

Streams

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Streams might have been the most popular new feature in Java 8. They make it extremely easy to process a huge number of Objects. So why not use them to handle query results?

- JPA
 - No direct support
 - Create a *Stream* from a *List*

```
List<Book> books = em.createQuery("SELECT b FROM Book b", Book.class)
    .getResultList();
Stream<Book> stream = books.stream();
```

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JPA doesn't provide any direct support for Java 8 streams. The reason for it is simple; JPA 2.1 was released before Java 8 and Streams didn't exist then.

You can, of course, use the most obvious way to get a Stream representation of your query result. You get it as a List and call the stream() method to get a Stream representation of it. That works fine and is used by a lot of developers already.

But it has a downside if you're working on a huge resultset. When you call the getResultList() method, Hibernate has to fetch all records of the query result at once from the database. After that, you're processing them one by one, and you'll probably never need to have all result records in memory.

Demo

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- Hibernate
 - Special support for *Streams* since version 5.2
 - New *stream()* method in Query interface

```
Stream<Book> books = session.createQuery("SELECT b FROM Book b",  
                                       Book.class).stream();
```

- Backed by a *ScrollableResultSet*

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Since version 5.2, Hibernate offers a better approach to process a huge `ResultSet` as a `Stream`. Hibernate's `Query` interface got a new method called `stream()` that returns the query result as a `Stream`.

In contrast to the previous approach, the *stream()* method doesn't need to fetch all records at once. The `Stream` is backed by Hibernate's `ScrollableResultSet` that you might already know from earlier releases. It allows you to scroll through the result set and fetch the records in smaller chunks.

Demo

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Summary

- JPA
 - Create a *Stream* from a *List*
 - Fetch all records at the beginning
- Hibernate (since version 5.2)
 - New method `Query.stream()`
 - Scroll through the `ResultSet`

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Let's summarize the support for Java 8 Streams before we get to the exercises. JPA doesn't provide explicit support for Java 8 Streams because the latest JPA release is older than Java 8. You can get your query result as a `List` and create a `Stream` for the `List`. That fetches all records of the query result at the beginning and might not be the most efficient approach for huge `ResultSets`.

In version 5.2, Hibernate's `Query` interface got the `stream()` method which fetches the records in smaller chunks. This allows you to scroll through the `ResultSet` while you process them.

Exercises

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