

Q LANGUAGE - TEMPORAL DATA

http://www.tutorialspoint.com/kdbplus/q_language_temporal_data.htm

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The **q** language has many different ways of representing and manipulating temporal data such as times and dates.

Date

A date in kdb+ is internally stored as the integer number of days since our reference date is 01Jan2000. A date after this date is internally stored as a positive number and a date before that is referenced as a negative number.

By default, a date is written in the format "YYYY.MM.DD"

```
q)x:2015.01.22      / This is how we write 22nd Jan 2015

q)`int$x           / Number of days since 2000.01.01
5500i

q)`year$x          / Extracting year from the date
2015i

q)x.year           / Another way of extracting year
2015i

q)`mm$x            / Extracting month from the date
1i

q)x.mm             / Another way of extracting month
1i

q)`dd$x            / Extracting day from the date
22i

q)x.dd             / Another way of extracting day
22i
```

Arithmetic and logical operations can be performed directly on dates.

```
q)x+1              / Add one day
2015.01.23

q)x-7              / Subtract 7 days
2015.01.15
```

The 1st of January 2000 fell on a Saturday. Therefore any Saturday throughout the history or in the future when divided by 7, would yield a remainder of 0, Sunday gives 1, Monday yield 2.

Day	mod 7
Saturday	0
Sunday	1
Monday	2
Tuesday	3
Wednesday	4
Thursday	5
Friday	6

Times

A time is internally stored as the integer number of milliseconds since the stroke of midnight. A time is written in the format HH:MM:SS.MSS

```
q)tt1: 03:30:00.000      / tt1 store the time 03:30 AM
```

```

q)tt1
03:30:00.000

q)`int$tt1          / Number of milliseconds in 3.5 hours
12600000i

q)`hh$tt1           / Extract the hour component from time
3i

q)tt1.hh
3i

q)`mm$tt1           / Extract the minute component from time
30i

q)tt1.mm
30i

q)`ss$tt1           / Extract the second component from time
0i

q)tt1.ss
0i

```

As in case of dates, arithmetic can be performed directly on times.

Datetimes

A datetime is the combination of a date and a time, separated by 'T' as in the ISO standard format. A datetime value stores the fractional day count from midnight Jan 1, 2000.

```

q)dt:2012.12.20T04:54:59:000      / 04:54.59 AM on 20thDec2012

q)type dt
-15h

q)dt
2012.12.20T04:54:59.000
9
q)`float$dt
4737.205

```

The underlying fractional day count can be obtained by casting to float.