# Tag Helpers

.NET CORE

***Tag Helpers*** *enable server-side code to participate in creating and rendering HTML elements in Razor files.*

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/tag-helpers

# What is a 'Helper'?

https://docs.microsoft.com/en-us/aspnet/mvc/overview/older-versions-1/views/creating-custom-html-helpers-cs
https://docs.microsoft.com/en-us/aspnet/core/mvc/views/tag-helpers/intro?view=aspnetcore-3.1

| HTML Helpers | MVC Tag Helpers |
| --- | --- |
| An ***HTML Helper*** is a method in the HTML page that returns a string. The string can represent any type of content. You can use ***HTML Helpers*** to render standard HTML tags like HTML <input> and <img> tags. ***HTML Helpers*** help to render complex content such as tab strips or HTML tables.<br>The ASP.NET MVC framework includes: Html.ActionLink(), Html.BeginForm(), Html.CheckBox(), Html.DropDownList(), Html.EndForm(), Html.Hidden(), Html.ListBox(), Html.Password(), Html.RadioButton(), Html.TextArea(), Html.TextBox() | ASP.NET Core ***Tag Helpers*** enable server-side code to participate in creating and rendering HTML elements in Razor files.<br>There are ***Tag Helpers*** for creating forms, links, loading assets, etc. ***Tag Helpers*** are written in C# and they target HTML elements based on element name, attribute name, or parent tag. ***Tag Helpers*** reduce the explicit transitions between HTML and C# in Razor views.<br>***HTML Helpers*** provide an alternative approach to a specific ***Tag Helper***. ***Tag Helpers*** don't replace all ***HTML Helpers***. There's not a ***Tag Helper*** for each ***HTML Helper***. |

# Tag Helpers vs HTML Helpers

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/tag-helpers/intro?view=aspnetcore-3.1#what-are-tag-helpers
https://www.tutorialrepublic.com/html-tutorial/html-elements.php

---

***Tag Helpers*** are preferable to HTML Helpers for a variety of reasons. They:

- are written in C#
- target HTML ***elements*** based on ***element*** name, ***attribute*** name, or parent ***tag***
- reduce explicit transitions between HTML and C#
- provide a HTML-friendly environment because the syntax is still familiar to front-end designers.
- provide ***IntelliSense***.
- target standard HTML ***elements***
- provide ***attributes*** created server-side for the ***element***.

***HTML Helpers*** can be used when a specific ***Tag Helper*** is unavailable. ***Tag Helpers*** don't replace ***HTML Helpers*** and there's not a ***Tag Helper*** equivalent for every ***HTML Helper.***

Tag Helper:

```
<label asp-for="Movie.Title"></label>
```

HTML Helper:

```
<label for="Movie_Title">Title</label>
```

# <Form> Tag Helper

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/working-with-forms?view=aspnetcore-3.1#the-form-tag-helper

- Must be used in conjunction with the asp-controller and asp-action Tag Helpers and the ***[ValidateAntiForgeryToken]*** attribute on the ***action*** method.
- Automatically generates a hidden Request Verification Token to prevent ***cross-site request forgery (CSRF)***.
- The Alternative, ***Html.BeginForm***, doesn't automatically include anti-forgery token.

```
<form asp-controller="Demo" asp-action="Register" method="post">
    <!-- Input and Submit elements -->
</form>
```

Protecting a pure HTML Form from CSRF is difficult, the <form> Tag Helper provides this service for you.

# <label> Tag Helper

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/working-with-forms?view=aspnetcore-3.1#the-label-tag-helper

The ***<label>*** tag helper ***<label asp-for="Name">***, gives the label for a model value. It's html helper equivalent is ***Html.LabelFor***.

The ***<label>*** Tag Helper provides the following benefits over a pure HTML label element:

- Get the descriptive label value from the [Display] attribute in the Model.
- Less markup in source code
- Strong typing with the Model property.

```
using System.ComponentModel.DataAnnotations;

namespace FormsTagHelper.ViewModels
{
    public class SimpleViewModel
    {
        [Required]
        [EmailAddress]
        [Display(Name = "Email Address")]
        public string Email { get; set; }
    }
}
```

```
@model SimpleViewModel

<form asp-controller="Demo" asp-action="RegisterLabel" method="post">
    <label asp-for="Email"></label>
    <input asp-for="Email" /> <br />
</form>
```

# <Input> Tag Helper

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/working-with-forms?view=aspnetcore-3.1#the-input-tag-helper

- The ***<input>*** Tag Helper binds an HTML <input> element to a model expression.
- ***<input asp-for="Name" />*** is equal to ***@Html.EditorFor(m => m.Name)***
- If a ***model*** is passed to the ***view***, the form control will begin already populated with the model's values.
- Generates HTML5 validation attributes from ***data annotation attributes*** applied to the ***models*** properties.

```
using System.ComponentModel.DataAnnotations;

namespace FormsTagHelper.ViewModels
{
    public class RegisterViewModel
    {
        [Required]
        [EmailAddress]
        [Display(Name = "Email Address")]
        public string Email { get; set; }

        [Required]
        [DataType(DataType.Password)]
        public string Password { get; set; }
    }
}
```

```
@model RegisterViewModel

<form asp-controller="Demo" asp-action="RegisterInput" method="post">
    Email:  <input asp-for="Email" /> <br />
    Password: <input asp-for="Password" /><br />
    <button type="submit">Register</button>
</form>
```

# Validation Message Tag Helper

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/working-with-forms?view=aspnetcore-3.1#the-validation-message-tag-helper

---

- Used for client-side validation and the results of server-side validation when form is rejected.
- ****** is equal to html helper ***Html.ValidationMessageFor***
- Leverages ***model data attributes*** and jQuery to display validation error messages in the body of the ****** element and prevent the form from being submitted.
- It will also display server-side ***ModelState*** errors.

```
<span asp-validation-for="Email"></span>
```

# Validation Summary Tag Helper

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/working-with-forms?view=aspnetcore-3.1#the-validation-summary-tag-helper

| asp-validation | Validation messages |
|---|---|
| = All | Property and model level |
| = ModelOnly | Model |
| None | None |

- ***asp-validation-summary*** is equal to html helper ***Html.ValidationSummary.***
- also displays server-side ***ModelState*** errors.
- used to display a summary of validation messages.

```
using System.ComponentModel.DataAnnotations;

namespace FormsTagHelper.ViewModels
{
    public class RegisterViewModel
    {
        [Required]
        [EmailAddress]
        [Display(Name = "Email Address")]
        public string Email { get; set; }

        [Required]
        [DataType(DataType.Password)]
        public string Password { get; set; }
    }
}
```

```
@model RegisterViewModel

<form asp-controller="Demo" asp-action="RegisterValidation" method="post">
    <div asp-validation-summary="ModelOnly"></div>
    Email:  <input asp-for="Email" /> <br />
    <span asp-validation-for="Email"></span><br />
    Password: <input asp-for="Password" /><br />
    <span asp-validation-for="Password"></span><br />
    <button type="submit">Register</button>
</form>
```

# <select> Tag Helper

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/working-with-forms?view=aspnetcore-3.1#the-select-tag-helper

The ***<select>*** tag helper is equal to Html.DropDownListFor

You give it the list of items and the property to put the selected item into.

The list should be some IEnumerable<SelectListItem> (e.g. ***SelectList***) property on the ***model***.

```
using Microsoft.AspNetCore.Mvc.Rendering;
using System.Collections.Generic;

namespace FormsTagHelper.ViewModels
{
    public class CountryViewModel
    {
        public string Country { get; set; }

        public List<SelectListItem> Countries { get; } = new List<SelectListItem>
        {
            new SelectListItem { Value = "MX", Text = "Mexico" },
            new SelectListItem { Value = "CA", Text = "Canada" },
            new SelectListItem { Value = "US", Text = "USA"  },
        };
    }
}
```

```
@model CountryViewModel

<form asp-controller="Home" asp-action="Index" method="post">
    <select asp-for="Country" asp-items="Model.Countries"></select>
    <br /><button type="submit">Register</button>
</form>
```

# <a> (anchor) Tag Helper

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/tag-helpers/built-in/anchor-tag-helper?view=aspnetcore-3.1#anchor-tag-helper-attributes

- The <a> Tag Helper is equal to ***Html.ActionLink***. It is used to create a link to specify a ***controller/action*** method.
- If the ***asp-controller*** attribute is specified and ***asp-action*** isn't, the default ***asp-action*** value is the ***action*** associated with the currently executing ***view***.

```
<a asp-controller="Speaker"
   asp-action="Index">All Speakers</a>
```

```
<a asp-controller="Speaker"
   asp-action="Evaluations">Speaker Evaluations</a>
```

# <a> (anchor) Tag Helper

https://docs.microsoft.com/en-us/aspnet/core/mvc/views/tag-helpers/built-in/anchor-tag-helper?view=aspnetcore-3.1#anchor-tag-helper-attributes

- asp-route-id enables a wildcard route prefix. Any value occupying the {value} placeholder in the URL is interpreted as a potential route parameter. If a default route isn't found, this route prefix is appended to the generated href attribute as a request parameter and value.

```
@model Speaker
<!DOCTYPE html>
<html>
<body>
    <a asp-controller="Speaker"
       asp-action="Detail"
       asp-route-id="@Model.SpeakerId">SpeakerId: @Model.SpeakerId</a>
</body>
</html>
```