

Spring Batch – Timing Configurations / Improved Cron Expressions

Usage

You typically create cron triggers with the `@Scheduled` annotation, which uses `CronExpression` internally, as of Spring Framework 5.3. This means that you can already start using the New Features if you are on that version.

If you want to play around with `CronExpression` yourself, you can create one through the static `parse` method:

```
[crayon-6636f3efb4d93898427277/]
```

```
[crayon-6636f3efb4d98473337876/]
```

Every 5 Seconds Example

```
[crayon-6636f3efb4d9b308925195/]
```

Some rules apply:

- A field may be an asterisk (*), which always stands for “first-last”. For the day-of-the-month or day-of-the-week fields, a question mark (?) may be used instead of an asterisk.
- Commas (,) are used to separate items of a list.
- Two numbers separated with a hyphen (-) express a range of numbers. The specified range is inclusive.
- Following a range (or *) with / specifies the interval of the number’s value through the range.
- English names can also be used for the day-of-month and day-of-week fields. Use the first three letters of the particular day or month (case does not matter).

Here are some examples:

Cron Expression	Meaning
0 0 * * * *	top of every hour of every day
*/10 * * * * *	every ten seconds
0 0 8-10 * * *	8, 9 and 10 o'clock of every day
0 0 6,19 * * *	6:00 AM and 7:00 PM every day
0 0/30 8-10 * * *	8:00, 8:30, 9:00, 9:30, 10:00 and 10:30 every day
0 0 9-17 * * MON-FRI	on the hour nine-to-five weekdays
0 0 0 25 12 ?	every Christmas Day at midnight

The next method returns the next occurrence of the trigger or null if there is none. It takes a `java.time.temporal.Temporal` as a parameter, which means it accepts not only `LocalDateTime` but also `ZonedDateTime` if time-zones are relevant.

New Features

Using the `java.time` APIs let us introduce several new features that put Spring's support for cron expressions on an equal footing with other schedulers. You can start using these features in `@Scheduled` as of Spring Framework 5.3.

Macros

Expressions such as `0 0 * * * *` are hard for humans to parse and are, therefore, hard to fix in case of bugs. To improve readability, Spring now supports the following macros, which represent commonly used sequences. You can use these macros instead of the six-digit value, thus: `@Scheduled(cron = "@hourly")`.

Macro	Meaning
@yearly (or @annually)	once a year (0 0 0 1 1 *)

Macro	Meaning
@monthly	once a month (0 0 0 1 * *)
@weekly	once a week (0 0 0 * * 0)
@daily (or @midnight)	once a day (0 0 0 * * *), or
@hourly	once an hour, (0 0 * * * *)

—

Ref :
<https://spring.io/blog/2020/11/10/new-in-spring-5-3-improved-cron-expressions>

Ref : <https://www.baeldung.com/spring-batch-start-stop-job>

—

Precious Metals Conductivity Table at Room Temperature

This table presents the electrical resistivity and electrical conductivity of several materials.

Electrical resistivity, represented by the Greek letter ρ

(rho), is a measure of how strongly a material opposes the flow of electric current. The lower the resistivity, the more readily the material permits the flow of electric charge.

Electrical conductivity is the reciprocal quantity of resistivity. Conductivity is a measure of how well a material conducts an electric current. Electric conductivity may be represented by the Greek letter σ (sigma), κ (kappa), or γ (gamma).

Table of Resistivity and Conductivity at 20°C

Material	ρ ($\Omega\cdot\text{m}$) at 20 °C Resistivity	σ (S/m) at 20 °C Conductivity
Silver	1.59×10^{-8}	6.30×10^7
Copper	1.68×10^{-8}	5.96×10^7
Annealed copper	1.72×10^{-8}	5.80×10^7
Gold	2.44×10^{-8}	4.10×10^7
Aluminum	2.82×10^{-8}	3.5×10^7
Calcium	3.36×10^{-8}	2.98×10^7
Tungsten	5.60×10^{-8}	1.79×10^7
Zinc	5.90×10^{-8}	1.69×10^7
Nickel	6.99×10^{-8}	1.43×10^7
Lithium	9.28×10^{-8}	1.08×10^7
Iron	1.0×10^{-7}	1.00×10^7
Platinum	1.06×10^{-7}	9.43×10^6
Tin	1.09×10^{-7}	9.17×10^6

Carbon steel	(10^{10})	1.43×10^{-7}
Lead	2.2×10^{-7}	4.55×10^6
Titanium	4.20×10^{-7}	2.38×10^6
Grain oriented electrical steel	4.60×10^{-7}	2.17×10^6
Manganin	4.82×10^{-7}	2.07×10^6
Constantan	4.9×10^{-7}	2.04×10^6
Stainless steel	6.9×10^{-7}	1.45×10^6
Mercury	9.8×10^{-7}	1.02×10^6
Nichrome	1.10×10^{-6}	9.09×10^5
GaAs	5×10^{-7} to 10×10^{-3}	5×10^{-8} to 10^3
Carbon (amorphous)	5×10^{-4} to 8×10^{-4}	1.25 to 2×10^3
Carbon (graphite)	2.5×10^{-6} to 5.0×10^{-6} //basal plane 3.0×10^{-3} ⊥basal plane	2 to 3×10^5 //basal plane 3.3×10^2 ⊥basal plane
Carbon (diamond)	1×10^{12}	$\sim 10^{-13}$
Germanium	4.6×10^{-1}	2.17
Sea water	2×10^{-1}	4.8
Drinking water	2×10^1 to 2×10^3	5×10^{-4} to 5×10^{-2}
Silicon	6.40×10^2	1.56×10^{-3}
Wood (damp)	1×10^3 to 4	10^{-4} to 10^{-3}
Deionized water	1.8×10^5	5.5×10^{-6}
Glass	10×10^{10} to 10×10^{14}	10^{-11} to 10^{-15}
Hard rubber	1×10^{13}	10^{-14}

Wood (oven dry)	1×10^{14} to 16	10^{-16} to 10^{-14}
Sulfur	1×10^{15}	10^{-16}
Air	1.3×10^{16} to 3.3×10^{16}	3×10^{-15} to 8×10^{-15}
Paraffin wax	1×10^{17}	10^{-18}
Fused quartz	7.5×10^{17}	1.3×10^{-18}
PET	10×10^{20}	10^{-21}
Teflon	10×10^{22} to 10×10^{24}	10^{-25} to 10^{-23}

Factors That Affect Electrical Conductivity

There are three main factors that affect the conductivity or resistivity of a material:

1. **Cross-Sectional Area:** If the cross-section of a material is large, it can allow more current to pass through it. Similarly, a thin cross-section restricts current flow.
2. **Length of the Conductor:** A short conductor allows current to flow at a higher rate than a long conductor. It's a bit like trying to move a lot of people through a hallway.
3. **Temperature:** Increasing temperature makes particles vibrate or move more. Increasing this movement (increasing temperature) decreases conductivity because the molecules are more likely to get in the way of current flow. At extremely low temperatures, some materials are superconductors.

Reference:

Ugur, Umran. "Resistivity of steel." Elert, Glenn (ed), The Physics Factbook, 2006.

Example – Entity Interface 1

–

[crayon-6636f3efb56be843497336/]

[crayon-6636f3efb56c3607201982/]

[crayon-6636f3efb56c5891711717/]

[crayon-6636f3efb56c7107604952/]

[crayon-6636f3efb56c9585545461/]

–

–

–

Postgresql user roles and assignment

[crayon-6636f3efb5b1e537445748/]

Backend Example With Shop

Linux System Administration

Disk Management

..

Adb Commands / Device Access / Management / Roles

[crayon-6636f3efb5fb7315371165/]