=3009379] < \dots close resumed>) = 0
[PID=3009380] < \dots close resumed>) = 0
[PID=3009380] read(3, "\sqrt{7}\sqrt{0}\sqrt{0}", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
[PID=3009380] close(3) = 0
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```

FILS:
le fils affiche un
message à l'écran (1)

→ 30 bytes écrits

```
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[PID=3009379] close(3) = 0
[PID=3009379] write (4, "\7\0\0", 4) = 4
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[PID=3009380] < \dots close resumed>) = 0
[PID=3009380] read(3, "\sqrt{7}\sqrt{0}\sqrt{0}", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
[PID=3009380] close(3) = 0
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```

FILS: le fils ferme l'extrémité de lecture du pipe (3)

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[PID=3009380] close(4 <unfinished ...>
[PID=3009379] < \dots close resumed>) = 0
[PID=3009380] < \dots close resumed>) = 0
[PID=3009380] read(3, "\sqrt{7}\sqrt{0}\sqrt{0}", 4) = 4
[PID=3009379] +++ exited with 0 +++
[PID=3009380] write(1, "entier envoye par mon pere: 7\n", 30) = 30
[PTD=30093801 close(3) = 0
[PID=3009380] +++ exited with 0 +++
```

FILS: fin de l'exécution du fils (PID = 3009380) avec exit code = 0