

## Java Stream toArray()



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Java  
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Java 8, Java Array, Java Stream Basics, Java  
Stream Methods

Learn to **convert a Stream to an array** using **Stream toArray()** API. In this tutorial, we will see multiple examples for collecting the [Stream](#) elements into an [array](#).

### 1. Stream toArray() Method

The `toArray()` method returns an array containing the elements of the given stream. This is a **terminal operation**.

```
Object[] toArray()  
<T> T[] toArray(IntFunction<T[]> generator)
```

`toArray()` method is an overloaded method. The second method uses a **generator function** to allocate the returned array.

The generator function takes an integer, which is the *size of the desired array* and produces an array of the desired size.

### 2. Stream toArray() Example

#### Example 1: Converting Stream of String to Array of String

In the given example, we are converting a stream to an array using `toArray()` API.

Convert stream of strings to array

```
Stream<String> tokenStream = Arrays.asList("A", "B", "C", "D").stream(); //stream  
  
String[] tokenArray = tokenStream.toArray(String[]::new); //array  
  
System.out.println(Arrays.toString(tokenArray));
```

Program output.

Console

```
[A, B, C, D]
```

## Example 2: Converting an Infinite Stream to an Array

To convert an [infinite stream](#) into array, we must **limit the stream** to a finite number of elements.

## Infinite stream of Integers

Convert infinite stream to array

```
IntStream infiniteNumberStream = IntStream.iterate(1, i -> i+1);  
  
int[] intArray = infiniteNumberStream.limit(10)  
    .toArray();  
  
System.out.println(Arrays.toString(intArray));
```

Program output.

Console

```
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

## Infinite boxed stream of Integers

Convert infinite stream to array

```
IntStream infiniteNumberStream = IntStream.iterate(1, i -> i+1);

Integer[] integerArray = infiniteNumberStream.limit(10)
    .boxed()
    .toArray(Integer[]::new);

System.out.println(Arrays.toString(integerArray));
```

Program output.

Console

```
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

### Example 3: Stream filter and collect to an Array

Sometimes we need to find specific items in stream and then add only those elements to array. Here, we can use [Stream.filter\(\)](#) method to pass a [predicate](#) which will return only those elements who match the pre-condition.

Convert stream to array - filtered elements

```
import java.util.ArrayList;
import java.util.Arrays;
import java.util.List;

public class Main
{
    public static void main(String[] args)
    {
        List<Employee> employeeList = new ArrayList<>(Arrays.asList(
            new Employee(1, "A", 100),
            new Employee(2, "B", 200),
            new Employee(3, "C", 300),
            new Employee(4, "D", 400),
            new Employee(5, "E", 500),
            new Employee(6, "F", 600)));

        Employee[] employeesArray = employeeList.stream()
            .filter(e -> e.getSalary() < 400)
            .toArray(Employee[]::new);

        System.out.println(Arrays.toString(employeesArray));
    }
}
```

Program output.

Console

```
[Employee [id=1, name=A, salary=100.0],  
Employee [id=2, name=B, salary=200.0],  
Employee [id=3, name=C, salary=300.0]]
```

### 3. Conclusion

We can use Stream **toArray()** function is variety of ways to collect stream elements into an array in all usescases.

Happy Learning !!

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### Recommended Reading:

1. [Java ArrayList toArray\(\) – Convert ArrayList to Array](#)
2. [Java Stream reuse – traverse stream multiple times?](#)
3. [Java Stream sorted\(\)](#)
4. [Java Stream findFirst\(\)](#)
5. [Java Stream findAny\(\)](#)

6. [Java Stream forEach\(\)](#)
7. [Java Stream forEachOrdered\(\)](#)
8. [Java Stream max\(\)](#)
9. [Java Stream min\(\)](#)
0. [Java Stream skip\(\)](#)

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