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# TechDoc#4: Spring IoC

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## What is Spring?

Spring is a lightweight framework. It can be thought of as a framework of frameworks because it provides support to various frameworks such as Struts, Hibernate, Tapestry, EJB, JSF etc. The framework, in broader sense, can be defined as a structure where we find solution of the various technical problems. The Spring framework comprises several modules such as IOC, AOP, DAO, Context, ORM, WEB MVC etc. Spring Framework 5 is the latest major release of Spring.

## Dependency Injection (DI) and Inversion of Control (IoC)

Inversion of control (IoC) is a programming technique, expressed here in terms of object-oriented programming, in which object coupling is bound at run time by an assembler object and is typically not known at compile time using static analysis.

Dependency Injection is the act of supplying a low level or dependent class via a constructor, method, or property. Used in conjunction with DI, these dependent classes can be inverted to interfaces or abstract classes that will lead to loosely coupled systems that are highly testable and easy to change. In IoC, a system's flow of control is inverted compared to procedural programming. An example of this is an IoC container, whose purpose is to inject services into client code without having the client code specifying the concrete implementation. The control in this instance that is being inverted is the act of the client obtaining the service.

## What are spring beans?

In Spring, the objects that form the backbone of your application and that are managed by the Spring IoC container are referred to as beans. A bean is simply an object that is instantiated, assembled and otherwise managed by a Spring IoC container;

- Spring beans are just object instances that are managed by the Spring IOC container.
- Spring IOC container carry the Bag of Bean. Bean creation, maintenance and deletion are the responsibilities of Spring Container.
- We can put the bean in to Spring by *Wiring* and *Auto Wiring*.
- *Wiring* manually configure it into the XML file.
- In *Auto Wiring*, we put the annotations in the Java file from where Spring will automatically scan from the root-context where java configuration file, makes it and puts into the bag of Spring.

Please find below, few useful links related to Spring IoC:

1. [Introduction to IoC](#)
2. [Spring IoC](#)
3. [Spring Dependency Injection](#)
4. [IoC and DI comparison](#)
5. [Spring Framework 5 - What's new](#)

