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Subject: communication strategy between widget and background programs

Posted by [Benjamin Hornberger](#) on Thu, 16 Sep 2004 21:29:55 GMT

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Hi all,

I was hoping the bright minds out there might have some useful comments on the following problem:

We are writing control software for an X-ray microscope. The instrument itself is controlled by software written in C++, while a GUI (including some image processing features) is written in IDL. The two are communicating via an IDL client and a C++ server, who talk to each other through TCP/IP sockets.

One important characteristic of our client/server scheme is that they communicate asynchronously, meaning that the client sends request without expecting an immediate reply. The server will send the reply independently at some point later. This is already implemented and unlikely to be changed, even though it is the cause of some big headaches.

We have the following types of situations:

1. The GUI wants to send a command to the server without expecting any direct response.
2. The server wants to send something to the GUI without a prior request from there.
3. The GUI wants to send a request to the server and should really wait for the response (and not accept any input in the meantime).

Case 1 is easy, the GUI just has to call a procedure in the client. Case 2 I can probably handle by sending an event (via `widget_control`, `id`, `send_event=...`) from the client to the GUI. For that, on startup the GUI has to send a widget ID to the client, which the client has to store somewhere. Of course I have to be careful that the events sent from the outside can't confuse the GUI.

I haven't found a satisfying strategy for case 3 yet. Definitely I need some visual clue for the user that the GUI is waiting for something. See my two previous posts about keeping a button depressed or using the hourglass cursor. Also, I have to make sure no input is possible while waiting for the response. For that I could make the GUI insensitive, and the client would make it sensitive again when he sends the response. But that way, I have no way to cancel if the server doesn't respond -- the GUI would be frozen. I am considering having a window pop up saying something like "waiting for server response..." which disappears when the server actually responds, and which offers a cancel button.

Any hints on how to do that? Any general suggestions? Any comments are appreciated!

Benjamin

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