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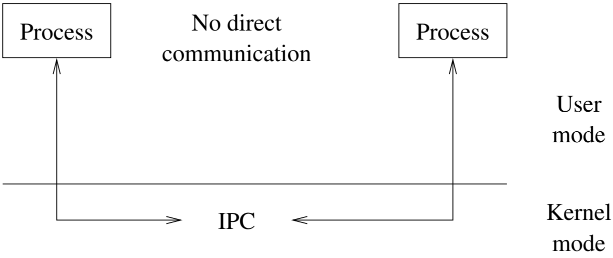
For example, a new program starting might wish to tell the process managing the display that it wishes to pop up a window on the display

Or one process has to wait for another to finish some action (e.g., pop up a window) before it can progress itself: this is *synchronisation*

Inter-Process Communication

Inter-Process Communication (IPC) can be achieved in many different ways, but all must be, at base, supported by the OS; recall that by default the kernel tries to stop one process interfering with another



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There must be rules and restrictions, or else one process could just blast another process with data, preventing it from doing any useful work

Inter-Process Communication

We shall be looking at

- Files
- Pipes
- Shared memory
- Signals
- Semaphores (synchronisation)
- Software buses

as a sample of IPC mechanisms

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But it’s much harder than this

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- Which file to use? A and B need to agree on a filename to use, but this is not so easy. They can use a single “well-known” file, but this is problematic if many processes are all writing to the same file simultaneously. For example, C wants to communicate with D at the same time via the same file.

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  They could have a separate file for each pair of processes, but to agree on a file name A and B must have previously communicated. . .
- How does B know when data has arrived? B might have to repeatedly poll the file until the data arrives. This doesn’t scale well to large numbers of files or processes

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Exercise. Read about the mechanism of choice to transfer the data describing the first ever image of a black hole (April 2019)

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