Subject: Re: random number trap
Posted by scott on Tue, 29 Aug 1995 07:00:00 GMT
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Peter Webb writes
> A warning about the random number generator in IDL/PV-Wave (not a bug,
> per se, but something to watch out for).
>
> As the documentation states, if the seed value given to randomu is
> undefined, it is derived from the system time. The time only changes
> once per second, however. So if you repeatedly call a procedure that
> calls randomu, the return will be the same if the calls occur within a
> second of each other, but will be different if they are in different
> seconds.
>
> This can lead to random numbers being a *lot* more structured than you
> expect. I had naively expected that the seed value would change each
> microsecond, so this behavior came as a bit of a surprise.
>
> The solution is to place the seed variable in a common block so that it
> is preserved from call to call, and then each returned sequence will
> truly be random.
>
> Peter
>
> ---
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Actually, the problem goes much deeper than the granularity of the system time, and hinges on what you mean by "random." Many scientific users expect a "random" variable to have a Gaussian distribution, which no "random number generator" in any language is likely to provide.

For an excellent discussion of this problem, as well as nice, simple solutions, see W. H. Press et al., 1992: Numerical Recipes, Cambridge University Press, Chapter 7 (Random Numbers).

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