
Subject: Re: random numbers with gamma distribution
Posted by [Alejandro C. Frery](#) on Mon, 09 Nov 1998 08:00:00 GMT
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In fact T. Osborn is right, IDL only generates gamma deviates with integer shape parameter. This may be due to the fact that it is easier to compute this kind of Gamma random variables, since they are the sum of independent exponentially distributed ones, and these are generated by a simple transformation of uniform random variables.

I'll soon post a program that generates outcomes from arbitrary Gamma distributed random variables but, in the meantime, some references on this topic are

```
@book{devro86,  
  author = {L. Devroye},  
  address = {New York},  
  publisher = {Springer-Verlag},  
  title = {Non-uniform random variate generation},  
  year = {1986}  
}  
@book{buseu92,  
  author = {Bustos, O. H. and A. C. Frery},  
  address = {Rio de Janeiro, RJ, Brazil},  
  publisher = {CNPq/IMPA},  
  series = {Monografias de Matem\'atica, 49},  
  title = {Simula\c{c}\~{a}o estoc\{a}stica: teoria e algoritmos  
(vers\~{a}o completa)},  
  year = {1992}  
}
```

Alejandro

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David Fanning escreveu na mensagem ...

> T.Osborn (f055@uea.ac.uk) writes:

```
>  
>> I'm trying to generate a random series that has a gamma distribution,  
using  
>> the randomu() function with the gamma keyword. The online help says to  
set  
>> gamma to an integer > 0. WHY DOES IT HAVE TO BE AN INTEGER? The gamma  
>> distribution is in fact defined for all gamma > 0, not just integers.  
>> I want to set gamma=0.5, which currently fails as it converts it to the  
>> integer 0, which is not > 0, and so it fails.
```

>>
>> Is this a bug, and is there any work-around?
>
> Which gamma function are you running? Certainly not IDL's
> GAMMA function which works perfectly well with non-integer
> values:
>
> IDL> print, gamma(0.5)
> % Compiled module: GAMMA.
> 1.77245
>
> Cheers,
>
> David
>
> -----
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> Coyote's Guide to IDL Programming: <http://www.dfanning.com/>
>
> Note: A copy of this article was e-mailed to the original poster.
>
