

SQLite Date & Time

Summary: in this tutorial, we will show you how to work with the SQLite date and time values and use the built-in dates and times functions to handle date and time values.

SQLite does not support built-in date and/or time [storage class](#). Instead, it leverages some built-in date and time functions to use other [storage classes](#) such as `TEXT` , `REAL` , or `INTEGER` for storing the date and time values.

Using the TEXT storage class for storing SQLite date and time

If you use the `TEXT` storage class to store date and time value, you need to use the ISO8601 string format as follows:

```
YYYY-MM-DD HH:MM:SS.SSS
```

For example, `2016-01-01 10:20:05.123`

First, create a new table named `datetime_text` for demonstration.

```
CREATE TABLE datetime_text(  
    d1 text,  
    d2 text  
);
```

Try It



The table contains two column `d1` and `d2` with `TEXT` datatype.

To insert date and time values into the `datetime_text` table, you use the `DATETIME` function.

For example, to get the current UTC date and time value, you pass the `now` literal string to the function as follows:

```
SELECT datetime('now');
```

Try It



To get the local time, you pass an additional argument `localtime` .

```
SELECT datetime('now','localtime');
```

Try It



Second, insert the date and time values into the `datetime_text` table as follows:

```
INSERT INTO datetime_text (d1, d2)  
VALUES(datetime('now'),datetime('now', 'localtime'));
```



Try It



Third, query the data from the `datetime_text` table.

```
SELECT  
    d1,  
    typeof(d1),  
    d2,  
    typeof(d2)  
FROM  
    datetime_text;
```

Try It



d1	typeof(d1)	d2	typeof(d2)
2016-01-03 01:50:18	text	2016-01-03 08:50:18	text

Using REAL storage class to store SQLite date and time values

You can use the `REAL` storage class to store the date and/ or time values as [Julian day numbers](#), which is the number of days since noon in Greenwich on November 24, 4714 B.C. based on the proleptic Gregorian calendar.

Let’s take a look at an example of using the `REAL` storage class to store date and time values.

First, create a new table named `datetime_real` .

```
CREATE TABLE datetime_real(  
    d1 real  
);
```

Try It



Second, insert the “current” date and time value into the `datetime_real` table.

```
INSERT INTO datetime_real (d1)  
VALUES(julianday('now'));
```

Try It



We used the `julianday()` function to convert the current date and time to the Julian Day.

Third, query data from the `datetime_real` table.

```
SELECT d1 FROM datetime_real;
```

Try It



d1
2457390.62151201

The output is not human readable.

Fortunately, you can use the built-in `date()` and `time()` functions to format a date and time value as follows:

```
SELECT  
    date(d1),  
    time(d1)  
FROM  
    datetime_real;
```

Try It



date(d1)	time(d1)
2016-01-03	02:54:58

Using INTEGER to store SQLite date and time values

Besides `TEXT` and `REAL` storage classes, you can use the `INTEGER` storage class to store date and time values.

We typically use the `INTEGER` to store UNIX time which is the number of seconds since `1970-01-01 00:00:00 UTC` . See the following example:

First, create a table that has one column whose data type is `INTEGER` to store the date and time values.

```
CREATE TABLE datetime_int (d1 int);
```

Try It



Second, insert the current date and time value into the `datetime_int` table.

```
INSERT INTO datetime_int (d1)  
VALUES(strftime('%s','now'));
```



Try It



Third, query data from the `datetime_int` table.

```
SELECT d1 FROM datetime_int;
```

Try It



It’s an integer.

To format the result, you can use the built-in `datetime()` function as follows:

```
SELECT datetime(d1,'unixepoch')  
FROM datetime_int;
```

Try It



datetime(d1,'unixepoch')
2016-01-03 03:08:44

Using SQLite, you can freely choose any data types to store date and time values and use the built-in dates and times function to convert between formats.

For the detailed information on SQLite dates and times functions, check it out the [built-in dates and times functions](#).

In this tutorial, you have learned how to use the `TEXT` , `REAL` , and `INTEGER` storage classes to store date and time values. In addition, you learned how to use the built-in dates and times functions to convert the stored date and times values into readable formats.