

Spring jars can be downloaded from the following link

=> <https://repo.spring.io/ui/native/release/org/springframework/spring/>

Scroll down and search for link with Spring5.X version(5.3.17)

To add the namespace(xmlns), while writing the configuration file use the following location

D:\jars\spring-5.3.17-dist\spring-framework-5.3.17\docs\reference\html\core.pdf

Setter Injection

=> Here IOC container calls setter method of Target class to assign Dependant class Object to target class Object.

=> java.util.Date(C)

|=> year(int), month(int), date(int)

|=> hours(int), minutes(int), seconds(int)

=> Setter injection will happen

a. Creating an object of Target component using zero param constructor.

b. Creating an object of Dependent component using Zero argument constructor/parameterized constructor.

c. Calling setter method on Target component to perform dependency injection.

=> BeanFactory container performs LazyLoading for all the beans present in spring cfg file.

applicationContext.xml

```
<beans xmlns="http://www.springframework.org/schema/beans"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.springframework.org/schema/beans
https://www.springframework.org/schema/beans/spring-beans.xsd">
```

```
<!-- Dependent spring bean cfg -->
```

```
<bean id="dt" class="java.util.Date"/>
```

```
<!-- Target spring bean cfg -->
```

```
<bean id="wmg" class="in.ineuron.comp.WishMessageGenerator">
```

```
<property name="date" ref="dt"/> ==> Instruction to IOCcontainer to Perform Setter Injection.(wmg.setDate(dt))
```

```
</bean>
```

```
</beans>
```

Note:: In the <property> tag, "name" value is not a bean property name, it is the word of setXXXX(,) method.

If the injection is of reference type, then we need to use <property name="" ref=''/'>.

If the injection is of value type, then we need to use <property name='' value=''/'>

SetterInjection.java

```
-----
FileSystemResource resource = new
FileSystemResource("src/in/ineuron/cfg/applicationContext.xml");
System.out.println("*****BeanFactory container starting*****");
XmlBeanFactory factory = new XmlBeanFactory(resource);
```

```

System.out.println("*****BeanFactory container started*****");

WishMessageGenerator wmg = (WishMessageGenerator) factory.getBean("wmg",
WishMessageGenerator.class);
System.out.println(wmg);
String result = wmg.generateMessage("sachin");
System.out.println(result);

System.out.println();

System.out.println("*****Container is closing*****");

```

output

```

-----
*****BeanFactory container starting*****
*****BeanFactory container started*****

WishMessageGenerator.class file is loading...
WishMessageGenerator object is instantiated...
Setter method is called to perform Setter injection...
WishMessageGenerator [date=Tue Mar 21 20:35:30 IST 2023]
Good Night :: sachin

*****Container is closing*****

```

What is the difference b/w FileSystemResource and ClassPathResource?

=> Both are implementation classes of Resource(I)

=> FileSystemResource(C)

It makes the BeanFactory container to locate the given Springbean cfg file from the Specified of path File System.

We can give either relative path(recomended) or absolute path of the spring bean configuration file.

eg:: FileSystemResource res=new

FileSystemResource("src/in/ineuron/cfgs/applicationContext.xml");

=> ClassPathResource(C)

It makes the BeanFactory container to locate the given Springbean cfg file from the directories or jar files that are added to classpath or buildpath.

eg: ClassPathResource res=new

ClassPathResource("in/ineuron/cfgs/applicationContext.xml");

Constructor Injection

Here IOC container uses parameterized constructor to create target class object. In this process it assigns/injectes dependant object to the Target class Object. In Setter injection first target class object is created,next Dependant object will be created.

In case of Constructor injection,First Dependant class object should be created,next target class object will be created and this dependant object will be passed as the argument to the constructor.

syntax:

```

<bean id='' class=''>
    <constructor-arg name='' ref=''/>
</bean>

```

if we place<constructor-arg> tag for 'n' time under bean tag, then IOC container uses "n-param" constructor to create the Spring bean class Object.

Note: <ref> attribute to cfg bean id is based on Spring bean class object injection to target bean class properties.
<value> to cfg is to inject "simple values" to Spring bean class properties.
In the <constructor-arg> tag, "name" value is not the bean property name, it is the parameter name of the parameterized constructor.

Note:

What happens if we enable both setter injection and constructor injection to bean property?

Tell me which id will be injected as final values?

Ans> Since setter method is called after the constructor execution, we say setter injection overrides the value injected by the constructor injection. Values/Object injected by the Setter injection will become final values.

Note: In case of Setter injection, IOC container uses Zero parameter constructor to create the Object.

In case of Constructor injection, IOC container use Parameterized constructor to create the Object.

Note:

Bean id should be unique w.r.t IOC container

We can configure 2 spring beans having same class names but we should take different bean id.