# FREE eBook

# LEARNING autofac

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# #autofac

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## **Chapter 1: Getting started with autofac**

### Remarks

Autofac is an IoC container for Microsoft .NET 4.5, Silverlight 5, Windows Store apps, and Windows Phone 8 apps. It manages the dependencies between classes so that applications stay easy to change as they grow in size and complexity. This is achieved by treating regular .NET classes as components.

#### From Wikipedia:

In software engineering, inversion of control (IoC) is a design principle in which custom-written portions of a computer program receive the flow of control from a generic framework. A software architecture with this design inverts control as compared to traditional procedural programming: in traditional programming, the custom code that expresses the purpose of the program calls into reusable libraries to take care of generic tasks, but with inversion of control, it is the framework that calls into the custom, or task-specific, code.

• Inversion of Control

#### Examples

#### **Installing Autofac**

To use Autofac in your project, all you have to do is install Autofac from NuGet Package Manager. Open the solution that want to use Autofac in, then select Manager NuGet Packages for Solution... by going to:

Tools -> NuGet Package Manager -> Manager NuGet Packages for Solution...

In the NuGet-Solution tab, type in "Autofac" in the search box. Make sure you are in the "Browse" section. Install the first option as shown in the image below (take note of the marked regions in the image):

AutofacGettingStarted - Microsoft Visual Studio (Administrator)					
File Edit View Project Build Debug Team Tools Test Analyze Window Help					
🕒 🗢 🗢 📸 - 🚔 💾 🚰 🥍 - 🤍 - Debug - Any CPU - 🕨 Start - 💷 🏓					
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Browse Installed Updates Consolidate		Ma			
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Autofac by Autofac Contributors, 4.35M downloads	v4.5.0	autofac			
autofac Autofac is an IoC container for Microsoft .NET. It manages the dependencies between classes so that applications stay easy to change as they grow in size and complexity.		Version(s) - 0			
that applications stay casy to change as they grow in size and complexity.		Proiect			
Autofac.Mvc5 by Autofac Contributors, 1.17M downloads	v4.0.2	Autofact			
<sup>autofac</sup> Provides an IDependencyResolver implementation and other integration points for System.Web.Mvc.					
Autofac.Configuration by Autofac.Configuration, 228K downloads	v4.0.1				
autofac Enables Autofac dependencies to be set up using configuration sources.					
Autofac.Extensions.DependencyInjection by Autofac.Extensions.DependencyInjection, 200K	v4.0.0				
autofac Autofac implementation of the .NET Framework dependency injection abstraction.					
		Installed: not			
Autofac.Extras.AggregateService by Autofac.Extras.AggregateService, 39.4K downloads	v4.1.0	Version: Late			
autofac Aggregate services are sets of dependencies you can treat as a single dependency. This extension					

Installing through NuGet will automatically add Autofac in the References of the projects which were selected during installation.

Take a look at the official documentation.

#### **Setting up Autofac**

This example will show how get started with *Inverion of Control* using Autofac with a relatively simple project, closely following the official getting started docs.

- 1. Create a console application from File -> New -> Project -> Console Application
- 2. Install Autofac for this project. You can take a look here Installing Autofac
- 3. Add 2 interfaces and 2 classes, with the following names:

Interfaces | Classes ------IOutput | ConsoleOutput (implementing IOutput) IDateWriter | TodayWriter (implementing IDateWriter) For simplicity, the using statements and namespaces are not shown.

## **IOuput.cs**

```
public interface IOutput
{
    void Write(string content);
}
```

#### ConsoleOutput.cs

```
public class ConsoleOutput : IOutput
{
    public void Write(string content)
    {
        Console.WriteLine(content);
    }
}
```

#### IDateWriter.cs

```
public interface IDateWriter
{
    void WriteDate();
}
```

### TodayWriter.cs

```
public class TodayWriter : IDateWriter
{
    private IOutput _output;
    public TodayWriter(IOutput output)
    {
      _output = output;
    }
    public void WriteDate()
    {
      _output.Write(DateTime.Today.ToShortDateString());
    }
}
```

So far the code has been plain and simple. Lets get to the part where automatic dependency injection takes place, which of course is being done by Autofac!

Replace the Program class in Program.cs file with this code (Program class is automatically created by Visual Studio at project creation. If it doesn't exist, go ahead and create one):

```
class Program
{
   private static IContainer Container { get; set; }
    static void Main(string[] args)
    {
        var builder = new ContainerBuilder();
       builder.RegisterType<ConsoleOutput>().As<IOutput>();
       builder.RegisterType<TodayWriter>().As<IDateWriter>();
       Container = builder.Build();
       WriteDate();
    }
   public static void WriteDate()
    {
       using (var scope = Container.BeginLifetimeScope())
        {
           var writer = scope.Resolve<IDateWriter>();
           writer.WriteDate();
        }
    }
}
```

When run, the output should be the current date in the console. You have successfully used Autofac in your project to inject dependencies automatically.

Here is what's going on under the hood:

- 1. At application startup, we are creating a *ContainerBuilder* and registering our *Components* with it. A component in simple terms is a .NET type that implements an interface, and thus exposes some *services*. Read Services vs. Components.
- 2. We then *register* our components (classes) with the services (interfaces) they expose. When registered, Autofac knows which instance of a class to create when an interface is to be *resolved*.
- 3. Finally, when we run the program:
  - The WriteDate() method (in Main()) asks Autofac for an IDateWriter.
  - Autofac sees that IDateWriter maps to TodayWriter so starts creating a TodayWriter.
  - Autofac sees that the TodayWriter needs an IOutput in its constructor.
  - Autofac sees that IOutput maps to ConsoleOutput so creates a new ConsoleOutput instance.
  - Autofac uses the new ConsoleOutput instance to finish constructing the TodayWriter.
  - Autofac returns the fully-constructed TodayWriter for WriteDate() to consume.

Read Getting started with autofac online: https://riptutorial.com/autofac/topic/9595/getting-startedwith-autofac



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