

Time and Date

- Unix time
- millis and nanos
- TimeUnit
- Date
- Timer (in code example)

Unix time

Unix time (also known as POSIX time or epoch time) is a system for describing instants in time, defined as the number of seconds that have elapsed since 00:00:00 Coordinated Universal Time (UTC), Thursday, 1 January 1970.

UTC: 1st January 1971	12:00:00 AM	31_536_000
UTC: 1st January 2000	12:00:00 AM	946_684_800
UTC: 9th September 2001	01:46:40 AM	1_000_000_000
UTC: 1st May 2017	12:00:00 AM	1_493_596_800
UTC: 18 May 2033	03:33:20 AM	2_000_000_000

January 19, 2038 – 32 bit overflow

UTC: 20th November 2286	17:46:40	10_000_000_000
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Java time

Java time is like Unix time but in milliseconds.

```
long time = (new Date()).getTime();
```

```
long time = System.currentTimeMillis();
```

Nano time

```
long nanos = System.nanoTime();
```

Returns the current value of the running Java Virtual Machine's high-resolution time source, in nanoseconds.

This method can only be used to measure elapsed time and is not related to any other notion of system or wall-clock time.

The value returned represents nanoseconds since some fixed but arbitrary origin time. The same origin is used by all invocations of this method in an instance of a Java virtual machine.

Other virtual machine instances are likely to use a different origin.

So, you should not print it. Useful for calculation of time delta only.

java.util.concurrent.TimeUnit

```
long minutes = TimeUnit.MILLISECONDS.toMinutes(millis);  
long seconds = TimeUnit.MILLISECONDS.toSeconds(millis);
```

```
long hours = TimeUnit.SECONDS.toHours(seconds);  
long days = TimeUnit.SECONDS.toDays(seconds);
```

```
long millis = TimeUnit.MINUTES.toMillis(1);
```

Work with a Date

- java.util.Date
- java.util.Calendar
- java.text.DateFormat

Convert Date to String

```
SimpleDateFormat sdf = new SimpleDateFormat("dd/M/yyyy");
```

```
String date = sdf.format(new Date());
```

```
System.out.println(date); //15/10/2013
```

Convert String to Date

```
SimpleDateFormat sdf = new SimpleDateFormat("dd-M-yyyy hh:mm:ss");
```

```
String dateInString = "31-08-1982 10:20:56";
```

```
Date date = sdf.parse(dateInString);
```

```
System.out.println(date); //Tue Aug 31 10:20:56 SGT 1982
```