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).
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Installation number: 3063.
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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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