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Subject: inexplicable LONG() - behaviour  
Posted by [frank](#) on Tue, 06 Sep 1994 13:48:33 GMT  
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Hello,

I'm using IDL 3.1.1 (no update in sight :-( ) under HP-UX.  
And there are some strange things happening....  
Of course, these are just things that I understand wrong :), so could someone  
please explain this behaviour:

```
IDL. Version 3.1.1 (hp-ux hp_pa).  
Copyright 1989-1993, Research Systems, Inc.  
All rights reserved. Unauthorized reproduction prohibited.  
Installation number: 3063.  
Licensed for use by: Johann Wolfgang Goethe-Universitaet, HRZ
```

```
X-IDL> print, long(1231231434.1)  
1231231488
```

The last two digits differ quite a bite. O.k. the number is too long,  
but why isn't there an error-message like in this example (same number but  
first digit):

```
X-IDL> print, long(2231231434.1)  
% Program caused arithmetic error: Floating overflow  
% Detected at $MAIN$ (LONG).  
2139095040
```

there still is an result, and the result is still wrong, but at least there's  
a message indicating that something went wrong.

Furthermore, I programmed a little routine, that is supposed to return  
a rounded value of it's argument (included at the end of this article).  
The argument can be integer, long, double, and the result is always long. e.g.

```
X-IDL> PRINT, ROUNDUP(12345.9867)  
13000  
X-IDL> PRINT, ROUNDUP(999.67)  
1000  
X-IDL> PRINT, ROUNDUP(53645)  
54000
```

- just to give you an impression.  
Using this function I have the following problem:

```
X-IDL> PRINT, ROUNDUP(101.1)
```

109

and it should result to 110. Wow, that's bad. If i leave out the LONG() conversion of the result at the end of the function, the returned value looks like this:

```
X-IDL> PRINT, ROUNDUP(101.1)
110.0000
```

- as it should be, just that the result is DOUBLE instead of LONG as I want it to be. Just a remark, in this particular version

```
X-IDL> t = ROUNDUP(101.1)
X-IDL> PRINT, LONG(t)
109
```

this detour doesn't fix it either. So what's wrong?  
Do I miss something with the LONG()-function??  
Or is it just 'buggy'?  
Should I test every LONG()-result by hand :)?  
Any help appreciated. Thanks in advance.

```
;
; I'm almost embarrassed to post this - what a code!
;
;----- snip, snip, snip -----
```

```
FUNCTION roundup, number
```

```
number = DOUBLE(number)
```

```
i = 0
```

```
REPEAT BEGIN
```

```
powercheck = number/10.0^i
```

```
i = i+1
```

```
ENDREP UNTIL powercheck LT 1
```

```
power = i-2
```

```
round2power = power - 1
```

```
tempvar = ((1-powercheck)*10^(power-round2power+1)) -
```

```
FIX((1-powercheck)*10^(power-round2power+1))
```

```
result = number + (tempvar*10.0^round2power)
```

```
PRINT, "RESULT: ", result
```

```
PRINT, "DOUBLE: ", DOUBLE(result)
```

```
PRINT, "LONG : ", LONG(result)
```

```
RETURN, LONG(result)
END
```

```
;----- snip, snip, snip -----
```

```
;
;
; this program gives the following output:
```

```
;
; X-IDL> .rnew roundup
; % Compiled module: ROUNDUP.
; X-IDL> PRINT, ROUNDUP(101.1)
; RESULT:    110.00000
; DOUBLE:    110.00000
; LONG :     109
;           109
; X-IDL> PRINT, ROUNDUP(111.1)
; RESULT:    120.00000
; DOUBLE:    120.00000
; LONG :     119
;           119
; X-IDL> PRINT, ROUNDUP(121.1)
; RESULT:    130.00000
; DOUBLE:    130.00000
; LONG :     129
;           129
;
```

```
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```

```
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```

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```

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