



# Introduction to MapStruct

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- MapStruct is a code generator for Java bean mapping.
- Helps reduce coding for type conversions.
- When dealing with REST services, a common use case is to expose API data using DTOs
  - DTO - Data Transfer Object

# MapStruct

- Released June of 2013.
- Gunnar Morling is the founder of MapStruct
  - Red Hat Engineer - Hibernate Validator, spec lead of Bean Validation 2.0
- Like Project Lombok, MapStruct is annotation based processor plugged into the Java compiler
- From Interfaces you declare, MapStruct will generate code at build time.

# MapStruct - Performance

Tests has been performed on:

- OS: macOS Seria
- CPU: 3.1 GHz Intel Core i7, 2 cores, L2 Cache (per Core): 256 KB, L3 Cache: 4 MB
- RAM: 16 GB 1867 MHz DDR3
- JVM: Oracle 1.8.0\_74-b02 64 bits

Benchmark	Mode	Samples	Score	Margin error (+/-)	Units
Manual	thrpt	200	18 076 665	77 789	ops/s
Selma	thrpt	200	16 839 320	52 403	ops/s
MapStruct	thrpt	200	15 580 286	72 688	ops/s
JMapper	thrpt	200	15 355 310	149 259	ops/s
Orika	thrpt	200	3 876 966	17 939	ops/s
ModelMapper	thrpt	200	279 279	1 133	ops/s
Dozer	thrpt	200	87 928	665	ops/s

Legend : Higher score is better

Total time: 00:48:33

# MapStruct - Example

```
public class Car {  
  
    private String make;  
    private int numberOfSeats;  
    private CarType type;  
  
    //constructor, getters, setters etc.  
}
```

```
public class CarDto {  
  
    private String make;  
    private int seatCount;  
    private String type;  
  
    //constructor, getters, setters etc.  
}
```

```
@Mapper 1  
public interface CarMapper {  
  
    CarMapper INSTANCE = Mappers.getMapper( CarMapper.class ); 3  
  
    @Mapping(source = "numberOfSeats", target = "seatCount")  
    CarDto carToCarDto(Car car); 2  
}
```



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@Mapper 1  
public interface CarMapper {  
  
    CarMapper INSTANCE = Mappers.getMapper( CarMapper.class ); 3  
  
    @Mapping(source = "numberOfSeats", target = "seatCount")  
    CarDto carToCarDto(Car car); 2  
}
```

```
@Test  
public void shouldMapCarToDto() {  
    //given  
    Car car = new Car( "Morris", 5, CarType.SEDAN );  
  
    //when  
    CarDto carDto = CarMapper.INSTANCE.carToCarDto( car );  
  
    //then  
    assertThat( carDto ).isNotNull();  
    assertThat( carDto.getMake() ).isEqualTo( "Morris" );  
    assertThat( carDto.getSeatCount() ).isEqualTo( 5 );  
    assertThat( carDto.getType() ).isEqualTo( "SEDAN" );  
}
```

# MapStruct - FAQ

- Can MapStruct be used with Project Lombok?
  - Yes - MapStruct 1.2.0+ and Project Lombok 1.16.14+
- Is MapStruct compatible with IntelliJ and Eclipse?
  - Yes - Both IDEs have MapStruct Plugins
- Are Java 8 Streams Supported?
  - Yes - in MapStruct 1.2.0+



# MapStruct - 1.2

- MapStruct 1.2.0.CR2 was released on August 28th, 2017.
- This is expected to be the last CR (Candidate Release)

