

**Date!** □□□□

11

1. 日付	1
2. 時刻	2
2.1. 時刻取得	2
2.2. 時刻設定	4
3. 日付時刻	6
3.1. /date	6
3.2. /year	7
3.3. /month	7
3.4. /day	8
3.5. /time	9
3.6. /hour	9
3.7. /minute	10
3.8. /second	11
3.9. /zone	11
3.10. /timezone	12
3.11. /yearday	13
3.12. /weekday	14
3.13. /week	15
3.14. /isoweek	16
3.15. 日付時刻文字列	17
3.16. Pick日付時刻文字列	18
4. 時刻文字列	18
4.1. UNIX時刻	18
4.2. 時刻文字列	19
5. 時刻文字列	19
6. 時刻文字列	20
7. 時刻文字列	21
8. 時刻文字列	22
8.1. Random	22

1.

date!

`date` `time` `date` `time` 24  
Red `date` ISO 8601

Note:

- `date!` 日付を指定する。例: `date! 2024-01-01`。日付を指定する場合は、`date!` の後に日付を指定する。
- `date!` の後に日付を指定する場合は、`date!` の後に日付を指定する。例: `date! 2024-01-01`。

## 2. □□

date! `make` to

## 2.1. □□□□□□

Rebol ISO

```
<date>/<time>  
<date>/<time><zone>  
<date>T<time>  
<date>T<time>Z  
<date>T<time><zone>
```

```
<date> 00000000
      <yyyy><sep><mmm><sep><dd>
      <dd><sep><mmm><sep><yyyy>
      <dd><sep><mmm><sep><yy>
```

```
T<date>
<yyyy><mm><dd>
<yyyy>-W<ww>
<yyyy>-W<ww>-<d>
<yyyy>-<ddd>
```

```
<mmm> 000000 0000
<m>
<mon>
<month>
```

```
<time> 00000000
    <hour>:<min>:<sec>
    <hour>:<min>:<sec><zone>
    <hhmmss>
    <hhmmss><zone>
    <hhmmss>.<dec>
    <hhmmss>.<dec><zone>
    <hhmm>
    <hhmm><zone>
```

```
<zone> 0000000000000000
      <sign><hour>
```

<sign><hhmm>

<ss>.<dec>

<hhmmss> : 00000000600000000000

```
date#####  
#####
```

```
<dd>-<mon>-<yyyy>/<hour>:<min>:<sec><sign><hour>:<min15>
```

[illegible]

Notes:

- 前2000年yy前到前500年前2000年到前500年1900年到前

date

1999-10-5  
1999/10/5  
5-10-1999  
5/10/1999  
5-October-1999  
1999-9-11  
11-9-1999  
5/sep/2012  
5-SEPTEMBER-2012

02/03/04  
02/03/71

5/9/2012/6:0  
5/9/2012/6:00  
5/9/2012/6:00+8  
5/9/2012/6:0+0430  
4/Apr/2000/6:00+8:00  
1999-10-2/2:00-4:30  
1/1/1990/12:20:25-6

2017-07-07T08:22:23+00:00  
2017-07-07T08:22:23Z  
20170707T082223Z  
20170707T0822Z  
20170707T082223+0530

2017-W01  
2017-W23-5  
2017-W23-5T10:50Z  
2017-001  
2017-153T10:50:00-4:00

## 2.2. □□□□□□

```

make date! [<day> <month> <year>]
make date! [<year> <month> <day>]
make date! [<day> <month> <year> <time>]
make date! [<day> <month> <year> <time> <zone>]
make date! [<day> <month> <year> <hour> <minute> <second>]
make date! [<day> <month> <year> <hour> <minute> <second> <zone>]

```

```

<year>    : integer!
<month>   : integer!
<day>     : integer!
<time>    : time!
<zone>    : integer!time!pair!
<hour>    : integer!
<minute>  : integer!
<second>  : integer!

```

## Notes:

- 使用 make 函数时，to 后面的数字表示时间单位，如 100 表示 100 天，3 表示 3 小时，1 表示 1 分钟，3 表示 3 秒。
- year 和 day 后面的数字表示时间单位，如 100 表示 100 天，3 表示 3 小时，1 表示 1 分钟，3 表示 3 秒。

□

```
make date! [1978 2 3]
== 3-Feb-1978

make date! [1978 2 3 5:0:0 8]
== 3-Feb-1978/5:00:00+08:00

make date! [1978 2 3 5:0:0]
== 3-Feb-1978/5:00:00

make date! [1978 2 3 5 20 30]
== 3-Feb-1978/5:20:30

make date! [1978 2 3 5 20 30 -4]
== 3-Feb-1978/5:20:30-4:00

make date! [100 12 31]
== 31-Dec-0100

; 32 isn't a valid day
make date! [100 12 32]
*** Script Error: cannot MAKE/TO date! from: [100 12 32]
*** Where: make

; First field is < 100, so not considered as a year
make date! [99 12 31]
*** Script Error: cannot MAKE/TO date! from: [99 12 31]
*** Where: make
```

## 3. □□□□□□

□□□□□□□□□□□□ **date!** □□□□□□□□□□□□

### 3.1. /date

□□

```
<date>/date
<date>/date: <date2>

<date>   : date!□□□□□□word□□□□□□
<date2>  : date!□□
```

□□

□□□□□□□□□□□□time□zone□□□□□□□□□□□□□□□□□□□□□□□□ **date!** □□□□□□□□□□

```
d: now
== 10-Jul-2017/22:46:22-06:00
d/date
== 10-Jul-2017
```

```
d/date: 15/09/2017
== 15-Sep-2017/22:46:22-06:00
```

## 00

```
<date>/year
<date>/year: <year>
```

```
<date> : date!word
<year> : integer!
```

[illegible]

```
d: now
== 10-Jul-2017/22:46:22-06:00
d/year: 16383
== 16383
d
== 10-Jul-16383/22:46:22-06:00
d/year: 16384
== 16384
d
== 10/Jul/-16384/22:46:22-06:00 ; 16384
d/year: 32767
== 32767
d
== 10/Jul/-1/22:46:22-06:00
d/year: 32768
== 32768
d
== 10-Jul-0000/22:46:22-06:00
```

## 7

11

```
<date>/month
<date>/month: <month>

<date>  : date!word
<month> : integer!
```

11

[illegible]

1

```
d: now
== 10-Jul-2017/22:48:31-06:00
d/month: 12
== 12
d
== 10-Dec-2017/22:48:31-06:00
d/month: 13
== 13
d
== 10-Jan-2018/22:48:31-06:00 ; 
d/month ; 
== 1 ;
```

### 3.4. /day

11

```
<date>/day
<date>/day: <day>

<date> : date!word
<day>  : integer!
```

11

[illegible]



□

```
d: 1-jan-2017
== 1-Jan-2017
d/day: 32
== 32
d
== 1-Feb-2017
d/day: 0 ; 0
== 0
d
== 31-Jan-2017
```

## 3.5. /time

□□

```
<date>/time
<date>/time: <time>

<date> : date!word
<time> : time!none!
```

□□

time! time none!

time none! timezone0

□

```
d: now
== 10-Jul-2017/23:18:54-06:00
d/time: 1:2:3
== 1:02:03
d
== 10-Jul-2017/1:02:03-06:00
d/time: none
== 10-Jul-2017
```

## 3.6. /hour

11

```
<date>/hour
<date>/hour: <hour>
```

```
<date> : date!word
<hour> : integer!
```

11

[illegible]

1

```
d: now
== 10-Jul-2017/23:19:40-06:00
d/hour: 0
== 0
d
== 10-Jul-2017/0:19:40-06:00
d/hour: 24
== 24
d
== 11-Jul-2017/0:19:40-06:00
```

### 3.7. /minute

11

```
<date>/minute
<date>/minute: <minute>
```

```
<date>    : date!word
<minute>  : integer!
```

11

[illegible]

```
== 10-Jul-2017/23:20:25-06:00
d/minute: 0
== 0
d
== 10-Jul-2017/23:00:25-06:00
d/minute: 60
== 60
d
== 11-Jul-2017/0:00:25-06:00
```

11

11

1

11

11

```
<date>/zone
<date>/zone: <zone>

<date> : date!word
<zone> : time!integer!
```

11

```
0000000000000000000000000000 -16:00   +15:00    time!      /zone  
0000000000000000zone0000000000time00000000000000000000000000
```

integer! 0

000000000015000000000000001500000000000000

1

```
d: 1/3/2017/5:30:0
d/zone: 8
== 1-Mar-2017/5:30:00+08:00

d/zone: -4:00
== 1-Mar-2017/5:30:00-04:00
```

### 3.10. /timezone

11

```
<date>/timezone
<date>/timezone: <zone>

<date>      : date!word
<timezone>  : integer!time!pair!
```

11

```

##### -16:00  ## +15:00  ### time! ##### /timezone
#####time#####zone#####zone#####time#####

```

timezone integer! 0

000000000015000000000000001500000000000000

```
d: 1/3/2017/5:30:0
d/timezone: 8
== 1-Mar-2017/13:30:00+08:00

d/timezone: -4:00
== 1-Mar-2017/1:30:00-04:00
```

- /timezone 0000000000UTC000000

## 00

11

- `/yearday` 日付を日数に変換 `/julian` 日付をJulian日数に変換 `Rebol` 日付をJulian日数に変換

```
d: 1-jan-2017
== 1-Jan-2017
d/yearday
== 1
d: 31-dec-2017
== 31-Dec-2017
d/yearday
== 365
d: 31-dec-2020
== 31-Dec-2020
d/yearday
== 366 ; 閏年
d: 31-dec-2017
== 31-Dec-2017
d/yearday: 366
== 366
d
== 1-Jan-2018
```

11

```
<date>/weekday
<date>/weekday: <day>

<date>      : date!word
<weekday>   : integer!
```

[illegible]

```
d: now
== 10-Jul-2017/23:25:35-06:00
d/weekday
== 1
d/weekday: 2
== 2
d
== 11-Jul-2017/23:25:35-06:00
d/weekday: 7
== 7
d
== 16-Jul-2017/23:25:35-06:00
d/weekday: 8
== 8
d
== 17-Jul-2017/23:25:35-06:00
```

## 00

```
<date>/week
<date>/week: <day>

<date> : date!word
<week> : integer!
```

[illegible][illegible]

```
d: now
== 10-Jul-2017/23:28:07-06:00
d/week
== 28
d/week: 29
== 29
d
== 16-Jul-2017/23:28:07-06:00
d/week: 52
== 52
d
== 24-Dec-2017/23:28:07-06:00
d/week: 53
== 53
d
== 31-Dec-2017/23:28:07-06:00
d/week: 54
== 54
d
== 7-Jan-2018/23:28:07-06:00
```

11

```
<date>/isoweek
<date>/isoweek: <day>

<date>      : date!word
<isoweek>   : integer!
```

ISO

8601

[illegible]



```
d: now
== 10-Jul-2017/23:29:13-06:00
d/isoweek
== 28
d/isoweek: 29
== 29
d
== 17-Jul-2017/23:29:13-06:00
d/isoweek: 52
== 52
d
== 25-Dec-2017/23:29:13-06:00
d/isoweek: 53
== 53
d
== 1-Jan-2018/23:29:13-06:00
```

word

```
<date> : date!word!
<index> : integer!
```

項目番号	項目名
1	date
2	year
3	month
4	day
5	zone
6	time
7	hour
8	minute
9	second
10	weekday
11	yearday

000000	000000
12	timezone
13	week
14	isoweek

## 3.16. Pick

pick is a command that can be used to pick a date and time from a field.

pick

```
pick <date> <field>
```

```
<date> : date!
```

```
<field> : integer!
```

integer is a command that can be used to pick a date and time from a field.

pick

```
d: now
== 10-Jul-2017/23:35:01-06:00
names: system/catalog/accessors/date!
repeat i 14 [print [pad i 4 pad names/:i 10 pick d i]]
1   date      11-Jul-2017
2   year      2017
3   month     7
4   day       11
5   zone      8:00:00
6   time      21:43:52
7   hour      21
8   minute    43
9   second    52.0
10  weekday   2
11  yearday   192
12  timezone  8:00:00
13  week      28
14  isoweek   28
```

## 4. pick

### 4.1. UNIX

UNIX is a command that can be used to pick a date and time from a field.

11

```
to-integer <date>
to-date <epoch>

<date> : date!
<epoch> : UNIXinteger!
```

UNIX UTC UTC UNIX

```
d: 8-Jul-2017/17:49:27+08:00
to-integer d
== 1499507367

to-integer 8-Jul-2017/9:49:27
== 1499507367

to-date to-integer d
== 8-Jul-2017/9:49:27
```

UNIX2038

## 4.2. □□□□□□□□□□

11

```
to date! <spec>

<spec> : 0000000000000000
```

make 2.20 date!  
make

5. ☐ ☐

`00000000000000000000=, ==, <>, >, <, >=, <=, same? minmaxsort 0000000000`

1

```
3-Jul-2017/9:41:40+2:00 = 3-Jul-2017/5:41:40-2:00
== true
```

```
10/10/2017 < 1/1/2017
== false
```

```
max 10/10/2017 1/1/2017
== 10-Oct-2017
```

```
same? 1/1/1980 1-JAN-1980
== true
```

```
sort [1/1/2017 5/10/1999 3-Jul-2017/5:41:40-2:00 1/1/1950 1/1/1980/2:2:2]
== [1-Jan-1950 1-Jan-1980/2:02:02 5-Oct-1999 1-Jan-2017 3-Jul-2017/5:41:40-02:00]
```

6. □□□□

□ □

- 時間の計算は、`time`と`date`の2種類がある
- `time`は、時刻の計算に使う
- `date`は、日付の計算に使う
- 2つの時刻の差を計算する場合は、`time`を使う
- 2つの日付の差を計算する場合は、`date`を使う

11

```
20-Feb-1980 + 50
== 10-Apr-1980
```

$$20\text{-Feb-1980} + 3 \\ == 23\text{-Feb-1980}$$

20-Feb-1980 - 25  
== 26-Jan-1980

20-Feb-1980 + 100  
== 30-May-1980

28-Feb-1980 + 20:30:45  
== 28-Feb-1980/20:30:45

```
28-Feb-1980/8:30:00 + 20:30:45
== 29-Feb-1980/5:00:45
```

```
d: 20-Feb-1980
d/day: d/day + 50
== 10-Apr-1980
```

```
d: 20-Feb-1980
d/month: d/month + 5
== 20-Jul-1980
```

```
d: 28-Feb-1980/8:30:00
d/hour: d/hour + 48
== 1-Mar-1980/8:30:00
```

```
08/07/2017/10:45:00 - 20-Feb-1980/05:30:00
== 13653
```

```
difference 08/07/2017/10:45:00 20-Feb-1980/05:30:0
327677:15:00
```

7.

**now** OS

- `/utc` UTC
- `/precise` Windows 60 1 Unix

□

```
now
== 8-Jul-2017/18:32:25+08:00
```

```
now/year
== 2017
```

```
now/hour
== 18
```

```
now/month
== 7
```

```
now/day
== 8
```

```
now/hour
== 18
```

```
now/zone
== 8:00:00
```

```
now/utc
== 8-Jul-2017/10:32:25
```

## 8. □□□□□□□□□□□□□□

### 8.1. Random

□□

```
random <date>
```

```
<date> : date!□
```

□□

□□□□□□□□□□□□□□□□□□□□□□□□time□timezone□□□□□□□□□□□□□□□□□□□□time□timezone□□□□□□□□

□

```
random 09/07/2017
```

```
== 18-May-1972
```

```
random 09/07/2017
```

```
== 13-Aug-0981
```

```
random 09/07/2017/12:00:00+8
```

```
== 28-Feb-0341/17:57:12+04:00
```

```
random 09/07/2017/12:00:00+8
```

```
== 13-Dec-1062/5:09:12-00:30
```