

How to manipulate and convert Epoch time in Linux

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Epoch Time, a popular time measurement method since the Unix era, provides a visual approach to representing time. This simplicity facilitates many computing tasks, from scheduling to logging. In this article, we will delve into the essence of Epoch Time, explore practical examples of how to convert it in Ubuntu , and add to the knowledge to master time in the computing world.

Working with Epoch Time

Most Linux distributions come with tools to display and convert Epoch Time. Let's explore some practical examples to understand how to use Epoch Time in real-world situations.

Display current Epoch Time

To start, let's see how you can find out the current Epoch Time. Open a terminal and type:

```
date +%s
```

This command will output the current time in epoch format. For example, you might see output like this: 1618921342, which represents the number of seconds since the Unix Epoch.

Convert Epoch Time to a readable format

Let's say you come across an Epoch Time value and want to convert it to a more understandable format. Here's how to do it:

```
date -d @1618921342
```

Replace 1618921342 with your Epoch Time value. This will convert the Epoch Time to a human-readable format, such as Thu Apr 20 10:12:22 UTC 2021. This conversion is extremely handy when debugging logs or working with APIs that use Epoch Time.

Set system time

While rarely necessary, knowing how to set the system time using Epoch Time can be useful. This requires admin privileges, so be cautious and only do it if you know what you're doing:

```
sudo date +%s -s @1618921342
```

Again, replace 1618921342 with the Epoch Time you want to set. Admittedly, you'll rarely use this feature in your day-to-day activities, but it's a good tip to have handy.

Why care about Epoch Time?

Epoch Time is more than just a technical concept; it's the foundation for how computers manage and synchronize time. From scheduling tasks to organizing logs and handling time in applications, Epoch Time underpins many of the activities that keep your system running smoothly.

In my experience, understanding Epoch Time makes it easier to write scripts, debug, and work with many programming APIs. It's one of those pieces of knowledge that, once you get it, you'll start to see its applications everywhere.

We will learn about converting from Epoch Time to legible date and vice versa, these are common tasks you may encounter.

Convert Epoch Time to Readable Date

Imagine you came across a log file or a data set that timestamps events in Epoch Time. Let's take 1618921342 as an example of Epoch Time. To convert this to a human-readable date, you can use the date command in the terminal:

```
date -d @1618921342
```

This command tells the date utility to display the date corresponding to the specified number of seconds since the Unix epoch. The output will look like this:

```
Thu Apr 20 10:12:22 UTC 2021
```

This conversion makes it easy to understand when an event occurred without having to calculate dates from seconds.

Convert easy-to-read dates to Epoch Time

Conversely, you may need to convert human-readable dates to Epoch Time. This can be useful for setting expiration times in scripts or for applications that require input in epoch format. Let's convert April 20, 2021 10:12:22 UTC to Epoch Time:

```
date -d "2021-04-20 10:12:22 UTC" +%s
```

This command instructs the date utility to interpret the given date and time, and output the corresponding Epoch Time. The output will be:

```
1618921342
```

Time zone handling

One of the great things about Epoch Time is its universality, as it is always expressed in UTC. However, sometimes you may need to convert Epoch Time to a date in a specific time zone. Here's how to convert 1618921342 to Eastern Daylight Time (EDT):

```
TZ='America/New_York' date -d @1618921342
```

The result will be similar to the following:

```
Thu Apr 20 06:12:22 EDT 2021
```

Handling daylight saving time

Epoch Time makes dealing with daylight saving time easy because the conversion automatically takes into account any time zone changes. When you convert Epoch Time to a date that is legible in your local time zone, the date widget will adjust for daylight saving time as needed.

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