

Robotics Systems Types - Tasks #1273

Change rst.timing.Timestamp.time to seconds

11/30/2012 01:06 AM - J. Moringen

Status:	Rejected	Start date:	11/29/2012
Priority:	Normal	Due date:	
Assignee:	J. Moringen	% Done:	80%
Category:		Estimated time:	0.00 hour
Target version:	rsb-0.9		
Description			
- change unit to seconds - change type to double			
Related issues:			
Related to Robotics Systems Types - Tasks # 1271: Change rst.timing.Duration....		Rejected	11/29/2012

History

#1 - 11/30/2012 11:05 AM - A. Swadzba

Um das zu tun, müsste ich mir den rst-0.8 branch auschecken, oder?

#2 - 11/30/2012 02:37 PM - J. Moringen

This issue is intended to collect opinions. The actual change, if any, can be done later.

#3 - 11/30/2012 03:38 PM - A. Swadzba

In principal possible, but would effect existing source code.

#4 - 11/30/2012 03:44 PM - J. Moringen

Other opinions?

I brought this up because we mostly use SI units.

#5 - 11/30/2012 07:49 PM - J. Moringen

- Assignee changed from A. Swadzba to J. Moringen

- % Done changed from 0 to 80

We discussed this and it seems better to keep the current definition. Sorry.

There were four major arguments:

SI Units

In favor of change: We try to use SI units without magnitude prefixes, wherever possible.

Precision

Inconclusive: Experiments show that, in general, uint64 and double-float, but not single-float, provide enough precision for accurate timestamp calculation:

```
CL-USER> (let* ((now (local-time:now))
                (a/sec (local-time:timestamp-to-unix now))
                (a/nsec (local-time:nsec-of now))

                (ai (+ (* 1000000 a/sec) (floor a/nsec 1000)))
                (af (float ai 1.0f0)) ; single float
                (ad (float ai 1.0d0)) ; double float

                (bi (+ (* 1000000 0) (+ (floor a/nsec 1000) 1)))
                (bf (float bi 1.0f0)) ; single float
                (bd (float bi 1.0d0)) ; double float
                )
  (format t "Integer ~20D - ~20D = ~20D~%Single Float~20F - ~20F = ~20F~%Double Float~20F - ~20F = ~20F~%"
    bi ai (- ai bi)
    bf af (- af bf)
    bd ad (- ad bd)))
Integer      166762 - 1354300814166761 = 1354300813999999
Single Float  166762.0 - 1354300800000000.0 = 1354300800000000.0
Double Float  166762.0 - 1354300814166761.0 = 1354300813999999.0
```

Efficiency

Against change: In most cases, manipulation of integers is more efficient than manipulation of floats.

Common Practice

Against change: It was our impression that in most related work, timestamps are represented as integer/msec or integer/μsec.

Conclusion

We came to the conclusion that it would be best to keep the uint64/μsec representation and convert to float/sec in clients who want this (maybe with support from project:rosetta).

If nobody objects, I would add this explanation/rationale to the documentation strings of the data type and reject the issue.

#6 - 12/03/2012 06:29 PM - J. Moringen

- Status changed from *Feedback* to *Rejected*