

Adam Jackson: threads and libxcb: problems now we have two

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If you want to write an X application, you need to use some library that speaks the X11 protocol. For a long time this meant libX11, often called xlib, which - like most things about X - is a fantastic bit of engineering that is very much a product of its time with some confusing baroque bits. Overall it does a very nice job of hiding the icky details of the protocol from the application developer.

One of the details it hides has to do with how resource IDs are allocated in X. A resource ID (an XID, in the jargon) is a 32-bit integer that names a resource - window, colormap, what have you. Those 29 bits are split up netmask/hostmask style, where the top 8 or so uniquely identify the client, and the rest identify the resource belonging to that client. When you create a window in X, what you really tell the server is "I want a window that's initially this size, this background color (etc.) and from now on when I say (my client id + 17) I mean that window." This is great for performance because it means resource allocation is assumed to succeed and you don't have to wait for a reply from the server.

Key to all this is that in xlib the XID is the return value from the call that issues the resource creation request. Internally the request gets queued into the protocol's write buffer, but the client can march ahead and issue the next few commands as if creation had succeeded - because it probably did, and if it didn't you're probably going to crash anyway.

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