Your First Aspect

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Your First Aspect

- **Create an aspect**
- **Already get rid of some boiler plate code!**

What is an Aspect?

- **Aspect implements cross cutting concern**
- **i.e. otherwise shattered throughout the code**
- **Get rid of the boiler plate code!**

Aspect = Pointcut + Advice

Where the Aspect is applied

What code is executed

Tracing

```
public void doSomething() {
  final String METHODNAME = "doSomething";
  logger. trace("entering " + CLASSNAME + "." + METHODNAME);
  TransactionStatus tx = transactionManager.getTransaction(
    new DefaultTransactionDefinition());
  try {

  } catch (RuntimeException ex) {
    logger.error("exception in "+CLASSNAME+"."+METHODNAME, ex);
    tx.setRollbackOnly();
    throw ex;
  } finally {
    transactionManager.commit(tx);
    logger.trace("exiting " + CLASSNAME + "." + METHODNAME);
  }
}
```

Simple Tracing Aspect

```
@Component
@Aspect
public class TracingAspect {

  Logger logger = Logger.getLogger(...);

Advice: What is executed
Before Advice: Before the original code
   @Before(
     "execution(void doSomething()) "
   )                                          Poincut expression
   public void entering() {                   Method execution
     logger.trace("entering method");
   }

}
```

Simple Tracing Aspect for all methods

```
@Component
@Aspect
public class TracingAspect {


  Logger logger = Logger.getLogger(...);

                          Return      Metho
   @Before(               type        d          parameters
     "execution(void doSomething())" name
   )
   public void entering() {
     logger.trace("entering method");
   }

}
```

Simple Tracing Aspect for all methods

```
@Component
@Aspect
public class TracingAspect {


  Logger logger = Logger.getLogger(...);

                          Return      Metho
   @Before(               type        d          parameters
     "execution(*          *  (..)) "  name
   )                      wildcard    wildcard   wildcard
   public void entering() {
     logger.trace("entering method");
   }

}
```

JoinPoint

- **Point in the control flow of a program**
- **Advices can be presented with information about the join point**
- **E.g. method name, class name etc**

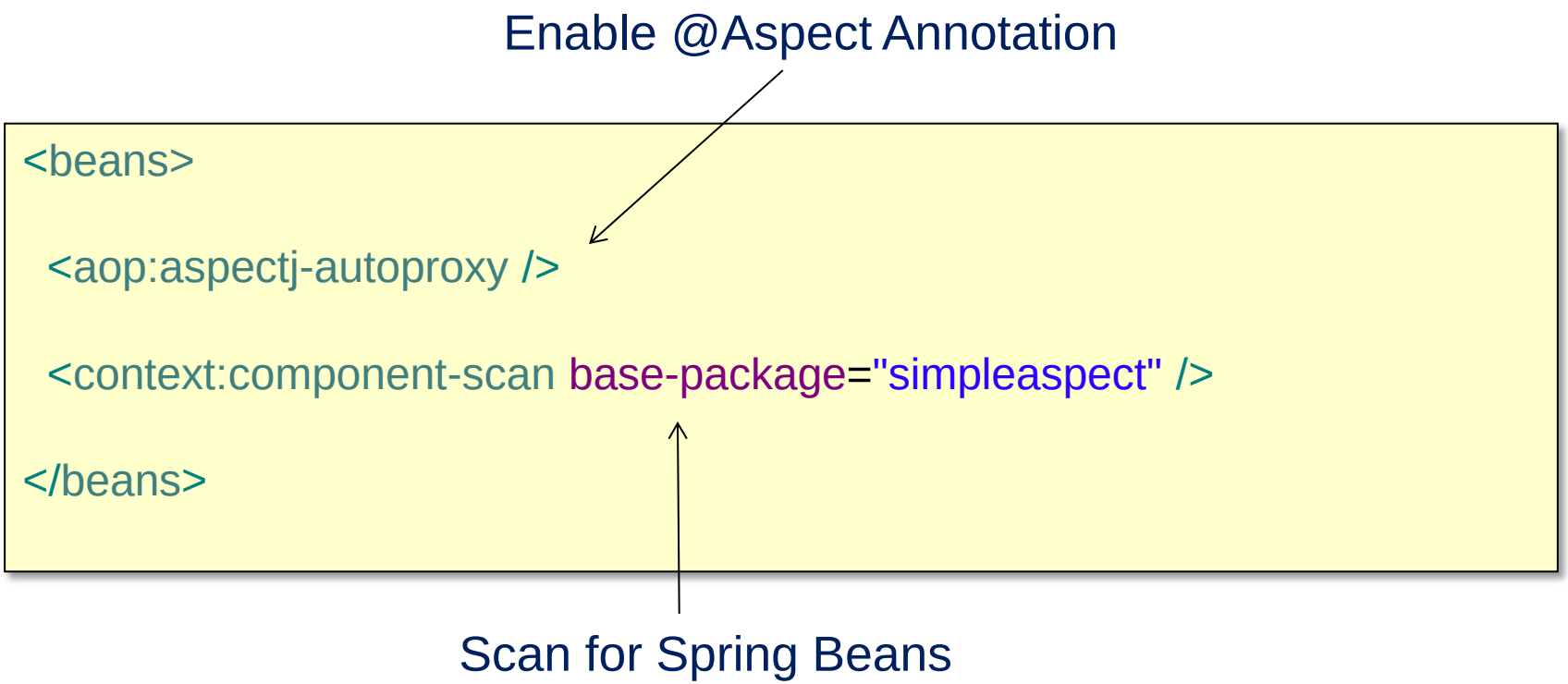
Tracing Aspect With JoinPoint Information

```
@Component
@Aspect
public class TracingAspect {


  Logger logger =
   Logger.getLogger(TracingAspect.class.getName());


   @Before(
     "execution(void doSomething())"
   )
   public void entering() {
     logger.trace("entering method");
   }

}
```

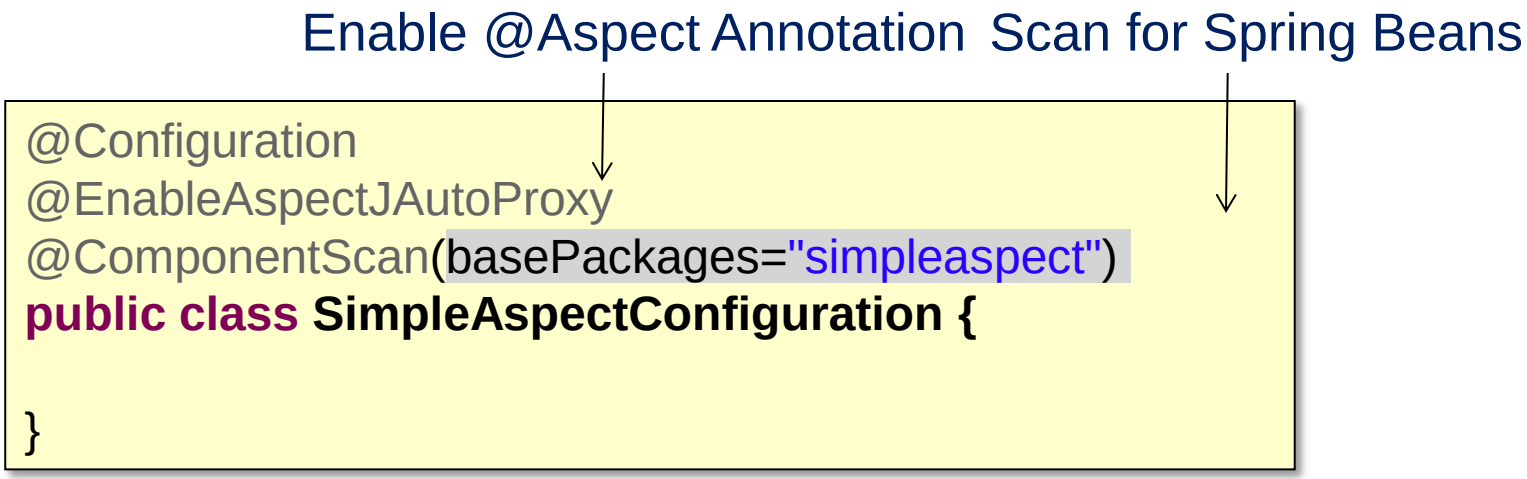
Tracing Aspect With JoinPoint Information

```
@Component
@Aspect
public class TracingAspect {


  Logger logger =
   Logger.getLogger(TracingAspect.class.getName());


   @Before(
     "execution(void doSomething())"
   )
   public void entering(JoinPoint joinPoint) {
     logger.trace("entering "
     + joinPoint.getStaticPart().getSignature().toString());
   }

}
```

Enable Aspects in Spring XML Configuration



Enable Aspects in Spring XML Configuration



Demo

- **Xml**
- **Java Config**
- **Tests**
- **Zeigen, dass die Aspekte wirklich ausgeführt werden**
- **Code erläutern**

- **Auf * *(..) ändern**
- **Und zeigen, dass es dann mit beliebigen Parametern geht**
- **Aber bei * *() nur Methoden ohne Parameter**

Sum Up

- **Aspect =**
  - Advice – what code is executed +
  - Pointcut – where the code is executed
- **Aspects are Spring Beans**
  - Add @Aspect annotation
- **Advices are methods**
- **@Before annotation**
  - Contains pointcut expression
- **Activate AOP in XML or JavaConfig**