
Subject: Re: Converting Doubles to Strings
Posted by [biophys](#) on Mon, 07 Nov 2005 22:17:20 GMT
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Hi, David

I think I've got a more decent solution by assuming that double precision numbers have exactly 14 significant digits and throw away zeros at the end. In IDL help, it says that double type has approximately 14 digits of significance. So I am sure my solution will fail somewhere. However, so far it works pretty nice. Please let me know if any bugs should be fixed or any improvement should be made. A few examples here,

```
IDL> print,dbl2str(-22.12)
-22.12E
IDL> print,dbl2str(-22.12d)
-22.12D
IDL> print,dbl2str(-22.1234567890)
-22.12346E
IDL> print,dbl2str(-22.1234567890d)
-22.123456789D
IDL> print,dbl2str(!dpi*1e20)
3.1415927165501E+20
IDL> print,dbl2str(!dpi*1d20)
3.1415926535897D+20
```

here's the code,

```
;converting float/double type numer into its original inputform
function dbl2str, a
```

```
tp=size(a,/type)
if tp ne 4 and tp ne 5 then begin
    a=double(a)
    tp=5
endif
tps=tp eq 4?'E':'D'
```

```
rawstr=strtrim(string(a,format='(g)'),2);full width G format
sign=strmid(rawstr,0,1) eq '-'?'-':'';extract sign
rawstr=sign eq ""?rawstr:strmid(rawstr,1);throw away sign
epos=strpos(rawstr,'e')
indx=epos gt -1?strmid(rawstr,epos+1):'';extract exponent index
rawstr=indx eq ""?rawstr:strmid(rawstr,0,epos);throw away exponent part
dpos=strpos(rawstr,'.');
```

```

;rounding process(assume 14 significant digits)
outstr=strarr(15)
for i=0,14 do ostr[i]=strmid(rawstr,i,1)
aux=fix(strmid(rawstr,16,1)) ge 5?1:0
for i=14, 0, -1 do begin
    if i ne dpos then begin
        sumstr=strtrim(string(aux+fix(outstr[i])),2)
        sumlen=strlen(sumstr)
        ostr[i]=sumstr[sumlen-1]
        aux=sumlen eq 1?0:1
    endif
endfor

```

```

;throw away '0's at the end
ii=14
while ostr[ii] eq '0' do begin
    ii=ii-1
endwhile

```

```

;reconstruct the inputform
saux=aux ne 0?'1':''
ostr=sign+saux+strjoin(ostr[0:ii])+tps+indx

```

```

return,ostr

```

```

end

```

```

cheers,
bp

```

David Fanning wrote:

```

> Folks,
>
> I've run into an interesting problem. I have a double precision
> number that I wish to convert to a string (so I can put it into
> a text widget, for example). I don't know ahead of time how many
> significant digits will be in this number. The number could
> look like this 45.6, or this 123456789.123456789, or this
> -22.1234567890. If it looks like the latter number, I am
> having a very hard time converting it to a string. For example,
> this doesn't work:
>
> IDL> v = String(-22.1234567890, Format='(D0)')
> IDL> Print, v
>      -22.123457
>
> Is this a bug in IDL? Or am I overlooking something?
>

```

> Cheers,
>
> David
> --
> David Fanning, Ph.D.,
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> Coyote's Guide to IDL Programming: <http://www.dfanning.com/>
